Appendix 4A
Capital Cost Basis

Appendix 4A. Capital Costs

This appendix contains the details of the capital cost workbooks that were prepared by the CH2M Team.

American Association of Cost Engineering Institute (AACEI) Classification Cost 4 cost estimates were developed for this project. Per AACEI, Classification Cost 4 estimates represent the actual total installed cost within the range of -30 to +50 percent of the cost indicated (Figure 4A-1). The estimates have been prepared with due diligence with the available information under normal operations. However, project costs are subject to market demands and circumstances, including labor rates, material costs, actual site conditions, availability of labor, final project scope and schedule, and other mitigating factors; therefore, the actual project cost may differ from the presented cost estimate.

The cost estimates are based on California Department of Transportation historical costs (for concrete and import fill), MEANS (earthwork), CH2M (now Jacobs Engineering Group Inc.) historical values, Golder Associates historical values, and calculated values, where indicated. Cost estimates are largely based on 2016/2017 values because cost development commenced in 2017, prior to the Western Placer Waste Management Authority (WPWMA) Board meeting in December 2017, but were assumed to be applicable as the base for 2018 costs.

In addition to the bases listed above, it is assumed that there are no hazardous materials to remove and dispose, and that the work will be performed under a 40-hour, normal workweek schedule; thus, acceleration costs have not been included. It is also assumed that all materials are readily available at no premium costs, and that the contractor has adequate laydown space and site facilities. Equipment specifications are not identified. Federal and state sales tax are expected to be included in unit rates. As the design is at conceptual stage, the tie-ins to existing equipment and facilities have not been fully identified.

Variations in design and permitting complexity are generally assumed to fall within the contingency and cost variation ranges at this time.

Costs in this appendix are presented in 2018 dollars. For present values of these costs, refer to the Present Value Analysis presented in Section 4 of the main report.

This appendix contains the capital cost basis. Design considerations and documentation are provided in Appendix 4A-1. Detailed initial capital cost estimates are provided in Appendix 4A-2. The timing and capital cost allocation for initial capital costs and replacements (in 2018 dollars) are shown in Appendix 4A-3.

	Rough Order of Magnitude - ROM		Rough Order of Magnitude - ROM		Schematic Design - SD		Design Development - DD		Issue For Construction - IFC	
Estimate Class	**Class 5**		**Class 4**		**Class 3**		**Class 2**		**Class 1**	
LEVEL OF PROJECT DEFINITION Expressed as a % of complete definition	**0% to 2%**		**1% to 15%**		**10% to 40%**		**30% to 70%**		**50% to 100%**	
END USAGE Typical Purpose of Estimate	**Concept Screening**		**Study or Feasibility**		**Budget Authorization, or Control**		**Control or Bid / Tender**		**Check Estimate or Bid / Tender**	
METHODOLOGY Typical estimating method	**Capacity Factored, Parametric Models, Judgment, or Analogy**		**Equipment Factored or Parametric Models**		**Semi-Detailed Unit Costs with Assembly Level Line Items**		**Detailed Unit Cost with Forced Detailed Take-Off**		**Detailed Unit Cost with Detailed Take-Off**	
EXPECTED ACCURACY RANGE Typical variation in low and high ranges	**L: -20% to -50%**	**H: +30% to +100%**	**L: -15% to -30%**	**H: +20% to +50%**	**L: -10% to -20%**	**H: +10% to +30%**	**L: -5% to -15%**	**H: +5% to +20%**	**L: -3% to -10%**	**H: +3% to +15%**
REFINED CLASS DEFINITION	Class 5 estimates are generally prepared based on very limited information, and subsequently have very wide accuracy ranges. As such, some companies and organizations have elected to determine that due to the inherent inaccuracies, such estimates cannot be classified in a conventional and systematic manner. Class 5 estimates, due to the requirements of end use, may be prepared within a very limited amount of time and with very little effort expended - sometimes requiring less than 1 hour to prepare. Often, little more than proposed plant type, location, and capacity are known at the time of estimate preparation.		Class 4 estimates are generally prepared based on very limited information, and subsequently have very wide accuracy ranges. They are typically used for project screening, determination of feasibility, concept evaluation, and preliminary budget approval. Typically, engineering is from 1% to 5% complete, and would comprise at a minimum the following: plant capacity, block schematics, indicated layout, process flow diagrams (PFDs) for main process systems and preliminary engineered process and utility equipment lists. Level of Project Definition Required: 1% to 15% of full project definition.		Class 3 estimates are generally prepared to form the basis for budget authorization, appropriation, and/or funding. As such, they typically form the initial control estimate against which all actual costs and resources will be monitored. Typically, engineering is from 10% to 40% complete, and would comprise at a minimum the following: process flow diagrams, utility flow diagrams, preliminary piping and instrument diagrams, utility flow diagrams, preliminary piping and instrument diagrams, plot plan, developed layout drawings, and essentially complete engineering process and utility equipment lists. Level Of Project Definition Required: 10% to 40% of full project definition.		Class 2 estimates are generally prepared to form a detailed control baseline against which all project work is monitored in terms of cost and progress control. For contractors, this class of estimate is often used as the "bid" estimate to establish contract value. Typically, engineering is from 30% to 70% complete, and would comprise at a minimum the following: Process flow diagrams, utility flow diagrams, piping and instrument flow diagrams, heat and material balances, final plot plan, final layout drawings, complete engineered process and utility equipment lists, single line diagrams for electrical, electrical equipment and motor schedules, vendor quotations, detailed project execution plans, resourcing and work force plans, etc.		Class 1 estimates are generally prepared for discrete parts or sections of the total project rather than generating this level of detail for the entire project. The parts of the project estimated at this level of detail will typically be used by subcontractors for bids, or by owners for check estimates. The updated estimate is often referred to as the current control estimate and becomes the new baseline for cost/schedule control of the project. Class 1 estimates may be prepared for parts of the project to comprise a fair price estimate or bid check estimate to compare against a contractor's bid estimate, or to evaluate/dispute claims. Typically, engineering is from 50% to 100% complete, and would comprise virtually all engineering and design documentation of the project, and complete project execution and commissioning plans. Level for Project Definition Required: 50% to 100% of full project definition.	
END USAGE DEFINED	Class 5 estimates are prepared for any number of strategic business planning purposes, such as but not limited to market studies, assessment of initial viability, evaluation of alternate schemes, project screening, project location studies, evaluation of resource needs and budgeting, long-range capital planning, etc.		Class 4 estimates are prepared for a number of purposes, such as but not limited to, detailed strategic planning, business development, project screening at more developed stages, alternative scheme analysis, confirmation of economic and/or technical feasibility, and preliminary budget approval or approval to proceed to next stage.		Class 3 estimates are typically prepared to support full project funding requests, and become the first of the project phase "control estimate" against which all actual costs and resources will be monitored for variations to the budget. They are used as the project budget until replaced by more detailed estimates. In many owner organizations, a Class 3 estimate may be the last estimate required and could well form the only basis for cost/schedule control.		Class 2 estimates are typically prepared as the detailed control baseline against which all actual costs an resources will now be monitored for variation to the budget, and form a part of the change/variation control program.		Class 1 estimates are typically prepared to form a current control estimate to be used as the final control baseline against which all actual coasts and resources will now be monitored for variations to the budget, and form a part of the change/variation control program. They may be used to evaluate bid checking, to support vendor/contractor negotiations, or for claim evaluations and dispute resolution.	
ESTIMATING METHODS USED	Class 5 estimates virtually always use stochastic estimating methods such as cost/capacity curves and factors, scale of operations factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, and other parametric and modeling techniques.		Class 4 estimates virtually always use stochastic estimating methods such as cost/capacity curves and factors, scale of operations factors, Lang factors, Hand factors, Chilton factors, Peters-Timmerhaus factors, Guthrie factors, the Miller method, gross unit costs/ratios, and other parametric and modeling techniques.		Class 3 estimates usually involve more deterministic estimating methods that stochastic methods. They usually involve a high degree of unit cost line items, although these may be at an assembly level of detail rather than individual components. Factoring and other stochastic methods may be used to estimate less-significant areas of the project.		Class 2 estimates always involve a high degree of deterministic estimating methods. Class 2 estimates are prepared in great detail, and often involve tens of thousands of unit cost line items. For those areas of the project still undefined, an assumed level of detailed takeoff (forced detail) may be developed to use as line items in the estimate instead of relying on factoring methods.		Class 1 estimates involve the highest degree of deterministic estimating methods, and require a great amount of effort. Class 1 estimates are prepared in great detail, and thus are usually performed on only the most important or critical areas of the project. All items in the estimate are usually unit cost line items based on actual design quantities.	
EXPECTED ACCURACY RANGE	Typical accuracy ranges for Class 5 estimates are -20% to -50% on the low side, and +30% to +100% on the high side, depending on the technological complexity of the project, appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.		Typical accuracy ranges for Class 4 estimates are -15% to -30% on the low side, and +20% to +50% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.		Typical accuracy ranges for Class 3 estimates are -10% to -20% on the low side, and +10% to +30% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.		Typical accuracy ranges for Class 2 estimates are -5% to -15% on the low side, and +5% to +20% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.		Typical accuracy ranges for Class 1 estimates are -3% to -10% on the low side, and +3% to +15% on the high side, depending on the technological complexity of the project, appropriate reference information, and the inclusion of an appropriate contingency determination. Ranges could exceed those shown in unusual circumstances.	
EFFORT TO PREPARE (for US$20MM project):	As little as 1 hour or less to prepare to perhaps more than 200 hours, depending on the project and the estimating methodology used.		Typically, as little as 20 hours or less to perhaps more than 300 hours, depending on the project and the estimating methodology used.		Typically, as little as 150 hours or less to perhaps more than 1500 hours, depending on the project and the estimating methodology used.		Typically, as little as 300 hours or less to perhaps more than 3000 hours, depending on the project and the estimating methodology used. Bid Estimates typically require more effort than estimates used for funding or control purposes		Class 1 estimates require the most effort to create, and as such are generally developed for only selected areas of the project, or for bidding purposes. A complete Class 1 estimate may involve as little as 600 hours or less, to perhaps more than 6,000 hours, depending on the project and the estimating methodology used. Bid estimate typically require more effort than estimates used for funding or control purposes.	
Alternate Estimate Names, Terms, Expressions, Synonyms:	Order of Magnitude Estimate; Ratio, ballpark, blue sky, seat-of-pants, ROM, idea study, prospect estimate, concession license estimate, guesstimate, rule-of thumb.		Budget Estimate; Screening, top-down, feasibility, authorization, factored, pre-design, pre-study.		Budget Estimate; Budget, scope, sanction, semi-detailed, authorization, preliminary control, concept study, development, basic engineering phase estimate, target estimate.		**Definitive Estimate**; Detailed Control, forced detail, execution phase, master control, engineering, bid, tender, change order estimate.		Definitive Estimate; Full detail, release, fall-out, tender, firm price, bottoms-up, final, detailed control, forced detail, execution phase, master control, fair price, definitive, change order estimate.	

Estimate Input Checklist and Maturity Index	**Class 5**	**Class 4**	**Class 3**	**Class 2**	**Class 1**
GENERAL PROJECT DATA					
Project Scope Description	General	Preliminary	**Defined**	Defined	Defined
Plant Production / Facility Capacity	Assumed	Preliminary	**Defined**	Defined	Defined
Plant Location	General	Approximate	**Specific**	Specific	Specific
Soils & Hydrology	None	Preliminary	**Defined**	Defined	Defined
Integrated Project Plan	None	Preliminary	**Defined**	Defined	Defined
Project Master Schedule	None	Preliminary	**Defined**	Defined	Defined
Escalation Strategy	None	Preliminary	**Defined**	Defined	Defined
Work Breakdown Structure	None	Preliminary	**Defined**	Defined	Defined
Project Code of Accounts	None	Preliminary	**Defined**	Defined	Defined
Contracting Strategy	Assumed	Assumed	**Preliminary**	Defined	Defined

ENGINEERING DELIVERABLES:	**Class 5**	**Class 4**	**Class 3**	**Class 2**	**Class 1**
Block Flow Diagrams	Started / Preliminary	Preliminary / Complete	**Complete**	Complete	Complete
Plot Plans		Started	**Preliminary / Complete**	Complete	Complete
Process Flow Diagrams (PFDs)		Started / Preliminary	**Preliminary / Complete**	Complete	Complete
Utility Flow Diagrams (UFDs)		Started / Preliminary	**Preliminary / Complete**	Complete	Complete
Piping & Instrument Diagrams (P&IDS)		Started	**Preliminary / Complete**	Complete	Complete
Heat and Material Balances		Started	**Preliminary / Complete**	Complete	Complete
Process Equipment List		Started / Preliminary	**Preliminary / Complete**	Complete	Complete
Utility Equipment List		Started / Preliminary	**Preliminary / Complete**	Complete	Complete
Electrical One Line Drawings		Started / Preliminary	**Preliminary / Complete**	Complete	Complete
Specifications and Datasheets		Started	**Preliminary / Complete**	Complete	Complete
General Equipment Arrangement Drawings		Started / Preliminary	**Preliminary / Complete**	Complete	Complete
Spare Parts Lists			**Started / Preliminary**	Preliminary	Complete
Architectural Details / Schedules		Started	**Preliminary / Complete**	Complete	Complete
Structural Details		Started	**Preliminary / Complete**	Complete	Complete
Mechanical Discipline Drawings			**Started**	Preliminary	Preliminary / Complete
Electrical Discipline Drawings			**Started**	Preliminary	Preliminary / Complete
Instrumentation / Control System			**Started**	Preliminary	Preliminary / Complete
Civil/Site Discipline Drawings			**Started**	Preliminary	Preliminary / Complete
Demolition Details		Started	**Preliminary / Complete**	Complete	Complete

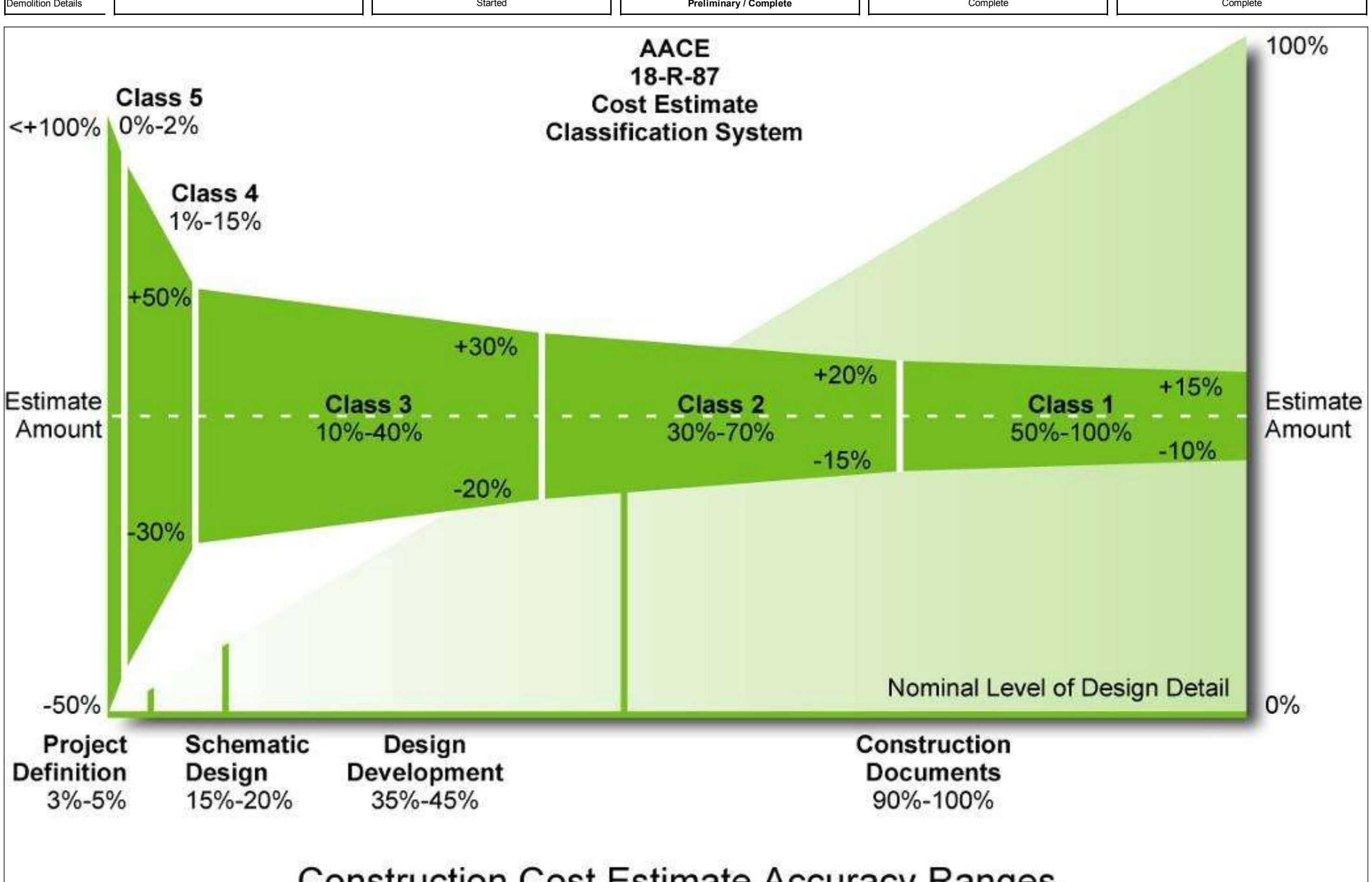


Figure 4A-1. Cost Accuracy Table

4A.1 Initial Capital Costs

Initial capital costs refer to the capital costs associated with initial construction and installation of the cost component. This section presents the design considerations for each cost component for comparison purposes only. The design considerations presented in this section include assumptions that were deemed appropriate for economic analysis and overall high-level comparison of alternatives. Specific assumptions may be modified at a later date as more accurate information is available; thus, costs and assumptions in this report should be viewed as estimates for comparison purposes. Supporting design calculations, sketches, and other documentation are provided in Appendix 4A-1. Detailed initial capital cost estimates are provided in Appendix 4A-2. Timing and replacement capital costs are provided in Appendix 4A-3.

A summary of the initial capital costs for each Plan Concept is provided in Table 4A-1. These capital costs are further utilized in the Present Value Analysis presented in Section 4.

Table 4A-1. Summary of Initial Capital Costs

Element	Plan Concept 0	Plan Concept 1	Plan Concept 2
Critical Elements			
Public Area	$17,008,099	$17,008,099	$17,008,099
C&D Area	$18,098,690	$13,414,225	$18,098,690
Compost Area	$44,239,962	$44,275,759	$44,239,962
Landfill Construction	$54,214,085	$192,719,350	$254,936,766
Landfill Stockpile Relocation	$40,091,688	$13,363,896	$26,727,792
Landfill Closure	$43,215,610	$79,285,170	$106,499,440
Unlined Area Waste Relocation	$102,344,916	$81,462,874	$102,344,916
Necessary Supporting Elements			
Administrative Building	$6,384,999	$15,666,111	$15,666,111
Main Entrance	$2,351,346	$1,969,520	$2,351,346
Western Entrance	N/A	$4,851,349	$1,135,231
Overpass	N/A	$9,278,433	$9,278,433
Recovered Materials Storage	$8,281,730	$8,174,342	$8,281,730
Primary Maintenance Facility	$1,842,538	$1,842,538	$1,842,538
Satellite Maintenance Facility	N/A	$3,311,687	$2,394,397
New Stormwater Ponds	$1,254,153	$3,058,040	$4,478,684
Noncritical Elements			
Main Site HHW Facility	N/A	$236,971	N/A
Existing Features to be Removed			
Compost Pond Removal	$217,629	$217,629	$217,629
General Elements			
Special Permits and Allowances	$4,483,996	$8,461,963	$7,153,364
Wetlands Mitigation	$987,453	$12,878,109	$8,222,370
Site Beautification	$889,230	$2,697,547	$3,143,189
Site-wide Demolition and Disposal	$2,866,952	$2,866,952	$2,866,952
Site Utilities	$3,061,096	$3,776,446	$3,061,096
MRF Upgrade	$415,766	$415,766	$415,766
Total Probable Initial Capital Cost	**$352,250,000**	**$521,233,000**	**$640,365,000**
Class 4 – Low Range (-30%)	**$246,575,000**	**$364,864,000**	**$448,256,000**
Class 4 – High Range (+50%)	**$528,375,000**	**$781,850,000**	**$960,548,000**

Notes:

Costs shown in this table are presented in 2018 dollars. For present values, refer to the Present Value Analysis in Section 4.

C&D = construction and demolition; HHW = hazardous household waste; MRF = material recovery facility; N/A = not applicable

The assumptions used in this estimate for capital and operating costs are appropriate to compare the Plan Concepts. As this project progresses, design considerations and assumptions may be refined to reflect the actual timing and needs of the WPWMA. Through review of this report, a number of future considerations were highlighted, as summarized in Table 4A-2.

Table 4A-2. Potential Future Design Considerations

Cost Component	Potential Future Design Considerations
C&D Area	• Evaluate sizing based on finetuned future quantities and additional planned flow of C&D debris through facility
Composting Area	• Finetune loading area space and operations • Evaluate facility operations, needs, and construction requirements based on future regulations
Composting Area Stormwater Pond New Stormwater Ponds	• Finetune design if zero discharge is required • Evaluate size needed to meet discharge requirements (currently, it is difficult to meet total suspended solids, iron, and aluminum requirements)
Unlined Waste Area Excavation	• Evaluate phasing of excavation for stormwater control, including intermediate backfill of excavation prior to landfill module construction, if necessary
Main Entrance Western Entrance	• Evaluate the need for multiple entrances while considering resources, traffic flow, and safety • Confirm the number of scales, staff, and automated equipment needed for entrances
Primary Maintenance Facility Satellite Maintenance Facility	• Evaluate specific maintenance needs to determine adequate space, facilities, and equipment of new or upgraded maintenance facilities
Main Site HHW Facility	• Evaluate sizing needed to accommodate HHW quantities and traffic flow • Determine facility configuration (enclosed, exterior canopy) to meet functional needs
Site Utilities	• Confirm need and sizing for different utilities such as sewer and water • Determine specific routing of utility lines to meet needs of facility

4A.1.1 Public Area

The New Public Area capital cost component includes entrance kiosk/vehicle queuing lanes, public waste tipping area (100-foot by 325-foot building, 220-foot by 600-foot pad), buy-back center (220-feet by 230 feet), HHW drop-off area for the public (300 feet by 100 feet), and a reuse store. To minimize impacts of internal transfers during site operations, the public tipping area includes space to store daily quantities of C&D debris, municipal solid waste (MSW), wood waste, appliances, tires, and recyclables. The new public unloading area will be a flat pad instead of the current Z-wall configuration for operational safety and flexibility. It is assumed that standard 40-cubic-yard open-top roll-off bins would be utilized and that 24 bins would be needed (including redundancy).

Space allocation is based on projected traffic during design year 2042 and the largest footprint for operational variances. Design year traffic is based on 2017 average weekend and peak day traffic data provided by WPWMA on August 23, 2017, increased by 35 percent (based on the projected population increase from 2017 to 2042 in “growth projections v12.xlsx” provided by Golder Associates). A summary of design considerations for the Public Area is as follows:

- 2017 Peak Daily Traffic: 824 vehicles per day at public tipping area; 402 vehicles per day at buy-back area and HHW drop-off
- 2042 Peak Daily Traffic (35 percent increase): 1,115 vehicles per day at public tipping area; 544 vehicles per day at buy-back area and HHW drop-off
- Peak hourly traffic is assumed as 125 percent of the average hourly traffic for a 10-hour day
- 2042 Peak Hourly Traffic: 141 vehicles per hour

The existing Public Area is assumed to be razed and all New Public Area components, including pads, to be constructed.

Detailed design considerations and supporting design documentation is provided in Appendix 4A-1.

4A.1.1.1 Differences between Plan Concepts

The Public Area design considerations and initial capital costs are assumed to be the same across all Plan Concepts.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.2 C&D Area

The CH2M Team completed an initial assessment of the capacity and size limitations of the current C&D processing area as part of a site visit in June 2017 and subsequent conversations with WPWMA staff and the operator. There were two main findings from this site visit and the conversations:

- The existing C&D processing line is not sufficient both in throughput and condition to process current levels of C&D nor estimated future C&D quantities. A new processing line will be needed.
- The existing space for C&D processing, materials staging and storage, and materials drop-off are insufficient and potentially unsafe as a result.

The CH2M Team approximated the amount of space needed based on industry standards, equipment space needs, anticipated building space needs, and drop-off and material movement needs. This estimate was conceptual, and assumes that the C&D operational footprint will need to be increased to 2 to 3 times its existing size to accommodate the projected C&D waste stream in design year 2042 (85,755 tons of C&D debris per “growth projections v12.xlsx” provided by Golder Associates).[1] The New C&D Area will include a new processing line capable of handling 40 to 50 tons per hour as well as an open-air roof structure to shield the processing line from weather elements.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.2.1 Differences between Plan Concepts

In terms of initial capital costs, Plan Concept 1 pad costs are lower than Plan Concepts 0 or 2 because of the assumption that a portion of the existing paved site area will be used as it exists and not as much new pad area will need to be constructed. Plan Concepts 0 and 2 assume construction of a completely new pad.

In terms of construction phasing, implementing Plan Concepts 0 and 2 requires coordination with completion of the unlined area waste relocation as well as composting operations relocation. The unlined waste area must be excavated and backfilled prior to construction of the New C&D Area. New composting and existing C&D operations must be phased in such a way to share pad space while the existing C&D operation is transitioned to the New C&D Area.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.3 Composting Area

The new Composting Area capital cost component includes a temporary positive aerated static pile (ASP) system for the near term and, ultimately, an active composting system using four negative ASPs (205 feet by 880 feet), four biofilters (135 feet by 880 feet), a negative ASP curing system using four ASPs (185 feet by 880 feet), green waste area (210 feet by 225 feet), wood waste area (115 feet by 225 feet),

[1] As the project progresses, the actual capacity of the C&D Area may be further evaluated as noted in Table 4A-2. WPWMA may increase the flow of C&D materials through the C&D Area and additional capacity considerations will need to be evaluated at that time.

outdoor food waste receiving area (90 feet by 200 feet), screening and product storage area (400 feet by 350 feet), and a dedicated stormwater pond.[2] The composting area design follows Compost Option 4 of the varying composting configurations developed during the course of the project. Composting configurations that were evaluated are as follows, with Compost Option 4 selected for inclusion in the cost estimate:

- Compost Option 1: Windrows with no primary screening
- Compost Option 2: Windrows with primary screening and separate curing windrows
- Compost Option 3: ASPs with primary screening and windrow curing
- Compost Option 4: ASPs with primary screening and ASP curing

Space has been included for an enclosed receiving building if one should be planned in the future to mitigate odors; however, an enclosed building is not included in the capital costs as a part of the master plan.

A summary of design considerations for the composting area is as follows:

- 2042 Total Organics to Compost: 99,788 tons per year
- 2042 Green Waste to Green Waste Receiving Area: 7,200 tons per year, 171 tons per week peak, and 138 tons per week average
- 2042 Green Waste/Food Waste: 99,789 tons per year, 2,166 tons per week peak, and 1,919 tons per week average
- Receiving piles in the green waste and wood waste receiving areas are approximately 75 feet wide (allows for five customers to unload simultaneously) and a maximum of 12 feet high.
- Active composting is accomplished by a negative ASP system with an active composting duration of 4 weeks; biofilters will treat the process air collected by the negative ASP system.
- Additional compost curing is accomplished by a positive ASP system with a minimum curing duration of 4 weeks.
- Dedicated stormwater pond is sized for a 100-year, 24-hour intensity precipitation event.[3]

Detailed design considerations and supporting design documentation are provided in Appendix 4A-1.

4A.1.3.1 Differences between Plan Concepts

In terms of initial capital costs, the only differences in cost components are in anticipated utility connection costs within the three Plan Concepts.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.4 Landfill Construction

Golder Associates prepared estimates for landfill construction for different portions of the new landfill. These estimates were summed together to determine the applicable landfill construction costs for each Plan Concept in “WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx.” Landfill construction includes design and permitting, clearing and grubbing, excavation, earthfill, liner, leachate collection systems, groundwater and landfill gas monitoring systems, and stormwater controls.

Supporting design documentation is provided in Appendix 4A-1.

---

[2] As the project progresses, design details (for example, widths of receiving piles, pavement type, and operational practices) may be further evaluated as noted in Table 4A-2.

[3] As the project progresses, stormwater pond design details may be subject to additional requirements as noted in Table 4A-2.

4A.1.4.1 Differences between Plan Concepts

Each Plan Concept has differing capital costs depending on the landfill to be constructed. Additionally, Plan Concept 1 has a higher level of complexity to manage leachate because the leachate piping/sump configuration and groundwater depth may impact airspace and module capacity. Presumably, whatever capacity is lost can be added by going to a higher fill height. The complexity associated with leachate management in Plan Concept 1 is expected to be covered by the applied contingency factor. Plan Concept 2 has differing capital costs due to the need for duplicate infrastructure for some components since the landfill will be divided on two non-contiguous properties.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.5 Landfill Stockpile Relocation

According to WPWMA staff, approximately 1.4 million cubic yards of soil is currently stockpiled on top of unconstructed landfill modules. To construct the landfill modules, the stockpile must be moved elsewhere onsite.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.5.1 Differences between Plan Concepts

Because there is limited onsite space in Plan Concept 0, it is assumed that the soil stockpile may need to be relocated a total of three times to allow for remaining landfill module construction. Similarly, because of availability of space, it is assumed that the stockpile will be relocated once in Plan Concept 1 and twice in Plan Concept 2.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.6 Landfill Closure

Golder Associates prepared estimates for landfill closure for different portions of the new landfill. These estimates were summed together to determine the applicable landfill closure costs for each Plan Concept in “WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx.” Closure costs include mobilization/demobilization, cap, revegetation, drainage, and stormwater controls.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.6.1 Differences between Plan Concepts

Each Plan Concept has differing capital costs depending on the total acreage of landfill to be closed.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.7 Unlined Area Waste Relocation

Landfill modules 1, 2, 10, 11, and 12 are older landfill areas, constructed prior to requirements for a composite liner system. They were lined with compacted soil and met the regulations at the time they were developed. These modules have been referred to as the “unlined area” or “unlined modules.” The waste in the unlined area located on the existing main site must be excavated and relocated to allow for construction of Plan Concept elements.

To determine the unit cost for waste excavation and relocation, the CH2M Team considered several resources:

- The CH2M/Jacobs construction database with unit cost bids for similar projects
- Recent unit costs for similar projects completed

- The Golder Associates document, "Pre-Subtitle D Area Waste Relocation Workplan"[4]

It is possible that the waste excavation may include mining and placement of suitably screened material; however, for the purposes of the cost estimates, it has been assumed that the entire amount of excavated material will be relocated to lined modules and clean earthfill will be utilized as backfill following excavation, when applicable to the Plan Concept.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.7.1 Differences between Plan Concepts

The same unlined area (Modules 1, 2, 10, 11, and 12) will be excavated in all Plan Concepts. The difference in costs between Plan Concept 1 and the other two Plan Concepts is attributable to the assumption that Plan Concept 1 does not include backfill of the excavation[5] (the unlined area will be repurposed for new landfill construction). Plan Concepts 0 and 2 include backfill of the unlined area to allow for construction of new site elements, such as the C&D Area.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.8 Administrative Building

The administrative building cost assumes a standalone building with associated parking lot. This building is necessary to accommodate more staff offices as well as staff and event parking. Additionally, the building may also include space for a public education center.

4A.1.8.1 Differences between Plan Concepts

Because there is limited onsite space in Plan Concept 0, a 5,000-square-foot building with no education center and a 10,000-square-foot parking lot is anticipated. In Plan Concepts 1 and 2, the administrative building may encompass 12,400 square feet (including 2,400 square feet for an education center) and 25,000 square feet of parking lot.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.9 Main Entrance

Main entrance improvements are anticipated to accommodate additional traffic and/or to improve traffic flow. Improvements include new roadways, new scale building, and three scales (two inbound scales and one outbound scale)[6].

Supporting design documentation is provided in Appendix 4A-1.

4A.1.9.1 Differences between Plan Concepts

Because the majority of public traffic will be redirected to the western property, no initial retrofit is needed in Plan Concept 1. For Plan Concepts 0 and 2, an initial retrofit of the main entrance scales and signage is anticipated in order to appropriately direct traffic as master plan construction commences.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

---

[4] Golder Associates Inc. 2018. Pre-Subtitle D Area Waste Relocation Workplan. Draft. September. See Appendix 4A-1.

[5] Based on actual phasing of the unlined waste area excavation with respect to landfill construction in Plan Concept 1, there may be additional considerations and costs associated with the excavation as noted in Table 4A-2.

[6] As the project progresses, the number of scales may differ as noted in Table 4A-2.

4A.1.10 Western Entrance

A new entrance to the western property is planned near the intersection of Athens Avenue and Fiddyment Road.[7] This new entrance would accommodate traffic entering the western property and would alleviate traffic congestion on the main site.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.10.1 Differences between Plan Concepts

Because Plan Concept 0 only utilizes space on the existing main site, no western entrance is required. For Plan Concept 1, the western entrance will accommodate the majority of public traffic as the New Public Area and New Composting Area are located on the western property. The western entrance in Plan Concept 1 includes a scale building and two new scales (one inbound scale and one outbound scale). For Plan Concept 2, the western entrance will accommodate commercial traffic (no public) accessing the landfill on the western property; therefore, the entrance will only include one unstaffed automated scale and no scale building.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.11 Overpass

The purpose of the overpass is to allow for WPWMA and operator staff to easily traverse Fiddyment Road to access the western property. A number of crossing alternatives were evaluated, including under crossings with and without retaining walls and overcrossings with and without retaining walls. Ultimately, an overpass with retaining walls was selected to be costed. The overpass includes two 12-foot lanes of traffic with 4-foot shoulders, and assumes a 25 mile-per-hour design speed and 16 feet 6 inches of vertical clearance. Although a conveyor system could potentially be implemented (especially for Plan Concept 2) to move materials across Fiddyment Road instead of an overpass, this level of detail is not relevant at this time, and for consistency, an overpass was included for Plan Concepts 1 and 2.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.11.1 Differences between Plan Concepts

Because Plan Concept 0 only utilizes space on the existing main site, no overpass is required. The overpasses for Plan Concepts 1 and 2 are expected to be the same.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.12 Recovered Materials Storage

The recovered materials storage is envisioned to be a 175-foot by 400-foot enclosed storage building.

4A.1.12.1 Differences between Plan Concepts

In terms of initial capital costs, the only differences lay in anticipated utility connection costs within the three Plan Concepts.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

---

[7] As the project progresses, the need for a western entrance and/or alternate traffic routes may be further evaluated as noted in Table 4A-2.

4A.1.13 Primary Maintenance Facility

An upgrade to the existing maintenance facility by the MRF is needed. The primary maintenance facility upgrade includes a 75-foot by 160-foot, four-bay building with additional pad space.[8]

4A.1.13.1 Differences between Plan Concepts

The primary maintenance facility is the same in all Plan Concepts.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.14 Satellite Maintenance Facility

A satellite maintenance facility is anticipated to be needed on the western property to provide support for operations across Fiddyment Road. The facility includes a 65-foot by 125-foot, three-bay building with space for administrative offices and parking.

4A.1.14.1 Differences between Plan Concepts

Because Plan Concept 0 only utilizes space on the existing main site, no satellite maintenance facility is needed. For Plan Concept 1, a satellite maintenance facility with administrative office space and parking is envisioned to support New Public Area and Compost Area operations. For Plan Concept 2, a satellite maintenance facility without administrative office space and parking is planned to support landfill operations on the western property.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.15 New Stormwater Ponds

Additional stormwater ponds are needed to adequately contain precipitation. Stormwater ponds were estimated for the New Public Area, New C&D Area, and landfill. The stormwater pond for the New Composting Area is included with the Compost Area cost estimate. The New Public Area and New C&D Area ponds were sized based on a 100-year, 24-hour intensity precipitation event, and the landfill stormwater ponds were sized for a 1,000-year, 24-hour intensity precipitation event, consistent with Class II landfill requirements.[9]

Supporting design documentation is provided in Appendix 4A-1.

4A.1.15.1 Differences between Plan Concepts

Because Plan Concepts include different sizing for various elements, stormwater pond costs differ between each Plan Concept as reflected in the cost estimates.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.16 Main Site HHW Facility

This element only includes the facility where HHW is repacked/bulked and temporarily stored prior to being removed from site. The New Public Area includes a separate HHW drop-off facility for public customers. The HHW hauler will service both this HHW facility and the HHW drop-off included in the New Public Area.

[8] As the project progresses, the maintenance facility's sizing and components may be further evaluated as noted in Table 4A-2.
[9] As the project progresses, stormwater pond design details may be subject to additional requirements as noted in Table 4A-2.

The building is approximately 65 feet by 75 feet, and it will be completely enclosed and upgraded with explosion-proof lighting and electrical as necessary.[10]

4A.1.16.1 Differences between Plan Concepts

Plan Concept 1 is the only alternative where the main site HHW facility is needed because the New Public Area is located on the western property. Plan Concepts 0 and 2 do not include a cost for this main site HHW facility.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.17 Compost Pond Removal

A compost pond in the northern part of the main site, east of the MRF, will be removed. This compost pond is approximately 53,200 square feet in area, resulting in excavation of approximately 4,000 cubic yards and 10,000 cubic yards of earthfill.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.17.1 Differences between Plan Concepts

Compost pond removal costs are the same in all Plan Concepts.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.18 Special Permits and Allowances

Special permits and allowances include solid waste facility permitting for the new compost facility, environmental / land use / local permitting, and allowances for geotechnical investigations. Other general permitting is included in costs for each capital element.

Solid waste permitting for the new compost facility is assumed to be 10 percent of the total capital cost for the new compost facility. Solid waste permitting for the landfill is assumed to already be included within the Landfill cost element.

Environmental / land use / local permitting is dependent upon the location of disturbed wetlands and vernal pools and the extent of high-value wetland/vernal pools. For development on the eastern property, the permitting cost is assumed to be 2 percent of the total landfill construction cost (because of the high-value wetland and vernal pools). For development on the western property, the permitting cost is assumed to be 1 percent of the total landfill construction cost (simplified by assuming that only the landfill will be displacing wetlands).

Allowances for geotechnical investigations assumes that two geotechnical investigations each may be performed on the main site, western property, and eastern property.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.18.1 Differences between Plan Concepts

Because Plan Concept 0 only utilizes space on the existing main site, the only special permit and allowance costs included are for solid waste facility permitting for the new compost facility and two geotechnical investigations. Plan Concepts 1 and 2 include costs for solid waste facility permitting, environmental / land use / local permitting, and six geotechnical investigations.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

---

[10] As the project progresses, the HHW facility's sizing and components may be further evaluated as noted in Table 4A-2.

4A.1.19 Wetlands Mitigation

Wetlands mitigation costs were calculated using data gathered during the Aquatic Resources Delineation effort (Appendix 2C). After delineation of the wetland areas on WPWMA property, the areas laying within the boundaries of critical and necessary supporting elements were summed into three categories: vernal pools; irrigated wetlands, except agricultural ponds; and irrigated wetlands, agricultural ponds only.

Based on direction from a Jacobs biologist, the resulting mitigation area to purchase schedule is as follows:

- Vernal pools, replaced at a value of 3 acres per every acre “taken” (3:1)
- Irrigated wetlands, except agricultural ponds, replaced at a value of 2 acres per every acre “taken” (2:1)
- Irrigated wetlands, agricultural ponds only, replaced at a value of 1 acre per every acre “taken” (1:1)

Supporting design documentation is provided in Appendix 4A-1.

4A.1.19.1 Differences between Plan Concepts

Differences in costs are attributable to the configuration of elements within each Plan Concept.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.20 Site Beautification

Based on review of the Sunset Area Plan[11] and the Placer Ranch Specific Plan Development Standards,[12] site beautification standards were developed for the purposes of this cost estimate. Site beautification includes landscaping/vegetation and irrigation at the New Administrative Building, Main Entrance, and site perimeter as well as fencing along the perimeter of the site. Google Earth was used to estimate the quantities of vegetation, irrigation, and fencing.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.20.1 Differences between Plan Concepts

Each Plan Concept includes varying quantities of site beautification. Each Plan Concept includes 1,000 and 500 square feet of landscaping/vegetation for the new administrative building and main entrance, respectively. All Plan Concepts include varying lengths of irrigation, perimeter vegetation, and fencing depending on the configuration of the facility.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.21 Site-wide Demolition and Disposal

Preliminary demolition and disposal of existing structures was estimated for each of the Plan Concepts. This includes demolition of the existing Public Area pad and structures as well as a portion of the existing C&D Area pad.

Supporting design documentation is provided in Appendix 4A-1.

---

[11] Placer County Community Development Resource Agency. 2018. Sunset Area Plan. Preliminary Public Review Draft. January.

[12] County of Placer. 2018. Placer Ranch Specific Plan Development Standards Design Guidelines. Preliminary Public Review Draft. January 24.

4A.1.21.1 Differences between Plan Concepts

There are no differences in initial capital costs between the three Plan Concepts.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.22 Site Utilities

Major site utility work includes installation of a sewer line and fire water line running from the intersection of Sunset Boulevard and Fiddyment Road, north along Fiddyment Road, until the intersection of Fiddyment Road and Athens Avenue. This distance is approximately 5,300 linear feet.[13] Sewer and fire water is deemed necessary for activities located on the western property.

Supporting design documentation is provided in Appendix 4A-1.

4A.1.22.1 Differences between Plan Concepts

Sewer line installation is the same across all Plan Concepts. Plan Concept 1 is the only alternative that includes installation of a fire water line, because of activity from the New Public Area and New Composting Area located on the western property.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.1.23 MRF Upgrade for Long-Haul

An upgrade to the existing MRF is considered necessary to support long-haul offsite disposal activities after the landfill reaches capacity. The MRF upgrade includes installation of two 100-foot-long scales with direct readout that would be integral to the waste loading area to enable transfer capability.

4A.1.23.1 Differences between Plan Concepts

There are no differences in initial capital costs between the three Plan Concepts.

Detailed initial capital cost estimates are provided in Appendix 4A-2.

4A.2 Replacement Capital Costs

After initial build, the many components of the constructed area have differing useful lives. These components should be replaced at regular intervals to optimize the functionality of the site. Table 4A-3 presents the suggested replacement intervals based on discussions with WPWMA staff, the site operator, and the Jacobs estimator. The timing and capital cost allocation for replacements (in 2018 dollars) are shown in Appendix 4A-3. Capital costs incurred for replacements are included in the Present Value Analysis in Section 4 of the main report.

[13] As the project progresses, the extent of site utility work may be further evaluated as noted in Table 4A-2.

Table 4A-3. Replacement Frequency for Capital Cost Items

Replacement Item	Useful Life	Unit	Notes
Onsite Roads and Parking lots	25	years	National Asphalt pavement association: http://www.asphaltpavement.org/index.php?option=com_content&view=article&id=14&Itemid=33 (confirmed by Jacobs estimator).
Scales	20	years	30 years per Jacobs estimator (Greg Mah-Hing), 10/18/2018. However, based on WPWMA site experience, changed to 20 years.
Buildings	50	years	Per Jacobs estimator (Greg Mah-Hing), 10/18/2018.
Stormwater ponds (liners)	30	years	Per Jacobs estimator (Greg Mah-Hing), 10/18/2018.
Concrete pads (including ASP, public drop-off area)	20	years	Per Jacobs estimator, 25 years; however, based on current site pad wear/conditions and nature of compost and MSW operations, reduced from high end of estimator. WPWMA also concurs with 20 years, based on site experience.
Mechanical (ASP blowers, landfill gas, and leachate system components)	10	years	Range of 7 to 20 years from operator and Jacobs estimator, used 10.
Processing equipment (green waste, wood waste, C&D line)	10	years	Range of 7 to 20 years from operator and Jacobs estimator, used 10.
Landscaping	15	years	Per Jacobs estimator (Greg Mah-Hing), 10/18/2018.
Fencing	40	years	Up to 50 years per Jacobs estimator (Greg Mah-Hing), 10/18/2018; however, based on WPWMA site experience, reduced to 40.
Onsite utilities lines and connections	30	years	General estimate, highly variable by site.
Offsite sewer extension	N/A		Assumed deeded over to sewer district.

Appendix 4A-1
Design Documentation

Appendix 4A-1
Design Documentation
Tonnage Growth Projections

WPWMA Waste Stream Projections
Not Adjusted for SB 1383

Material Type Accepted	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Municipal Solid Waste																				
MSW tons	160,886	175,804	188,744	208,905	231,956	236,053	240,380	246,135	236,867	252,571	246,003	226,715	211,223	210,742	210,781	212,368	211,700	216,822	222,028	223,385
MSW yards	24,249	27,797	26,310	27,820	27,821	43,647	64,284	118,756	115,032	93,651	92,068	80,627	73,096	68,511	66,490	67,142	68,885	72,375	78,390	78,869
Construction/Demolition																				
C&D tons										55,469	44,092	39,063	36,967	43,623	38,667	36,650	46,026	50,393	59,237	61,551
C&D yards										20,433	17,619	18,478	15,471	20,416	25,037	24,733	31,604	33,847	37,250	38,705
Sludge & Mixed Inerts - tons	19,801	21,381	25,163	23,505	25,208	31,826	32,801	31,929	30,829	27,609	17,484	18,936	17,798	17,952	19,265	21,581	23,459	24,108	25,196	25,828
Green Waste																				
GW tons	1,243	2,059	2,284	3,204	3,796	10,226	10,879	18,049	26,922	36,755	42,168	46,631	45,888	47,904	45,949	48,166	46,076	43,888	40,414	40,661
GW yards			6,465	8,842	10,804	17,256	26,357	42,381	48,456	32,129	33,411	41,007	38,609	36,263	38,923	40,372	37,121	31,694	31,701	31,895
Wood Waste																				
Wood tons			1,731	2,507	2,489	3,657	3,972	1,919	1,931	3,045	3,662	4,021	2,288	1,383	1,167	1,201	1,228	1,324	1,500	1,515
Wood yards			1,434	2,205	3,047	6,496	9,742	13,774	13,793	7,207	6,610	9,020	4,797	3,976	4,028	4,187	4,970	4,191	4,789	4,976
Food Waste - Tons							16,843	19,412	21,927	21,367	24,147	22,817	19,301	14,523	13,550	12,388	12,017	12,100	11,747	9,465
SS Inert Materials																				
SS Inert tons	4,579	5,681	9,489	12,855	17,728	22,711	42,620	36,996	55,724	44,165	31,862	28,399	19,186	15,743	18,411	12,233	15,431	16,866	17,504	17,504
SS Inert yards	475	383	658	663	913	1,512	1,636	3,360	6,143	16,319	8,190	5,747	5,193	6,497	6,770	7,676	9,577	8,550	12,270	12,270
Appliance - each	1,137	1,211	1,656	2,105	3,008	4,128	6,043	6,582	8,002	9,407	9,594	9,067	9,285	9,599	8,147	6,295	6,332	6,411	8,067	8,556
Water Treat Sludge - tons	0	0	973	1,296	834	1,403	824	932	1,234	1,832	1,960	2,166	1,431	1,111	1,039	1,407	1,546	1,327	1,160	1,160
total accepted tons																				408,329
Disposed Tonnage																				
Residue	121,394	128,765	139,107	152,114	169,548	170,976	175,888	173,806	174,453	179,613	166,379	157,358	158,386	164,395	160,649	161,800	173,951	180,187	197,201	
Direct	35,663	46,050	47,991	47,968	50,818	55,989	74,555	84,218	94,847	103,423	86,015	71,344	51,911	43,789	40,602	40,642	42,049	41,713	41,050	
total disposed tons	157,057	174,815	187,098	200,083	220,367	226,965	250,444	258,024	269,300	283,036	252,394	228,702	210,296	208,185	201,251	202,442	216,000	221,900	238,251	233,550

Note - Where conversion from cubic yards to tons was necessary (e.g. for determining "Total Accepted Tons"), the following conversion factors were used: MSW yards/8 = MSW Tons; C&D Yards/6 = C&D Tons; Green Waste Yards/8 = Green Waste Tons; Wood Waste Yards/6 = Wood Waste Tons; Inert Yards/2 = Inert Tons.

Indicators														348,432						
Population (Dept of Finance)	222,286	229,686	238,293	248,399	258,293	270,845	283,703	296,712	307,710	317,437	325,985	333,805	340,995	350,230	356,319	360,345	365,125	369,460	373,503	377,653
Total Taxable Sales - billions $										7.53	7.43	6.63	5.80	6.02	6.57	7.07	7.72	8.10	8.71	
Total Employment (CalTrans)				111,900	119,860	121,210	130,490	135,350	138,000	140,910	141,230	137,900	127,330	127,170	128,260	133,500	140,760	144,660	150,320	156,190
New Homes Permitted				6,379	5,974	7,188	5,254	4,894	5,294	3,205	2,413	1,713	1,315	1,169	829	1,320	1,476	1,991	2,248	2,632
Households				93,382	97,041	102,353	108,107	113,925	118,882	123,662	126,907	129,781	131,252	132,650	133,640	134,358	135,452	136,685	138,537	140,560
Taxable Retail Sales - thousands	2,122,328	2,345,526	2,807,480	3,480,656	3,901,181	4,279,621	4,668,523	5,167,127	5,696,971	5,873,415	5,711,483	5,152,416	4,579,912	4,786,506	5,219,913	5,670,724	6,085,846	6,377,966	6,886,013	7,416,943

Sources

http://www.dof.ca.gov/Forecasting/Demographics/Projections/														350,230	356,319	360,345	365,125	369,460	373,503	377,653
Dept of Finance P-2 Stat and County Population Projections - Race Ethnicity and 5-Year Age Groups 2010-2060 (by Year)																				
http://www.dot.ca.gov/hq/tpp/offices/eab/docs/Full%20Report%202015.pdf				251,731	264,925	276,817	290,655	302,815	312,630	322,270	329,719	337,914	344,088	350,255	356,200	360,098	364,724	369,726	375,231	381,383
http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/1991-2000/																				
Historical City, County, and State Population Estimates, 1991-2000, with 1990 and 2000 Census Counts																				
http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2001-10/																				

Indicator % change	1997	1998	1999	2,000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Population (Dept of Finance)	3.38%	3.33%	3.75%	4.24%	3.98%	4.86%	4.75%	4.59%	3.71%	3.16%	2.69%	2.40%	2.15%	2.71%	1.74%	1.13%	1.33%	1.19%	1.09%	1.11%
Total Employment - thousands					7.11%	1.13%	7.66%	3.72%	1.96%	2.11%	0.23%	-2.36%	-7.66%	-0.13%	0.86%	4.09%	5.44%	2.77%	3.91%	3.91%
New Homes Permitted					-6.35%	20.32%	-26.91%	-6.85%	8.17%	-39.46%	-24.71%	-29.01%	-23.23%	-11.10%	-29.08%	59.23%	11.82%	34.89%	12.89%	17.09%
Taxable Retail Sales - thousands		10.52%	19.70%	23.98%	12.08%	9.70%	9.09%	10.68%	10.25%	3.10%	-2.76%	-9.79%	-11.11%	4.51%	9.05%	8.64%	7.32%	4.80%	7.97%	7.71%

WPWMA Waste Stream Projections
Not Adjusted for SB 1383

Material Type Accepted	Projections 2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2041	2042	2043	2044	2045	2050	2055	2060
Municipal Solid Waste																				
MSW tons	227,745	231,959	245,525	248,884	251,773	254,581	257,440	260,685	263,564	278,869	295,961	312,582	315,520	318,434	321,329	324,204	327,068	341,299	355,217	369,589
MSW yards	80,408	81,896	83,344	84,484	85,465	86,418	87,389	88,490	89,468	94,663	100,465	106,107	107,104	108,093	109,076	110,052	111,024	115,855	120,579	125,458
Construction/Demolition																				
C&D tons	63,743	66,108	66,985	66,916	67,105	67,221	67,627	68,666	69,593	74,056	79,389	83,899	84,822	85,755	86,698	87,652	88,616	93,598	98,861	104,419
C&D yards	39,460	40,190	40,901	41,460	41,942	42,409	42,886	43,426	43,906	46,455	49,303	52,071	52,561	53,046	53,529	54,008	54,485	56,855	59,174	61,568
Sludge & Mixed Inerts - tons	26,332	26,820	27,294	27,667	27,988	28,301	28,618	28,979	29,299	31,000	32,900	34,748	35,075	35,399	35,721	36,040	36,358	37,940	39,488	41,085
Green Waste																				
GW tons	45,294	45,988	46,677	47,281	47,843	48,399	48,968	49,577	50,155	53,197	56,644	60,113	60,750	61,379	62,002	62,617	63,227	66,233	69,110	72,078
GW yards	32,392	32,888	33,380	33,813	34,214	34,612	35,019	35,454	35,868	38,043	40,508	42,990	43,445	43,895	44,340	44,780	45,216	47,366	49,423	51,546
Wood Waste																				
Wood tons	1,556	1,602	1,607	1,580	1,566	1,551	1,545	1,556	1,562	1,605	1,651	1,682	1,690	1,699	1,707	1,715	1,724	1,766	1,810	1,855
Wood yards	5,110	5,263	5,276	5,188	5,143	5,095	5,075	5,112	5,129	5,271	5,422	5,524	5,551	5,579	5,606	5,633	5,661	5,801	5,945	6,092
Food Waste - Tons	9,465	9,465																		
SS Inert Materials																				
SS Inert tons	17,770	18,116	18,077	17,830	17,751	17,668	17,668	17,802	17,916	18,623	19,426	20,171	20,350	20,525	20,697	20,866	21,033	21,843	22,594	23,361
SS Inert yards	12,553	12,878	12,920	12,762	12,698	12,627	12,614	12,714	12,780	13,219	13,698	14,087	14,178	14,268	14,358	14,447	14,536	14,979	15,416	15,863
Appliance - each	8,656	8,761	8,868	8,976	9,085	9,195	9,308	9,422	9,538	10,141	10,834	11,553	11,689	11,823	11,956	12,086	12,215	12,845	13,437	14,047
Water Treat Sludge - tons	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160
total accepted tons	420,870	429,581	436,071	440,261	444,343	448,242	452,629	458,365	463,478	490,330	520,722	549,635	554,959	560,253	565,526	570,772	576,009	602,174	628,050	654,880
Disposed Tonnage																				
Residue																				
Direct																				
total disposed tons	238,419	243,248	244,396	247,248	249,824	252,294	254,953	258,260	261,196	276,575	293,923	310,455	313,440	316,410	319,369	322,315	325,257	339,972	354,559	369,683

Note - Where conversion from cubic ya

Indicators	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2041	2042	2043	2044	2045	2050	2055	2060
Population (Dept of Finance)	382,047	386,684	391,424	396,203	401,017	405,876	410,850	415,893	421,002	447,625	478,196	509,936	515,952	521,871	527,709	533,457	539,147	566,954	593,084	620,037
Total Taxable Sales - billions $				11.75					14.50	17.25	21.10	25.07								
Total Employment (CalTrans)	160,470	164,460	168,260	170,810	172,700	174,460	176,240	178,520	180,270	189,810	200,120	209,330	210,795	212,271	213,757	215,253	216,760	224,453	232,420	240,669
New Homes Permitted	2,700	2,812	2,685	2,439	2,307	2,180	2,100	2,086	2,063	2,002	1,943	1,861	1,861	1,861	1,861	1,861	1,861	1,861	1,861	1,861
Households	142,929	145,360	147,892	150,308	152,505	154,581	156,544	158,435	160,313	169,379	178,324	186,891								
Taxable Retail Sales - thousands	7,875,859	8,325,019	8,759,683	9,258,356	9,660,761	10,061,117	10,468,766	10,908,933	11,407,353	13,563,013	16,562,252	19,664,870	20,254,816	20,862,460	21,488,334	22,132,984	22,796,973	26,427,940	30,637,226	35,516,942
Sources																				
http://www.dof.ca.gov/Forecasting/De	382,047	386,684	391,424	396,203	401,017	405,876	410,850	415,893	421,002	447,625	478,196	509,936	515,952	521,871	527,709	533,457	539,147	566,954	593,084	620,037
Dept of Finance P-2 Stat and County Population Projections - Race Ethnicity and 5-Year Age Groups 2010-2060 (by Year)																				
http://www.dot.ca.gov/hq/tpp/offices/eab/docs/Full%20Report%202015.pdf	387,941	394,820	401,792	408,633	415,207	421,537	427,693	433,735	439,689	468,841	497,319	524,140	524,697	525,254	525,812	526,371	526,924	547,072	564,094	579,729
http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/1991-2000/																				
Historical City, County, and State Population Estimates, 1991-2000, with 1990 and 2000 Census Counts																				
http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-4/2001-10/																				

Indicator % change	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2041	2042	2043	2044	2045	2050	2055	2060
Population (Dept of Finance)	1.16%	1.21%	1.23%	1.22%	1.22%	1.21%	1.23%	1.23%	1.23%	1.26%	1.35%	1.22%	1.18%	1.15%	1.12%	1.09%	1.07%	0.97%	0.89%	0.90%
Total Employment - thousands	2.74%	2.49%	2.31%	1.52%	1.11%	1.02%	1.02%	1.29%	0.98%	1.17%	1.01%	0.89%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%	0.70%
New Homes Permitted	2.58%	4.17%	-4.54%	-9.13%	-5.43%	-5.49%	-3.68%	-0.65%	-1.13%	0.87%	-0.92%	-0.40%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Taxable Retail Sales - thousands	6.19%	5.70%	5.22%	5.69%	4.35%	4.14%	4.05%	4.20%	4.57%	3.92%	3.96%	3.39%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
			-1.11%	-3.81%	-2.16%	-2.24%	-1.33%	0.32%	-0.07%	1.02%	0.05%	0.25%	0.35%	0.35%	0.35%	0.35%	0.35%	0.35%	0.35%	0.35%

WPWMA Waste Stream Projections
Adjusted for SB 1383

Material Type Accepted	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Municipal Solid Waste																				
MSW tons	160,886	175,804	188,744	208,905	231,956	236,053	240,380	246,135	236,867	252,571	246,003	226,715	211,223	210,742	210,781	212,368	211,700	216,822	222,028	223,385
MSW yards	24,249	27,797	26,310	27,820	27,821	43,647	64,284	118,756	115,032	93,651	92,068	80,627	73,096	68,511	66,490	67,142	68,885	72,375	78,390	78,869
Construction/Demolition																				
C&D tons										55,469	44,092	39,063	36,967	43,623	38,667	36,650	46,026	50,393	59,237	61,551
C&D yards										20,433	17,619	18,478	15,471	20,416	25,037	24,733	31,604	33,847	37,250	38,705
Sludge & Mixed Inerts - tons	19,801	21,381	25,163	23,505	25,208	31,826	32,801	31,929	30,829	27,609	17,484	18,936	17,798	17,952	19,265	21,581	23,459	24,108	25,196	25,828
Green Waste																				
GW tons	1,243	2,059	2,284	3,204	3,796	10,226	10,879	18,049	26,922	36,755	42,168	46,631	45,888	47,904	45,949	48,166	46,076	43,888	40,414	40,661
GW yards			6,465	8,842	10,804	17,256	26,357	42,381	48,456	32,129	33,411	41,007	38,609	36,263	38,923	40,372	37,121	31,694	31,701	31,895
Wood Waste																				
Wood tons			1,731	2,507	2,489	3,657	3,972	1,919	1,931	3,045	3,662	4,021	2,288	1,383	1,167	1,201	1,228	1,324	1,500	1,515
Wood yards			1,434	2,205	3,047	6,496	9,742	13,774	13,793	7,207	6,610	9,020	4,797	3,976	4,028	4,187	4,970	4,191	4,789	4,976
Food Waste - Tons							16,843	19,412	21,927	21,367	24,147	22,817	19,301	14,523	13,550	12,388	12,017	12,100	11,747	9,465
SS Inert Materials																				
SS Inert tons	4,579	5,681	9,489	12,855	17,728	22,711	42,620	36,996	55,724	44,165	31,862	28,399	19,186	15,743	18,411	12,233	15,431	16,866	17,504	17,504
SS Inert yards	475	383	658	663	913	1,512	1,636	3,360	6,143	16,319	8,190	5,747	5,193	6,497	6,770	7,676	9,577	8,550	12,270	12,270
Appliance - each	1,137	1,211	1,656	2,105	3,008	4,128	6,043	6,582	8,002	9,407	9,594	9,067	9,285	9,599	8,147	6,295	6,332	6,411	8,067	8,556
Source Separated Food Waste - tons																				
Water Treat Sludge - tons	0	0	973	1,296	834	1,403	824	932	1,234	1,832	1,960	2,166	1,431	1,111	1,039	1,407	1,546	1,327	1,160	1,160
total accepted tons																				408,329
Disposed Tons	157,057	174,815	187,098	200,083	220,367	226,965	250,444	258,024	269,300	283,036	252,394	228,702	210,296	208,185	201,251	202,442	216,000	221,900	238,251	233,550

Note - Where conversion from cubic yards to tons was necessary (e.g. for determining "Total Accepted Tons"), the following conversion factors were used: MSW yards/8 = MSW Tons; C&D Yards/6 = C&D Tons; Green Waste Yards/8 = Green Waste Tons; Wood Waste Yards/6 = Wood Waste Tons; Inert Yards/2 = Inert Tons.

-0.4163%

WPWMA Waste Stream Projections

Adjusted for SB 1383

	Projections																			
Material Type Accepted	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2030**	**2035**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2050**	**2055**	**2060**
Municipal Solid Waste																				
MSW tons	227,745	231,959	242,387	245,703	244,680	243,662	242,647	241,637	240,589	254,560	270,161	285,333	288,015	290,675	293,318	295,942	298,557	311,547	324,252	337,371
MSW yards	80,408	81,896	83,344	84,484	85,465	86,418	87,389	88,490	89,468	94,663	100,465	106,107	107,104	108,093	109,076	110,052	111,024	115,855	120,579	125,458
Construction/Demolition																				
C&D tons	63,743	66,108	66,985	66,916	67,105	67,221	67,627	68,666	69,593	74,056	79,389	83,899	84,822	85,755	86,698	87,652	88,616	93,598	98,861	104,419
C&D yards	39,460	40,190	40,901	41,460	41,942	42,409	42,886	43,426	43,906	46,455	49,303	52,071	52,561	53,046	53,529	54,008	54,485	56,855	59,174	61,568
Sludge & Mixed Inerts - tons	26,332	26,820	27,294	27,667	20,750	15,563	11,672	8,754	2,930	3,100	3,290	3,475	3,507	3,540	3,572	3,604	3,636	3,794	3,949	4,109
Green Waste																				
GW tons	45,294	45,988	46,677	47,281	51,670	56,453	61,685	67,449	70,031	74,278	79,090	83,935	84,825	85,703	86,572	87,431	88,283	92,480	96,496	100,641
GW yards	32,392	32,888	33,380	33,813	34,214	34,612	35,019	35,454	35,868	38,043	40,508	42,990	43,445	43,895	44,340	44,780	45,216	47,366	49,423	51,546
Wood Waste																				
Wood tons	1,556	1,602	1,607	1,580	1,566	1,551	1,545	1,556	1,562	1,605	1,651	1,682	1,690	1,699	1,707	1,715	1,724	1,766	1,810	1,855
Wood yards	5,110	5,263	5,276	5,188	5,143	5,095	5,075	5,112	5,129	5,271	5,422	5,524	5,551	5,579	5,606	5,633	5,661	5,801	5,945	6,092
Food Waste - Tons	9,465	6,000							0											
SS Inert Materials																				
SS Inert tons	17,770	18,116	18,077	17,830	17,751	17,668	17,668	17,802	17,916	18,623	19,426	20,171	20,350	20,525	20,697	20,866	21,033	21,843	22,594	23,361
SS Inert yards	12,553	12,878	12,920	12,762	12,698	12,627	12,614	12,714	12,780	13,219	13,698	14,087	14,178	14,268	14,358	14,447	14,536	14,979	15,416	15,863
Appliance - each	8,656	8,761	8,868	8,976	9,085	9,195	9,308	9,422	9,538	10,141	10,834	11,553	11,689	11,823	11,956	12,086	12,215	12,845	13,437	14,047
Source Separated Food Waste - tons		3,100	3,138	3,176	3,215	3,254	3,294	3,334	3,375	3,589	3,834	4,088	4,136	4,184	4,231	4,277	4,322	4,545	4,755	4,971
Water Treat Sludge - tons	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160
total accepted tons	420,870	429,216	436,071	440,257	437,054	435,892	436,901	440,298	437,384	462,790	491,592	519,023	524,098	529,143	534,167	539,165	544,153	569,068	593,688	619,219
Disposed Tons	238,419	239,784	242,200	245,021	193,509	163,568	147,380	144,619	137,198	147,110	156,443	165,250	166,857	168,458	170,055	171,647	173,240	181,228	189,196	197,475

Note - Where conversion from cubic ya

Appendix 4A-1
Design Documentation
Public Area

File from Eric Oddo emailed 8/23/17

All Days

Material	Tonnage	Unit type	Vehicle Count
Appliance	32.4	C	26.05
BB/DO Recyclables	2.2	W	2.73
BUYBACK	103.2	C	103.23
E-WASTE	46.0	C	35.49
HHW	62.5	C	62.43
Tires	14.7	C	4.83
X-APPL.	3.2	W	1.18
X-C&D-MRF	26.2	W	7.06
X-MSW-LAND	1.6	W	1.44
X-MSW-MRF	30.0	W	11.68
Y-C&D-ZWAL	109.9	V	79.67
Y-GRN-ZWAL	87.4	V	59.13
Y-MSW-ZWAL	247.3	V	179.65
Y-WD-ZWAL	12.5	V	8.14

total out	63.31	Total ZWAL	326.58
		Total buyback/HHW	232.04
		Total vehicle in	558.63

Weekdays

Material	Tonnage	Unit type	Vehicle Count
Appliance	28.1	C	22.03
BB/DO Recyclables	2.2	W	2.34
BUYBACK	86.8	C	86.77
E-WASTE	41.8	C	29.78
HHW	57.5	C	57.46
Tires	12.9	C	4.12
X-APPL.	2.9	W	1.06
X-C&D-MRF	24.8	W	6.25
X-MSW-LAND	1.6	W	1.38
X-MSW-MRF	23.7	W	8.57
Y-C&D-ZWAL	102.9	V	73.60
Y-GRN-ZWAL	71.3	V	46.57
Y-MSW-ZWAL	192.4	V	139.91
Y-WD-ZWAL	10.3	V	6.55

total out	55.04	Total ZWAL	266.64
		Total buyback/HHW	200.16
		Total vehicle in	466.80

Weekends

Material	Tonnage	Unit type	Vehicle Count
Appliance	43.2	C	36.22
BB/DO Recyclables	2.4	W	3.57
BUYBACK	144.8	C	144.81
E-WASTE	56.5	C	49.88
HHW	75.1	C	75.07
Tires	18.8	C	6.54
X-APPL.	4.1	W	1.48
X-C&D-MRF	29.9	W	9.10
X-MSW-LAND	2.1	W	2.00
X-MSW-MRF	46.1	W	19.62
Y-C&D-ZWAL	127.6	V	95.12
Y-GRN-ZWAL	128.2	V	90.93
Y-MSW-ZWAL	386.0	V	279.98
Y-WD-ZWAL	18.0	V	12.13

total out	84.62	Total ZWAL	478.16
		Total buyback/HHW	312.52
		Total vehicle in	790.68

Peak Day **Saturday May 27, 2017**

Material	Tonnage	Unit type	Vehicle Count
Appliance	66.0	C	53.00
BB/DO Recyclables	1.2	W	4.00
BUYBACK	236.0	C	236.00
E-WASTE	58.0	C	53.00
HHW	113.0	C	113.00
Tires	89.0	C	16.00
X-APPL.	0.0	W	0.00
X-C&D-MRF	49.6	W	13.00
X-MSW-LAND	65.4	W	28.00
X-MSW-MRF	0.0	W	0.00
Y-C&D-ZWAL	210.3	V	156.00
Y-GRN-ZWAL	218.5	V	156.00
Y-MSW-ZWAL	587.8	V	408.00
Y-WD-ZWAL	43.3	V	35.00

total out	116.15	Total ZWAL	755.00
		Total buyback/HHW	471.00
		Total vehicle in	1,226.00

Note: Based on BV Report and Aerial, assuming zwal has 15 z-Walls

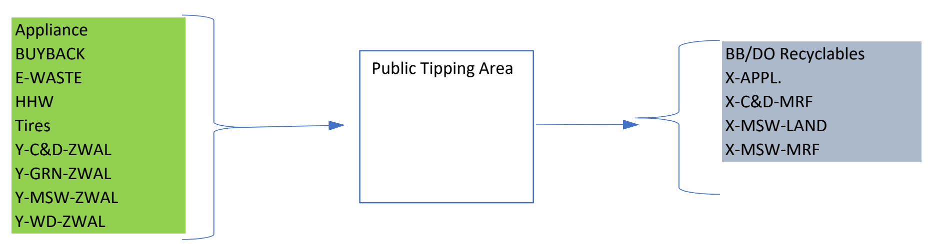
Note: peak day based on peak traffic loading, not accepted tonnage

Conversion Factors: Green - 328 lb/cy; Wood 528 lbs/cy.

Code descriptions

c	number of individual units
v	cubic yards
w	tons
Appliance	refridgerated and non-refridgerated appliances
BUYBACK	residential recyclable buyback and drop off
E-WASTE	electronic wastes and CRTs
HHW	residentially and commercially generated HHW
BB/DO Recyclables	Recyclable materials collected and buyback and sent to MRF for baling
Tires	Car and truck tires
X-APPL.	Appliances (both refrigerated and non-refrigerated)
X-C&D-MRF	C&D sent to MRF for processing
X-MSW-LAND	MSW sent to landfill
X-MSW-MRF	MSW sent to MRF for processing
Y-C&D-ZWAL	C&D
Y-GRN-ZWAL	Greenwaste
Y-MSW-ZWAL	MSW
Y-WD-ZWAL	Woodwaste

Flow Diagram



WPWMA Public Tipping/Buy-back/HHW Area 2017 Data - weights

Average Day (of all days)	***Vehicle Count***	***Per Hour***
Total Public Area (incoming)	326.6	32.7
Toal Buy-back (incoming)	232.0	23.2
Average Week Day	***Vehicle Count***	***Per Hour***
Total Public Area (incoming)	266.6	26.7
Toal Buy-back (incoming)	200.2	20.0
Average Weekend Day	***Vehicle Count***	***Per Hour***
Total Public Area (incoming)	478.2	53.1
Toal Buy-back (incoming)	312.5	34.7

Peak Day (based on traffic not tons) - 5/27/17 (a Saturday, open 8-5)	***Vehicle Count***	***Per Hour***	***2017 Vehicle Count Peak Hour (1.5 peaking)***	***2042 Peak Hour 35% growth***	***Unload Slots***	***2042 Public Area needed***	***Current Slots Needed Based on Peak Hours***	***Compared to Existing Configuration***	***% Current Facility is undersized for current peak***	***Size increase for 2042***
Total Public Area (incoming)	755.0	83.9	125.8	169.9	56.6	28.3125	41.9	30	40%	89%
Toal Buy-back (incoming)	471.0	52.3	78.5	106.0	35.3	N/A	26.2	13	101%	172%

*Assume 20 minute unload time for both Public Area and Buy-back Area = 3 cars a slot per hour

MRF & Landfill

The facility is open for disposal every day of the year with limited hours on Thanksgiving, Christmas Day and New Year's Day.

Monday – Friday 7 a.m. – 5 p.m.
Weekends 8 a.m. – 5 p.m.
(916) 543-3960

Buy-Back Center

CRV Pricing & Acceptance
Monday – Friday 7 a.m. – 5 p.m.
Weekends 8 a.m. – 5 p.m.
(916) 645-5230 x111

Household Hazardous Waste Drop-off

Everyday
8 a.m. – 5 p.m.
(916) 645-5230 x107

Public Area Traffic Analysis

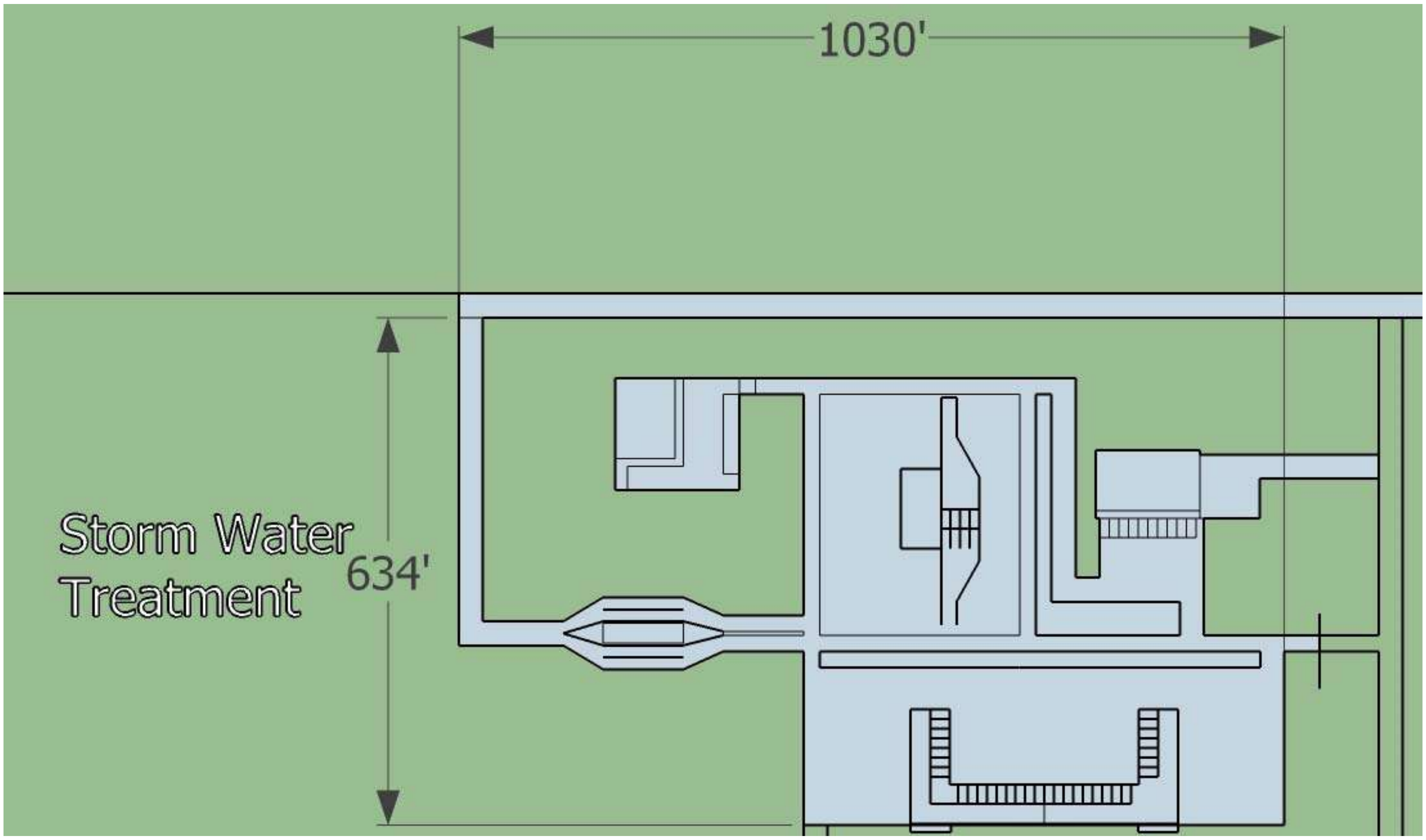
AVERAGE WEEKEND

Material	Qty Measure	Assumed Destination	2017 Average Weekend Peak vpd	Peak vph	Daily Qty	Avg Load	2042 Projections Peak vpd	Peak vph	Daily Qty	Bins/Day	Unload Time (min)	Unloading Positions
Appliance	C	PDO	36	5	43	1.2	49	7	59		10	2
BUYBACK	C	BB	145	19	145	1.0	196	25	196			
E-WASTE	C	BB	50	7	57	1.1	68	9	78			
HHW	C	BB	75	10	75	1.0	102	13	102			
Tires	C	PDO	7	1	19	2.7	10	2	27		10	1
Y-C&D-ZWAL	V	PDO	95	12	127.6	1.3	129	17	173	5.0	15	5
Y-GRN-ZWAL	V	PDO	91	12	128.2	1.4	123	16	173	5.0	15	4
Y-MSW-ZWAL	V	PDO	280	35	386.0	1.4	378	48	521	14.9	15	12
Y-WD-ZWAL	V	PDO	12	2	18.0	1.5	17	3	26	0.7	15	1
		Zwall	521	67			706	93				
		Buy Back	270	36			366	47				

PEAK DAY

Material	Qty Measure	Assumed Destination	2017 Peak Day Peak vpd	Peak vph	Daily Qty	Avg Load	2042 Projections Peak vpd	Peak vph	Daily Qty	Bins/Day	Unload Time (min)	Unloading Positions
Appliance	C	PDO	53	7	66	1.2	72	9	90		10	2
BUYBACK	C	BB	236	30	236	1.0	319	40	319			
E-WASTE	C	BB	53	7	58	1.1	72	9	79			
HHW	C	BB	113	15	113	1.0	153	20	153			
Tires	C	PDO	16	2	89	5.6	22	3	122		10	1
Y-C&D-ZWAL	V	PDO	156	20	210.3	1.3	211	27	284	8.1	15	7
Y-GRN-ZWAL	V	PDO	156	20	218.5	1.4	211	27	296	8.4	15	7
Y-MSW-ZWAL	V	PDO	408	51	587.8	1.4	551	69	794	22.7	15	18
Y-WD-ZWAL	V	PDO	35	5	43.3	1.2	48	6	59	1.7	15	2
		Zwall	824	105			1,115	141				
		Buy Back	402	52			544	69				

Materials	• *The following materials will be collected at the Public Drop Off (PDO) Area* ○ *MSW-ZWAL* ○ *C&D-ZWAL* ○ *GRN-ZWAL* ○ *WD-ZWAL* ○ *TIRE* ○ *APPL* • *Design for PDO area based on accommodating projected peak daily/hourly traffic.*
Traffic	• *2017 Peak daily traffic = 824 vpd* • *2042 peak traffic based on projected increase (35%) = 1115 vpd* • *Peak hourly traffic assumed to be 125% of average hourly. 10 hour day assumed* • *2042 peak hourly traffic = 141 vph*
Material Handling	• *MSW, C&D, GRN, and WD handled in standard 40 yd3 open-top roll-off bins. 1 extra bins provided per commodity + two system spares. 24 bins total* • *Tires handled in 40 yd3 cage bins loaded at grade (2 bins)* • *Appliances handled via loading dock/trailer (2 trailers)*
Dust Controls	• *N/A*
Odor Controls	• *N/A*
Working Surfaces	• *Customer unloading areas would be concrete slab extending 10 ft back from edge of Z-wall. Bin area at base of Z-wall would be concrete slab.* • *All other areas would be heavy-duty asphalt.* • *Concrete and heavy-duty asphalt surfaces will be designed to withstand the weight of wheel loaders and trucks. These surfaces will provide the equivalent level of groundwater protection as a compact clay liner.*
Surface Water Controls	• *Surface water from areas outside of the facility would be diverted around/away from the operating areas using ditches, swales and berms.* • *Outdoor working surfaces around the facility would be sloped at a minimum of 0.5% to promote drainage. Run-off from these areas would be captured through a combination of ditches and swales, and transferred to the facility's main detention pond.*
Fire Protection	• *Hydrants would be situated in close proximity to the PDO area in accordance with Fire Code requirements.*
Utilities Requirements	• *Electricity (1-phase service)*
Mobile Equipment	• *Roll-off bin truck would be required on a part-time basis.*


1030'
634'
Storm Water
Treatment

Appendix 4A-1
Design Documentation
C&D Area

Plan Concept 1 Quantities

New C&D pad:

Plan Concept 2 Quantities

New C&D Pad:

Pad Demolition

From: Goodrich, Janet/SAC
Sent: Wednesday, October 31, 2018 1:48 PM
To: McRae, Jennifer/SJC; Lopez, Lyndsey/PDX
Subject: FW: another question

Good news, looks like demo of the 60% or whatever you used is good, but should be for all options I believe, as it is not level with the good pad. Don't use the repair part, assume we demo on all 3

From: Keith Schmidt [mailto:KSchmidt@placer.ca.gov]
Sent: Wednesday, October 31, 2018 1:41 PM
To: Goodrich, Janet/SAC <Janet.Goodrich@jacobs.com>
Subject: [EXTERNAL] RE: another question

If you want them on the same plane (elevation), then you would have to demo because they are not close (ie. 3-6' difference). If the location/elevation was fine, then I would probably spend $150-200k to repair the surface as needed.

The area I've marked for demo has seen a lot of repairs and wear, and it would need probably $150-200k in repair to make the surface condition good again.

Keith J. Schmidt, P.E. | Senior Civil Engineer | Western Placer Waste Management Authority | (Mail) 11476 "C" Ave. Auburn, CA 95603 | (Physical) 3033 Fiddyment Rd. Roseville, CA 95747 | (916) 543-3986 (Direct) | (916) 543-3990 (Fax)

From: Goodrich, Janet/SAC [mailto:Janet.Goodrich@jacobs.com]
Sent: Wednesday, October 31, 2018 1:27 PM
To: Keith Schmidt
Subject: RE: another question

This may make more sense, trying to decide if this area needs demolition before construction or if we can assume this pad stays. See the red part.

From: Goodrich, Janet/SAC
Sent: Wednesday, October 31, 2018 1:25 PM
To: Keith Schmidt <KSchmidt@placer.ca.gov>
Subject: another question

Just to verify. Is the existing C&D area on the NEWer, S, good pad, meaning we can keep it or is it old pad that needs to be demolished regardless?


t Authority
A

C&D Processing Equipment Quote

From: Chapman, Katie/SLC
Sent: Monday, September 17, 2018 10:55 AM
To: Lopez, Lyndsey/PDX; McRae, Jennifer/SJC
Subject: RE: C&D Processing Equipment

Categories: Red Category

Hi Lyndsey and Jenny,

I wanted to give you guys an update on this:

1) I called Bulk Handling and spoke to the regional salesperson for CA, Angela. She estimates $3M-$4M for a line that will handle 40-50 tons per hour (will handle Will Dickinson's estimate working 8 hour days and 5 days per week). This estimate is turn-key and includes shipping, installation and start-up.
2) I called Green Machine and the rep is getting a quote to me tomorrow morning for their 50 ton per hour system. These guys were more willing to do a real cost estimate at this level. The system will be pretty basic using some hand sorters, pull out nails, cardboard, ect. Here is his contact info just in case:

John Sherling
Systems Engineer, Sales
GREEN MACHINE
Sales Office:
11 E. Genessee St.
Baldwinsville, NY 13027
315-303-5448 x106

I'll send over the other quote tomorrow. Let me know if you need more details or anything else on this!

-Katie

From: Lopez, Lyndsey/PDX
Sent: Friday, September 7, 2018 12:03 PM
To: Chapman, Katie/SLC <Katie.Chapman@jacobs.com>; McRae, Jennifer/SJC <Jennifer.McRae@jacobs.com>
Subject: C&D Processing Equipment

Hi Katie – We need to put in a better estimate for the C&D equipment that WPWMA will eventually need to purchase. We will need a process line capable of processing about 86,000 tons per year (based off of Will Dickinson's Growth projections v12 with growth factor.xls). Can you look at the two vendors below and see if we can get some quick info for processing lines? If it's not readily available. Please let me know.

http://www.bulkhandlingsystems.com/solutions/construction-and-demolition/

https://greenmachine.com/waste-recycling-equipment-manufacturer/solutions/construction-demolition-cd-waste-recycling-equipment/

Appendix 4A-1
Design Documentation
Compost Area

Summary of Compost Feedstocks
Oct-17-2017
X-ref to Growth Projections V12

	Note	**2025 (tons)**	**% of Total**		**2042 (tons)**	*Note*
GW Drop-off (yd3)	*a*	35,868			43,895	*g*
GW Drop-off (tons @ 328 lb/yd3)		5,882			7,199	
Curbside GW/FW Mixture	*b*	70,031			85,703	*h*
FW portion (d)	*c*	19,876	28.4%		24,324	
GW portion	*d*	50,155	71.6%		61,379	
FW diverted from commercial	*e*	3375			4,184	*i*
FW diverted from MSW via MRF	*f*	2,208			2,703	*f*
Total Organics to Compost		**81,496**			**99,788**	

a) Cell AO75/Growth tab
b) Cell AO74/Growth tab
c) 90% of Cell H52/SB1383 tab - Will assumes 90% of diverted food waste comes from curbside program
d) Cell D14, SB1383 tab
e) Cell AO84/Growth tab
f) Balance of available organics (diverted from MSW via MRF)
g) Cell BF75/Growth tab
h) Cell BF74/Growth tab
i) Cell BF84/Growth tab

Project: Adjacency Study
Client: WPWMA
Scenario: Oct-17-2017; Feedstock Weekly Quantities

Input Materials to Site

Week No.	Week Begin	Green Waste (Curbside Program) Delivered (tons)	Delivered (yd3)	Peaking Factor (d)	Density (lb/yd3)	Moisture (%)	Wt H2O (tons)	Food Waste (Curbside Program) Delivered (tons)	Delivered (yd3)	Peaking Factor (e)	Density (lb/yd3)	Moisture (%)	Wt H2O (tons)
1	1-Jan	600	3662	0.51	328	40%	240	507	811	1.09	1250	75%	380
2	8-Jan	1201	7323	1.02	328	40%	480	507	811	1.09	1250	75%	380
3	15-Jan	1201	7323	1.02	328	40%	480	507	811	1.09	1250	75%	380
4	22-Jan	1115	6800	0.94	328	40%	446	507	811	1.09	1250	75%	380
5	29-Jan	1072	6538	0.91	328	40%	429	507	811	1.09	1250	75%	380
6	5-Feb	1072	6538	0.91	328	40%	429	409	655	0.88	1250	75%	307
7	12-Feb	1072	6538	0.91	328	40%	429	409	655	0.88	1250	75%	307
8	19-Feb	1072	6538	0.91	328	40%	429	409	655	0.88	1250	75%	307
9	26-Feb	1072	6538	0.91	328	40%	429	409	655	0.88	1250	75%	307
10	5-Mar	1072	6538	0.91	328	40%	429	428	684	0.92	1250	75%	321
11	12-Mar	1201	7323	1.02	328	40%	480	428	684	0.92	1250	75%	321
12	19-Mar	1201	7323	1.02	328	40%	480	428	684	0.92	1250	75%	321
13	26-Mar	1201	7323	1.02	328	40%	480	428	684	0.92	1250	75%	321
14	2-Apr	1244	7585	1.05	328	40%	498	460	737	0.99	1250	75%	345
15	9-Apr	1287	7846	1.09	328	40%	515	460	737	0.99	1250	75%	345
16	16-Apr	1287	7846	1.09	328	40%	515	460	737	0.99	1250	75%	345
17	23-Apr	1287	7846	1.09	328	40%	515	460	737	0.99	1250	75%	345
18	30-Apr	1287	7846	1.09	328	40%	515	474	759	1.02	1250	75%	356
19	7-May	1244	7585	1.05	328	40%	498	474	759	1.02	1250	75%	356
20	14-May	1244	7585	1.05	328	40%	498	474	759	1.02	1250	75%	356
21	21-May	1244	7585	1.05	328	40%	498	474	759	1.02	1250	75%	356
22	28-May	1373	8369	1.16	328	40%	549	474	759	1.02	1250	75%	356
23	4-Jun	1244	7585	1.05	328	40%	498	437	699	0.94	1250	75%	328
24	11-Jun	1158	7062	0.98	328	40%	463	437	699	0.94	1250	75%	328
25	18-Jun	1158	7062	0.98	328	40%	463	437	699	0.94	1250	75%	328
26	25-Jun	1115	6800	0.94	328	40%	446	437	699	0.94	1250	75%	328
27	2-Jul	1072	6538	0.91	328	40%	429	460	737	0.99	1250	75%	345
28	9-Jul	1029	6277	0.87	328	40%	412	460	737	0.99	1250	75%	345
29	16-Jul	1115	6800	0.94	328	40%	446	460	737	0.99	1250	75%	345
30	23-Jul	1115	6800	0.94	328	40%	446	460	737	0.99	1250	75%	345
31	30-Jul	1115	6800	0.94	328	40%	446	498	796	1.07	1250	75%	373
32	6-Aug	1115	6800	0.94	328	40%	446	498	796	1.07	1250	75%	373
33	13-Aug	1115	6800	0.94	328	40%	446	498	796	1.07	1250	75%	373
34	20-Aug	1158	7062	0.98	328	40%	463	498	796	1.07	1250	75%	373
35	27-Aug	1158	7062	0.98	328	40%	463	498	796	1.07	1250	75%	373
36	3-Sep	1115	6800	0.94	328	40%	446	484	774	1.04	1250	75%	363
37	10-Sep	1115	6800	0.94	328	40%	446	484	774	1.04	1250	75%	363
38	17-Sep	1115	6800	0.94	328	40%	446	484	774	1.04	1250	75%	363
39	24-Sep	1115	6800	0.94	328	40%	446	484	774	1.04	1250	75%	363
40	1-Oct	1115	6800	0.94	328	40%	446	502	804	1.08	1250	75%	377
41	8-Oct	1158	7062	0.98	328	40%	463	502	804	1.08	1250	75%	377
42	15-Oct	1201	7323	1.02	328	40%	480	502	804	1.08	1250	75%	377
43	22-Oct	1244	7585	1.05	328	40%	498	502	804	1.08	1250	75%	377
44	29-Oct	1244	7585	1.05	328	40%	498	507	811	1.09	1250	75%	380
45	5-Nov	1287	7846	1.09	328	40%	515	507	811	1.09	1250	75%	380
46	12-Nov	1287	7846	1.09	328	40%	515	507	811	1.09	1250	75%	380
47	19-Nov	1287	7846	1.09	328	40%	515	507	811	1.09	1250	75%	380
48	26-Nov	1287	7846	1.09	328	40%	515	507	811	1.09	1250	75%	380
49	3-Dec	1458	8892	1.24	328	40%	583	419	670	0.90	1250	75%	314
50	10-Dec	1458	8892	1.24	328	40%	583	419	670	0.90	1250	75%	314
51	17-Dec	1373	8369	1.16	328	40%	549	419	670	0.90	1250	75%	314
52	24-Dec	1201	7323	1.02	328	40%	480	419	670	0.90	1250	75%	314
Annual Quantity		**61,379**	**374,260**					**24,324**	**38,919**				
Average Week		1,180.4	7,197					465.0	748.4				
Peak Week		1,458.3	8,892					506.9	811.0				

Week No.	Week Begin	Food Waste (Diverted from MRF) Delivered (tons)	Delivered (yd3)	Peaking Factor (e)	Density (lb/yd3)	Moisture (%)	Wt H2O (tons)	Food Waste (Commercial Program) Delivered (tons)	Delivered (yd3)	Peaking Factor (e)	Density (lb/yd3)	Moisture (%)	Wt H2O (tons)
1	1-Jan	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
2	8-Jan	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
3	15-Jan	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
4	22-Jan	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
5	29-Jan	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
6	5-Feb	45	73	0.88	1250	75%	34	70	113	0.88	1250	75%	53
7	12-Feb	45	73	0.88	1250	75%	34	70	113	0.88	1250	75%	53
8	19-Feb	45	73	0.88	1250	75%	34	70	113	0.88	1250	75%	53
9	26-Feb	45	73	0.88	1250	75%	34	70	113	0.88	1250	75%	53
10	5-Mar	48	76	0.92	1250	75%	36	74	118	0.92	1250	75%	55
11	12-Mar	48	76	0.92	1250	75%	36	74	118	0.92	1250	75%	55
12	19-Mar	48	76	0.92	1250	75%	36	74	118	0.92	1250	75%	55
13	26-Mar	48	76	0.92	1250	75%	36	74	118	0.92	1250	75%	55
14	2-Apr	51	82	0.99	1250	75%	38	79	127	0.99	1250	75%	59
15	9-Apr	51	82	0.99	1250	75%	38	79	127	0.99	1250	75%	59
16	16-Apr	51	82	0.99	1250	75%	38	79	127	0.99	1250	75%	59
17	23-Apr	51	82	0.99	1250	75%	38	79	127	0.99	1250	75%	59
18	30-Apr	53	84	1.02	1250	75%	40	82	131	1.02	1250	75%	61
19	7-May	53	84	1.02	1250	75%	40	82	131	1.02	1250	75%	61
20	14-May	53	84	1.02	1250	75%	40	82	131	1.02	1250	75%	61
21	21-May	53	84	1.02	1250	75%	40	82	131	1.02	1250	75%	61
22	28-May	53	84	1.02	1250	75%	40	82	131	1.02	1250	75%	61
23	4-Jun	49	78	0.94	1250	75%	36	75	120	0.94	1250	75%	56
24	11-Jun	49	78	0.94	1250	75%	36	75	120	0.94	1250	75%	56
25	18-Jun	49	78	0.94	1250	75%	36	75	120	0.94	1250	75%	56
26	25-Jun	49	78	0.94	1250	75%	36	75	120	0.94	1250	75%	56
27	2-Jul	51	82	0.99	1250	75%	38	79	127	0.99	1250	75%	59
28	9-Jul	51	82	0.99	1250	75%	38	79	127	0.99	1250	75%	59
29	16-Jul	51	82	0.99	1250	75%	38	79	127	0.99	1250	75%	59
30	23-Jul	51	82	0.99	1250	75%	38	79	127	0.99	1250	75%	59
31	30-Jul	55	88	1.07	1250	75%	41	86	137	1.07	1250	75%	64
32	6-Aug	55	88	1.07	1250	75%	41	86	137	1.07	1250	75%	64
33	13-Aug	55	88	1.07	1250	75%	41	86	137	1.07	1250	75%	64
34	20-Aug	55	88	1.07	1250	75%	41	86	137	1.07	1250	75%	64
35	27-Aug	55	88	1.07	1250	75%	41	86	137	1.07	1250	75%	64
36	3-Sep	54	86	1.04	1250	75%	40	83	133	1.04	1250	75%	62
37	10-Sep	54	86	1.04	1250	75%	40	83	133	1.04	1250	75%	62
38	17-Sep	54	86	1.04	1250	75%	40	83	133	1.04	1250	75%	62
39	24-Sep	54	86	1.04	1250	75%	40	83	133	1.04	1250	75%	62
40	1-Oct	56	89	1.08	1250	75%	42	86	138	1.08	1250	75%	65
41	8-Oct	56	89	1.08	1250	75%	42	86	138	1.08	1250	75%	65
42	15-Oct	56	89	1.08	1250	75%	42	86	138	1.08	1250	75%	65
43	22-Oct	56	89	1.08	1250	75%	42	86	138	1.08	1250	75%	65
44	29-Oct	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
45	5-Nov	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
46	12-Nov	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
47	19-Nov	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
48	26-Nov	56	90	1.09	1250	75%	42	87	139	1.09	1250	75%	65
49	3-Dec	47	74	0.90	1250	75%	35	72	115	0.90	1250	75%	54
50	10-Dec	47	74	0.90	1250	75%	35	72	115	0.90	1250	75%	54
51	17-Dec	47	74	0.90	1250	75%	35	72	115	0.90	1250	75%	54
52	24-Dec	47	74	0.90	1250	75%	35	72	115	0.90	1250	75%	54
Annual Quantity		**2,703**	**4,325**					**4,184**	**6,694**				
Average Week		51.7	83.2					80.0	128.7				
Peak Week		56.3	90.1					87.2	139.5				
								4184					

Week No.	Week Begin	Green Waste (Direct Haul - by Volume) Delivered (tons)	Delivered (yd3)	Peaking Factor (d)	Density (lb/yd3)	Moisture (%)	Wt H2O (tons)
1	1-Jan	70	429	0.51	328	40%	28
2	8-Jan	141	859	1.02	328	40%	56
3	15-Jan	141	859	1.02	328	40%	56
4	22-Jan	131	798	0.94	328	40%	52
5	29-Jan	126	767	0.91	328	40%	50
6	5-Feb	126	767	0.91	328	40%	50
7	12-Feb	126	767	0.91	328	40%	50
8	19-Feb	126	767	0.91	328	40%	50
9	26-Feb	126	767	0.91	328	40%	50
10	5-Mar	126	767	0.91	328	40%	50
11	12-Mar	141	859	1.02	328	40%	56
12	19-Mar	141	859	1.02	328	40%	56
13	26-Mar	141	859	1.02	328	40%	56
14	2-Apr	146	890	1.05	328	40%	58
15	9-Apr	151	920	1.09	328	40%	60
16	16-Apr	151	920	1.09	328	40%	60
17	23-Apr	151	920	1.09	328	40%	60
18	30-Apr	151	920	1.09	328	40%	60
19	7-May	146	890	1.05	328	40%	58
20	14-May	146	890	1.05	328	40%	58
21	21-May	146	890	1.05	328	40%	58
22	28-May	161	982	1.16	328	40%	64
23	4-Jun	146	890	1.05	328	40%	58
24	11-Jun	136	828	0.98	328	40%	54
25	18-Jun	136	828	0.98	328	40%	54
26	25-Jun	131	798	0.94	328	40%	52
27	2-Jul	126	767	0.91	328	40%	50
28	9-Jul	121	736	0.87	328	40%	48
29	16-Jul	131	798	0.94	328	40%	52
30	23-Jul	131	798	0.94	328	40%	52
31	30-Jul	131	798	0.94	328	40%	52
32	6-Aug	131	798	0.94	328	40%	52
33	13-Aug	131	798	0.94	328	40%	52
34	20-Aug	136	828	0.98	328	40%	54
35	27-Aug	136	828	0.98	328	40%	54
36	3-Sep	131	798	0.94	328	40%	52
37	10-Sep	131	798	0.94	328	40%	52
38	17-Sep	131	798	0.94	328	40%	52
39	24-Sep	131	798	0.94	328	40%	52
40	1-Oct	131	798	0.94	328	40%	52
41	8-Oct	136	828	0.98	328	40%	54
42	15-Oct	141	859	1.02	328	40%	56
43	22-Oct	146	890	1.05	328	40%	58
44	29-Oct	146	890	1.05	328	40%	58
45	5-Nov	151	920	1.09	328	40%	60
46	12-Nov	151	920	1.09	328	40%	60
47	19-Nov	151	920	1.09	328	40%	60
48	26-Nov	151	920	1.09	328	40%	60
49	3-Dec	171	1043	1.24	328	40%	68
50	10-Dec	171	1043	1.24	328	40%	68
51	17-Dec	161	982	1.16	328	40%	64
52	24-Dec	141	859	1.02	328	40%	56
Annual Quantity		**7,199**	**43,895**				
Average Week		138.4	844.1				
Peak Week		171.0	1,042.9				
			44340				

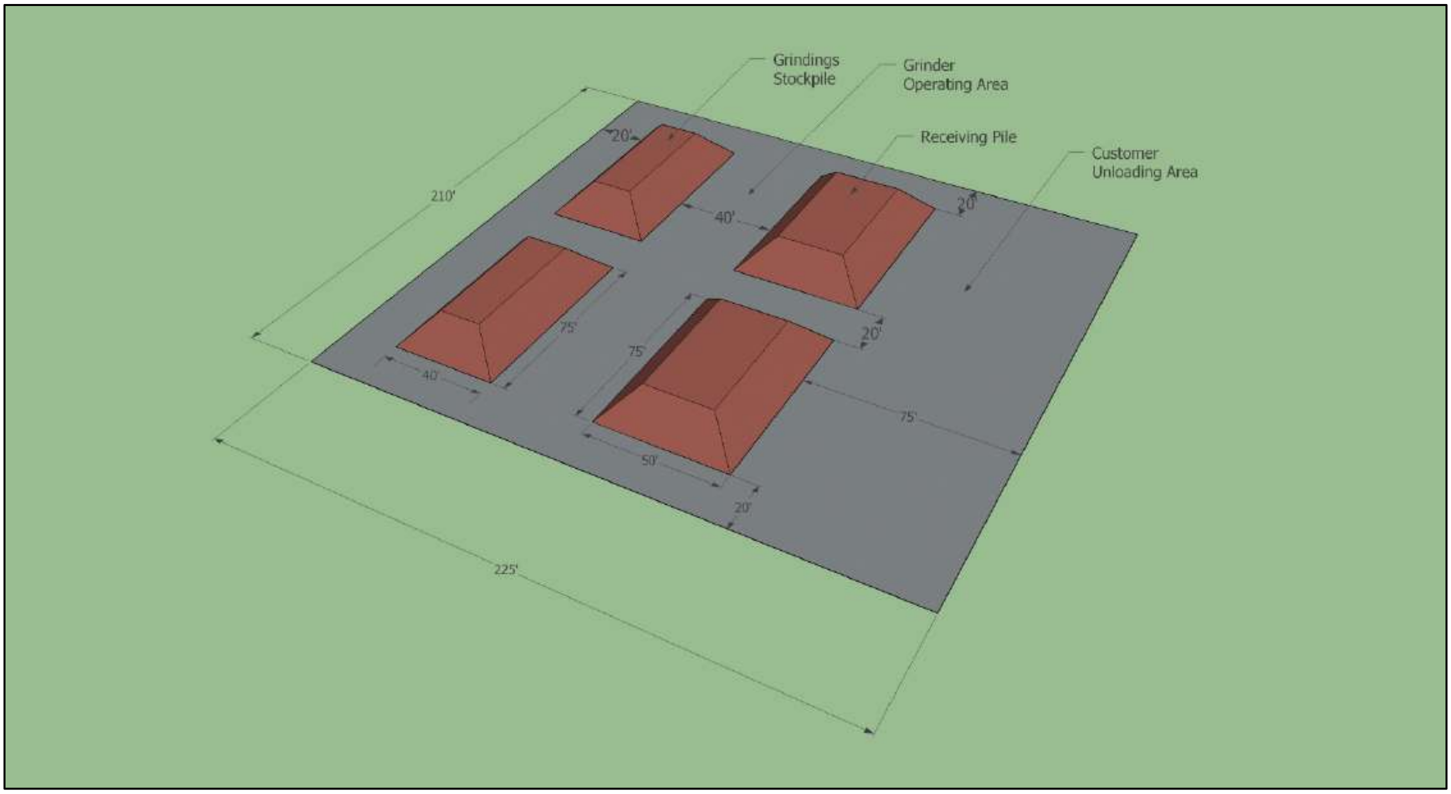
Total Delivered to Site / **Commercial Truck Counts**

Week No.	Week Begin	Green Waste (tons)	Green Waste (tonnes)	Green Waste (yd3)	Food Waste (tons)	Food Waste (tonnes)	Food Waste (yd3)	All Feedstocks (tons)	Daily Volume (f) (yd3)	Mat'l (tons)	Load Size (tons)	Days Per Week	Trucks Per Day	Peak Hour Vehicles (g)	Unload Time (min)	Stalls Req'd
1	1-Jan	671	609	4091	650	590	1041	1321	922	1195	7	5	35	6.0	10	1
2	8-Jan	1342	1217	8182	650	590	1041	1992	1655	1795	7	5	52	9.0	10	2
3	15-Jan	1342	1217	8182	650	590	1041	1992	1655	1795	7	5	52	9.0	10	2
4	22-Jan	1246	1130	7598	650	590	1041	1896	1550	1709	7	5	49	8.0	10	2
5	29-Jan	1198	1087	7305	650	590	1041	1848	1498	1666	7	5	48	8.0	10	2
6	5-Feb	1198	1087	7305	525	476	840	1723	1461	1552	7	5	45	8.0	10	2
7	12-Feb	1198	1087	7305	525	476	840	1723	1461	1552	7	5	45	8.0	10	2
8	19-Feb	1198	1087	7305	525	476	840	1723	1461	1552	7	5	45	8.0	10	2
9	26-Feb	1198	1087	7305	525	476	840	1723	1461	1552	7	5	45	8.0	10	2
10	5-Mar	1198	1087	7305	549	498	878	1747	1468	1574	7	5	45	8.0	10	2
11	12-Mar	1342	1217	8182	549	498	878	1891	1625	1702	7	5	49	8.0	10	2
12	19-Mar	1342	1217	8182	549	498	878	1891	1625	1702	7	5	49	8.0	10	2
13	26-Mar	1342	1217	8182	549	498	878	1891	1625	1702	7	5	49	8.0	10	2
14	2-Apr	1390	1261	8474	591	536	945	1980	1690	1783	7	5	51	8.0	10	2
15	9-Apr	1438	1304	8766	591	536	945	2028	1742	1826	7	5	53	9.0	10	2
16	16-Apr	1438	1304	8766	591	536	945	2028	1742	1826	7	5	53	9.0	10	2
17	23-Apr	1438	1304	8766	591	536	945	2028	1742	1826	7	5	53	9.0	10	2
18	30-Apr	1438	1304	8766	609	552	974	2046	1747	1843	7	5	53	9.0	10	2
19	7-May	1390	1261	8474	609	552	974	1998	1695	1800	7	5	52	9.0	10	2
20	14-May	1390	1261	8474	609	552	974	1998	1695	1800	7	5	52	9.0	10	2
21	21-May	1390	1261	8474	609	552	974	1998	1695	1800	7	5	52	9.0	10	2
22	28-May	1534	1391	9351	609	552	974	2142	1852	1928	7	5	56	9.0	10	2
23	4-Jun	1390	1261	8474	561	509	897	1951	1681	1756	7	5	51	8.0	10	2
24	11-Jun	1294	1174	7890	561	509	897	1855	1576	1670	7	5	48	8.0	10	2
25	18-Jun	1294	1174	7890	561	509	897	1855	1576	1670	7	5	48	8.0	10	2
26	25-Jun	1246	1130	7598	561	509	897	1807	1524	1627	7	5	47	8.0	10	2
27	2-Jul	1198	1087	7305	591	536	945	1789	1480	1612	7	5	47	8.0	10	2
28	9-Jul	1150	1043	7013	591	536	945	1741	1428	1569	7	5	45	8.0	10	2
29	16-Jul	1246	1130	7598	591	536	945	1837	1533	1655	7	5	48	8.0	10	2
30	23-Jul	1246	1130	7598	591	536	945	1837	1533	1655	7	5	48	8.0	10	2
31	30-Jul	1246	1130	7598	638	579	1021	1884	1547	1698	7	5	49	8.0	10	2
32	6-Aug	1246	1130	7598	638	579	1021	1884	1547	1698	7	5	49	8.0	10	2
33	13-Aug	1246	1130	7598	638	579	1021	1884	1547	1698	7	5	49	8.0	10	2
34	20-Aug	1294	1174	7890	638	579	1021	1932	1599	1741	7	5	50	8.0	10	2
35	27-Aug	1294	1174	7890	638	579	1021	1932	1599	1741	7	5	50	8.0	10	2
36	3-Sep	1246	1130	7598	621	563	993	1867	1541	1682	7	5	49	8.0	10	2
37	10-Sep	1246	1130	7598	621	563	993	1867	1541	1682	7	5	49	8.0	10	2
38	17-Sep	1246	1130	7598	621	563	993	1867	1541	1682	7	5	49	8.0	10	2
39	24-Sep	1246	1130	7598	621	563	993	1867	1541	1682	7	5	49	8.0	10	2
40	1-Oct	1246	1130	7598	644	584	1031	1890	1548	1704	7	5	49	8.0	10	2
41	8-Oct	1294	1174	7890	644	584	1031	1938	1601	1747	7	5	50	8.0	10	2
42	15-Oct	1342	1217	8182	644	584	1031	1986	1653	1790	7	5	52	9.0	10	2
43	22-Oct	1390	1261	8474	644	584	1031	2034	1705	1832	7	5	53	9.0	10	2
44	29-Oct	1390	1261	8474	650	590	1041	2040	1707	1838	7	5	53	9.0	10	2
45	5-Nov	1438	1304	8766	650	590	1041	2088	1759	1881	7	5	54	9.0	10	2
46	12-Nov	1438	1304	8766	650	590	1041	2088	1759	1881	7	5	54	9.0	10	2
47	19-Nov	1438	1304	8766	650	590	1041	2088	1759	1881	7	5	54	9.0	10	2
48	26-Nov	1438	1304	8766	650	590	1041	2088	1759	1881	7	5	54	9.0	10	2
49	3-Dec	1629	1478	9935	537	487	859	2166	1935	1949	7	5	56	9.0	10	2
50	10-Dec	1629	1478	9935	537	487	859	2166	1935	1949	7	5	56	9.0	10	2
51	17-Dec	1534	1391	9351	537	487	859	2071	1831	1863	7	5	54	9.0	10	2
52	24-Dec	1342	1217	8182	537	487	859	1879	1622	1691	7	5	49	8.0	10	2
Annual Quantity		68,578	62,200	418,156	31,211	28,309	49,938	99,789								
Average Week		1,319	1,196	8,041	600	544	960	1,919								
Peak Week		1,629	1,478	9,935	650	590	1,041	2,166								

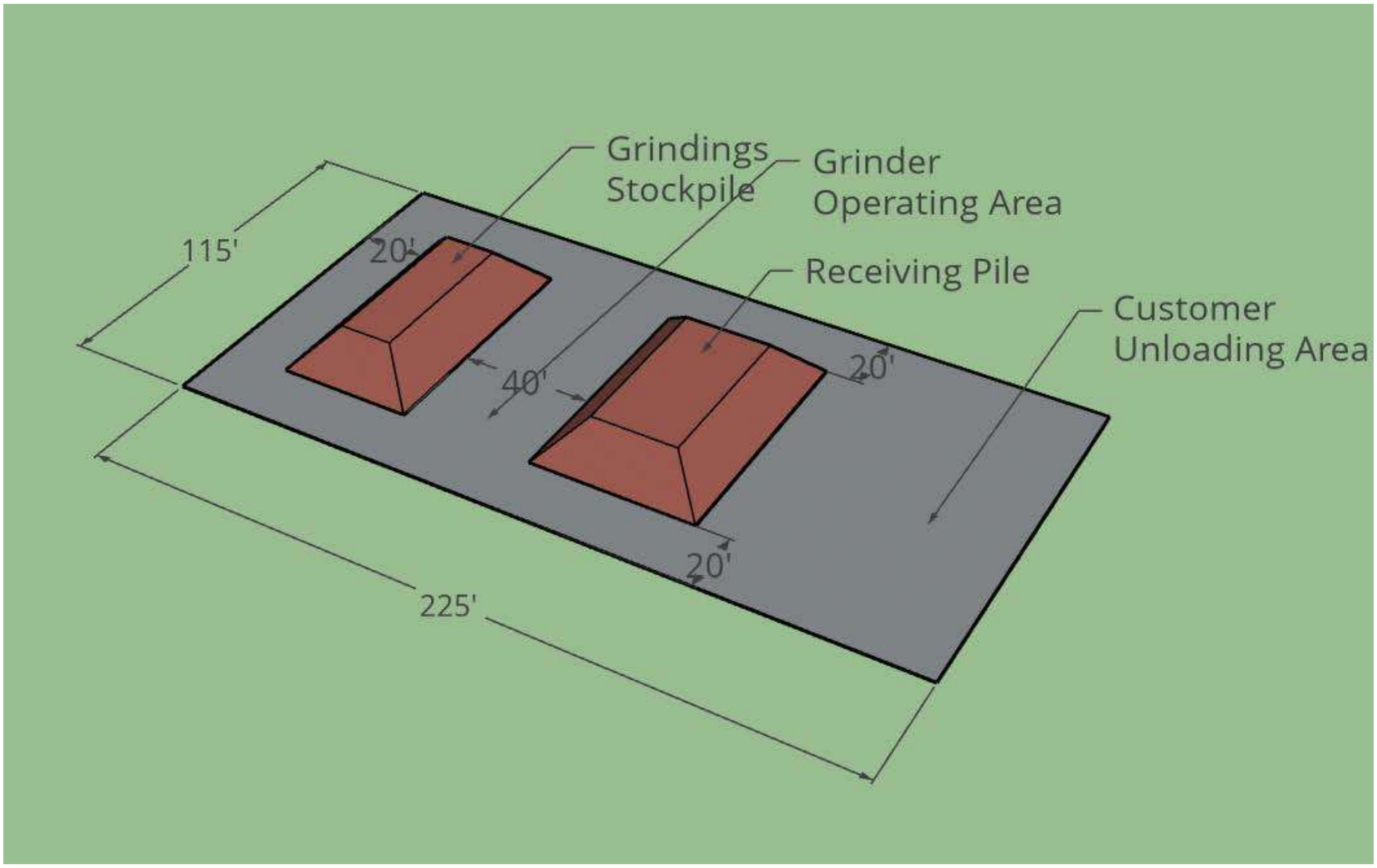
Assumptions:

a. 2042 GW delivered to site, measured by volume = 43,895 yd3 (Golder Associates projections)
b. 2042 GW/FW delivered to site, measured by weight = 85,703 tons (Golder Associates projections)
c. GW/FW material is 28% food waste = 23,997 tons (Golder Associates projections)
d. GW peaking factors derived from Napa weekly historical scale data (2008-2011)
e FW peaking factors derived from Nanaimo monthly historical data (2012-2014)
f. Calculation assumes 5 day/week delivery and no within-week variation in quantities
g. Assumes 8 hour day. Peak is 125% average hourly.

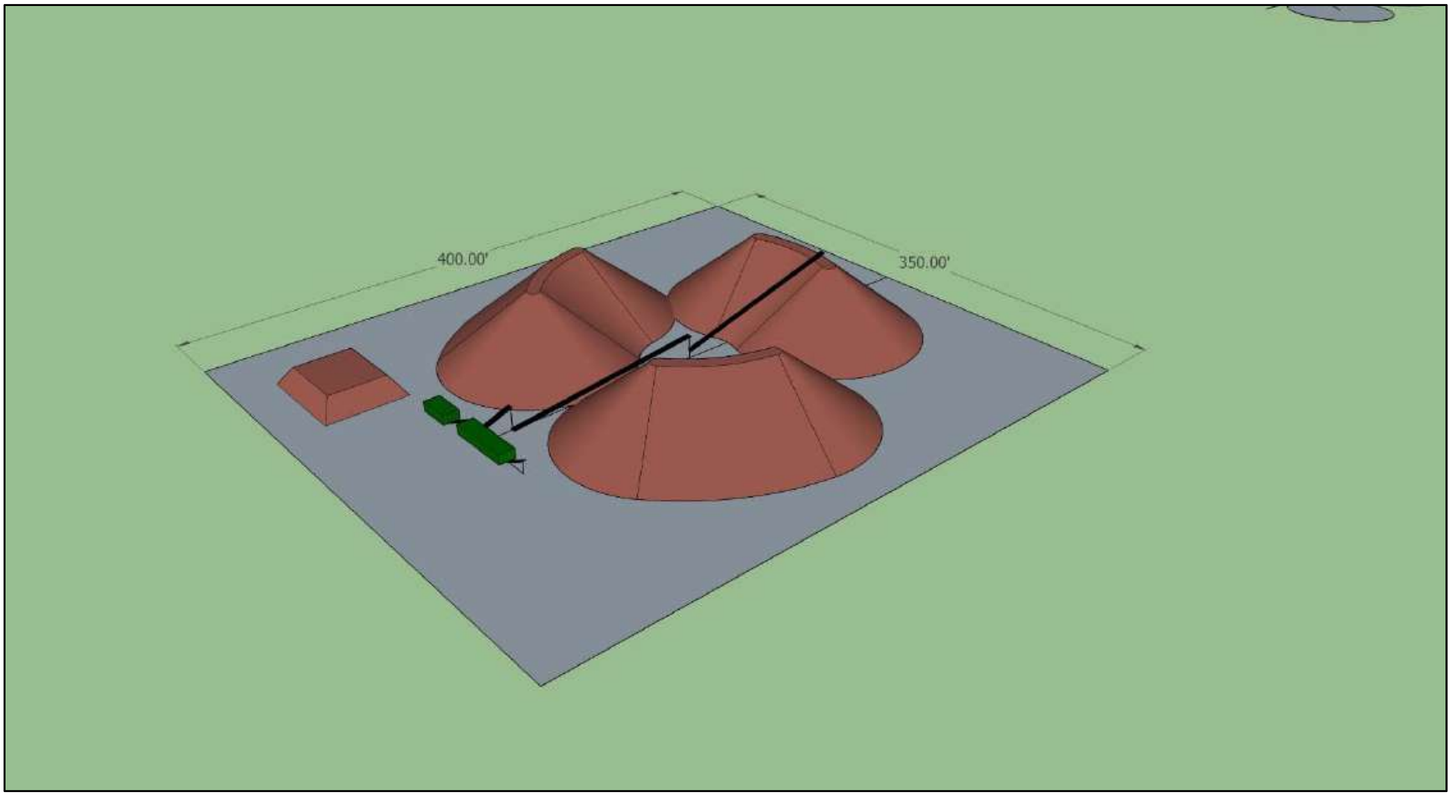
Capacity	• *Designed for 2042 projections* • *GW: 7,200 tpy (171 tpw peak, 138 tpw average)* • *Peak weekly volume: 1,043 yd3*
Feedstock Receiving	• *Source-separated green waste will be unloaded directly into one of two outdoor receiving piles situated within this area. Each receiving pile will be sized to hold the equivalent amount of material delivered during the peak design week. Unloading of materials by customers would alternate between piles on a week-by-week basis.* • *Material will periodically be pushed up into the receiving piles using a front-end loader. Maximum height of the receiving pile will be 12 feet.* • *The width of the receiving pile (i.e. 75 ft) would allow for 5 customers to unload at one time.* • *Sufficient space would be provided in front of the receiving piles to allow for maneuvering and backing up of truck/utility trailer combinations.* • *The unloading areas and receiving piles will be situated to allow for first-in/first-out access to the stockpiled material: customers will unload material on the front-side of the piles, while operations staff will remove material from the back-side. The pile will serve as a barrier between customers and operations staff/equipment.* • *Working surfaces in the receiving, grinding and storage area will consist of asphalt.*
Pre-Processing	• *All pre-processing will occur outdoors and within the receiving area. Feedstocks will be visually inspected by operations staff prior to pre-processing. Visible contaminants would be manually removed and disposed of.* • *Pre-processing would consist of grinding materials from the receiving piles using a track-mounted horizontal grinder. After grinding, feedstocks would be pushed into one of two 12ft high stockpiles located behind the receiving piles and away from the customer unloading area.* • *Grinding operations would alternate between receiving piles on a week-by-week basis, such that the receiving pile that was created the previous week will be ground during the following week. The grinder would be situated between the receiving pile and the ground material stockpile during operation. The receiving pile will serve as a barrier between the grinder and the customer unloading area.* • *Feedstocks would be moved/handled with a front-end loader equipped with a grapple bucket.*
Odor Controls	• *Odor controls for the receiving and grinding operation will be limited to operational best practices.*
Dust Controls	• *A potable misting system will be available for use around the grinder on an as-required basis.*
Leachate and Surface Water Controls	• *Surface water from areas outside of the outdoor receiving area would be diverted around/away from the operating areas using ditches, swales and berms.* • *The working surface in the receiving area would be sloped at a minimum of 0.5% to promote drainage. Run-off from the area would be captured through a combination of perimeter ditches and swales, and transferred to an onsite detention pond. Filter berms would be incorporated into drainage ditches and swales as necessary to reduce sediments.* • *The detention pond would be underlain by a geosynthetic liner and would be sized to contain run-off from a 1:25 year, 24-hour storm event. The pond will also include additional capacity or "dead storage" beyond the 1:25 year run-off water volume.*
Fire Protection	• *Stockpile heights would be limited to 14 ft. Stockpiles would be surrounded on all sides by equipment aisles with a minimum width of 20 ft.* • *Hydrants would be situated in close proximity to the receiving area in accordance with Fire Code requirements.*
Utility Requirements	• *Potable water*
Mobile Equipment	• *One front-end loader (e.g. Cat 950 or equivalent) with and oversized grapple bucket, and a track-mounted horizontal grinder would be dedicated to operations in this area.*


Grindings Stockpile
Grinder Operating Area
Receiving Pile
Customer Unloading Area
210'
20'
40'
20'
75'
40'
75'
20'
75'
50'
20'
225'

Capacity	• *Capacity based on fixed volumetric capacity rather than weekly waste flow.*
Feedstock Receiving	• *Wood waste will be unloaded directly by customers into an outdoor receiving pile situated within this area. The receiving pile will be sized to hold 1,000 yd3 of material.* • *Material will periodically be pushed up into the receiving piles using a front-end loader. Maximum height of the receiving pile will be 12 feet.* • *The width of the receiving pile (i.e. 75 ft) would allow for 5 customers to unload at one time.* • *Sufficient space would be provided in front of the receiving piles to allow for maneuvering and backing up of truck/utility trailer combinations.* • *The unloading area and receiving pile will be situated to allow for first-in/first-out access to the stockpiled material: customers will unload material on the front-side of the pile, while operations staff will remove material from the back-side. The pile will serve as a barrier between customers and operations staff/equipment.* • *Working surfaces in the receiving, grinding and storage area will consist of asphalt.*
Pre-Processing	• *All pre-processing will occur outdoors and within the receiving area. Feedstocks will be visually inspected by operations staff prior to pre-processing. Visible contaminants would be manually removed and disposed of.* • *Pre-processing would consist of grinding materials from the receiving piles using a track-mounted horizontal grinder. After grinding, feedstocks would be pushed into a 12 ft high stockpile located behind the receiving piles and away from the customer unloading area. The grinder would be situated between the receiving pile and the ground material stockpile during operation.* • *Feedstocks would be moved/handled with a front-end loader equipped with a grapple bucket.*
Odor Controls	• *N/A*
Dust Controls	• *A potable misting system will be available for use around the grinder on an as-required basis.*
Leachate and Surface Water Controls	• *Surface water from areas outside of the outdoor receiving area would be diverted around/away from the operating areas using ditches, swales and berms.* • *The working surface in the receiving area would be sloped at a minimum of 0.5% to promote drainage. Run-off from the area would be captured through a combination of perimeter ditches and swales, and transferred to an onsite detention pond. Filter berms would be incorporated into drainage ditches and swales as necessary to reduce sediments.* • *The detention pond would be underlain by a geosynthetic liner and would be sized to contain run-off from a 1:25 year, 24-hour storm event. The pond will also include additional capacity or "dead storage" beyond the 1:25 year run-off water volume.*
Fire Protection	• *Stockpile heights would be limited to 14 ft. Stockpiles would be surrounded on all sides by equipment aisles with a minimum width of 20 ft.* • *Hydrants would be situated in close proximity to the receiving area in accordance with Fire Code requirements.*
Utility Requirements	• *Potable water*
Mobile Equipment	• *One front-end loader (e.g. Cat 950 or equivalent) with and oversized grapple bucket, and a track-mounted horizontal grinder would be dedicated on a part-time basis to this area.*


Grindings Stockpile
Grinder Operating Area
Receiving Pile
Customer Unloading Area
115'
225'
20'
40'
20'
20'

Capacity	• *Designed for 2042 projections* • *Peak capacity: 8750 yd3 per week (6690 m3 per week)*
Screening and Product Storage	• *Following curing, material will be relocated to screening and storage area and placed in a temporary stockpile. The material will be moved from the curing area to the temporary stockpile using front-end loaders, tandem-axle trucks, and/or walking floor trailers.* • *Materials in the temporary stockpile will be screened using an electrically-powered stationary trommel or star screen with a 20 to 25 yd3 feed hopper. The screening equipment will be covered by a light weight steel-fabric structure to allow for continuous operation during rainy periods.* • *After screening, the finished product will be stockpiled in conical piles while awaiting shipping to end users. Each product pile will hold approximately 12,000 to 13,000 yd3 of material and will be constructed using a 100 ft long stacking conveyor. Stockpiles will be separated by ~15 ft aisles to allow for equipment access.* • *Space has been provided for three storage piles, which corresponds to roughly two month's worth of finished product production. This will allow for continued operation during slow product marketing periods (e.g. winter months). It will also allow for product to be further aged (cured) before it leaves the facility, which may be necessary for certain markets/end uses.* • *Overs from the screening process will be reused as an amendment for fresh feedstocks.*
Working Surfaces	• *The working surface in the screening and product storage area would consist of a compacted gravel base/sub-base overlain by heavy-duty asphalt that is designed to withstand the weight of wheel loaders and trucks. The asphalt surface will provide the equivalent level of groundwater protection as a compact clay liner.* • *Concrete slabs will be installed instead of asphalt in areas where loaders and trucks will frequently stop and start, or where abrasion from loader buckets is expected.*
Leachate and Surface Water Controls	• *Surface water from areas outside of the screening and product storage area would be diverted around/away from the operating areas using ditches, swales and berms.* • *Working surfaces in the screening and product storage area would be sloped at a minimum of 0.5% to promote drainage. Run-off from these areas would be captured through a combination of perimeter ditches and swales, and transferred to an onsite detention pond. Filter berms would be incorporated into drainage ditches and swales as necessary to reduce sediments.* • *The detention pond would be underlain by a geosynthetic liner and would be sized to contain run-off from a 1:25 year, 24-hour storm event. The pond will also include additional capacity or "dead storage" storage beyond the 1:25 year run-off water volume.*
Fire Protection	• *Hydrants would be situated in close proximity to the screening and storage area in accordance with Fire Code requirements.*
Utilities Requirements	• *Electricity (3-phase)*
Mobile Equipment	• *One front-end loader (e.g. Cat 980 or equivalent) with an oversized bucket for screening and product loading operations.*


400.00'
350.00'

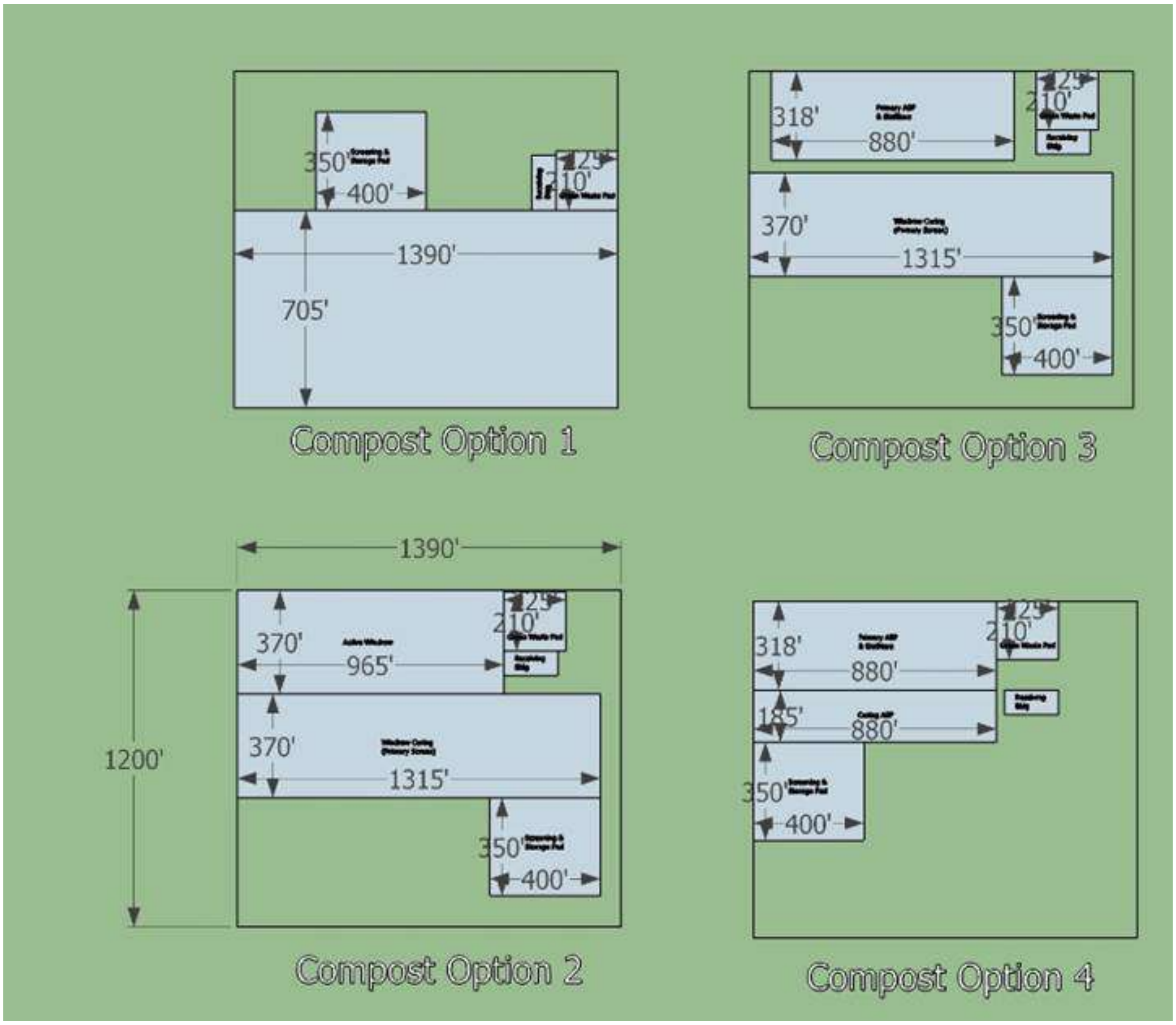
Summary of Compost Options

Compost Option 1: Windrow with no primary screening

Compost Option 2: Windrow with primary screening and separate curing windrows

Compost Option 3: ASP with primary screening and windrow curing

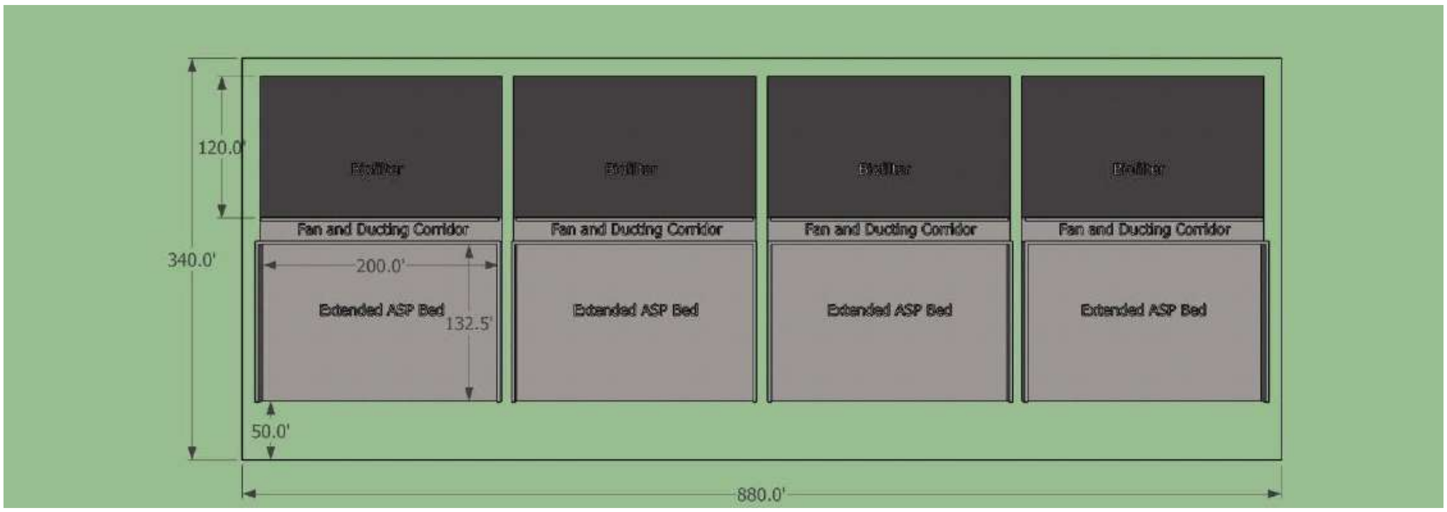
Compost Option 4: ASP with primary screening and ASP curing



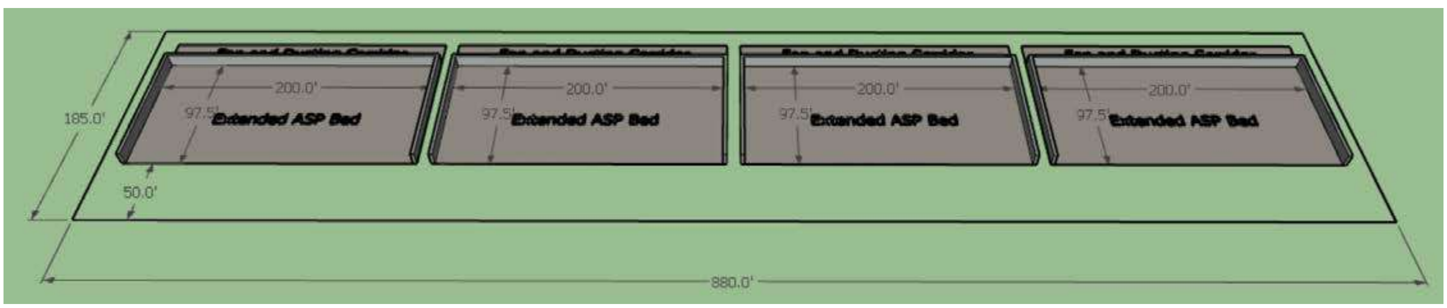
Capacity	• *Designed for 2042 projections* • *Pre-processed (shredded) GW/FW: 99,789 tpy (2,166 tpw peak, 1,919 tpw average)* • *Peak weekly capacity: 9,715 yd3 (7,426 m3) including amendments*
Product Quality Assumptions	• *The compost product produced at the facility would be fully stabilized and matured, and suitable for use in residential, landscaping, and agricultural applications.*
Active Composting (ASP)	• *Active composting would be completed using a* ***negatively-aerated*** *static pile (ASP) composting system with an extended bed configuration.* • *The ASP composting system would be sized to provide a 4 week active composting process. Four ASP beds would be provided, each with a capacity of 9,715 yd3. Each bed would have five aeration zones.* • *The ASP composting system would be located outdoors, and would be contained within a perimeter wall constructed from pre-cast concrete blocks. Compost piles would be aerated using a below-grade pipe system with risers embedded in a concrete slab.* • *Pre-processed feedstocks will be moved from the Receiving Building to the active composting area using front-end loaders or tandem-axle trucks.*
Primary Screening	• *Following active composting, material will be physically removed from the windrows and screened to remove coarse amendments. This will reduce the volume of material that requires curing, and allow for reuse of the coarse amendment.* • *Materials will be screened to a 1-inch minus particle size using a stationary trommel or star screen system. After screening, the undersized material will be relocated to the curing pad for additional processing.*
Curing (ASP)	• *After feedstocks have been stabilized in the active composting system, additional curing will be completed to ensure materials meet regulatory and market requirements. A minimum residence time of* ***four weeks*** *is expected in order for the material to meet stability/maturity criteria.* • *Curing will be completed using an outdoor* ***positively-aerated*** *ASP system with an extended bed configuration. Four ASP beds would be provided, each with a capacity of 6,995 yd3.* • *The ASP curing system would contained within a perimeter wall constructed from pre-cast concrete blocks. Compost piles would be aerated using a below-grade pipe system with risers embedded in a concrete slab.* • *Materials will be moved from the active ASP system to the screening system, and then to the curing ASP system using a front-end loader.* • *The curing pad will be a separate area from the active composting pad, which will allow run-off from these two areas to be collected and managed separately.*
Working Surfaces	• *ASP systems would be built overtop of a concrete slab. Working areas around the ASP systems would consist of compacted gravel base/sub-base overlain by heavy-duty asphalt* • *Concrete and heavy-duty asphalt surfaces will be designed to withstand the weight of wheel loaders and trucks. These surfaces will provide the equivalent level of groundwater protection as a compact clay liner.*
Odor Controls	• *Process air collected from the negative ASP composting system would be treated using a biofilter.* • *The biofilters would consist of a 1.5m thick layer of coarse wood chip blended with compost overlying a network of HDPE air distribution pipes. The biofilters would be situated on an asphalt pad which is sloped (~1%) for drainage and collection of leachate from the biofilter. Leachate would be directed to an aerated collection pond.* • *Odor control in the curing operation will be achieved through the implementation and maintenance of good operating practices.*
Leachate and Surface Water Controls	• *Surface water from areas outside of processing areas would be diverted around/away from the operating areas using ditches, swales and berms.* • *Working surfaces in the active ASP composting area would be sloped at a minimum of 0.5% to promote drainage. Run-off from this area would be captured in a dedicated detention pond.* • *Working surfaces in the curing area would be sloped at a minimum of 0.5% to promote drainage. Run-off from this area would be captured through a combination of perimeter ditches and swales, and transferred to a second detention pond. This pond would potentially be shared with the screening and product storage area. Filter berms would be incorporated into drainage ditches and swales as necessary to reduce sediments.*

	• *The detention ponds would be underlain by a geosynthetic liner and would be sized to contain run-off from a 1:25 year, 24-hour storm event. The curing pad pond will also include additional capacity or "dead storage" beyond the 1:25 year run-off water volume.*
Fire Protection	• *Hydrants would be situated in close proximity to the composting, curing and storage areas in accordance with Fire Code requirements.*
Utilities Requirements	• *Potable water* • *Electricity (3-phase service).*
Mobile Equipment	• *One front-end loader (e.g. Cat 980 or equivalent) with and oversized bucket dedicated to ASP composting and curing operations.*

Active ASP Area

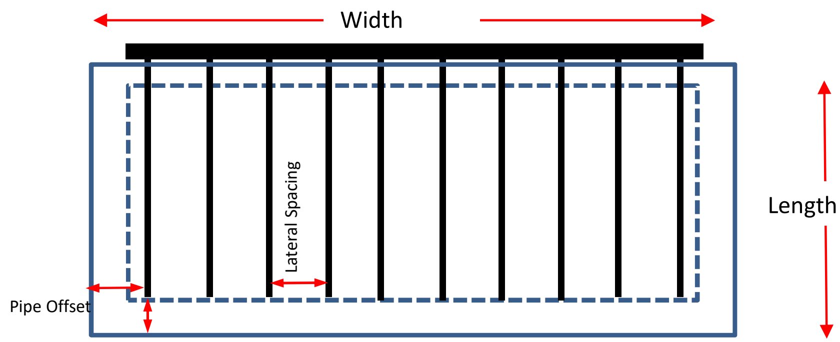


Curing ASP Area



Biofilter Sizing Worksheet
Biofilter Dimensions (Unconfined Bed)

Biofilter Sizing		
Media Depth	5	ft
Biofilter Loading Rate	5	cfm/ft^2
Number of Biofilter Beds	1	
Total Air Flow Rate	95,207	
Air Flow Rate Per Biofilter	95,207	cfm
Treatment Area Footprint	19,041	ft^2
EBRT	60	sec
Treatment Area Width	185.0	ft
Treatment Area Length	103.0	ft
Pipe Offset From Edge of Media	7.5	ft
Total Width of Media Bed	**200.0**	**ft**
Total Length of Media Bed	**118.0**	**ft**
# of Header Branches	2	
Header Diameter	48	in
Header Air Velocity	3788	ft/min
Number of Laterals	38	
Lateral Diameter	12	in
Air Flow per Lateral	2505	cfm
Lateral Air Velocity	3190	ft/min
Individual Lateral Length	110.5	ft
Lateral Spacing	5.00	ft
Total Length of All Laterals	4199.0	ft



From:	Goodrich, Janet/SAC
To:	McRae, Jennifer/SJC; Curtis, Stephanie/SAC
Cc:	Lopez, Lyndsey/PDX; Wright, Shannon/SAC
Subject:	FW: List of things to confirm
Date:	Friday, October 19, 2018 8:18:08 AM

So we need to include the 200k below, cite client reference, for the interim system and NOT include the building for compost receiving, leave in the NPV, as we will need it, but don't include either as capital or replacement.

From: Eric Oddo [mailto:EOddo@placer.ca.gov]
Sent: Friday, October 19, 2018 8:09 AM
To: Goodrich, Janet/SAC <Janet.Goodrich@jacobs.com>; Keith Schmidt <KSchmidt@placer.ca.gov>; Stephanie Ulmer <SUlmer@placer.ca.gov>
Cc: Michelle White <MWhite@placer.ca.gov>; Lopez, Lyndsey/PDX <Lyndsey.Lopez@jacobs.com>
Subject: [EXTERNAL] RE: List of things to confirm

Janet – no problem re-asking, things continue to develop and change on this front.

At this point, it is likely the WPWMA will pay for the piping and blowers for the +ASP system. Nortech is putting a proposal together now that includes extending electrical and adding blowers for this purpose. The cost is ~$200k.

Re: the building – let's list it out separately for use in the odor discussions. I don't want it to be construed that if it is added in to the NPV, that the WPWMA plans to pay for it on its own.

Thanks
Eric

From: Goodrich, Janet/SAC [mailto:Janet.Goodrich@jacobs.com]
Sent: Thursday, October 18, 2018 4:41 PM
To: Eric Oddo; Keith Schmidt; Stephanie Ulmer
Cc: Michelle White; Lopez, Lyndsey/PDX
Subject: List of things to confirm

1. Sorry to re-ask this, but we have differing recollections of the resolution of this item. Are we including costs for + ASP Piping and blowers, or assuming the operator handles that? At this point, we are including it.
2. Another item to confirm. Should we include the compost receiving building in the NPV? At this point we are including it, but we can also list it out separately to use in the odor discussions.

NOAA Atlas 14, Volume 6, Version 2
Location name: Roseville, California, USA*
Latitude: 38.8379°, Longitude: -121.349°
Elevation: 123.93 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.109 (0.098-0.122)	0.133 (0.120-0.149)	0.168 (0.151-0.189)	0.199 (0.176-0.226)	0.245 (0.206-0.294)	0.284 (0.232-0.352)	0.328 (0.258-0.421)	0.377 (0.284-0.504)	0.450 (0.320-0.639)	0.514 (0.348-0.766)
10-min	0.156 (0.141-0.174)	0.191 (0.172-0.214)	0.240 (0.216-0.271)	0.285 (0.252-0.325)	0.351 (0.296-0.421)	0.407 (0.332-0.504)	0.470 (0.370-0.603)	0.540 (0.408-0.722)	0.645 (0.459-0.916)	0.736 (0.498-1.10)
15-min	0.189 (0.170-0.211)	0.230 (0.208-0.258)	0.291 (0.261-0.327)	0.344 (0.305-0.393)	0.425 (0.358-0.509)	0.493 (0.402-0.610)	0.568 (0.447-0.729)	0.653 (0.493-0.873)	0.780 (0.555-1.11)	0.890 (0.603-1.33)
30-min	0.262 (0.237-0.294)	0.321 (0.289-0.359)	0.404 (0.363-0.455)	0.479 (0.425-0.546)	0.591 (0.497-0.708)	0.685 (0.559-0.848)	0.790 (0.622-1.01)	0.908 (0.686-1.22)	1.09 (0.772-1.54)	1.24 (0.839-1.85)
60-min	0.356 (0.322-0.399)	0.436 (0.393-0.488)	0.549 (0.493-0.618)	0.651 (0.577-0.742)	0.802 (0.676-0.962)	0.931 (0.760-1.15)	1.07 (0.845-1.38)	1.23 (0.932-1.65)	1.47 (1.05-2.09)	1.68 (1.14-2.51)
2-hr	0.519 (0.468-0.580)	0.621 (0.560-0.696)	0.768 (0.689-0.864)	0.898 (0.796-1.02)	1.09 (0.920-1.31)	1.25 (1.02-1.55)	1.44 (1.13-1.84)	1.64 (1.24-2.19)	1.94 (1.38-2.75)	2.19 (1.49-3.27)
3-hr	0.649 (0.586-0.726)	0.772 (0.696-0.865)	0.947 (0.850-1.07)	1.10 (0.977-1.26)	1.33 (1.12-1.60)	1.52 (1.24-1.89)	1.74 (1.37-2.23)	1.97 (1.49-2.63)	2.32 (1.65-3.29)	2.62 (1.77-3.90)
6-hr	0.940 (0.848-1.05)	1.11 (1.00-1.25)	1.36 (1.22-1.53)	1.57 (1.39-1.79)	1.88 (1.59-2.26)	2.14 (1.75-2.65)	2.42 (1.91-3.11)	2.73 (2.06-3.65)	3.18 (2.26-4.52)	3.56 (2.41-5.32)
12-hr	1.29 (1.16-1.44)	1.56 (1.41-1.75)	1.93 (1.73-2.17)	2.24 (1.99-2.56)	2.69 (2.26-3.22)	3.04 (2.48-3.77)	3.42 (2.69-4.39)	3.82 (2.89-5.11)	4.39 (3.12-6.24)	4.85 (3.29-7.24)
24-hr	1.78 (1.63-1.99)	2.23 (2.03-2.49)	2.82 (2.57-3.17)	3.31 (2.99-3.74)	3.98 (3.46-4.66)	4.50 (3.83-5.39)	5.03 (4.17-6.19)	5.58 (4.49-7.08)	6.35 (4.88-8.42)	6.95 (5.16-9.56)
2-day	2.32 (2.12-2.59)	2.94 (2.68-3.29)	3.74 (3.40-4.19)	4.39 (3.96-4.97)	5.27 (4.59-6.18)	5.94 (5.06-7.13)	6.63 (5.49-8.16)	7.33 (5.90-9.30)	8.28 (6.37-11.0)	9.02 (6.69-12.4)
3-day	2.72 (2.48-3.03)	3.46 (3.16-3.87)	4.42 (4.02-4.95)	5.19 (4.68-5.87)	6.22 (5.42-7.30)	7.01 (5.97-8.41)	7.80 (6.47-9.61)	8.61 (6.93-10.9)	9.70 (7.46-12.9)	10.5 (7.81-14.5)
4-day	3.01 (2.75-3.36)	3.85 (3.51-4.31)	4.93 (4.48-5.52)	5.79 (5.22-6.54)	6.93 (6.03-8.13)	7.79 (6.63-9.35)	8.66 (7.18-10.7)	9.53 (7.67-12.1)	10.7 (8.23-14.2)	11.6 (8.60-15.9)
7-day	3.70 (3.38-4.13)	4.76 (4.34-5.32)	6.09 (5.54-6.83)	7.14 (6.44-8.07)	8.50 (7.40-9.97)	9.52 (8.10-11.4)	10.5 (8.71-12.9)	11.5 (9.26-14.6)	12.8 (9.86-17.0)	13.8 (10.2-19.0)
10-day	4.19 (3.83-4.67)	5.39 (4.92-6.03)	6.90 (6.27-7.73)	8.06 (7.27-9.12)	9.58 (8.33-11.2)	10.7 (9.09-12.8)	11.8 (9.75-14.5)	12.8 (10.3-16.3)	14.2 (10.9-18.9)	15.3 (11.3-21.0)
20-day	5.52 (5.05-6.17)	7.11 (6.49-7.96)	9.07 (8.26-10.2)	10.6 (9.54-12.0)	12.5 (10.9-14.7)	13.9 (11.8-16.7)	15.2 (12.6-18.8)	16.6 (13.3-21.0)	18.2 (14.0-24.2)	19.5 (14.5-26.8)
30-day	6.67 (6.10-7.45)	8.56 (7.81-9.57)	10.9 (9.89-12.2)	12.6 (11.4-14.3)	14.9 (13.0-17.5)	16.5 (14.0-19.8)	18.1 (15.0-22.2)	19.6 (15.8-24.8)	21.5 (16.6-28.5)	22.9 (17.0-31.5)
45-day	8.22 (7.51-9.18)	10.4 (9.53-11.7)	13.2 (12.0-14.7)	15.2 (13.7-17.2)	17.9 (15.5-20.9)	19.7 (16.8-23.7)	21.6 (17.9-26.5)	23.3 (18.8-29.6)	25.5 (19.7-33.9)	27.1 (20.1-37.3)
60-day	9.84 (8.99-11.0)	12.4 (11.3-13.8)	15.4 (14.1-17.3)	17.8 (16.1-20.1)	20.8 (18.1-24.4)	22.9 (19.5-27.5)	25.0 (20.7-30.8)	27.0 (21.7-34.2)	29.5 (22.7-39.1)	31.3 (23.2-43.1)

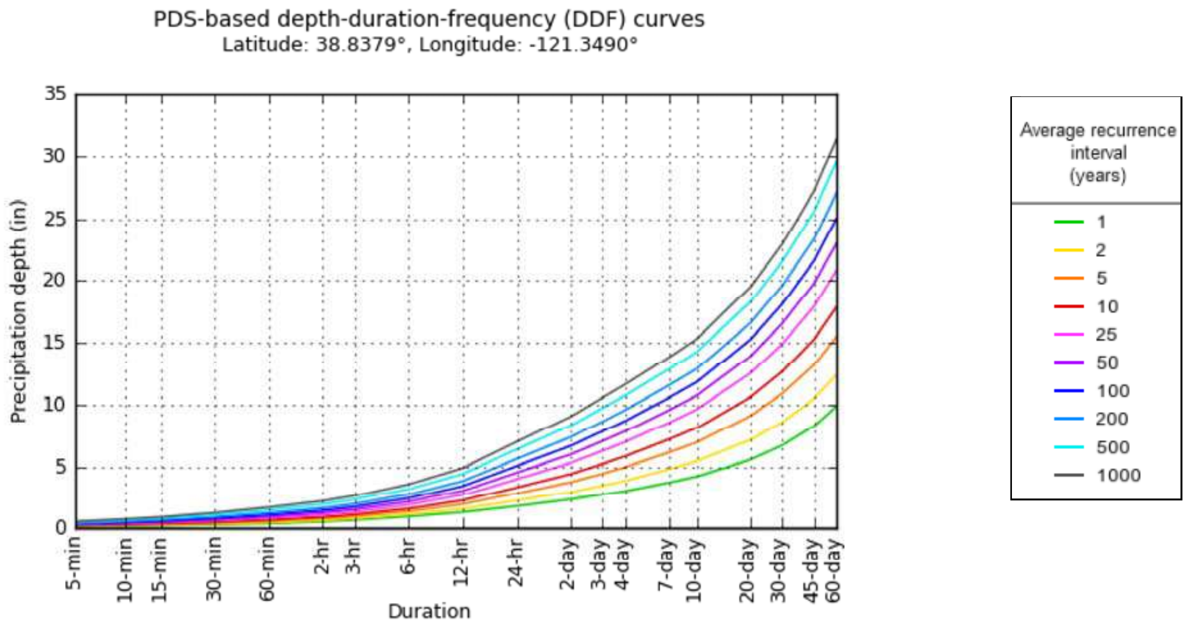
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

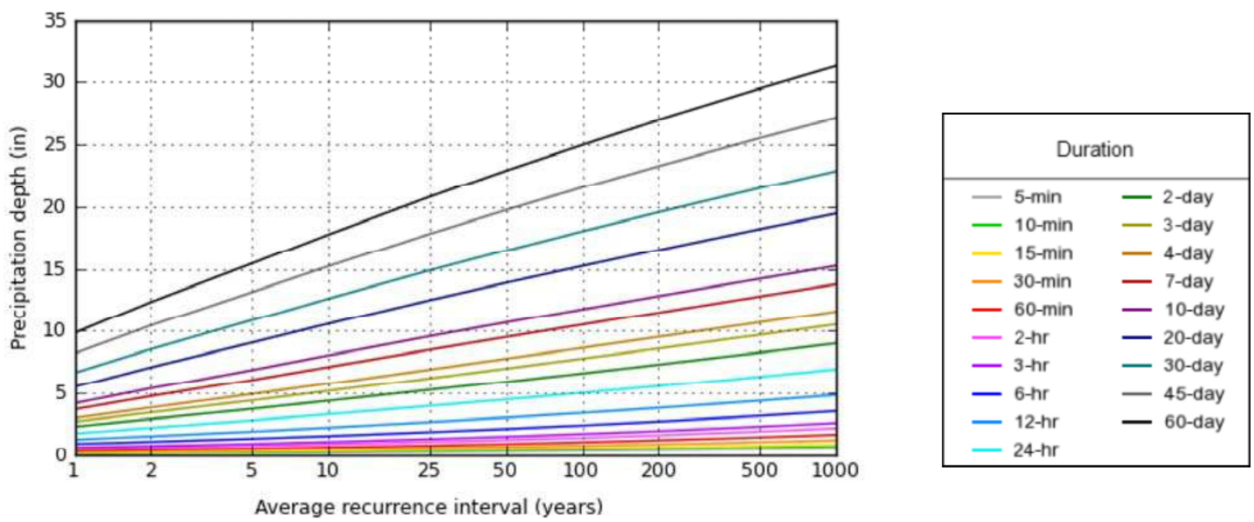
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical





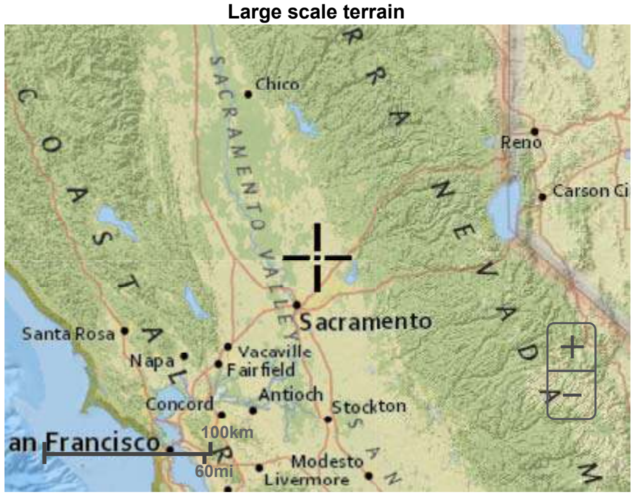
NOAA Atlas 14, Volume 6, Version 2 Created (GMT): Mon Oct 8 20:55:07 2018

Back to Top

Maps & aerials

Small scale terrain

Large scale terrain



Large scale map

Large scale aerial

Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Type	Name (Slides)	Name Detail (Poster)	Acres
Critical Element	C&D	Construction & Demolition	18.063408
Critical Element	Composting	Composting Operations	48.571575
Critical Element	Landfill	Landfill Operations	15.690817
Critical Element	Public	Public Tip/HHW/Buyback/Reuse	14.976759

c=	i= (in inches)	V= (required)		V= (calculated)		A (true)=	A (plan)=		L_1	W_1	H_1	S		L_2	W_2
0.95	5.03	313327		313875		71320	70500		300	235	5	3		270	205
0.95	5.03	842520		843500		182650	181300		490	370	5	3		460	340
0.95	6.95	376063		377352		73460	72450		345	210	6	3		309	174
0.95	5.03	259786		262848		72670	72000		300	240	4	3		276	216

infiltration from NOAA Atlas 14, Volume 6, Version 2
100-year, 24-hour intensity for all facilities but landfill
1000-yr, 24-hour intensity for landfill (Class II)

A (plan) used for clearing and grubbing
A (true) used for liner material estimate

Appendix 4A-1
Design Documentation
Landfill Construction

Approach for landfill site life calculation
Completed: October 14, 2018

1. Reviewed projections and sources:
    a. **Method 1** (Golder Waste Projections): Robust analysis of different factors that could impact waste generation and disposal, and curve fitting for different waste streams through the 2060 planning period. Intent of analysis for sizing different elements at the facility in the master plan. For landfill life purposes, Golder used this base and applied a 1% growth in disposal per year after 2060.
    b. **Method 2** (Jacobs methodology): Designed to capture impacts of projected doubling of population in waste shed between now and 2050. Applied annual growth rate of approximately 2.12% through 2050 to effectively double the disposal stream by the year 2050. Assumed build out is reached by 2050 and applied a 1% per year growth rate after that.
    c. **Potential Structural Fill Needs along N edge of modules 7 and 11:** Reviewed impact on simplified design estimate of soil wedge along northern edge of the existing landfill reconfigured, due to loss of module 8 and change in edge of relined module 11. Resulted in less than 1 year of capacity difference in current disposal tonnage basis, so was deemed negligible in overall landfill life estimates for this purpose.

2. Compared Results:
    a. Method 1 Site Life Calculations from Golder waste projections, Updated August 2018:
        i. Plan Concept 0 = not calculated as concept is
        ii. Plan Concept 1 = 109 years, estimate assumes filling to 325 foot elevation, not the permitted 295' elevation
        iii. Plan Concept 2 = 119 years
    b. Method 2 Site Life Calculations (range due to utilization rate variation of 0.65 to 0.72)
        i. Plan Concept 0 = 31 to 34 years
        ii. Plan Concept 1 = 90 to 96 years, uses 295 foot elevation in existing area
        iii. Plan Concept 2 = 72 to 77 years
3. Recommendation
    a. Each methodology had a different purpose. They give us a range.
    b. There are many unknowns about how the site will be used.
    c. We recommend using the lowest number from the methodologies, rounded to the nearest whole number in increments of 5. Example based on DRAFT above.
        i. Plan Concept 0 = 30 years
        ii. Plan Concept 1 = 90 years
        iii. Plan Concept 2 = 70 years

TABLE
PLAN CONCEPT 0 COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
NEW LANDFILL

	Item	Quantity	Unit	Unit Cost	Total
1	Design and Permitting	3	ea	$ 100,000	$ 300,000
2	Mobilization/Demobilization	3	ea	$ 100,000	$ 300,000
3	Layout of Work and Surveys	3	ea	$ 30,000	$ 90,000
4	Clearing and Grubbing	36	ac	$ 1,500	$ 54,000
5	Excavation	3,564,545	cy	$ 3.00	$ 10,693,636
6	Overexcavation of Unsuitable Subgrade Material	60,000	cy	$ 10.00	$ 600,000
7	Earthfill	60,000	cy	$ 4.00	$ 240,000
8	Subgrade Preparation	2,350,973	sf	$ 0.15	$ 352,646
9	Geosynthetic Clay Liner	2,350,973	sf	$ 0.80	$ 1,880,778
10	60-mil HDPE Double Sided Textured Geomembrane	2,138,727	sf	$ 0.75	$ 1,604,045
11	60-mil White Single Sided Textured HDPE Geomembrane	2,350,973	sf	$ 0.75	$ 1,763,230
12	Geocomposite	2,138,727	sf	$ 0.80	$ 1,710,982
13	8oz/sy Nonwoven Geotextile	2,138,727	sf	$ 0.20	$ 427,745
14	Anchor Trenches	2,488	lf	$ 13.00	$ 32,350
15	Drainage Layer	79,212	cy	$ 38.00	$ 3,010,061
16	Sump Gravel	525	cy	$ 82.00	$ 43,050
17	Base Operations Layer	79,212	cy	$ 5.60	$ 443,588
18	Side Slope Operations Layer	7,963	cy	$ 6.50	$ 51,760
19	6-inch Diameter SDR 11 HDPE LCRS Pipe	8,100	lf	$ 20.00	$ 162,000
20	18-inch Diameter SDR 11 HDPE LCRS Pipe	1,800	lf	$ 112.50	$ 202,500
21	6-inch Diameter SDR 11 HDPE Pipe (Force Main)	5,000	lf	$ 20.00	$ 100,000
22	Rip Rap	3	ls	$ 30,000	$ 90,000
23	Leak Detection Survey	3	ls	$ 17,000	$ 51,000
24	Revegetation	30	ac	$ 1,500	$ 45,000
25	Stromwater Basin Design	0	ea	$ 50,000	$ -
26	Stormwater Basin Excavation	0	cy	$ 2.50	$ -
27	Stormwater Basin Inlet/Outlet Controls	0	ls	$ 50,000	$ -
28	Perimeter Road	150,000	sf	$ 2.50	$ 375,000
29	Aggregate Base	4,479	cy	$ 35.00	$ 156,774
30	V-Ditch	7,656	lf	$ 5.00	$ 38,282
31	CMP Culverts	498	lf	$ 75.00	$ 37,327
32	Stormwater Controls	3	ea	$ 2,500	$ 7,500
33	Stormwater Pollution Prevention Plan Preparation	3	ea	$ 7,800	$ 23,400
34	Stromwater Pollution Prevention Plan Implementation	3	ea	$ 15,000	$ 45,000
				Total	**$ 24,931,655**

TABLE 9.2
ALTERNATIVE 3 COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
MONITORING SYSTEMS

	Item	Quantity	Unit	Unit Cost	Total
1	Monitoring System Design Services	1	ls	$ 100,000	$ 100,000
2	Groundwater Wells	3	ea	$ 10,000	$ 30,000
3	LFG Design Services and Permitting	1	ls	$ 400,000	$ 400,000
4	LFG Extraction Wells	54	ea	$ 2,500	$ 135,000
5	LFG 6-in LFG Collector	5,400	lf	$ 20.00	$ 108,000
6	LFG 18-in LFG Header Line	3,925	lf	$ 110	$ 431,786
7	LFG Well Heads	54	ea	$ 250	$ 13,500
8	Flare System	1	ls	$ 2,000,000	$ 2,000,000
9	Condensate Sumps	3	ea	$ 500	$ 1,500
10	2-in SDR 9 HDPE Condensate Piping	5,400	lf	$ 20.00	$ 108,000
11	2-in SDR 9 HDPE Pneumatic Piping	5,400	lf	$ 20.00	$ 108,000
12	LFG Perimeter Monitoring Probes	5	ea	$ 6,000.00	$ 29,862
13	Decomission & Replace Suction Lysimeters	0	ls	$ 20,000	$ -
				Total	**$ 3,465,648**

TABLE 1.1
ALTERNATIVE 1a COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
FILL OVER UNLINED TO 325' ELEV

	Item	Quantity	Unit	Unit Cost	Total
1	Design and Permitting	10	ea	$ 100,000	$ 1,000,000
2	Mobilization/Demobilization	10	ea	$ 100,000	$ 1,000,000
3	Layout of Work and Surveys	10	ea	$ 25,000	$ 250,000
4	Clearing and Grubbing	257	ac	$ 1,500	$ 385,500
5	Excavation	8,328,071	cy	$ 3.00	$ 24,984,213
6	Overexcavation of Unsuitable Subgrade Material	200,000	cy	$ 10.00	$ 2,000,000
7	Earthfill	200,000	cy	$ 4.00	$ 800,000
8	Subgrade Preparation	11,159,400	sf	$ 0.15	$ 1,673,910
9	Geosynthetic Clay Liner	11,159,400	sf	$ 0.80	$ 8,927,520
10	60-mil HDPE Double Sided Textured Geomembrane	9,477,161	sf	$ 0.75	$ 7,107,871
11	60-mil White Single Sided Textured HDPE Geomembrane	11,159,400	sf	$ 0.75	$ 8,369,550
12	Geocomposite	9,477,161	sf	$ 0.80	$ 7,581,729
13	8oz/sy Nonwoven Geotextile	9,477,161	sf	$ 0.20	$ 1,895,432
14	Anchor Trenches	10,000	lf	$ 13.00	$ 130,000
15	Drainage Layer	351,006	cy	$ 38.00	$ 13,338,227
16	Sump Gravel	1,750	cy	$ 82.00	$ 143,500
17	Base Operations Layer	351,006	cy	$ 5.60	$ 1,965,633
18	Side Slope Operations Layer	63,000	cy	$ 6.50	$ 409,500
19	6-inch Diameter SDR 11 HDPE LCRS Pipe	27,000	lf	$ 20.00	$ 540,000
20	18-inch Diameter SDR 11 HDPE LCRS Pipe	6,000	lf	$ 112.50	$ 675,000
21	6-inch Diameter SDR 11 HDPE Pipe (Force Main)	16,000	lf	$ 20.00	$ 320,000
22	Rip Rap	10	ls	$ 30,000	$ 300,000
23	Leak Detection Survey	10	ls	$ 17,000	$ 170,000
24	Revegetation	100	ac	$ 1,500	$ 150,000
25	Stromwater Basin Design	2	ea	$ 50,000	$ 100,000
26	Stormwater Basin Excavation	1,092,000	cy	$ 2.50	$ 2,730,000
27	Stormwater Basin Inlet/Outlet Controls	1	ls	$ 50,000	$ 50,000
28	Perimeter Road	480,000	sf	$ 2.50	$ 1,200,000
29	Aggregate Base	18,000	cy	$ 35.00	$ 630,000
30	V-Ditch	32,867	lf	$ 5.00	$ 164,335
31	CMP Culverts	2,000	lf	$ 76.00	$ 152,000
32	Stormwater Controls	10	ea	$ 2,500	$ 25,000
33	Stormwater Pollution Prevention Plan Preparation	10	ea	$ 7,800	$ 78,000
34	Stromwater Pollution Prevention Plan Implementation	10	ea	$ 15,000	$ 150,000
				Total	**$ 89,396,920**

TABLE 1.2
ALTERNATIVE 1a COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
MONITORING SYSTEMS

	Item	Quantity	Unit	Unit Cost	Total
1	Monitoring System Design Services	1	ls	$ 100,000	$ 100,000
2	Decomission & Replace Groundwater Wells	7	ea	$ 20,000	$ 140,000
3	Additional Groundwater Wells	2	ea	$ 10,000	$ 20,000
4	Decomission & Replace LFG Perimeter Probes	5	ea	$ 10,000	$ 50,000
5	LFG Design Services and Permitting	1	ls	$ 400,000	$ 400,000
6	LFG Extraction Wells	321	ea	$ 2,500	$ 802,500
7	LFG 6-in LFG Collector	32,100	lf	$ 20.00	$ 642,000
8	LFG 18-in LFG Header Line	16,000	lf	$ 110	$ 1,760,000
9	LFG Well Heads	321	ea	$ 250	$ 80,250
10	Flare System	1	ls	$ 2,000,000	$ 2,000,000
11	Condensate Sumps	10	ea	$ 500	$ 5,000
12	2-in SDR 9 HDPE Condensate Piping	32,100	lf	$ 20.00	$ 642,000
13	2-in SDR 9 HDPE Pneumatic Piping	32,100	lf	$ 20.00	$ 642,000
14	LFG Perimeter Monitoring Probes	8	ea	$ 6,000.00	$ 48,000
15	Decomission & Replace Suction Lysimeters	1	ls	$ 20,000	$ 20,000
				Total	**$ 7,351,750**

TABLE
ALTERNATIVE 3 COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
NEW LANDFILL

	Item	Quantity	Unit	Unit Cost	Total
1	Design and Permitting	13	ea	$ 100,000	$ 1,300,000
2	Mobilization/Demobilization	13	ea	$ 100,000	$ 1,300,000
3	Layout of Work and Surveys	13	ea	$ 30,000	$ 390,000
4	Clearing and Grubbing	253	ac	$ 1,500	$ 379,500
5	Excavation	17888737	cy	$ 3.00	$ 53,666,211
6	Overexcavation of Unsuitable Subgrade Material	260000	cy	$ 10.00	$ 2,600,000
7	Earthfill	360000	cy	$ 4.00	$ 1,440,000
8	Subgrade Preparation	11798401	sf	$ 0.15	$ 1,769,760
9	Geosynthetic Clay Liner	11798401	sf	$ 0.80	$ 9,438,721
10	60-mil HDPE Double Sided Textured Geomembrane	10733242	sf	$ 0.75	$ 8,049,932
11	60-mil White Single Sided Textured HDPE Geomembrane	11798401	sf	$ 0.75	$ 8,848,801
12	Geocomposite	10733242	sf	$ 0.80	$ 8,586,594
13	8oz/sy Nonwoven Geotextile	10733242	sf	$ 0.20	$ 2,146,648
14	Anchor Trenches	12488	lf	$ 13.00	$ 162,350
15	Drainage Layer	397527	cy	$ 38.00	$ 15,106,045
16	Sump Gravel	2275	cy	$ 82.00	$ 186,550
17	Base Operations Layer	397527	cy	$ 5.60	$ 2,226,154
18	Side Slope Operations Layer	39963	cy	$ 6.50	$ 259,760
19	6-inch Diameter SDR 11 HDPE LCRS Pipe	35100	lf	$ 20.00	$ 702,000
20	18-inch Diameter SDR 11 HDPE LCRS Pipe	7800	lf	$ 112.50	$ 877,500
21	6-inch Diameter SDR 11 HDPE Pipe (Force Main)	20774	lf	$ 20.00	$ 415,480
22	Rip Rap	13	ls	$ 30,000	$ 390,000
23	Leak Detection Survey	13	ls	$ 17,000	$ 221,000
24	Revegetation	130	ac	$ 1,500	$ 195,000
25	Stromwater Basin Design	0	ea	$ 50,000	$ -
26	Stormwater Basin Excavation	0	cy	$ 2.50	$ -
27	Stormwater Basin Inlet/Outlet Controls	0	ls	$ 50,000	$ -
28	Perimeter Road	623220	sf	$ 2.50	$ 1,558,050
29	Aggregate Base	22479	cy	$ 35.00	$ 786,774
30	V-Ditch	38423	lf	$ 5.00	$ 192,117
31	CMP Culverts	2498	lf	$ 75.00	$ 187,327
32	Stormwater Controls	13	ea	$ 2,500	$ 32,500
33	Stormwater Pollution Prevention Plan Preparation	13	ea	$ 7,800	$ 101,400
34	Stromwater Pollution Prevention Plan Implementation	13	ea	$ 15,000	$ 195,000
				Total	**$ 123,711,174**

TABLE 9.2
ALTERNATIVE 3 COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
MONITORING SYSTEMS

	Item	Quantity	Unit	Unit Cost	Total
1	Monitoring System Design Services	2	ls	$ 100,000	$ 200,000
2	Groundwater Wells	13	ea	$ 10,000	$ 130,000
3	LFG Design Services and Permitting	2	ls	$ 400,000	$ 800,000
4	LFG Extraction Wells	271	ea	$ 2,500	$ 677,500
5	LFG 6-in LFG Collector	27,100	lf	$ 20.00	$ 542,000
6	LFG 18-in LFG Header Line	19,699	lf	$ 110	$ 2,166,926
7	LFG Well Heads	271	ea	$ 250	$ 67,750
8	Flare System	2	ls	$ 2,000,000	$ 4,000,000
9	Condensate Sumps	13	ea	$ 500	$ 6,500
10	2-in SDR 9 HDPE Condensate Piping	27,100	lf	$ 20.00	$ 542,000
11	2-in SDR 9 HDPE Pneumatic Piping	27,100	lf	$ 20.00	$ 542,000
12	LFG Perimeter Monitoring Probes	25	ea	$ 6,000.00	$ 149,862
13	Decomission & Replace Suction Lysimeters	0	ls	$ 20,000	$ -
				Total	**$ 9,824,538**

Appendix 4A-1
Design Documentation
Landfill Stockpile Relocation

Soil Stockpile Quantity

From: Keith Schmidt <KSchmidt@placer.ca.gov>
Sent: Monday, October 15, 2018 11:35 AM
To: Goodrich, Janet/SAC
Cc: Eric Oddo; McRae, Jennifer/SJC; Lopez, Lyndsey/PDX
Subject: [EXTERNAL] RE: Your input needed asap on a few items - high priority items

Janet,

Based on our discussion, here are those answers:

1. As of 6/30/2017, there are **1.4 MCY** of soil stockpiled on Modules 6-8, nearly all of it on 6-7, compared to the pre-development grades of 1978.
2. Okay, soil moving will be a project cost.
3. Correct, the "top of fill" grades I use are based on the Master Fill Plan (2003, SCS) grades included in Nortech Landfill's contract and are the top of the Intermediate Cover (ie. with NO final cover installed) except for Modules 1, 2, 10 and 11 which were at final grade and closed when SCS made their fill plans.

Keith J. Schmidt, P.E. | Senior Civil Engineer | Western Placer Waste Management Authority | (Mail) 11476 "C" Ave. Auburn, CA 95603 | (Physical) 3033 Fiddyment Rd. Roseville, CA 95747 | (916) 543-3986 (Direct) | (916) 543-3990 (Fax)

From: Goodrich, Janet/SAC [mailto:Janet.Goodrich@jacobs.com]
Sent: Monday, October 15, 2018 9:14 AM
To: Eric Oddo; Keith Schmidt
Cc: Lopez, Lyndsey/PDX; McRae, Jennifer/SJC
Subject: Your input needed asap on a few items - high priority items

1. Did Keith get a chance to calculate the amount of soil that would need to be moved for all options (soil stockpile on modules 6 and 7?)?
2. We plan to put the soil moving cost into capital, not O&M. Our thinking is that is driven by capital projects.
3. For Keith's calculations on air space, we are assuming (and I think we discussed this with him), that the air space he lists of 24.5 M CY is available for landfill waste and interm cover, and is AFTER the air space needed for final cover is removed. In other words, we assume the 24.5 M CY is based on waste/interim cover final grades and **not** final cover final grades. (see below)

Per our June 2017 flyover, we had 24,468,271 (say 24.5 MCY) of airspace remaining. Here is likely how that would change with Option 3:

24.5	MCY	24,500,000.00	CY	Remaining Central Landfill Capacity as of 6/30/2017 survey
-7.4	MCY	(7,400,000.00)	CY	Less Mods 8 and 9
4.2	MCY	4,200,000.00	CY	Module 11 Line, Re-permit, Fill Completely Like Mod 7
-1.4	MCY	(1,400,000.00)	CY	Less waste already in place in Mod 11
-2.2	MCY	(2,200,000.00)	CY	Per Golder's 3.6 MCY of waste in place module 1, 2, 10 and 11 (3.6-1.4=)
17.7	MCY	17,700,000.00	CY	Remaining Central Landfill Capacity, Best Case Scenario

Appendix 4A-1
Design Documentation
Landfill Closure

TABLE
PLAN CONCEPT 0 (MAX) COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
CLOSURE CONSTRUCTION COSTS

	Item	Quantity	Unit	Unit Cost	Total
1	Mobilization/Demobilization	3	ls	$ 75,000.00	$ 225,000
2	Vegetative Layer	301,456	cy	$ 4.70	$ 1,416,844
3	Geocomposite	8,121,725	sf	$ 0.70	$ 5,685,208
4	60-mil HDPE DST Geomembrane	8,121,725	sf	$ 0.66	$ 5,360,339
5	Geosynthetic Clay Liner	8,121,725	sf	$ 0.78	$ 6,334,946
6	2-foot Foundation Layer	602,230	cy	$ 4.70	$ 2,830,483
7	Anchor Trenches	2,046	lf	$ 13.00	$ 26,599
8	Bench V-Ditches	20,984	lf	$ 10.00	$ 209,839
9	Top Deck Berms	7,502	lf	$ 10.00	$ 75,023
10	CMP Downdrains	4,433	lf	$ 50.00	$ 221,659
11	Drain Inlets	31	ea	$ 100.00	$ 3,069
12	Revegetation	148	ac	$ 1,500.00	$ 222,000
13	Stormwater Controls	1	ea	$ 2,500.00	$ 2,500
14	Stormwater Pollution Prevention Plan Preparation	1	ea	$ 7,800.00	$ 7,800
15	Stromwater Pollution Prevention Plan Implementation	1	ea	$ 15,000.00	$ 15,000
				Total	**$ 22,636,309**

Notes:

TABLE 2
ALTERNATIVE 1a COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
CLOSURE CONSTRUCTION COSTS

	Item	Quantity	Unit	Unit Cost	Total
1	Mobilization/Demobilization	9	ls	$ 75,000.00	$ 675,000
2	Vegetative Layer	549,000	cy	$ 4.70	$ 2,580,300
3	Geocomposite	14,821,201	sf	$ 0.70	$ 10,374,841
4	60-mil HDPE DST Geomembrane	14,821,201	sf	$ 0.66	$ 9,781,993
5	Geosynthetic Clay Liner	14,821,201	sf	$ 0.78	$ 11,560,537
6	2-foot Foundation Layer	1,098,000	cy	$ 4.70	$ 5,160,600
7	Anchor Trenches	3,000	lf	$ 13.00	$ 39,000
8	Bench V-Ditches	39,400	lf	$ 10.00	$ 394,000
9	Top Deck Berms	10,195	lf	$ 10.00	$ 101,950
10	CMP Downdrains	7,000	lf	$ 50.00	$ 350,000
11	Drain Inlets	45	ea	$ 100.00	$ 4,500
12	Revegetation	321	ac	$ 1,500.00	$ 481,500
13	Stormwater Controls	1	ea	$ 2,500.00	$ 2,500
14	Stormwater Pollution Prevention Plan Preparation	1	ea	$ 7,800.00	$ 7,800
15	Stromwater Pollution Prevention Plan Implementation	1	ea	$ 15,000.00	$ 15,000
				Total	**$ 41,529,520**

Notes:

1. Downdrains assumed every 1000 feet.

TABLE
PLAN CONCEPT 2 (MAX) COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
CLOSURE CONSTRUCTION COSTS

	Item	Quantity	Unit	Unit Cost	Total
1	Mobilization/Demobilization	7	ls	$ 75,000.00	$ 525,000
2	Vegetative Layer	743456	cy	$ 4.70	$ 3,494,244
3	Geocomposite	20029930	sf	$ 0.70	$ 14,020,951
4	60-mil HDPE DST Geomembrane	20029930	sf	$ 0.66	$ 13,219,754
5	Geosynthetic Clay Liner	20029930	sf	$ 0.78	$ 15,623,345
6	2-foot Foundation Layer	1485230	cy	$ 4.70	$ 6,980,583
7	Anchor Trenches	5046	lf	$ 13.00	$ 65,599
8	Bench V-Ditches	51751	lf	$ 10.00	$ 517,509
9	Top Deck Berms	18502	lf	$ 10.00	$ 185,023
10	CMP Downdrains	10933	lf	$ 50.00	$ 546,659
11	Drain Inlets	76	ea	$ 100.00	$ 7,569
12	Revegetation	365	ac	$ 1,500.00	$ 547,500
13	Stormwater Controls	2	ea	$ 2,500.00	$ 5,000
14	Stormwater Pollution Prevention Plan Preparation	2	ea	$ 7,800.00	$ 15,600
15	Stromwater Pollution Prevention Plan Implementation	2	ea	$ 15,000.00	$ 30,000
				Total	**$ 55,784,337**

Notes:

Appendix 4A-1
Design Documentation
Unlined Area Waste Relocation

TABLE 9.3
ALTERNATIVE 3 COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
UNLINED UNIT

	Item	Quantity	Unit	Unit Cost	Total
1	Design and Permitting	4	ea	$ 100,000	$ 400,000
2	Mobilization/Demobilization	5	ea	$ 15,000	$ 75,000
3	Layout of Work and Surveys	5	ea	$ 30,000	$ 150,000
4	Remove Waste in Unlined Unit	3,646,000	cy	$ 11.50	$ 41,929,000
5	Subgrade Preparation	0	sf	$ 0.15	$ -
6	Geosynthetic Clay Liner	0	sf	$ 0.80	$ -
7	60-mil HDPE Double Sided Textured Geomembrane	0	sf	$ 0.75	$ -
8	60-mil White Single Sided Textured HDPE Geomembrane	0	sf	$ 0.75	$ -
9	Geocomposite	0	sf	$ 0.80	$ -
10	8oz/sy Nonwoven Geotextile	0	sf	$ 0.20	$ -
11	Anchor Trenches	0	lf	$ 13.00	$ -
12	Drainage Layer	0	cy	$ 38.00	$ -
13	Base Operations Layer	0	cy	$ 5.60	$ -
14	Side Slope Operations Layer	0	cy	$ 6.50	$ -
15	6-inch Diameter SDR 11 HDPE LCRS Pipe	0	lf	$ 20.00	$ -
16	Rip Rap	0	ls	$ 30,000	$ -
17	Leak Detection Survey	0	ls	$ 17,000	$ -
18	Revegetation	0	ac	$ 1,500	$ -
19	CMP Culverts	200	lf	$ 75.00	$ 15,000
20	Stormwater Controls	4	ea	$ 2,500.00	$ 10,000
21	Stormwater Pollution Prevention Plan Preparation	4	ea	$ 7,800.00	$ 31,200
22	Stromwater Pollution Prevention Plan Implementation	4	ea	$ 15,000.00	$ 60,000
				Total	**$ 42,670,200**

TABLE 1.3
ALTERNATIVE 1a COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
UNLINED UNIT

	Item	Quantity	Unit	Unit Cost	Total
1	Design and Permitting	4	ea	$ 100,000	$ 400,000
2	Mobilization/Demobilization	5	ea	$ 15,000	$ 75,000
3	Layout of Work and Surveys	5	ea	$ 30,000	$ 150,000
4	Remove Waste in Unlined Unit	3,646,000	cy	$ 15.00	$ 54,690,000
5	Subgrade Preparation	2,793,936	sf	$ 0.15	$ 419,090
6	Geosynthetic Clay Liner	2,793,936	sf	$ 0.80	$ 2,235,149
7	60-mil HDPE Double Sided Textured Geomembrane	2,593,618	sf	$ 0.75	$ 1,945,214
8	60-mil White Single Sided Textured HDPE Geomembrane	2,793,936	sf	$ 0.75	$ 2,095,452
9	Geocomposite	2,593,618	sf	$ 0.80	$ 2,074,894
10	8oz/sy Nonwoven Geotextile	2,593,618	sf	$ 0.20	$ 518,724
11	Anchor Trenches	2,200	lf	$ 13.00	$ 28,600
12	Drainage Layer	96,060	cy	$ 38.00	$ 3,650,277
13	Base Operations Layer	96,060	cy	$ 5.60	$ 537,936
14	Side Slope Operations Layer	8,309	cy	$ 6.50	$ 54,012
15	6-inch Diameter SDR 11 HDPE LCRS Pipe	10,800	lf	$ 20.00	$ 216,000
16	Rip Rap	4	ls	$ 30,000	$ 120,000
17	Leak Detection Survey	4	ls	$ 17,000	$ 68,000
18	Revegetation	20	ac	$ 1,500	$ 30,000
19	CMP Culverts	200	lf	$ 75.00	$ 15,000
20	Stormwater Controls	4	ea	$ 2,500.00	$ 10,000
21	Stormwater Pollution Prevention Plan Preparation	4	ea	$ 7,800.00	$ 31,200
22	Stromwater Pollution Prevention Plan Implementation	4	ea	$ 15,000.00	$ 60,000
				Total	**$ 69,424,547**

TABLE 1.4
ALTERNATIVE 1a COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
LCRS EXTENSION

	Item	Quantity	Unit	Unit Cost	Total
1	Design	1	ls	$ 100,000	$ 100,000
2	Mobilization/Demobilization	3	ls	$ 15,000	$ 45,000
3	Layout of Work and Surveys	3	ls	$ 30,000	$ 90,000
4	Waste Excavation	443,000	cy	$ 15.00	$ 6,645,000
5	Extend LCRS System	3	ea	$ 30,000	$ 90,000
6	Remove and Dispose of Side Slope Liner	136,000	sf	$ 0.20	$ 27,200
7	Stormwater Controls	3	ea	$ 4,000	$ 12,000
8	Stormwater Pollution Prevention Plan Preparation	3	ea	$ 7,800.00	$ 23,400
9	Stromwater Pollution Prevention Plan Implementation	3	ea	$ 15,000.00	$ 45,000
				Total	**$ 7,077,600**

TABLE 9.3
ALTERNATIVE 3 COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL
UNLINED UNIT

	Item	Quantity	Unit	Unit Cost	Total
1	Design and Permitting	4	ea	$ 100,000	$ 400,000
2	Mobilization/Demobilization	5	ea	$ 15,000	$ 75,000
3	Layout of Work and Surveys	5	ea	$ 30,000	$ 150,000
4	Remove Waste in Unlined Unit	3,646,000	cy	$ 11.50	$ 41,929,000
5	Subgrade Preparation	0	sf	$ 0.15	$ -
6	Geosynthetic Clay Liner	0	sf	$ 0.80	$ -
7	60-mil HDPE Double Sided Textured Geomembrane	0	sf	$ 0.75	$ -
8	60-mil White Single Sided Textured HDPE Geomembrane	0	sf	$ 0.75	$ -
9	Geocomposite	0	sf	$ 0.80	$ -
10	8oz/sy Nonwoven Geotextile	0	sf	$ 0.20	$ -
11	Anchor Trenches	0	lf	$ 13.00	$ -
12	Drainage Layer	0	cy	$ 38.00	$ -
13	Base Operations Layer	0	cy	$ 5.60	$ -
14	Side Slope Operations Layer	0	cy	$ 6.50	$ -
15	6-inch Diameter SDR 11 HDPE LCRS Pipe	0	lf	$ 20.00	$ -
16	Rip Rap	0	ls	$ 30,000	$ -
17	Leak Detection Survey	0	ls	$ 17,000	$ -
18	Revegetation	0	ac	$ 1,500	$ -
19	CMP Culverts	200	lf	$ 75.00	$ 15,000
20	Stormwater Controls	4	ea	$ 2,500.00	$ 10,000
21	Stormwater Pollution Prevention Plan Preparation	4	ea	$ 7,800.00	$ 31,200
22	Stromwater Pollution Prevention Plan Implementation	4	ea	$ 15,000.00	$ 60,000
				Total	**$ 42,670,200**

Backup for the basis of the cost per cy used in the cost estimate for excavation and relocation of the unlined cells

	Cost per CY		
	$	15.00	Golder Initial rough estimate, no backup, all in cost
	$	8.37	Golder bottoms up estimate, may not include some items (i.e. haul roads), may underestimate complexities, may be optimistic for productivity, includes re-landfilling
	$	7.86	Presidio project, actual costs, did not include permitting, engineering, CM, includes refilling directly adjacent but simple.
	$	7.36	CPEN estimate, does not include permitting, CM, engineering, does not include re-landfilling
	$	15.00	Used for Key West estimate, does not include redisposal, based on site specific factors, cost for equipment and location is higher
	$6-$22		Range used by Jacobs for LandREC tool, variable with site conditions, all in cost (except for any long hauling)
	$	10.00	Compromise Reasonable Estimate by J. Goodrich and S. Wright using this input dated 10/16/18
Use	$	11.50	Plus 15% for permitting, engineering, SDCs.

Pre-Subtitle D Area Waste Relocation Workplan

Western Placer Waste Management Authority

Submitted to:

Jacobs
2485 Natomas Park Drive Suite 600
Sacramento, California 95833

Submitted by:

Golder Associates Inc.
1000 Enterprise Way, Suite 190
Roseville, California, USA 95678

+1 916 786-2424

1649494

September 2018

Table of Contents

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

The Western Placer Waste Management Authority (WPWMA) owns the WPWMA Solid Waste Facility (Figure 1). WPWMA is a joint powers organization with members from Placer County, and the cities of Lincoln, Roseville, and Rocklin.

Solid waste management activities at the facility include a public drop-off area, materials recovery facility, construction and demolition debris processing facility, composting facility, and landfill. The facility is located on approximately 320 acres of land owned by WPWMA. WPWMA also owns approximately 465 acres to the west of the facility site and approximately 178 acres to the east of the facility site. The eastern property is immediately adjacent to the facility site.

In recognition of the projected growth of the WPWMA's service area, recent laws requiring increased waste diversion, and constraints related to the size of WPWMA's existing facilities, the WPWMA is considering expanding its facilities. To support its decision making, the WPWMA has initiated a master planning process to evaluate facility requirements and how to best accommodate those requirements on the WPWMA's existing property.

Conceptual alternatives that have been developed include expanding the existing landfill, modifying the site entrance and public unloading drop-off area, expanding the composting area, and expanding the construction and demolition processing area. An existing Pre-Title D waste disposal area constrains aspects of the conceptual alternatives. As a result, WPWMA is considering relocating the waste from the Pre-Subtitle D area to allow development of a lined landfill expansion area and/or to allow development of other solid waste facilities on earthfill that would be placed after the waste was relocated.

Golder Associates Inc. (Golder) has prepared this workplan to inform decision makers about the potential issues related to relocating waste and to provide an order of magnitude cost for relocating the waste.

1.1 Background

The WPWMA's existing landfill, Western Regional Sanitary Landfill (WRSL), is part of the WPWMA Solid Waste Facility. The permitted area of the landfill is 291 acres with 231 acres permitted for disposal activities. A current site plan is shown in Figure 1.

The site was originally permitted for waste disposal activities in 1979. In 1992, the landfill was divided into 16 modules for waste fill placement. Modules 1, 2, 10 and 11 predate Subtitle D and generally do not have composite liner systems. (A portion of Module 11 has a composite liner. However, throughout this workplan, Modules 1, 2, 10, and 11 will be described as unlined.)

- Modules 1 and 2 were constructed as waste disposal units lined with compacted on-site soils and have been closed with a final cover system consisting of various soil components. Modules 1 and 2 were closed in 1998.
- Modules 10 and 11 were constructed with a compacted clay liner. The southwestern end of Module 11 incorporated a geomembrane liner above the compacted clay liner. Modules 10 and 11 were closed with a final cover constructed in the summer of 1999. The western half of Module 10 and all of Module 11 includes a leachate collection system.

WPWMA is considering relocating the waste in the Pre-Subtitle D modules in order to potentially develop lined waste disposal modules or other solid waste facilities consistent with the adopted master plan. Relocating the existing waste will require removing the existing final cover, excavating the existing waste, placing it in existing composite lined modules and removing any contaminated soil and groundwater from beneath the Pre-Subtitle D area. This workplan has been developed to describe these activities.

The WPWMA is currently evaluating three possible alternatives for the Pre-Subtitle D area as part of the master planning process. Each of these alternatives as it relates to the Pre-Subtitle D area is described below.

- Alternative 1A: This alternative involves developing the Pre-Subtitle D area as new lined waste disposal modules conforming to current landfill liner requirements. Alternative 1A is shown in Figure 2.
- Alternative 2A: This alternative involves developing the approximately southern half of the Pre-Subtitle D area as new lined disposal modules conforming to current landfill liner requirements. Earthfill would be placed in the approximately northern half of the Pre-Subtitle D area to the approximate existing ground level. The area would be developed as a new public drop-off area and corporation yard. Figure 3 shows Alternative 2A.
- Alternative 3: This alternative involves developing the approximately southern quarter of the Pre-Subtitle D area as a new lined disposal module conforming to current landfill liner requirements. Earthfill would be placed in the approximately northern three-quarters of the Pre-Subtitle D area to the approximate existing ground level. The area would be developed for composting, C&D processing, new public drop-off area, and biogas fueling facility. Area would also be available for development of pilot-scale projects. Alternative 3 is shown in Figure 4.

1.2 Waste Relocation Requirements

This workplan has been developed following the requirements cited in Title 27 of the California Code of Regulations Sections 21090(f) (27 CCR §21090(f)) and 23 CCR §21810. Golder also used the CalRecycle guidelines provided in Local Enforcement Agency (LEA) Advisory #16 (dated September 26, 1994). Although the proposed waste relocation is not clean closure as envisioned by the regulations and LEA Advisory #16, they provide a basis for the evaluation of the proposed waste relocation.

As required by these regulations and guidance, this workplan provides the following information:

- Site Characterization – Section 2.0
- Excavation and Material Management Plans – Section 3.0
- Confirmation of Waste Relocation – Section 4.0
- Cost Opinion – Section 5.0

2.0 SITE CHARACTERIZATION

To demonstrate the suitability of the Pre-Subtitle D area for waste relocation, this workplan includes a site characterization. The characterization provides information for evaluating the nature and extent of waste and the extent of any known residual soil impacts owing to waste migration. This site characterization consists of:

- A site description, including the site location, a legal description, and site development information.

- A discussion of existing site conditions, including the regional and site geology and hydrogeology, the extent and character of waste, results from existing monitoring data, and conclusions regarding waste migration.

2.1 Site Description

The WRSL facility is on approximately 320 acres of land owned by the WPWMA off Highway 65 between Roseville and Lincoln, California. The permitted area of the landfill is 291 acres, with 231 acres permitted for disposal activities.

The WRSL site is not located within the estimated boundaries for the 100-year flood event based on the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA, 1998). The distance to the nearest 100-year floodplain is approximately 0.5 mile to the southwest of the landfill property.

2.2 Existing Site Conditions

The following sections summarize important considerations and findings regarding the site geology and hydrogeology, the extent and character of waste, the existing monitoring program, and waste migration information. The geology and hydrogeology of the site has been previously characterized by Lawrence & Associates (1995) and were described in the SEIR (EDAW, 2000). The following paragraphs summarize the subsurface conditions and are based primarily on information presented in those reports, supplemented by published reports on local and regional geology.

2.2.1 Geology

The landfill property is located in the southeastern portion of the Sacramento Valley, west of the Sierra Nevada foothills. Basement rocks in the area consist of plutonic and metamorphic rocks of the Sierra Nevada batholith and associated metamorphic complexes. These basement units are exposed in the foothills approximately 5 miles east of the site. Overlying the batholith in the valley is an eastward-thinning sequence of marine sedimentary rocks of Upper Cretaceous age, unconformably overlain by Tertiary and Quaternary sedimentary deposits. Formations located in the vicinity of the landfill (EDAW, 2000; Lawrence & Associates, 1995; Helley and Harwood, 1985) include a Miocene through Holocene sequence of alluvial deposits derived from Tertiary volcanic rocks and the Sierra Nevada batholith. The Tertiary and Quaternary sedimentary units are exposed near the site and underlie the landfill.

Geologic units at the immediate site vicinity include the following from youngest to oldest:

- Holocene age alluvium deposits found in Pleasant Grove Creek and Orchard Creek to the south and north of the landfill, respectively. The alluvium consists of unweathered gravel, sand, and silt. Holocene-age basin deposits are derived from the same sources as the alluvium but consist of fine-grained silt and clay.
- Pleistocene age Riverbank Formation consists of unconsolidated to semi-consolidated gravel, sand, and silt, with minor clay, and is red to dark brown in color. Riverbank Formation outcrops generally are topographically higher than the Holocene alluvial deposits. The formation is exposed along the sides of the present Orchard Creek drainage approximately ½ mile northeast of the landfill property.
- Pleistocene age Turlock Lake Formation in the southern and eastern parts of the Sacramento Valley consists of stream-laid alluvial deposits of arkosic gravel, sand, silt, and clay. The formation stands topographically higher than the Riverbank and modern alluvial plains and is highly dissected by stream erosion. The Turlock Lake Formation underlies most of the gently rolling hills near the landfill, and represents eroded alluvial fans derived from the Sierra Nevada.

- Pliocene age Laguna Formation consists of interbedded alluvial gravel, sands, and silts and generally is lithologically indistinguishable from the Turlock Lake Formation. Geologic maps from the early 1960's show much of the Turlock Lake Formation as Laguna Formation (Lawrence & Associates, 1995). The distinction between the two formations is primarily based on soil development at the ground surface.
- Miocene-Pliocene age Mehrten Formation are volcanic deposits derived from the Sierra Nevada. The Mehrten Formation, exposed in the hills approximately 2 miles to the east of the landfill, is comprised of cemented boulder to cobble conglomerate, sandstone, siltstone, and tuff breccia of andesitic material. The tuff breccia is hard, and forms ridge tops east of the site. The similar ages of the volcanic and alluvial deposits suggest that there may be some interfingering of the two deposits (Lawrence & Associates, 1995).

These geologic units are relatively flat-lying alluvial sediments. The younger sedimentary units are often similar in lithology, and the subsurface contacts between the units are not well defined.

2.2.2 Hydrology

Surface water from the site drains to the north to Orchard Creek and to the south to Pleasant Grove Creek. Both streams eventually flow into the Sacramento River. Stormwater is the only surface water at the site.

Groundwater occurs at a depth of 70 to 110 feet within the alluvial sediments that underlie the site. Groundwater has been observed within the overlying unsaturated zone in what has been referred to as temporary or transient perched zones. This water is considered to result from the downward migration of infiltrating water. The water may accumulate on lower permeability layers and form temporary perched zones (EMCON 1988). The average hydraulic conductivity for site wells MW-13, MW-19, and MW-21 is 2.47 x 10^{-3} cm/sec (Holdredge & Kull, 1997a). The groundwater flow direction is primarily to the southwest. The height of capillary rise beneath the site has been estimated using published relationships between grain size and capillary rise (Todd, 1980, Bouwer, 1978). Golder has estimated the capillary rise above the water table to be 3.5 feet.

2.2.3 Soil Conditions

The subsurface stratigraphy of the site has been explored in a number of different exploration programs. The relevant exploration programs consist of:

- Geomechanics, Inc., 1977
- EMCON Associates, 1979
- Lawrence & Associates, 1995, 1996
- Holdrege & Kull, 1997
- Golder, 2001

Most of these boring were advanced to depths between 25 and 40 feet below ground surface (bgs). Two of the Geomechanics' borings were advanced to 109 and 125 feet, respectively. The Golder borings were advanced to depths ranging from 86.5 to 101.5 feet, bgs.

In general, the subsurface stratigraphy varies over the area of the site, resulting in a wide variety of sand, silt, and clay mixtures typical of the historic gently graded riverbed system. Orange and dark gray staining indicates wet and dry cycles typical of seasonal high and low water levels.

Typically, the first 5 to 10 feet of materials encountered are compacted sandy gravel or silty sand with gravel fill associated with road construction. Below the compacted fill, a hard sandy silt/clay was evident in most borings. This hard fine-grained soil layer was intermixed with poorly graded sand lenses ranging from a thickness of less than 1 inch to about 20 feet. Some borings encountered low-plasticity clay layers that averaged about 5 feet thick.

Soils at the site are generally moderately to highly expansive, with areas of low-expansive soils (EDAW, 2000a). Near-surface soils in the area of the landfill gas blower/flare station were characterized as slightly to moderately expansive (Lawrence & Associates, 1995).

The soil materials at the site are generally hard to dense, providing an excellent foundation for the landfill development. Uncorrected standard penetration test blow count data from the Golder study averaged 70 blows per foot in the fine-grained soils and 52 blows per foot in the course- grained soils. Laboratory unconfined compressive strength data for the fine-grained soils averaged over 4,800 pounds per square foot (psf). Mohr-coulomb effective strength parameters from consolidated undrained triaxial shear test results average effective friction angle, Φ', equal to 36 degrees and effective cohesion, c', equal to 65 psf. The corresponding total stress parameters are Φ equal to 25 degrees and c equal to 605 psf. Consolidation test data for the fine-grained material resulted in an average compression index, C_c, value of 0.09.

2.2.4 Waste Characterization

Based on the base grading drawings prepared by Lawrence and Associates (1995) and the 2016 aerial topography prepared by American Aerial Mapping, Inc., the estimated total volume of the Pre-Subtitle D landfill area is estimated to be approximately 3,646,000 cubic yards (cy). The waste is assumed to be comprised of Class III nonhazardous solid waste. It is generally assumed the landfill waste can be classified as general wastes, and include mixed municipal wastes, construction and demolition debris, yard wastes and rubbish, and inert materials such as concrete and white goods.

2.2.5 Existing Monitoring and Waste Migration Findings

Modules 1, 2, and 10 are reported not to have a leachate collection and removal system (LCRS) above the compacted on-site soils. Modules 2 and 10 have leachate sumps and a side slope riser pipes to access the sumps. Module 11 has a leachate collection and removal system that includes a leachate sump.

Degradation of site groundwater quality was first observed in fourth quarter 1995 in monitoring well MW-9, located just west of Module 2, which was subsequently closed in 1998. Groundwater monitored by well MW-9 contains several volatile organic compounds (VOCs). A comparison of VOCs detected in landfill gas samples from site landfill gas probe GM-14 with the VOCs detected in groundwater in well MW-9 indicates that landfill gas may be responsible for the VOCs detected in well MW-9 groundwater (Lawrence & Associates, 1995b). In addition, analyses of general water quality parameters in well MW-9 indicate that there may be a leachate influence on the quality of groundwater. Lawrence & Associates (1995b) have shown that the effects of leachate on groundwater are limited to a small area around well MW-9. The Corrective Action Program and its addendum (Holdrege & Kull, 1997b, 1997c) identify the installation of final cover and the extraction of landfill gas as the initial corrective actions to be implemented. Sampling corrective action monitoring wells MW 9, MW-10, and MW-11 on a quarterly basis monitors the effectiveness of this program.

Fluctuations in concentrations of VOCs, calcium, magnesium, and bicarbonate alkalinity, all of which can be affected by LFG, have been observed in the samples from the corrective action program wells. The changes in concentrations of these parameters suggest that the influence of LFG on groundwater quality has varied over time.

3.0 EXCAVATION AND MATERIAL MANAGEMENT

In accordance with Section 21090 (f) of 27 CCR, waste relocation of a landfill is complete when:

- All waste materials, contaminated components of the containment system, and affected or polluted geologic materials (soils, rock, groundwater) beneath or surrounding the Unit, and caused by a release from the Unit, are either removed and discharged to an appropriate Unit or are treated to the extent that the RWQCB finds that they no longer pose a threat to water quality.
- All remaining containment features are inspected for contamination, and if contaminated, discharged in accordance with subsection 21090 (f) of 27 CCR.

The Pre-Subtitle D area is an unlined landfill with no containment systems other than the underlying soils and the surface cover soils. In addition, as discussed previously, and based on available analytical data, there is no known significant impact to underlying soils or groundwater resulting from this area. Consequently, waste relocation activities at the Pre-Subtitle D area will be directed toward excavation, management, and disposal of waste materials at one or more approved facilities depending on their character, and excavation, management and disposal or treatment of any affected soils beneath or surrounding the waste materials pose a threat to water quality as determined by the RWQCB, these materials will be managed and treated or disposed of as appropriate.

Waste relocation activities at the Pre-Subtitle D area will include excavation of existing final cover soils, waste (including daily and interim cover), and as appropriate, any underlying soils affected by a release from the landfill and posing a threat to water quality or the environment. Golder estimates that excavation may include approximately 3,646,000 cy of material (final cover soils, Class III nonhazardous solid wastes, and daily and interim soil cover) as described in Section 2.2.3. We have assumed over-excavation will average 2 feet below the base of waste throughout the Pre-Subtitle D area footprint.

The Excavation and Materials Management Plans designate waste materials for excavation, proper management, and disposal according to waste classification and applicable laws and regulations. Soils will be excavated and properly managed and reused onsite based on their characteristics and any associated threat to water quality. The goal of excavation and materials management is the removal of all waste materials and any surrounding soils so affected by contact with waste or a release from the landfill that they would otherwise pose a threat to water quality or the environment, and thereby clean close the Pre-Subtitle D area. Soils not affected by waste will be excavated, stockpiled, and reused on site.

The waste relocation will include the following activities:

- Contractor mobilization.
- Final cover removal and stockpiling.
- Excavation, materials management, and transportation and disposal of waste materials.
- Excavation and stockpiling of clean cover and berm soils.
- Confirmation sampling and analysis by a California certified laboratory of the exposed subgrade in the excavation area and stockpiled soils.
- Placement of daily cover or alternative daily cover (ADC) at the end of each working day over all exposed solid waste surfaces to control vectors, fires, odors, blowing litter, and scavenging. Daily cover shall consist

of no less than 6 inches of compacted earthen material (from approved on-site sources) or approved ADC. All daily cover must meet the performance standards of the California Code of Regulations (CCRs) Title 27, Sections 20695and Sections 21570 through 21686.

- Placement of intermediate cover consisting of at least 12 inches and no more than 18 inches of compacted earthen material shall be placed on all surfaces of exposed solid waste where no additional waste excavation or waste relocation work will occur within 180 days to control vectors, fires, odors, blowing litter, and scavenging. Intermediate cover does not consist of any of the acceptable alternative daily materials listed in Section 20690 of the CCRs, Title 27.
- Site winterization and interim grading to control stormwater run-on and infiltration into the remaining waste.
- Finish grading of the site and construction of any temporary storm water control measures.
- Seeding of disturbed areas to reduce erosion.
- Site cleanup and contractor demobilization.

The waste relocation activities will be monitored and documented by a full-time resident engineer from the WPWMA or their designee. Selected by the WPWMA, the contractor, with certain restrictions, will be responsible for conducting waste relocation activities in general conformance with this workplan and the Module 1, 2, 10 and 11 waste relocation Plans and Specifications, and in strict conformance with applicable laws, permits, and regulations.

The contractor's responsibilities will include, but not necessarily be limited to:

- Obtaining all required permits for the waste relocation excluding the notice of intent (NOI), which the WPWMA will submit prior to the start of the waste relocation activities.
- Preparing and being in compliance with a project-specific Health and Safety Plan (HASP).
- Preparing and implementing an excavation plan. The Placer County Division of Environmental Health is the Local Enforcement Agency (LEA) and will require that the contractor provide twenty-four (24) hour notice to the LEA prior to implementation of the excavation plan.
- Providing an estimate and demonstrating compliance with daily and cumulative air pollution emissions for their planned equipment utilization established for the project based on the air pollution control rules, regulations, ordinances, and statutes maintained by the Placer County Air Pollution Control District (PCAPCD).
- Preparing and implementing a Materials Management Plan (MMP) identifying the methods used to excavate, store, load, and transport the materials for the waste relocation to a designated disposal area on site. The contractor also is required to submit as part of the MMP a contingency plan in the event that non-conforming wastes or hazardous wastes or impacted soils are encountered during the excavation. The MMP will identify methods to segregate and manage wastes based on their classification (conforming or non-conforming or hazardous) and impacted soils from clean soils in the event impacted soils are encountered. The MMP will identify measures to minimize erosion from or ponding on stockpiles especially temporary soil stockpiles. The MMP will specify methods to identify, classify, store, transport, and dispose or otherwise manage all encountered wastes in accordance with all applicable Federal, State, and local laws and requirements.

- Preparing and implementing a Construction Storm Water Management Plan (C-SWPPP), excluding filing of a Notice of Intent (NOI), which the WPWMA will prepare and submit.
- Designating and maintaining soil stockpile areas.
- Maintaining site safety and security.
- Developing and implementing a dust control plan as required by the PCAPCD and any other measures that may be required to mitigate environmental impacts to acceptable levels.
- Excavating, managing, and transporting conforming waste materials to the designated disposal area on site.
- Excavating, stockpiling, and managing soil materials based on their character as determined from observations and analytical testing by others.
- Finish grading in conformance with the excavation plan and the Module 1, 2, 10 and 11 waste relocation Plans and Specifications.

3.1 Excavation Plan

Waste relocation of the Pre-Subtitle D area will require excavation of waste and soil materials from the modules that encompasses approximately 65.8 acres as shown in Figure 1. The contractor will identify on a daily basis the area of excavation and strip the existing surface cover soils that are not impacted by waste. The contractor will stockpile these soils in a designated stockpile area. The contractor will excavate waste materials, including commingled cover soils, and place them into trucks for transport to the designated disposal areas on site. WPWMA will dispose of the waste materials in conformance with site permits and applicable laws and regulations. Excavation will proceed until reaching the base of waste. The excavation will progress laterally across the designated excavation area. Trained personnel provided by the contractor will observe the excavation process to identify any non-conforming waste materials, including hazardous waste as described in Section 3.2. Trained personnel provided by the contractor will also observe the exposed subgrade soils to identify any areas that may be affected by a release from the landfill.

Available geologic information indicates that the Pre-Subtitle D area lies primarily above stream-laid alluvial deposits of arkosic gravel, sand, silt, and clay. In some areas, it is anticipated that excavation will extend into the underlying gravel, sand, silt, and clays. Actual grades and conditions may vary and will be determined at the time of excavation. Anticipated excavation depths range from 10 to 66 feet, based on available information.

During excavation, the contractor will be responsible for excavating to design lines and grades or alternative lines and grades required to remove all waste materials and affected soil materials that may pose a threat to water quality. The contractor also will be responsible for excavating and maintaining stable excavation slopes including interim waste slopes and intermediate (if necessary) and final soil slopes.

The contractor should excavate slopes that conform to the following maximum (horizontal:vertical) inclinations:

- Interim waste slopes should not exceed 3:1
- Interim soil slopes should not exceed 2:1
- Final soil slopes will vary between 2:1 and 4:1

WPWMA personnel or their designee will observe the contractor's progress during waste relocation activities and provide guidance necessary to assure waste relocation of the site and maintain acceptable excavation lines and grades.

Waste relocation activities will include excavation and stockpiling of almost 428,000 cy of final cover soil that is not anticipated to be significantly affected by waste materials. The contractor will designate and maintain stockpile areas of sufficient size and appropriate location for these soils. The contractor will be responsible for managing these soils and any over-excavation soils in conformance with the drawings and specifications and any applicable permit conditions, regulatory requirements and laws. Section 3.2.

The contractor will cover exposed waste at the end of each work day with a minimum of 6 inches of compacted earthen material or an approved ADC (e.g., tarps) to control vectors, fires, odors, blowing litter, and scavenging. The contractor will place intermediate cover over exposed waste and temporary waste slopes where no additional waste excavation or waste relocation work will occur within 180 days. Intermediate cover will consist of a minimum 1-foot thick layer of compacted earthen material, including daily cover soil. There are no approved alternative materials for intermediate cover. The intermediate cover will protect otherwise exposed waste, thereby controlling vectors, fires, odors, blowing litter, and scavenging during any potential lapses in waste relocation activities.

To confirm complete removal of the waste and any affected soil materials that may pose a threat to water quality if not removed and properly disposed of or treated, project personnel will observe and document material removal and other waste relocation activities as appropriate. This will include daily field logs of areas excavated, quantities removed, and scale tags from the materials delivered to the active face or other designated facility.

The contractor will provide for positive drainage at the top of all excavation slopes to control storm water run-on into the excavation. The remaining excavation will be graded such that precipitation from the 100-yr, 24-hr design storm will drain and prevent water from rising above the waste at the toe of the temporary waste slope. This will prevent ponding water from posing a threat for seeping into buried waste and causing a potential for leachate development. WPWMA personnel or their designee also will visit the site after precipitation events that exceed 2 inches of rainfall and coordinate pumping of ponded water if need be. Slopes that will be cut from native soils will be constructed without the intermediate cover.

The overall removal rate and sequencing will be determined by the contractor, with an anticipated timeline of approximately 300 days for the project. Although it is not anticipated that the project scope will change significantly, the volume and duration of excavation is subject to revision based on the contractor's performance and other factors.

Excavated areas to be developed with a Subtitle D composite liner system will be graded at about 1.5% to 3.5% to flow to the northeast corner of the excavation as shown on the drawings. Areas to be developed for other solid waste facilities will receive earthfill to the design grades shown on the drawings. All slopes will be seeded at the conclusion of construction to control erosion. Additional erosion controls such as diversion berms, hay bales, and straw wattles will be used as necessary during construction in accordance with the C-SWPPP. Perimeter slopes will be seeded to reduce erosion.

3.2 Materials Management Plan

The contractor will designate locations for loading, storage, and transport of excavated materials generated during the waste relocation. The contractor will excavate and load waste and over-excavation materials that pose a threat to groundwater quality into haul trucks and transport them to the designated disposal area as described in

Section 3.3. The contractor will store cover and berm soils on site in a designated location for use as daily cover or drainage control or final grading at the end of the project.

Although it is anticipated that primarily MSW will be encountered, there is the potential to encounter hazardous or non-conforming wastes during the waste relocation. Hazardous wastes are defined in Title 22 of the California Code of Regulations (22 CCR) Section 66261.3. Hazardous wastes have the following characteristics:

- Are ignitable, corrosive, reactive, or toxic.
- Have the potential to cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness.
- Have the potential to pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of, or otherwise managed.

Non-conforming wastes include all other waste material that are not accepted at the WRSL, excluding hazardous waste, and include:

- Sludge with less than 15% solids.
- Designated wastes that may be currently not accepted include, but are not limited to, industrial sludges, dredge debris, slab/construction/demolition debris, commercial/industrial waste, and glass cullet.
- Wastes containing soluble pollutants in concentrations that exceed applicable water quality objectives, or that could cause degradation of waters of the state per California Water Code Section 13173.
- Cathode Ray Tubes (CRTs) from televisions and computer monitors.
- Electronic wastes such as televisions, refrigerators, etc.
- Dead animals.

The contractor will be required to develop and implement a contingency plan in case hazardous or non-conforming wastes are encountered during waste relocation. The contingency plan will include:

- An introduction that provides a brief overview of waste relocation operations, a general description of the physical area, a general description of the nature of hazards or events in which the contingency plan is applicable, and a list of emergency planning requirements being addressed in the plan.
- A core plan including discovery, initial response, sustained actions, and termination and follow-up actions.
- Annexes, including facility and locality information, notification, response management systems, incident documentation, training and exercises, response critique, plan review, and modifications process, prevention, and regulatory compliance and cross reference matrices.

The contractor will base the contingency plan on guidelines issued by the State of California Governor's Office of Emergency Services (CA OES, 2001). The contractor will provide personnel that are trained to implement the contingency plan. Training must be done in conformance with all applicable laws.

Hazardous and non-conforming waste will be stored on-site in a designated area following all applicable regulatory laws. Containers that are suspected of containing hazardous materials or non- conforming wastes must be checked by trained personnel for integrity, damage, contents, etc. Testing methods for identifying hazardous waste are provided in 22 CCR Chapter 11.

Disposal and transportation of non-conforming and hazardous wastes require specially permitted transporters and facilities. Therefore, the contractor and WPWMA personnel, cannot perform such activities. A hauler and facility specially permitted for hauling and receiving hazardous wastes will be identified in a contingency plan developed by the contractor.

3.3 Transport and Disposal of Excavated Materials

Excavated materials will be transported to the active face or designated disposal area on site by the contractor. Weight tags will be collected and used for documenting final disposal of all waste materials.

Disposal and transportation of non-conforming and hazardous wastes require specially permitted transporters and facilities. Therefore, the contracted municipal solid waste hauler and the accepting facility, the WRSL, cannot perform such activities. A hauler and facility that are specially permitted for hauling and receiving hazardous wastes will be identified in a contingency plan developed by the contractor.

3.4 Health and Safety Issues and Control Procedures

Waste relocation will include excavation of waste materials that may contain unknown materials including MSW, non-conforming wastes, hazardous waste, leachate, and soils that could pose hazards to the environment or the health and safety of workers or both. Waste relocation projects like the Pre-Subtitle D area waste relocation require health and safety guidelines and a site-specific HASP to reduce the potential hazards associated with waste relocation activities to acceptable levels. This section of the workplan provides general health and safety guidelines and practices that must be addressed in the project-specific HASP that the contractor will be required to develop and implement. This workplan provides general health and safety concerns and preventive actions for environmental and personnel hazards relevant to the clean closure.

3.4.1 Environmental Hazards

Waste relocation activities have the potential to present environmental health hazards that could affect the surrounding community or environment. Such hazards include groundwater and surface water contamination and decreased air quality owing to emissions resulting from waste relocation activities. Implementation of measures to control environmental hazards or improper control of environmental hazards can expose workers to health and safety hazards. This workplan describes these hazards and methods to reduce the threat that they otherwise pose to workers and the public. This workplan also describes environmental controls typically required that are included as part of the waste relocation project.

3.4.1.1 Water Quality

To provide stormwater pollution prevention, the contractor will develop and submit a NOI to comply with the terms of the general permit to discharge stormwater associated with construction activity (WC Order No. 2009-009-DWQ). The NOI will be developed by WPWMA under the State of California's general permit for construction activities. The contractor will submit a stormwater pollution prevention plan (SWPPP) including provisions to manage leachate in the event that it is encountered or generated during the waste relocation of the Pre-Subtitle D area. Leachate may require testing and special management practices to minimize potential impacts to the environment and health hazards to workers. Management practices may include pumping and transportation for disposal at an appropriate facility selected by the contractor and approved by the WPWMA. Leachate management activities will be conducted by the contractor in accordance with this plan, the Pre-Subtitle D area permits and applicable laws.

3.4.1.2 Air Quality

To control particulate emissions, the contractor will be required to implement measures identified in a dust control plan. These measures will include:

- Pre-water site and phase work to reduce the amount of disturbed surface area at any one time.
- Apply water to dry areas during leveling, grading, trenching, and earthmoving activities.
- Apply water to unpaved haul and access roads.
- Apply water to vehicle traffic and equipment storage areas.
- Apply water to disturbed areas.
- Limit vehicular speed to 15 mph in unpaved areas.
- Apply water and cover with tarp when storing materials.
- Apply water when handling bulk materials sufficient to limit visible dust emissions (VDE) to 20% opacity.
- Cover bulk materials stored outdoors with tarps, plastic, or other suitable material and anchor to prevent the cover from being removed by wind.
- Clean up carryout and trackout areas at the end of each workday.
- Cover the cargo compartment of loaded and emptied trucks with a tarp or suitable cover before leaving site.
- Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate.
- Limit vehicular speed sufficient to limit VDE to 20% opacity, or limit load haul trucks to have greater than 6" freeboard, or apply water to top of load sufficient to limit VDE to 20% opacity.
- Apply water to disturbed surface area and restrict vehicular access after work hours, on weekends and on holidays.
- Temporarily stabilize disturbed surface areas that remain unused for 7 or more days.
- Apply and maintain water to all un-vegetated areas unused for 7 or more days.
- Maintain records for demonstrating compliance with dust control measures.
- Maintain records for demonstrating compliance for cleanup of carryout and trackout areas.

The contractor will be responsible for the specifics as to how these measures will be implemented.

3.4.1.3 Odor Control

Odor can be an issue for excavation of younger waste (younger than 20 years) during summer time. While generally the odors are controlled by prompt placement of daily and intermediate cover, there are some other methods that can help in mitigating odor problems. Below is a list of the new technologies the WPWMA might implement.

- Odor control sprayers are wheeled tractors with a cab, consisting of a movable spray arm and a mounted reservoir, is used to reduce smell of exposed waste by spraying neutralizing agent, such as RenoSam 2009.
- Atomized misting equipment can suppress dust levels and can be installed in every place of the Pre-Subtitle D area and the landfill.
- A product, such as RusFoam ADC Soil Equivalent Foam (AC667), may be used to help control odor. RusFoam ADC Soil Equivalent Foam (AC667) is a water-based non-hardening product engineered to provide superior coverage and visual appearance on the working face. The 3" foam blanket fills any voids on the uneven surface of the waste, eliminating potential odor, litter or vector problems due to exposed trash.

3.4.1.4 Accidental Fire Control

An emergency plan should be prepared to extinguish fires in the waste. The equipment and method to be used for extinguishing fires should be presented in the plan. Isolation and rapid natural burnout or smothering with soil is preferred for extinguishing fire. The emergency plan should also include procedures for notification of local fire protection agencies for assistance in emergencies.

3.4.2 Hazards to Personnel

The waste relocation activities can present a range of potential physical, chemical, and radiological hazards to which personnel may be exposed. These are due both to the hazards presented by the work location itself and those that may be encountered during the completion of the required scope of work. The potential hazards include, but are not limited to:

Exposure to hydrogen sulfide, sulfur dioxide, vinyl chloride, chlorinated solvents, and methane;

- Lifting or moving heavy buckets or drums.
- Hazardous noise produced during excavation activities.
- Heat stress, and suffocation associated with weather and personal protective clothing.
- Exposure to radioactive sources.
- Hazards involving underground electrical, gas or other utilities, or overhead electrical lines, may be encountered.
- Slips and falls due to unstable surfaces, steep grades uneven terrain and trenches encountered during excavation/backfill activities.
- Energized electrical equipment malfunctions in on-site support equipment and machinery.
- Traffic hazards.

- Confined spaces.

Preventive measures will include general health and safety training, use of personal protective equipment, personnel monitoring, decontamination, and establishment of site control work zones. Emergency response actions and contacts will also be included.

Methods of eliminating or mitigating the identified risks should be developed and published as a part of the comprehensive health and safety program. The contractor's HASP will be specific to measures and equipment that will be used to complete waste relocation activities. A site safety officer will monitor compliance with the safety plan and will also oversee that on-site personnel understand all aspects of the HASP. The contractor also will conduct site monitoring. WPWMA will develop their own HASP for WPWMA personnel. The contractor's HASP and the WPWMA's HASP will be implemented during the waste relocation project. Although the health and safety program largely depends on site specific conditions, waste types, and project goals and can be particularly challenging, a typical health and safety program might call for the following:

- Hazard communication (i.e., a "Right to Know" component) to inform personnel of potential risks.
- Respiratory protection measures, including hazardous material identification and assessment; engineering controls; written standard operating procedures; training in equipment use, respirator selection, and fit testing; proper storage of materials; and periodic reevaluation of safeguards.

The program should also list the equipment to be used by workers. The types of safety equipment used the waste relocation project include:

- Standard safety equipment (e.g., hard hats, steel-toed shoes, safety glasses and/or face shields, protective gloves, and hearing protection).
- Specialized safety equipment (e.g., chemically protective overalls, respiratory protection, and self-contained breathing apparatus).
- Monitoring equipment (e.g., combustible gas meter, hydrogen sulfide chemical reagent diffusion tube indicator, and oxygen analyzer).

4.0 CONFIRMATION OF WASTE RELOCATION

Specific activities will be performed to confirm removal of waste materials and residuals. These activities will include:

- Observation and documentation of waste and residuals removal.
- Documentation verifying the final disposition of all waste and residual materials.
- Soil sampling.
- Reporting of waste relocation activities and confirmation sampling.
- Developing and implementing a remedial action plan (RAP) or closure and post-closure maintenance plans if waste relocation activities were not successful.

Procedures regarding observation and documentation of waste and residuals removal are presented in Section 3.1. Confirmation sampling procedures, reporting of waste relocation activities and sampling results from a California certified laboratory, and non-compliance actions are discussed below.

4.1 Waste Relocation Monitoring Parameters

Results from the existing monitoring program and past field investigations indicate that there is no known significant migration of waste residuals into groundwater and surface water. Upon waste relocation and completion of waste removal, the potential source of future contamination to groundwater or surface water will be subsurface soils that may have been impacted by waste residuals. Waste relocation activities, therefore, require testing of subsurface soils to assure removal of waste residuals that would pose a threat to water quality, human health, or the environment.

Waste relocation monitoring parameters for soil will include select constituents of concern from the existing site groundwater and surface water monitoring program and other parameters typically found at MSW landfills. Monitoring parameters recommended for the waste relocation activities consist of:

- Sulfide (EPA 9030)
- Cyanide (EPA 9010)
- VOCs (EPA Method 8260, extended list)
- Semi-VOCs (EPA Method 8270)
- CAM – 17 Metals (EPA 6010)
- Organophosphorus Compounds (EPA 8141)
- Chlorophenoxy Herbicides (EPA 8151)
- PCB’s (EPA 8082)

4.2 Post Excavation Sampling Procedures and Results Analysis

A qualified person, on behalf of the WPWMA, will inspect the subgrade or evidence of staining or potential areas of impact. Samples will be taken at a frequency of approximately 1 per 500 feet. If visual evidence is observed, an additional sample will be collected from the area of potential impact. Groundwater is not anticipated to be encountered during the sampling.

If used, soil borings will be advanced using a direct-push drill rig equipped with Geoprobe or equivalent sampling rods. Continuous soil cores will be collected in acetate tubes inside the sample barrel. After being advanced four feet, the inner sample barrel will be retrieved while the drive casing is left in place to prevent borehole collapse. After retrieving the inner core barrel, the soil samples will be removed for laboratory chemical analyses. Each boring will be backfilled with bentonite pellets.

Soil samples will be collected for laboratory analysis from each boring at 0-1 feet, 1-2 feet, 2-3 feet, 3-4 feet, and 4-5 feet. The soil samples collected from Cells will be analyzed in the laboratory for the parameters discussed in Section 4.1. All soil samples will be properly containerized, labeled, and preserved upon collection. Chain-of-custody documentation will accompany the samples to the laboratory for analysis.

Background concentrations will be used to compare to the samples collected during the waste relocation to determine if the underlying soils have been affected by waste constituents. The laboratory analytical results will be compared with the background concentration limits calculated. The tolerance interval method will be used to calculate concentration limits. This method is used to estimate the concentration a constituent can exhibit and still be considered consistent with background soil. In other words, tolerance limits represent concentrations beyond which a significant change has occurred.

If a soil sample has constituent concentrations that exceed the concentration limits, then it will be determined that the soil was affected by waste constituents. These data and subsequent evaluations will be used to determine the vertical extent of soils impacted by waste constituents.

If the 0-1 feet soil samples do not show impact from waste constituents, then only the upper foot of soil will be analyzed. If impacts from waste constituents are detected, soil will be excavated to additional depth based on the results of the soil sampling and comparison to background concentration limits.

Confirmation of waste relocation will be considered complete if no composite samples have concentrations exceeding background concentrations.

4.3 Reporting

A technical report will be developed describing the waste relocation activities and verifying that waste relocation has been completed. The report will include a site map, a letter certifying that monitoring parameters are at or below clean up limits as indicated by confirmation testing results, and the final disposition of waste and residual materials.

A registered civil engineer or a certified engineering geologist will prepare the report. The WPWMA will submit the report to the RWQCB, CalRecycle, and the Placer County Division of Environmental Health (acting as the LEA for the CalRecycle).

5.0 COST ESTIMATE

The engineer's cost opinion for the waste relocation project is approximately $24,469,135. The cost includes:

- Unit rates based on prevailing wages, CalTrans equipment rates, and CalTrans rates for labor surcharge and overhead and profit based on force account work.
- The waste and non-hazardous impacted soil will be removed and hauled to the landfill for proper disposal.
- It is assumed that an average of 2-feet of soil will be excavated across the entire footprint to confirm there are no impacts from waste constituents.
- A construction quality assurance officer will be on site for the entire duration of the project.
- Soil testing costs include 15 test pits with samples taken at depths of 2.5-ft, and 5-ft spaced at approximately 1 per 500 feet.
- C-SWPPP preparation and implementation.

The estimated cost does not include the following, which are assumed to be included in other elements of the master plan:

- Environmental analysis per CEQA and permitting.
- Liner, leachate collection system, and related costs for portion of the Sub-Title D area to be developed as landfill.
- Earthfill to support solid waste facilities other than landfill.

- Permanent drainage.

The details of the cost estimate for the closure of Module 1, 2, 10, and 11 is included in Appendix G - Closure/Postclosure Cost Detail.

Signature Page

Golder Associates Inc.

Lindsey Angell, PE
Senior Project Engineer

Richard D. Haughey, PE
Associate/Practice Leader

LMA/RDH/md

https://golderassociates.sharepoint.com/sites/10452g/shared documents/4technical work/clean closure workplan/clean closure workplan.docx

6.0 REFERENCES

EDAW, 2000, “Supplemental Draft Environmental Impact Report for the Western Regional Sanitary Landfill,” January 24.

EMCON Associates, Inc., 1988, “Report of Disposal Site Information, Western Regional Sanitary Landfill, Placer County, California,” October.

Golder Associates, Geotechnical Characterization for the Western Regional Sanitary Landfill JTD, May 2001.

Helley, Edward J. and D. S. Harwood, 1985, “Geologic Map of the Late Cenozoic Deposits of the Sacramento Valley and Northern Sierra Foothills, California,” Map MF-1790, United State Geological Survey.

Holdrege and Kull, May 20, 1997a. *Proposed Corrective Action Program for Western Regional Sanitary Landfill, SWIS No. 31-AA-0210, Lincoln, California.*

Holdrege and Kull, September 23, 1997b. *Addendum to Proposed Corrective Action Program.*

Holdrege and Kull, November 14, 1997c. *Groundwater Monitoring Well Installation Report.*

Lawrence & Associates, 1995a, “Report of Disposal Site Information for the Western Regional Sanitary Landfill, Placer County, California,” February 21, Sixth Revision December 18, 1996.

Lawrence & Associates, 1995a, “Report of Disposal Site Information for the Western Regional Sanitary Landfill, Placer County, California,” February 21, Sixth Revision December 18, 1996.

Lawrence & Associates, 1995b, “Revised Article 5 Monitoring Plan for Western Regional Sanitary Landfill, Placer County, California,” May.

State of California Governor’s Office of Emergency Services (CAOES), 2001, “Guidelines for Developing a Facility’s Consolidated Hazardous Materials and Waste Management Plan (Draft),: November.

TABLES

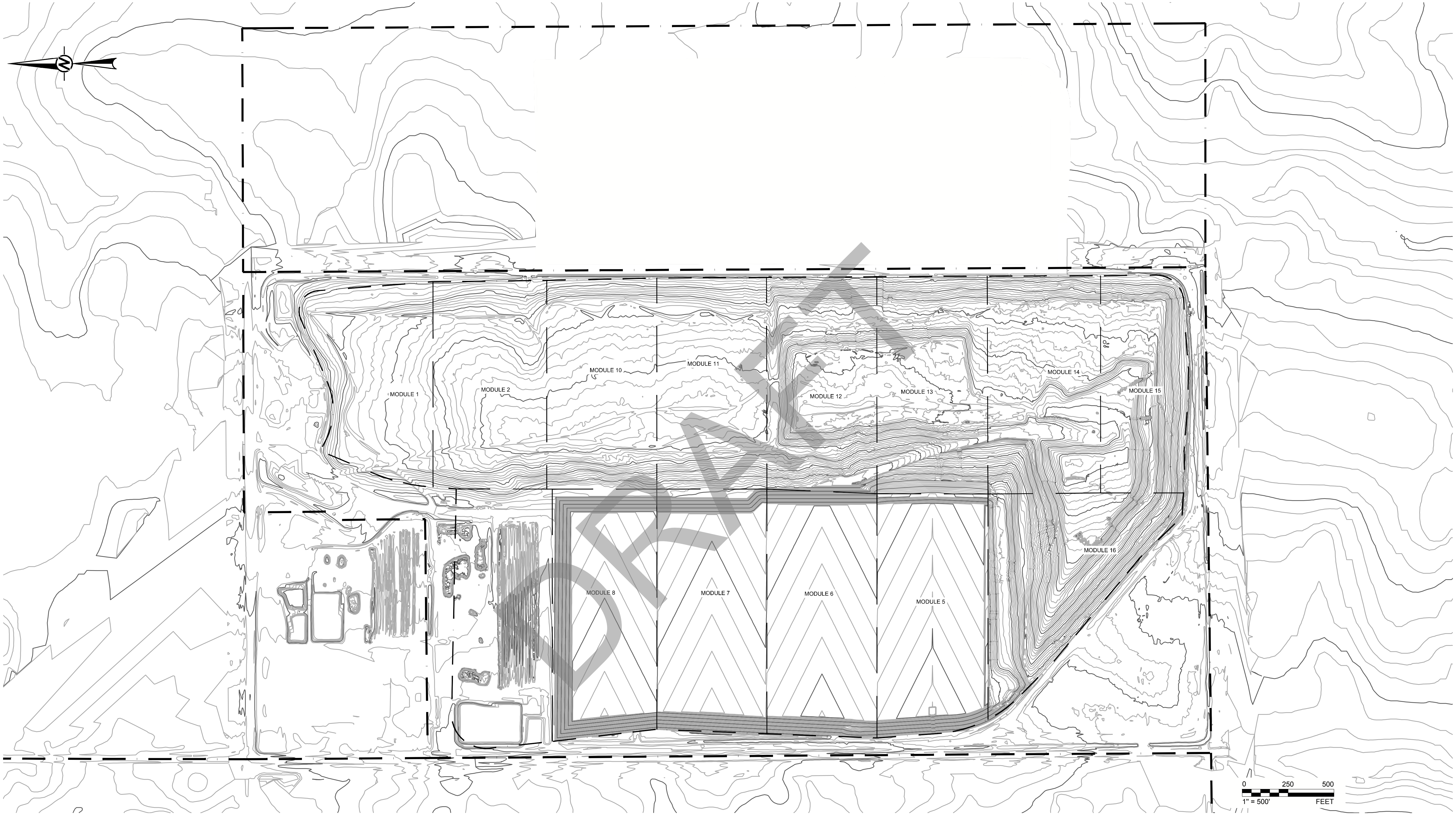
Table 1
Waste Relocation Cost Estimate
Western Regional Sanitary Landfill

Item	Unit	Unit Cost	Quantity	Total Cost
1. Waste Relocation Work Plan	ls	$ 56,800	1	$ 56,800
2. Waste Relocation				
a. Final Cover Excavation	cy	$ 9.30	425,017	$ 3,952,654
b. Waste Excavation	cy	$ 5.40	3,220,983	$ 17,393,311
c. Soil Liner & Subgrade Over-Excavation	cy	$ 3.00	425,016	$ 1,275,048
3. Construction Quality Assurance	ls	$ 1,427,368	1	$ 1,427,368
4. Soil Testing	ls	$ 40,791	1	$ 40,791
5. SWPPP Preparation and Implementation				
a. SWPPP Preparation	ea	$ 8,526	1	$ 8,526
b. SWPPP Implementation	ls	$ 15,000	1	$ 15,000
			Subtotal	$ 24,169,497
			Contingency (20%)	$ 4,833,899
			Total	$ 29,003,397
Waste to be Relocated (CY) [2]	3,464,000		**Cost $/CY**	$ 8.37

Notes:

1. From the General Prevailing Wage determination made by the Director of Industrial Relations pursuant to California Labor Code Part 7, Chapter 1, Article 2, Sections 1770, 1773 and 1773.1. Equipment rental rate from the 2018 CalTrans Labor Surcharge and Equipment Rental Rates.
2. Includes final cover.

FIGURES



CLIENT
JACOBS
2485 NATOMAS PARK DRIVE, SUITE 600
SACRAMENTO, CA 95833

CONSULTANT

GOLDER

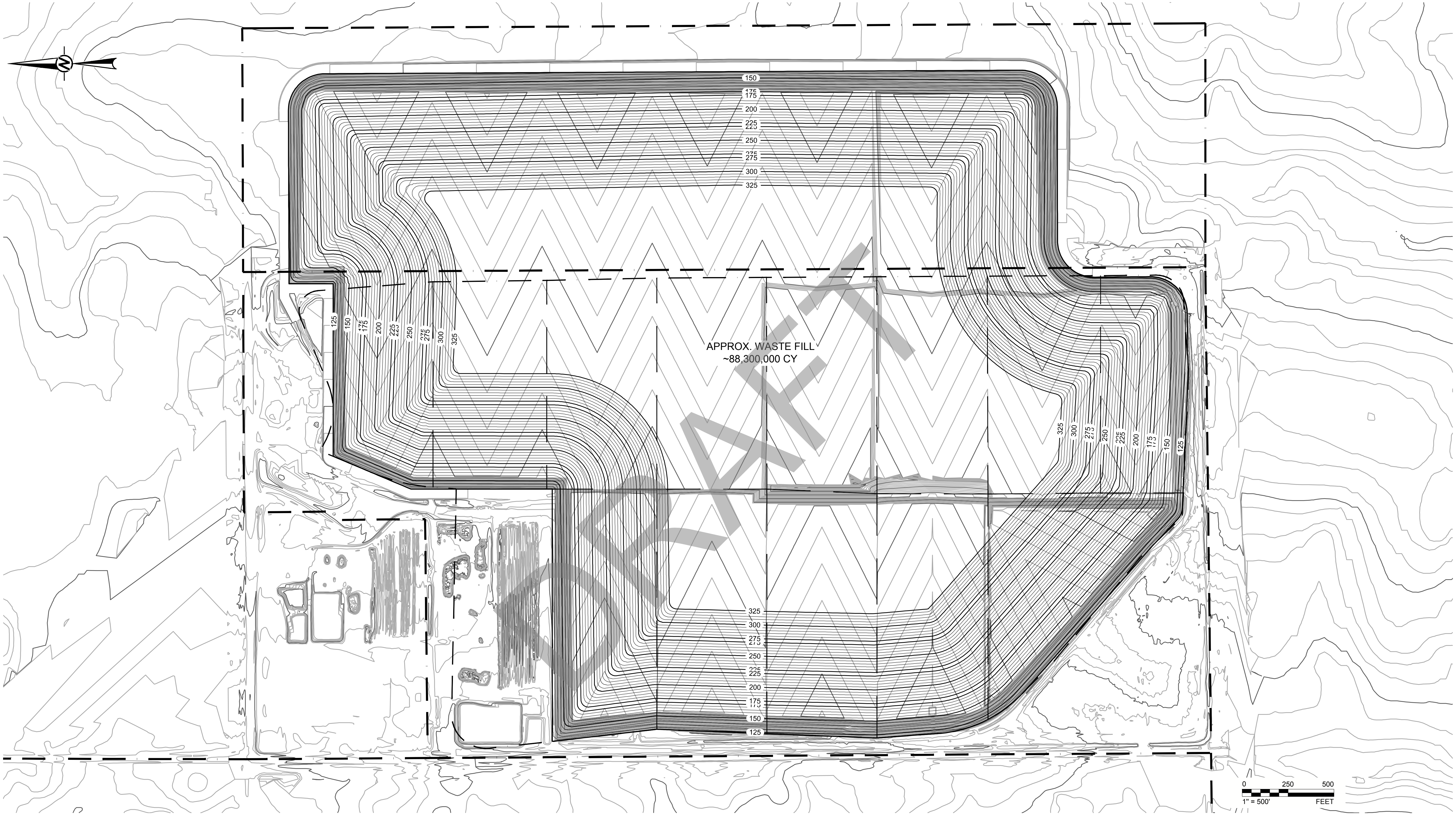
YYYY-MM-DD	2018-08-03
DESIGNED	JDR
PREPARED	MAG
REVIEWED	LMA
APPROVED	RDH

PROJECT
WPWMA SOLID WASTE FACILITY MASTER PLANNING

TITLE
SITE PLAN

PROJECT NO.	REV.	FIGURE
1649494	0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

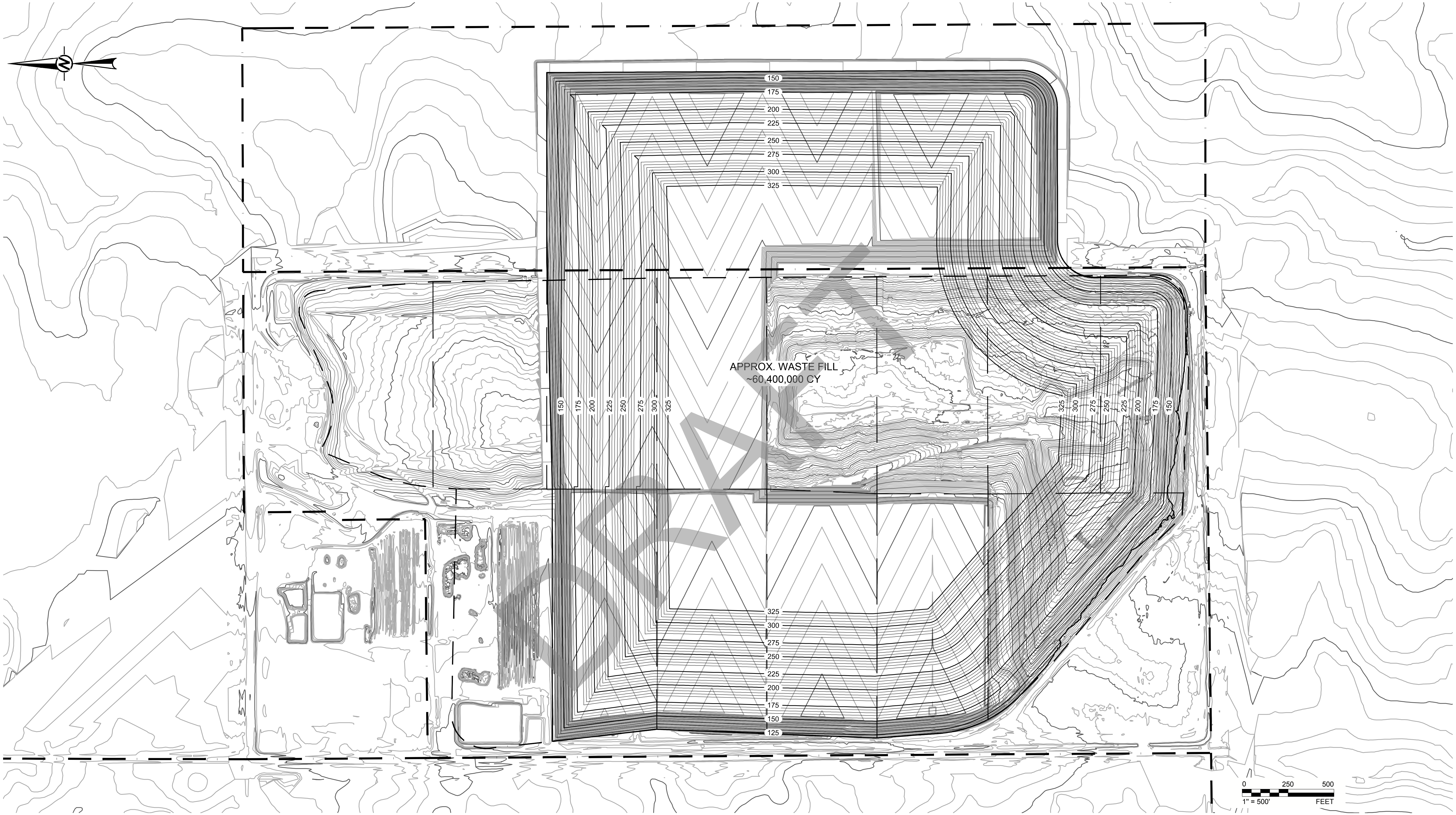


CLIENT JACOBS 2485 NATOMAS PARK DRIVE, SUITE 600 SACRAMENTO, CA 95833	PROJECT WPWMA SOLID WASTE FACILITY MASTER PLANNING
CONSULTANT GOLDER	TITLE **ALTERNATIVE 1A**

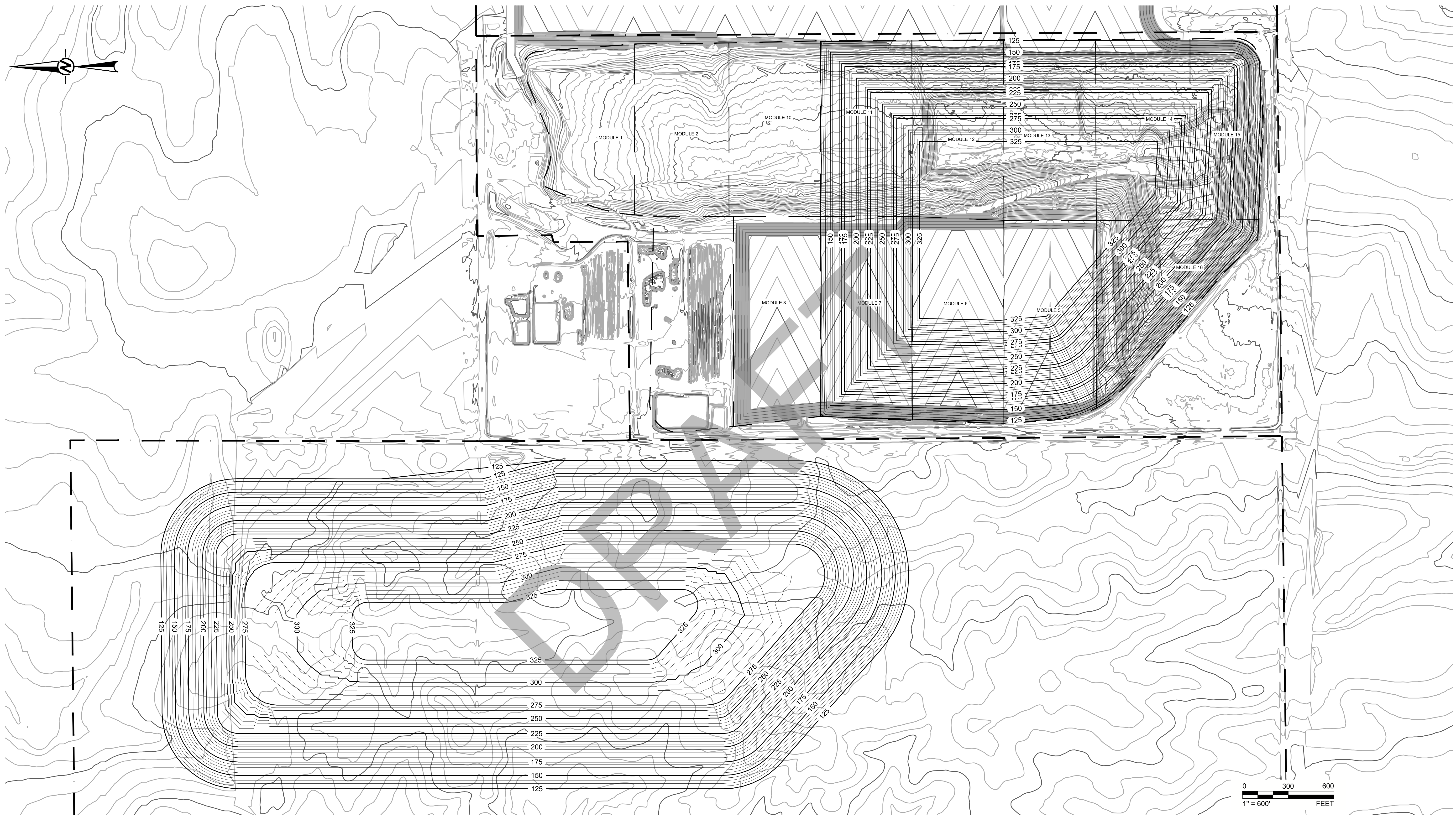
YYYY-MM-DD	2017-11-07
DESIGNED	JDR
PREPARED	JDR
REVIEWED	LMA
APPROVED	RDH

PROJECT NO.	REV.	FIGURE
1649494	0	2

Path: \\sacramento\acad\Sites\Western Regional LF\CIVIL 3D\2017 CONCEPTUAL FILLS\ | File Name: CONCEPTUAL FINAL GRADES v2.dwg | Last Edited By: cnieuwenhuis Date: 2018-09-06 Time:2:35:21 PM | Printed By: CNieuwenhuis Date: 2018-09-06 Time:2:48:51 PM



CLIENT JACOBS 2485 NATOMAS PARK DRIVE, SUITE 600 SACRAMENTO, CA 95833			PROJECT WPWMA SOLID WASTE FACILITY MASTER PLANNING
CONSULTANT GOLDER	YYYY-MM-DD	2018-08-03	TITLE **ALTERNATIVE 2A**
	DESIGNED	JDR	
	PREPARED	MAG	
	REVIEWED	LMA	PROJECT NO. 1649494 / REV. 0 / FIGURE 3
	APPROVED	RDH	



CLIENT
JACOBS
2485 NATOMAS PARK DRIVE, SUITE 600
SACRAMENTO, CA 95833

CONSULTANT

GOLDER

YYYY-MM-DD	2018-08-03
DESIGNED	JDR
PREPARED	MAG
REVIEWED	LMA
APPROVED	RDH

PROJECT
WPWMA SOLID WASTE FACILITY MASTER PLANNING

TITLE
ALTERNATIVE 3

PROJECT NO.	REV.	FIGURE
1649494	0	4

Path: \\sacramento\acad\Sites\Western Regional LF\CIVIL 3D\2017 CONCEPTUAL FILLS\ | File Name: CONCEPTUAL FINAL GRADES v2.dwg | Last Edited By: cnieuwenhuis Date: 2018-09-06 Time:2:35:21 PM | Printed By: CNieuwenhuis Date: 2018-09-06 Time:2:42:17 PM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B
1 in
0

APPENDIX A
WASTE RELOCATION COST ESTIMATE DETAIL

1. WASTE RELOCATION WORK PLAN
WASTE RELOCATION COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL

Position	Personnel	Wage Rate	Unit	Qnty	Subtotal
Principal	1	$ 235	/hr	40	$ 9,400
Sr. Project Manager	1	$ 186	/hr	80	$ 14,880
Staff Engineer	1	$ 112	/hr	120	$ 13,440
Administrative	1	$ 73	/hr	25	$ 1,825
Drafter	1	$ 97	/hr	150	$ 14,550
Communication Fee	--	5.0%	Labor fees		$ 2,705

Waste Relocation Work Plan Total: $ 56,800

2a. FINAL COVER EXCAVATION
WASTE RELOCATION COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL

Crew Costs:

Position	Personnel	Wage Rate	Units	Qnty	Subtotal
Survey Crew	2	$ 145.00	/hr	500	$ 145,000
Excavator Operator	4	$ 105.04	/hr	470	$ 197,471
Laborers	10	$ 75.17	/hr	470	$ 353,290
Compactor Operator	6	$ 104.10	/hr	470	$ 293,549
Scraper Operator	2	$ 105.94	/hr	470	$ 99,581
Haul Truck Driver	8	$ 84.93	/hr	470	$ 319,324
Water Truck Operator	2	$ 84.93	/hr	470	$ 79,831
Maintenance Truck Operator	5	$ 98.88	/hr	470	$ 232,357
Foreman	1	$ 94.25	/hr	470	$ 44,298
				Crew Total:	**$ 1,764,701**

Equipment Costs:

Item	No. of Equip.	Rate per Unit	Unit	Qnty	Subtotal
Mob/Demob	1	$ 100,000	ea	4	$ 400,000
Pickup Truck	6	$ 25.32	/hr	470	$ 71,411
Compactor - CAT 826	6	$ 204.65	/hr	470	$ 577,124
Excavator - 375L	4	$ 322.94	/hr	470	$ 607,133
Scraper	2	$ 87.23	/hr	470	$ 81,994
Haul Trucks	8	$ 87.66	/hr	470	$ 329,619
Water Truck	2	$ 67.68	/hr	470	$ 63,617
Maintenance Truck	5	$ 25.32	/hr	470	$ 59,509
				Equipment Total:	**$ 2,190,406**

TOTAL:	**$ 3,955,107**	
Waste Excavation Unit Cost:	**$ 9.31**	**/cy**
Rounded Waste Excavation Unit Cost:	**$ 9.30**	**/cy**

Schedule:

Work Item	Qnty[1]	Units	Production Rate[2]		Days
Vegetative Layer (1-ft)	106,254	cy	9,600	cy/day	12
Compacted Clay Layer (1-ft)	106,254	cy	9,600	cy/day	12
Foundation Layer (2-ft)	212,508	cy	9,600	cy/day	23
			Project Duration:		47

Notes:

1. Final cover system for Modules 1, 2, 10 and 11 consists of 1-ft thick vegetative layer, 1-ft thick compacted clay layer, and 2-ft thick foundation layer.
2. Soil removal production rate based on 4 CAT 637D scrapers, 8 loads/hr/scraper, 10 hr/day, and 30 cy/load.

2b. WASTE EXCAVATION
WASTE RELOCATION COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL

Crew Costs:

Position	Personnel	Wage Rate	Units	Qnty	Subtotal
Survey Crew	2	$ 145.00	/hr	500	$ 145,000
Excavator Operator	4	$ 105.94	/hr	2,541	$ 1,076,744
Laborers	10	$ 75.17	/hr	2,541	$ 1,910,019
Compactor Operator	6	$ 104.10	/hr	2,541	$ 1,587,040
Spreading Dozer Operator	2	$ 105.94	/hr	2,541	$ 538,372
Haul Truck Driver	8	$ 84.93	/hr	2,541	$ 1,726,386
Water Truck Operator	2	$ 84.93	/hr	2,541	$ 431,596
Maintenance Truck Operator	5	$ 98.88	/hr	2,541	$ 1,256,213
Foreman	1	$ 94.25	/hr	2,541	$ 239,489
				Crew Total:	**$ 8,910,859**

Equipment Costs:

Item	No. of Equip.	Rate per Unit	Unit	Qnty	Subtotal
Mob/Demob	1	$ 100,000	ea	4	$ 400,000
Pickup Truck	6	$ 25.32	/hr	2,541	$ 386,074
Compactor - CAT 826	6	$ 204.65	/hr	2,541	$ 3,120,155
Excavator - 375	4	$ 178.18	/hr	2,541	$ 1,811,032
Spreading Dozer - CAT D6M-LGP	2	$ 87.23	/hr	2,541	$ 443,290
Haul Trucks	8	$ 87.66	/hr	2,541	$ 1,782,044
Water Truck	2	$ 67.68	/hr	2,541	$ 343,937
Maintenance Truck	5	$ 25.32	/hr	2,541	$ 321,729
				Equipment Total:	**$ 8,608,261**

TOTAL: $ 17,519,120
Waste Excavation Unit Cost: $ 5.44 /cy
Rounded Waste Excavation Unit Cost: $ 5.40 /cy

Schedule:

Work Item	Qnty[2]	Units	Production Rate		Days
Refuse Removal	3,220,983	cy	14,000	cy/day	231
				Project Duration:	231
				Project Duration & 10%[3]:	**254**

Notes:

1. Refuse removal production rate based on 4 CAT 375 and 8 CAT 740, 7 loads/hr/truck, 10 hr/day, and 25 cy/load.
2. Total volume for refuse removal = 3,646,000 cy (total volume) - 425,016 cy (final cover volume).
3. 10 percent time added to account for refuse removal delays.
4. Includes excavate waste placement in lined disposal module.

2c. SUBGRADE AND OVEREXCAVATION
WASTE RELOCATION COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL

Crew Costs:

Position	Personnel	Wage Rate	Units	Qnty	Subtotal
Laborer	5	$ 75.17	/hr	460	$ 172,886
Excavator Operator	1	$ 105.94	/hr	460	$ 48,731
Scraper Operator	4	$ 105.94	/hr	460	$ 194,924
Water Truck Operator	1	$ 84.93	/hr	460	$ 39,066
Dump Truck Driver	1	$ 105.94	/hr	230	$ 24,366
Foreman	1	$ 94.25	/hr	460	$ 43,355
				Crew Total:	**$ 523,328**

Equipment Costs:

Item	No. of Equip.	Rate per Unit	Unit	Qnty	Subtotal
Mob/Demob	1	$ 5,000	ls	1	$ 5,000
Pickup Truck	1	$ 25.32	/hr	460	$ 11,649
Excavator	1	$ 178.18	/hr	460	$ 81,963
Scraper	4	$ 326.52	/hr	460	$ 600,796
Water Truck Operator	1	$ 67.68	/hr	460	$ 31,132
Dump Truck	1	$ 87.66	/hr	230	$ 20,163
				Equipment Total:	**$ 750,702**

TOTAL: $ 1,274,030
Liner and Soil Layer Unit Cost: $ 3.00
Rounded Liner and Soil Layer Unit Cost: $ 3.00 /cy

Schedule:

Work Item	Qnty[1]	Units	Production Rate[2]		Days
Subgrade Excavation (2-ft)	212,508	cy	9,600	cy/day	23
Over Excavation (2-ft)	212,508	cy	9,600	cy/day	23
				Project Duration:	**46**

Notes:

1. Volume of soil removed consists of waste footprint x 2 ft subgrade excavation plus an average of 2 ft of over-excavation.

2. Soil removal production rate based on 4 CAT 637D scrapers, 8 loads/hr/scraper, 10 hr/day, and 30 cy/load.

3. CONSTRUCTION QUALITY ASSURANCE (CQA)
WASTE RELOCATION COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL

Labor:

Position	Personnel	Wage Rate	Unit	Qnty	Subtotal
CQA Officer (8 hrs/wk @ 61 wks)	1	$ 137	/hr	3050	$ 417,850
Staff Engineer (20 hrs/wk @ 61 wks)	1	$ 112	/hr	3050	$ 341,600
Sr. Technician (50 hrs/wk @ 61 wks)	1	$ 110	/hr	3050	$ 335,500
Admin/Clerical (4 hrs/wk @ 61 wks)	1	$ 73	/hr	3050	$ 222,650
Communication Fee - 5% on Labor	--	5.0%	Labor fees		$ 65,880
				Labor Subtotal:	***$ 1,383,480***

CQA Report and Certification:

Position	Personnel	Wage Rate	Unit	Qnty	Subtotal
Principal	1	$ 235	/hr	24	$ 5,640
CQA Officer	1	$ 137	/hr	40	$ 5,480
Sr. Project Manager (Tech. Review)	1	$ 186	/hr	40	$ 7,440
Staff Engineer	1	$ 112	/hr	120	$ 13,440
Administrative	1	$ 73	/hr	24	$ 1,752
Drafter	1	$ 97	/hr	80	$ 7,760
Reproduction costs (3 copies of each report)	--	$ 100	lump	3	$ 300
Communication Fee	--	5%	/hr		$ 2,076
				CQA Report and Certification Subtotal:	***$ 43,888***

CQA Total: $ 1,427,368

4. SOIL TESTING
WASTE RELOCATION COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL

Professional Services:

Position	Personnel	Wage Rate	Units	Qnty	Subtotal
Geologist	1	$ 112	/hr	80	$ 8,960
Sr. Consultant	1	$ 186	/hr	20	$ 3,720
Office Service Fee		5%	rate		$ 634
				Professional Services Total:	**$ 13,314**

Equipment:

Item	No. of Equip.	Rate per Unit	Unit	Qnty	Subtotal
GPS Unit	1	$ 25	day	5	$ 125
Field Vehicle	1	$ 125	day	5	$ 625
Per Diem	1	$ 150	day	5	$ 750
Office Service Fee		10%	rate		$ 150
				Equipment Total:	**$ 1,650**

Lab Testing Costs - Soil:

Monitoring Parameter	Number	Unit Cost	Units	Tests	Annual Cost
Sulfide	--	$ 25.00	each	30	$ 750
Cyanide	--	$ 30.00	each	30	$ 900
Volatile Organic Compounds	--	$ 130.00	each	30	$ 3,900
SVOCs	--	$ 130.00	each	30	$ 3,900
CAM-17 Metals	--	$ 102.00	each	30	$ 3,060
Organophosphorus Pesticides	--	$ 85.00	each	30	$ 2,550
Chlorophenoxy Herbicides	--	$ 85.00	each	30	$ 2,550
PCBs	--	$ 60.00	each	30	$ 1,800
Office Service Fee		10%	rate		$ 1,941
				Subtotal:	**$ 21,351**

4. SOIL TESTING
WASTE RELOCATION COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL

Reporting Cost:

Item	Personnel	Wage Rate	Units	Qnty	Subtotal
Sr. Consultant	1	$ 186	/hr	8	$ 1,488
Geologist	1	$ 112	/hr	20	$ 2,240
Drafter	1	$ 97	/hr	4	$ 388
Administrative	1	$ 73	/hr	2	$ 146
Office Service Fee		5%	rate		$ 213.10

Reporting Cost: **$ 4,475**

Soil Testing Total: $ 40,791

Notes:

1. Assumes 15 soil borings in the waste excavation area at approximately every 500 feet at 2 sample depths each.

5. SWPPP PREPARATION AND IMPLEMENTATION
WASTE RELOCATION COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL

SWPPP Preparation

Labor:

Position	Personnel	Wage Rate	Unit	Qnty	Subtotal
Principal	1	$ 235	/hr	2	$ 470
Sr. Project Manager	1	$ 186	/hr	10	$ 1,860
Staff Engineer	1	$ 112	/hr	40	$ 4,480
Administrative	1	$ 73	/hr	2	$ 146
Drafter	1	$ 97	/hr	12	$ 1,164
Communication Fee	--	5.0%	Labor fees	$ 8,120	$ 406

SWPPP Preparation Total: $ 8,526

LABOR & EQUIPMENT COSTS
WASTE RELOCATION COST ESTIMATE
WESTERN REGIONAL SANITARY LANDFILL

Crew Costs:

Position		Operator Group	Base Wage Rate	12% Surcharge	33% Overhead & Profit	Wage Rate	Unit
2 Man Survey Crew[3]	--	--	$ 100.00	$ 12.00	$ 33.00	$ 145.00	/hr
3 Man Drilling Crew[3]	--	--	$ 230.00	$ 27.60	$ 75.90	$ 333.50	/hr
Licensed Surveyor[3]	--	--	$ 40.00	$ 4.80	$ 13.20	$ 58.00	/hr
Laborer	Laborer	3	$ 51.84	$ 6.22	$ 17.11	$ 75.17	/hr
Backhoe Operator	Operator	4	$ 73.06	$ 8.77	$ 24.11	$ 105.94	/hr
Compactor Operator	Operator	5	$ 71.79	$ 8.61	$ 23.69	$ 104.10	/hr
Excavator Operator	Operator	3	$ 72.44	$ 8.69	$ 23.91	$ 105.04	/hr
Foreman[3]	--	--	$ 65.00	$ 7.80	$ 21.45	$ 94.25	/hr
Forklift Operator	Teamster	1	$ 58.27	$ 6.99	$ 19.23	$ 84.49	/hr
Dump Truck Operator	Teamster	3	$ 58.57	$ 7.03	$ 19.33	$ 84.93	/hr
Grader Operator	Operator	4	$ 73.06	$ 8.77	$ 24.11	$ 105.94	/hr
Gradesetter Operator	Operator	4	$ 73.06	$ 8.77	$ 24.11	$ 105.94	/hr
Grading Dozer Operator	Operator	4	$ 73.06	$ 8.77	$ 24.11	$ 105.94	/hr
Maintenance Truck Operator	Operator	5	$ 68.19	$ 8.18	$ 22.50	$ 98.88	/hr
Mixer Operator	Operator	8	$ 68.19	$ 8.18	$ 22.50	$ 98.88	/hr
Scraper Operator - Mixing	Operator	4	$ 73.06	$ 8.77	$ 24.11	$ 105.94	/hr
Scraper Operator - Placement	Operator	4	$ 73.06	$ 8.77	$ 24.11	$ 105.94	/hr
Seed Truck Operator	Laborer	1	$ 53.09	$ 6.37	$ 17.52	$ 76.98	/hr
Skid Track Loader Operator	Operator	4	$ 73.06	$ 8.77	$ 24.11	$ 105.94	/hr
Spreading Dozer Operator	Operator	4	$ 73.06	$ 8.77	$ 24.11	$ 105.94	/hr
Supervisor[3]	--	--	$ 90.00	$ 10.80	$ 29.70	$ 130.50	/hr
Water Truck Operator - Mixing	Teamster	2	$ 58.57	$ 7.03	$ 19.33	$ 84.93	/hr
Water Truck Operator - Placement	Teamster	2	$ 58.57	$ 7.03	$ 19.33	$ 84.93	/hr

Engineering Costs:

Item	Rate per Unit	Unit
Principal	$ 235.00	/hr
Sr. Project Manager (Tech. Review)	$ 186.00	/hr
Staff Engineer	$ 112.00	/hr
Administrative	$ 73.00	/hr
Sr. Technician	$ 110.00	/hr
CQA Officer	$ 137.00	/hr
Drafter	$ 97.00	/hr

Equipment, Maintenance and Fuel Costs:

Item	Source	Cal Trans[2] Rate per/hr	15% Profit & Overhead	Rate per Unit	Unit
Job Trailer	100	$ 15.01	$ 2.25	$ 17.26	/hr
Generator	GEN1	$ 13.77	$ 2.07	$ 15.84	/hr
Pickup Truck	00-06	$ 22.02	$ 3.30	$ 25.32	/hr
Spreading Dozer - CAT D6M-LGP	3745	$ 75.85	$ 11.38	$ 87.23	/hr
Push Dozer - CAT D8N	4864	$ 146.27	$ 21.94	$ 168.21	/hr
Dump Truck	5AXL	$ 76.23	$ 11.43	$ 87.66	/hr
Excavator - CAT 375L	0365	$ 280.82	$ 42.12	$ 322.94	/hr
Grading Dozer - CAT D6	3720	$ 67.08	$ 10.06	$ 77.14	/hr
Scraper 1 - CAT 637D - Placement	2470	$ 283.93	$ 42.59	$ 326.52	/hr
Scraper 1 - CAT 637D - Mixing	2470	$ 283.93	$ 42.59	$ 326.52	/hr
Compactor - CAT 825C	2510	$ 177.96	$ 26.69	$ 204.65	/hr
Grader - CAT 140H	3265	$ 78.70	$ 11.81	$ 90.51	/hr
Water Truck - 4000 Gal - Placement	48-60	$ 58.85	$ 8.83	$ 67.68	/hr
Water Truck - 4000 Gal - Mixing	48-60	$ 58.85	$ 8.83	$ 67.68	/hr
Maintenance Truck	00-06	$ 22.02	$ 3.30	$ 25.32	/hr
Mixer	09-10	$ 127.34	$ 19.10	$ 146.44	/hr
Skid Track Loader	1623	$ 74.62	$ 11.19	$ 85.81	/hr
Seed Truck	5AXL	$ 76.23	$ 11.43	$ 87.66	/hr
Drill Rig - Atlantic LLDH-120	5015	$ 191.30	$ 28.70	$ 220.00	/hr
Backhoe	1862	$ 34.92	$ 5.24	$ 40.16	/hr
Forklift	080-120	$ 51.29	$ 7.69	$ 58.98	/hr

Notes:

1. From the General Prevailing Wage determination made by the Director of Industrial Relations pursuant to California Labor Code Part 7, Chapter 1, Article 2, Sections 1770, 1773 and 1773.1; Tables: Craft: TEAMSTER, Craft: OPERATING ENGINEER , Craft: #OPERATING ENGINEER (HEAVY AND HIGHWAY WORK), and Craft: #LABORER AND RELATED CLASSIFICATIONS.

2. From the 2018 CalTrans Labor Surcharge and Equipment Rental Rates.

3. Wage is not determined by the General Prevailing Wages.

Appendix 4A-1
Design Documentation
Main Entrance

Plan Concept 0, 1, and 2 Quantities

Main entrance road:

Appendix 4A-1
Design Documentation
Western Entrance

Plan Concept 2 Quantities

Western Entrance:

Appendix 4A-1
Design Documentation
Overpass

Western Placer Fiddyment Crossing Preliminary Cost Opinion

Date: Sep-17

Overcrossing w/Fill Alternative

Item	Unit	Quantity	Unit Cost	Cost
AC Paving	Sq Ft	28000	$4.00	$112,000
Aggregate Base	Sq Ft	28000	$2.00	$56,000
Embankment	Cu Yd	23704	$20	$474,074
Structure	Sq Ft	5250	$300	$1,575,000
			Subtotal:	$2,217,074
			Contingency (35%):	$775,976
			Total:	**$2,993,050**

Overcrossing w/Retaining Wall Fill Alternative

Item	Unit	Quantity	Unit Cost	Cost
AC Paving	Sq Ft	28000	$4.00	$112,000
Aggregate Base	Sq Ft	28000	$2.00	$56,000
Embankment	Cu Yd	11852	$20	$237,037
Retaining Wall	Sq Ft	19200	$150	$2,880,000
Structure	Sq Ft	5250	$300	$1,575,000
			Subtotal:	$4,860,037
			Contingency (35%):	$1,701,013
			Total:	**$6,561,050**

Undercrossing w/Cut Slope Alternative

	Unit	Quantity	Unit Cost	Cost
AC Paving	Sq Ft	28000	$4.00	$112,000
Aggregate Base	Sq Ft	28000	$2.00	$56,000
Excavation	Cu Yd	26537	$15	$398,056
Structure	Sq Ft	3200	$300	$960,000
Drainage Pump Station	Each	1	$250,000	$250,000
			Subtotal:	$1,776,056
			Contingency (35%):	$621,619
			Total:	**$2,397,675**

Undercrossing w/Retaining Wall Alternative

	Unit	Quantity	Unit Cost	Cost
AC Paving	Sq Ft	28000	$4.00	$112,000
Aggregate Base	Sq Ft	28000	$2.00	$56,000
Excavation	Cu Yd	12315	$15	$184,722
Retaining Wall	Sq Ft	19200	$150	$2,880,000
Structure	Sq Ft	3200	$300	$960,000
Drainage Pump Station	Each	1	$250,000	$250,000
			Subtotal:	$4,442,722
			Contingency (35%):	$1,554,953
			Total:	**$5,997,675**

Signal Alternative

	Unit	Quantity	Unit Cost	Cost
Approach Roadway Improvements	Each	1	$200,000	$200,000
4-way signalized intersection	Each	1	$300,000	$300,000
			Subtotal:	$500,000
			Contingency (35%):	$175,000
			Total:	**$675,000**

Assumptions:

25mph design speed
16' 6" vertical clearance provided on overcrossing
15' 0" vertical clearance provided on undercrossing
Fiddyment is built out to 4 lanes
Crossing carries two lanes of traffice (12-foot lanes w/ 4-foot shoulders)
Utility relocations and/or utility spans are not included (i.e. sewer, water, power, telecommunications, etc.)
Impacts of potentail groundwater on feasibility of undercrossing has not been addressed

Crossing Considerations

From: Goodrich, Janet/SAC
Sent: Friday, October 12, 2018 2:54 PM
To: McRae, Jennifer/SJC
Subject: FW: concepts for grade separation crossing of Fiddyment road element for WPWMA master planning project [EXTERNAL]

From: Negrete, Matt/SAC
Sent: Friday, August 25, 2017 4:15 PM
To: Goodrich, Janet/SAC <Janet.Goodrich@CH2M.com>; Lopez, Lyndsey/PDX <Lyndsey.Lopez@ch2m.com>
Subject: RE: concepts for grade separation crossing of Fiddyment road element for WPWMA master planning project [EXTERNAL]

Works for me.

From: Goodrich, Janet/SAC
Sent: Friday, August 25, 2017 4:03 PM
To: Negrete, Matt/SAC <Matt.Negrete@CH2M.com>; Lopez, Lyndsey/PDX <Lyndsey.Lopez@ch2m.com>
Subject: RE: concepts for grade separation crossing of Fiddyment road element for WPWMA master planning project [EXTERNAL]

How about I reply back that we are not sure that that standard will be applicable, but will proceed with an assumption of 80-90 feet.

From: Negrete, Matt/SAC
Sent: Friday, August 25, 2017 3:47 PM
To: Goodrich, Janet/SAC <Janet.Goodrich@CH2M.com>; Lopez, Lyndsey/PDX <Lyndsey.Lopez@ch2m.com>
Subject: RE: concepts for grade separation crossing of Fiddyment road element for WPWMA master planning project [EXTERNAL]

Yes and no.

It's unclear if Fiddyment should be designated an Urban Primary facility. If there are no residences, commercial facilities, or schools in the area, I don't believe that the sidewalks would be required. Also, a two way left turn lane may or may not be appropriate. Part of this depends on whether or not traffic will need to turn left across on-coming traffic. If that isn't happening, then a smaller meadian could be used. We can use this as a starting point.

FYI – I'm currently laying something out based on providing an 80' opening. This includes the 64 feet mentioned below, as well as some additional real estate for accommodating drainage ditches on each edge of the roadway. However, at this point, whether we use 80' or 90' for the horizontal opening we need to accommodate with an overcrossing (or undercrossing), it won't change the order of magnitude of the project costs. I can use Plate 106 if you'd like, as it is a County Standard, but I'm not convinced it will apply here.

From: Goodrich, Janet/SAC
Sent: Friday, August 25, 2017 3:39 PM
To: Negrete, Matt/SAC <Matt.Negrete@CH2M.com>; Lopez, Lyndsey/PDX <Lyndsey.Lopez@ch2m.com>
Subject: FW: concepts for grade separation crossing of Fiddyment road element for WPWMA master planning project [EXTERNAL]

Hi Matt,
Does this make sense?
Janet

From: Keith Schmidt [mailto:KSchmidt@placer.ca.gov]
Sent: Friday, August 25, 2017 3:37 PM
To: Goodrich, Janet/SAC <Janet.Goodrich@CH2M.com>
Cc: Lopez, Lyndsey/PDX <Lyndsey.Lopez@ch2m.com>; Eric Oddo <EOddo@placer.ca.gov>; Stephanie Ulmer <SUlmer@placer.ca.gov>
Subject: RE: concepts for grade separation crossing of Fiddyment road element for WPWMA master planning project [EXTERNAL]

Janet,

Plate 106 of the Placer County Standard Plates (located here) is the County's current design standard for "urban primary" streets which I think would be the standard applied to this situation. Our property developments are subject to review by the Design Review Committee and they unfortunately use a Design Guidelines manual that is now 15-years old. At some point this manual will be superseded. In the meantime, I thought maybe the community plan update for this area would have something, but it indicated "In parallel with the preparation of the Draft SIA Plan, the County will prepare Corridor Design Standards and Guidelines for key areas of the SIA, including Sunset Boulevard, Athens Avenue, Foothill Boulevard, and Placer Parkway." Fiddyment appears to have been forgotten. I have to assume that's an oversight and I am reaching out to the County to determine the schedule for daylighting this Corridor Design Standards and Guidelines manual.

Either way, based on adopted standards, I think we are looking at a 90' right-of-way width per the attached plate.

Keith J. Schmidt, P.E. | Senior Civil Engineer | Western Placer Waste Management Authority | (Mail) 11476 "C" Ave. Auburn, CA 95603 | (Physical) 3033 Fiddyment Rd. Roseville, CA 95747 | (916) 543-3986 (Direct) | (916) 543-3990 (Fax)

From: Goodrich, Janet/SAC [mailto:Janet.Goodrich@CH2M.com]
Sent: Friday, August 25, 2017 1:55 PM
To: Eric Oddo; Keith Schmidt; Stephanie Ulmer
Cc: Lopez, Lyndsey/PDX
Subject: RE: concepts for grade separation crossing of Fiddyment road element for WPWMA master planning project

Thank you, confirmed

From: Eric Oddo [mailto:EOddo@placer.ca.gov]
Sent: Friday, August 25, 2017 1:49 PM
To: Goodrich, Janet/SAC <Janet.Goodrich@CH2M.com>; Keith Schmidt <KSchmidt@placer.ca.gov>; Stephanie Ulmer <SUlmer@placer.ca.gov>
Cc: Lopez, Lyndsey/PDX <Lyndsey.Lopez@ch2m.com>

Subject: RE: concepts for grade separation crossing of Fiddyment road element for WPWMA master planning project [EXTERNAL]

Those look like reasonable assumptions to me

From: Goodrich, Janet/SAC [mailto:Janet.Goodrich@CH2M.com]
Sent: Friday, August 25, 2017 1:46 PM
To: Eric Oddo; Keith Schmidt; Stephanie Ulmer
Cc: Lopez, Lyndsey/PDX
Subject: concepts for grade separation crossing of Fiddyment road element for WPWMA master planning project

Hi Eric,
We are working with our transportation engineer, Matt. He documented the base assumptions he is using for the information we need for the Charrette:

- Space and configuration of area for the crossing (under and over crossings), including ingress/egress
- Very rough industry standard type costs for both.

Please look this over and make sure you are ok with these general assumptions at this stage. Thanks,
Janet

From: Negrete, Matt/SAC
Sent: Friday, August 25, 2017 12:44 PM
To: Goodrich, Janet/SAC <Janet.Goodrich@CH2M.com>
Cc: Lopez, Lyndsey/PDX <Lyndsey.Lopez@ch2m.com>
Subject: RE: western placer waste management authority project

Janet/Lyndsey,

Good talk this morning. Here are the current design assumptions I plan on moving forward with:

- Proposed crossing will be over Fiddyment
- Crossing may be adjacent to Athens, or possibly further south
- Assume Fiddyment will be built out to four 12-foot lanes, have two 4-foot bike lanes, and two 4-foot shoulders in the future for a total width of 64 feet. Regardless of the details, though, I think we should assume a two span bridge over Fiddyment. (similar to how it is south of Placer Parkway future area)
- Provide two lanes over (or under) Fiddyment for facility use. Lanes will be 12 feet wide with 4 foot shoulders.
- Design speed on the over/undercrossing is 25 mph

I'm sure I'll be in touch as we move forward developing some preliminary layouts for these alternatives

Thanks,

Matt

From:	Negrete, Matt/SAC
To:	Lopez, Lyndsey/PDX; Goodrich, Janet/SAC; Gonzales, Shannon/SAC
Subject:	RE: wpwma layouts
Date:	Wednesday, September 06, 2017 12:46:19 PM

The 122 foot dimension is what we need at the ends/approaches of the crossing for the turning movements.

Also, if we switch to a solution that uses retaining walls, the width would probably drop to around 40 feet for a two lane option.

From: Lopez, Lyndsey/PDX
Sent: Wednesday, September 06, 2017 12:07 PM
To: Negrete, Matt/SAC <Matt.Negrete@CH2M.com>; Goodrich, Janet/SAC <Janet.Goodrich@CH2M.com>; Gonzales, Shannon/SAC <Shannon.Gonzales@ch2m.com>
Subject: RE: wpwma layouts

Josh said he used a 122 ft by 930 ft, he said this includes the cut/fill limits

---

From: Negrete, Matt/SAC
Sent: Wednesday, September 06, 2017 10:14 AM
To: Lopez, Lyndsey/PDX <Lyndsey.Lopez@ch2m.com>; Goodrich, Janet/SAC <Janet.Goodrich@CH2M.com>; Gonzales, Shannon/SAC <Shannon.Gonzales@ch2m.com>
Subject: RE: wpwma layouts

What width did you use for the rectangle? Does that include any fill limits, or is that assuming we have retaining walls on either option?

Note that we assumed a two lane road with 4 foot shoulders. Depending on the client requirements, we could skinny this up using narrower lanes and shoulders, or possibly only having a single lane of traffic, as well.

From: Lopez, Lyndsey/PDX
Sent: Wednesday, September 06, 2017 9:33 AM
To: Goodrich, Janet/SAC <Janet.Goodrich@CH2M.com>; Gonzales, Shannon/SAC <Shannon.Gonzales@ch2m.com>
Cc: Negrete, Matt/SAC <Matt.Negrete@CH2M.com>
Subject: RE: wpwma layouts

Hi All – Please see the screen shot of the over/underpass. As you can see it currently is huge and blocks nearly the entire entrance of the MRF.

Matt – do you have suggestions on repositioning? Could it be shifted to the left, angled, something else?

Janet – we can talk about the other items, but we are at a point we need to "finalize drawings so we can print, and then use as a start. Then use tomorrow to move things and fine-tune. Lets talk more.

From: Goodrich, Janet/SAC
Sent: Wednesday, September 06, 2017 7:43 AM
To: Lopez, Lyndsey/PDX <Lyndsey.Lopez@ch2m.com>; Gonzales, Shannon/SAC <Shannon.Gonzales@ch2m.com>
Cc: Negrete, Matt/SAC <Matt.Negrete@CH2M.com>
Subject: wpwma layouts

Hi ladies,
A couple of points from my conversation with Eric yesterday and more.

1. The current HHW facility is expendable and can be replaced. Eric expects it will need to be replaced with more convenient locations. We should plan for:
    a. For layouts where public facility is on western parcel, put a full service hhw drop off facility there as part of the public area, should fit within the footprint of the 5-6 acre public area that Lyndsey mapped out, but we should note that I our assumptions summary. Put a smaller facility near the MRF for materails they pull out. He doesn't want to assume there will be bulking but that the HHW hauler will service both locations to avoid hazardous waste transportation concerns with non-licensed entities.
    b. For layouts where public facility is on existing or eastern parcel, we may be ok with one location in the public area, but should consider a small area closer to MRF as being held just in case, could be part of the corp yard or something else.
2. This means that we should see if there is any way that a under or over crossing will fit in that corner (if HHW facility is gone) and at least have that as one option. If it can't be done without the more extensive/expensive retaining walls like Matt mentioned (to save space), then we

should note that.

3. I don’t recall if Matt N or someone was going to get us something on the conveyer and tunnel. Was Matt going to give us the tunnel price? i.e. assume a certain no of feet, certain diameter, certain construction (maybe even lined with a large culvert).

Janet

Janet Goodrich, P.E*
Direct: 1 916 286 0362
Mobile: 1 530 308 3677
email: janet.goodrich@ch2m.com

CH2M
2485 Natomas Park Drive, Suite 600
Sacramento, CA 95833
www.ch2m.com | LinkedIn | Twitter | Facebook

*P.E. Civil, CA, OR, NV. Environmental, OR.

Appendix 4A-1
Design Documentation
New Stormwater Ponds

NOAA Atlas 14, Volume 6, Version 2
Location name: Roseville, California, USA*
Latitude: 38.8379°, Longitude: -121.349°
Elevation: 123.93 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.109 (0.098-0.122)	0.133 (0.120-0.149)	0.168 (0.151-0.189)	0.199 (0.176-0.226)	0.245 (0.206-0.294)	0.284 (0.232-0.352)	0.328 (0.258-0.421)	0.377 (0.284-0.504)	0.450 (0.320-0.639)	0.514 (0.348-0.766)
10-min	0.156 (0.141-0.174)	0.191 (0.172-0.214)	0.240 (0.216-0.271)	0.285 (0.252-0.325)	0.351 (0.296-0.421)	0.407 (0.332-0.504)	0.470 (0.370-0.603)	0.540 (0.408-0.722)	0.645 (0.459-0.916)	0.736 (0.498-1.10)
15-min	0.189 (0.170-0.211)	0.230 (0.208-0.258)	0.291 (0.261-0.327)	0.344 (0.305-0.393)	0.425 (0.358-0.509)	0.493 (0.402-0.610)	0.568 (0.447-0.729)	0.653 (0.493-0.873)	0.780 (0.555-1.11)	0.890 (0.603-1.33)
30-min	0.262 (0.237-0.294)	0.321 (0.289-0.359)	0.404 (0.363-0.455)	0.479 (0.425-0.546)	0.591 (0.497-0.708)	0.685 (0.559-0.848)	0.790 (0.622-1.01)	0.908 (0.686-1.22)	1.09 (0.772-1.54)	1.24 (0.839-1.85)
60-min	0.356 (0.322-0.399)	0.436 (0.393-0.488)	0.549 (0.493-0.618)	0.651 (0.577-0.742)	0.802 (0.676-0.962)	0.931 (0.760-1.15)	1.07 (0.845-1.38)	1.23 (0.932-1.65)	1.47 (1.05-2.09)	1.68 (1.14-2.51)
2-hr	0.519 (0.468-0.580)	0.621 (0.560-0.696)	0.768 (0.689-0.864)	0.898 (0.796-1.02)	1.09 (0.920-1.31)	1.25 (1.02-1.55)	1.44 (1.13-1.84)	1.64 (1.24-2.19)	1.94 (1.38-2.75)	2.19 (1.49-3.27)
3-hr	0.649 (0.586-0.726)	0.772 (0.696-0.865)	0.947 (0.850-1.07)	1.10 (0.977-1.26)	1.33 (1.12-1.60)	1.52 (1.24-1.89)	1.74 (1.37-2.23)	1.97 (1.49-2.63)	2.32 (1.65-3.29)	2.62 (1.77-3.90)
6-hr	0.940 (0.848-1.05)	1.11 (1.00-1.25)	1.36 (1.22-1.53)	1.57 (1.39-1.79)	1.88 (1.59-2.26)	2.14 (1.75-2.65)	2.42 (1.91-3.11)	2.73 (2.06-3.65)	3.18 (2.26-4.52)	3.56 (2.41-5.32)
12-hr	1.29 (1.16-1.44)	1.56 (1.41-1.75)	1.93 (1.73-2.17)	2.24 (1.99-2.56)	2.69 (2.26-3.22)	3.04 (2.48-3.77)	3.42 (2.69-4.39)	3.82 (2.89-5.11)	4.39 (3.12-6.24)	4.85 (3.29-7.24)
24-hr	1.78 (1.63-1.99)	2.23 (2.03-2.49)	2.82 (2.57-3.17)	3.31 (2.99-3.74)	3.98 (3.46-4.66)	4.50 (3.83-5.39)	5.03 (4.17-6.19)	5.58 (4.49-7.08)	6.35 (4.88-8.42)	6.95 (5.16-9.56)
2-day	2.32 (2.12-2.59)	2.94 (2.68-3.29)	3.74 (3.40-4.19)	4.39 (3.96-4.97)	5.27 (4.59-6.18)	5.94 (5.06-7.13)	6.63 (5.49-8.16)	7.33 (5.90-9.30)	8.28 (6.37-11.0)	9.02 (6.69-12.4)
3-day	2.72 (2.48-3.03)	3.46 (3.16-3.87)	4.42 (4.02-4.95)	5.19 (4.68-5.87)	6.22 (5.42-7.30)	7.01 (5.97-8.41)	7.80 (6.47-9.61)	8.61 (6.93-10.9)	9.70 (7.46-12.9)	10.5 (7.81-14.5)
4-day	3.01 (2.75-3.36)	3.85 (3.51-4.31)	4.93 (4.48-5.52)	5.79 (5.22-6.54)	6.93 (6.03-8.13)	7.79 (6.63-9.35)	8.66 (7.18-10.7)	9.53 (7.67-12.1)	10.7 (8.23-14.2)	11.6 (8.60-15.9)
7-day	3.70 (3.38-4.13)	4.76 (4.34-5.32)	6.09 (5.54-6.83)	7.14 (6.44-8.07)	8.50 (7.40-9.97)	9.52 (8.10-11.4)	10.5 (8.71-12.9)	11.5 (9.26-14.6)	12.8 (9.86-17.0)	13.8 (10.2-19.0)
10-day	4.19 (3.83-4.67)	5.39 (4.92-6.03)	6.90 (6.27-7.73)	8.06 (7.27-9.12)	9.58 (8.33-11.2)	10.7 (9.09-12.8)	11.8 (9.75-14.5)	12.8 (10.3-16.3)	14.2 (10.9-18.9)	15.3 (11.3-21.0)
20-day	5.52 (5.05-6.17)	7.11 (6.49-7.96)	9.07 (8.26-10.2)	10.6 (9.54-12.0)	12.5 (10.9-14.7)	13.9 (11.8-16.7)	15.2 (12.6-18.8)	16.6 (13.3-21.0)	18.2 (14.0-24.2)	19.5 (14.5-26.8)
30-day	6.67 (6.10-7.45)	8.56 (7.81-9.57)	10.9 (9.89-12.2)	12.6 (11.4-14.3)	14.9 (13.0-17.5)	16.5 (14.0-19.8)	18.1 (15.0-22.2)	19.6 (15.8-24.8)	21.5 (16.6-28.5)	22.9 (17.0-31.5)
45-day	8.22 (7.51-9.18)	10.4 (9.53-11.7)	13.2 (12.0-14.7)	15.2 (13.7-17.2)	17.9 (15.5-20.9)	19.7 (16.8-23.7)	21.6 (17.9-26.5)	23.3 (18.8-29.6)	25.5 (19.7-33.9)	27.1 (20.1-37.3)
60-day	9.84 (8.99-11.0)	12.4 (11.3-13.8)	15.4 (14.1-17.3)	17.8 (16.1-20.1)	20.8 (18.1-24.4)	22.9 (19.5-27.5)	25.0 (20.7-30.8)	27.0 (21.7-34.2)	29.5 (22.7-39.1)	31.3 (23.2-43.1)

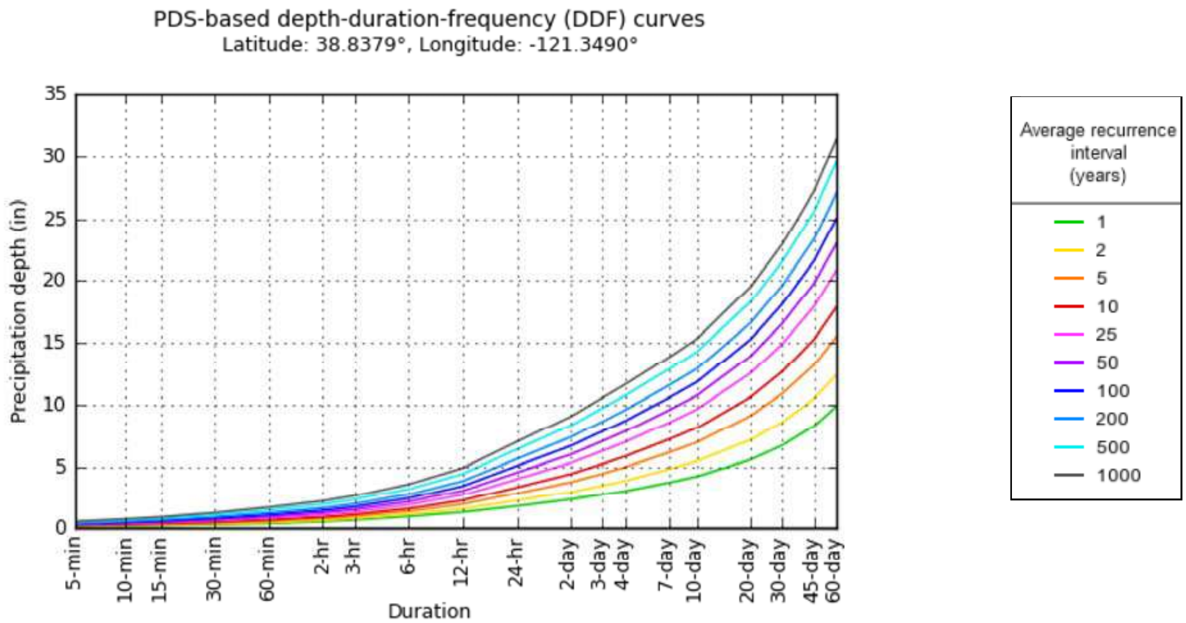
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

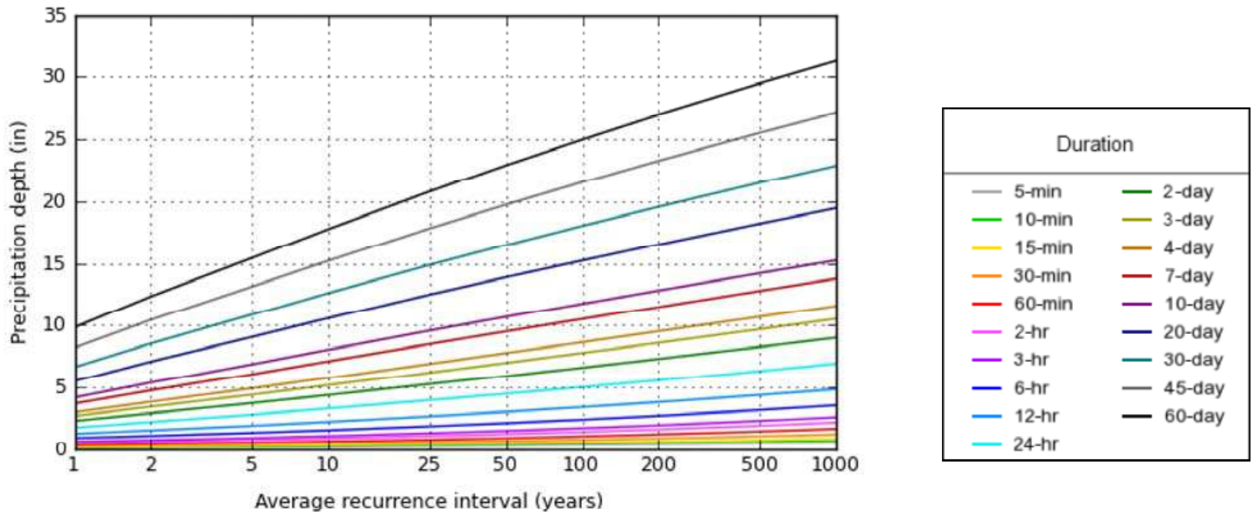
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical





NOAA Atlas 14, Volume 6, Version 2 Created (GMT): Mon Oct 8 20:55:07 2018

Back to Top

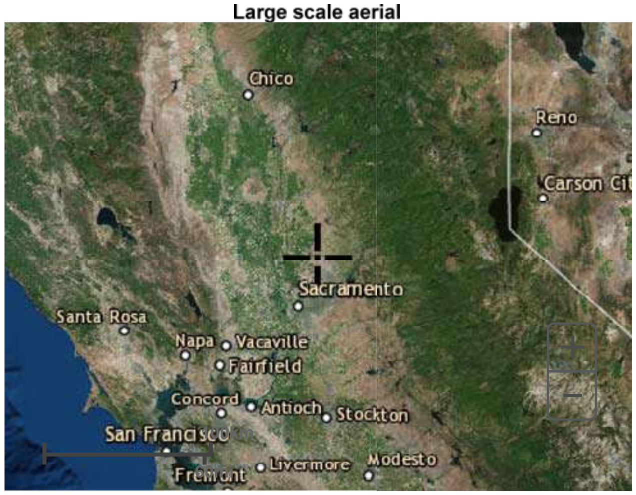
Maps & aerials

Small scale terrain

Large scale terrain

Large scale map

Large scale aerial



Back to Top

US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Plan Concept 0 Stormwater Ponds

Type	Name (Slides)	Name Detail (Poster)	Acres
Critical Element	C&D	Construction & Demolition	18.063408
Critical Element	Composting	Composting Operations	48.571575
Critical Element	Landfill	Landfill Operations	15.690817
Critical Element	Public	Public Tip/HHW/Buyback/Reuse	14.976759

c=	i= (in inches)	V= (required)		V= (calculated)		A (true)=	A (plan)=		L_1	W_1	H_1	S		L_2	W_2
0.95	5.03	313327		313875		71320	70500		300	235	5	3		270	205
0.95	5.03	842520		843500		182650	181300		490	370	5	3		460	340
0.95	6.95	376063		377352		73460	72450		345	210	6	3		309	174
0.95	5.03	259786		262848		72670	72000		300	240	4	3		276	216

infiltration from NOAA Atlas 14, Volume 6, Version 2
100-year, 24-hour intensity for all facilities but landfill
1000-yr, 24-hour intensity for landfill (Class II)

A (plan) used for clearing and grubbing
A (true) used for liner material estimate

Plan Concept 1 Stormwater Ponds

Type	Name (Slides)	Name Detail (Poster)	Acres
Critical Element	C&D	Construction & Demolition	12.385376
Critical Element	Composting	Composting Operations	48.571575
Critical Element	Landfill	Landfill Operations	115.439454
Critical Element	Public	Public Tip/HHW/Buyback/Reuse	15.101717

c=	i= (in inches)	V= (required)		V= (calculated)		A (true)=	A (plan)=		L_1	W_1	H_1	S		L_2	W_2
0.95	5.03	214836		216768		60620	60000		300	200	4	3		276	176
0.95	5.03	842520		843500		182650	181300		490	370	5	3		460	340
0.95	6.95	2766746		2789532		493240	490500		900	545	6	3		864	509
0.95	5.03	261954		262848		72670	72000		300	240	4	3		276	216

infiltration from NOAA Atlas 14, Volume 6, Version 2
100-year, 24-hour intensity for all facilities but landfill
1000-yr, 24-hour intensity for landfill (Class II)

Plan Concept 2 Stormwater Ponds

Type	Name (Slides)	Name Detail (Poster)	Acres
Critical Element	C&D	Construction & Demolition	18.679478
Critical Element	Composting	Composting Operations	48.571575
Critical Element	Landfill	Landfill Operations	216.505172
Critical Element	Public	Public Tip/HHW/Buyback/Reuse	15.141801

c=	i= (in inches)	V= (required)		V= (calculated)		A (true)=	A (plan)=		L_1	W_1	H_1	S		L_2	W_2
0.95	5.03	324013		328125		74340	73500		300	245	5	3		270	215
0.95	5.03	842520		843500		182650	181300		490	370	5	3		460	340
0.95	6.95	5188996		5202456		783950	780000		1000	780	7	3		958	738
0.95	5.03	262649		274368		75680	75000		300	250	4	3		276	226

infiltration from NOAA Atlas 14, Volume 6, Version 2
100-year, 24-hour intensity for all facilities but landfill
1000-yr, 24-hour intensity for landfill (Class II)

Appendix 4A-1
Design Documentation
Compost Pond Removal

Design Assumptions

Pond Area	53200	sq ft	
	1.22	AC	
Width	280	ft	from Google Earth
Length	190	ft	from Google Earth
Depth	6	ft	assumed
Side Slope	3	:1	horizontal to vertical
Volume to remove	2	ft	below pond grades (to remove impacted soils)
	108100	cu ft	

5 ft pond depth (7 after removal of soils)

	V=	A (true)=	A (plan)=	L_1	W_1	H_1	S		L_2	W_2
in feet (cf, sf, ft)	271032	54050	53200	280	190	6	3		244	154

Appendix 4A-1
Design Documentation
Special Permits and Allowances

Permits List

	Concept 0	Concept 1	Concept 2
Composting Area	Existing property	Western property	Existing property
C&D	Existing property	Existing property	Existing property
Public Drop Off	Existing property	Western property	Existing property
Landfill	Existing property, 148 acres	Existing/Eastern property, 348 acres, displaces high-value wetlands and vernal pools on eastern property	Existing property 148 acres, Western property 216 acres, displaces wetland and vernal pools on NW portion of western property
Crossing	None	Yes	Yes

			Notes		
Permitting Costs	**How Much**	**Timing**	**Concept 0**	**Concept 1**	**Concept 2**
Solid Waste Facility permitting (landfill)	Already covered in landfill modules tab under permitting line item (from Golder)	One time	Already covered in landfill modules tab	Already covered in landfill modules tab	Already covered in landfill modules tab
Solid Waste Facility permitting (compost)	10% of total capital of compost. Assume stormwater permits for discharge already covered in landfill or this overall cost (don't look specifically at stormwater elements).	For simplicity, assume sigle expense, same year as first installation of permanent negative ASP	10% of compost (see timing)	10% of compost (see timing)	10% of compost (see timing)
Environmental/landuse/ local permitting	Dependent on the location of disturbed wetlands and vernal pools and the extent of high-value wetland/vernal pools. For development on the eastern property assume 2% of landfill capital (due to the extent of high-value wetland and vernal pools); for development on western property assume 1% of landfill capital (simplified by assuming only landfill is displacing wetlands)	Single expense, see year in notes (to the right)	None	2% of total landfill capital cost applied in **Year 8** (2 years before the landfill construction on eastern property)	1% of total landfill capital cost in **Year 23** (2 years before the landfill construction on western property)

Note: A general permitting line item (already in the CapEx) will cover other items not explicitly listed above

Appendix 4A-1
Design Documentation
Wetlands Mitigation

Plan Concept 1				
Wetland Type	Wetland Impact Acreage	Ratio (X:1)	Wetland Mitigation Acreage to Purchase	Cost
Vernal Pools	3.20	3	9.61	$2,883,420
Everything but Ag Ponds, Irrigated Wetland	8.76	2	17.52	$5,257,020
Ag Ponds, Irrigated Wetland	1.33	1	1.33	$399,420
TOTAL	13.30			**$8,539,860**

Plan Concept 2				
Wetland Type	Wetland Impact Acreage	Ratio (X:1)		Cost
Vernal Pools	1.33	3	3.99	$1,197,720
Everything but Ag Ponds, Irrigated Wetland	6.43	2	12.85	$3,855,360
Ag Ponds, Irrigated Wetland	1.33	1	1.33	$399,420
TOTAL	9.09			**$5,452,500**

Plan Concept 0				
Wetland Type	Wetland Impact Acreage	Ratio (X:1)		Cost
Vernal Pools	0.30	3	0.91	$272,610
Everything but Ag Ponds, Irrigated Wetland	0.64	2	1.27	$382,200
Ag Ponds, Irrigated Wetland	0.00	1	0.00	$0
TOTAL	0.94			**$654,810**

Assumed Mitigation Pricer per acre $300,000

Per Jacobs biologist on 10/25/2018:
For the amount per acre, use this reference:
https://www.nfwf.org/ilf/Pages/home.aspx
$225K-$275K, in lieu fee program. First must go to mitigation banks, they may charge more than the in lieu program, but also can get better rate for large sum of credits. Market driven, we have a larger buy so have ability to negotiate with mitigation banks.

Based on this use reasonable of $300K per acre.

Note: This includes Critical Elements and Necessary Supporting Elements

Plan Concept 1 Wetlands

Wetland ID	Acres	Wetland Type	Concept Element Category	Element Name
SW-42	0.0975	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-43	0.0413	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-44	0.0082	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-45	0.0019	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-46	0.0013	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-47	0.1179	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-48	0.0159	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-49	0.0528	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
VP-33	0.0460	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-34	0.0088	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-35	0.0028	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
SP-1	0.2367	Seasonal Wetland (Pond)	Necessary Supporting Elements	Stormwater Pond
VP-36	0.0638	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-37	0.0991	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
SW-50	0.0043	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
VP-38	0.0294	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
SW-51	0.0501	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
VP-39	0.0530	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
SW-52	0.0034	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-53	0.0059	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
S-03	1.5228	Swale	Critical Element	Landfill
VP-43	0.0393	Vernal Pool	Critical Element	Landfill
SW-58	0.2008	Seasonal Wetland	Critical Element	Landfill
VP-44	0.0885	Vernal Pool	Critical Element	Landfill
VP-45	0.0484	Vernal Pool	Critical Element	Landfill
SW-59	0.0459	Seasonal Wetland	Critical Element	Landfill
S-04	0.0148	Swale	Critical Element	Landfill
VP-46	0.0596	Vernal Pool	Critical Element	Landfill
VP-47	0.0783	Vernal Pool	Critical Element	Landfill
SW-60	0.1157	Seasonal Wetland	Critical Element	Landfill
SW-61	0.0318	Seasonal Wetland	Critical Element	Landfill
VP-48	0.0561	Vernal Pool	Critical Element	Landfill
S-05	0.0929	Swale	Critical Element	Landfill
VP-49	0.0606	Vernal Pool	Critical Element	Landfill
S-06	0.0888	Swale	Critical Element	Landfill
VP-50	0.3172	Vernal Pool	Critical Element	Landfill
S-07	0.0297	Swale	Critical Element	Landfill
VP-51	0.1160	Vernal Pool	Critical Element	Landfill
S-08	0.6379	Swale	Critical Element	Landfill
SW-65	0.0342	Seasonal Wetland	Critical Element	Landfill
SW-66	0.1785	Seasonal Wetland	Critical Element	Landfill
VP-53	0.1329	Vernal Pool	Critical Element	Landfill
SW-68	0.0347	Seasonal Wetland	Critical Element	Landfill
S-09	3.2274	Swale	Critical Element	Landfill
SW-71	0.0341	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-72	0.0956	Seasonal Wetland	Critical Element	Landfill
SW-73	0.0388	Seasonal Wetland	Critical Element	Landfill
SW-74	0.0103	Seasonal Wetland	Critical Element	Landfill
SW-75	0.0211	Seasonal Wetland	Critical Element	Landfill
SW-76	0.0087	Seasonal Wetland	Critical Element	Landfill
SW-77	0.0038	Seasonal Wetland	Critical Element	Landfill

Plan Concept 1 Wetlands

Wetland ID	Acres	Wetland Type	Concept Element Category	Element Name
SW-78	0.0116	Seasonal Wetland	Critical Element	Landfill
SW-79	0.0037	Seasonal Wetland	Critical Element	Landfill
SW-80	0.0026	Seasonal Wetland	Critical Element	Landfill
SW-81	0.0036	Seasonal Wetland	Critical Element	Landfill
SW-82	0.0037	Seasonal Wetland	Critical Element	Landfill
SW-83	0.0507	Seasonal Wetland	Critical Element	Landfill
SW-84	0.1637	Seasonal Wetland	Critical Element	Landfill
SW-85	0.0111	Seasonal Wetland	Critical Element	Landfill
SW-86	0.0879	Seasonal Wetland	Critical Element	Landfill
SW-87	0.0741	Seasonal Wetland	Critical Element	Landfill
SW-88	0.3618	Seasonal Wetland	Critical Element	Landfill
SW-89	0.0415	Seasonal Wetland	Critical Element	Landfill
SW-90	0.0265	Seasonal Wetland	Critical Element	Landfill
SW-92	0.0038	Seasonal Wetland	Critical Element	Landfill
VP-56	0.0113	Vernal Pool	Critical Element	Landfill
VP-57	0.1073	Vernal Pool	Critical Element	Landfill
S-10	0.2646	Swale	Critical Element	Landfill
VP-58	0.0627	Vernal Pool	Critical Element	Landfill
S-11	0.1561	Swale	Critical Element	Landfill
VP-59	0.2209	Vernal Pool	Critical Element	Landfill
S-12	0.3427	Swale	Critical Element	Landfill
VP-60	0.0278	Vernal Pool	Critical Element	Landfill
VP-61	0.0062	Vernal Pool	Critical Element	Landfill
VP-62	0.0404	Vernal Pool	Critical Element	Landfill
VP-63	0.0086	Vernal Pool	Critical Element	Landfill
VP-64	0.0099	Vernal Pool	Critical Element	Landfill
VP-65	0.1090	Vernal Pool	Critical Element	Landfill
VP-67	0.7839	Vernal Pool	Critical Element	Landfill
VP-68	0.4604	Vernal Pool	Critical Element	Landfill
VP-69	0.0083	Vernal Pool	Critical Element	Landfill
AP-01	1.3314	Agricultural Pond	Necessary Supporting Elements	Entrance
SW-96	0.0177	Seasonal Wetland	Critical Element	Landfill
SW-97	0.0153	Seasonal Wetland	Critical Element	Landfill
VP-70	0.0155	Vernal Pool	Critical Element	Landfill
VP-71	0.0315	Vernal Pool	Critical Element	Landfill
SW-98	0.0037	Seasonal Wetland	Critical Element	Landfill
SW-99	0.0104	Seasonal Wetland	Necessary Supporting Elements	SW Pond

Plan Concept 2 Wetlands

Wetland ID	Acres	Wetland Type	Concept Element Category	Element Name
SW-12	0.2438	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-1	0.0034	Seasonal Wetland	Critical Element	Landfill
SW-2	0.0146	Seasonal Wetland	Critical Element	Landfill
SW-3	0.0028	Seasonal Wetland	Critical Element	Landfill
SW-4	0.0072	Seasonal Wetland	Critical Element	Landfill
SW-5	0.0036	Seasonal Wetland	Critical Element	Landfill
SW-6	0.0289	Seasonal Wetland	Critical Element	Landfill
SW-7	0.0026	Seasonal Wetland	Critical Element	Landfill
SW-8	0.0051	Seasonal Wetland	Critical Element	Landfill
SW-9	0.0053	Seasonal Wetland	Critical Element	Landfill
SW-10	0.0087	Seasonal Wetland	Critical Element	Landfill
SW-13	0.0361	Seasonal Wetland	Critical Element	Landfill
SW-14	0.0018	Seasonal Wetland	Critical Element	Landfill
SW-15	0.0229	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-16	0.0030	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-17	0.0025	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-18	0.0069	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-19	0.0023	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-20	0.0080	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-21	0.0050	Seasonal Wetland	Critical Element	Landfill
SW-22	0.0080	Seasonal Wetland	Critical Element	Landfill
SW-23	0.0013	Seasonal Wetland	Critical Element	Landfill
SW-24	0.0200	Seasonal Wetland	Critical Element	Landfill
SW-25	0.0099	Seasonal Wetland	Critical Element	Landfill
SW-26	0.1111	Seasonal Wetland	Critical Element	Landfill
SW-27	0.0052	Seasonal Wetland	Critical Element	Landfill
SW-28	0.0045	Seasonal Wetland	Critical Element	Landfill
SW-29	0.0084	Seasonal Wetland	Critical Element	Landfill
SW-30	0.0090	Seasonal Wetland	Critical Element	Landfill
SW-31	0.0498	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-33	0.0049	Seasonal Wetland	Critical Element	Landfill
SW-34	0.0206	Seasonal Wetland	Critical Element	Landfill
SW-35	0.0074	Seasonal Wetland	Critical Element	Landfill
SW-36	0.0217	Seasonal Wetland	Critical Element	Landfill
SW-37	0.0112	Seasonal Wetland	Necessary Supporting Elements	Maint
SW-38	0.0445	Seasonal Wetland	Necessary Supporting Elements	Maint
SW-40	0.0104	Seasonal Wetland	Critical Element	Landfill
S-01	0.0071	Swale	Critical Element	Landfill
SW-42	0.0975	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-43	0.0413	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-44	0.0082	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-45	0.0019	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-46	0.0013	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-47	0.1179	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-48	0.0159	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-49	0.0528	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SP-1	0.2367	Seasonal Wetland (Pond)	Necessary Supporting Elements	Stormwater Pond
SW-50	0.0043	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-51	0.0501	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-52	0.0034	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-53	0.0059	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-55	0.1193	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-56	0.0043	Seasonal Wetland	Necessary Supporting Elements	SW Pond

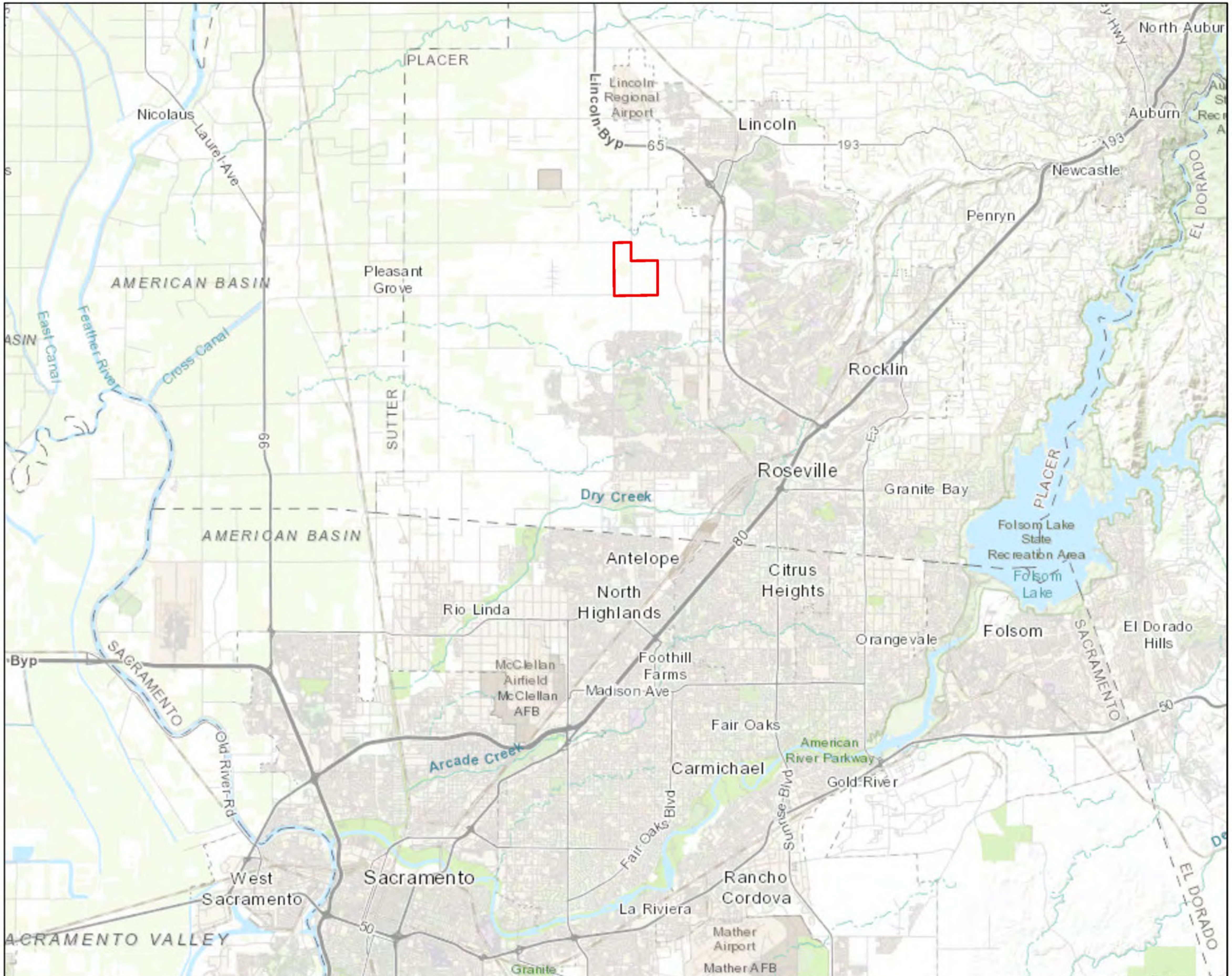
Plan Concept 2 Wetlands

Wetland ID	Acres	Wetland Type	Concept Element Category	Element Name
SW-57	0.0050	Seasonal Wetland	Necessary Supporting Elements	SW Pond
SW-91	0.0080	Seasonal Wetland	Critical Element	C&D
S-13	4.8824	Swale	Critical Element	SW Pond
VP-01	0.0061	Vernal Pool	Critical Element	Landfill
VP-02	0.0067	Vernal Pool	Critical Element	Landfill
VP-03	0.0147	Vernal Pool	Critical Element	Landfill
VP-04	0.0104	Vernal Pool	Critical Element	Landfill
VP-05	0.0026	Vernal Pool	Critical Element	Landfill
VP-06	0.0048	Vernal Pool	Critical Element	Landfill
VP-07	0.0163	Vernal Pool	Critical Element	Landfill
VP-08	0.0050	Vernal Pool	Critical Element	Landfill
VP-09	0.0137	Vernal Pool	Critical Element	Landfill
VP-10	0.0649	Vernal Pool	Critical Element	Landfill
VP-11	0.0033	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-12	0.0173	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-13	0.0061	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-14	0.0158	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-15	0.0327	Vernal Pool	Critical Element	Landfill
VP-16	0.0354	Vernal Pool	Critical Element	Landfill
VP-17	0.0283	Vernal Pool	Critical Element	Landfill
VP-18	0.0422	Vernal Pool	Critical Element	Landfill
VP-19	0.0027	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-20	0.0044	Vernal Pool	Critical Element	Landfill
VP-24	0.0050	Vernal Pool	Critical Element	Landfill
VP-25	0.0147	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-26	0.0043	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-27	0.0100	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-28	0.0082	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-29	0.0063	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-31	0.5498	Vernal Pool	Critical Element	Landfill
VP-32	0.0729	Vernal Pool	Critical Element	Landfill
VP-33	0.0460	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-34	0.0088	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-35	0.0028	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-36	0.0638	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-37	0.0991	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-38	0.0294	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-39	0.0530	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-40	0.0156	Vernal Pool	Necessary Supporting Elements	SW Pond
VP-41	0.0076	Vernal Pool	Necessary Supporting Elements	SW Pond
AP-01	1.3314	Agricultural Pond	Critical Element	Landfill

Plan Concept 0 Wetlands

Wetland ID	Acres	Wetland Type	Concept Element Category	Element Name
SW-42	0.0975	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-43	0.0413	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-44	0.0082	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-45	0.0019	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-46	0.0013	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-47	0.1179	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-48	0.0159	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-49	0.0528	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
VP-33	0.0460	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-34	0.0088	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-35	0.0028	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
SP-1	0.2367	Seasonal Wetland (Pond)	Necessary Supporting Elements	Stormwater Pond
VP-36	0.0638	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
VP-37	0.0991	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
SW-50	0.0043	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
VP-38	0.0294	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
SW-51	0.0501	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
VP-39	0.0530	Vernal Pool	Necessary Supporting Elements	Stormwater Pond
SW-52	0.0034	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond
SW-53	0.0059	Seasonal Wetland	Necessary Supporting Elements	Stormwater Pond

**Note:* *All Concept 0 wetlands are in the southern triangle area of the site*



Legend

Project Location

N

0 2 4

Miles

FIGURE 1

Regional Location Map

WPWMA Aquatic Resources Delineation Report

Western Placer Waste Management Authority

Master Planning Project

Placer County, California

Map Date:6/12/2018

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\W\WPWMA\MAPS\REPORT\WPWMA_FINAL_SPRING2017_REPORTMAPS\WPWMA_FORMALWETLANDDELINEATION_REPORT.APRX SSCOPES 6/12/2018 11:16 AM

ch2m

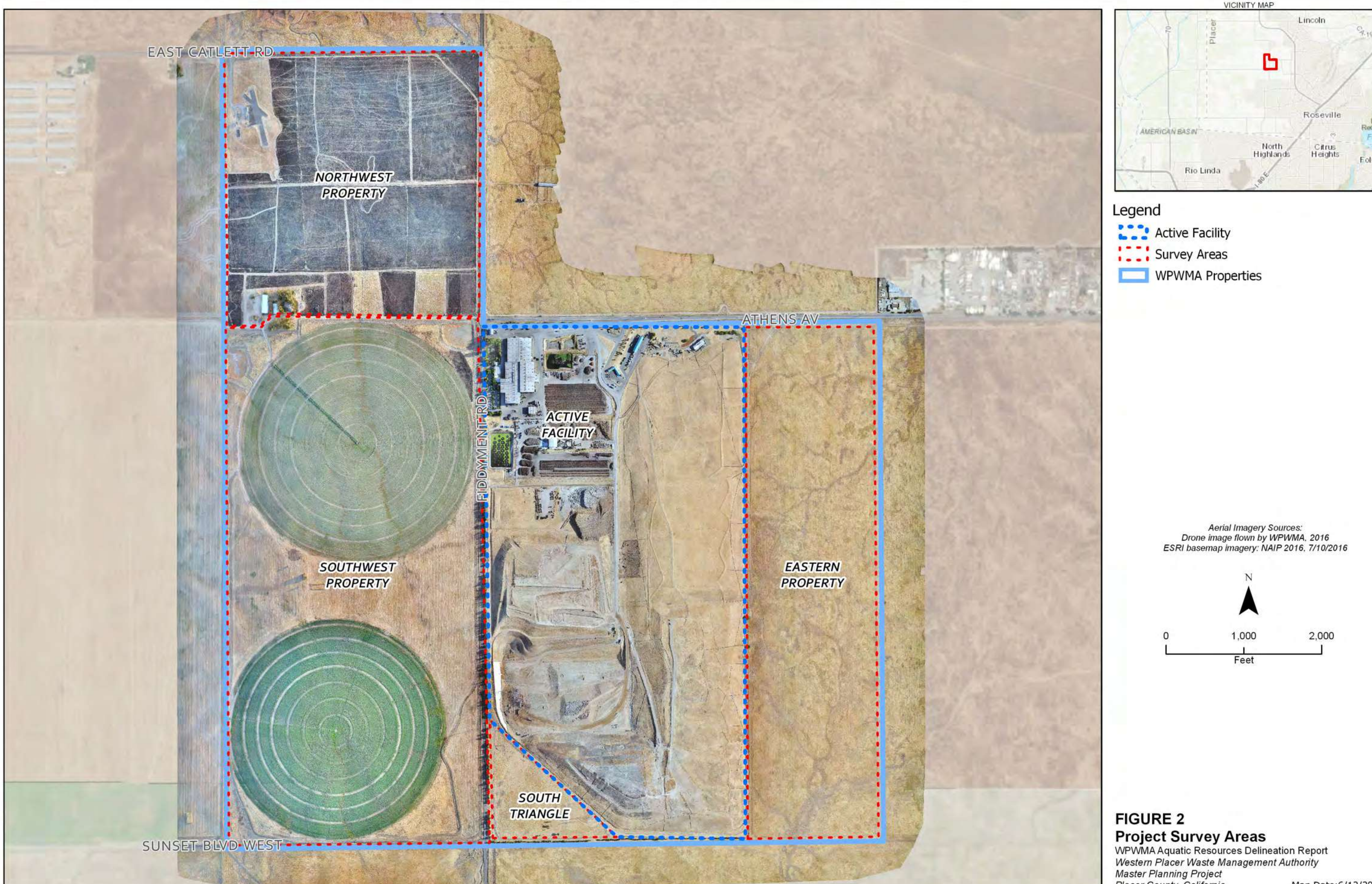
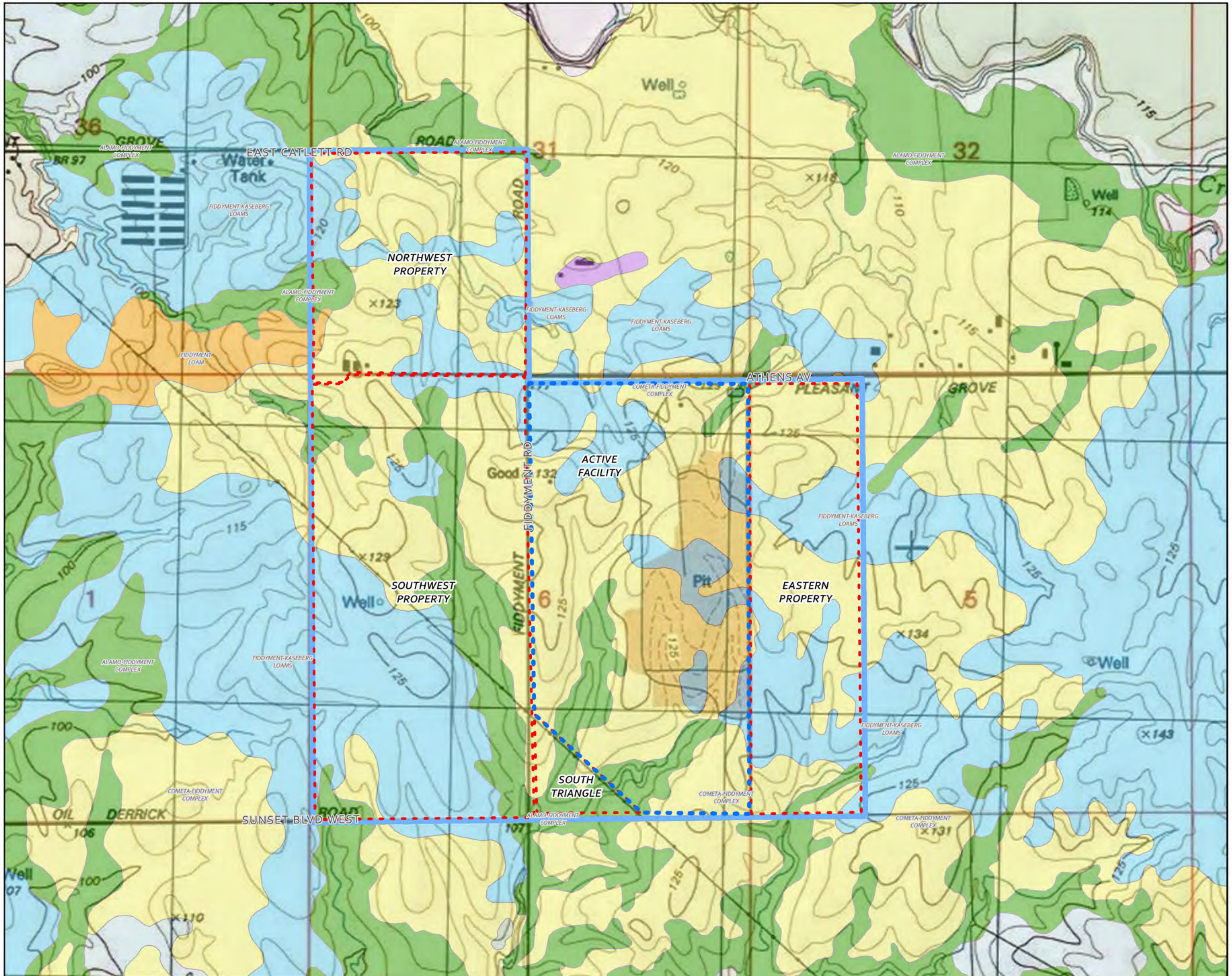


FIGURE 2
Project Survey Areas
WPWMA Aquatic Resources Delineation Report
Western Placer Waste Management Authority
Master Planning Project
Placer County, California

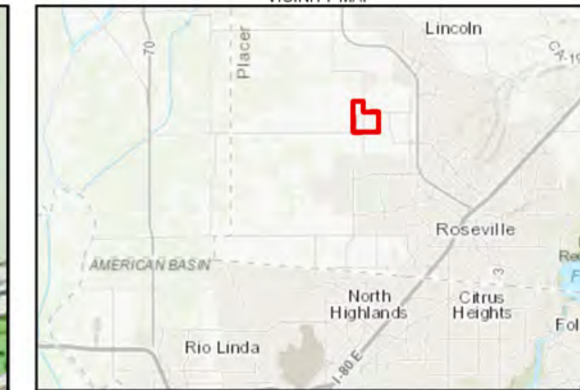
Map Date:6/12/2018

UNK \\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\W\WPWMA\MAPS\REPORT\WPWMA_FINAL_SPRING2017_REPORTMAPS\WPWMA_FORMALWETLANDDELINEATION_REPORT.APRX SSCOPES 6/12/2018 12:56 PM

ch2m.



VICINITY MAP



Legend

- Active Facility
- Survey Areas
- WPWMA Properties

Soil Type

- Alamo-Fiddyment complex, 0 to 5 percent slopes
- Cometa-Fiddyment complex, 1 to 5 percent slopes
- Cometa-Ramona sandy loams, 1 to 5 percent slopes
- Fiddyment loam, 1 to 8 percent slopes
- Fiddyment-Kaseberg loams, 2 to 9 percent slopes

USGS QUAD:
ROSEVILLE

N

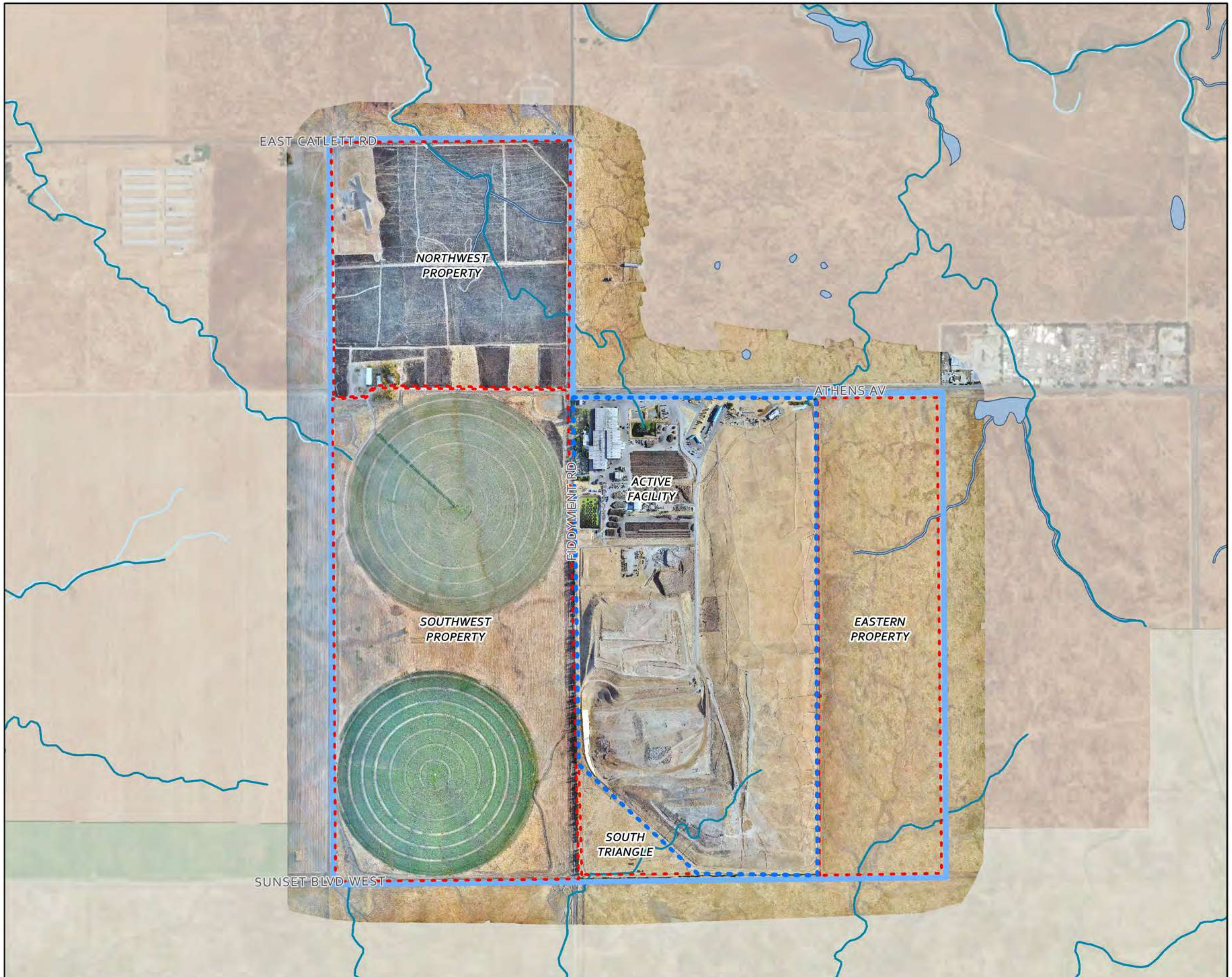
0 1,000 2,000
Feet

FIGURE 3
Soil Types

WPWMA Aquatic Resources Delineation Report
Western Placer Waste Management Authority
Master Planning Project
Placer County, California

Map Date:6/12/2018

ch2m



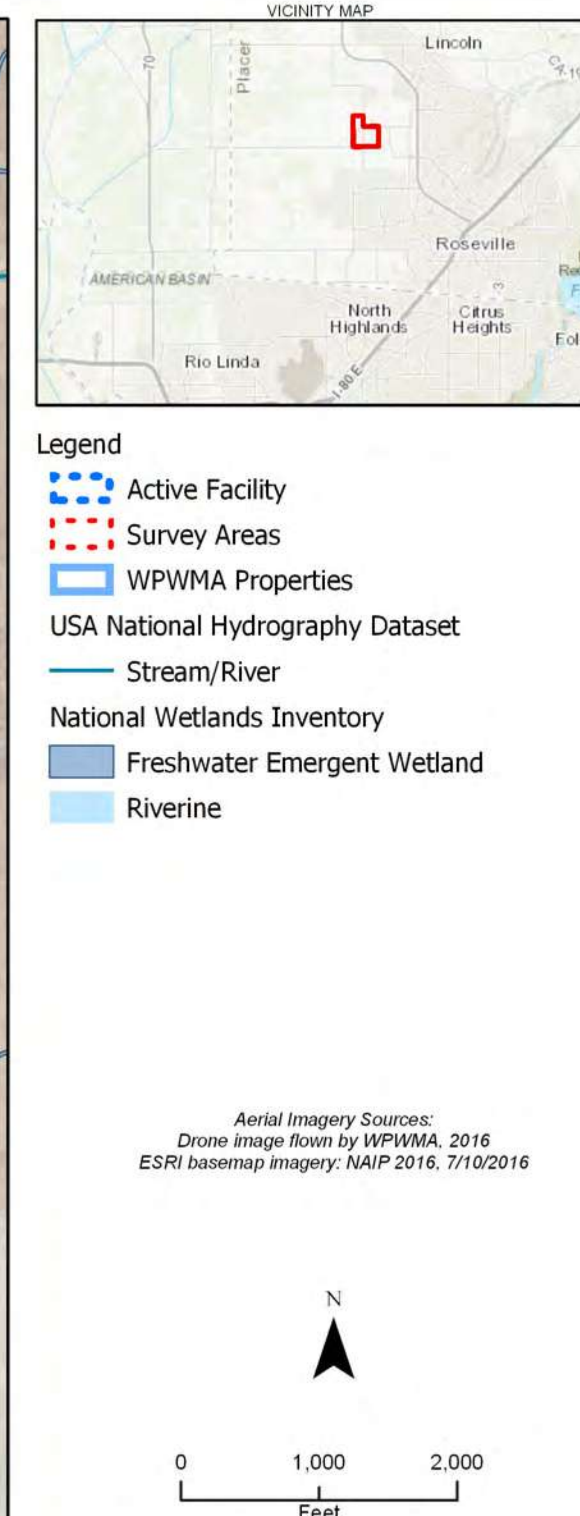
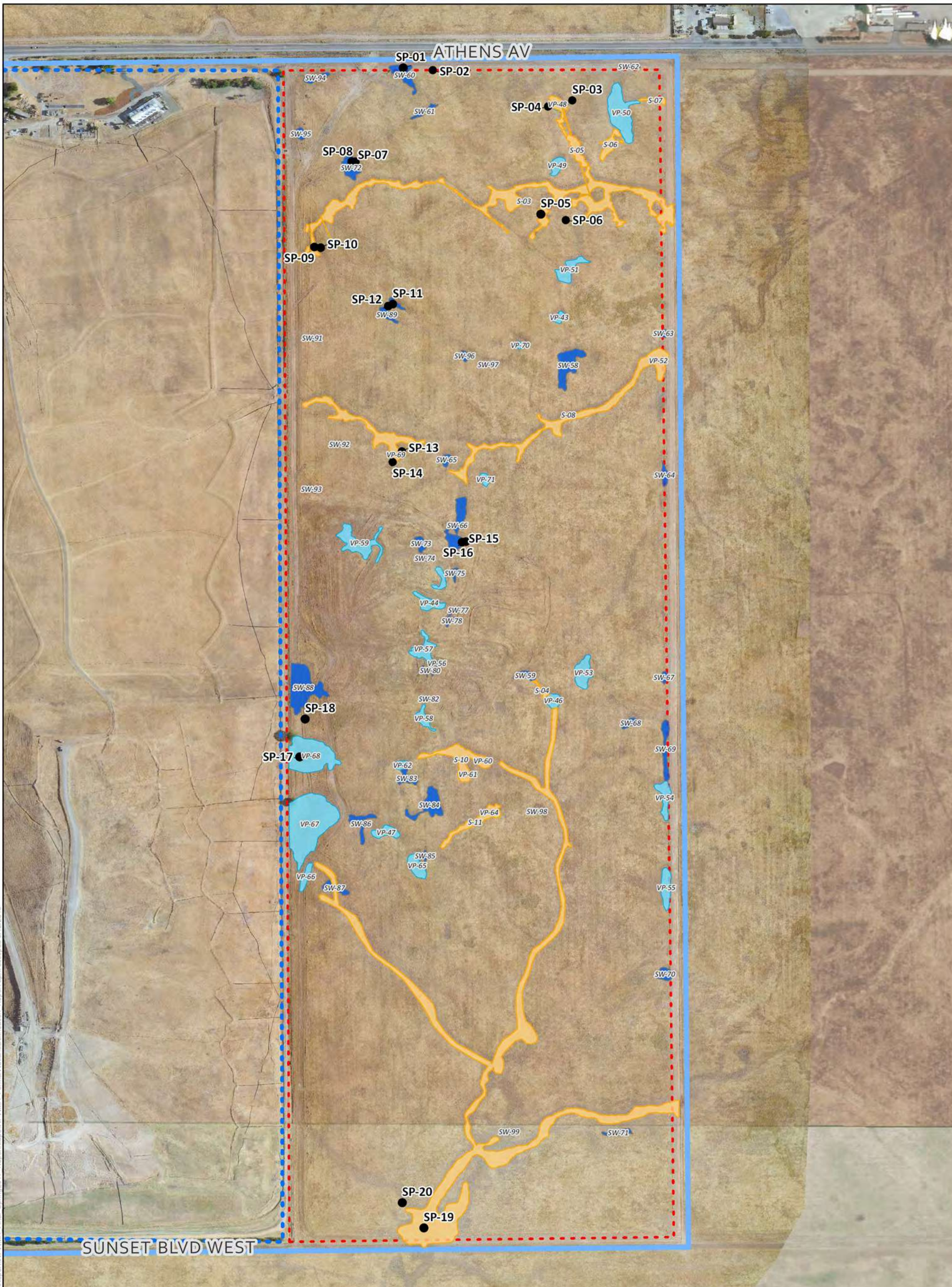


FIGURE 4
National Wetlands Inventory and National Hydrography Dataset Features
WPWMA Aquatic Resources Delineation Report
Western Placer Waste Management Authority
Master Planning Project
Placer County, California

Map Date:6/12/2018

UNK \\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\W\WPWMA\MAPS\REPORT\WPWMA_FINAL_SPRING2017_REPORTMAPS\WPWMA_FORMALWETLANDDELINEATION_REPORT.APRX SSCOPES 6/12/2018 1:02 PM

ch2m



Legend

- Vernal Pool (3.25 acres)
- Seasonal Wetland (2.10 acres)
- Swale (6.38 acres)
- Sample Point
- Active Facility
- Survey Areas
- WPWMA Properties

0 200 400
Feet

N

Aerial Imagery Sources:
Drone image flown by WPWMA, 2016
ESRI basemap imagery: NAIP 2016, 7/10/2016

FIGURE 5
Jurisdictional Wetlands and Other Aquatic Resources East Property
WPWMA Aquatic Resources Delineation Report
Western Placer Waste Management Authority
Master Planning Project
Placer County, California

Map Date:6/12/2018

ch2m

VICINITY MAP

Legend

- ● Sample Point
- Survey Areas
- WPWMA Properties
- Vernal Pool (1.25 acres)
- Seasonal Wetland (0.97 acre)
- Swale (4.88 acres)

Aerial Imagery Sources:
Drone image flown by WPWMA, 2016
ESRI basemap imagery: NAIP 2016, 7/10/2016

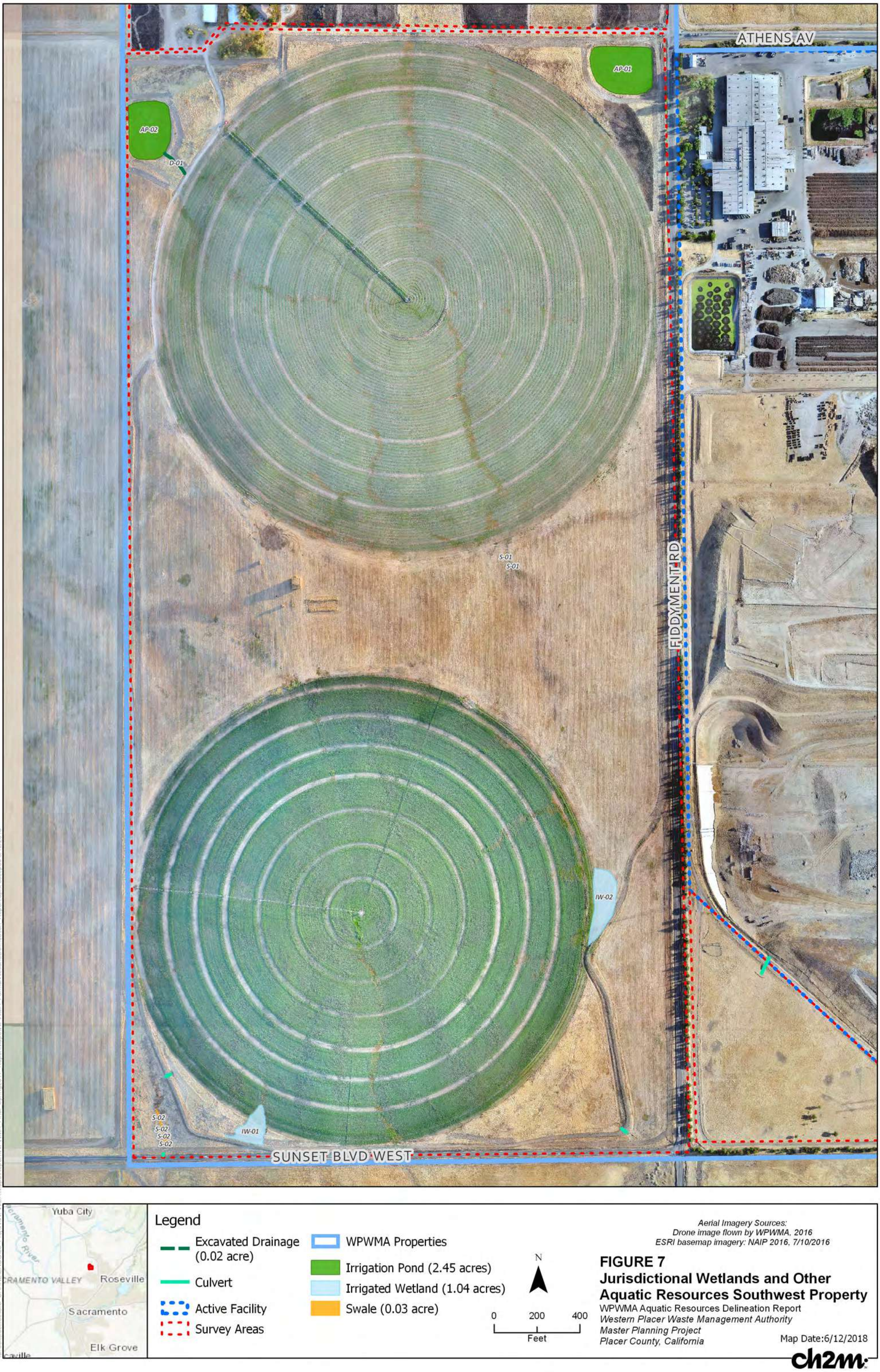
N

0 500 1,000
Feet

FIGURE 6
Jurisdictional Wetlands and Other Aquatic Resources Northwest Property
WPWMA Aquatic Resources Delineation Report
Western Placer Waste Management Authority
Master Planning Project
Placer County, California
Map Date:6/12/2018

\\BROOKSIDEFILES\GIS_SHARE\ENBG\00_PROJ\W\WPWMA\MAPS\REPORT\WPWMA_FINAL_SPRING2017_REPORTMAPS\WPWMA_FORMALWETLANDDELINEATION_REPORT.APRX SSCOPES 6/12/2018 1:10 PM

ch2m



Aerial Imagery Sources:
Drone image flown by WPWMA, 2016
ESRI basemap imagery: NAIP 2016, 7/10/2016

FIGURE 7
Jurisdictional Wetlands and Other Aquatic Resources Southwest Property

WPWMA Aquatic Resources Delineation Report
Western Placer Waste Management Authority
Master Planning Project
Placer County, California

Map Date:6/12/2018

ch2m

Legend

- Culvert
- Active Facility
- Survey Areas
- WPWMA Properties
- Vernal Pool (0.30 acre)
- Seasonal Wetland (0.64 acre)

Aerial Imagery Sources:
Drone image flown by WPWMA, 2016
ESRI basemap imagery: NAIP 2016, 7/10/2016

N

0 500 1,000
Feet

FIGURE 8
Jurisdictional Wetlands and Other Aquatic Resources South Triangle
WPWMA Aquatic Resources Delineation Report
Western Placer Waste Management Authority
Master Planning Project
Placer County, California

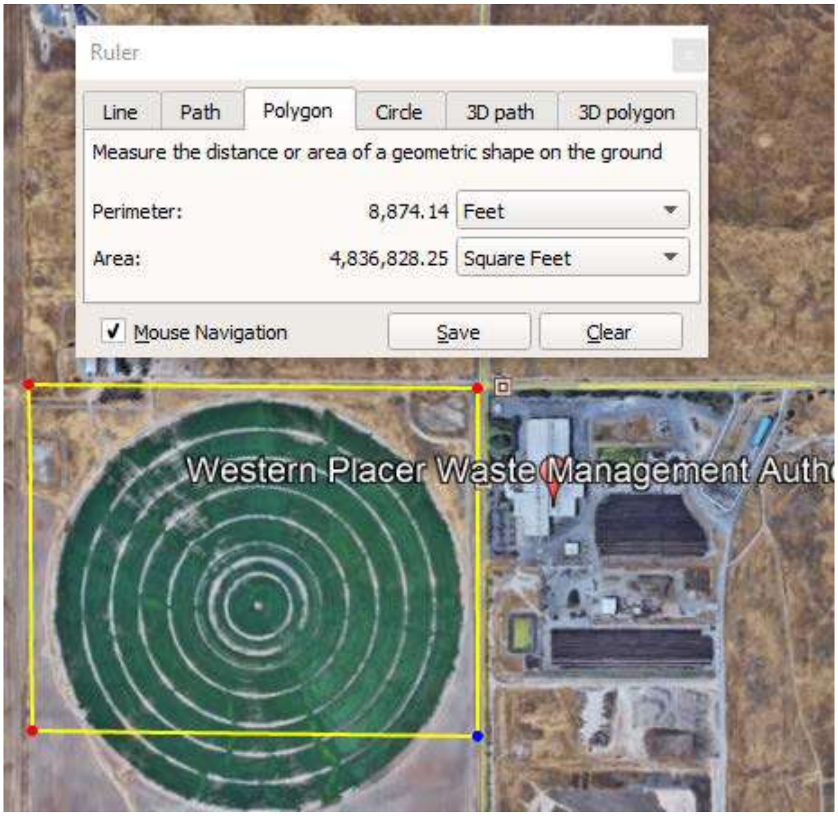
Map Date:6/12/2018

ch2m:

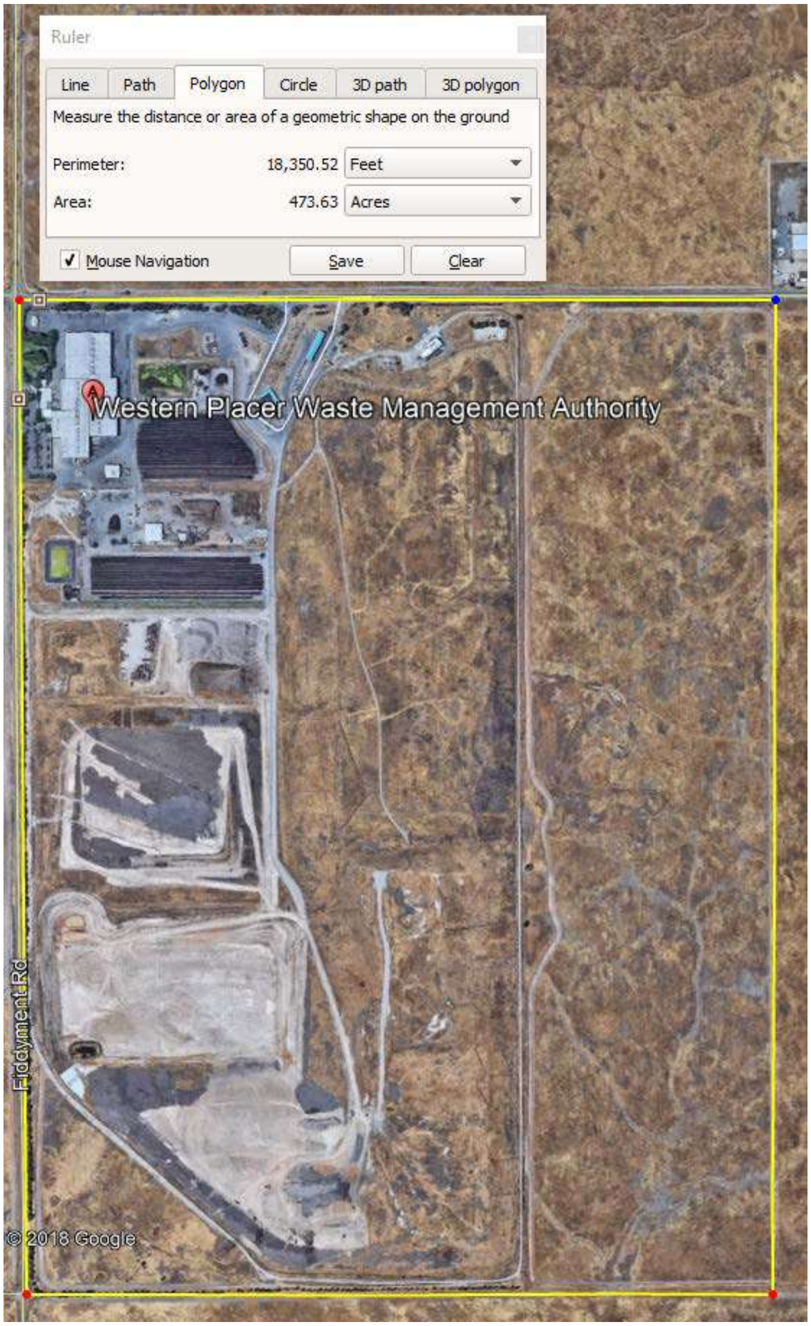
Appendix 4A-1
Design Documentation
Site Beautification

Plan Concept 1 Quantities

Site Beautification (vegetation line):



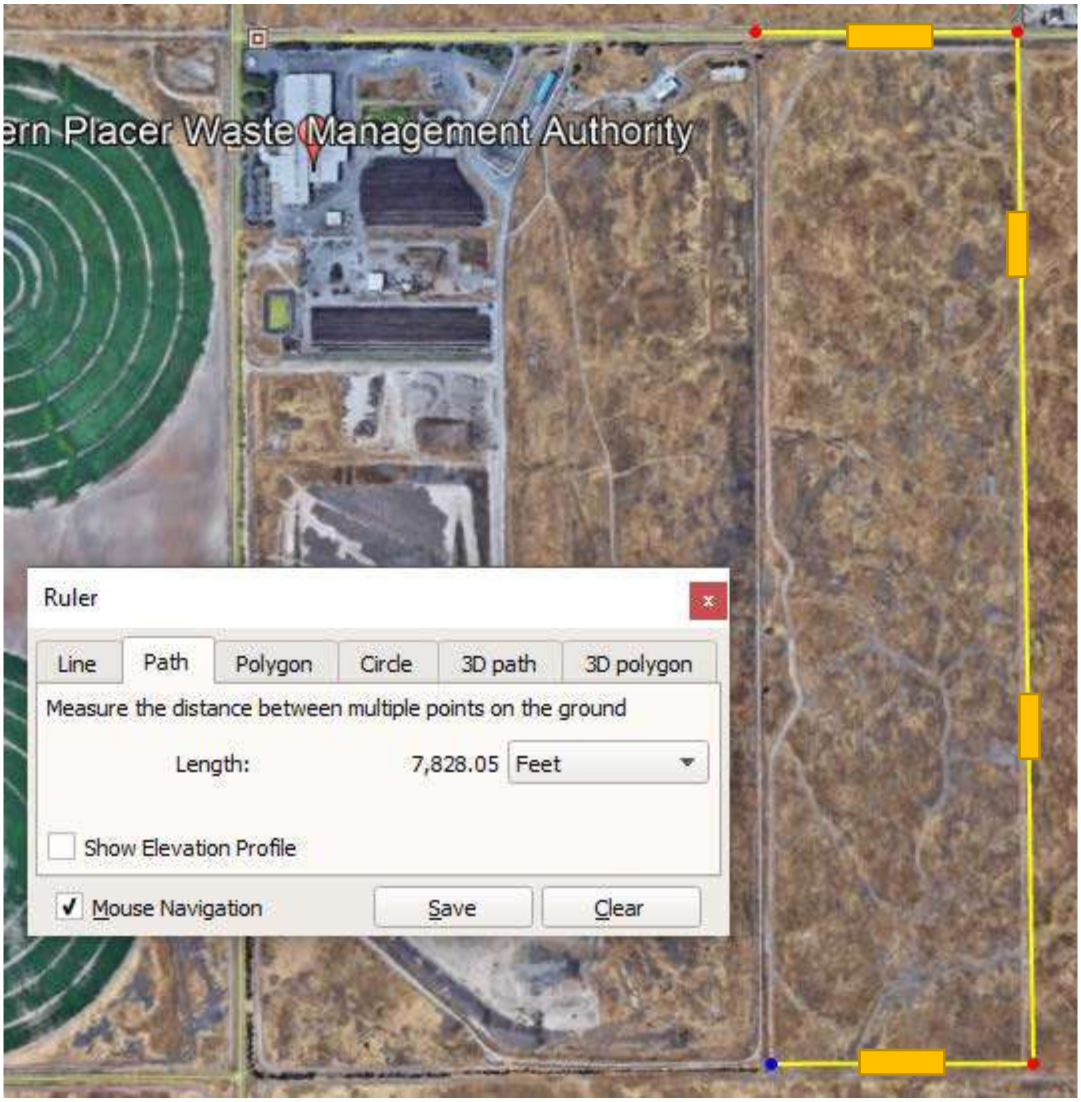
Plan Concept 1 Quantities



Plan Concept 1 Quantities

Site Beautification (new fencing and gates):

Plan Concept 1 Quantities



Plan Concept 2 Quantities

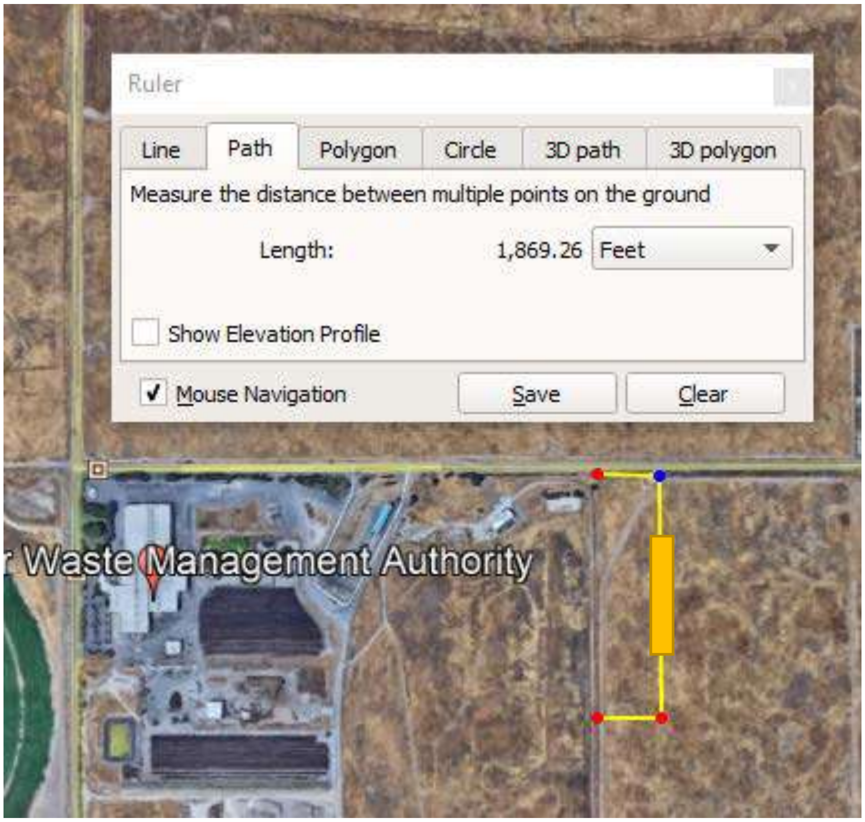
Site Beautification (vegetation):

Plan Concept 2 Quantities

Plan Concept 2 Quantities

Site Beautification (fencing):

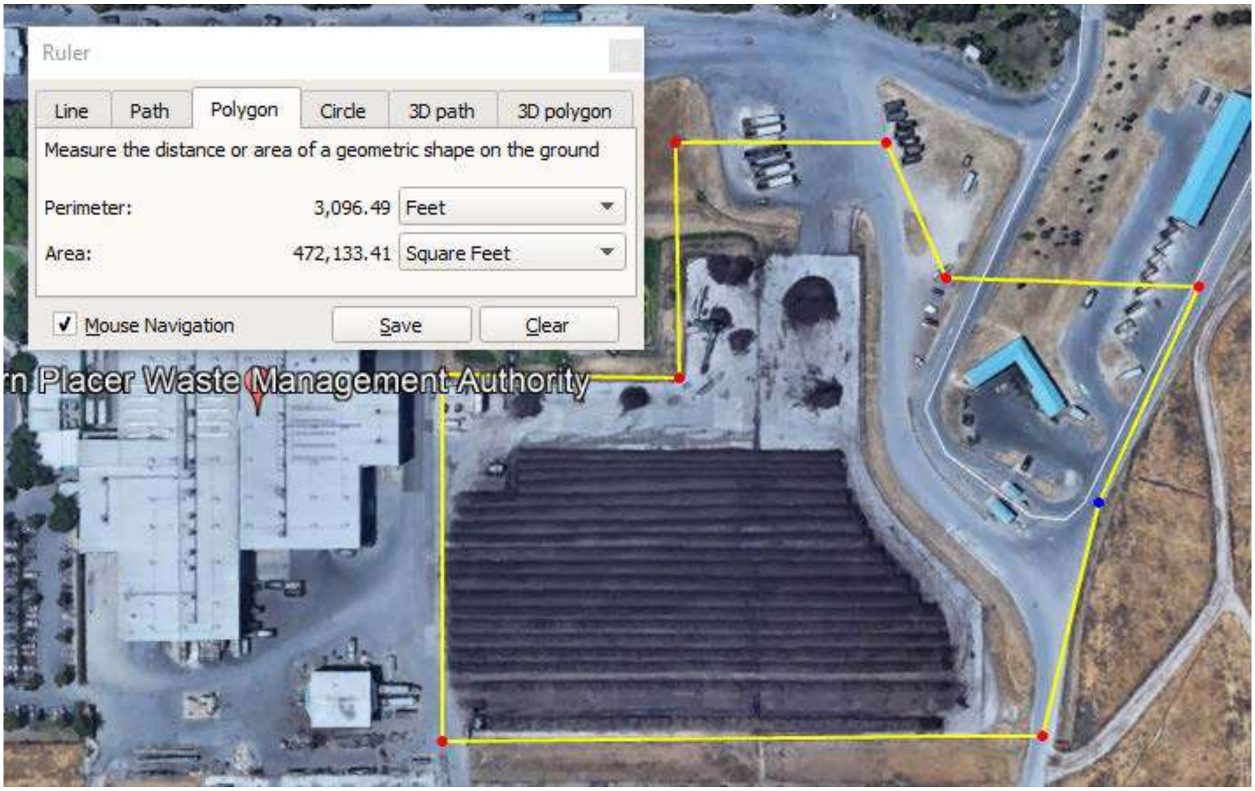
Plan Concept 2 Quantities



Appendix 4A-1
Design Documentation
Site-wide Demolition and Disposal

Plan Concept 0 Quantities

Site-wide demolition:



Pad Demolition

From: Goodrich, Janet/SAC
Sent: Wednesday, October 31, 2018 1:48 PM
To: McRae, Jennifer/SJC; Lopez, Lyndsey/PDX
Subject: FW: another question

Good news, looks like demo of the 60% or whatever you used is good, but should be for all options I believe, as it is not level with the good pad. Don't use the repair part, assume we demo on all 3

From: Keith Schmidt [mailto:KSchmidt@placer.ca.gov]
Sent: Wednesday, October 31, 2018 1:41 PM
To: Goodrich, Janet/SAC <Janet.Goodrich@jacobs.com>
Subject: [EXTERNAL] RE: another question

If you want them on the same plane (elevation), then you would have to demo because they are not close (ie. 3-6' difference). If the location/elevation was fine, then I would probably spend $150-200k to repair the surface as needed.

The area I've marked for demo has seen a lot of repairs and wear, and it would need probably $150-200k in repair to make the surface condition good again.

Keith J. Schmidt, P.E. | Senior Civil Engineer | Western Placer Waste Management Authority | (Mail) 11476 "C" Ave. Auburn, CA 95603 | (Physical) 3033 Fiddyment Rd. Roseville, CA 95747 | (916) 543-3986 (Direct) | (916) 543-3990 (Fax)

From: Goodrich, Janet/SAC [mailto:Janet.Goodrich@jacobs.com]
Sent: Wednesday, October 31, 2018 1:27 PM
To: Keith Schmidt
Subject: RE: another question

This may make more sense, trying to decide if this area needs demolition before construction or if we can assume this pad stays. See the red part.

From: Goodrich, Janet/SAC
Sent: Wednesday, October 31, 2018 1:25 PM
To: Keith Schmidt <KSchmidt@placer.ca.gov>
Subject: another question

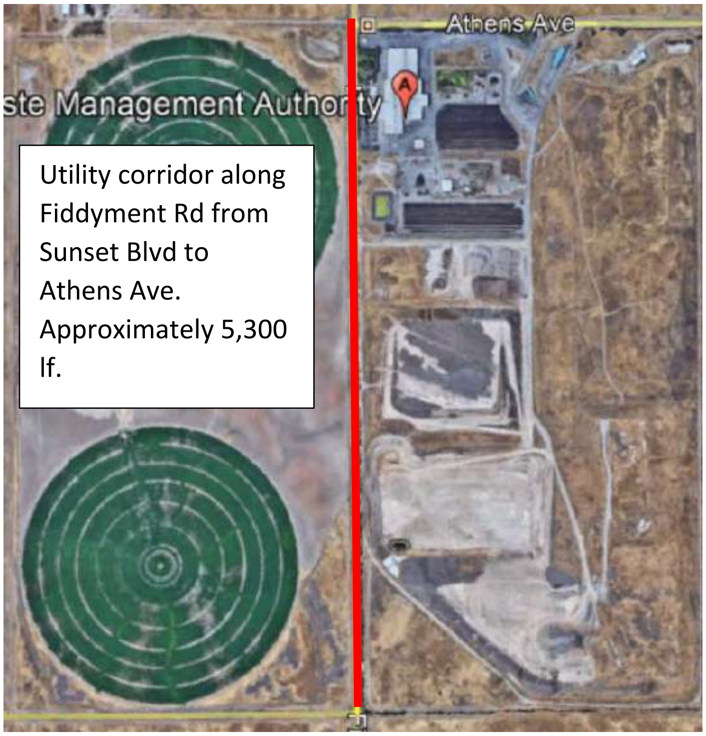
Just to verify. Is the existing C&D area on the NEWer, S, good pad, meaning we can keep it or is it old pad that needs to be demolished regardless?

t Authority
A

Appendix 4A-1
Design Documentation
Site Utilities

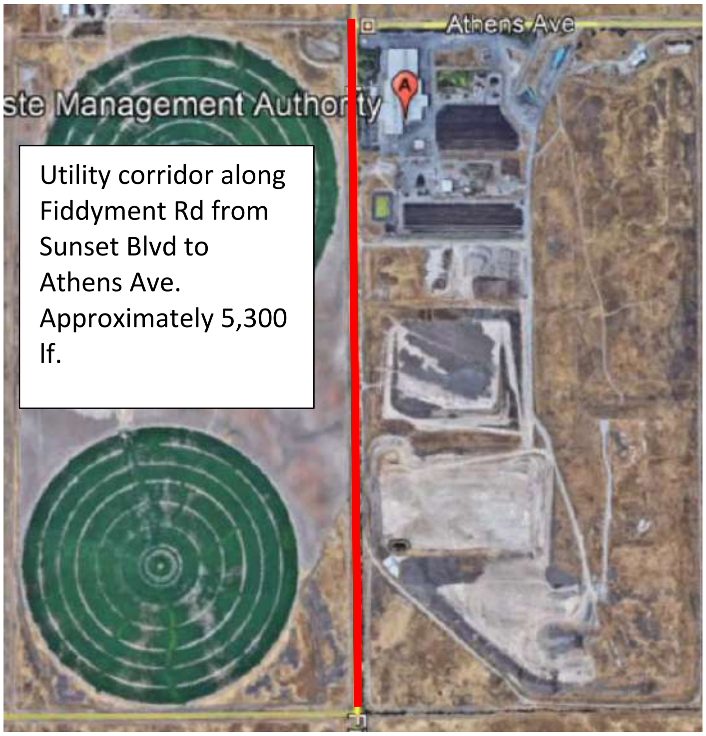
Plan Concept 1 Quantities

Site Utilities:



Plan Concept 2 Quantities

Site Utilities:



Appendix 4A-2
Capital Cost Estimates

Appendix 4A-2. Capital Cost Estimates

This subappendix contains the details of the capital cost workbooks that were prepared by the consulting team. Capital costs are organized by Plan Concept and then by site element.

The capital costs presented in these estimates are for initial build only; capital replacement costs are tallied in the Present Value Analysis (Section 4).

Appendix 4A-2
Capital Cost Estimates
Plan Concept 0

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost w/ Markup, Cont., & Fee	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee
Plan Concept 0 Critical Elements					**$319,213,050**
Public Area					
Public Area - Roadways	1	LS	$1,799,189	$1,799,189	
Public Area - Buyback (220' x 230')	1	LS	$2,655,780	$2,655,780	
Public Area - HHW (300' x 100')	1	LS	$1,787,519	$1,787,519	
Public Area - Reuse Store Area (155' x 140')	1	LS	$1,909,078	$1,909,078	
Public Area - Tipping Area	1	LS	$8,856,534	$8,856,534	
C&D					
C&D - C&D Pad (1000' x 530')	1	LS	$10,175,809	$10,175,809	
C&D - Processing Line	1	LS	$7,922,881	$7,922,881	
Composting					
Compost - Green Waste Pad (210' x 225')	1	LS	$1,404,545	$1,404,545	
Compost - Wood Waste Pad (115' x 225')	1	LS	$769,156	$769,156	
Compost - Outdoor Receiving Area (90' x 200')	1	LS	$2,462,377	$2,462,377	
Compost - Screening and Product Storage Pad (400' x 350')	1	LS	$5,932,451	$5,932,451	
Compost - Temporary Positive ASP System	1	LS	$470,829	$470,829	
Compost - Active Composting System (205' x 880')	1	LS	$14,811,623	$14,811,623	
Compost - Biofilter (135' x 880')	1	LS	$5,122,623	$5,122,623	
Compost - ASP Curing System (185' x 880')	1	LS	$12,196,234	$12,196,234	
Compost - Dedicated Storm Water Ponds	1	LS	$1,057,713	$1,057,713	
Compost - Miscellaneous Equipment	1	LS	$12,409	$12,409	
Landfill					
Stockpile Relocation	1	LS	$40,091,688	$40,091,688	
Landfill Construction	1	LS	$54,214,085	$54,214,085	
Unlined Area Waste Excavation	1	LS	$102,344,916	$102,344,916	
Landfill Closure	1	LS	$43,215,610	$43,215,610	
Plan Concept 0 Necessary Supporting Elements					**$20,114,766**
Admin					
Admin Staff Bldg (5,000 sf or 50' x 100')	1	LS	$6,310,623	$6,310,623	
Admin Staff Parking (10,000 sf)	1	LS	$74,376	$74,376	
Main Entrance					
Main Entrance - Roadways	1	LS	$802,788	$802,788	
Main Entrance - Scale/Building	1	LS	$1,548,557	$1,548,557	
Western Entrance					
Western Entrance - Roadways	1	LS	#N/A	Not included in concept	
Western Entrance - Scale/Building	1	LS	#N/A	Not included in concept	
Overpass					
Overpass	1	LS	#N/A	Not included in concept	
Recovered Materials Storage					
Recyclables Storage Building	1	LS	$8,281,730	$8,281,730	
Primary Maintenance Facility					
Primary Maintenance - Maintenance Area (250' x 300')	1	LS	$1,842,538	$1,842,538	
Satellite Maintenance and Staff Facility					
Satellite Maintenance and Staff - Maintenance Area (250' x 300')	1	LS	#N/A	Not included in concept	
Satellite Maintenance and Staff - Staff Bldg and Parking Area (100' x 220')	1	LS	#N/A	Not included in concept	
Stormwater Pond					
New Storm Water Ponds	1	LS	$1,254,153	$1,254,153	
Plan Concept 0 Non-Critical Elements					**$0**
Main Site HHW Facility					
HHW Building (65' x 75')	1	LS	#N/A	Not included in concept	
Plan Concept 0 Existing Features to be Removed					**$217,629**
Compost Pond Removal					
Compost Pond Removal	1	LS	$217,629	$217,629	
Plan Concept 0 General Elements					**$12,704,494**
Special Permits and Allow					
Special Permits	1	LS	$4,423,996	$4,423,996	
Geotechnical Investigations	1	LS	$60,000	$60,000	
Wetlands Mitigation					
Wetlands Mitigation	1	LS	$987,453	$987,453	
Site Beautification					
Facility Beautification	1	LS	$889,230	$889,230	
Site-wide Demolition					
Site-wide Demolition and Disposal	1	LS	$2,866,952	$2,866,952	
Site Utilities					
Shared Site Utilities	1	LS	$3,061,096	$3,061,096	
MRF Upgrade to TS					
MRF Upgrade to TS	1	LS	$415,766	$415,766	
Total Probable Cost				$352,249,939	**$352,249,939**

Total Probable Cost		**$352,250,000**
Low Range	**-30%**	**$246,575,000**
High Range	**50%**	**$528,375,000**

Rough Order of Magnitude (Class 4) Cost Opinion **DRAFT**
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Common Construction Unit Rates	Unit Cost	Unit	Variable	Notes
Earthworks, Pads and Roadways				
Strip topsoil (12" deep) and stockpile onsite	$1.30	SY	topsoil_strip	Assumes stockpile along west property boundary, scraper haul
Fine grade site, machine	$1.20	SY	finegrade	MEANS 31 22 16
Common excavation to Stockpile (2' deep)	$3.90	CY	common_ex	MEANS 33 20 15, Assume stockpile along west property boundary
Subgrade preparation	$1.30	SY	subgrade_prep	
Granular sub-base (3" minus, 6" thick)	$7.30	SY	gran_subbase	CALTRANS Historical 260203
Granular base (DGA, 12" thick)	$36.00	CY	gran_base	CALTRANS Historical 260303
Curb and gutter	$14.00	LF	curb_gutter	MEANS 32 16 13
Asphalt paving (9" thick)	$65.00	SY	asphalt	CH2M estimate
Roadway/Perimeter Ditching	$1.50	LF	ditching	Grader/dozer work
Environmental Protection				
Clay liner (0.5m thick)	$3.40	SF	clay_liner	CH2M Estimate $55/cy, 20" thick
Groundwater monitoring wells	$7,500.00	LS	GW_wells	CH2M Estimate (3 wells to 30 ft, casing protector)
Synthetic pond liner (supply and install)	$6.30	sy	HDPE_liner	CH2M Historical, 40 mil
Buildings and Concrete				
Strip Footing (2' thick, 3' wide)	$176.00	LF	strip_footing	0.22 cy per LF
Push Wall Footing (2' thick, 8' wide)	$570.00	LF	push_wall_footing	0.6 cy per LF
Push Walls (12' high, 12' thick at top, 18" thick at base)	$600.00	LF	push_wall	0.6 cy per LF
Slab-on-Grade concrete floor (8")	$12.00	SF	concrete_slab	after verbal discussions with local contractor
Utility Connections				
Potable water connection	$0.00	LF		
Sanitary sewer connection	$0.00	LF		
Electrical tie-in to transformer	$75.00	LF	buried_elec	450 KVA total connected load/ 300 KVA operating demand
Telecom connection	$0.00	LF		
Natural gas connection	$0.00	LF		

Markups and Fees	Rate	Unit	Variable	Notes
Contractor Mob and General Conditions				
Contractor Home Office	5.0%		CHO	Assumes multi-trade GC does most all of the work
Contractor General Conditions	8.0%		CGC	Assumes 12 month construction schedule
Contractor Fee	8.0%		CF	
Project Bond/Insurance	2.6%		PBI	
Mobilization/Demobilization	3.0%		Mob_Demob	
Contingencies:				
Facility design allowances based on level of design	25%		design_cntngy	
Market adjustment factor	5%		MAF	Construction market is very busy
Escalation	0%		escalation	
Consultant and Subcontractor Fees:				
Engineering design and municipal permitting fee	8.0%		Eng_fee	
Construction management fee	8.0%		CM_fee	
Estimate Ranges:				
Low Range	-30%		low_range	
High Range	50%		high_range	

Notes:

1 The cost estimates are based on 1st quarter 2016 rates from the CALTRANS historical costs (concrete and import fill), MEANS (earthwork), CH2M historical values, Golder historical values, and calculated values where indicated. Cost estimates are largely based on 2016/2017 values because cost development commenced in 2017, prior to Board meeting in Dec 2017. A CH2M/Jacobs cost estimator has been involved in the review process.
2 These AACEI Classification Class 4 cost estimates are assumed to represent the actual total installed cost within the range of -30 percent to +50 percent (% based on AACEI) of the cost indicated.
3 The estimate is prepared with due diligence with the available information and under normal operations. However this should be subject to market demands and circumstances. The possibility of securing a competive bid process is questionable and should be taken into consideration.
4 Factors that may affect the estimate on the following issues include escalation, premium on labor, engineering.
5 The final cost do the project will be subject to labor rates , material cost, actual site conditions, availability of labor, material and equipment, final project scope, final project schedule (flexible or fixed), public consultation and input, and other mitigating factors (e.g. timing of construction and award). As a result, the final project cost may defer from the presented budget. Due to facts mentioned, the funding of the project should be carefully reviewed prior to establishing the final budget.
6 It is assumed that there is no hazardeous materail to remove and dispose.
7 It is assumed that the work will performed under a 40-hr, normal workweek schedule. No acceleration costs included..
8 It's assumed that all materials are readibly available at no premium costs, that delivery is normal costs, and the contractor has adequate laydown and site facilities.

Exclusions/Qualifications:

1 Equipment specifications not identified.
2 Federal and state sales tax are included in unit rates.
3 Municipal fees & licences not included
4 As the design is at conceptual stage, the tie-ins to existing equipment and facilities have not being identified.
5 Rock excavation not included
6 Dewatering is not included
7 Escalation is not included. Values are in 1st Qtr 2016 values

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Public Area - Roadways					**$911,000**		**$1,799,189**	
Earthworks, Pads and Roadways (45' development width assumed)								Assume new pads and paving since existing Public Area will be razed
Roadway - Single Lane	2,500	LF	$290.00	$725,000		$1,431,846		
Roadway - Double Lane	200	LF	$580.00	$116,000		$229,095		
Curb and gutter	5,000	LF	*$14.00*	$70,000		$138,247		
Public Area - Scale/Building					**$0**		**$0**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		Upgraded scale included in Main Entrance cost element.
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	0	SY	*$1.30*	$0		$0		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	0	CY	*$36.00*	$0		$0		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Scale Building and Scales								
20' Pre-fab Office Trailer	0	LS	$24,000.00	$0		$0		
Truck scale (40') supply and install include concrete footings	0	LS	$60,000.00	$0		$0		
Allowance for concrete approach slabs (2 per scale deck)	0	LS	$5,000.00	$0		$0		
Allowance for traffic lights/gates/signs	0	LS	$20,000.00	$0		$0		
Allowance for CCTV system	0	LS	$10,000.00	$0		$0		
Utility Connections								
Potable water connection	0	LF	$70.00	$0		$0		
Sanitary sewer connection	0	LF	$85.00	$0		$0		
Electrical tie-in to transformer	0	LF	$75.00	$0		$0		
Telecom connection	0	LF	$60.00	$0		$0		
Natural gas connection	0	LF	$80.00	$0		$0		
Public Area - Buyback (220' x 230')					**$1,344,726**		**$2,655,780**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	5,623	SY	*$1.30*	$7,310		$14,437		
Fine grade site, machine	5,623	SY	*$1.20*	$6,748		$13,326		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	4,150	SY	*$1.30*	$5,395		$10,655		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	154	CY	*$36.00*	$5,533		$10,928		
Curb and gutter	550	LF	*$14.00*	$7,700		$15,207		
Asphalt paving (9" thick)	5,623	SY	*$65.00*	$365,495		$721,838		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Building (70' x 130')								
Strip Footings	400	LF	*$176.00*	$70,400		$139,037		
Slab-on-Grade concrete floor (8")	9,100	SF	*$12.00*	$109,200		$215,666		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	9,100	SF	$35.00	$318,500		$629,025		
Insulation and interior finishing (drywall)	9,100	SF	$8.00	$72,800		$143,777		
Ceiling Insulation	9,100	SF	$2.75	$25,025		$49,423		
HVAC and exhaust ducting	9,100	SF	$17.00	$154,700		$305,526		
Lighting, Conduit, Wire & Receptacles	9,100	SF	$5.70	$51,870		$102,441		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	4	EA	$11,000.00	$44,000		$86,898		Historical cost
Allowance for fire alarms/sprinkler system	9,100	SF	$3.00	$27,300		$53,916		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Utility Connections								
Potable water connection	400	LF	$0.00	$0		$0		Stubbed from service to Staff area
Sanitary sewer connection	400	LF	$0.00	$0		$0		Stubbed from service to Staff area
Electrical tie-in to transformer	400	LF	$75.00	$30,000		$59,249		Stubbed from service to Staff area, 120/220 V single phase service
Telecom connection	400	LF	$0.00	$0		$0		Stubbed from service to Staff area
Natural gas connection	0	LF	$80.00	$0		$0		Stubbed from service to Staff area
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Public Area - HHW (300' x 100')					**$905,091**		**$1,787,519**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	3,334	SY	*$1.30*	$4,334		$8,560		
Fine grade site, machine	3,334	SY	*$1.20*	$4,001		$7,901		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	3,334	SY	*$1.30*	$4,334		$8,560		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	1,667	CY	*$36.00*	$60,012		$118,521		
Curb and gutter	600	LF	*$14.00*	$8,400		$16,590		
Asphalt paving (9" thick)	3,334	SY	*$65.00*	$216,710		$427,994		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Building (50' x 100')								
Strip Footings	300	LF	*$176.00*	$52,800		$104,278		
Slab-on-Grade concrete floor (8")	5,000	SF	*$12.00*	$60,000		$118,498		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	5,000	SF	$35.00	$175,000		$345,618		
Insulation and interior finishing (drywall)	5,000	SF	$8.00	$40,000		$78,998		
Ceiling Insulation	5,000	SF	$2.75	$13,750		$27,156		
HVAC and exhaust ducting	5,000	SF	$17.00	$85,000		$167,872		
Lighting, Conduit, Wire & Receptacles	5,000	SF	$5.70	$28,500		$56,286		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	2	EA	$11,000.00	$22,000		$43,449		Historical cost
Allowance for fire alarms/sprinkler system	5,000	SF	$3.00	$15,000		$29,624		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Utility Connections								
Potable water connection	250	LF	$70.00	$17,500		$34,562		Stubbed from service to Buyback area
Sanitary sewer connection	250	LF	$85.00	$21,250		$41,968		Stubbed from service to Buyback area
Electrical tie-in to transformer	250	LF	$75.00	$18,750		$37,031		Stubbed from service to Buyback area, 120/220 V single phase service
Telecom connection	250	LF	$60.00	$15,000		$29,624		Stubbed from service to Buyback area
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Public Area - Reuse Store Area (155' x 140')					**$966,642**		**$1,909,078**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,412	SY	*$1.30*	$3,136		$6,193		
Fine grade site, machine	2,412	SY	*$1.20*	$2,894		$5,716		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	2,412	SY	*$1.30*	$3,136		$6,193		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	89	CY	*$36.00*	$3,216		$6,351		
Curb and gutter	295	LF	*$14.00*	$4,130		$8,157		
Asphalt paving (9" thick)	2,412	SY	*$65.00*	$156,780		$309,634		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Building (75' x 100')								
Strip Footings	350	LF	*$176.00*	$61,600		$121,658		
Slab-on-Grade concrete floor (8")	7,500	SF	*$12.00*	$90,000		$177,746		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	7,500	SF	$35.00	$262,500		$518,427		
Insulation and interior finishing (drywall)	7,500	SF	$8.00	$60,000		$118,498		
Ceiling Insulation	7,500	SF	$2.75	$20,625		$40,734		
HVAC and exhaust ducting	7,500	SF	$17.00	$127,500		$251,807		
Lighting, Conduit, Wire & Receptacles	7,500	SF	$5.70	$42,750		$84,430		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	4	EA	$11,000.00	$44,000		$86,898		Historical cost
Allowance for fire alarms/sprinkler system	7,500	SF	$3.00	$22,500		$44,437		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Utility Connections								
Potable water connection	255	LF	$0.00	$0		$0		Stubbed from service to HHW area
Sanitary sewer connection	255	LF	$0.00	$0		$0		Stubbed from service to HHW area
Electrical tie-in to transformer	255	LF	$75.00	$19,125		$37,771		Stubbed from service to HHW area, 120/220 V single phase service
Telecom connection	255	LF	$0.00	$0		$0		Stubbed from service to HHW area
Natural gas connection	0	LF	$80.00	$0		$0		Stubbed from service to HHW area
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Public Area - Tipping Area					**$4,484,412**		**$8,856,534**	
Earthworks, Pads and Roadways (220' x 600')								
Strip topsoil (12" deep) and stockpile onsite	14,667	SY	*$1.30*	$19,067		$37,657		
Fine grade site, machine	14,667	SY	*$1.20*	$17,600		$34,760		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	14,667	SY	*$1.30*	$19,067		$37,657		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	1,667	CY	*$36.00*	$60,012		$118,521		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	14,667	SY	*$65.00*	$953,355		$1,882,838		
Roadway/Perimeter Ditching	1,640	LF	*$1.50*	$2,460		$4,858		
Tipping Building (100' x 325')								
Strip Footings	850	LF	*$176.00*	$149,600		$295,454		
Slab-on-Grade concrete floor (8")	32,500	SF	*$12.00*	$390,000		$770,234		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	32,500	SF	$35.00	$1,137,500		$2,246,517		
Insulation and interior finishing (drywall)	0	SF	$8.00	$0		$0		
Ceiling Insulation	0	SF	$2.75	$0		$0		
HVAC and exhaust ducting	32,500	SF	$8.00	$260,000		$513,490		
Lighting, Conduit, Wire & Receptacles	32,500	SF	$5.70	$185,250		$365,861		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	36	EA	$11,000.00	$396,000		$782,084		Historical cost
Allowance for fire alarms/sprinkler system	32,500	SF	$3.00	$97,500		$192,559		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Buildings - Specialty								
Retaining Wall Foundations (3' x 8')	325	LF	$900.00	$292,500		$577,676		0.9 cy per LF
Retianing Wall (15' high, 2' thick)	325	LF	$1,200.00	$390,000		$770,234		1.2 cf per LF
Steel plating along base of push walls (1/2 "thick)	0	LF	$0.00	$0		$0		Assumed height of steel plate is 4' high. (20.42 #/sf)
Ecology block bunker	0	EA	$0.00	$0		$0		$150/block + $25/block placement
Stayflex Coating (interior walls and roof)	0	SF	$0.00	$0		$0		
High Performance Epoxy Coating (interior walls and roof)	0	SF	$3.35	$0		$0		MEANS 09 96 56
Grated floor drains	0	LF	$0.00	$0		$0		Estimated quantity at 2 ea for total length of building - 4"
Overhead door air curtain system	0	EA	$0.00	$0		$0		Historical cost
Specialty exhaust ducting	0	LF	$0.00	$0		$0		SS, 26 GA - Means

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Specialty exhaust fans	0	EA	$0.00	$0		$0		
Utility Connections								
Potable water connection	350	LF	$70.00	$24,500		$48,387		Stubbed from service to Buyback area
Sanitary sewer connection	0	LF	$85.00	$0		$0		Stubbed from service to Buyback area
Electrical tie-in to transformer	350	LF	$75.00	$26,250		$51,843		Stubbed from service to Buyback area, 120/220 V single phase service
Telecom connection	350	LF	$60.00	$21,000		$41,474		Stubbed from service to Buyback area
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$8,611,870	**$8,611,870**	$17,008,099	**$17,008,099**	
Contractor Markups and General Conditions					**$2,290,757**			
Contractor Home Office			*5.0%*	$430,594				
Contractor General Conditions			*8.0%*	$688,950				
Contractor Fee			*8.0%*	$688,950				
Project Bond/Insurance			*2.6%*	$223,909				
Mobilization/Demobilization			*3.0%*	$258,356				
Probable Construction Cost					**$10,902,628**			
Contingencies					**$3,270,788**			
Facility design allowances based on level of design	1	PER	25%	$2,725,657				
Market adjustment factor	1	PER	5%	$545,131				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$2,834,683**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	10.0%	$1,417,342				10% fee due to anticipated higher level of effort for design and coordination than other elements
Construction management fee	1	PER	10.0%	$1,417,342				10% fee due to anticipated higher level of effort for design and coordination than other elements

Total Probable Cost		**$17,009,000**
Low Range	**-30%**	**$11,907,000**
High Range	**50%**	**$25,514,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
C&D - C&D Pad (1000' x 530')					**$5,330,082**		**$10,175,809**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	58,889	SY	*$1.30*	$76,556		$146,155		
Fine grade site, machine	58,889	SY	*$1.20*	$70,667		$134,912		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	58,889	SY	*$1.30*	$76,556		$146,155		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	2,181	CY	*$36.00*	$78,519		$149,902		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	58,889	SY	*$65.00*	$3,827,785		$7,307,732		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Allowance for ashphalt removal	0	LS	$75,000.00	$0		$0		
Overhang Roof								
Overhang with structural column support (no walls)	20,000	SF	$60.00	$1,200,000		$2,290,954		Assume cover for 100' x 200' portion of C&D pad to shield processing line from rain; not a building, just an open-air roof structure
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
C&D - Processing Line					**$4,150,000**		**$7,922,881**	
40-50 ton per hour processing line								
Processing line, including shipping, installation, and startup	1	EA	*$4,000,000.00*	$4,000,000		$7,636,512		Bulk Handling Quote, Sept 2018
Utility Connections								
Potable water connection	2,000	LF	$0.00	$0		$0		Assume can use for process water and potable use
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	2,000	LF	$75.00	$150,000		$286,369		Assume electrical supply is present for existing C&D and can use this with extension
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$9,480,082	**$9,480,082**	$18,098,690	**$18,098,690**	
Contractor Markups and General Conditions					**$2,521,702**			
Contractor Home Office			*5.0%*	$474,004				
Contractor General Conditions			*8.0%*	$758,407				
Contractor Fee			*8.0%*	$758,407				
Project Bond/Insurance			*2.6%*	$246,482				
Mobilization/Demobilization			*3.0%*	$284,402				
Probable Construction Cost					**$12,001,784**			
Contingencies					**$3,600,535**			
Facility design allowances based on level of design	1	PER	25%	$3,000,446				
Market adjustment factor	1	PER	5%	$600,089				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$2,496,371**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$1,248,185				
Construction management fee	1	PER	8.0%	$1,248,185				
			Total Probable Cost		**$18,099,000**			
			Low Range	**-30%**	**$12,670,000**			
			High Range	**50%**	**$27,149,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Compost - Green Waste Pad (210' x 225')					**$735,700**		**$1,404,545**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	5,250	SY	*$1.30*	$6,825		$13,030		
Fine grade site, machine	5,250	SY	*$1.20*	$6,300		$12,028		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	5,250	SY	*$1.30*	$6,825		$13,030		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	194	CY	*$36.00*	$7,000		$13,364		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	5,250	SY	*$135.00*	$708,750		$1,353,094		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Compost - Wood Waste Pad (115' x 225')					**$402,883**		**$769,156**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,875	SY	*$1.30*	$3,738		$7,135		
Fine grade site, machine	2,875	SY	*$1.20*	$3,450		$6,586		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	2,875	SY	*$1.30*	$3,738		$7,135		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	106	CY	*$36.00*	$3,833		$7,318		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	2,875	SY	*$135.00*	$388,125		$740,980		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Compost - Outdoor Receiving Area (90' x 200')					**$1,289,792**		**$2,462,377**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,000	SY	*$1.30*	$2,600		$4,964		
Fine grade site, machine	2,000	SY	*$1.20*	$2,400		$4,582		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	2,000	SY	*$1.30*	$2,600		$4,964		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	74	CY	*$36.00*	$2,667		$5,091		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	0	SY	*$135.00*	$0		$0		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Slab-on-Grade concrete floor (8")	18,000	SF	*$12.00*	$216,000		$412,372		
Ecology block bunker (3 rows high)	63	EA	$175.00	$11,025		$21,048		Historical price: $150/block + $25/block placement
Specialty Equipment								
System (Shredders x 2, conveyors, magnetic belt)	1	LS	$950,000.00	$950,000		$1,813,672		Based on COE tender pricing. Converted to $US at 1.20 exchange rate
Allowance for equipment installation	1	LS	$47,500.00	$47,500		$90,684		5% of equipment cost
Allowance for electrical install and connection	1	LS	$47,500.00	$47,500		$90,684		5% of equipment cost
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	100	LF	$75.00	$7,500		$14,318		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Compost - Screening and Product Storage Pad (400' x 350')					**$3,107,414**		**$5,932,451**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	15,556	SY	*$1.30*	$20,223		$38,608		Footprint areas plus 10%
Fine grade site, machine	15,556	SY	*$1.20*	$18,667		$35,638		Footprint areas plus 10%
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	15,556	SY	*$1.30*	$20,223		$38,608		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	576	CY	*$36.00*	$20,741		$39,598		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	15,556	SY	*$135.00*	$2,100,060		$4,009,283		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Specialty Equipment								
Stationary screening system incl feed hopper	1	LS	$500,000.00	$500,000		$954,564		
Horizontal transfer conveyor	1	LS	$150,000.00	$150,000		$286,369		Assumes re-purposed 125' stacker
Radial stacking conveyor	1	LS	$125,000.00	$125,000		$238,641		Historical price
Allowance for equipment installation	1	LS	$38,750.00	$38,750		$73,979		5% of equipment cost
Allowance for electrical install and connection	1	LS	$38,750.00	$38,750		$73,979		5% of equipment cost
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	1,000	LF	$75.00	$75,000		$143,185		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Subtotal				$5,535,789	**$5,535,789**	$10,568,530	**$10,568,530**	
Contractor Markups and General Conditions					**$1,472,520**			
Contractor Home Office			*5.0%*	$276,789				
Contractor General Conditions			*8.0%*	$442,863				
Contractor Fee			*8.0%*	$442,863				
Project Bond/Insurance			*2.6%*	$143,931				
Mobilization/Demobilization			*3.0%*	$166,074				
Probable Construction Cost					**$7,008,309**			
Contingencies					**$2,102,493**			
Facility design allowances based on level of design	1	PER	25%	$1,752,077				
Market adjustment factor	1	PER	5%	$350,415				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,457,728**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$728,864				
Construction management fee	1	PER	8.0%	$728,864				
			Total Probable Cost		**$10,569,000**			
			Low Range	**-30%**	**$7,399,000**			
			High Range	**50%**	**$15,854,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Compost - Temporary Positive ASP System					**$246,620**		**$470,829**	Cost is consistent with Nortech proposal for temporary positive ASP system (~$200,000), email from Eric Oddo 10/19/2018
Aeration laterals/header								Assume temporary positive ASP system for Year 0-5 is 25% size of full buildout; assume temp ASP mainly requires only tubing and fans
Aeration header piping (18" SDR17, 5 zones, 40' per zone)	200	LF	$24.77	$4,954		$9,458		HDPE quotes received from Wolseley 12/9/16
Allowance for misc header fittings (3 per zone)	15	EA	$200.00	$3,000		$5,727		Engineer estimate
Aeration lateral piping (6" SDR17, 5 zones, 7 laterals per zone)	4,725	LF	$3.36	$15,876		$30,309		HDPE quotes received from Wolseley 12/9/16
Allowance for misc latteral fittings (28 per lateral)	980	EA	$75.00	$73,500		$140,321		Engineer estimate
Aeration riser piping (6" SDR17, 26 per lateral, 12" per riser)	910	LF	$3.36	$3,058		$5,837		HDPE quotes received from Wolseley 12/9/16
In-slab SS aeration grates (supply)	910	EA	$40.00	$36,400		$69,492		Historical Price
Lateral/header welding and installation	1	LS	$30,116.28	$30,116		$57,496		30% of equipment cost
Aeration Manifold and Fans								
SS manifold (24")	200	LF	$65.00	$13,000		$24,819		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Control damper (1 per aeration zone)	5	EA	$1,500.00	$7,500		$14,318		GMT quote Mar-13-2016
SS wye-fitting and 45 degree fitting	5	EA	$655.00	$3,275		$6,252		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Allowance for manifold supports	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Allowance for SS fan transitions (2 per fan)	4	LS	$750.00	$3,000		$5,727		Engineer estimate
SS Negative aeration fan (supply)	1	EA	$20,000.00	$20,000		$38,183		Engineer estimate
Galv Cooling air fan (supply)	1	EA	$15,000.00	$15,000		$28,637		Engineer estimate
SS wye-fitting and 45 degree fitting	1	EA	$655.00	$655		$1,250		Ecco Supply Quote, converted to $US at 1.2 exchange rate
VFD (supply)	0	EA	$0.00	$0		$0		incl in I&C
Lateral/header/fan installation	1	LS	$13,286.00	$13,286		$25,365		20% of equipment cost
Compost - Active Composting System (205' x 880')					**$7,758,319**		**$14,811,623**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	20,045	SY	*$1.30*	$26,059		$49,749		Assume existing pad needs to be excavated to place underground piping
Fine grade site, machine	20,045	SY	*$1.20*	$24,054		$45,922		
Common excavation to Stockpile (2' deep)	1,485	CY	*$3.90*	$5,791		$11,055		
Subgrade preparation	20,045	SY	*$1.30*	$26,059		$49,749		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	742	CY	*$36.00*	$26,727		$51,025		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	20,045	SY	*$135.00*	$2,706,075		$5,166,244		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Perimeter Walls and Floor								
Slab-on-Grade concrete floor (8")	28,000	SF	*$12.00*	$336,000		$641,467		
ASP perimeter wall foundations	470	LF	*$570.00*	$267,900		$511,455		
ASP perimeter walls	470	LF	*$600.00*	$282,000		$538,374		
Aeration laterals/header								
Aeration header piping (18" SDR17, 5 zones, 40' per zone)	200	LF	$24.77	$4,954		$9,458		HDPE quotes received from Wolseley 12/9/16
Allowance for misc header fittings (3 per zone)	15	EA	$200.00	$3,000		$5,727		Engineer estimate
Aeration lateral piping (6" SDR17, 5 zones, 7 laterals per zone)	4,725	LF	$3.36	$15,876		$30,309		HDPE quotes received from Wolseley 12/9/16
Allowance for misc latteral fittings (28 per lateral)	980	EA	$75.00	$73,500		$140,321		Engineer estimate
Aeration riser piping (6" SDR17, 26 per lateral, 12" per riser)	910	LF	$3.36	$3,058		$5,837		HDPE quotes received from Wolseley 12/9/16
In-slab SS aeration grates (supply)	910	EA	$40.00	$36,400		$69,492		Historical Price
Lateral/header welding and installation	1	LS	$30,116.28	$30,116		$57,496		30% of equipment cost
Aeration Manifold and Fans								
SS manifold (24")	200	LF	$65.00	$13,000		$24,819		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Control damper (1 per aeration zone)	5	EA	$1,500.00	$7,500		$14,318		GMT quote Mar-13-2016
SS wye-fitting and 45 degree fitting	5	EA	$655.00	$3,275		$6,252		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Allowance for manifold supports	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Allowance for SS fan transitions (2 per fan)	4	LS	$750.00	$3,000		$5,727		Engineer estimate
SS Negative aeration fan (supply)	1	EA	$20,000.00	$20,000		$38,183		Engineer estimate
Galv Cooling air fan (supply)	1	EA	$15,000.00	$15,000		$28,637		Engineer estimate
SS wye-fitting and 45 degree fitting	1	EA	$655.00	$655		$1,250		Ecco Supply Quote, converted to $US at 1.2 exchange rate
VFD (supply)	0	EA	$0.00	$0		$0		incl in I&C
Lateral/header/fan installation	1	LS	$13,286.00	$13,286		$25,365		20% of equipment cost
Instrument and Controls								
PLC/HMI system (hardware supply and programming, field commissioning)	1	LS	$65,000.00	$65,000		$124,093		Cybertech Supply, converted to $US at 1.2 exchange rate
Temperature probes/transmitter/wire	10	EA	$325.00	$3,250		$6,205		Reotemp probe @ incl 100 ft wire, historical cost
Wireless temperature probe with base station	0	EA	$350.00	$0		$0		
Allowance for I&C installation	1	LS	$7,200.00	$7,200		$13,746		Historical cost (3 days, 2-man crew)
Leachate/condensate								
Underground leachate drainage piping (6" SDR17)	200	LF	$3.36	$672		$1,283		HDPE quotes received from Wolseley 12/9/16
Allowance for misc fittings	15	EA	$75.00	$1,125		$2,148		Engineer estimate
Underground precast leachate sump (30" x 30" x 42" deep with cover)	1	LS	$350.00	$350		$668		Historical Price
SS submersible pump (1 hp) with flex hose connection	1	LS	$1,500.00	$1,500		$2,864		Historical Price
Aboveground leachate transfer piping (4" PVC)	200	LF	$2.00	$400		$764		Historical Price
Aboveground HDPE leachate tank (10,000 gal)	1	EA	$7,500.00	$7,500		$14,318		Historical Price
Lateral/header/fan installation	1	LS	$2,309.40	$2,309		$4,409		20% of equipment cost
ASP 2 - same as ASP1	1	LS	$1,221,826.28	$1,221,826		$2,332,623		
ASP 3 - same as ASP1	1	LS	$1,221,826.28	$1,221,826		$2,332,623		
ASP 4 - same as ASP1	1	LS	$1,221,826.28	$1,221,826		$2,332,623		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	750	LF	$75.00	$56,250		$107,388		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Compost - Biofilter (135' x 880')					**$2,683,227**		**$5,122,623**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	13,200	SY	*$1.30*	$17,160		$32,761		
Fine grade site, machine	13,200	SY	*$1.20*	$15,840		$30,241		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	13,200	SY	*$1.30*	$17,160		$32,761		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	489	CY	*$36.00*	$17,600		$33,601		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	13,200	SY	*$135.00*	$1,782,000		$3,402,066		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Biofilter 1								
Ecology block back wall (5' high)	80	EA	$0.00	$0		$0		$150/block + $25/block placement
Allowance for mist scrubbers	0	LS	$0.00	$0		$0		
Allowance for packed tower acid scrubbers	0	LS	$0.00	$0		$0		
Scrubber Mechanical/Electrical	0	LS	$0.00	$0		$0		
Biofilter header piping (60" SDR17)	200	LF	$275.00	$55,000		$105,002		HDPE quotes received from Wolseley 12/9/16
Biofilter header supports (supply)	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Inserta-T fittings	40	LF	$75.00	$3,000		$5,727		Estimated cost
PVC butterfly valve, flex coupling and elbow 12"	0	LS	$0.00	$0		$0		
Biofilter lateral piping (12" SDR17)	4,200	LF	$12.43	$52,206		$99,668		HDPE quotes received from Wolseley 12/9/16
Drill Biofilter Laterals	4,200	LF	$0.00	$0		$0		
Lateral/header welding and installation	1	LS	$22,841.20	$22,841		$43,607		20% of equipment cost
Biofilter media (6' thick, offsite supply and place, wood chip media)	4,444	CY	$10.00	$44,444		$84,850		Historical cost, wood chips
Irrigation tank, zone controllers, pump	1	LS	$25,000.00	$25,000		$47,728		Estimated cost
Leachate/condensate								
Leachate collection toe drain	0	LF	$0.00	$0		$0		$10/ft material
HDPE drain line (4") to a/g leachate tank with sand bedding	0	LF	$0.00	$0		$0		
U/G fibreglass storage tank (incl bured concrete supports, straps, backfill)	0	LS	$0.00	$0		$0		Historical estimate - Winnipeg Compost Facility
Allowance for float level/strobe alarm	0	LS	$0.00	$0		$0		Engineers estimate
SS submersible pump (1 hp)	0	LS	$0.00	$0		$0		Acklands Granger
Biofilter 2 - same as Biofilter 1	1	LS	$206,491.64	$206,492		$394,219		
Biofilter 3 - same as Biofilter 1	1	LS	$206,491.64	$206,492		$394,219		
Biofilter 4 - same as Biofilter 1	1	LS	$206,491.64	$206,492		$394,219		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Compost - ASP Curing System (185' x 880')					**$6,388,380**		**$12,196,234**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	18,089	SY	*$1.30*	$23,516		$44,894		
Fine grade site, machine	18,089	SY	*$1.20*	$21,707		$41,441		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	18,089	SY	*$1.30*	$23,516		$44,894		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	670	CY	*$36.00*	$24,119		$46,046		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	18,089	SY	*$135.00*	$2,442,015		$4,662,119		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
ASP1:								
Perimeter Walls and Floor								
Slab-on-Grade concrete floor (8")	19,600	SF	*$12.00*	$235,200		$449,027		
ASP perimeter wall foundations	396	LF	*$570.00*	$225,720		$430,928		
ASP perimeter walls	396	LF	*$600.00*	$237,600		$453,609		
Aeration laterals/header								
Aeration header piping (18" SDR17, 5 zones, 40' per zone)	200	LF	$24.77	$4,954		$9,458		HDPE quotes received from Wolseley 12/9/16
Allowance for misc header fittings (3 per zone)	15	EA	$200.00	$3,000		$5,727		Engineer estimate
Aeration lateral piping (6" SDR17, 5 zones, 7 laterals per zone)	3,430	LF	$3.36	$11,525		$22,002		HDPE quotes received from Wolseley 12/9/16
Allowance for misc latteral fittings (22 per lateral)	770	EA	$75.00	$57,750		$110,252		Engineer estimate
Aeration riser piping (6" SDR17, 20 per lateral, 12" per riser)	700	LF	$3.36	$2,352		$4,490		HDPE quotes received from Wolseley 12/9/16
In-slab SS aeration grates (supply)	700	EA	$40.00	$28,000		$53,456		Historical Price
Lateral/header welding and installation	1	LS	$23,874.24	$23,874		$45,579		30% of equipment cost
Aeration Manifold and Fans								
GALV manifold (24")	200	LF	$7.70	$1,540		$2,940		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Control damper (1 per aeration zone)	5	EA	$1,500.00	$7,500		$14,318		GMT quote Mar-13-2016
GALV wye-fitting and 45 degree fitting	5	EA	$135.00	$675		$1,289		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Allowance for manifold supports	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Allowance for GALV fan transitions (2 per fan)	2	LS	$375.00	$750		$1,432		Engineer estimate
Positive aeration fan (supply)	1	EA	$9,000.00	$9,000		$17,182		Airsys quote (NYB 20GI).
Cooling air fan (supply)	0	EA	$9,000.00	$0		$0		
SS wye-fitting and 45 degree fitting	0	EA	$655.00	$0		$0		Ecco Supply Quote, converted to $US at 1.2 exchange rate
VFD (supply)	0	EA	$0.00	$0		$0		incl in I&C
Lateral/header/fan installation	1	LS	$4,693.00	$4,693		$8,960		20% of equipment cost
Instrument and Controls								
PLC/HMI system (hardware supply and programming, field commissioning)	1	LS	$65,000.00	$65,000		$124,093		Cybertech Supply, converted to $US at 1.2 exchange rate
Temperature probes/transmitter/wire	10	EA	$325.00	$3,250		$6,205		Reotemp probe @ incl 100 ft wire, historical cost
Wireless temperature probe with base station	0	EA	$350.00	$0		$0		
Allowance for I&C installation	1	LS	$7,200.00	$7,200		$13,746		Historical cost (3 days, 2-man crew)
Leachate/condensate								
Underground leachate drainage piping (6" SDR17)	200	LF	$3.36	$672		$1,283		HDPE quotes received from Wolseley 12/9/16
Allowance for misc fittings	15	EA	$75.00	$1,125		$2,148		Engineer estimate
Underground precast leachate sump (30" x 30" x 42" deep with cover)	1	LS	$350.00	$350		$668		Historical Price
SS submersible pump (1 hp) with flex hose connection	1	LS	$1,500.00	$1,500		$2,864		Historical Price

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Aboveground leachate transfer piping (4" PVC)	200	LF	$2.00	$400		$764		Historical Price
Aboveground HDPE leachate tank (10,000 gal)	1	EA	$7,500.00	$7,500		$14,318		Historical Price
Lateral/header/fan installation	1	LS	$2,309.40	$2,309		$4,409		20% of equipment cost
ASP 2 - same as ASP1	1	LS	$947,439.44	$947,439		$1,808,783		
ASP 3 - same as ASP1	1	LS	$947,439.44	$947,439		$1,808,783		
ASP 4 - same as ASP1	1	LS	$947,439.44	$947,439		$1,808,783		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	750	LF	$75.00	$56,250		$107,388		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Compost - Dedicated Storm Water Ponds					**$554,030**		**$1,057,713**	
Pond Construction								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 1000-year storm
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$100,000.00	$100,000		$190,913		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Unload Geosynthetics	1	LS	$20,000.00	$20,000		$38,183		
Clearing and Grubbing	20,144	SY	$1.30	$26,188		$49,996		
Excavation	31,241	CY	$2.50	$78,102		$149,106		
HDPE Double-Sided Textured Geomembrane	182,650	SF	$1.60	$292,240		$557,924		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Compost - Miscellaneous Equipment					**$6,500**		**$12,409**	
Weather station (roof mounted on tripod)	1	EA	$1,500.00	$1,500		$2,864		Historical price
Aboveground 2x-walled 9500 L fuel storage tank/pump	0	EA	$11,000.00	$0		$0		$9500 purchase + $1500 allowance for delivery/install
Allowance for misc compost monitoring and lab equipment	1	LS	$5,000.00	$5,000		$9,546		
Standby generator (625 kVA) + transfer switch, cabling, installation	0	EA	$0.00	$0		$0		
Subtotal				$17,637,074	**$17,637,074**	$33,671,432	**$33,671,432**	
Contractor Markups and General Conditions					**$4,691,462**			
Contractor Home Office			*5.0%*	$881,854				
Contractor General Conditions			*8.0%*	$1,410,966				
Contractor Fee			*8.0%*	$1,410,966				
Project Bond/Insurance			*2.6%*	$458,564				
Mobilization/Demobilization			*3.0%*	$529,112				
Probable Construction Cost					**$22,328,536**			
Contingencies					**$6,698,561**			
Facility design allowances based on level of design	1	PER	25%	$5,582,134				
Market adjustment factor	1	PER	5%	$1,116,427				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$4,644,335**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$2,322,168				
Construction management fee	1	PER	8.0%	$2,322,168				
			Total Probable Cost		**$33,672,000**			
			Low Range	**-30%**	**$23,571,000**			
			High Range	**50%**	**$50,508,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Stockpile Relocation					**$21,000,000**		**$40,091,688**	
Relocate Existing Soil Stockpile before Module Construction								
Move stockpile to different location	1,400,000	CY	$5.00	$7,000,000		$13,363,896		As of 6/30/2017, there are 1.4 MCY of soil stockpiled on Modules 6-8, nearly all of it on 6-7, compared to the pre-development grades of 1978 (Keith Schmidt, 10/15/2018)
Move stockpile to different location (double handle)	1,400,000	CY	$5.00	$7,000,000		$13,363,896		Assume Plan Concept 0 requires triple handling of stockpile
Move stockpile to different location (triple handle)	1,400,000	CY	$5.00	$7,000,000		$13,363,896		Assume Plan Concept 0 requires triple handling of stockpile
Landfill Construction					**$28,397,302**		**$54,214,085**	
New Landfill								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx, Sheet "PC 0 Construction"; Assume Plan Concept 0 area is approx 25% of Plan Concept 2
Design and Permitting	3	ea	$100,000.00	$300,000		$572,738		Assumes 3 cells (modules 6, 7, 11)
Mobilization/Demobilization	3	ea	$100,000.00	$300,000		$572,738		Assumes 3 cells (modules 6, 7, 11)
Layout of Work and Surveys	3	ea	$30,000.00	$90,000		$171,822		Assumes 3 cells (modules 6, 7, 11)
Clearing and Grubbing	36	ac	$1,500.00	$54,000		$103,093		New cell construction without Unlined unit (Mod 6, 7) (Mod 11 is approx 18 ac)
Excavation	3,564,545	cy	$3.00	$10,693,636		$20,415,520		
Overexcavation of Unsuitable Subgrade Material	60,000	cy	$10.00	$600,000		$1,145,477		Assumes 20,000 cy per cell, 3 cells
Earthfill	60,000	cy	$4.00	$240,000		$458,191		Assumes 20,000 cy per cell, 3 cells
Subgrade Preparation	2,350,973	sf	$0.15	$352,646		$673,246		
Geosynthetic Clay Liner	2,350,973	sf	$0.80	$1,880,778		$3,590,647		
60-mil HDPE Double Sided Textured Geomembrane	2,138,727	sf	$0.75	$1,604,045		$3,062,328		
60-mil White Single Sided Textured HDPE Geomembrane	2,350,973	sf	$0.75	$1,763,230		$3,366,231		
Geocomposite	2,138,727	sf	$0.80	$1,710,982		$3,266,483		
8oz/sy Nonwoven Geotextile	2,138,727	sf	$0.20	$427,745		$816,621		
Anchor Trenches	2,488	lf	$13.00	$32,350		$61,761		
Drainage Layer	79,212	cy	$38.00	$3,010,061		$5,746,591		
Sump Gravel	525	cy	$82.00	$43,050		$82,188		
Base Operations Layer	79,212	cy	$5.60	$443,588		$846,866		
Side Slope Operations Layer	7,963	cy	$6.50	$51,760		$98,817		
6-inch Diameter SDR 11 HDPE LCRS Pipe	8,100	lf	$20.00	$162,000		$309,279		Assumes 2,700 per cell
18-inch Diameter SDR 11 HDPE LCRS Pipe	1,800	lf	$112.50	$202,500		$386,598		Assumes 600 per cell
6-inch Diameter SDR 11 HDPE Pipe (Force Main)	5,000	lf	$20.00	$100,000		$190,913		Perimeter of entire site
Rip Rap	3	ls	$30,000.00	$90,000		$171,822		
Leak Detection Survey	3	ls	$17,000.00	$51,000		$97,366		
Revegetation	30	ac	$1,500.00	$45,000		$85,911		Assumes 10 acres per cell
Perimeter Road	150,000	sf	$2.50	$375,000		$715,923		
Aggregate Base	4,479	cy	$35.00	$156,774		$299,302		
V-Ditch	7,656	lf	$5.00	$38,282		$73,084		
CMP Culverts	498	lf	$75.00	$37,327		$71,262		
Stormwater Controls	3	ea	$2,500.00	$7,500		$14,318		
Stormwater Pollution Prevention Plan Preparation	3	ea	$7,800.00	$23,400		$44,674		
Stormwater Pollution Prevention Plan Implementation	3	ea	$15,000.00	$45,000		$85,911		
Monitoring Systems								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx, Sheet "PC 0 Construction"; Assume Plan Concept 0 area is approx 25% of Plan Concept 2
Monitoring System Design Services	1	ls	$100,000.00	$100,000		$190,913		
Groundwater Wells	3	ea	$10,000.00	$30,000		$57,274		
LFG Design Services and Permitting	1	ls	$400,000.00	$400,000		$763,651		
LFG Extraction Wells	54	ea	$2,500.00	$135,000		$257,732		
LFG 6-in LFG Collector	5,400	lf	$20.00	$108,000		$206,186		
LFG 18-in LFG Header Line	3,925	lf	$110.00	$431,786		$824,335		
LFG Well Heads	54	ea	$250.00	$13,500		$25,773		
Flare System	1	ls	$2,000,000.00	$2,000,000		$3,818,256		
Condensate Sumps	3	ea	$500.00	$1,500		$2,864		
2-in SDR 9 HDPE Condensate Piping	5,400	lf	$20.00	$108,000		$206,186		
2-in SDR 9 HDPE Pneumatic Piping	5,400	lf	$20.00	$108,000		$206,186		
LFG Perimeter Monitoring Probes	5	ea	$6,000.00	$29,862		$57,010		
Decomission & Replace Suction Lysimeters	0	ls	$20,000.00	$0		$0		
Unlined Area Waste Excavation					**$53,608,200**		**$102,344,916**	
Unlined Unit - Waste Excavation and Relocation								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx, Sheet "PC 0 Construction"; Assume Plan Concept 0 area is approx 25% of Plan Concept 2
Design and Permitting	4	ea	$100,000.00	$400,000		$763,651		
Mobilization/Demobilization	5	ea	$15,000.00	$75,000		$143,185		
Layout of Work and Surveys	5	ea	$30,000.00	$150,000		$286,369		
Remove Waste in Unlined Unit	3,646,000	cy	$11.50	$41,929,000		$80,047,828		Cost source: Waste Excavation and Relocation Cost Comparison.xlsx
Earthfill	2,734,500	cy	$4.00	$10,938,000		$20,882,042		Unlined area needs to be backfilled to build elements, assume 75% needs to be backfilled
Subgrade Preparation	0	sf	$0.15	$0		$0		
Geosynthetic Clay Liner	0	sf	$0.80	$0		$0		
60-mil HDPE Double Sided Textured Geomembrane	0	sf	$0.75	$0		$0		
60-mil White Single Sided Textured HDPE Geomembrane	0	sf	$0.75	$0		$0		
Geocomposite	0	sf	$0.80	$0		$0		
8oz/sy Nonwoven Geotextile	0	sf	$0.20	$0		$0		
Anchor Trenches	0	lf	$13.00	$0		$0		
Drainage Layer	0	cy	$38.00	$0		$0		
Base Operations Layer	0	cy	$5.60	$0		$0		
Side Slope Operations Layer	0	cy	$6.50	$0		$0		
6-inch Diameter SDR 11 HDPE LCRS Pipe	0	lf	$20.00	$0		$0		
Rip Rap	0	ls	$30,000.00	$0		$0		
Leak Detection Survey	0	ls	$17,000.00	$0		$0		
Revegetation	0	ac	$1,500.00	$0		$0		
CMP Culverts	200	lf	75	$15,000		$28,637		Assume culvert and stormwater controls will be needed during construction
Stormwater Controls	4	ea	$2,500.00	$10,000		$19,091		
Stormwater Pollution Prevention Plan Preparation	4	ea	$7,800.00	$31,200		$59,565		
Stormwater Pollution Prevention Plan Implementation	4	ea	$15,000.00	$60,000		$114,548		
Landfill Closure					**$22,636,309**		**$43,215,610**	
Closure Construction Cost								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx, Sheet "PC 0 Closure"; assume closure is 148 ac consistent with postclosure estimate
Mobilization/Demobilization	3	ls	$75,000.00	$225,000		$429,554		Assume partial closure completed in 3 events
Vegetative Layer	301,456	cy	$4.70	$1,416,844		$2,704,937		
Geocomposite	8,121,725	sf	$0.70	$5,685,208		$10,853,789		
60-mil HDPE DST Geomembrane	8,121,725	sf	$0.66	$5,360,339		$10,233,572		
Geosynthetic Clay Liner	8,121,725	sf	$0.78	$6,334,946		$12,094,222		
2-foot Foundation Layer	602,230	cy	$4.70	$2,830,483		$5,403,754		
Anchor Trenches	2,046	lf	$13.00	$26,599		$50,781		
Bench V-Ditches	20,984	lf	$10.00	$209,839		$400,610		
Top Deck Berms	7,502	lf	$10.00	$75,023		$143,229		
CMP Downdrains	4,433	lf	$50.00	$221,659		$423,175		
Drain Inlets	31	ea	$100.00	$3,069		$5,859		
Revegetation	148	ac	$1,500.00	$222,000		$423,826		
Stormwater Controls	1	ea	$2,500.00	$2,500		$4,773		
Stormwater Pollution Prevention Plan Preparation	1	ea	$7,800.00	$7,800		$14,891		
Stormwater Pollution Prevention Plan Implementation	1	ea	$15,000.00	$15,000		$28,637		
Subtotal				$125,641,811	**$125,641,811**	$239,866,299	**$239,866,299**	
Contractor Markups and General Conditions					**$33,420,722**			
Contractor Home Office			*5.0%*	$6,282,091				
Contractor General Conditions			*8.0%*	$10,051,345				
Contractor Fee			*8.0%*	$10,051,345				
Project Bond/Insurance			*2.6%*	$3,266,687				
Mobilization/Demobilization			*3.0%*	$3,769,254				
Probable Construction Cost					**$159,062,533**			
Contingencies					**$47,718,760**			
Facility design allowances based on level of design	1	PER	25%	$39,765,633				
Market adjustment factor	1	PER	5%	$7,953,127				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$33,085,007**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$16,542,503				
Construction management fee	1	PER	8.0%	$16,542,503				
			Total Probable Cost		**$239,867,000**			
			Low Range	**-30%**	**$167,907,000**			
			High Range	**50%**	**$359,801,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Admin Staff Bldg (5,000 sf or 50' x 100')					**$3,305,500**		**$6,310,623**	
Admin Building								
Standard office	5,000	sf	*$650.00*	$3,250,000		$6,204,666		Assume 5,000 sf office building, no education center; standalone building
Utility Connections								
Potable water connection	150	LF	$70.00	$10,500		$20,046		Stubbed from new utility corridor along Fiddyment Rd
Sanitary sewer connection	150	LF	$85.00	$12,750		$24,341		Stubbed from new utility corridor along Fiddyment Rd
Electrical tie-in to transformer	150	LF	$75.00	$11,250		$21,478		Stubbed from new utility corridor along Fiddyment Rd, 120/220 V single phase service
Telecom connection	150	LF	$60.00	$9,000		$17,182		Stubbed from new utility corridor along Fiddyment Rd
Natural gas connection	150	LF	$80.00	$12,000		$22,910		Stubbed from new utility corridor along Fiddyment Rd
Admin Staff Parking (10,000 sf)					**$38,958**		**$74,376**	
Parking Lot								
Subgrade, agg base	248	CY	$22.00	$5,458		$10,420		Assume 10,000 sf parking lot, including ADA spaces
Asphalt	250	TN	$110.00	$27,500		$52,501		
Striping, signs	1	LS	$6,000.00	$6,000		$11,455		
Subtotal				$3,344,458	**$3,344,458**	$6,384,999	**$6,384,999**	
Contractor Markups and General Conditions					**$889,626**			
Contractor Home Office			*5.0%*	$167,223				
Contractor General Conditions			*8.0%*	$267,557				
Contractor Fee			*8.0%*	$267,557				
Project Bond/Insurance			*2.6%*	$86,956				
Mobilization/Demobilization			*3.0%*	$100,334				
Probable Construction Cost					**$4,234,084**			
Contingencies					**$1,270,225**			
Facility design allowances based on level of design	1	PER	25%	$1,058,521				
Market adjustment factor	1	PER	5%	$211,704				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$880,689**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$440,345				
Construction management fee	1	PER	8.0%	$440,345				

Total Probable Cost		**$6,385,000**
Low Range	**-30%**	**$4,470,000**
High Range	**50%**	**$9,578,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Main Entrance - Roadways					**$420,500**		**$802,788**	
Earthworks, Pads and Roadways (45' development width assumed)								
Roadway - Single Lane	950	LF	$290.00	$275,500		$525,965		
Roadway - Double Lane	250	LF	$580.00	$145,000		$276,824		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Main Entrance - Scale/Building					**$811,133**		**$1,548,557**	
Initial Retrofit of Existing Scales and Signage								
Initial Retrofit of Existing Scales and Signage	1	LS	$200,000.00	$200,000		$381,826		Cost per Janet/Lyndsey, 10/18/18
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	1,000	SY	*$1.30*	$1,300		$2,482		
Fine grade site, machine	1,000	SY	*$1.20*	$1,200		$2,291		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	1,000	SY	*$1.30*	$1,300		$2,482		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	37	CY	*$36.00*	$1,333		$2,546		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Scale Building and Scales								
20' Pre-fab Office Trailer	1	LS	$24,000.00	$24,000		$45,819		
Truck scale (100') supply and install include concrete footings	3	LS	$100,000.00	$300,000		$572,738		Assume 2 scales incoming, 1 scale outgoing
Allowance for concrete approach slabs (2 per scale deck)	4	LS	$5,000.00	$20,000		$38,183		
Allowance for traffic lights/gates/signs	1	LS	$20,000.00	$20,000		$38,183		
Allowance for CCTV system	1	LS	$10,000.00	$10,000		$19,091		
Utility Connections								
Potable water connection	800	LF	$70.00	$56,000		$106,911		Stubbed from old scalehouse
Sanitary sewer connection	800	LF	$85.00	$68,000		$129,821		Stubbed from old scalehouse
Electrical tie-in to transformer	800	LF	$75.00	$60,000		$114,548		Stubbed from old scalehouse; 120/220 V single phase service
Telecom connection	800	LF	$60.00	$48,000		$91,638		
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$1,231,633	**$1,231,633**	$2,351,346	**$2,351,346**	
Contractor Markups and General Conditions					**$327,614**			
Contractor Home Office			*5.0%*	$61,582				
Contractor General Conditions			*8.0%*	$98,531				
Contractor Fee			*8.0%*	$98,531				
Project Bond/Insurance			*2.6%*	$32,022				
Mobilization/Demobilization			*3.0%*	$36,949				
Probable Construction Cost					**$1,559,248**			
Contingencies					**$467,774**			
Facility design allowances based on level of design	1	PER	25%	$389,812				
Market adjustment factor	1	PER	5%	$77,962				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$324,324**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$162,162				
Construction management fee	1	PER	8.0%	$162,162				

Total Probable Cost		**$2,352,000**
Low Range	**-30%**	**$1,647,000**
High Range	**50%**	**$3,528,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Recyclables Storage Building					**$4,337,965**		**$8,281,730**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	1,300	CY	*$3.90*	$5,070		$9,679		
Subgrade preparation	650	SY	*$1.30*	$845		$1,613		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	650	CY	*$36.00*	$23,400		$44,674		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	650	SY	*$65.00*	$42,250		$80,661		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Allowance for asphalt removal for footings	1	LS	$10,000.00	$10,000		$19,091		Cutting/removal of existing asphalt. Disposal onsite.
Storage Building (175' x 400')								
Strip Footings	1,150	LF	*$176.00*	$202,400		$386,408		
Slab-on-Grade concrete floor (8")	70,000	SF	*$12.00*	$840,000		$1,603,668		
Pre-Engineered Metal Building w/side walls	70,000	SF	$35.00	$2,450,000		$4,677,364		
Lighting, Conduit, Wire & Receptacles	70,000	SF	$5.70	$399,000		$761,742		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	0	SF	$135.00	$0		$0		
Man doors	7	EA	$2,000.00	$14,000		$26,728		
Overhead vertical doors (12' wide)	6	EA	$11,000.00	$66,000		$126,002		Historical cost
Allowance for fire alarms/sprinkler system	70,000	SF	$3.00	$210,000		$400,917		MEANS D4010
Allowance for security system	0	LS	$0.00	$0		$0		
Allowance for CCTV system	0	LS	$0.00	$0		$0		
Allowance for warehouse shelving	0	LS	$20,000.00	$0		$0		Historical cost
Aboveground 2x-walled 9500 L fuel storage tank/pump	0	EA	$11,000.00	$0		$0		$9500 purchase + $1500 allowance for delivery/install
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Incl in staff building
Sanitary sewer connection	0	LF	$0.00	$0		$0		Incl in staff building
Electrical tie-in to transformer	1,000	LF	$75.00	$75,000		$143,185		
Telecom connection	0	LF	$0.00	$0		$0		Incl in staff building
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Subtotal				$4,337,965	**$4,337,965**	$8,281,730	**$8,281,730**	
Contractor Markups and General Conditions					**$1,153,899**			
Contractor Home Office			*5.0%*	$216,898				
Contractor General Conditions			*8.0%*	$347,037				
Contractor Fee			*8.0%*	$347,037				
Project Bond/Insurance			*2.6%*	$112,787				
Mobilization/Demobilization			*3.0%*	$130,139				
Probable Construction Cost					**$5,491,864**			
Contingencies					**$1,647,559**			
Facility design allowances based on level of design	1	PER	25%	$1,372,966				
Market adjustment factor	1	PER	5%	$274,593				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,142,308**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$571,154				
Construction management fee	1	PER	8.0%	$571,154				

Total Probable Cost		**$8,282,000**
Low Range	**-30%**	**$5,798,000**
High Range	**50%**	**$12,423,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Primary Maintenance - Maintenance Area (250' x 300')					**$965,120**		**$1,842,538**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	0	SY	*$1.30*	$0		$0		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	0	CY	*$36.00*	$0		$0		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Allowance for ashphalt removal	1	LS	$75,000.00	$75,000		$143,185		Cutting/removal of existing asphalt. Disposal onsite.
4-Bay Building (75' x 160')								
Strip Footings	470	LF	*$176.00*	$82,720		$157,923		
Slab-on-Grade concrete floor (8")	12,000	SF	*$12.00*	$144,000		$274,914		
Pre-Engineered Metal Building w/side walls	12,000	SF	$35.00	$420,000		$801,834		
Lighting, Conduit, Wire & Receptacles	12,000	SF	$5.70	$68,400		$130,584		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$38,660		
Man doors	7	EA	$2,000.00	$14,000		$26,728		
Overhead vertical doors (12' wide)	4	EA	$11,000.00	$44,000		$84,002		Historical cost
Allowance for fire alarms/sprinkler system	12,000	SF	$3.00	$36,000		$68,729		MEANS D4010
Allowance for security system	0	LS	$0.00	$0		$0		
Allowance for CCTV system	0	LS	$0.00	$0		$0		
Allowance for warehouse shelving	1	LS	$20,000.00	$20,000		$38,183		Historical cost
Aboveground 2x-walled 9500 L fuel storage tank/pump	2	EA	$11,000.00	$22,000		$42,001		$9500 purchase + $1500 allowance for delivery/install
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Incl in staff building; assume staff go to Admin building for break, etc, so no need for water/sewer
Sanitary sewer connection	0	LF	$0.00	$0		$0		Incl in staff building; assume staff go to Admin building for break, etc, so no need for water/sewer
Electrical tie-in to transformer	250	LF	$75.00	$18,750		$35,796		
Telecom connection	0	LF	$0.00	$0		$0		Incl in staff building
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Subtotal				$965,120	**$965,120**	$1,842,538	**$1,842,538**	
Contractor Markups and General Conditions					**$256,722**			
Contractor Home Office			*5.0%*	$48,256				
Contractor General Conditions			*8.0%*	$77,210				
Contractor Fee			*8.0%*	$77,210				
Project Bond/Insurance			*2.6%*	$25,093				
Mobilization/Demobilization			*3.0%*	$28,954				
Probable Construction Cost					**$1,221,842**			
Contingencies					**$366,553**			
Facility design allowances based on level of design	1	PER	25%	$305,460				
Market adjustment factor	1	PER	5%	$61,092				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$254,143**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$127,072				
Construction management fee	1	PER	8.0%	$127,072				
			Total Probable Cost		**$1,843,000**			
			Low Range	**-30%**	**$1,291,000**			
			High Range	**50%**	**$2,765,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
New Storm Water Ponds					**$656,925**		**$1,254,153**	
C&D Stormwater Pond								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 1000-year storm
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$80,000.00	$80,000		$152,730		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Clearing and Grubbing	7,833	SY	$1.30	$10,183		$19,441		
Excavation	11,625	CY	$2.50	$29,063		$55,484		
Landfill Stormwater Pond								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 1000-year storm
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$150,000.00	$150,000		$286,369		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Unload Geosynthetics	1	LS	$20,000.00	$20,000		$38,183		
Clearing and Grubbing	8,050	SY	$1.30	$10,465		$19,979		
Excavation	13,976	CY	$2.50	$34,940		$66,705		
HDPE Double-Sided Textured Geomembrane	73,460	SF	$1.60	$117,536		$224,391		
Public Area Stormwater Pond								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 1000-year storm
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$80,000.00	$80,000		$152,730		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Clearing and Grubbing	8,000	SY	$1.30	$10,400		$19,855		
Excavation	9,735	CY	$2.50	$24,338		$46,464		
Subtotal				$656,925	**$656,925**	$1,254,153	**$1,254,153**	
Contractor Markups and General Conditions					**$174,742**			
Contractor Home Office			*5.0%*	$32,846				
Contractor General Conditions			*8.0%*	$52,554				
Contractor Fee			*8.0%*	$52,554				
Project Bond/Insurance			*2.6%*	$17,080				
Mobilization/Demobilization			*3.0%*	$19,708				
Probable Construction Cost					**$831,667**			
Contingencies					**$249,500**			
Facility design allowances based on level of design	1	PER	25%	$207,917				
Market adjustment factor	1	PER	5%	$41,583				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$172,987**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$86,493				
Construction management fee	1	PER	8.0%	$86,493				
			Total Probable Cost		**$1,255,000**			
			Low Range	**-30%**	**$879,000**			
			High Range	**50%**	**$1,883,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Compost Pond Removal					**$113,994**		**$217,629**	
Compost Pond Removal								Pond Removal.xlsx; Costs from Golder WRSL Cost Estimate
Design and Permitting	1	ea	$50,000.00	$50,000		$95,456		
Mobilization/Demobilization	1	ea	$10,000.00	$10,000		$19,091		
Excavation	4,004	cy	$3.00	$12,011		$22,931		
Earthfill	10,038	cy	$4.00	$40,153		$76,657		
Revegetation	1	ac	$1,500.00	$1,830		$3,494		
Subtotal				$113,994	**$113,994**	$217,629	**$217,629**	
Contractor Markups and General Conditions					**$30,322**			
Contractor Home Office			*5.0%*	$5,700				
Contractor General Conditions			*8.0%*	$9,120				
Contractor Fee			*8.0%*	$9,120				
Project Bond/Insurance			*2.6%*	$2,964				
Mobilization/Demobilization			*3.0%*	$3,420				
Probable Construction Cost					**$144,316**			
Contingencies					**$43,295**			
Facility design allowances based on level of design	1	PER	25%	$36,079				
Market adjustment factor	1	PER	5%	$7,216				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$30,018**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$15,009				
Construction management fee	1	PER	8.0%	$15,009				
			Total Probable Cost		**$218,000**			
			Low Range	**-30%**	**$153,000**			
			High Range	**50%**	**$327,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Special Permits					**$4,423,996**		**$4,423,996**	
Solid Waste Facility Permitting								Source: permit_list.xlsx
Landfill	0	LS	$0.00	$0		$0		Assume already covered in LF Modules sheet
Compost facility	1	LS	$4,423,996.24	$4,423,996		$4,423,996		Assume cost is 10% of total capital for Compost (Common Pads + Compost Option 4)
Environmental/ Land Use/ Local Permitting								
Entire facility	0	LS	$0.00	$0		$0		None since existing site is already permitted
Geotechnical Investigations					**$60,000**		**$60,000**	
Geotechnical Investigation								
Allowance for geotechnical investigation	2	LS	$30,000.00	$60,000		$60,000		Assume 2 per parcel
Subtotal				$4,483,996	**$4,483,996**	$4,483,996	**$4,483,996**	
Contractor Markups and General Conditions					**$0**			No contractor markups for permitting
Contractor Home Office			*0.0%*	$0				
Contractor General Conditions			*0.0%*	$0				
Contractor Fee			*0.0%*	$0				
Project Bond/Insurance			*0.0%*	$0				
Mobilization/Demobilization			*0.0%*	$0				
Probable Construction Cost					**$4,483,996**			
Contingencies					**$0**			
Facility design allowances based on level of design	1	PER	0%	$0				Contingency already built into costs from Compost
Market adjustment factor	1	PER	0%	$0				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$0**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	0.0%	$0				Permitting fee built in
Construction management fee	1	PER	0.0%	$0				No construction management fee
			Total Probable Cost		**$4,484,000**			
			Low Range	**-30%**	**$3,139,000**			
			High Range	**50%**	**$6,726,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Wetlands Mitigation					**$654,810**		**$987,453**	
Wetlands Mitigation								Source: CostAnalysis_WetlandImpacts_GISData_10262018.xlsx
Vernal pools mitigation	0.9	EA	$300,000.00	$272,610		$411,096		Assume 3:1 mitigation area for vernal pools only per Jacobs biologist, 10/25/2018
Everything but agricultural ponds, Irrigated wetland	1.3	EA	$300,000.00	$382,200		$576,358		Assume 2:1 mitigation area on everything else, incl swales, except agricultural ponds, irrigated wetland per Jacobs biologist, 10/25/2018
Agricultural ponds, Irrigated wetland	0.0	EA	$300,000.00	$0		$0		Assume 1:1 on mitigation area on agricultural ponds, irrigated wetland per Jacobs biologist, 10/25/2018
Subtotal				$654,810	**$654,810**	$987,453	**$987,453**	
Contractor Markups and General Conditions					**$0**			No contractor markups
Contractor Home Office			*0.0%*	$0				
Contractor General Conditions			*0.0%*	$0				
Contractor Fee			*0.0%*	$0				
Project Bond/Insurance			*0.0%*	$0				
Mobilization/Demobilization			*0.0%*	$0				
Probable Construction Cost					**$654,810**			
Contingencies					**$196,443**			
Facility design allowances based on level of design	1	PER	25%	$163,703				
Market adjustment factor	1	PER	5%	$32,741				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$136,200**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$68,100				
Construction management fee	1	PER	8.0%	$68,100				
			Total Probable Cost		**$988,000**			
			Low Range	**-30%**	**$692,000**			
			High Range	**50%**	**$1,482,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Facility Beautification					**$465,778**		**$889,230**	
Irrigation from existing non-potable water source								
Main irrigation control system (8-station controller)	1	LS	$2,400.00	$2,400		$4,582		
Valve stations (up to 8 valve assemblies)	8	EA	$1,200.00	$9,600		$18,328		Includes valves and solenoids
Irrigation main piping and trenching	15,700	LF	$14.00	$219,800		$419,626		Assume perimeter of main site; assume 3/4-inch PVC pipe, minimum 12 inch deep
Lateral piping	7,850	LF	$12.00	$94,200		$179,840		Assume lateral piping is 50% of main piping, includes sprinkler heads
Signal wiring	1,570	LF	$0.80	$1,256		$2,398		Assume connection to valve stations; 10% of main piping
Tie-in connection to existing main header	1	EA	$700.00	$700		$1,336		
Enhanced vegetation								
Topsoil	2,907	CY	$30.00	$87,222		$166,518		Imported topsoil spread along perimeter, 10 ft wide x 6" depth
Vegetation along perimeter of site	15,700	LF	$3.00	$47,100		$89,920		Assume perimeter of main site; mixed vegetation for commercial property
Landscaping/vegetation at new admin building	1,000	SF	$2.00	$2,000		$3,818		Assume 1,000 sf; mixed vegetation (trees, shrubs) for commercial property
Landscaping/vegetation at main entrance	500	SF	$3.00	$1,500		$2,864		Assume 500 sf; mixed vegetation (trees, shrubs) for commercial property
Subtotal				$465,778	**$465,778**	$889,230	**$889,230**	
Contractor Markups and General Conditions					**$123,897**			
Contractor Home Office			*5.0%*	$23,289				
Contractor General Conditions			*8.0%*	$37,262				
Contractor Fee			*8.0%*	$37,262				
Project Bond/Insurance			*2.6%*	$12,110				
Mobilization/Demobilization			*3.0%*	$13,973				
Probable Construction Cost					**$589,675**			
Contingencies					**$176,903**			
Facility design allowances based on level of design	1	PER	25%	$147,419				
Market adjustment factor	1	PER	5%	$29,484				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$122,652**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$61,326				
Construction management fee	1	PER	8.0%	$61,326				

Total Probable Cost		**$890,000**
Low Range	**-30%**	**$623,000**
High Range	**50%**	**$1,335,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Site-wide Demolition and Disposal					**$1,501,708**		**$2,866,952**	
Demolition of existing infrastructure								
Pad demolition	19,531	CY	$55.00	$1,074,231		$2,050,844		Assume 9" thick pads, existing public area demo and partial C&D pad demo
Building demolition	11,111	CY	$4.00	$44,444		$84,850		Assume three 100'x100'x50' building demo with density factor 0.2
Demolition debris disposal	15,321	CY	$25.00	$383,032		$731,258		Assume half of demolition debris can be disposed of onsite (no cost)
Subtotal				$1,501,708	**$1,501,708**	$2,866,952	**$2,866,952**	
Contractor Markups and General Conditions					**$399,454**			
Contractor Home Office			*5.0%*	$75,085				
Contractor General Conditions			*8.0%*	$120,137				
Contractor Fee			*8.0%*	$120,137				
Project Bond/Insurance			*2.6%*	$39,044				
Mobilization/Demobilization			*3.0%*	$45,051				
Probable Construction Cost					**$1,901,162**			
Contingencies					**$570,349**			
Facility design allowances based on level of design	1	PER	25%	$475,290				
Market adjustment factor	1	PER	5%	$95,058				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$395,442**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$197,721				
Construction management fee	1	PER	8.0%	$197,721				
			Total Probable Cost		**$2,867,000**			
			Low Range	**-30%**	**$2,007,000**			
			High Range	**50%**	**$4,301,000**			

Rough Order of Magnitude (Class 4) Cost Opinion **DRAFT**
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Shared Site Utilities					**$1,603,400**		**$3,061,096**	
Sewer line extension								
Sewer line piping	5,300	LF	$280.00	$1,484,000		$2,833,146		Assume 36" diameter or other standard size for sanitary sewer through industrial zone; length is along Fiddyment Rd between Sunset Blvd and Athens Ave
Stub-out for future connections	2	EA	$12,000.00	$24,000		$45,819		Need utility interchange at Fiddyment/Athens, including stubs and blind flange for any future connection
Manhole	11	EA	$9,000.00	$95,400		$182,131		Assume manhole every 500 lf
Subtotal				$1,603,400	**$1,603,400**	$3,061,096	**$3,061,096**	
Contractor Markups and General Conditions					**$426,504**			
Contractor Home Office			*5.0%*	$80,170				
Contractor General Conditions			*8.0%*	$128,272				
Contractor Fee			*8.0%*	$128,272				
Project Bond/Insurance			*2.6%*	$41,688				
Mobilization/Demobilization			*3.0%*	$48,102				
Probable Construction Cost					**$2,029,904**			
Contingencies					**$608,971**			
Facility design allowances based on level of design	1	PER	25%	$507,476				
Market adjustment factor	1	PER	5%	$101,495				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$422,220**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$211,110				
Construction management fee	1	PER	8.0%	$211,110				

Total Probable Cost		**$3,062,000**
Low Range	**-30%**	**$2,144,000**
High Range	**50%**	**$4,593,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
MRF Upgrade to TS					**$217,778**		**$415,766**	
Earthworks								
Existing asphalt removal	111	CY	$30.00	$3,333		$6,364		Assume excavate two bays to install scales, 100 feet length by 20 feet width with 9" thick existing asphalt
Asphalt paving (9" thick)	222	SY	*$65.00*	$14,444		$27,576		
Scales and Instrumentation								
Truck scale (100') supply and install include concrete footings	2	LS	$100,000.00	$200,000		$381,826		
Subtotal				$217,778	**$217,778**	$415,766	**$415,766**	
Contractor Markups and General Conditions					**$57,929**			
Contractor Home Office			*5.0%*	$10,889				
Contractor General Conditions			*8.0%*	$17,422				
Contractor Fee			*8.0%*	$17,422				
Project Bond/Insurance			*2.6%*	$5,662				
Mobilization/Demobilization			*3.0%*	$6,533				
Probable Construction Cost					**$275,707**			
Contingencies					**$82,712**			
Facility design allowances based on level of design	1	PER	25%	$68,927				
Market adjustment factor	1	PER	5%	$13,785				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$57,347**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$28,673				
Construction management fee	1	PER	8.0%	$28,673				

Total Probable Cost		**$416,000**
Low Range	**-30%**	**$292,000**
High Range	**50%**	**$624,000**

Appendix 4A-2
Capital Cost Estimates
Plan Concept 1

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost w/ Markup, Cont., & Fee	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee
Plan Concept 1 Critical Elements					**$441,529,372**
Public Area					
Public Area - Roadways	1	LS	$1,799,189	$1,799,189	
Public Area - Buyback (220' x 230')	1	LS	$2,655,780	$2,655,780	
Public Area - HHW (300' x 100')	1	LS	$1,787,519	$1,787,519	
Public Area - Reuse Store Area (155' x 140')	1	LS	$1,909,078	$1,909,078	
Public Area - Tipping Area	1	LS	$8,856,534	$8,856,534	
C&D					
C&D - C&D Pad (700' x 330')	1	LS	$5,727,598	$5,727,598	
C&D - Processing Line	1	LS	$7,686,627	$7,686,627	
Composting					
Compost - Green Waste Pad (210' x 225')	1	LS	$1,404,545	$1,404,545	
Compost - Wood Waste Pad (115' x 225')	1	LS	$769,156	$769,156	
Compost - Outdoor Receiving Area (90' x 200')	1	LS	$2,533,970	$2,533,970	
Compost - Screening and Product Storage Pad (400' x 350')	1	LS	$5,896,655	$5,896,655	
Compost - Temporary Positive ASP System	1	LS	$470,829	$470,829	
Compost - Active Composting System (205' x 880')	1	LS	$14,811,623	$14,811,623	
Compost - Biofilter (135' x 880')	1	LS	$5,122,623	$5,122,623	
Compost - ASP Curing System (185' x 880')	1	LS	$12,196,234	$12,196,234	
Compost - Dedicated Storm Water Ponds	1	LS	$1,057,713	$1,057,713	
Compost - Miscellaneous Equipment	1	LS	$12,409	$12,409	
Landfill					
Stockpile Relocation	1	LS	$13,363,896	$13,363,896	
Landfill Construction	1	LS	$192,719,350	$192,719,350	
Unlined Area Waste Excavation	1	LS	$81,462,874	$81,462,874	
Landfill Closure	1	LS	$79,285,170	$79,285,170	
Plan Concept 1 Necessary Supporting Elements					**$48,152,020**
Admin					
Admin Staff Bldg (10,000 sf or 100' x 100')	1	LS	$15,493,528	$15,493,528	
Admin Staff Parking (25,000 sf)	1	LS	$172,583	$172,583	
Main Entrance					
Main Entrance - Roadways	1	LS	$802,788	$802,788	
Main Entrance - Scale/Building	1	LS	$1,166,732	$1,166,732	
Western Entrance					
Western Entrance - Roadways	1	LS	$4,235,400	$4,235,400	
Western Entrance - Scale/Building	1	LS	$615,948	$615,948	
Overpass					
Overpass	1	LS	$9,278,433	$9,278,433	
Recovered Materials Storage					
Recyclables Storage Building	1	LS	$8,174,342	$8,174,342	
Primary Maintenance Facility					
Primary Maintenance - Maintenance Area (250' x 300')	1	LS	$1,842,538	$1,842,538	
Satellite Maintenance and Staff Facility					
Satellite Maintenance and Staff - Maintenance Area (250' x 300')	1	LS	$2,394,397	$2,394,397	
Satellite Maintenance and Staff - Staff Bldg and Parking Area (100' x 220')	1	LS	$917,290	$917,290	
Stormwater Pond					
New Storm Water Ponds	1	LS	$3,058,040	$3,058,040	
Plan Concept 1 Non-Critical Elements					**$236,971**
Main Site HHW Facility					
HHW Building (65' x 75')	1	LS	$236,971	$236,971	
Plan Concept 1 Existing Features to be Removed					**$217,629**
Compost Pond Removal					
Compost Pond Removal	1	LS	$217,629	$217,629	
Plan Concept 1 General Elements					**$31,096,783**
Special Permits and Allow					
Special Permits	1	LS	$8,281,963	$8,281,963	
Geotechnical Investigations	1	LS	$180,000	$180,000	
Wetlands Mitigation					
Wetlands Mitigation	1	LS	$12,878,109	$12,878,109	
Site Beautification					
Facility Beautification	1	LS	$2,697,547	$2,697,547	
Site-wide Demolition					
Site-wide Demolition and Disposal	1	LS	$2,866,952	$2,866,952	
Site Utilities					
Shared Site Utilities	1	LS	$3,776,446	$3,776,446	
MRF Upgrade to TS					
MRF Upgrade to TS	1	LS	$415,766	$415,766	
Total Probable Cost				$521,232,775	**$521,232,775**

Total Probable Cost		**$521,233,000**
Low Range	**-30%**	**$364,864,000**
High Range	**50%**	**$781,850,000**

Rough Order of Magnitude (Class 4) Cost Opinion **DRAFT**
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Common Construction Unit Rates	Unit Cost	Unit	Variable	Notes
Earthworks, Pads and Roadways				
Strip topsoil (12" deep) and stockpile onsite	$1.30	SY	topsoil_strip	Assumes stockpile along west property boundary, scraper haul
Fine grade site, machine	$1.20	SY	finegrade	MEANS 31 22 16
Common excavation to Stockpile (2' deep)	$3.90	CY	common_ex	MEANS 33 20 15, Assume stockpile along west property boundary
Subgrade preparation	$1.30	SY	subgrade_prep	
Granular sub-base (3" minus, 6" thick)	$7.30	SY	gran_subbase	CALTRANS Historical 260203
Granular base (DGA, 12" thick)	$36.00	CY	gran_base	CALTRANS Historical 260303
Curb and gutter	$14.00	LF	curb_gutter	MEANS 32 16 13
Asphalt paving (9" thick)	$65.00	SY	asphalt	CH2M estimate
Roadway/Perimeter Ditching	$1.50	LF	ditching	Grader/dozer work
Environmental Protection				
Clay liner (0.5m thick)	$3.40	SF	clay_liner	CH2M Estimate $55/cy, 20" thick
Groundwater monitoring wells	$7,500.00	LS	GW_wells	CH2M Estimate (3 wells to 30 ft, casing protector)
Synthetic pond liner (supply and install)	$6.30	sy	HDPE_liner	CH2M Historical, 40 mil
Buildings and Concrete				
Strip Footing (2' thick, 3' wide)	$176.00	LF	strip_footing	0.22 cy per LF
Push Wall Footing (2' thick, 8' wide)	$570.00	LF	push_wall_footing	0.6 cy per LF
Push Walls (12' high, 12' thick at top, 18" thick at base)	$600.00	LF	push_wall	0.6 cy per LF
Slab-on-Grade concrete floor (8")	$12.00	SF	concrete_slab	after verbal discussions with local contractor
Utility Connections				
Potable water connection	$0.00	LF		
Sanitary sewer connection	$0.00	LF		
Electrical tie-in to transformer	$75.00	LF	buried_elec	450 KVA total connected load/ 300 KVA operating demand
Telecom connection	$0.00	LF		
Natural gas connection	$0.00	LF		

Markups and Fees	Rate	Unit	Variable	Notes
Contractor Mob and General Conditions				
Contractor Home Office	5.0%		CHO	Assumes multi-trade GC does most all of the work
Contractor General Conditions	8.0%		CGC	Assumes 12 month construction schedule
Contractor Fee	8.0%		CF	
Project Bond/Insurance	2.6%		PBI	
Mobilization/Demobilization	3.0%		Mob_Demob	
Contingencies:				
Facility design allowances based on level of design	25%		design_cntngy	
Market adjustment factor	5%		MAF	Construction market is very busy
Escalation	0%		escalation	use 3% per year
Consultant and Subcontractor Fees:				
Engineering design and municipal permitting fee	8.0%		Eng_fee	
Construction management fee	8.0%		CM_fee	
Estimate Ranges:				
Low Range	-30%		low_range	
High Range	50%		high_range	

Notes:

1 The cost estimates are based on 1st quarter 2016 rates from the CALTRANS historical costs (concrete and import fill), MEANS (earthwork), CH2M historical values, Golder historical values, and calculated values where indicated. Cost estimates are largely based on 2016/2017 values because cost development commenced in 2017, prior to Board meeting in Dec 2017. A CH2M/Jacobs cost estimator has

2 These AACEI Classification Class 4 cost estimates are assumed to represent the actual total installed cost within the range of -30 percent to +50 percent (% based on AACEI) of the cost indicated.

3 The estimate is prepared with due diligence with the available information and under normal operations. However this should be subject to market demands and circumstances. The possibility of securing a competive bid process is questionable and should be taken into consideration.

4 Factors that may affect the estimate on the following issues include escalation, premium on labor, engineering.

5 The final cost do the project will be subject to labor rates , material cost, actual site conditions, availability of labor, material and equipment, final project scope, final project schedule (flexible or fixed), public consultation and input, and other mitigating factors (e.g. timing of construction and award). As a result, the final project cost may defer from the presented budget. Due to facts mentioned, the funding of the project should be carefully reviewed prior to establishing the final budget.

6 It is assumed that the facility is constructed on a green field site and there is no demolition required or hazardous materail to remove and dispose.

7 It is assumed that the work will performed under a 40-hr, normal workweek schedule. No acceleration costs included..

8 It's assumed that all materials are readibly available at no premium costs, that delivery is normal costs, and the contractor has adequate laydown and site facilities.

Exclusions/Qualifications:

1 Equipment specifications not identified.
2 Federal and state sales tax are included in unit rates.
3 Municipal fees & licences not included
4 As the design is at conceptual stage, the tie-ins to existing equipment and facilities have not being identified.
5 Rock excavation not included
6 Dewatering is not included
7 Escalation is not included. Values are in 1st Qtr 2016 values

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Public Area - Roadways					**$911,000**		**$1,799,189**	
Earthworks, Pads and Roadways (45' development width assumed)								
Roadway - Single Lane	2,500	LF	$290.00	$725,000		$1,431,846		
Roadway - Double Lane	200	LF	$580.00	$116,000		$229,095		
Curb and gutter	5,000	LF	*$14.00*	$70,000		$138,247		
Public Area - Scale/Building					**$0**		**$0**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		Scales included in Western Entrance cost element
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	0	SY	*$1.30*	$0		$0		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	0	CY	*$36.00*	$0		$0		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Scale Building and Scales								
20' Pre-fab Office Trailer	0	LS	$24,000.00	$0		$0		
Truck scale (40') supply and install include concrete footings	0	LS	$60,000.00	$0		$0		
Allowance for concrete approach slabs (2 per scale deck)	0	LS	$5,000.00	$0		$0		
Allowance for traffic lights/gates/signs	0	LS	$20,000.00	$0		$0		
Allowance for CCTV system	0	LS	$10,000.00	$0		$0		
Utility Connections								
Potable water connection	0	LF	$70.00	$0		$0		
Sanitary sewer connection	0	LF	$85.00	$0		$0		
Electrical tie-in to transformer	0	LF	$75.00	$0		$0		
Telecom connection	0	LF	$60.00	$0		$0		
Natural gas connection	0	LF	$80.00	$0		$0		
Public Area - Buyback (220' x 230')					**$1,344,726**		**$2,655,780**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	5,623	SY	*$1.30*	$7,310		$14,437		
Fine grade site, machine	5,623	SY	*$1.20*	$6,748		$13,326		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	4,150	SY	*$1.30*	$5,395		$10,655		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	154	CY	*$36.00*	$5,533		$10,928		
Curb and gutter	550	LF	*$14.00*	$7,700		$15,207		
Asphalt paving (9" thick)	5,623	SY	*$65.00*	$365,495		$721,838		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Building (70' x 130')								
Strip Footings	400	LF	*$176.00*	$70,400		$139,037		
Slab-on-Grade concrete floor (8")	9,100	SF	*$12.00*	$109,200		$215,666		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	9,100	SF	$35.00	$318,500		$629,025		
Insulation and interior finishing (drywall)	9,100	SF	$8.00	$72,800		$143,777		
Ceiling Insulation	9,100	SF	$2.75	$25,025		$49,423		
HVAC and exhaust ducting	9,100	SF	$17.00	$154,700		$305,526		
Lighting, Conduit, Wire & Receptacles	9,100	SF	$5.70	$51,870		$102,441		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	4	EA	$11,000.00	$44,000		$86,898		Historical cost
Allowance for fire alarms/sprinkler system	9,100	SF	$3.00	$27,300		$53,916		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Utility Connections								
Potable water connection	400	LF	$0.00	$0		$0		Stubbed from service to Staff area
Sanitary sewer connection	400	LF	$0.00	$0		$0		Stubbed from service to Staff area
Electrical tie-in to transformer	400	LF	$75.00	$30,000		$59,249		Stubbed from service to Staff area, 120/220 V single phase service
Telecom connection	400	LF	$0.00	$0		$0		Stubbed from service to Staff area
Natural gas connection	0	LF	$80.00	$0		$0		Stubbed from service to Staff area
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Public Area - HHW (300' x 100')					**$905,091**		**$1,787,519**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	3,334	SY	*$1.30*	$4,334		$8,560		
Fine grade site, machine	3,334	SY	*$1.20*	$4,001		$7,901		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	3,334	SY	*$1.30*	$4,334		$8,560		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	1,667	CY	*$36.00*	$60,012		$118,521		
Curb and gutter	600	LF	*$14.00*	$8,400		$16,590		
Asphalt paving (9" thick)	3,334	SY	*$65.00*	$216,710		$427,994		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Building (50' x 100')								
Strip Footings	300	LF	*$176.00*	$52,800		$104,278		
Slab-on-Grade concrete floor (8")	5,000	SF	*$12.00*	$60,000		$118,498		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	5,000	SF	$35.00	$175,000		$345,618		
Insulation and interior finishing (drywall)	5,000	SF	$8.00	$40,000		$78,998		
Ceiling Insulation	5,000	SF	$2.75	$13,750		$27,156		
HVAC and exhaust ducting	5,000	SF	$17.00	$85,000		$167,872		
Lighting, Conduit, Wire & Receptacles	5,000	SF	$5.70	$28,500		$56,286		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	2	EA	$11,000.00	$22,000		$43,449		Historical cost
Allowance for fire alarms/sprinkler system	5,000	SF	$3.00	$15,000		$29,624		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Utility Connections								
Potable water connection	250	LF	$70.00	$17,500		$34,562		Stubbed from service to Buyback area
Sanitary sewer connection	250	LF	$85.00	$21,250		$41,968		Stubbed from service to Buyback area
Electrical tie-in to transformer	250	LF	$75.00	$18,750		$37,031		Stubbed from service to Buyback area, 120/220 V single phase service
Telecom connection	250	LF	$60.00	$15,000		$29,624		Stubbed from service to Buyback area
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Public Area - Reuse Store Area (155' x 140')					**$966,642**		**$1,909,078**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,412	SY	*$1.30*	$3,136		$6,193		
Fine grade site, machine	2,412	SY	*$1.20*	$2,894		$5,716		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	2,412	SY	*$1.30*	$3,136		$6,193		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	89	CY	*$36.00*	$3,216		$6,351		
Curb and gutter	295	LF	*$14.00*	$4,130		$8,157		
Asphalt paving (9" thick)	2,412	SY	*$65.00*	$156,780		$309,634		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Building (75' x 100')								
Strip Footings	350	LF	*$176.00*	$61,600		$121,658		
Slab-on-Grade concrete floor (8")	7,500	SF	*$12.00*	$90,000		$177,746		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	7,500	SF	$35.00	$262,500		$518,427		
Insulation and interior finishing (drywall)	7,500	SF	$8.00	$60,000		$118,498		
Ceiling Insulation	7,500	SF	$2.75	$20,625		$40,734		
HVAC and exhaust ducting	7,500	SF	$17.00	$127,500		$251,807		
Lighting, Conduit, Wire & Receptacles	7,500	SF	$5.70	$42,750		$84,430		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	4	EA	$11,000.00	$44,000		$86,898		Historical cost
Allowance for fire alarms/sprinkler system	7,500	SF	$3.00	$22,500		$44,437		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Utility Connections								
Potable water connection	255	LF	$0.00	$0		$0		Stubbed from service to HHW area
Sanitary sewer connection	255	LF	$0.00	$0		$0		Stubbed from service to HHW area
Electrical tie-in to transformer	255	LF	$75.00	$19,125		$37,771		Stubbed from service to HHW area, 120/220 V single phase service
Telecom connection	255	LF	$0.00	$0		$0		Stubbed from service to HHW area
Natural gas connection	0	LF	$80.00	$0		$0		Stubbed from service to HHW area
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Public Area - Tipping Area					**$4,484,412**		**$8,856,534**	
Earthworks, Pads and Roadways (220' x 600')								
Strip topsoil (12" deep) and stockpile onsite	14,667	SY	*$1.30*	$19,067		$37,657		
Fine grade site, machine	14,667	SY	*$1.20*	$17,600		$34,760		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	14,667	SY	*$1.30*	$19,067		$37,657		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	1,667	CY	*$36.00*	$60,012		$118,521		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	14,667	SY	*$65.00*	$953,355		$1,882,838		
Roadway/Perimeter Ditching	1,640	LF	*$1.50*	$2,460		$4,858		
Tipping Building (100' x 325')								
Strip Footings	850	LF	*$176.00*	$149,600		$295,454		
Slab-on-Grade concrete floor (8")	32,500	SF	*$12.00*	$390,000		$770,234		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	32,500	SF	$35.00	$1,137,500		$2,246,517		
Insulation and interior finishing (drywall)	0	SF	$8.00	$0		$0		
Ceiling Insulation	0	SF	$2.75	$0		$0		
HVAC and exhaust ducting	32,500	SF	$8.00	$260,000		$513,490		
Lighting, Conduit, Wire & Receptacles	32,500	SF	$5.70	$185,250		$365,861		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	36	EA	$11,000.00	$396,000		$782,084		Historical cost
Allowance for fire alarms/sprinkler system	32,500	SF	$3.00	$97,500		$192,559		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Buildings - Specialty								
Retaining Wall Foundations (3' x 8')	325	LF	$900.00	$292,500		$577,676		0.9 cy per LF
Retianing Wall (15' high, 2' thick)	325	LF	$1,200.00	$390,000		$770,234		1.2 cf per LF
Steel plating along base of push walls (1/2 "thick)	0	LF	$0.00	$0		$0		Assumed height of steel plate is 4' high. (20.42 #/sf)
Ecology block bunker	0	EA	$0.00	$0		$0		$150/block + $25/block placement
Stayflex Coating (interior walls and roof)	0	SF	$0.00	$0		$0		
High Performance Epoxy Coating (interior walls and roof)	0	SF	$3.35	$0		$0		MEANS 09 96 56
Grated floor drains	0	LF	$0.00	$0		$0		Estimated quantity at 2 ea for total length of building - 4"
Overhead door air curtain system	0	EA	$0.00	$0		$0		Historical cost
Specialty exhaust ducting	0	LF	$0.00	$0		$0		SS, 26 GA - Means

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Specialty exhaust fans	0	EA	$0.00	$0		$0		
Utility Connections								
Potable water connection	350	LF	$70.00	$24,500		$48,387		Stubbed from service to Buyback area
Sanitary sewer connection	0	LF	$85.00	$0		$0		Stubbed from service to Buyback area
Electrical tie-in to transformer	350	LF	$75.00	$26,250		$51,843		Stubbed from service to Buyback area, 120/220 V single phase service
Telecom connection	350	LF	$60.00	$21,000		$41,474		Stubbed from service to Buyback area
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$8,611,870	**$8,611,870**	$17,008,099	**$17,008,099**	
Contractor Markups and General Conditions					**$2,290,757**			
Contractor Home Office			*5.0%*	$430,594				
Contractor General Conditions			*8.0%*	$688,950				
Contractor Fee			*8.0%*	$688,950				
Project Bond/Insurance			*2.6%*	$223,909				
Mobilization/Demobilization			*3.0%*	$258,356				
Probable Construction Cost					**$10,902,628**			
Contingencies					**$3,270,788**			
Facility design allowances based on level of design	1	PER	25%	$2,725,657				
Market adjustment factor	1	PER	5%	$545,131				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$2,834,683**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	10.0%	$1,417,342				
Construction management fee	1	PER	10.0%	$1,417,342				

Total Probable Cost		**$17,009,000**
Low Range	**-30%**	**$11,907,000**
High Range	**50%**	**$25,514,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
C&D - C&D Pad (700' x 330')					**$3,000,112**		**$5,727,598**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	25,667	SY	*$1.30*	$33,367		$63,702		Assume 1/3 pad is new; demo cost is included in Site-wide Demo sheet
Fine grade site, machine	25,667	SY	*$1.20*	$30,800		$58,802		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	25,667	SY	*$1.30*	$33,367		$63,702		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	951	CY	*$36.00*	$34,223		$65,335		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	25,667	SY	*$65.00*	$1,668,355		$3,185,103		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Allowance for ashphalt removal	0	LS	$75,000.00	$0		$0		
Overhang Roof								
Overhang with structural column support (no walls)	20,000	SF	$60.00	$1,200,000		$2,290,954		Assume cover for 100' x 200' portion of C&D pad to shield processing line from rain; not a building, just an open-air roof structure; includes foundation
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
C&D - Processing Line					**$4,026,250**		**$7,686,627**	
40-50 ton per hour processing line								
Processling line, including shipping, installation, and startup	1	EA	*$4,000,000.00*	$4,000,000		$7,636,512		Bulk Handling Quote, Sept 2018
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Assume can use for process water and potable use
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	350	LF	$75.00	$26,250		$50,115		Assume electrical supply is present for existing C&D and can use this with extension
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$7,026,362	**$7,026,362**		**$13,414,225**	
Contractor Markups and General Conditions					**$1,869,012**			
Contractor Home Office			*5.0%*	$351,318				
Contractor General Conditions			*8.0%*	$562,109				
Contractor Fee			*8.0%*	$562,109				
Project Bond/Insurance			*2.6%*	$182,685				
Mobilization/Demobilization			*3.0%*	$210,791				
Probable Construction Cost					**$8,895,375**			
Contingencies					**$2,668,612**			
Facility design allowances based on level of design	1	PER	25%	$2,223,844				
Market adjustment factor	1	PER	5%	$444,769				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,850,238**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$925,119				
Construction management fee	1	PER	8.0%	$925,119				

Total Probable Cost		**$13,415,000**
Low Range	**-30%**	**$9,391,000**
High Range	**50%**	**$20,123,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Compost - Green Waste Pad (210' x 225')					**$735,700**		**$1,404,545**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	5,250	SY	$1.30	$6,825		$13,030		
Fine grade site, machine	5,250	SY	$1.20	$6,300		$12,028		
Common excavation to Stockpile (2' deep)	0	CY	$3.90	$0		$0		
Subgrade preparation	5,250	SY	$1.30	$6,825		$13,030		
Granular sub-base (3" minus, 6" thick)	0	CY	$36.00	$0		$0		
Granular base (DGA, 12" thick)	194	CY	$36.00	$7,000		$13,364		
Curb and gutter	0	LF	$14.00	$0		$0		
Concrete paving (9" thick)	5,250	SY	$135.00	$708,750		$1,353,094		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	$1.50	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Compost - Wood Waste Pad (115' x 225')					**$402,883**		**$769,156**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,875	SY	$1.30	$3,738		$7,135		
Fine grade site, machine	2,875	SY	$1.20	$3,450		$6,586		
Common excavation to Stockpile (2' deep)	0	CY	$3.90	$0		$0		
Subgrade preparation	2,875	SY	$1.30	$3,738		$7,135		
Granular sub-base (3" minus, 6" thick)	0	CY	$36.00	$0		$0		
Granular base (DGA, 12" thick)	106	CY	$36.00	$3,833		$7,318		
Curb and gutter	0	LF	$14.00	$0		$0		
Concrete paving (9" thick)	2,875	SY	$135.00	$388,125		$740,980		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	$1.50	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Compost - Outdoor Receiving Area (90' x 200')					**$1,327,292**		**$2,533,970**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,000	SY	$1.30	$2,600		$4,964		
Fine grade site, machine	2,000	SY	$1.20	$2,400		$4,582		
Common excavation to Stockpile (2' deep)	0	CY	$3.90	$0		$0		
Subgrade preparation	2,000	SY	$1.30	$2,600		$4,964		
Granular sub-base (3" minus, 6" thick)	0	CY	$36.00	$0		$0		
Granular base (DGA, 12" thick)	74	CY	$36.00	$2,667		$5,091		
Curb and gutter	0	LF	$14.00	$0		$0		
Concrete paving (9" thick)	0	SY	$135.00	$0		$0		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	$1.50	$0		$0		
Slab-on-Grade concrete floor (8")	18,000	SF	$12.00	$216,000		$412,372		
Ecology block bunker (3 rows high)	63	EA	$175.00	$11,025		$21,048		Historical price: $150/block + $25/block placement
Specialty Equipment								
System (Shredders x 2, conveyors, magnetic belt)	1	LS	$950,000.00	$950,000		$1,813,672		Based on COE tender pricing. Converted to $US at 1.20 exchange rate
Allowance for equipment installation	1	LS	$47,500.00	$47,500		$90,684		5% of equipment cost
Allowance for electrical install and connection	1	LS	$47,500.00	$47,500		$90,684		5% of equipment cost
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	600	LF	$75.00	$45,000		$85,911		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Compost - Screening and Product Storage Pad (400' x 350')					**$3,088,664**		**$5,896,655**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	15,556	SY	$1.30	$20,223		$38,608		Footprint areas plus 10%
Fine grade site, machine	15,556	SY	$1.20	$18,667		$35,638		Footprint areas plus 10%
Common excavation to Stockpile (2' deep)	0	CY	$3.90	$0		$0		
Subgrade preparation	15,556	SY	$1.30	$20,223		$38,608		
Granular sub-base (3" minus, 6" thick)	0	CY	$36.00	$0		$0		
Granular base (DGA, 12" thick)	576	CY	$36.00	$20,741		$39,598		
Curb and gutter	0	LF	$14.00	$0		$0		
Concrete paving (9" thick)	15,556	SY	$135.00	$2,100,060		$4,009,283		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	$1.50	$0		$0		
Specialty Equipment								
Stationary screening system incl feed hopper	1	LS	$500,000.00	$500,000		$954,564		
Horizontal transfer conveyor	1	LS	$150,000.00	$150,000		$286,369		Assumes re-purposed 125' stacker
Radial stacking conveyor	1	LS	$125,000.00	$125,000		$238,641		Historical price
Allowance for equipment installation	1	LS	$38,750.00	$38,750		$73,979		5% of equipment cost
Allowance for electrical install and connection	1	LS	$38,750.00	$38,750		$73,979		5% of equipment cost
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	750	LF	$75.00	$56,250		$107,388		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Subtotal				$5,554,539	**$5,554,539**	$10,604,326	**$10,604,326**	
Contractor Markups and General Conditions					**$1,477,507**			
Contractor Home Office			5.0%	$277,727				
Contractor General Conditions			8.0%	$444,363				
Contractor Fee			8.0%	$444,363				
Project Bond/Insurance			2.6%	$144,418				
Mobilization/Demobilization			3.0%	$166,636				
Probable Construction Cost					**$7,032,047**			
Contingencies					**$2,109,614**			
Facility design allowances based on level of design	1	PER	25%	$1,758,012				
Market adjustment factor	1	PER	5%	$351,602				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,462,666**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$731,333				
Construction management fee	1	PER	8.0%	$731,333				
			Total Probable Cost		**$10,605,000**			
			Low Range	**-30%**	**$7,424,000**			
			High Range	**50%**	**$15,908,000**			

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Compost - Temporary Positive ASP System					**$246,620**		**$470,829**	Cost is consistent with Nortech proposal for temporary positive ASP system (~$200,000), email from Eric Oddo 10/19/2018
Aeration laterals/header								Assume temporary positive ASP system for Year 0-5 is 25% size of full buildout; assume temp ASP mainly requires only tubing and fans
Aeration header piping (18" SDR17, 5 zones, 40' per zone)	200	LF	$24.77	$4,954		$9,458		HDPE quotes received from Wolseley 12/9/16
Allowance for misc header fittings (3 per zone)	15	EA	$200.00	$3,000		$5,727		Engineer estimate
Aeration lateral piping (6" SDR17, 5 zones, 7 laterals per zone)	4,725	LF	$3.36	$15,876		$30,309		HDPE quotes received from Wolseley 12/9/16
Allowance for misc latteral fittings (28 per lateral)	980	EA	$75.00	$73,500		$140,321		Engineer estimate
Aeration riser piping (6" SDR17, 26 per lateral, 12" per riser)	910	LF	$3.36	$3,058		$5,837		HDPE quotes received from Wolseley 12/9/16
In-slab SS aeration grates (supply)	910	EA	$40.00	$36,400		$69,492		Historical Price
Lateral/header welding and installation	1	LS	$30,116.28	$30,116		$57,496		30% of equipment cost
Aeration Manifold and Fans								
SS manifold (24")	200	LF	$65.00	$13,000		$24,819		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Control damper (1 per aeration zone)	5	EA	$1,500.00	$7,500		$14,318		GMT quote Mar-13-2016
SS wye-fitting and 45 degree fitting	5	EA	$655.00	$3,275		$6,252		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Allowance for manifold supports	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Allowance for SS fan transitions (2 per fan)	4	LS	$750.00	$3,000		$5,727		Engineer estimate
SS Negative aeration fan (supply)	1	EA	$20,000.00	$20,000		$38,183		Engineer estimate
Galv Cooling air fan (supply)	1	EA	$15,000.00	$15,000		$28,637		Engineer estimate
SS wye-fitting and 45 degree fitting	1	EA	$655.00	$655		$1,250		Ecco Supply Quote, converted to $US at 1.2 exchange rate
VFD (supply)	0	EA	$0.00	$0		$0		incl in I&C
Lateral/header/fan installation	1	LS	$13,286.00	$13,286		$25,365		20% of equipment cost
Compost - Active Composting System (205' x 880')					**$7,758,319**		**$14,811,623**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	20,045	SY	*$1.30*	$26,059		$49,749		
Fine grade site, machine	20,045	SY	*$1.20*	$24,054		$45,922		
Common excavation to Stockpile (2' deep)	1,485	CY	*$3.90*	$5,791		$11,055		
Subgrade preparation	20,045	SY	*$1.30*	$26,059		$49,749		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	742	CY	*$36.00*	$26,727		$51,025		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	20,045	SY	*$135.00*	$2,706,075		$5,166,244		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
ASP1:								
Perimeter Walls and Floor								
Slab-on-Grade concrete floor (8")	28,000	SF	*$12.00*	$336,000		$641,467		
ASP perimeter wall foundations	470	LF	*$570.00*	$267,900		$511,455		
ASP perimeter walls	470	LF	*$600.00*	$282,000		$538,374		
Aeration laterals/header								
Aeration header piping (18" SDR17, 5 zones, 40' per zone)	200	LF	$24.77	$4,954		$9,458		HDPE quotes received from Wolseley 12/9/16
Allowance for misc header fittings (3 per zone)	15	EA	$200.00	$3,000		$5,727		Engineer estimate
Aeration lateral piping (6" SDR17, 5 zones, 7 laterals per zone)	4,725	LF	$3.36	$15,876		$30,309		HDPE quotes received from Wolseley 12/9/16
Allowance for misc latteral fittings (28 per lateral)	980	EA	$75.00	$73,500		$140,321		Engineer estimate
Aeration riser piping (6" SDR17, 26 per lateral, 12" per riser)	910	LF	$3.36	$3,058		$5,837		HDPE quotes received from Wolseley 12/9/16
In-slab SS aeration grates (supply)	910	EA	$40.00	$36,400		$69,492		Historical Price
Lateral/header welding and installation	1	LS	$30,116.28	$30,116		$57,496		30% of equipment cost
Aeration Manifold and Fans								
SS manifold (24")	200	LF	$65.00	$13,000		$24,819		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Control damper (1 per aeration zone)	5	EA	$1,500.00	$7,500		$14,318		GMT quote Mar-13-2016
SS wye-fitting and 45 degree fitting	5	EA	$655.00	$3,275		$6,252		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Allowance for manifold supports	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Allowance for SS fan transitions (2 per fan)	4	LS	$750.00	$3,000		$5,727		Engineer estimate
SS Negative aeration fan (supply)	1	EA	$20,000.00	$20,000		$38,183		Engineer estimate
Galv Cooling air fan (supply)	1	EA	$15,000.00	$15,000		$28,637		Engineer estimate
SS wye-fitting and 45 degree fitting	1	EA	$655.00	$655		$1,250		Ecco Supply Quote, converted to $US at 1.2 exchange rate
VFD (supply)	0	EA	$0.00	$0		$0		incl in I&C
Lateral/header/fan installation	1	LS	$13,286.00	$13,286		$25,365		20% of equipment cost
Instrument and Controls								
PLC/HMI system (hardware supply and programming, field commissioning)	1	LS	$65,000.00	$65,000		$124,093		Cybertech Supply, converted to $US at 1.2 exchange rate
Temperature probes/transmitter/wire	10	EA	$325.00	$3,250		$6,205		Reotemp probe @ incl 100 ft wire, historical cost
Wireless temperature probe with base station	0	EA	$350.00	$0		$0		
Allowance for I&C installation	1	LS	$7,200.00	$7,200		$13,746		Historical cost (3 days, 2-man crew)
Leachate/condensate								
Underground leachate drainage piping (6" SDR17)	200	LF	$3.36	$672		$1,283		HDPE quotes received from Wolseley 12/9/16
Allowance for misc fittings	15	EA	$75.00	$1,125		$2,148		Engineer estimate
Underground precast leachate sump (30" x 30" x 42" deep with cover)	1	LS	$350.00	$350		$668		Historical Price
SS submersible pump (1 hp) with flex hose connection	1	LS	$1,500.00	$1,500		$2,864		Historical Price
Aboveground leachate transfer piping (4" PVC)	200	LF	$2.00	$400		$764		Historical Price
Aboveground HDPE leachate tank (10,000 gal)	1	EA	$7,500.00	$7,500		$14,318		Historical Price
Lateral/header/fan installation	1	LS	$2,309.40	$2,309		$4,409		20% of equipment cost
ASP 2 - same as ASP1	1	LS	$1,221,826.28	$1,221,826		$2,332,623		
ASP 3 - same as ASP1	1	LS	$1,221,826.28	$1,221,826		$2,332,623		
ASP 4 - same as ASP1	1	LS	$1,221,826.28	$1,221,826		$2,332,623		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	750	LF	$75.00	$56,250		$107,388		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Compost - Biofilter (135' x 880')					**$2,683,227**		**$5,122,623**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	13,200	SY	*$1.30*	$17,160		$32,761		
Fine grade site, machine	13,200	SY	*$1.20*	$15,840		$30,241		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	13,200	SY	*$1.30*	$17,160		$32,761		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	489	CY	*$36.00*	$17,600		$33,601		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	13,200	SY	*$135.00*	$1,782,000		$3,402,066		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Biofilter 1								
Ecology block back wall (5' high)	80	EA	$0.00	$0		$0		$150/block + $25/block placement
Allowance for mist scrubbers	0	LS	$0.00	$0		$0		
Allowance for packed tower acid scrubbers	0	LS	$0.00	$0		$0		
Scrubber Mechanical/Electrical	0	LS	$0.00	$0		$0		
Biofilter header piping (60" SDR17)	200	LF	$275.00	$55,000		$105,002		HDPE quotes received from Wolseley 12/9/16
Biofilter header supports (supply)	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Inserta-T fittings	40	LF	$75.00	$3,000		$5,727		Estimated cost
PVC butterfly valve, flex coupling and elbow 12"	0	LS	$0.00	$0		$0		
Biofilter lateral piping (12" SDR17)	4,200	LF	$12.43	$52,206		$99,668		HDPE quotes received from Wolseley 12/9/16
Drill Biofilter Laterals	4,200	LF	$0.00	$0		$0		
Lateral/header welding and installation	1	LS	$22,841.20	$22,841		$43,607		20% of equipment cost
Biofilter media (6' thick, offsite supply and place, wood chip media)	4,444	CY	$10.00	$44,444		$84,850		Historical cost, wood chips
Irrigation tank, zone controllers, pump	1	LS	$25,000.00	$25,000		$47,728		Estimated cost
Leachate/condensate								
Leachate collection toe drain	0	LF	$0.00	$0		$0		$10/ft material
HDPE drain line (4") to a/g leachate tank with sand bedding	0	LF	$0.00	$0		$0		
U/G fibreglass storage tank (incl bured concrete supports, straps, backfill)	0	LS	$0.00	$0		$0		Historical estimate - Winnipeg Compost Facility
Allowance for float level/strobe alarm	0	LS	$0.00	$0		$0		Engineers estimate
SS submersible pump (1 hp)	0	LS	$0.00	$0		$0		Acklands Granger
Biofilter 2 - same as Biofilter 1	1	LS	$206,491.64	$206,492		$394,219		
Biofilter 3 - same as Biofilter 1	1	LS	$206,491.64	$206,492		$394,219		
Biofilter 4 - same as Biofilter 1	1	LS	$206,491.64	$206,492		$394,219		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Compost - ASP Curing System (185' x 880')					**$6,388,380**		**$12,196,234**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	18,089	SY	*$1.30*	$23,516		$44,894		
Fine grade site, machine	18,089	SY	*$1.20*	$21,707		$41,441		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	18,089	SY	*$1.30*	$23,516		$44,894		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	670	CY	*$36.00*	$24,119		$46,046		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	18,089	SY	*$135.00*	$2,442,015		$4,662,119		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
ASP1:								
Perimeter Walls and Floor								
Slab-on-Grade concrete floor (8")	19,600	SF	*$12.00*	$235,200		$449,027		
ASP perimeter wall foundations	396	LF	*$570.00*	$225,720		$430,928		
ASP perimeter walls	396	LF	*$600.00*	$237,600		$453,609		
Aeration laterals/header								
Aeration header piping (18" SDR17, 5 zones, 40' per zone)	200	LF	$24.77	$4,954		$9,458		HDPE quotes received from Wolseley 12/9/16
Allowance for misc header fittings (3 per zone)	15	EA	$200.00	$3,000		$5,727		Engineer estimate
Aeration lateral piping (6" SDR17, 5 zones, 7 laterals per zone)	3,430	LF	$3.36	$11,525		$22,002		HDPE quotes received from Wolseley 12/9/16
Allowance for misc latteral fittings (22 per lateral)	770	EA	$75.00	$57,750		$110,252		Engineer estimate
Aeration riser piping (6" SDR17, 20 per lateral, 12" per riser)	700	LF	$3.36	$2,352		$4,490		HDPE quotes received from Wolseley 12/9/16
In-slab SS aeration grates (supply)	700	EA	$40.00	$28,000		$53,456		Historical Price
Lateral/header welding and installation	1	LS	$23,874.24	$23,874		$45,579		30% of equipment cost
Aeration Manifold and Fans								
GALV manifold (24")	200	LF	$7.70	$1,540		$2,940		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Control damper (1 per aeration zone)	5	EA	$1,500.00	$7,500		$14,318		GMT quote Mar-13-2016
GALV wye-fitting and 45 degree fitting	5	EA	$135.00	$675		$1,289		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Allowance for manifold supports	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Allowance for GALV fan transitions (2 per fan)	2	LS	$375.00	$750		$1,432		Engineer estimate
Positive aeration fan (supply)	1	EA	$9,000.00	$9,000		$17,182		Airsys quote (NYB 20GI).
Cooling air fan (supply)	0	EA	$9,000.00	$0		$0		
SS wye-fitting and 45 degree fitting	0	EA	$655.00	$0		$0		Ecco Supply Quote, converted to $US at 1.2 exchange rate
VFD (supply)	0	EA	$0.00	$0		$0		incl in I&C
Lateral/header/fan installation	1	LS	$4,693.00	$4,693		$8,960		20% of equipment cost
Instrument and Controls								
PLC/HMI system (hardware supply and programming, field commissioning)	1	LS	$65,000.00	$65,000		$124,093		Cybertech Supply, converted to $US at 1.2 exchange rate
Temperature probes/transmitter/wire	10	EA	$325.00	$3,250		$6,205		Reotemp probe @ incl 100 ft wire, historical cost
Wireless temperature probe with base station	0	EA	$350.00	$0		$0		
Allowance for I&C installation	1	LS	$7,200.00	$7,200		$13,746		Historical cost (3 days, 2-man crew)
Leachate/condensate								
Underground leachate drainage piping (6" SDR17)	200	LF	$3.36	$672		$1,283		HDPE quotes received from Wolseley 12/9/16
Allowance for misc fittings	15	EA	$75.00	$1,125		$2,148		Engineer estimate
Underground precast leachate sump (30" x 30" x 42" deep with cover)	1	LS	$350.00	$350		$668		Historical Price
SS submersible pump (1 hp) with flex hose connection	1	LS	$1,500.00	$1,500		$2,864		Historical Price
Aboveground leachate transfer piping (4" PVC)	200	LF	$2.00	$400		$764		Historical Price

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Aboveground HDPE leachate tank (10,000 gal)	1	EA	$7,500.00	$7,500		$14,318		Historical Price
Lateral/header/fan installation	1	LS	$2,309.40	$2,309		$4,409		20% of equipment cost
ASP 2 - same as ASP1	1	LS	$947,439.44	$947,439		$1,808,783		
ASP 3 - same as ASP1	1	LS	$947,439.44	$947,439		$1,808,783		
ASP 4 - same as ASP1	1	LS	$947,439.44	$947,439		$1,808,783		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	750	LF	$75.00	$56,250		$107,388		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Compost - Dedicated Storm Water Ponds					**$554,030**		**$1,057,713**	
Pond Construction								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 1000-year storm
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$100,000.00	$100,000		$190,913		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Unload Geosynthetics	1	LS	$20,000.00	$20,000		$38,183		
Clearing and Grubbing	20,144	SY	$1.30	$26,188		$49,996		
Excavation	31,241	CY	$2.50	$78,102		$149,106		
HDPE Double-Sided Textured Geomembrane	182,650	SF	$1.60	$292,240		$557,924		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Compost - Miscellaneous Equipment					**$6,500**		**$12,409**	
Weather station (roof mounted on tripod)	1	EA	$1,500.00	$1,500		$2,864		Historical price
Aboveground 2x-walled 9500 L fuel storage tank/pump	0	EA	$11,000.00	$0		$0		$9500 purchase + $1500 allowance for delivery/install
Allowance for misc compost monitoring and lab equipment	1	LS	$5,000.00	$5,000		$9,546		
Standby generator (625 kVA) + transfer switch, cabling, installation	0	EA	$0.00	$0		$0		
Subtotal				$17,637,074	**$17,637,074**	$33,671,432	**$33,671,432**	
Contractor Markups and General Conditions					**$4,691,462**			
Contractor Home Office			*5.0%*	$881,854				
Contractor General Conditions			*8.0%*	$1,410,966				
Contractor Fee			*8.0%*	$1,410,966				
Project Bond/Insurance			*2.6%*	$458,564				
Mobilization/Demobilization			*3.0%*	$529,112				
Probable Construction Cost					**$22,328,536**			
Contingencies					**$6,698,561**			
Facility design allowances based on level of design	1	PER	25%	$5,582,134				
Market adjustment factor	1	PER	5%	$1,116,427				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$4,644,335**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$2,322,168				
Construction management fee	1	PER	8.0%	$2,322,168				
			Total Probable Cost		**$33,672,000**			
			Low Range	**-30%**	**$23,571,000**			
			High Range	**50%**	**$50,508,000**			

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Stockpile Relocation					**$7,000,000**		**$13,363,896**	
Relocate Existing Soil Stockpile before Module Construction								
Move stockpile to different location	1,400,000	CY	$5.00	$7,000,000		$13,363,896		As of 6/30/2017, there are 1.4 MCY of soil stockpiled on Modules 6-8, nearly all of it on 6-7, compared to the pre-development grades of 1978 (Keith Schmidt, 10/15/2018)
Landfill Construction					**$100,946,270**		**$192,719,350**	
New Landfill								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh.xlsx, Sheet "Table 5 (1a)"
Design and Permitting	10	ea	*$100,000.00*	$1,000,000		$1,909,128		Assumes 10 cells
Mobilization/Demobilization	10	ea	*$100,000.00*	$1,000,000		$1,909,128		Assumes 10 cells
Layout of Work and Surveys	10	ea	*$25,000.00*	$250,000		$477,282		Assumes 10 cells
Clearing and Grubbing	257	ac	*$1,500.00*	$385,500		$735,969		New cell construction without Unlined unit
Excavation	8,328,071	cy	*$3.00*	$24,984,213		$47,698,061		
Overexcavation of Unsuitable Subgrade Material	200,000	cy	*$10.00*	$2,000,000		$3,818,256		Assumes 20,000 cy per cell
Earthfill	200,000	cy	*$4.00*	$800,000		$1,527,302		Assumes 20,000 cy per cell
Subgrade Preparation	11,159,400	sf	*$0.15*	$1,673,910		$3,195,708		
Geosynthetic Clay Liner	11,159,400	sf	*$0.80*	$8,927,520		$17,043,778		
60-mil HDPE Double Sided Textured Geomembrane	9,477,161	sf	$0.75	$7,107,871		$13,569,835		Floor Only
60-mil White Single Sided Textured HDPE Geomembrane	11,159,400	sf	0.75	$8,369,550		$15,978,542		
Geocomposite	9,477,161	sf	$0.80	$7,581,729		$14,474,491		Floor Only
8oz/sy Nonwoven Geotextile	9,477,161	sf	*$0.20*	$1,895,432		$3,618,623		Floor Only
Anchor Trenches	10,000	lf	*$13.00*	$130,000		$248,187		
Drainage Layer	351,006	cy	$38.00	$13,338,227		$25,464,382		Floor Only x 1 ft
Sump Gravel	1,750	cy	$82.00	$143,500		$273,960		Assumes 175 per sump
Base Operations Layer	351,006	cy	$5.60	$1,965,633		$3,752,646		Floor Only x 1 ft
Side Slope Operations Layer	63,000	cy	$6.50	$409,500		$781,788		Side Slope x 1ft
6-inch Diameter SDR 11 HDPE LCRS Pipe	27,000	lf	$20.00	$540,000		$1,030,929		Assumes 2,700 per cell
18-inch Diameter SDR 11 HDPE LCRS Pipe	6,000	lf	$112.50	$675,000		$1,288,661		Assumes 600 per cell
6-inch Diameter SDR 11 HDPE Pipe (Force Main)	16,000	lf	$20.00	$320,000		$610,921		Perimeter of entire site
Rip Rap	10	ls	$30,000.00	$300,000		$572,738		
Leak Detection Survey	10	ls	$17,000.00	$170,000		$324,552		
Revegetation	100	ac	$1,500.00	$150,000		$286,369		Assumes 10 acres per cell
Perimeter Road	480,000	sf	$2.50	$1,200,000		$2,290,954		30 ft wide x 1ft
Aggregate Base	18,000	cy	$35.00	$630,000		$1,202,751		
V-Ditch	32,867	lf	$5.00	$164,335		$313,737		
CMP Culverts	2,000	lf	$76.00	$152,000		$290,187		
Stormwater Controls	10	ea	$2,500.00	$25,000		$47,728		
Stormwater Pollution Prevention Plan Preparation	10	ea	7800	$78,000		$148,912		
Stormwater Pollution Prevention Plan Implementation	10	ea	$15,000.00	$150,000		$286,369		
Monitoring Systems								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh.xlsx, Sheet "Table 5 (1a)"
Monitoring System Design Services	1	ls	$100,000.00	$100,000		$190,913		
Decomission & Replace Groundwater Wells	7	ea	$20,000.00	$140,000		$267,278		
Additional Groundwater Wells	2	ea	$10,000.00	$20,000		$38,183		
Decomission & Replace LFG Perimeter Probes	5	ea	$10,000.00	$50,000		$95,456		
LFG Design Services and Permitting	1	ls	$400,000.00	$400,000		$763,651		
LFG Extraction Wells	321	ea	$2,500.00	$802,500		$1,532,075		1 per acre
LFG 6-in LFG Collector	32,100	lf	$20.00	$642,000		$1,225,660		100 feet per well
LFG 18-in LFG Header Line	16,000	lf	$110.00	$1,760,000		$3,360,065		Perimeter Only
LFG Well Heads	321	ea	$250.00	$80,250		$153,208		
Flare System	1	ls	$2,000,000.00	$2,000,000		$3,818,256		
Condensate Sumps	10	ea	$500.00	$5,000		$9,546		1 per cell
2-in SDR 9 HDPE Condensate Piping	32,100	lf	$20.00	$642,000		$1,225,660		100 feet per well
2-in SDR 9 HDPE Pneumatic Piping	32,100	lf	$20.00	$642,000		$1,225,660		100 feet per well
LFG Perimeter Monitoring Probes	8	ea	$6,000.00	$48,000		$91,638		Assume average 50-foot depth for each @ $120/ft
Decomission & Replace Suction Lysimeters	1	ls	$20,000.00	$20,000		$38,183		
Leachate Collection and Removal System								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh.xlsx, Sheet "Table 5 (1a)"
Design	1	ls	$100,000.00	$100,000		$190,913		Plan Concept 1 has a higher level of complexity to manage leachate. Leachate piping/sump configuration and groundwater depth may impact airspace and module capacity. Presumably, whatever capacity is lost can be added by going to a higher fill height. The complexity associated with leachate management in Plan Concept 1 is expected to be covered by the applied contingency factor.
Mobilization/Demobilization	3	ls	$15,000.00	$45,000		$85,911		
Layout of Work and Surveys	3	ls	$30,000.00	$90,000		$171,822		
Waste Excavation	443,000	cy	$15.00	$6,645,000		$12,686,156		
Extend LCRS System	3	ea	$30,000.00	$90,000		$171,822		
Remove and Dispose of Side Slope Liner	136,000	sf	$0.20	$27,200		$51,928		
Stormwater Controls	3	ea	$4,000.00	$12,000		$22,910		
Stormwater Pollution Prevention Plan Preparation	3	ea	$7,800.00	$23,400		$44,674		
Stormwater Pollution Prevention Plan Implementation	3	ea	$15,000.00	$45,000		$85,911		
Unlined Area Waste Excavation					**$42,670,200**		**$81,462,874**	
Unlined Unit - Waste Excavation and Relocation								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh.xlsx, Sheet "Table 5 (1a)"
Design and Permitting	4	ea	$100,000.00	$400,000		$763,651		Assumes 4 cells
Mobilization/Demobilization	5	ea	$15,000.00	$75,000		$143,185		Assumes 4 cells + waste removal
Layout of Work and Surveys	5	ea	$30,000.00	$150,000		$286,369		Assumes 4 cells + waste removal
Remove Waste in Unlined Unit	3,646,000	cy	$11.50	$41,929,000		$80,047,828		Cost source: Waste Excavation and Relocation Cost Comparison.xlsx
Subgrade Preparation	0	sf	$0.15	$0		$0		Re-construction under New Landfill element above
Geosynthetic Clay Liner	0	sf	$0.80	$0		$0		Re-construction under New Landfill element above
60-mil HDPE Double Sided Textured Geomembrane	0	sf	$0.75	$0		$0		Re-construction under New Landfill element above
60-mil White Single Sided Textured HDPE Geomembrane	0	sf	$0.75	$0		$0		Re-construction under New Landfill element above
Geocomposite	0	sf	$0.80	$0		$0		Re-construction under New Landfill element above
8oz/sy Nonwoven Geotextile	0	sf	$0.20	$0		$0		Re-construction under New Landfill element above
Anchor Trenches	0	lf	$13.00	$0		$0		Re-construction under New Landfill element above
Drainage Layer	0	cy	$38.00	$0		$0		Re-construction under New Landfill element above
Base Operations Layer	0	cy	$5.60	$0		$0		Re-construction under New Landfill element above
Side Slope Operations Layer	0	cy	$6.50	$0		$0		Re-construction under New Landfill element above
6-inch Diameter SDR 11 HDPE LCRS Pipe	0	lf	$20.00	$0		$0		Re-construction under New Landfill element above
Rip Rap	0	ls	$30,000.00	$0		$0		Re-construction under New Landfill element above
Leak Detection Survey	0	ls	$17,000.00	$0		$0		Re-construction under New Landfill element above
Revegetation	0	ac	$1,500.00	$0		$0		Re-construction under New Landfill element above
CMP Culverts	200	lf	$75.00	$15,000		$28,637		
Stormwater Controls	4	ea	$2,500.00	$10,000		$19,091		
Stormwater Pollution Prevention Plan Preparation	4	ea	$7,800.00	$31,200		$59,565		
Stormwater Pollution Prevention Plan Implementation	4	ea	$15,000.00	$60,000		$114,548		
Landfill Closure					**$41,529,520**		**$79,285,170**	
Closure Construction Cost								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh.xlsx, Sheet "PC 1 Closure"; assume closure is 321 ac consistent with estimated postclosure acres
Mobilization/Demobilization	9	ls	$75,000.00	$675,000		$1,288,661		Assumes partial closure completed in 9 events
Vegetative Layer	549,000	cy	$4.70	$2,580,300		$4,926,123		
Geocomposite	14,821,201	sf	$0.70	$10,374,841		$19,806,899		
60-mil HDPE DST Geomembrane	14,821,201	sf	$0.66	$9,781,993		$18,675,076		
Geosynthetic Clay Liner	14,821,201	sf	$0.78	$11,560,537		$22,070,544		
2-foot Foundation Layer	1,098,000	cy	$4.70	$5,160,600		$9,852,246		
Anchor Trenches	3,000	lf	$13.00	$39,000		$74,456		
Bench V-Ditches	39,400	lf	$10.00	$394,000		$752,196		
Top Deck Berms	10,195	lf	$10.00	$101,950		$194,636		
CMP Downdrains	7,000	lf	$50.00	$350,000		$668,195		
Drain Inlets	45	ea	$100.00	$4,500		$8,591		
Revegetation	321	ac	$1,500.00	$481,500		$919,245		
Stormwater Controls	1	ea	$2,500.00	$2,500		$4,773		
Stormwater Pollution Prevention Plan Preparation	1	ea	$7,800.00	$7,800		$14,891		
Stormwater Pollution Prevention Plan Implementation	1	ea	$15,000.00	$15,000		$28,637		
Subtotal				$192,145,990	**$192,145,990**	$366,831,289	**$366,831,289**	
Contractor Markups and General Conditions					**$51,110,833**			
Contractor Home Office			*5.0%*	$9,607,299				
Contractor General Conditions			*8.0%*	$15,371,679				
Contractor Fee			*8.0%*	$15,371,679				
Project Bond/Insurance			*2.6%*	$4,995,796				
Mobilization/Demobilization			*3.0%*	$5,764,380				
Probable Construction Cost					**$243,256,823**			
Contingencies					**$72,977,047**			
Facility design allowances based on level of design	1	PER	25%	$60,814,206				
Market adjustment factor	1	PER	5%	$12,162,841				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$50,597,419**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$25,298,710				
Construction management fee	1	PER	8.0%	$25,298,710				

Total Probable Cost		**$366,832,000**
Low Range	**-30%**	**$256,783,000**
High Range	**50%**	**$550,248,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Admin Staff Bldg (10,000 sf or 100' x 100')					**$8,115,500**		**$15,493,528**	
Admin Building								
Standard office	12,400	sf	*$650.00*	$8,060,000		$15,387,572		Assume 12,400 sf office building (incl 2,400 sf education center); standalone building
Utility Connections								
Potable water connection	150	LF	$70.00	$10,500		$20,046		Stubbed from new utility corridor along Fiddyment Rd
Sanitary sewer connection	150	LF	$85.00	$12,750		$24,341		Stubbed from new utility corridor along Fiddyment Rd
Electrical tie-in to transformer	150	LF	$75.00	$11,250		$21,478		Stubbed from new utility corridor along Fiddyment Rd, 120/220 V single phase service
Telecom connection	150	LF	$60.00	$9,000		$17,182		Stubbed from new utility corridor along Fiddyment Rd
Natural gas connection	150	LF	$80.00	$12,000		$22,910		Stubbed from new utility corridor along Fiddyment Rd
Admin Staff Parking (25,000 sf)					**$90,399**		**$172,583**	
Parking Lot								
Subgrade, agg base	620	CY	$22.00	$13,649		$26,057		Assuming 25,000 sf parking lot, including ADA spaces
Asphalt	625	TN	$110.00	$68,750		$131,253		
Striping, signs	1	LS	$8,000.00	$8,000		$15,273		
Subtotal				$8,205,899	**$8,205,899**	$15,666,111	**$15,666,111**	
Contractor Markups and General Conditions					**$2,182,769**			
Contractor Home Office			*5.0%*	$410,295				
Contractor General Conditions			*8.0%*	$656,472				
Contractor Fee			*8.0%*	$656,472				
Project Bond/Insurance			*2.6%*	$213,353				
Mobilization/Demobilization			*3.0%*	$246,177				
Probable Construction Cost					**$10,388,668**			
Contingencies					**$3,116,600**			
Facility design allowances based on level of design	1	PER	25%	$2,597,167				
Market adjustment factor	1	PER	5%	$519,433				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$2,160,843**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$1,080,421				
Construction management fee	1	PER	8.0%	$1,080,421				
			Total Probable Cost		**$15,667,000**			
			Low Range	**-30%**	**$10,967,000**			
			High Range	**50%**	**$23,501,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Main Entrance - Roadways					**$420,500**		**$802,788**	
Earthworks, Pads and Roadways (45' development width assumed)								
Roadway - Single Lane	950	LF	$290.00	$275,500		$525,965		
Roadway - Double Lane	250	LF	$580.00	$145,000		$276,824		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Main Entrance - Scale/Building					**$611,133**		**$1,166,732**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	1,000	SY	*$1.30*	$1,300		$2,482		
Fine grade site, machine	1,000	SY	*$1.20*	$1,200		$2,291		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	1,000	SY	*$1.30*	$1,300		$2,482		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	37	CY	*$36.00*	$1,333		$2,546		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Scale Building and Scales								
20' Pre-fab Office Trailer	1	LS	$24,000.00	$24,000		$45,819		
Truck scale (100') supply and install include concrete footings	3	LS	$100,000.00	$300,000		$572,738		Assume 2 scales incoming, 1 scale outgoing
Allowance for concrete approach slabs (2 per scale deck)	4	LS	$5,000.00	$20,000		$38,183		
Allowance for traffic lights/gates/signs	1	LS	$20,000.00	$20,000		$38,183		
Allowance for CCTV system	1	LS	$10,000.00	$10,000		$19,091		
Utility Connections								
Potable water connection	800	LF	$70.00	$56,000		$106,911		Stubbed from old scalehouse
Sanitary sewer connection	800	LF	$85.00	$68,000		$129,821		Stubbed from old scalehouse
Electrical tie-in to transformer	800	LF	$75.00	$60,000		$114,548		Stubbed from old scalehouse; 120/220 V single phase service
Telecom connection	800	LF	$60.00	$48,000		$91,638		Stubbed from old scalehouse
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$1,031,633	**$1,031,633**	$1,969,520	**$1,969,520**	
Contractor Markups and General Conditions					**$274,414**			
Contractor Home Office			*5.0%*	$51,582				
Contractor General Conditions			*8.0%*	$82,531				
Contractor Fee			*8.0%*	$82,531				
Project Bond/Insurance			*2.6%*	$26,822				
Mobilization/Demobilization			*3.0%*	$30,949				
Probable Construction Cost					**$1,306,048**			
Contingencies					**$391,814**			
Facility design allowances based on level of design	1	PER	25%	$326,512				
Market adjustment factor	1	PER	5%	$65,302				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$271,658**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$135,829				
Construction management fee	1	PER	8.0%	$135,829				

Total Probable Cost		**$1,970,000**
Low Range	**-30%**	**$1,379,000**
High Range	**50%**	**$2,955,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Western Entrance - Roadways					**$2,218,500**		**$4,235,400**	
Earthworks, Pads and Roadways (45' development width assumed)								
Roadway - Single Lane	6,750	LF	$290.00	$1,957,500		$3,737,118		
Roadway - Double Lane	450	LF	$580.00	$261,000		$498,282		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Western Entrance - Scale/Building					**$322,633**		**$615,948**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	1,000	SY	*$1.30*	$1,300		$2,482		
Fine grade site, machine	1,000	SY	*$1.20*	$1,200		$2,291		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	1,000	SY	*$1.30*	$1,300		$2,482		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	37	CY	*$36.00*	$1,333		$2,546		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Scale Building and Scales								
20' Pre-fab Office Trailer	1	LS	$24,000.00	$24,000		$45,819		
Truck scale (100') supply and install include concrete footings	2	LS	$100,000.00	$200,000		$381,826		Assume 1 incoming and 1 outgoing
Allowance for concrete approach slabs (2 per scale deck)	4	LS	$5,000.00	$20,000		$38,183		
Allowance for traffic lights/gates/signs	1	LS	$20,000.00	$20,000		$38,183		
Allowance for CCTV system	1	LS	$10,000.00	$10,000		$19,091		
Utility Connections								
Potable water connection	150	LF	$70.00	$10,500		$20,046		Stubbed from Fiddyment Rd utility corridor
Sanitary sewer connection	150	LF	$85.00	$12,750		$24,341		Stubbed from Fiddyment Rd utility corridor
Electrical tie-in to transformer	150	LF	$75.00	$11,250		$21,478		Stubbed from Fiddyment Rd utility corridor; 120/220 V single phase service
Telecom connection	150	LF	$60.00	$9,000		$17,182		Stubbed from Fiddyment Rd utility corridor
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$2,541,133	**$2,541,133**	$4,851,349	**$4,851,349**	
Contractor Markups and General Conditions					**$675,941**			
Contractor Home Office			*5.0%*	$127,057				
Contractor General Conditions			*8.0%*	$203,291				
Contractor Fee			*8.0%*	$203,291				
Project Bond/Insurance			*2.6%*	$66,069				
Mobilization/Demobilization			*3.0%*	$76,234				
Probable Construction Cost					**$3,217,075**			
Contingencies					**$965,122**			
Facility design allowances based on level of design	1	PER	25%	$804,269				
Market adjustment factor	1	PER	5%	$160,854				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$669,152**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$334,576				
Construction management fee	1	PER	8.0%	$334,576				

Total Probable Cost		**$4,852,000**
Low Range	**-30%**	**$3,397,000**
High Range	**50%**	**$7,278,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Overpass					**$4,860,037**		**$9,278,433**	
AC Paving	28000	SF	$4.00	$112,000		$213,822		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Aggregate Base	28000	SF	$2.00	$56,000		$106,911		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Embankment	11852	CY	$20	$237,037		$452,534		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Retaining Wall	19200	SF	$150	$2,880,000		$5,498,289		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Structure	5250	SF	$300	$1,575,000		$3,006,877		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Subtotal				$4,860,037	**$4,860,037**	$9,278,433	**$9,278,433**	
Contractor Markups and General Conditions					**$1,292,770**			
Contractor Home Office			*5.0%*	$243,002				
Contractor General Conditions			*8.0%*	$388,803				
Contractor Fee			*8.0%*	$388,803				
Project Bond/Insurance			*2.6%*	$126,361				
Mobilization/Demobilization			*3.0%*	$145,801				
Probable Construction Cost					**$6,152,807**			
Contingencies					**$1,845,842**			
Facility design allowances based on level of design	1	PER	25%	$1,538,202				
Market adjustment factor	1	PER	5%	$307,640				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,279,784**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$639,892				
Construction management fee	1	PER	8.0%	$639,892				

Total Probable Cost		**$9,279,000**
Low Range	**-30%**	**$6,496,000**
High Range	**50%**	**$13,919,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Recyclables Storage Building					**$4,281,715**		**$8,174,342**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	1,300	CY	*$3.90*	$5,070		$9,679		
Subgrade preparation	650	SY	*$1.30*	$845		$1,613		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	650	CY	*$36.00*	$23,400		$44,674		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	650	SY	*$65.00*	$42,250		$80,661		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Allowance for asphalt removal for footings	1	LS	$10,000.00	$10,000		$19,091		Cutting/removal of existing asphalt. Disposal onsite.
Storage Building (175' x 400')								
Strip Footings	1,150	LF	*$176.00*	$202,400		$386,408		
Slab-on-Grade concrete floor (8")	70,000	SF	*$12.00*	$840,000		$1,603,668		
Pre-Engineered Metal Building w/side walls	70,000	SF	$35.00	$2,450,000		$4,677,364		
Lighting, Conduit, Wire & Receptacles	70,000	SF	$5.70	$399,000		$761,742		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	0	SF	$135.00	$0		$0		
Man doors	7	EA	$2,000.00	$14,000		$26,728		
Overhead vertical doors (12' wide)	6	EA	$11,000.00	$66,000		$126,002		Historical cost
Allowance for fire alarms/sprinkler system	70,000	SF	$3.00	$210,000		$400,917		MEANS D4010
Allowance for security system	0	LS	$0.00	$0		$0		
Allowance for CCTV system	0	LS	$0.00	$0		$0		
Allowance for warehouse shelving	0	LS	$20,000.00	$0		$0		Historical cost
Aboveground 2x-walled 9500 L fuel storage tank/pump	0	EA	$11,000.00	$0		$0		$9500 purchase + $1500 allowance for delivery/install
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Incl in staff building
Sanitary sewer connection	0	LF	$0.00	$0		$0		Incl in staff building
Electrical tie-in to transformer	250	LF	$75.00	$18,750		$35,796		
Telecom connection	0	LF	$0.00	$0		$0		Incl in staff building
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Subtotal				$4,281,715	**$4,281,715**	$8,174,342	**$8,174,342**	
Contractor Markups and General Conditions					**$1,138,936**			
Contractor Home Office			*5.0%*	$214,086				
Contractor General Conditions			*8.0%*	$342,537				
Contractor Fee			*8.0%*	$342,537				
Project Bond/Insurance			*2.6%*	$111,325				
Mobilization/Demobilization			*3.0%*	$128,451				
Probable Construction Cost					**$5,420,651**			
Contingencies					**$1,626,195**			
Facility design allowances based on level of design	1	PER	25%	$1,355,163				
Market adjustment factor	1	PER	5%	$271,033				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,127,495**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$563,748				
Construction management fee	1	PER	8.0%	$563,748				

Total Probable Cost		**$8,175,000**
Low Range	**-30%**	**$5,723,000**
High Range	**50%**	**$12,263,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Primary Maintenance - Maintenance Area (250' x 300')					**$965,120**		**$1,842,538**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	0	SY	*$1.30*	$0		$0		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	0	CY	*$36.00*	$0		$0		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Allowance for ashphalt removal	1	LS	$75,000.00	$75,000		$143,185		Cutting/removal of existing asphalt. Disposal onsite.
4-Bay Building (75' x 160')								
Strip Footings	470	LF	*$176.00*	$82,720		$157,923		
Slab-on-Grade concrete floor (8")	12,000	SF	*$12.00*	$144,000		$274,914		
Pre-Engineered Metal Building w/side walls	12,000	SF	$35.00	$420,000		$801,834		
Lighting, Conduit, Wire & Receptacles	12,000	SF	$5.70	$68,400		$130,584		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$38,660		
Man doors	7	EA	$2,000.00	$14,000		$26,728		
Overhead vertical doors (12' wide)	4	EA	$11,000.00	$44,000		$84,002		Historical cost
Allowance for fire alarms/sprinkler system	12,000	SF	$3.00	$36,000		$68,729		MEANS D4010
Allowance for security system	0	LS	$0.00	$0		$0		
Allowance for CCTV system	0	LS	$0.00	$0		$0		
Allowance for warehouse shelving	1	LS	$20,000.00	$20,000		$38,183		Historical cost
Aboveground 2x-walled 9500 L fuel storage tank/pump	2	EA	$11,000.00	$22,000		$42,001		$9500 purchase + $1500 allowance for delivery/install
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Incl in staff building
Sanitary sewer connection	0	LF	$0.00	$0		$0		Incl in staff building
Electrical tie-in to transformer	250	LF	$75.00	$18,750		$35,796		
Telecom connection	0	LF	$0.00	$0		$0		Incl in staff building
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Subtotal				$965,120	**$965,120**	$1,842,538	**$1,842,538**	
Contractor Markups and General Conditions					**$256,722**			
Contractor Home Office			*5.0%*	$48,256				
Contractor General Conditions			*8.0%*	$77,210				
Contractor Fee			*8.0%*	$77,210				
Project Bond/Insurance			*2.6%*	$25,093				
Mobilization/Demobilization			*3.0%*	$28,954				
Probable Construction Cost					**$1,221,842**			
Contingencies					**$366,553**			
Facility design allowances based on level of design	1	PER	25%	$305,460				
Market adjustment factor	1	PER	5%	$61,092				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$254,143**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$127,072				
Construction management fee	1	PER	8.0%	$127,072				
			Total Probable Cost		**$1,843,000**			
			Low Range	**-30%**	**$1,291,000**			
			High Range	**50%**	**$2,765,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Satellite Maintenance and Staff - Maintenance Area (250' x 300')					**$1,254,184**		**$2,394,397**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	8,334	SY	*$1.30*	$10,834		$20,684		
Fine grade site, machine	8,334	SY	*$1.20*	$10,001		$19,093		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	8,334	SY	*$1.30*	$10,834		$20,684		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	309	CY	*$36.00*	$11,112		$21,214		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	8,334	SY	*$65.00*	$541,710		$1,034,194		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
3-Bay Building (65' x 125')								
Strip Footings	380	LF	*$176.00*	$66,880		$127,682		
Slab-on-Grade concrete floor (8")	8,125	SF	*$12.00*	$97,500		$186,140		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	8,125	SF	$35.00	$284,375		$542,908		
Lighting, Conduit, Wire & Receptacles	8,125	SF	$5.70	$46,313		$88,416		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$38,660		
Man doors	5	EA	$2,000.00	$10,000		$19,091		
Overhead vertical doors (12' wide)	3	EA	$11,000.00	$33,000		$63,001		Historical cost
Allowance for fire alarms/sprinkler system	8,125	SF	$3.00	$24,375		$46,535		MEANS D4010
Allowance for security system	0	LS	$0.00	$0		$0		
Allowance for CCTV system	0	LS	$0.00	$0		$0		
Allowance for warehouse shelving	1	LS	$20,000.00	$20,000		$38,183		Historical cost
Aboveground 2x-walled 9500 L fuel storage tank/pump	2	EA	$11,000.00	$22,000		$42,001		$9500 purchase + $1500 allowance for delivery/install
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Incl in staff building
Sanitary sewer connection	0	LF	$0.00	$0		$0		Incl in staff building
Electrical tie-in to transformer	500	LF	$75.00	$37,500		$71,592		
Telecom connection	0	LF	$0.00	$0		$0		Incl in staff building
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Satellite Maintenance and Staff - Staff Bldg and Parking Area (100' x 220')					**$480,476**		**$917,290**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,445	SY	*$1.30*	$3,179		$6,068		
Fine grade site, machine	2,445	SY	*$1.20*	$2,934		$5,601		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	2,445	SY	*$1.30*	$3,179		$6,068		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	91	CY	*$36.00*	$3,260		$6,224		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	2,445	SY	*$65.00*	$158,925		$303,408		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Staff Building								
60' Pre-fab Changeroom Contruction Trailer	2	LS	$90,000.00	$180,000		$343,643		
Utility Connections								
Potable water connection	600	LF	$70.00	$42,000		$80,183		
Sanitary sewer connection	600	LF	$85.00	$51,000		$97,366		
Electrical tie-in to transformer	0	LF	$75.00	$0		$0		Incl in maintenance building
Telecom connection	600	LF	$60.00	$36,000		$68,729		
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$1,734,660	**$1,734,660**	$3,311,687	**$3,311,687**	
Contractor Markups and General Conditions					**$461,419**			
Contractor Home Office			*5.0%*	$86,733				
Contractor General Conditions			*8.0%*	$138,773				
Contractor Fee			*8.0%*	$138,773				
Project Bond/Insurance			*2.6%*	$45,101				
Mobilization/Demobilization			*3.0%*	$52,040				
Probable Construction Cost					**$2,196,079**			
Contingencies					**$658,824**			
Facility design allowances based on level of design	1	PER	25%	$549,020				
Market adjustment factor	1	PER	5%	$109,804				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$456,784**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$228,392				
Construction management fee	1	PER	8.0%	$228,392				
			Total Probable Cost		**$3,312,000**			
			Low Range	**-30%**	**$2,319,000**			
			High Range	**50%**	**$4,968,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
New Storm Water Ponds					**$1,601,800**		**$3,058,040**	
C&D Stormwater Pond								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 100-year storm
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$80,000.00	$80,000		$152,730		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Clearing and Grubbing	6,667	SY	$1.30	$8,667		$16,546		
Excavation	8,028	CY	$2.50	$20,071		$38,318		
Landfill Stormwater Pond								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 100-year storm
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$150,000.00	$150,000		$286,369		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Unload Geosynthetics	1	LS	$20,000.00	$20,000		$38,183		
Clearing and Grubbing	54,500	SY	$1.30	$70,850		$135,262		
Excavation	103,316	CY	$2.50	$258,290		$493,109		
HDPE Double-Sided Textured Geomembrane	493,240	SF	$1.60	$789,184		$1,506,653		
Public Area Stormwater Pond								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 100-year storm
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$80,000.00	$80,000		$152,730		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Clearing and Grubbing	8,000	SY	$1.30	$10,400		$19,855		
Excavation	9,735	CY	$2.50	$24,338		$46,464		
Subtotal				$1,601,800	**$1,601,800**	$3,058,040	**$3,058,040**	
Contractor Markups and General Conditions					**$426,079**			
Contractor Home Office			*5.0%*	$80,090				
Contractor General Conditions			*8.0%*	$128,144				
Contractor Fee			*8.0%*	$128,144				
Project Bond/Insurance			*2.6%*	$41,647				
Mobilization/Demobilization			*3.0%*	$48,054				
Probable Construction Cost					**$2,027,878**			
Contingencies					**$608,363**			
Facility design allowances based on level of design	1	PER	25%	$506,970				
Market adjustment factor	1	PER	5%	$101,394				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$421,799**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$210,899				
Construction management fee	1	PER	8.0%	$210,899				

Total Probable Cost		**$3,059,000**
Low Range	**-30%**	**$2,142,000**
High Range	**50%**	**$4,589,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
HHW Building (65' x 75')					**$124,125**		**$236,971**	
Earthworks, Pads and Roadways								No new pad needed since building upgrade
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	0	SY	*$1.30*	$0		$0		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	0	CY	*$36.00*	$0		$0		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
2-Bay Building Upgrades (65' x 75')								
Strip Footings	0	LF	*$176.00*	$0		$0		
Slab-on-Grade concrete floor (8")	0	SF	*$12.00*	$0		$0		
Pre-Engineered Metal Building w/side walls	0	SF	$35.00	$0		$0		
Lighting, Conduit, Wire & Receptacles	0	SF	$5.70	$0		$0		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	0	SF	$135.00	$0		$0		
Man doors	0	EA	$2,000.00	$0		$0		
Overhead vertical doors (12' wide)	0	EA	$11,000.00	$0		$0		Historical cost
Allowance for fire alarms/sprinkler system	4,875	SF	$3.00	$14,625		$27,921		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,546		
Allowance for CCTV system	0	LS	$0.00	$0		$0		
Allowance for warehouse shelving	1	LS	$20,000.00	$20,000		$38,183		Historical cost
Aboveground 2x-walled 9500 L storage tanks	2	EA	$11,000.00	$22,000		$42,001		$9500 purchase + $1500 allowance for delivery/install
Allowance for misc concrete floor work (sills, ramps)	1	LS	$10,000.00	$10,000		$19,091		
Allowance for epoxy coating of existing concrete floor	1	LS	$10,000.00	$10,000		$19,091		
Allowance for upgrades to electrical fixtures/recepticles/junction boxes	1	LS	$15,000.00	$15,000		$28,637		
Allowance for material handling/spill containment equipment	1	LS	$20,000.00	$20,000		$38,183		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Incl in staff building
Sanitary sewer connection	0	LF	$0.00	$0		$0		Incl in staff building
Electrical tie-in to transformer	0	LF	$75.00	$0		$0		
Telecom connection	0	LF	$0.00	$0		$0		Incl in staff building
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Subtotal				$124,125	**$124,125**	$236,971	**$236,971**	
Contractor Markups and General Conditions					**$33,017**			
Contractor Home Office			*5.0%*	$6,206				
Contractor General Conditions			*8.0%*	$9,930				
Contractor Fee			*8.0%*	$9,930				
Project Bond/Insurance			*2.6%*	$3,227				
Mobilization/Demobilization			*3.0%*	$3,724				
Probable Construction Cost					**$157,142**			
Contingencies					**$47,143**			
Facility design allowances based on level of design	1	PER	25%	$39,286				
Market adjustment factor	1	PER	5%	$7,857				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$32,686**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$16,343				
Construction management fee	1	PER	8.0%	$16,343				

Total Probable Cost		**$237,000**
Low Range	**-30%**	**$166,000**
High Range	**50%**	**$356,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Compost Pond Removal					**$113,994**		**$217,629**	
Compost Pond Removal								Pond Removal.xlsx; Costs from Golder WRSL Cost Estimate
Design and Permitting	1	ea	$50,000.00	$50,000		$95,456		
Mobilization/Demobilization	1	ea	$10,000.00	$10,000		$19,091		
Excavation	4,004	cy	$3.00	$12,011		$22,931		
Earthfill	10,038	cy	$4.00	$40,153		$76,657		
Revegetation	1	ac	$1,500.00	$1,830		$3,494		
Subtotal				$113,994	**$113,994**	$217,629	**$217,629**	
Contractor Markups and General Conditions					**$30,322**			
Contractor Home Office			*5.0%*	$5,700				
Contractor General Conditions			*8.0%*	$9,120				
Contractor Fee			*8.0%*	$9,120				
Project Bond/Insurance			*2.6%*	$2,964				
Mobilization/Demobilization			*3.0%*	$3,420				
Probable Construction Cost					**$144,316**			
Contingencies					**$43,295**			
Facility design allowances based on level of design	1	PER	25%	$36,079				
Market adjustment factor	1	PER	5%	$7,216				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$30,018**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$15,009				
Construction management fee	1	PER	8.0%	$15,009				

Total Probable Cost		**$218,000**
Low Range	**-30%**	**$153,000**
High Range	**50%**	**$327,000**

Rough Order of Magnitude (Class 4) Cost Opinion **DRAFT**
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Special Permits					**$8,281,963**		**$8,281,963**	
Solid Waste Facility Permitting								Source: permit_list.xlsx
Landfill	0	LS	$0.00	$0		$0		Assume already covered in LF Modules sheet
Compost facility	1	LS	$4,427,575.85	$4,427,576		$4,427,576		Assume cost is 10% of total capital for Compost (Common Pads + Compost Option 4)
Environmental/ Land Use/ Local Permitting								
Entire facility	1	LS	$3,854,387.00	$3,854,387		$3,854,387		Assume cost is 2% of landfill construction capital cost applied 2 years before the landfill construction on eastern property
Geotechnical Investigations					**$180,000**		**$180,000**	
Geotechnical Investigation								
Allowance for geotechnical investigation	6	LS	$30,000.00	$180,000		$180,000		Assume 2 per parcel
Subtotal				$8,461,963	**$8,461,963**	$8,461,963	**$8,461,963**	
Contractor Markups and General Conditions					**$0**			No contractor markups for permitting
Contractor Home Office			*0.0%*	$0				
Contractor General Conditions			*0.0%*	$0				
Contractor Fee			*0.0%*	$0				
Project Bond/Insurance			*0.0%*	$0				
Mobilization/Demobilization			*0.0%*	$0				
Probable Construction Cost					**$8,461,963**			
Contingencies					**$0**			
Facility design allowances based on level of design	1	PER	0%	$0				Contingency already built into costs from Landfill and Compost
Market adjustment factor	1	PER	0%	$0				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$0**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	0.0%	$0				Permitting fee built in
Construction management fee	1	PER	0.0%	$0				No construction management fee
			Total Probable Cost		**$8,462,000**			
			Low Range	**-30%**	**$5,924,000**			
			High Range	**50%**	**$12,693,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Wetlands Mitigation					**$8,539,860**		**$12,878,109**	
Wetlands Mitigation								Source: CostAnalysis_WetlandImpacts_GISData_10262018.xlsx
Vernal pools mitigation	9.6	EA	$300,000.00	$2,883,420		$4,348,197		Assume 3:1 mitigation area for vernal pools only per Jacobs biologist, 10/25/2018
Everything but agricultural ponds, Irrigated wetland	17.5	EA	$300,000.00	$5,257,020		$7,927,586		Assume 2:1 mitigation area on everything else, incl swales, except agricultural ponds, irrigated wetland per Jacobs biologist, 10/25/2018
Agricultural ponds, Irrigated wetland	1.3	EA	$300,000.00	$399,420		$602,325		Assume 1:1 on mitigation area on agricultural ponds, irrigated wetland per Jacobs biologist, 10/25/2018
Subtotal				$8,539,860	**$8,539,860**	$12,878,109	**$12,878,109**	
Contractor Markups and General Conditions					**$0**			No contractor markups
Contractor Home Office			*0.0%*	$0				
Contractor General Conditions			*0.0%*	$0				
Contractor Fee			*0.0%*	$0				
Project Bond/Insurance			*0.0%*	$0				
Mobilization/Demobilization			*0.0%*	$0				
Probable Construction Cost					**$8,539,860**			
Contingencies					**$2,561,958**			
Facility design allowances based on level of design	1	PER	25%	$2,134,965				
Market adjustment factor	1	PER	5%	$426,993				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,776,291**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$888,145				
Construction management fee	1	PER	8.0%	$888,145				

Total Probable Cost		**$12,879,000**
Low Range	**-30%**	**$9,016,000**
High Range	**50%**	**$19,319,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Facility Beautification					**$1,412,973**		**$2,697,547**	
Irrigation from existing non-potable water source								
Main irrigation control system (8-station controller)	1	LS	$2,400.00	$2,400		$4,582		
Valve stations (up to 8 valve assemblies)	8	EA	$1,200.00	$9,600		$18,328		Includes valves and solenoids
Irrigation main piping and trenching	27,320	LF	$14.00	$382,480		$730,203		Assume perimeter of western property + perimeter of main and eastern merged; mixed vegetation for commercial property; assume 3/4-inch PVC pipe, minimum 12 inch deep
Lateral piping	13,660	LF	$12.00	$163,920		$312,944		Assume lateral piping is 50% of main piping, includes sprinkler heads
Signal wiring	2,732	LF	$0.80	$2,186		$4,173		Assume connection to valve stations; 10% of main piping
Tie-in connection to existing main header	1	EA	$700.00	$700		$1,336		
Enhanced vegetation								
Topsoil	5,059	CY	$30.00	$151,778		$289,763		Imported topsoil spread along perimeter, 10 ft wide x 6" depth
Vegetation along perimeter of site	27,320	LF	$3.00	$81,960		$156,472		Assume perimeter of Public and Composting on western property + perimeter of main and eastern merged; mixed vegetation for commercial property
Landscaping/vegetation at new admin building	1,000	SF	$2.00	$2,000		$3,818		Assume 1,000 sf; mixed vegetation (trees, shrubs) for commercial property
Landscaping/vegetation at main entrance	500	SF	$3.00	$1,500		$2,864		Assume 500 sf; mixed vegetation (trees, shrubs) for commercial property
Fencing								
6-ft chain link or comparable	16,870	LF	$35.00	$590,450		$1,127,245		Assume existing fencing will be used; this is only new fencing to enclose new Public/Composting on western property and landfill on eastern property
Fence gates for maintenance truck access, if needed	8	EA	$3,000.00	$24,000		$45,819		Assume 8 gates, sliding, manual
Subtotal				$1,412,973	**$1,412,973**	$2,697,547	**$2,697,547**	
Contractor Markups and General Conditions					**$375,851**			
Contractor Home Office			*5.0%*	$70,649				
Contractor General Conditions			*8.0%*	$113,038				
Contractor Fee			*8.0%*	$113,038				
Project Bond/Insurance			*2.6%*	$36,737				
Mobilization/Demobilization			*3.0%*	$42,389				
Probable Construction Cost					**$1,788,824**			
Contingencies					**$536,647**			
Facility design allowances based on level of design	1	PER	25%	$447,206				
Market adjustment factor	1	PER	5%	$89,441				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$372,075**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$186,038				
Construction management fee	1	PER	8.0%	$186,038				

Total Probable Cost		**$2,698,000**
Low Range	**-30%**	**$1,889,000**
High Range	**50%**	**$4,047,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Site-wide Demolition and Disposal					**$1,501,708**		**$2,866,952**	
Demolition of existing infrastructure								
Pad demolition	19,531	CY	$55.00	$1,074,231		$2,050,844		Assume 9" thick pads, existing public area demo and partial C&D pad demo
Building demolition	11,111	CY	$4.00	$44,444		$84,850		Assume three 100'x100'x50' building demo with density factor 0.2
Demolition debris disposal	15,321	CY	$25.00	$383,032		$731,258		Assume half of demolition debris can be disposed of onsite (no cost)
Subtotal				$1,501,708	**$1,501,708**	$2,866,952	**$2,866,952**	
Contractor Markups and General Conditions					**$399,454**			
Contractor Home Office			*5.0%*	$75,085				
Contractor General Conditions			*8.0%*	$120,137				
Contractor Fee			*8.0%*	$120,137				
Project Bond/Insurance			*2.6%*	$39,044				
Mobilization/Demobilization			*3.0%*	$45,051				
Probable Construction Cost					**$1,901,162**			
Contingencies					**$570,349**			
Facility design allowances based on level of design	1	PER	25%	$475,290				
Market adjustment factor	1	PER	5%	$95,058				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$395,442**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$197,721				
Construction management fee	1	PER	8.0%	$197,721				

Total Probable Cost		**$2,867,000**
Low Range	**-30%**	**$2,007,000**
High Range	**50%**	**$4,301,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Shared Site Utilities					**$1,978,100**		**$3,776,446**	
Sewer line extension								
Sewer line piping	5,300	LF	$280.00	$1,484,000		$2,833,146		Assume 36" diameter or other standard size for sanitary sewer through industrial zone; length is along Fiddyment Rd between Sunset Blvd and Athens Ave
Stub-out for future connections	2	EA	$12,000.00	$24,000		$45,819		Need utility interchange at Fiddyment/Athens, including stubs and blind flange for any future connection
Manhole	10.6	EA	$9,000.00	$95,400		$182,131		Assume manhole every 500 lf
Fire Water Line around western Public and Composting areas								
Fire Water Line Piping	5,500	LF	$50.00	$275,000		$525,010		6" HDPE line, loop system around area.
Fittings (15% of line installation cost)	1	EA	$41,250.00	$41,250		$78,752		
Hydrants	7	ea	$4,500.00	$31,500		$60,138		Assume hydrant every 800 lf per NFPA.
Shutoff Valves	7	ea	$850.00	$5,950		$11,359		Assume between each hydrant to allow maintenance to each
Backflow Preventer	2	ea	$10,500.00	$21,000		$40,092		Assume tied into existing water line at 2 locations to allow for loop system
Subtotal				$1,978,100	**$1,978,100**	$3,776,446	**$3,776,446**	
Contractor Markups and General Conditions					**$526,175**			
Contractor Home Office			*5.0%*	$98,905				
Contractor General Conditions			*8.0%*	$158,248				
Contractor Fee			*8.0%*	$158,248				
Project Bond/Insurance			*2.6%*	$51,431				
Mobilization/Demobilization			*3.0%*	$59,343				
Probable Construction Cost					**$2,504,275**			
Contingencies					**$751,282**			
Facility design allowances based on level of design	1	PER	25%	$626,069				
Market adjustment factor	1	PER	5%	$125,214				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$520,889**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$260,445				
Construction management fee	1	PER	8.0%	$260,445				

Total Probable Cost		**$3,777,000**
Low Range	**-30%**	**$2,644,000**
High Range	**50%**	**$5,666,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
MRF Upgrade to TS					**$217,778**		**$415,766**	
Earthworks								
Existing asphalt removal	111	CY	$30.00	$3,333		$6,364		Assume excavate two bays to install scales, 100 feet length by 20 feet width with 9" thick existing asphalt
Asphalt paving (9" thick)	222	SY	*$65.00*	$14,444		$27,576		
Scales and Instrumentation								
Truck scale (100') supply and install include concrete footings	2	LS	$100,000.00	$200,000		$381,826		
Subtotal				$217,778	**$217,778**	$415,766	**$415,766**	
Contractor Markups and General Conditions					**$57,929**			
Contractor Home Office			*5.0%*	$10,889				
Contractor General Conditions			*8.0%*	$17,422				
Contractor Fee			*8.0%*	$17,422				
Project Bond/Insurance			*2.6%*	$5,662				
Mobilization/Demobilization			*3.0%*	$6,533				
Probable Construction Cost					**$275,707**			
Contingencies					**$82,712**			
Facility design allowances based on level of design	1	PER	25%	$68,927				
Market adjustment factor	1	PER	5%	$13,785				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$57,347**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$28,673				
Construction management fee	1	PER	8.0%	$28,673				
			Total Probable Cost		**$416,000**			
			Low Range	**-30%**	**$292,000**			
			High Range	**50%**	**$624,000**			

Appendix 4A-2
Capital Cost Estimates
Plan Concept 2

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost w/ Markup, Cont., & Fee	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee
Plan Concept 2 Critical Elements					**$569,855,665**
Public Area					
Public Area - Roadways	1	LS	$1,799,189	$1,799,189	
Public Area - Buyback (220' x 230')	1	LS	$2,655,780	$2,655,780	
Public Area - HHW (300' x 100')	1	LS	$1,787,519	$1,787,519	
Public Area - Reuse Store Area (155' x 140')	1	LS	$1,909,078	$1,909,078	
Public Area - Tipping Area	1	LS	$8,856,534	$8,856,534	
C&D					
C&D - C&D Pad (1000' x 530')	1	LS	$10,175,809	$10,175,809	
C&D - Processing Line	1	LS	$7,922,881	$7,922,881	
Composting					
Compost - Green Waste Pad (210' x 225')	1	LS	$1,404,545	$1,404,545	
Compost - Wood Waste Pad (115' x 225')	1	LS	$769,156	$769,156	
Compost - Outdoor Receiving Area (90' x 200')	1	LS	$2,462,377	$2,462,377	
Compost - Screening and Product Storage Pad (400' x 350')	1	LS	$5,932,451	$5,932,451	
Compost - Temporary Positive ASP System	1	LS	$470,829	$470,829	
Compost - Active Composting System (205' x 880')	1	LS	$14,811,623	$14,811,623	
Compost - Biofilter (135' x 880')	1	LS	$5,122,623	$5,122,623	
Compost - ASP Curing System (185' x 880')	1	LS	$12,196,234	$12,196,234	
Compost - Dedicated Storm Water Ponds	1	LS	$1,057,713	$1,057,713	
Compost - Miscellaneous Equipment	1	LS	$12,409	$12,409	
Landfill					
Stockpile Relocation	1	LS	$26,727,792	$26,727,792	
Landfill Construction	1	LS	$254,936,766	$254,936,766	
Unlined Area Waste Excavation	1	LS	$102,344,916	$102,344,916	
Landfill Closure	1	LS	$106,499,440	$106,499,440	
Plan Concept 2 Necessary Supporting Elements					**$45,428,470**
Admin					
Admin Staff Bldg (10,000 sf or 100' x 100')	1	LS	$15,493,528	$15,493,528	
Admin Staff Parking (25,000 sf)	1	LS	$172,583	$172,583	
Main Entrance					
Main Entrance - Roadways	1	LS	$802,788	$802,788	
Main Entrance - Scale/Building	1	LS	$1,548,557	$1,548,557	
Western Entrance					
Western Entrance - Roadways	1	LS	$775,106	$775,106	
Western Entrance - Scale/Building	1	LS	$360,125	$360,125	
Overpass					
Overpass	1	LS	$9,278,433	$9,278,433	
Recovered Materials Storage					
Recyclables Storage Building	1	LS	$8,281,730	$8,281,730	
Primary Maintenance Facility					
Primary Maintenance - Maintenance Area (250' x 300')	1	LS	$1,842,538	$1,842,538	
Satellite Maintenance and Staff Facility					
Satellite Maintenance and Staff - Maintenance Area (250' x 300')	1	LS	$2,394,397	$2,394,397	
Satellite Maintenance and Staff - Staff Bldg and Parking Area (100' x 220')	1	LS	$0	$0	
Stormwater Pond					
New Storm Water Ponds	1	LS	$4,478,684	$4,478,684	
Plan Concept 2 Non-Critical Elements					**$0**
Main Site HHW Facility					
HHW Building (65' x 75')	1	LS	#N/A	Not included in concept	
Plan Concept 2 Existing Features to be Removed					**$217,629**
Compost Pond Removal					
Compost Pond Removal	1	LS	$217,629	$217,629	
Plan Concept 2 General Elements					**$24,862,737**
Special Permits and Allow					
Special Permits	1	LS	$6,973,364	$6,973,364	
Geotechnical Investigations	1	LS	$180,000	$180,000	
Wetlands Mitigation					
Wetlands Mitigation	1	LS	$8,222,370	$8,222,370	
Site Beautification					
Facility Beautification	1	LS	$3,143,189	$3,143,189	
Site-wide Demolition					
Site-wide Demolition and Disposal	1	LS	$2,866,952	$2,866,952	
Site Utilities					
Shared Site Utilities	1	LS	$3,061,096	$3,061,096	
MRF Upgrade to TS					
MRF Upgrade to TS	1	LS	$415,766	$415,766	
Total Probable Cost				$640,364,501	**$640,364,501**

Total Probable Cost		**$640,365,000**
Low Range	**-30%**	**$448,256,000**
High Range	**50%**	**$960,548,000**

Rough Order of Magnitude (Class 4) Cost Opinion **DRAFT**
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Common Construction Unit Rates	Unit Cost	Unit	Variable	Notes
Earthworks, Pads and Roadways				
Strip topsoil (12" deep) and stockpile onsite	$1.30	SY	topsoil_strip	Assumes stockpile along west property boundary, scraper haul
Fine grade site, machine	$1.20	SY	finegrade	MEANS 31 22 16
Common excavation to Stockpile (2' deep)	$3.90	CY	common_ex	MEANS 33 20 15, Assume stockpile along west property boundary
Subgrade preparation	$1.30	SY	subgrade_prep	
Granular sub-base (3" minus, 6" thick)	$7.30	SY	gran_subbase	CALTRANS Historical 260203
Granular base (DGA, 12" thick)	$36.00	CY	gran_base	CALTRANS Historical 260303
Curb and gutter	$14.00	LF	curb_gutter	MEANS 32 16 13
Asphalt paving (9" thick)	$65.00	SY	asphalt	CH2M estimate
Roadway/Perimeter Ditching	$1.50	LF	ditching	Grader/dozer work
Environmental Protection				
Clay liner (0.5m thick)	$3.40	SF	clay_liner	CH2M Estimate $55/cy, 20" thick
Groundwater monitoring wells	$7,500.00	LS	GW_wells	CH2M Estimate (3 wells to 30 ft, casing protector)
Synthetic pond liner (supply and install)	$6.30	sy	HDPE_liner	CH2M Historical, 40 mil
Buildings and Concrete				
Strip Footing (2' thick, 3' wide)	$176.00	LF	strip_footing	0.22 cy per LF
Push Wall Footing (2' thick, 8' wide)	$570.00	LF	push_wall_footing	0.6 cy per LF
Push Walls (12' high, 12' thick at top, 18" thick at base)	$600.00	LF	push_wall	0.6 cy per LF
Slab-on-Grade concrete floor (8")	$12.00	SF	concrete_slab	after verbal discussions with local contractor
Utility Connections				
Potable water connection	$0.00	LF		
Sanitary sewer connection	$0.00	LF		
Electrical tie-in to transformer	$75.00	LF	buried_elec	450 KVA total connected load/ 300 KVA operating demand
Telecom connection	$0.00	LF		
Natural gas connection	$0.00	LF		

Markups and Fees	Rate	Unit	Variable	Notes
Contractor Mob and General Conditions				
Contractor Home Office	5.0%		CHO	Assumes multi-trade GC does most all of the work
Contractor General Conditions	8.0%		CGC	Assumes 12 month construction schedule
Contractor Fee	8.0%		CF	
Project Bond/Insurance	2.6%		PBI	
Mobilization/Demobilization	3.0%		Mob_Demob	
Contingencies:				
Facility design allowances based on level of design	25%		design_cntngy	
Market adjustment factor	5%		MAF	Construction market is very busy
Escalation	0%		escalation	use 3% per year
Consultant and Subcontractor Fees:				
Engineering design and municipal permitting fee	8.0%		Eng_fee	
Construction management fee	8.0%		CM_fee	
Estimate Ranges:				
Low Range	-30%		low_range	
High Range	50%		high_range	

Notes:

1 The cost estimates are based on 1st quarter 2016 rates from the CALTRANS historical costs (concrete and import fill), MEANS (earthwork), CH2M historical values, Golder historical values, and calculated values where indicated. Cost estimates are largely based on 2016/2017 values because cost development commenced in 2017, prior to Board meeting in Dec 2017. A CH2M/Jacobs cost estimator has
2 These AACEI Classification Class 4 cost estimates are assumed to represent the actual total installed cost within the range of -30 percent to +50 percent (% based on AACEI) of the cost indicated.
3 The estimate is prepared with due diligence with the available information and under normal operations. However this should be subject to market demands and circumstances. The possibility of securing a competive bid process is questionable and should be taken into consideration.
4 Factors that may affect the estimate on the following issues include escalation, premium on labor, engineering.
5 The final cost do the project will be subject to labor rates , material cost, actual site conditions, availability of labor, material and equipment, final project scope, final project schedule (flexible or fixed), public consultation and input, and other mitigating factors (e.g. timing of construction and award). As a result, the final project cost may defer from the presented budget. Due to facts mentioned, the funding of the project should be carefully reviewed prior to establishing the final budget.
6 It is assumed that there is no hazardeous materail to remove and dispose.
7 It is assumed that the work will performed under a 40-hr, normal workweek schedule. No acceleration costs included..
8 It's assumed that all materials are readibly available at no premium costs, that delivery is normal costs, and the contractor has adequate laydown and site facilities.

Exclusions/Qualifications:

1 Equipment specifications not identified.
2 Federal and state sales tax are included in unit rates.
3 Municipal fees & licences not included
4 As the design is at conceptual stage, the tie-ins to existing equipment and facilities have not being identified.
5 Rock excavation not included
6 Dewatering is not included
7 Escalation is not included. Values are in 1st Qtr 2016 values

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Public Area - Roadways					$911,000		$1,799,189	
Earthworks, Pads and Roadways (45' development width assumed)								Assume new pads and paving since existing Public Area will be razed
Roadway - Single Lane	2,500	LF	$290.00	$725,000		$1,431,846		
Roadway - Double Lane	200	LF	$580.00	$116,000		$229,095		
Curb and gutter	5,000	LF	*$14.00*	$70,000		$138,247		
Public Area - Scale/Building					$0		$0	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		Upgraded scale included in Main Entrance cost element
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	0	SY	*$1.30*	$0		$0		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	0	CY	*$36.00*	$0		$0		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Scale Building and Scales								
20' Pre-fab Office Trailer	0	LS	$24,000.00	$0		$0		
Truck scale (40') supply and install include concrete footings	0	LS	$60,000.00	$0		$0		
Allowance for concrete approach slabs (2 per scale deck)	0	LS	$5,000.00	$0		$0		
Allowance for traffic lights/gates/signs	0	LS	$20,000.00	$0		$0		
Allowance for CCTV system	0	LS	$10,000.00	$0		$0		
Utility Connections								
Potable water connection	0	LF	$70.00	$0		$0		
Sanitary sewer connection	0	LF	$85.00	$0		$0		
Electrical tie-in to transformer	0	LF	$75.00	$0		$0		
Telecom connection	0	LF	$60.00	$0		$0		
Natural gas connection	0	LF	$80.00	$0		$0		
Public Area - Buyback (220' x 230')					$1,344,726		$2,655,780	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	5,623	SY	*$1.30*	$7,310		$14,437		
Fine grade site, machine	5,623	SY	*$1.20*	$6,748		$13,326		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	4,150	SY	*$1.30*	$5,395		$10,655		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	154	CY	*$36.00*	$5,533		$10,928		
Curb and gutter	550	LF	*$14.00*	$7,700		$15,207		
Asphalt paving (9" thick)	5,623	SY	*$65.00*	$365,495		$721,838		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Building (70' x 130')								
Strip Footings	400	LF	*$176.00*	$70,400		$139,037		
Slab-on-Grade concrete floor (8")	9,100	SF	*$12.00*	$109,200		$215,666		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	9,100	SF	$35.00	$318,500		$629,025		
Insulation and interior finishing (drywall)	9,100	SF	$8.00	$72,800		$143,777		
Ceiling Insulation	9,100	SF	$2.75	$25,025		$49,423		
HVAC and exhaust ducting	9,100	SF	$17.00	$154,700		$305,526		
Lighting, Conduit, Wire & Receptacles	9,100	SF	$5.70	$51,870		$102,441		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	4	EA	$11,000.00	$44,000		$86,898		Historical cost
Allowance for fire alarms/sprinkler system	9,100	SF	$3.00	$27,300		$53,916		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Utility Connections								
Potable water connection	400	LF	$0.00	$0		$0		Stubbed from service to Staff area
Sanitary sewer connection	400	LF	$0.00	$0		$0		Stubbed from service to Staff area
Electrical tie-in to transformer	400	LF	$75.00	$30,000		$59,249		Stubbed from service to Staff area, 120/220 V single phase service
Telecom connection	400	LF	$0.00	$0		$0		Stubbed from service to Staff area
Natural gas connection	0	LF	$80.00	$0		$0		Stubbed from service to Staff area
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Public Area - HHW (300' x 100')					$905,091		$1,787,519	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	3,334	SY	*$1.30*	$4,334		$8,560		
Fine grade site, machine	3,334	SY	*$1.20*	$4,001		$7,901		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	3,334	SY	*$1.30*	$4,334		$8,560		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	1,667	CY	*$36.00*	$60,012		$118,521		
Curb and gutter	600	LF	*$14.00*	$8,400		$16,590		
Asphalt paving (9" thick)	3,334	SY	*$65.00*	$216,710		$427,994		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Building (50' x 100')								
Strip Footings	300	LF	*$176.00*	$52,800		$104,278		
Slab-on-Grade concrete floor (8")	5,000	SF	*$12.00*	$60,000		$118,498		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	5,000	SF	$35.00	$175,000		$345,618		
Insulation and interior finishing (drywall)	5,000	SF	$8.00	$40,000		$78,998		
Ceiling Insulation	5,000	SF	$2.75	$13,750		$27,156		
HVAC and exhaust ducting	5,000	SF	$17.00	$85,000		$167,872		
Lighting, Conduit, Wire & Receptacles	5,000	SF	$5.70	$28,500		$56,286		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	2	EA	$11,000.00	$22,000		$43,449		Historical cost
Allowance for fire alarms/sprinkler system	5,000	SF	$3.00	$15,000		$29,624		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Utility Connections								
Potable water connection	250	LF	$70.00	$17,500		$34,562		Stubbed from service to Buyback area
Sanitary sewer connection	250	LF	$85.00	$21,250		$41,968		Stubbed from service to Buyback area
Electrical tie-in to transformer	250	LF	$75.00	$18,750		$37,031		Stubbed from service to Buyback area, 120/220 V single phase service
Telecom connection	250	LF	$60.00	$15,000		$29,624		Stubbed from service to Buyback area
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Public Area - Reuse Store Area (155' x 140')					$966,642		$1,909,078	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,412	SY	*$1.30*	$3,136		$6,193		
Fine grade site, machine	2,412	SY	*$1.20*	$2,894		$5,716		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	2,412	SY	*$1.30*	$3,136		$6,193		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	89	CY	*$36.00*	$3,216		$6,351		
Curb and gutter	295	LF	*$14.00*	$4,130		$8,157		
Asphalt paving (9" thick)	2,412	SY	*$65.00*	$156,780		$309,634		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Building (75' x 100')								
Strip Footings	350	LF	*$176.00*	$61,600		$121,658		
Slab-on-Grade concrete floor (8")	7,500	SF	*$12.00*	$90,000		$177,746		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	7,500	SF	$35.00	$262,500		$518,427		
Insulation and interior finishing (drywall)	7,500	SF	$8.00	$60,000		$118,498		
Ceiling Insulation	7,500	SF	$2.75	$20,625		$40,734		
HVAC and exhaust ducting	7,500	SF	$17.00	$127,500		$251,807		
Lighting, Conduit, Wire & Receptacles	7,500	SF	$5.70	$42,750		$84,430		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	4	EA	$11,000.00	$44,000		$86,898		Historical cost
Allowance for fire alarms/sprinkler system	7,500	SF	$3.00	$22,500		$44,437		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Utility Connections								
Potable water connection	255	LF	$0.00	$0		$0		Stubbed from service to HHW area
Sanitary sewer connection	255	LF	$0.00	$0		$0		Stubbed from service to HHW area
Electrical tie-in to transformer	255	LF	$75.00	$19,125		$37,771		Stubbed from service to HHW area, 120/220 V single phase service
Telecom connection	255	LF	$0.00	$0		$0		Stubbed from service to HHW area
Natural gas connection	0	LF	$80.00	$0		$0		Stubbed from service to HHW area
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Public Area - Tipping Area					$4,484,412		$8,856,534	
Earthworks, Pads and Roadways (220' x 600')								
Strip topsoil (12" deep) and stockpile onsite	14,667	SY	*$1.30*	$19,067		$37,657		
Fine grade site, machine	14,667	SY	*$1.20*	$17,600		$34,760		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	14,667	SY	*$1.30*	$19,067		$37,657		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	1,667	CY	*$36.00*	$60,012		$118,521		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	14,667	SY	*$65.00*	$953,355		$1,882,838		
Roadway/Perimeter Ditching	1,640	LF	*$1.50*	$2,460		$4,858		
Tipping Building (100' x 325')								
Strip Footings	850	LF	*$176.00*	$149,600		$295,454		
Slab-on-Grade concrete floor (8")	32,500	SF	*$12.00*	$390,000		$770,234		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	32,500	SF	$35.00	$1,137,500		$2,246,517		
Insulation and interior finishing (drywall)	0	SF	$8.00	$0		$0		
Ceiling Insulation	0	SF	$2.75	$0		$0		
HVAC and exhaust ducting	32,500	SF	$8.00	$260,000		$513,490		
Lighting, Conduit, Wire & Receptacles	32,500	SF	$5.70	$185,250		$365,861		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$39,993		
Man doors	5	EA	$2,000.00	$10,000		$19,750		
Overhead vertical doors (12' wide)	36	EA	$11,000.00	$396,000		$782,084		Historical cost
Allowance for fire alarms/sprinkler system	32,500	SF	$3.00	$97,500		$192,559		MEANS D4010
Allowance for security system	1	LS	$5,000.00	$5,000		$9,875		
Allowance for CCTV system	1	LS	$7,500.00	$7,500		$14,812		
Buildings - Specialty								
Retaining Wall Foundations (3' x 8')	325	LF	$900.00	$292,500		$577,676		0.9 cy per LF
Retianing Wall (15' high, 2' thick)	325	LF	$1,200.00	$390,000		$770,234		1.2 cf per LF
Steel plating along base of push walls (1/2 "thick)	0	LF	$0.00	$0		$0		Assumed height of steel plate is 4' high. (20.42 #/sf)
Ecology block bunker	0	EA	$0.00	$0		$0		$150/block + $25/block placement
Stayflex Coating (interior walls and roof)	0	SF	$0.00	$0		$0		
High Performance Epoxy Coating (interior walls and roof)	0	SF	$3.35	$0		$0		MEANS 09 96 56
Grated floor drains	0	LF	$0.00	$0		$0		Estimated quantity at 2 ea for total length of building - 4"
Overhead door air curtain system	0	EA	$0.00	$0		$0		Historical cost
Specialty exhaust ducting	0	LF	$0.00	$0		$0		SS, 26 GA - Means

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Specialty exhaust fans	0	EA	$0.00	$0		$0		
Utility Connections								
Potable water connection	350	LF	$70.00	$24,500		$48,387		Stubbed from service to Buyback area
Sanitary sewer connection	0	LF	$85.00	$0		$0		Stubbed from service to Buyback area
Electrical tie-in to transformer	350	LF	$75.00	$26,250		$51,843		Stubbed from service to Buyback area, 120/220 V single phase service
Telecom connection	350	LF	$60.00	$21,000		$41,474		Stubbed from service to Buyback area
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$8,611,870	**$8,611,870**	$17,008,099	**$17,008,099**	
Contractor Markups and General Conditions					**$2,290,757**			
Contractor Home Office			*5.0%*	$430,594				
Contractor General Conditions			*8.0%*	$688,950				
Contractor Fee			*8.0%*	$688,950				
Project Bond/Insurance			*2.6%*	$223,909				
Mobilization/Demobilization			*3.0%*	$258,356				
Probable Construction Cost					**$10,902,628**			
Contingencies					**$3,270,788**			
Facility design allowances based on level of design	1	PER	25%	$2,725,657				
Market adjustment factor	1	PER	5%	$545,131				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$2,834,683**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	10.0%	$1,417,342				10% fee due to anticipated higher level of effort for design and coordination than other elements
Construction management fee	1	PER	10.0%	$1,417,342				10% fee due to anticipated higher level of effort for design and coordination than other elements
			Total Probable Cost		**$17,009,000**			
			Low Range	**-30%**	**$11,907,000**			
			High Range	**50%**	**$25,514,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
C&D - C&D Pad (1000' x 530')					**$5,330,082**		**$10,175,809**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	58,889	SY	*$1.30*	$76,556		$146,155		
Fine grade site, machine	58,889	SY	*$1.20*	$70,667		$134,912		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	58,889	SY	*$1.30*	$76,556		$146,155		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	2,181	CY	*$36.00*	$78,519		$149,902		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	58,889	SY	*$65.00*	$3,827,785		$7,307,732		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Allowance for ashphalt removal	0	LS	$75,000.00	$0		$0		
Overhang Roof								
Overhang with structural column support (no walls)	20,000	SF	$60.00	$1,200,000		$2,290,954		Assume cover for 100' x 200' portion of C&D pad to shield processing line from rain; not a building, just an open-air roof structure
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
C&D - Processing Line					**$4,150,000**		**$7,922,881**	
40-50 ton per hour processing line								
Processing line, including shipping, installation, and startup	1	EA	*$4,000,000.00*	$4,000,000		$7,636,512		Bulk Handling Quote, Sept 2018
Utility Connections								
Potable water connection	2,000	LF	$0.00	$0		$0		Assume can use for process water and potable use
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	2,000	LF	$75.00	$150,000		$286,369		Assume electrical supply is present for existing C&D and can use this with extension
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$9,480,082	**$9,480,082**	$18,098,690	**$18,098,690**	
Contractor Markups and General Conditions					**$2,521,702**			
Contractor Home Office			*5.0%*	$474,004				
Contractor General Conditions			*8.0%*	$758,407				
Contractor Fee			*8.0%*	$758,407				
Project Bond/Insurance			*2.6%*	$246,482				
Mobilization/Demobilization			*3.0%*	$284,402				
Probable Construction Cost					**$12,001,784**			
Contingencies					**$3,600,535**			
Facility design allowances based on level of design	1	PER	25%	$3,000,446				
Market adjustment factor	1	PER	5%	$600,089				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$2,496,371**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$1,248,185				
Construction management fee	1	PER	8.0%	$1,248,185				
			Total Probable Cost		**$18,099,000**			
			Low Range	**-30%**	**$12,670,000**			
			High Range	**50%**	**$27,149,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Compost - Green Waste Pad (210' x 225')					**$735,700**		**$1,404,545**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	5,250	SY	*$1.30*	$6,825		$13,030		
Fine grade site, machine	5,250	SY	*$1.20*	$6,300		$12,028		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	5,250	SY	*$1.30*	$6,825		$13,030		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	194	CY	*$36.00*	$7,000		$13,364		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	5,250	SY	*$135.00*	$708,750		$1,353,094		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Compost - Wood Waste Pad (115' x 225')					**$402,883**		**$769,156**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,875	SY	*$1.30*	$3,738		$7,135		
Fine grade site, machine	2,875	SY	*$1.20*	$3,450		$6,586		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	2,875	SY	*$1.30*	$3,738		$7,135		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	106	CY	*$36.00*	$3,833		$7,318		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	2,875	SY	*$135.00*	$388,125		$740,980		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Compost - Outdoor Receiving Area (90' x 200')					**$1,289,792**		**$2,462,377**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	2,000	SY	*$1.30*	$2,600		$4,964		
Fine grade site, machine	2,000	SY	*$1.20*	$2,400		$4,582		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	2,000	SY	*$1.30*	$2,600		$4,964		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	74	CY	*$36.00*	$2,667		$5,091		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	0	SY	*$135.00*	$0		$0		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Slab-on-Grade concrete floor (8")	18,000	SF	*$12.00*	$216,000		$412,372		
Ecology block bunker (3 rows high)	63	EA	$175.00	$11,025		$21,048		Historical price: $150/block + $25/block placement
Specialty Equipment								
System (Shredders x 2, conveyors, magnetic belt)	1	LS	$950,000.00	$950,000		$1,813,672		Based on COE tender pricing. Converted to $US at 1.20 exchange rate
Allowance for equipment installation	1	LS	$47,500.00	$47,500		$90,684		5% of equipment cost
Allowance for electrical install and connection	1	LS	$47,500.00	$47,500		$90,684		5% of equipment cost
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	100	LF	$75.00	$7,500		$14,318		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Compost - Screening and Product Storage Pad (400' x 350')					**$3,107,414**		**$5,932,451**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	15,556	SY	*$1.30*	$20,223		$38,608		Footprint areas plus 10%
Fine grade site, machine	15,556	SY	*$1.20*	$18,667		$35,638		Footprint areas plus 10%
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	15,556	SY	*$1.30*	$20,223		$38,608		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	576	CY	*$36.00*	$20,741		$39,598		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	15,556	SY	*$135.00*	$2,100,060		$4,009,283		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Specialty Equipment								
Stationary screening system incl feed hopper	1	LS	$500,000.00	$500,000		$954,564		
Horizontal transfer conveyor	1	LS	$150,000.00	$150,000		$286,369		Assumes re-purposed 125' stacker
Radial stacking conveyor	1	LS	$125,000.00	$125,000		$238,641		Historical price
Allowance for equipment installation	1	LS	$38,750.00	$38,750		$73,979		5% of equipment cost
Allowance for electrical install and connection	1	LS	$38,750.00	$38,750		$73,979		5% of equipment cost
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	1,000	LF	$75.00	$75,000		$143,185		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Subtotal				$5,535,789	**$5,535,789**	$10,568,530	**$10,568,530**	
Contractor Markups and General Conditions					**$1,472,520**			
Contractor Home Office			*5.0%*	$276,789				
Contractor General Conditions			*8.0%*	$442,863				
Contractor Fee			*8.0%*	$442,863				
Project Bond/Insurance			*2.6%*	$143,931				
Mobilization/Demobilization			*3.0%*	$166,074				
Probable Construction Cost					**$7,008,309**			
Contingencies					**$2,102,493**			
Facility design allowances based on level of design	1	PER	25%	$1,752,077				
Market adjustment factor	1	PER	5%	$350,415				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,457,728**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$728,864				
Construction management fee	1	PER	8.0%	$728,864				
			Total Probable Cost		**$10,569,000**			
			Low Range	**-30%**	**$7,399,000**			
			High Range	**50%**	**$15,854,000**			

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Compost - Temporary Positive ASP System					$246,620		$470,829	Cost is consistent with Nortech proposal for temporary positive ASP system (~$200,000), email from Eric Oddo 10/19/2018
Aeration laterals/header								Assume temporary positive ASP system for Year 0-5 is 25% size of full buildout; assume temp ASP mainly requires only tubing and fans
Aeration header piping (18" SDR17, 5 zones, 40' per zone)	200	LF	$24.77	$4,954		$9,458		HDPE quotes received from Wolseley 12/9/16
Allowance for misc header fittings (3 per zone)	15	EA	$200.00	$3,000		$5,727		Engineer estimate
Aeration lateral piping (6" SDR17, 5 zones, 7 laterals per zone)	4,725	LF	$3.36	$15,876		$30,309		HDPE quotes received from Wolseley 12/9/16
Allowance for misc latteral fittings (28 per lateral)	980	EA	$75.00	$73,500		$140,321		Engineer estimate
Aeration riser piping (6" SDR17, 26 per lateral, 12" per riser)	910	LF	$3.36	$3,058		$5,837		HDPE quotes received from Wolseley 12/9/16
In-slab SS aeration grates (supply)	910	EA	$40.00	$36,400		$69,492		Historical Price
Lateral/header welding and installation	1	LS	$30,116.28	$30,116		$57,496		30% of equipment cost
Aeration Manifold and Fans								
SS manifold (24")	200	LF	$65.00	$13,000		$24,819		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Control damper (1 per aeration zone)	5	EA	$1,500.00	$7,500		$14,318		GMT quote Mar-13-2016
SS wye-fitting and 45 degree fitting	5	EA	$655.00	$3,275		$6,252		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Allowance for manifold supports	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Allowance for SS fan transitions (2 per fan)	4	LS	$750.00	$3,000		$5,727		Engineer estimate
SS Negative aeration fan (supply)	1	EA	$20,000.00	$20,000		$38,183		Engineer estimate
Galv Cooling air fan (supply)	1	EA	$15,000.00	$15,000		$28,637		Engineer estimate
SS wye-fitting and 45 degree fitting	1	EA	$655.00	$655		$1,250		Ecco Supply Quote, converted to $US at 1.2 exchange rate
VFD (supply)	0	EA	$0.00	$0		$0		incl in I&C
Lateral/header/fan installation	1	LS	$13,286.00	$13,286		$25,365		20% of equipment cost
Compost - Active Composting System (205' x 880')					$7,758,319		$14,811,623	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	20,045	SY	*$1.30*	$26,059		$49,749		Assume existing pad needs to be excavated to place underground piping
Fine grade site, machine	20,045	SY	*$1.20*	$24,054		$45,922		
Common excavation to Stockpile (2' deep)	1,485	CY	*$3.90*	$5,791		$11,055		
Subgrade preparation	20,045	SY	*$1.30*	$26,059		$49,749		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	742	CY	*$36.00*	$26,727		$51,025		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	20,045	SY	*$135.00*	$2,706,075		$5,166,244		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
ASP1:								
Perimeter Walls and Floor								
Slab-on-Grade concrete floor (8")	28,000	SF	*$12.00*	$336,000		$641,467		
ASP perimeter wall foundations	470	LF	*$570.00*	$267,900		$511,455		
ASP perimeter walls	470	LF	*$600.00*	$282,000		$538,374		
Aeration laterals/header								
Aeration header piping (18" SDR17, 5 zones, 40' per zone)	200	LF	$24.77	$4,954		$9,458		HDPE quotes received from Wolseley 12/9/16
Allowance for misc header fittings (3 per zone)	15	EA	$200.00	$3,000		$5,727		Engineer estimate
Aeration lateral piping (6" SDR17, 5 zones, 7 laterals per zone)	4,725	LF	$3.36	$15,876		$30,309		HDPE quotes received from Wolseley 12/9/16
Allowance for misc latteral fittings (28 per lateral)	980	EA	$75.00	$73,500		$140,321		Engineer estimate
Aeration riser piping (6" SDR17, 26 per lateral, 12" per riser)	910	LF	$3.36	$3,058		$5,837		HDPE quotes received from Wolseley 12/9/16
In-slab SS aeration grates (supply)	910	EA	$40.00	$36,400		$69,492		Historical Price
Lateral/header welding and installation	1	LS	$30,116.28	$30,116		$57,496		30% of equipment cost
Aeration Manifold and Fans								
SS manifold (24")	200	LF	$65.00	$13,000		$24,819		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Control damper (1 per aeration zone)	5	EA	$1,500.00	$7,500		$14,318		GMT quote Mar-13-2016
SS wye-fitting and 45 degree fitting	5	EA	$655.00	$3,275		$6,252		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Allowance for manifold supports	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Allowance for SS fan transitions (2 per fan)	4	LS	$750.00	$3,000		$5,727		Engineer estimate
SS Negative aeration fan (supply)	1	EA	$20,000.00	$20,000		$38,183		Engineer estimate
Galv Cooling air fan (supply)	1	EA	$15,000.00	$15,000		$28,637		Engineer estimate
SS wye-fitting and 45 degree fitting	1	EA	$655.00	$655		$1,250		Ecco Supply Quote, converted to $US at 1.2 exchange rate
VFD (supply)	0	EA	$0.00	$0		$0		incl in I&C
Lateral/header/fan installation	1	LS	$13,286.00	$13,286		$25,365		20% of equipment cost
Instrument and Controls								
PLC/HMI system (hardware supply and programming, field commissioning)	1	LS	$65,000.00	$65,000		$124,093		Cybertech Supply, converted to $US at 1.2 exchange rate
Temperature probes/transmitter/wire	10	EA	$325.00	$3,250		$6,205		Reotemp probe @ incl 100 ft wire, historical cost
Wireless temperature probe with base station	0	EA	$350.00	$0		$0		
Allowance for I&C installation	1	LS	$7,200.00	$7,200		$13,746		Historical cost (3 days, 2-man crew)
Leachate/condensate								
Underground leachate drainage piping (6" SDR17)	200	LF	$3.36	$672		$1,283		HDPE quotes received from Wolseley 12/9/16
Allowance for misc fittings	15	EA	$75.00	$1,125		$2,148		Engineer estimate
Underground precast leachate sump (30" x 30" x 42" deep with cover)	1	LS	$350.00	$350		$668		Historical Price
SS submersible pump (1 hp) with flex hose connection	1	LS	$1,500.00	$1,500		$2,864		Historical Price
Aboveground leachate transfer piping (4" PVC)	200	LF	$2.00	$400		$764		Historical Price
Aboveground HDPE leachate tank (10,000 gal)	1	EA	$7,500.00	$7,500		$14,318		Historical Price
Lateral/header/fan installation	1	LS	$2,309.40	$2,309		$4,409		20% of equipment cost
ASP 2 - same as ASP1	1	LS	$1,221,826.28	$1,221,826		$2,332,623		
ASP 3 - same as ASP1	1	LS	$1,221,826.28	$1,221,826		$2,332,623		
ASP 4 - same as ASP1	1	LS	$1,221,826.28	$1,221,826		$2,332,623		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	750	LF	$75.00	$56,250		$107,388		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Compost - Biofilter (135' x 880')					$2,683,227		$5,122,623	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	13,200	SY	*$1.30*	$17,160		$32,761		
Fine grade site, machine	13,200	SY	*$1.20*	$15,840		$30,241		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	13,200	SY	*$1.30*	$17,160		$32,761		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	489	CY	*$36.00*	$17,600		$33,601		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	13,200	SY	*$135.00*	$1,782,000		$3,402,066		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Biofilter 1								
Ecology block back wall (5' high)	80	EA	$0.00	$0		$0		$150/block + $25/block placement
Allowance for mist scrubbers	0	LS	$0.00	$0		$0		
Allowance for packed tower acid scrubbers	0	LS	$0.00	$0		$0		
Scrubber Mechanical/Electrical	0	LS	$0.00	$0		$0		
Biofilter header piping (60" SDR17)	200	LF	$275.00	$55,000		$105,002		HDPE quotes received from Wolseley 12/9/16
Biofilter header supports (supply)	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Inserta-T fittings	40	LF	$75.00	$3,000		$5,727		Estimated cost
PVC butterfly valve, flex coupling and elbow 12"	0	LS	$0.00	$0		$0		
Biofilter lateral piping (12" SDR17)	4,200	LF	$12.43	$52,206		$99,668		HDPE quotes received from Wolseley 12/9/16
Drill Biofilter Laterals	4,200	LF	$0.00	$0		$0		
Lateral/header welding and installation	1	LS	$22,841.20	$22,841		$43,607		20% of equipment cost
Biofilter media (6' thick, offsite supply and place, wood chip media)	4,444	CY	$10.00	$44,444		$84,850		Historical cost, wood chips
Irrigation tank, zone controllers, pump	1	LS	$25,000.00	$25,000		$47,728		Estimated cost
Leachate/condensate								
Leachate collection toe drain	0	LF	$0.00	$0		$0		$10/ft material
HDPE drain line (4") to a/g leachate tank with sand bedding	0	LF	$0.00	$0		$0		
U/G fibreglass storage tank (incl bured concrete supports, straps, backfill)	0	LS	$0.00	$0		$0		Historical estimate - Winnipeg Compost Facility
Allowance for float level/strobe alarm	0	LS	$0.00	$0		$0		Engineers estimate
SS submersible pump (1 hp)	0	LS	$0.00	$0		$0		Acklands Granger
Biofilter 2 - same as Biofilter 1	1	LS	$206,491.64	$206,492		$394,219		
Biofilter 3 - same as Biofilter 1	1	LS	$206,491.64	$206,492		$394,219		
Biofilter 4 - same as Biofilter 1	1	LS	$206,491.64	$206,492		$394,219		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Compost - ASP Curing System (185' x 880')					$6,388,380		$12,196,234	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	18,089	SY	*$1.30*	$23,516		$44,894		
Fine grade site, machine	18,089	SY	*$1.20*	$21,707		$41,441		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	18,089	SY	*$1.30*	$23,516		$44,894		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	670	CY	*$36.00*	$24,119		$46,046		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Concrete paving (9" thick)	18,089	SY	*$135.00*	$2,442,015		$4,662,119		Assume concrete paving because asphalt not allowed for compost operations.
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
ASP1:								
Perimeter Walls and Floor								
Slab-on-Grade concrete floor (8")	19,600	SF	*$12.00*	$235,200		$449,027		
ASP perimeter wall foundations	396	LF	*$570.00*	$225,720		$430,928		
ASP perimeter walls	396	LF	*$600.00*	$237,600		$453,609		
Aeration laterals/header								
Aeration header piping (18" SDR17, 5 zones, 40' per zone)	200	LF	$24.77	$4,954		$9,458		HDPE quotes received from Wolseley 12/9/16
Allowance for misc header fittings (3 per zone)	15	EA	$200.00	$3,000		$5,727		Engineer estimate
Aeration lateral piping (6" SDR17, 5 zones, 7 laterals per zone)	3,430	LF	$3.36	$11,525		$22,002		HDPE quotes received from Wolseley 12/9/16
Allowance for misc latteral fittings (22 per lateral)	770	EA	$75.00	$57,750		$110,252		Engineer estimate
Aeration riser piping (6" SDR17, 20 per lateral, 12" per riser)	700	LF	$3.36	$2,352		$4,490		HDPE quotes received from Wolseley 12/9/16
In-slab SS aeration grates (supply)	700	EA	$40.00	$28,000		$53,456		Historical Price
Lateral/header welding and installation	1	LS	$23,874.24	$23,874		$45,579		30% of equipment cost
Aeration Manifold and Fans								
GALV manifold (24")	200	LF	$7.70	$1,540		$2,940		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Control damper (1 per aeration zone)	5	EA	$1,500.00	$7,500		$14,318		GMT quote Mar-13-2016
GALV wye-fitting and 45 degree fitting	5	EA	$135.00	$675		$1,289		Ecco Supply Quote, converted to $US at 1.2 exchange rate
Allowance for manifold supports	200	LF	$20.00	$4,000		$7,637		Historical Cost - CTS
Allowance for GALV fan transitions (2 per fan)	2	LS	$375.00	$750		$1,432		Engineer estimate
Positive aeration fan (supply)	1	EA	$9,000.00	$9,000		$17,182		Airsys quote (NYB 20GI).
Cooling air fan (supply)	0	EA	$9,000.00	$0		$0		
SS wye-fitting and 45 degree fitting	0	EA	$655.00	$0		$0		Ecco Supply Quote, converted to $US at 1.2 exchange rate
VFD (supply)	0	EA	$0.00	$0		$0		incl in I&C
Lateral/header/fan installation	1	LS	$4,693.00	$4,693		$8,960		20% of equipment cost
Instrument and Controls								
PLC/HMI system (hardware supply and programming, field commissioning)	1	LS	$65,000.00	$65,000		$124,093		Cybertech Supply, converted to $US at 1.2 exchange rate
Temperature probes/transmitter/wire	10	EA	$325.00	$3,250		$6,205		Reotemp probe @ incl 100 ft wire, historical cost
Wireless temperature probe with base station	0	EA	$350.00	$0		$0		
Allowance for I&C installation	1	LS	$7,200.00	$7,200		$13,746		Historical cost (3 days, 2-man crew)
Leachate/condensate								
Underground leachate drainage piping (6" SDR17)	200	LF	$3.36	$672		$1,283		HDPE quotes received from Wolseley 12/9/16
Allowance for misc fittings	15	EA	$75.00	$1,125		$2,148		Engineer estimate
Underground precast leachate sump (30" x 30" x 42" deep with cover)	1	LS	$350.00	$350		$668		Historical Price
SS submersible pump (1 hp) with flex hose connection	1	LS	$1,500.00	$1,500		$2,864		Historical Price
Aboveground leachate transfer piping (4" PVC)	200	LF	$2.00	$400		$764		Historical Price

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Aboveground HDPE leachate tank (10,000 gal)	1	EA	$7,500.00	$7,500		$14,318		Historical Price
Lateral/header/fan installation	1	LS	$2,309.40	$2,309		$4,409		20% of equipment cost
ASP 2 - same as ASP1	1	LS	$947,439.44	$947,439		$1,808,783		
ASP 3 - same as ASP1	1	LS	$947,439.44	$947,439		$1,808,783		
ASP 4 - same as ASP1	1	LS	$947,439.44	$947,439		$1,808,783		
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		
Sanitary sewer connection	0	LF	$0.00	$0		$0		
Electrical tie-in to transformer	750	LF	$75.00	$56,250		$107,388		
Telecom connection	0	LF	$0.00	$0		$0		
Natural gas connection	0	LF	$0.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Compost - Dedicated Storm Water Ponds					**$554,030**		**$1,057,713**	
Pond Construction								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 1000-ye
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$100,000.00	$100,000		$190,913		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Unload Geosynthetics	1	LS	$20,000.00	$20,000		$38,183		
Clearing and Grubbing	20,144	SY	$1.30	$26,188		$49,996		
Excavation	31,241	CY	$2.50	$78,102		$149,106		
HDPE Double-Sided Textured Geomembrane	182,650	SF	$1.60	$292,240		$557,924		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Compost - Miscellaneous Equipment					**$6,500**		**$12,409**	
Weather station (roof mounted on tripod)	1	EA	$1,500.00	$1,500		$2,864		Historical price
Aboveground 2x-walled 9500 L fuel storage tank/pump	0	EA	$11,000.00	$0		$0		$9500 purchase + $1500 allowance for delivery/install
Allowance for misc compost monitoring and lab equipment	1	LS	$5,000.00	$5,000		$9,546		
Standby generator (625 kVA) + transfer switch, cabling, installation	0	EA	$0.00	$0		$0		
Subtotal				$17,637,074	**$17,637,074**	$33,671,432	**$33,671,432**	
Contractor Markups and General Conditions					**$4,691,462**			
Contractor Home Office			*5.0%*	$881,854				
Contractor General Conditions			*8.0%*	$1,410,966				
Contractor Fee			*8.0%*	$1,410,966				
Project Bond/Insurance			*2.6%*	$458,564				
Mobilization/Demobilization			*3.0%*	$529,112				
Probable Construction Cost					**$22,328,536**			
Contingencies					**$6,698,561**			
Facility design allowances based on level of design	1	PER	25%	$5,582,134				
Market adjustment factor	1	PER	5%	$1,116,427				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$4,644,335**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$2,322,168				
Construction management fee	1	PER	8.0%	$2,322,168				

Total Probable Cost		**$33,672,000**
Low Range	**-30%**	**$23,571,000**
High Range	**50%**	**$50,508,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Stockpile Relocation					**$14,000,000**		**$26,727,792**	
Relocate Existing Soil Stockpile before Module Construction								
Move stockpile to different location	1,400,000	CY	$5.00	$7,000,000		$13,363,896		As of 6/30/2017, there are 1.4 MCY of soil stockpiled on Modules 6-8, nearly all of it on 6-7, compared to tl
Move stockpile to different location (double handle)	1,400,000	CY	$5.00	$7,000,000		$13,363,896		Assume Plan Concept 2 stockpile requires double handling
Landfill Construction					**$133,535,711**		**$254,936,766**	
New Landfill								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx, Sheet "PC 2 Construction"
Design and Permitting	13	ea	$100,000.00	$1,300,000		$2,481,866		Assumes 10 cells +3 cells
Mobilization/Demobilization	13	ea	$100,000.00	$1,300,000		$2,481,866		Assumes 10 cells +3 cells
Layout of Work and Surveys	13	ea	$30,000.00	$390,000		$744,560		Assumes 10 cells +3 cells
Clearing and Grubbing	253	ac	$1,500.00	$379,500		$724,514		New cell construction without Unlined unit
Excavation	17,888,737	cy	$3.00	$53,666,211		$102,455,666		Floor Area x 45 ft
Overexcavation of Unsuitable Subgrade Material	260,000	cy	$10.00	$2,600,000		$4,963,733		Assumes 20,000 cy per cell
Earthfill	360,000	cy	$4.00	$1,440,000		$2,749,144		Assumes 20,000 cy per cell
Subgrade Preparation	11,798,401	sf	$0.15	$1,769,760		$3,378,699		
Geosynthetic Clay Liner	11,798,401	sf	$0.80	$9,438,721		$18,019,726		
60-mil HDPE Double Sided Textured Geomembrane	10,733,242	sf	$0.75	$8,049,932		$15,368,350		Floor Only
60-mil White Single Sided Textured HDPE Geomembrane	11,798,401	sf	$0.75	$8,848,801		$16,893,493		
Geocomposite	10,733,242	sf	$0.80	$8,586,594		$16,392,907		Floor Only
8oz/sy Nonwoven Geotextile	10,733,242	sf	$0.20	$2,146,648		$4,098,227		Floor Only
Anchor Trenches	12,488	lf	$13.00	$162,350		$309,947		
Drainage Layer	397,527	cy	$38.00	$15,106,045		$28,839,373		Floor Only x 1 ft
Sump Gravel	2,275	cy	$82.00	$186,550		$356,148		Assumes 175 per sump
Base Operations Layer	397,527	cy	$5.60	$2,226,154		$4,250,013		Floor Only x 1 ft
Side Slope Operations Layer	39,963	cy	$6.50	$259,760		$495,916		Side Slope x 1ft
6-inch Diameter SDR 11 HDPE LCRS Pipe	35,100	lf	$20.00	$702,000		$1,340,208		Assumes 2,700 per cell
18-inch Diameter SDR 11 HDPE LCRS Pipe	7,800	lf	$112.50	$877,500		$1,675,260		Assumes 600 per cell
6-inch Diameter SDR 11 HDPE Pipe (Force Main)	20,774	lf	$20.00	$415,480		$793,205		Perimeter of entire site
Rip Rap	13	ls	$30,000.00	$390,000		$744,560		
Leak Detection Survey	13	ls	$17,000.00	$221,000		$421,917		
Revegetation	130	ac	$1,500.00	$195,000		$372,280		Assumes 10 acres per cell
Perimeter Road	623,220	sf	$2.50	$1,558,050		$2,974,517		30 ft wide x 1ft
Aggregate Base	22,479	cy	$35.00	$786,774		$1,502,053		
V-Ditch	38,423	lf	$5.00	$192,117		$366,775		
CMP Culverts	2,498	lf	$75.00	$187,327		$357,632		
Stormwater Controls	13	ea	$2,500.00	$32,500		$62,047		
Stormwater Pollution Prevention Plan Preparation	13	ea	$7,800.00	$101,400		$193,586		
Stormwater Pollution Prevention Plan Implementation	13	ea	$15,000.00	$195,000		$372,280		
Monitoring Systems								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx, Sheet "PC 2 Construction"
Monitoring System Design Services	2	ls	$100,000.00	$200,000		$381,826		
Groundwater Wells	13	ea	$10,000.00	$130,000		$248,187		
LFG Design Services and Permitting	2	ls	$400,000.00	$800,000		$1,527,302		
LFG Extraction Wells	271	ea	$2,500.00	$677,500		$1,293,434		1 per acre
LFG 6-in LFG Collector	27,100	lf	$20.00	$542,000		$1,034,747		100 feet per well
LFG 18-in LFG Header Line	19,699	lf	$110.00	$2,166,926		$4,136,939		Perimeter Only
LFG Well Heads	271	ea	$250.00	$67,750		$129,343		
Flare System	2	ls	$2,000,000.00	$4,000,000		$7,636,512		
Condensate Sumps	13	ea	$500.00	$6,500		$12,409		1 per cell
2-in SDR 9 HDPE Condensate Piping	27,100	lf	$20.00	$542,000		$1,034,747		100 feet per well
2-in SDR 9 HDPE Pneumatic Piping	27,100	lf	$20.00	$542,000		$1,034,747		100 feet per well
LFG Perimeter Monitoring Probes	25	ea	$6,000.00	$149,862		$286,105		Assume average 50-foot depth for each @ $120/ft
Decomission & Replace Suction Lysimeters	0	ls	$20,000.00	$0		$0		
Unlined Area Waste Excavation					**$53,608,200**		**$102,344,916**	
Unlined Unit - Waste Excavation and Relocation								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx, Sheet "PC 2 Construction"
Design and Permitting	4	ea	$100,000.00	$400,000		$763,651		
Mobilization/Demobilization	5	ea	$15,000.00	$75,000		$143,185		
Layout of Work and Surveys	5	ea	$30,000.00	$150,000		$286,369		
Remove Waste in Unlined Unit	3,646,000	cy	$11.50	$41,929,000		$80,047,828		Cost source: Waste Excavation and Relocation Cost Comparison.xlsx
Earthfill	2,734,500	cy	$4.00	$10,938,000		$20,882,042		Unlined area needs to be backfilled to build elements, assume 75% needs to be backfilled
Subgrade Preparation	0	sf	$0.15	$0		$0		
Geosynthetic Clay Liner	0	sf	$0.80	$0		$0		
60-mil HDPE Double Sided Textured Geomembrane	0	sf	$0.75	$0		$0		
60-mil White Single Sided Textured HDPE Geomembrane	0	sf	$0.75	$0		$0		
Geocomposite	0	sf	$0.80	$0		$0		
8oz/sy Nonwoven Geotextile	0	sf	$0.20	$0		$0		
Anchor Trenches	0	lf	$13.00	$0		$0		
Drainage Layer	0	cy	$38.00	$0		$0		
Base Operations Layer	0	cy	$5.60	$0		$0		
Side Slope Operations Layer	0	cy	$6.50	$0		$0		
6-inch Diameter SDR 11 HDPE LCRS Pipe	0	lf	$20.00	$0		$0		
Rip Rap	0	ls	$30,000.00	$0		$0		
Leak Detection Survey	0	ls	$17,000.00	$0		$0		
Revegetation	0	ac	$1,500.00	$0		$0		
CMP Culverts	200	lf	75	$15,000		$28,637		Assume culvert and stormwater controls needed for construction
Stormwater Controls	4	ea	$2,500.00	$10,000		$19,091		
Stormwater Pollution Prevention Plan Preparation	4	ea	$7,800.00	$31,200		$59,565		
Stormwater Pollution Prevention Plan Implementation	4	ea	$15,000.00	$60,000		$114,548		
Landfill Closure					**$55,784,337**		**$106,499,440**	
Closure Construction Cost								Source: Golder Associates, WRSL Cost Estimate - REV1-120717_101018_rdh_jem.xlsx, Sheet "PC 2 Closure"; assue closure is 365 ac consistent with estimated postclosure acres
Mobilization/Demobilization	7	ls	$75,000.00	$525,000		$1,002,292		Assumes partial closure completed in 7 events
Vegetative Layer	743,456	cy	$4.70	$3,494,244		$6,670,960		
Geocomposite	20,029,930	sf	$0.70	$14,020,951		$26,767,790		
60-mil HDPE DST Geomembrane	20,029,930	sf	$0.66	$13,219,754		$25,238,202		
Geosynthetic Clay Liner	20,029,930	sf	$0.78	$15,623,345		$29,826,966		
2-foot Foundation Layer	1,485,230	cy	$4.70	$6,980,583		$13,326,826		
Anchor Trenches	5,046	lf	$13.00	$65,599		$125,237		
Bench V-Ditches	51,751	lf	$10.00	$517,509		$987,992		
Top Deck Berms	18,502	lf	$10.00	$185,023		$353,233		
CMP Downdrains	10,933	lf	$50.00	$546,659		$1,043,642		
Drain Inlets	76	ea	$100.00	$7,569		$14,450		
Revegetation	365	ac	$1,500.00	$547,500		$1,045,248		
Stormwater Controls	2	ea	$2,500.00	$5,000		$9,546		
Stormwater Pollution Prevention Plan Preparation	2	ea	$7,800.00	$15,600		$29,782		
Stormwater Pollution Prevention Plan Implementation	2	ea	$15,000.00	$30,000		$57,274		
Subtotal				$256,928,249	**$256,928,249**	$490,508,913	**$490,508,913**	
Contractor Markups and General Conditions					**$68,342,914**			
Contractor Home Office			*5.0%*	$12,846,412				
Contractor General Conditions			*8.0%*	$20,554,260				
Contractor Fee			*8.0%*	$20,554,260				
Project Bond/Insurance			*2.6%*	$6,680,134				
Mobilization/Demobilization			*3.0%*	$7,707,847				
Probable Construction Cost					**$325,271,163**			
Contingencies					**$97,581,349**			
Facility design allowances based on level of design	1	PER	25%	$81,317,791				
Market adjustment factor	1	PER	5%	$16,263,558				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$67,656,402**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$33,828,201				
Construction management fee	1	PER	8.0%	$33,828,201				
			Total Probable Cost		**$490,509,000**			
			Low Range	**-30%**	**$343,357,000**			
			High Range	**50%**	**$735,764,000**			

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Admin Staff Bldg (10,000 sf or 100' x 100')					**$8,115,500**		**$15,493,528**	
Admin Building								
Standard office	12,400	sf	*$650.00*	$8,060,000		$15,387,572		Assume 12,400 sf office building (incl 2,400 sf education center); standalone building
Utility Connections								
Potable water connection	150	LF	$70.00	$10,500		$20,046		Stubbed from new utility corridor along Fiddyment Rd
Sanitary sewer connection	150	LF	$85.00	$12,750		$24,341		Stubbed from new utility corridor along Fiddyment Rd
Electrical tie-in to transformer	150	LF	$75.00	$11,250		$21,478		Stubbed from new utility corridor along Fiddyment Rd, 120/220 V single phase service
Telecom connection	150	LF	$60.00	$9,000		$17,182		Stubbed from new utility corridor along Fiddyment Rd
Natural gas connection	150	LF	$80.00	$12,000		$22,910		Stubbed from new utility corridor along Fiddyment Rd
Admin Staff Parking (25,000 sf)					**$90,399**		**$172,583**	
Parking Lot								
Subgrade, agg base	620	CY	$22.00	$13,649		$26,057		Assuming 25,000 sf parking lot, including ADA spaces
Asphalt	625	TN	$110.00	$68,750		$131,253		
Striping, signs	1	LS	$8,000.00	$8,000		$15,273		
Subtotal				$8,205,899	**$8,205,899**	$15,666,111	**$15,666,111**	
Contractor Markups and General Conditions					**$2,182,769**			
Contractor Home Office			*5.0%*	$410,295				
Contractor General Conditions			*8.0%*	$656,472				
Contractor Fee			*8.0%*	$656,472				
Project Bond/Insurance			*2.6%*	$213,353				
Mobilization/Demobilization			*3.0%*	$246,177				
Probable Construction Cost					**$10,388,668**			
Contingencies					**$3,116,600**			
Facility design allowances based on level of design	1	PER	25%	$2,597,167				
Market adjustment factor	1	PER	5%	$519,433				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$2,160,843**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$1,080,421				
Construction management fee	1	PER	8.0%	$1,080,421				
			Total Probable Cost		**$15,667,000**			
			Low Range	**-30%**	**$10,967,000**			
			High Range	**50%**	**$23,501,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Main Entrance - Roadways					**$420,500**		**$802,788**	
Earthworks, Pads and Roadways (45' development width assumed)								
Roadway - Single Lane	950	LF	$290.00	$275,500		$525,965		
Roadway - Double Lane	250	LF	$580.00	$145,000		$276,824		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Main Entrance - Scale/Building					**$811,133**		**$1,548,557**	
Initial Retrofit of Existing Scales and Signage								
Initial Retrofit of Existing Scales and Signage	1	LS	$200,000.00	$200,000		$381,826		Cost per Janet/Lyndsey, 10/18/18
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	1,000	SY	*$1.30*	$1,300		$2,482		
Fine grade site, machine	1,000	SY	*$1.20*	$1,200		$2,291		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	1,000	SY	*$1.30*	$1,300		$2,482		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	37	CY	*$36.00*	$1,333		$2,546		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Scale Building and Scales								
20' Pre-fab Office Trailer	1	LS	$24,000.00	$24,000		$45,819		
Truck scale (100') supply and install include concrete footings	3	LS	$100,000.00	$300,000		$572,738		Assume 2 scales incoming, 1 scale outgoing
Allowance for concrete approach slabs (2 per scale deck)	4	LS	$5,000.00	$20,000		$38,183		
Allowance for traffic lights/gates/signs	1	LS	$20,000.00	$20,000		$38,183		
Allowance for CCTV system	1	LS	$10,000.00	$10,000		$19,091		
Utility Connections								
Potable water connection	800	LF	$70.00	$56,000		$106,911		Stubbed from old scalehouse
Sanitary sewer connection	800	LF	$85.00	$68,000		$129,821		Stubbed from old scalehouse
Electrical tie-in to transformer	800	LF	$75.00	$60,000		$114,548		Stubbed from old scalehouse; 120/220 V single phase service
Telecom connection	800	LF	$60.00	$48,000		$91,638		
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$1,231,633	**$1,231,633**	$2,351,346	**$2,351,346**	
Contractor Markups and General Conditions					**$327,614**			
Contractor Home Office			*5.0%*	$61,582				
Contractor General Conditions			*8.0%*	$98,531				
Contractor Fee			*8.0%*	$98,531				
Project Bond/Insurance			*2.6%*	$32,022				
Mobilization/Demobilization			*3.0%*	$36,949				
Probable Construction Cost					**$1,559,248**			
Contingencies					**$467,774**			
Facility design allowances based on level of design	1	PER	25%	$389,812				
Market adjustment factor	1	PER	5%	$77,962				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$324,324**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$162,162				
Construction management fee	1	PER	8.0%	$162,162				
			Total Probable Cost		**$2,352,000**			
			Low Range	**-30%**	**$1,647,000**			
			High Range	**50%**	**$3,528,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Western Entrance - Roadways					**$406,000**		**$775,106**	
Earthworks, Pads and Roadways (45' development width assumed)								
Roadway - Single Lane	1,000	LF	$290.00	$290,000		$553,647		
Roadway - Double Lane	200	LF	$580.00	$116,000		$221,459		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Western Entrance - Scale/Building					**$188,633**		**$360,125**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	1,000	SY	*$1.30*	$1,300		$2,482		
Fine grade site, machine	1,000	SY	*$1.20*	$1,200		$2,291		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	1,000	SY	*$1.30*	$1,300		$2,482		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	37	CY	*$36.00*	$1,333		$2,546		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Scale Building and Scales								
20' Pre-fab Office Trailer	0	LS	$24,000.00	$0		$0		Assume western entrance only has one automated scale, no staff
Truck scale (100') supply and install include concrete footings	1	LS	$100,000.00	$100,000		$190,913		Assume western entrance only has one automated scale, no staff
Allowance for concrete approach slabs (2 per scale deck)	2	LS	$5,000.00	$10,000		$19,091		
Allowance for traffic lights/gates/signs	1	LS	$20,000.00	$20,000		$38,183		
Allowance for CCTV system	1	LS	$10,000.00	$10,000		$19,091		
Utility Connections								
Potable water connection	150	LF	$70.00	$10,500		$20,046		Stubbed from Fiddyment Rd utility corridor
Sanitary sewer connection	150	LF	$85.00	$12,750		$24,341		Stubbed from Fiddyment Rd utility corridor
Electrical tie-in to transformer	150	LF	$75.00	$11,250		$21,478		Stubbed from Fiddyment Rd utility corridor; 120/220 V single phase service
Telecom connection	150	LF	$60.00	$9,000		$17,182		Stubbed from Fiddyment Rd utility corridor
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$594,633	**$594,633**	$1,135,231	**$1,135,231**	
Contractor Markups and General Conditions					**$158,172**			
Contractor Home Office			*5.0%*	$29,732				
Contractor General Conditions			*8.0%*	$47,571				
Contractor Fee			*8.0%*	$47,571				
Project Bond/Insurance			*2.6%*	$15,460				
Mobilization/Demobilization			*3.0%*	$17,839				
Probable Construction Cost					**$752,806**			
Contingencies					**$225,842**			
Facility design allowances based on level of design	1	PER	25%	$188,201				
Market adjustment factor	1	PER	5%	$37,640				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$156,584**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$78,292				
Construction management fee	1	PER	8.0%	$78,292				

Total Probable Cost		**$1,136,000**
Low Range	**-30%**	**$796,000**
High Range	**50%**	**$1,704,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Overpass					**$4,860,037**		**$9,278,433**	
AC Paving	28000	SF	$4.00	$112,000		$213,822		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Aggregate Base	28000	SF	$2.00	$56,000		$106,911		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Embankment	11852	CY	$20	$237,037		$452,534		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Retaining Wall	19200	SF	$150	$2,880,000		$5,498,289		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Structure	5250	SF	$300	$1,575,000		$3,006,877		Based on quantities and unit rates provided by Matt Negrette, Sep-17-2017
Subtotal				$4,860,037	**$4,860,037**	$9,278,433	**$9,278,433**	
Contractor Markups and General Conditions					**$1,292,770**			
Contractor Home Office			*5.0%*	$243,002				
Contractor General Conditions			*8.0%*	$388,803				
Contractor Fee			*8.0%*	$388,803				
Project Bond/Insurance			*2.6%*	$126,361				
Mobilization/Demobilization			*3.0%*	$145,801				
Probable Construction Cost					**$6,152,807**			
Contingencies					**$1,845,842**			
Facility design allowances based on level of design	1	PER	25%	$1,538,202				
Market adjustment factor	1	PER	5%	$307,640				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,279,784**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$639,892				
Construction management fee	1	PER	8.0%	$639,892				

Total Probable Cost		**$9,279,000**
Low Range	**-30%**	**$6,496,000**
High Range	**50%**	**$13,919,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Recyclables Storage Building					**$4,337,965**		**$8,281,730**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	1,300	CY	*$3.90*	$5,070		$9,679		
Subgrade preparation	650	SY	*$1.30*	$845		$1,613		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	650	CY	*$36.00*	$23,400		$44,674		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	650	SY	*$65.00*	$42,250		$80,661		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Allowance for asphalt removal for footings	1	LS	$10,000.00	$10,000		$19,091		Cutting/removal of existing asphalt. Disposal onsite.
Storage Building (175' x 400')								
Strip Footings	1,150	LF	*$176.00*	$202,400		$386,408		
Slab-on-Grade concrete floor (8")	70,000	SF	*$12.00*	$840,000		$1,603,668		
Pre-Engineered Metal Building w/side walls	70,000	SF	$35.00	$2,450,000		$4,677,364		
Lighting, Conduit, Wire & Receptacles	70,000	SF	$5.70	$399,000		$761,742		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	0	SF	$135.00	$0		$0		
Man doors	7	EA	$2,000.00	$14,000		$26,728		
Overhead vertical doors (12' wide)	6	EA	$11,000.00	$66,000		$126,002		Historical cost
Allowance for fire alarms/sprinkler system	70,000	SF	$3.00	$210,000		$400,917		MEANS D4010
Allowance for security system	0	LS	$0.00	$0		$0		
Allowance for CCTV system	0	LS	$0.00	$0		$0		
Allowance for warehouse shelving	0	LS	$20,000.00	$0		$0		Historical cost
Aboveground 2x-walled 9500 L fuel storage tank/pump	0	EA	$11,000.00	$0		$0		$9500 purchase + $1500 allowance for delivery/install
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Incl in staff building
Sanitary sewer connection	0	LF	$0.00	$0		$0		Incl in staff building
Electrical tie-in to transformer	1,000	LF	$75.00	$75,000		$143,185		
Telecom connection	0	LF	$0.00	$0		$0		Incl in staff building
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Subtotal				$4,337,965	**$4,337,965**	$8,281,730	**$8,281,730**	
Contractor Markups and General Conditions					**$1,153,899**			
Contractor Home Office			*5.0%*	$216,898				
Contractor General Conditions			*8.0%*	$347,037				
Contractor Fee			*8.0%*	$347,037				
Project Bond/Insurance			*2.6%*	$112,787				
Mobilization/Demobilization			*3.0%*	$130,139				
Probable Construction Cost					**$5,491,864**			
Contingencies					**$1,647,559**			
Facility design allowances based on level of design	1	PER	25%	$1,372,966				
Market adjustment factor	1	PER	5%	$274,593				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,142,308**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$571,154				
Construction management fee	1	PER	8.0%	$571,154				

Total Probable Cost		**$8,282,000**
Low Range	**-30%**	**$5,798,000**
High Range	**50%**	**$12,423,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Primary Maintenance - Maintenance Area (250' x 300')					**$965,120**		**$1,842,538**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	0	SY	*$1.30*	$0		$0		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	0	CY	*$36.00*	$0		$0		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Allowance for ashphalt removal	1	LS	$75,000.00	$75,000		$143,185		Cutting/removal of existing asphalt. Disposal onsite.
4-Bay Building (75' x 160')								
Strip Footings	470	LF	*$176.00*	$82,720		$157,923		
Slab-on-Grade concrete floor (8")	12,000	SF	*$12.00*	$144,000		$274,914		
Pre-Engineered Metal Building w/side walls	12,000	SF	$35.00	$420,000		$801,834		
Lighting, Conduit, Wire & Receptacles	12,000	SF	$5.70	$68,400		$130,584		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$38,660		
Man doors	7	EA	$2,000.00	$14,000		$26,728		
Overhead vertical doors (12' wide)	4	EA	$11,000.00	$44,000		$84,002		Historical cost
Allowance for fire alarms/sprinkler system	12,000	SF	$3.00	$36,000		$68,729		MEANS D4010
Allowance for security system	0	LS	$0.00	$0		$0		
Allowance for CCTV system	0	LS	$0.00	$0		$0		
Allowance for warehouse shelving	1	LS	$20,000.00	$20,000		$38,183		Historical cost
Aboveground 2x-walled 9500 L fuel storage tank/pump	2	EA	$11,000.00	$22,000		$42,001		$9500 purchase + $1500 allowance for delivery/install
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Incl in staff building
Sanitary sewer connection	0	LF	$0.00	$0		$0		Incl in staff building
Electrical tie-in to transformer	250	LF	$75.00	$18,750		$35,796		
Telecom connection	0	LF	$0.00	$0		$0		Incl in staff building
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	0	LS	$7,500.00	$0		$0		
Subtotal				$965,120	**$965,120**	$1,842,538	**$1,842,538**	
Contractor Markups and General Conditions					**$256,722**			
Contractor Home Office			*5.0%*	$48,256				
Contractor General Conditions			*8.0%*	$77,210				
Contractor Fee			*8.0%*	$77,210				
Project Bond/Insurance			*2.6%*	$25,093				
Mobilization/Demobilization			*3.0%*	$28,954				
Probable Construction Cost					**$1,221,842**			
Contingencies					**$366,553**			
Facility design allowances based on level of design	1	PER	25%	$305,460				
Market adjustment factor	1	PER	5%	$61,092				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$254,143**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$127,072				
Construction management fee	1	PER	8.0%	$127,072				

Total Probable Cost		**$1,843,000**
Low Range	**-30%**	**$1,291,000**
High Range	**50%**	**$2,765,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Satellite Maintenance and Staff - Maintenance Area (250' x 300')					**$1,254,184**		**$2,394,397**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	8,334	SY	*$1.30*	$10,834		$20,684		Roadway included with Western Entrance
Fine grade site, machine	8,334	SY	*$1.20*	$10,001		$19,093		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	8,334	SY	*$1.30*	$10,834		$20,684		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	309	CY	*$36.00*	$11,112		$21,214		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	8,334	SY	*$65.00*	$541,710		$1,034,194		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
3-Bay Building (65' x 125')								
Strip Footings	380	LF	*$176.00*	$66,880		$127,682		
Slab-on-Grade concrete floor (8")	8,125	SF	*$12.00*	$97,500		$186,140		Incl in Receiving Pad Cost
Pre-Engineered Metal Building w/side walls	8,125	SF	$35.00	$284,375		$542,908		
Lighting, Conduit, Wire & Receptacles	8,125	SF	$5.70	$46,313		$88,416		MEANS D5020 115, D5020 210
Office Area - Complete Build-Out, Fixtures and Furnishings	150	SF	$135.00	$20,250		$38,660		
Man doors	5	EA	$2,000.00	$10,000		$19,091		
Overhead vertical doors (12' wide)	3	EA	$11,000.00	$33,000		$63,001		Historical cost
Allowance for fire alarms/sprinkler system	8,125	SF	$3.00	$24,375		$46,535		MEANS D4010
Allowance for security system	0	LS	$0.00	$0		$0		
Allowance for CCTV system	0	LS	$0.00	$0		$0		
Allowance for warehouse shelving	1	LS	$20,000.00	$20,000		$38,183		Historical cost
Aboveground 2x-walled 9500 L fuel storage tank/pump	2	EA	$11,000.00	$22,000		$42,001		$9500 purchase + $1500 allowance for delivery/install
Utility Connections								
Potable water connection	0	LF	$0.00	$0		$0		Incl in staff building
Sanitary sewer connection	0	LF	$0.00	$0		$0		Incl in staff building
Electrical tie-in to transformer	500	LF	$75.00	$37,500		$71,592		
Telecom connection	0	LF	$0.00	$0		$0		Incl in staff building
Natural gas connection	0	LF	$80.00	$0		$0		
Environmental Protection								
Clay liner	0	SF	$3.40	$0		$0		
Groundwater monitoring wells	1	LS	$7,500.00	$7,500		$14,318		
Satellite Maintenance and Staff - Staff Bldg and Parking Area (100' x 220')					**$0**		**$0**	
Earthworks, Pads and Roadways								
Strip topsoil (12" deep) and stockpile onsite	0	SY	*$1.30*	$0		$0		No staff building
Fine grade site, machine	0	SY	*$1.20*	$0		$0		
Common excavation to Stockpile (2' deep)	0	CY	*$3.90*	$0		$0		
Subgrade preparation	0	SY	*$1.30*	$0		$0		
Granular sub-base (3" minus, 6" thick)	0	CY	*$36.00*	$0		$0		
Granular base (DGA, 12" thick)	0	CY	*$36.00*	$0		$0		
Curb and gutter	0	LF	*$14.00*	$0		$0		
Asphalt paving (9" thick)	0	SY	*$65.00*	$0		$0		
Roadway/Perimeter Ditching	0	LF	*$1.50*	$0		$0		
Staff Building								
60' Pre-fab Changeroom Contruction Trailer	0	LS	$90,000.00	$0		$0		
Utility Connections								
Potable water connection	0	LF	$70.00	$0		$0		
Sanitary sewer connection	0	LF	$85.00	$0		$0		
Electrical tie-in to transformer	0	LF	$75.00	$0		$0		Incl in maintenance building
Telecom connection	0	LF	$60.00	$0		$0		
Natural gas connection	0	LF	$80.00	$0		$0		
Subtotal				$1,254,184	**$1,254,184**	$2,394,397	**$2,394,397**	
Contractor Markups and General Conditions					**$333,613**			
Contractor Home Office			*5.0%*	$62,709				
Contractor General Conditions			*8.0%*	$100,335				
Contractor Fee			*8.0%*	$100,335				
Project Bond/Insurance			*2.6%*	$32,609				
Mobilization/Demobilization			*3.0%*	$37,626				
Probable Construction Cost					**$1,587,797**			
Contingencies					**$476,339**			
Facility design allowances based on level of design	1	PER	25%	$396,949				
Market adjustment factor	1	PER	5%	$79,390				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$330,262**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$165,131				
Construction management fee	1	PER	8.0%	$165,131				
			Total Probable Cost		**$2,395,000**			
			Low Range	**-30%**	**$1,677,000**			
			High Range	**50%**	**$3,593,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
New Storm Water Ponds					**$2,345,932**		**$4,478,684**	
C&D Stormwater Pond								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 1000-ye
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$80,000.00	$80,000		$152,730		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Clearing and Grubbing	8,167	SY	$1.30	$10,617		$20,269		
Excavation	12,153	CY	$2.50	$30,382		$58,003		
Landfill Stormwater Pond								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 1000-ye
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$150,000.00	$150,000		$286,369		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Unload Geosynthetics	1	LS	$20,000.00	$20,000		$38,183		
Clearing and Grubbing	86,667	SY	$1.30	$112,667		$215,095		
Excavation	192,684	CY	$2.50	$481,709		$919,644		
HDPE Double-Sided Textured Geomembrane	783,950	SF	$1.60	$1,254,320		$2,394,657		
Public Area Stormwater Pond								Source: Pond Costs.xlsx; Drainage Calculations.xlsx; costs from Golder WRSL Estimate; assume 1000-ye
Project Management	1	LS	$15,000.00	$15,000		$28,637		
Design	1	LS	$80,000.00	$80,000		$152,730		
Mob and Demob	1	LS	$15,000.00	$15,000		$28,637		
Clearing and Grubbing	8,333	SY	$1.30	$10,833		$20,682		
Excavation	10,162	CY	$2.50	$25,404		$48,500		
Subtotal				$2,345,932	**$2,345,932**	$4,478,684	**$4,478,684**	
Contractor Markups and General Conditions					**$624,018**			
Contractor Home Office			*5.0%*	$117,297				
Contractor General Conditions			*8.0%*	$187,675				
Contractor Fee			*8.0%*	$187,675				
Project Bond/Insurance			*2.6%*	$60,994				
Mobilization/Demobilization			*3.0%*	$70,378				
Probable Construction Cost					**$2,969,950**			
Contingencies					**$890,985**			
Facility design allowances based on level of design	1	PER	25%	$742,487				
Market adjustment factor	1	PER	5%	$148,497				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$617,750**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$308,875				
Construction management fee	1	PER	8.0%	$308,875				

Total Probable Cost		**$4,479,000**
Low Range	**-30%**	**$3,136,000**
High Range	**50%**	**$6,719,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Compost Pond Removal					**$113,994**		**$217,629**	
Compost Pond Removal								Pond Removal.xlsx; Costs from Golder WRSL Cost Estimate
Design and Permitting	1	ea	$50,000.00	$50,000		$95,456		
Mobilization/Demobilization	1	ea	$10,000.00	$10,000		$19,091		
Excavation	4,004	cy	$3.00	$12,011		$22,931		
Earthfill	10,038	cy	$4.00	$40,153		$76,657		
Revegetation	1	ac	$1,500.00	$1,830		$3,494		
Subtotal				$113,994	**$113,994**	$217,629	**$217,629**	
Contractor Markups and General Conditions					**$30,322**			
Contractor Home Office			*5.0%*	$5,700				
Contractor General Conditions			*8.0%*	$9,120				
Contractor Fee			*8.0%*	$9,120				
Project Bond/Insurance			*2.6%*	$2,964				
Mobilization/Demobilization			*3.0%*	$3,420				
Probable Construction Cost					**$144,316**			
Contingencies					**$43,295**			
Facility design allowances based on level of design	1	PER	25%	$36,079				
Market adjustment factor	1	PER	5%	$7,216				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$30,018**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$15,009				
Construction management fee	1	PER	8.0%	$15,009				
			Total Probable Cost		**$218,000**			
			Low Range	**-30%**	**$153,000**			
			High Range	**50%**	**$327,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Special Permits					**$6,973,364**		**$6,973,364**	
Solid Waste Facility Permitting								Source: permit_list.xlsx
Landfill	0	LS	$0.00	$0		$0		Assume already covered in LF Modules sheet
Compost facility	1	LS	$4,423,996.24	$4,423,996		$4,423,996		Assume cost is 10% of total capital for Compost (Common Pads + Compost Option 4)
Environmental/ Land Use/ Local Permitting								
Entire facility	1	LS	$2,549,367.66	$2,549,368		$2,549,368		Assume cost is 1% of landfill construction capital cost applied 2 years before landfill construction on weste
Geotechnical Investigations					**$180,000**		**$180,000**	Assume 6 investigations beginning in Year 1 every 5 years.
Geotechnical Investigation								
Allowance for geotechnical investigation	6	LS	$30,000.00	$180,000		$180,000		Assume 2 per parcel
Subtotal				$7,153,364	**$7,153,364**	$7,153,364	**$7,153,364**	
Contractor Markups and General Conditions					**$0**			No contractor markups for permitting
Contractor Home Office			*0.0%*	$0				
Contractor General Conditions			*0.0%*	$0				
Contractor Fee			*0.0%*	$0				
Project Bond/Insurance			*0.0%*	$0				
Mobilization/Demobilization			*0.0%*	$0				
Probable Construction Cost					**$7,153,364**			
Contingencies					**$0**			
Facility design allowances based on level of design	1	PER	0%	$0				Contingency already built into costs from Compost
Market adjustment factor	1	PER	0%	$0				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$0**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	0.0%	$0				Permitting fee built in
Construction management fee	1	PER	0.0%	$0				No construction management fee

Total Probable Cost		**$7,154,000**
Low Range	**-30%**	**$5,008,000**
High Range	**50%**	**$10,731,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Wetlands Mitigation					**$5,452,500**		**$8,222,370**	
Wetlands Mitigation								Source: CostAnalysis_WetlandImpacts_GISData_10262018.xlsx
Vernal pools mitigation	4.0	EA	$300,000.00	$1,197,720		$1,806,162		Assume 3:1 mitigation area for vernal pools only per Jacobs biologist, 10/25/2018
Everything but agricultural ponds, Irrigated wetland	12.9	EA	$300,000.00	$3,855,360		$5,813,883		Assume 2:1 mitigation area on everything else, incl swales, except agricultural ponds, irrigated wetland per Jacobs biologist, 10/25/2018
Agricultural ponds, Irrigated wetland	1.3	EA	$300,000.00	$399,420		$602,325		Assume 1:1 on mitigation area on agricultural ponds, irrigated wetland per Jacobs biologist, 10/25/2018
Subtotal				$5,452,500	**$5,452,500**	$8,222,370	**$8,222,370**	
Contractor Markups and General Conditions					**$0**			No contractor markups
Contractor Home Office			*0.0%*	$0				
Contractor General Conditions			*0.0%*	$0				
Contractor Fee			*0.0%*	$0				
Project Bond/Insurance			*0.0%*	$0				
Mobilization/Demobilization			*0.0%*	$0				
Probable Construction Cost					**$5,452,500**			
Contingencies					**$1,635,750**			
Facility design allowances based on level of design	1	PER	25%	$1,363,125				
Market adjustment factor	1	PER	5%	$272,625				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$1,134,120**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$567,060				
Construction management fee	1	PER	8.0%	$567,060				
			Total Probable Cost		**$8,223,000**			
			Low Range	**-30%**	**$5,757,000**			
			High Range	**50%**	**$12,335,000**			

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Facility Beautification					**$1,646,400**		**$3,143,189**	
Irrigation from existing non-potable water source								
Main irrigation control system (8-station controller)	1	LS	$2,400.00	$2,400		$4,582		
Valve stations (up to 8 valve assemblies)	8	EA	$1,200.00	$9,600		$18,328		Includes valves and solenoids
Irrigation main piping and trenching	33,200	LF	$14.00	$464,800		$887,363		Assume perimeter of western property + perimeter of main and eastern merged; mixed vegetation for commercial property; assume 3/4-inch PVC pipe, minimum 12 inch deep
Lateral piping	16,600	LF	$12.00	$199,200		$380,298		Assume lateral piping is 50% of main piping, includes sprinkler heads
Signal wiring	3,320	LF	$0.80	$2,656		$5,071		Assume connection to valve stations; 10% of main piping
Tie-in connection to existing main header	1	EA	$700.00	$700		$1,336		
Enhanced vegetation								
Topsoil	6,148	CY	$30.00	$184,444		$352,128		Imported topsoil spread along perimeter, 10 ft wide x 6" depth
Vegetation along perimeter of site	33,200	LF	$3.00	$99,600		$190,149		Assume new fencing perimeter to enclose new landfill on western property + perimeter of main and C&D on eastern; mixed vegetation for commercial property
Landscaping/vegetation at new admin building	1,000	SF	$2.00	$2,000		$3,818		Assume 1,000 sf; mixed vegetation (trees, shrubs) for commercial property
Landscaping/vegetation at main entrance	500	SF	$3.00	$1,500		$2,864		Assume 500 sf; mixed vegetation (trees, shrubs) for commercial property
Fencing								
6-ft chain link or comparable	18,900	LF	$35.00	$661,500		$1,262,888		Assume existing fencing will be used; this is only new fencing to enclose landfill on western property and C
Fence gates for maintenance truck access, if needed	6	EA	$3,000.00	$18,000		$34,364		Assume 6 gates
Subtotal				$1,646,400	**$1,646,400**	$3,143,189	**$3,143,189**	
Contractor Markups and General Conditions					**$437,943**			
Contractor Home Office			*5.0%*	$82,320				
Contractor General Conditions			*8.0%*	$131,712				
Contractor Fee			*8.0%*	$131,712				
Project Bond/Insurance			*2.6%*	$42,806				
Mobilization/Demobilization			*3.0%*	$49,392				
Probable Construction Cost					**$2,084,343**			
Contingencies					**$625,303**			
Facility design allowances based on level of design	1	PER	25%	$521,086				
Market adjustment factor	1	PER	5%	$104,217				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$433,543**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$216,772				
Construction management fee	1	PER	8.0%	$216,772				

Total Probable Cost		**$3,144,000**
Low Range	**-30%**	**$2,201,000**
High Range	**50%**	**$4,716,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Site-wide Demolition and Disposal					**$1,501,708**		**$2,866,952**	
Demolition of existing infrastructure								
Pad demolition	19,531	CY	$55.00	$1,074,231		$2,050,844		Assume 9" thick pads, existing public area demo and partial C&D pad demo
Building demolition	11,111	CY	$4.00	$44,444		$84,850		Assume three 100'x100'x50' building demo with density factor 0.2
Demolition debris disposal	15,321	CY	$25.00	$383,032		$731,258		Assume half of demolition debris can be disposed of onsite (no cost)
Subtotal				$1,501,708	**$1,501,708**	$2,866,952	**$2,866,952**	
Contractor Markups and General Conditions					**$399,454**			
Contractor Home Office			*5.0%*	$75,085				
Contractor General Conditions			*8.0%*	$120,137				
Contractor Fee			*8.0%*	$120,137				
Project Bond/Insurance			*2.6%*	$39,044				
Mobilization/Demobilization			*3.0%*	$45,051				
Probable Construction Cost					**$1,901,162**			
Contingencies					**$570,349**			
Facility design allowances based on level of design	1	PER	25%	$475,290				
Market adjustment factor	1	PER	5%	$95,058				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$395,442**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$197,721				
Construction management fee	1	PER	8.0%	$197,721				

Total Probable Cost		**$2,867,000**
Low Range	**-30%**	**$2,007,000**
High Range	**50%**	**$4,301,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
Shared Site Utilities					**$1,603,400**		**$3,061,096**	
Sewer line extension								
Sewer line piping	5,300	LF	$280.00	$1,484,000		$2,833,146		Assume 36" diameter or other standard size for sanitary sewer through industrial zone; length is along Fiddyment Rd between Sunset Blvd and Athens Ave
Stub-out for future connections	2	EA	$12,000.00	$24,000		$45,819		Need utility interchange at Fiddyment/Athens, including stubs and blind flange for any future connection
Manhole	11	EA	$9,000.00	$95,400		$182,131		Assume manhole every 500 lf
Subtotal				$1,603,400	**$1,603,400**	$3,061,096	**$3,061,096**	
Contractor Markups and General Conditions					**$426,504**			
Contractor Home Office			*5.0%*	$80,170				
Contractor General Conditions			*8.0%*	$128,272				
Contractor Fee			*8.0%*	$128,272				
Project Bond/Insurance			*2.6%*	$41,688				
Mobilization/Demobilization			*3.0%*	$48,102				
Probable Construction Cost					**$2,029,904**			
Contingencies					**$608,971**			
Facility design allowances based on level of design	1	PER	25%	$507,476				
Market adjustment factor	1	PER	5%	$101,495				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$422,220**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$211,110				
Construction management fee	1	PER	8.0%	$211,110				

Total Probable Cost		**$3,062,000**
Low Range	**-30%**	**$2,144,000**
High Range	**50%**	**$4,593,000**

Rough Order of Magnitude (Class 4) Cost Opinion
Renewable Placer - Waste Action Plan
Roseville, CA
Date: Oct-30-2018

DRAFT

Description	Qty	Unit	Unit Cost	Total Cost	Subtotals	Total Cost w/ Markup, Cont., & Fee	Subtotals w/ Markup, Cont., & Fee	Notes
MRF Upgrade to TS					**$217,778**		**$415,766**	
Earthworks								
Existing asphalt removal	111	CY	$30.00	$3,333		$6,364		Assume excavate two bays to install scales, 100 feet length by 20 feet width with 9" thick existing asphalt
Asphalt paving (9" thick)	222	SY	*$65.00*	$14,444		$27,576		
Scales and Instrumentation								
Truck scale (100') supply and install include concrete footings	2	LS	$100,000.00	$200,000		$381,826		
Subtotal				$217,778	**$217,778**	$415,766	**$415,766**	
Contractor Markups and General Conditions					**$57,929**			
Contractor Home Office			*5.0%*	$10,889				
Contractor General Conditions			*8.0%*	$17,422				
Contractor Fee			*8.0%*	$17,422				
Project Bond/Insurance			*2.6%*	$5,662				
Mobilization/Demobilization			*3.0%*	$6,533				
Probable Construction Cost					**$275,707**			
Contingencies					**$82,712**			
Facility design allowances based on level of design	1	PER	25%	$68,927				
Market adjustment factor	1	PER	5%	$13,785				
Escalation	1	PER	0%	$0				
Consultant and Subcontractor Fees					**$57,347**			
Allowance for geotechnical investigation	0	LS	$30,000.00	$0				Assume 2 geotech investigation allowances per parcel.
Allowance for environmental permitting	1	LS	$0.00	$0				
Engineering design and municipal permitting fee	1	PER	8.0%	$28,673				
Construction management fee	1	PER	8.0%	$28,673				
			Total Probable Cost		**$416,000**			
			Low Range	**-30%**	**$292,000**			
			High Range	**50%**	**$624,000**			

Appendix 4A-3
Capital Cost Outlays

Appendix 4A-3
Capital Cost Outlay
Plan Concept 0

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		Base Data															
		2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Critical Elements																	
Public Area																	
Public Area - Roadways								$ 1,799,189									
Replace Roadways	25																
Public Area - Buyback (220' x 230')								$ 2,655,780									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Public Area - HHW (300' x 100')								$ 1,787,519									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Public Area - Reuse Store Area (155' x 140')								$ 1,909,078									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Public Area - Tipping Area								$ 8,856,534									
Replace Pads	20																
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30																
Public Area - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 17,008,099	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																	
C&D - C&D Pad										$ 10,175,809							
Replace Pads	20																
Replace Overhang Structure	50																
C&D - Processing Line										$ 7,922,881							
Replace Processing Equipment	10																
Replace Utility Connections	30																
C&D - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,098,690	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')													$ 702,273				
Replace Pads	20																
Compost - Wood Waste Pad (115' x 225')													$ 384,578				
Replace Pads	20																
Compost - Outdoor Receiving Area (90' x 200')													$ 2,228,708				
Replace Pads	20																
Replace Specialty Equipment	10																
Replace Utility Connections	30																
Compost - Screening and Product Storage Pad (400' x 350')													$ 3,779,991				
Replace Pads	20																
Replace Specialty Equipment	10																
Replace Utility Connections	30																
Compost - Temporary Positive ASP System							$ 470,829										
Compost - Active Composting System (205' x 880')													$ 7,405,812				
Replace Pads	20																
Replace ASPs (concrete replacement schedule)	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Compost - Biofilter (135' x 880')													$ 2,561,311				
Replace Pads	20																
Replace Biofilters (concrete replacement schedule)	20																
Compost - ASP Curing System (185' x 880')							$ 4,853,713						$ 3,671,261				
Replace Pads	20																
Replace ASPs (concrete replacement schedule)	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Compost - Dedicated Stormwater Ponds							$ 1,057,713										
Replace Stormwater Ponds (liner)	30																
Compost - Miscellaneous Equipment							$ 12,409										
Replace Mechanical	10																$ 12,409
Compost - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 6,394,665	$ -	$ -	$ -	$ -	$ -	$ 20,733,934	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,409
Landfill																	
Landfill Construction								$ 18,071,362									$ 18,071,362
Unlined Area Excavation/Backfill							$ 40,731,437	$ 40,731,437	$ 20,882,042								
Stockpile Relocation							$ 6,681,948						$ 6,681,948				$ 13,363,896
Closure Costs																	
Landfill - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 47,413,385	$ 58,802,799	$ 20,882,042	$ -	$ -	$ -	$ 6,681,948	$ -	$ -	$ -	$ 31,435,258

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

	Replacement Frequency Interval (Years)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25																$ 1,799,189
Public Area - Buyback (220' x 230')																	
Replace Pads	20											$ 786,391					
Replace Building	50																
Replace Utility Connections	30																
Public Area - HHW (300' x 100')																	
Replace Pads	20											$ 588,126					
Replace Building	50																
Replace Utility Connections	30																
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20											$ 342,244					
Replace Building	50																
Replace Utility Connections	30																
Public Area - Tipping Area																	
Replace Pads	20											$ 2,116,291					
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30																
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,833,052	$ -	$ -	$ -	$ -	$ 1,799,189
C&D																	
C&D - C&D Pad																	
Replace Pads	20													$ 7,884,855			
Replace Overhang Structure	50																
C&D - Processing Line																	
Replace Processing Equipment	10			$ 7,636,512										$ 7,636,512			
Replace Utility Connections	30																
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ 7,636,512	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,521,367	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')		$ 351,136					$ 351,136										
Replace Pads	20																$ 702,273
Compost - Wood Waste Pad (115' x 225')		$ 192,289					$ 192,289										
Replace Pads	20																$ 384,578
Compost - Outdoor Receiving Area (90' x 200')		$ 116,835					$ 116,835										
Replace Pads	20																$ 226,510
Replace Specialty Equipment	10						$ 1,995,039										$ 1,995,039
Replace Utility Connections	30																
Compost - Screening and Product Storage Pad (400' x 350')		$ 1,076,230					$ 1,076,230										
Replace Pads	20																$ 2,080,868
Replace Specialty Equipment	10						$ 1,627,532										$ 1,627,532
Replace Utility Connections	30																
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')		$ 3,702,906					$ 3,702,906										
Replace Pads	20																$ 2,686,872
Replace ASPs (concrete replacement schedule)	20																$ 4,665,246
Replace Mechanical	10						$ 645,371					$ 322,685					$ 322,685
Replace Utility Connections	30																
Compost - Biofilter (135' x 880')		$ 1,280,656					$ 1,280,656										
Replace Pads	20																$ 1,765,714
Replace Biofilters (concrete replacement schedule)	20																$ 788,438
Compost - ASP Curing System (185' x 880')		$ 1,835,630					$ 1,835,630										
Replace Pads	20																$ 2,419,697
Replace ASPs (concrete replacement schedule)	20																$ 3,617,566
Replace Mechanical	10						$ 448,509					$ 224,255					$ 224,255
Replace Utility Connections	30																
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Compost - Miscellaneous Equipment																	
Replace Mechanical	10										$ 12,409						
Compost - Subtotal Initial Costs		$ 8,555,682	$ -	$ -	$ -	$ -	$ 8,555,682	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ 4,716,450	$ -	$ -	$ -	$ 12,409	$ 546,940	$ -	$ -	$ -	$ -	$ 23,507,272
Landfill																	
Landfill Construction											$ 18,071,362						
Unlined Area Excavation/Backfill																	
Stockpile Relocation											$ 13,363,896						
Closure Costs		$ 14,405,203										$ 14,405,203					$ 14,405,203
Landfill - Subtotal Initial Costs		$ 14,405,203	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 31,435,258	$ 14,405,203	$ -	$ -	$ -	$ -	$ 14,405,203

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

	Replacement Frequency Interval (Years)	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25																
Public Area - Buyback (220' x 230')																	
Replace Pads	20															$ 786,391	
Replace Building	50																
Replace Utility Connections	30					$ 59,249											
Public Area - HHW (300' x 100')																	
Replace Pads	20															$ 588,126	
Replace Building	50																
Replace Utility Connections	30					$ 143,185											
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20															$ 342,244	
Replace Building	50																
Replace Utility Connections	30					$ 37,771											
Public Area - Tipping Area																	
Replace Pads	20															$ 2,116,291	
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30					$ 141,703											
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 381,908	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,833,052	$ -
C&D																	
C&D - C&D Pad																	
Replace Pads	20																
Replace Overhang Structure	50																
C&D - Processing Line																	
Replace Processing Equipment	10							$ 7,636,512									
Replace Utility Connections	30							$ 286,369									
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 7,922,881	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20					$ 351,136					$ 351,136						
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20					$ 192,289					$ 192,289						
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20					$ 113,255					$ 113,255						
Replace Specialty Equipment	10										$ 1,995,039						
Replace Utility Connections	30										$ 7,159					$ 3,580	
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20					$ 1,040,434					$ 1,040,434						
Replace Specialty Equipment	10										$ 1,627,532						
Replace Utility Connections	30										$ 71,592					$ 35,796	
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20					$ 1,343,436					$ 1,343,436						
Replace ASPs (concrete replacement schedule)	20					$ 2,332,623					$ 2,332,623						
Replace Mechanical	10										$ 645,371					$ 322,685	
Replace Utility Connections	30										$ 53,694					$ 26,847	
Compost - Biofilter (135' x 880')																	
Replace Pads	20					$ 882,857					$ 882,857						
Replace Biofilters (concrete replacement schedule)	20					$ 394,219					$ 394,219						
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20					$ 1,209,849					$ 1,209,849						
Replace ASPs (concrete replacement schedule)	20					$ 1,808,783					$ 1,808,783						
Replace Mechanical	10										$ 448,509					$ 224,255	
Replace Utility Connections	30										$ 53,694					$ 26,847	
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30				$ 557,924												
Compost - Miscellaneous Equipment																	
Replace Mechanical	10				$ 12,409										$ 12,409		
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ -	$ -	$ 570,333	$ 9,668,881	$ -	$ -	$ -	$ -	$ 14,571,471	$ -	$ -	$ -	$ 12,409	$ 640,010	$ -
Landfill																	
Landfill Construction																	
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs																	
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2065 43	2066 44	2067 45	2068 46	2069 47	2070 48	2071 49	2072 50	2073 51	2074 52	2075 53	2076 54	2077 55	2078 56	2079 57	2080 58
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25									$ 1,799,189							
Public Area - Buyback (220' x 230')																	
Replace Pads	20																
Replace Building	50									$ 1,810,140							
Replace Utility Connections	30																
Public Area - HHW (300' x 100')																	
Replace Pads	20																
Replace Building	50									$ 1,056,209							
Replace Utility Connections	30																
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20																
Replace Building	50									$ 1,529,063							
Replace Utility Connections	30																
Public Area - Tipping Area																	
Replace Pads	20																
Replace Tipping Building	50									$ 5,250,629							
Replace Building - Specialty	50									$ 1,347,910							
Replace Utility Connections	30																
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,793,139	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																	
C&D - C&D Pad																	
Replace Pads	20	$ 7,884,855															
Replace Overhang Structure	50											$ 2,290,954					
C&D - Processing Line																	
Replace Processing Equipment	10	$ 7,636,512										$ 7,636,512					
Replace Utility Connections	30																
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ 15,521,367	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,927,466	$ -	$ -	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20				$ 702,273					$ 351,136					$ 351,136		
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20				$ 384,578					$ 192,289					$ 192,289		
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20				$ 226,510					$ 113,255					$ 113,255		
Replace Specialty Equipment	10				$ 1,995,039										$ 1,995,039		
Replace Utility Connections	30				$ 3,580												
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20				$ 2,080,868					$ 1,040,434					$ 1,040,434		
Replace Specialty Equipment	10				$ 1,627,532										$ 1,627,532		
Replace Utility Connections	30				$ 35,796												
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20				$ 2,686,872					$ 1,343,436					$ 1,343,436		
Replace ASPs (concrete replacement schedule)	20				$ 4,665,246					$ 2,332,623					$ 2,332,623		
Replace Mechanical	10				$ 322,685										$ 645,371		
Replace Utility Connections	30				$ 26,847												
Compost - Biofilter (135' x 880')																	
Replace Pads	20				$ 1,765,714					$ 882,857					$ 882,857		
Replace Biofilters (concrete replacement schedule)	20				$ 788,438					$ 394,219					$ 394,219		
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20				$ 2,419,697					$ 1,209,849					$ 1,209,849		
Replace ASPs (concrete replacement schedule)	20				$ 3,617,566					$ 1,808,783					$ 1,808,783		
Replace Mechanical	10				$ 224,255										$ 448,509		
Replace Utility Connections	30				$ 26,847												
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Compost - Miscellaneous Equipment																	
Replace Mechanical	10								$ 12,409								
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ -	$ -	$ 23,600,342	$ -	$ -	$ -	$ 12,409	$ 9,668,881	$ -	$ -	$ -	$ -	$ 14,385,331	$ -	$ -
Landfill																	
Landfill Construction																	
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs																	
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

	Replacement Frequency Interval (Years)	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096
		59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25																
Public Area - Buyback (220' x 230')																	
Replace Pads	20			$ 786,391													
Replace Building	50																
Replace Utility Connections	30			$ 59,249													
Public Area - HHW (300' x 100')																	
Replace Pads	20			$ 588,126													
Replace Building	50																
Replace Utility Connections	30			$ 143,185													
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20			$ 342,244													
Replace Building	50																
Replace Utility Connections	30			$ 37,771													
Public Area - Tipping Area																	
Replace Pads	20			$ 2,116,291													
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30			$ 141,703													
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ 4,214,960	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																	
C&D - C&D Pad																	
Replace Pads	20					$ 7,884,855											
Replace Overhang Structure	50																
C&D - Processing Line																	
Replace Processing Equipment	10					$ 7,636,512										$ 7,636,512	
Replace Utility Connections	30					$ 286,369											
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 15,807,736	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,636,512	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20								$ 702,273					$ 351,136			
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20								$ 384,578					$ 192,289			
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20								$ 226,510					$ 113,255			
Replace Specialty Equipment	10								$ 1,995,039								
Replace Utility Connections	30								$ 7,159					$ 3,580			
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20								$ 2,080,868					$ 1,040,434			
Replace Specialty Equipment	10								$ 1,627,532								
Replace Utility Connections	30								$ 71,592					$ 35,796			
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20								$ 2,686,872					$ 1,343,436			
Replace ASPs (concrete replacement schedule)	20								$ 4,665,246					$ 2,332,623			
Replace Mechanical	10			$ 322,685					$ 322,685								
Replace Utility Connections	30								$ 53,694					$ 26,847			
Compost - Biofilter (135' x 880')																	
Replace Pads	20								$ 1,765,714					$ 882,857			
Replace Biofilters (concrete replacement schedule)	20								$ 788,438					$ 394,219			
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20								$ 2,419,697					$ 1,209,849			
Replace ASPs (concrete replacement schedule)	20								$ 3,617,566					$ 1,808,783			
Replace Mechanical	10			$ 224,255					$ 224,255								
Replace Utility Connections	30								$ 53,694					$ 26,847			
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30		$ 557,924														
Compost - Miscellaneous Equipment																	
Replace Mechanical	10		$ 12,409										$ 12,409				
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ 570,333	$ 546,940	$ -	$ -	$ -	$ -	$ 23,693,412	$ -	$ -	$ -	$ 12,409	$ 9,761,951	$ -	$ -	$ -
Landfill																	
Landfill Construction																	
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs																	
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

	Replacement Frequency Interval (Years)	2097 75	2098 76	2099 77	2100 78	2101 79	2102 80	2103 81	2104 82	2105 83	2106 84	2107 85	2108 86	2109 87	Remaining Useful Life
INITIAL CAPITAL AND REPLACEMENT COSTS															
Critical Elements															
Public Area															
Public Area - Roadways															
Replace Roadways	25		$ 1,799,189												$ (1,007,545.59)
Public Area - Buyback (220' x 230')															
Replace Pads	20							$ 786,391							$ (550,473.85)
Replace Building	50														$ (506,839.12)
Replace Utility Connections	30														$ (7,899.84)
Public Area - HHW (300' x 100')															
Replace Pads	20							$ 588,126							$ (411,688.00)
Replace Building	50														$ (295,738.41)
Replace Utility Connections	30														$ (19,091.28)
Public Area - Reuse Store Area (155' x 140')															
Replace Pads	20							$ 342,244							$ (239,570.78)
Replace Building	50														$ (428,137.75)
Replace Utility Connections	30														$ (5,036.15)
Public Area - Tipping Area															
Replace Pads	20							$ 2,116,291							$ (1,481,403.91)
Replace Tipping Building	50														$ (1,470,176.02)
Replace Building - Specialty	50														$ (377,414.86)
Replace Utility Connections	30														$ (18,893.78)
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ 1,799,189	$ -	$ -	$ -	$ -	$ 3,833,052	$ -	$ -	$ -	$ -	$ -	$ -	$ (6,819,909)
C&D															
C&D - C&D Pad															
Replace Pads	20									$ 7,884,855					$ (6,307,883.95)
Replace Overhang Structure	50														$ (733,105.15)
C&D - Processing Line															
Replace Processing Equipment	10									$ 7,636,512					$ (4,581,907.20)
Replace Utility Connections	30														$ (57,273.84)
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,521,367	$ -	$ -	$ -	$ -	$ (11,680,170)
Composting															
Compost - Green Waste Pad (210' x 225')															
Replace Pads	20		$ 351,136										$ 702,273		$ (895,397.74)
Compost - Wood Waste Pad (115' x 225')															
Replace Pads	20		$ 192,289										$ 384,578		$ (490,336.86)
Compost - Outdoor Receiving Area (90' x 200')															
Replace Pads	20		$ 113,255										$ 226,510		$ (288,800.36)
Replace Specialty Equipment	10		$ 1,995,039										$ 1,995,039		$ (1,795,534.88)
Replace Utility Connections	30		$ 3,580												$ (6,085.35)
Compost - Screening and Product Storage Pad (400' x 350')															
Replace Pads	20		$ 1,040,434										$ 2,080,868		$ (2,653,106.13)
Replace Specialty Equipment	10		$ 1,627,532										$ 1,627,532		$ (1,464,778.46)
Replace Utility Connections	30		$ 35,796												$ (60,853.46)
Compost - Temporary Positive ASP System															
Compost - Active Composting System (205' x 880')															
Replace Pads	20		$ 1,343,436										$ 2,686,872		$ (3,425,761.61)
Replace ASPs (concrete replacement schedule)	20		$ 2,332,623										$ 4,665,246		$ (5,948,188.04)
Replace Mechanical	10		$ 645,371					$ 322,685					$ 322,685		$ (354,953.94)
Replace Utility Connections	30		$ 26,847												$ (45,640.09)
Compost - Biofilter (135' x 880')															
Replace Pads	20		$ 882,857										$ 1,765,714		$ (2,251,285.74)
Replace Biofilters (concrete replacement schedule)	20		$ 394,219										$ 788,438		$ (1,005,258.40)
Compost - ASP Curing System (185' x 880')															
Replace Pads	20		$ 1,209,849										$ 2,419,697		$ (3,085,114.22)
Replace ASPs (concrete replacement schedule)	20		$ 1,808,783										$ 3,617,566		$ (4,612,397.07)
Replace Mechanical	10		$ 448,509					$ 224,255					$ 224,255		$ (246,680.03)
Replace Utility Connections	30		$ 26,847												$ (45,640.09)
Compost - Dedicated Stormwater Ponds															
Replace Stormwater Ponds (liner)	30														$ (55,792.36)
Compost - Miscellaneous Equipment															
Replace Mechanical	10						$ 12,409								$ (3,722.80)
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ 14,478,401	$ -	$ -	$ -	$ 12,409	$ 546,940	$ -	$ -	$ -	$ -	$ 23,507,272	$ -	$ (28,735,328)
Landfill															
Landfill Construction															
Unlined Area Excavation/Backfill															
Stockpile Relocation															
Closure Costs															
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

	Replacement Frequency Interval (Years)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
		Base Data															
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg									$ 6,310,623								
Replace Building	50																
Replace Utility Connections	30																
Admin Staff Parking Lot									$ 74,376								
Replace Parking Lot	25																
Admin - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ 6,384,999	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways												$ 802,788					
Replace Roadways	25																
Main Entrance - Scale/Building							$ 381,826					$ 1,166,732					
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Main Entrance - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 381,826	$ -	$ -	$ -	$ -	$ 1,969,520	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass	25																
Overpass - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building													$ 8,281,730				
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Recovered Materials Storage - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,281,730	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')								$ 1,842,538									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Primary Maintenance - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 1,842,538	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds								$ 627,077	$ 627,077								
Replace Stormwater Ponds (liner)	30																
Stormwater Pond - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 627,077	$ 627,077	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50																
Replace Utility Connections	30																
Admin Staff Parking Lot																	
Replace Parking Lot	25																
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25																
Main Entrance - Scale/Building																	
Replace Pads	20															$ 9,800	
Replace Building	50																
Replace Scales	20															$ 610,921	
Replace Mechanical	10					$ 57,274										$ 57,274	
Replace Utility Connections	30																
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 57,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 677,995	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20																$ 155,718
Replace Building	50																
Replace Utility Connections	30																
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50																
Replace Utility Connections	30						$ 105,957										
Admin Staff Parking Lot																	
Replace Parking Lot	25	$ 74,376															
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ 74,376	$ -	$ -	$ -	$ -	$ 105,957	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25				$ 802,788												
Main Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10									$ 57,274							
Replace Utility Connections	30									$ 442,918							
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ 500,192	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30										$ 143,185						
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 143,185	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30					$ 35,796											
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 35,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30					$ 112,196	$ 112,196										
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 112,196	$ 112,196	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080
		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50										$ 6,204,666						
Replace Utility Connections	30																
Admin Staff Parking Lot																	
Replace Parking Lot	25										$ 74,376						
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,279,042	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25													$ 802,788			
Main Entrance - Scale/Building																	
Replace Pads	20			$ 9,800													
Replace Building	50													$ 45,819			
Replace Scales	20			$ 610,921													
Replace Mechanical	10			$ 57,274										$ 57,274			
Replace Utility Connections	30																
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ 677,995	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 905,881	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20				$ 155,718												
Replace Building	50														$ 7,982,828		
Replace Utility Connections	30																
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ 155,718	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,982,828	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50									$ 1,663,557							
Replace Utility Connections	30																
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,663,557	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096
		59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50																
Replace Utility Connections	30				$ 105,957												
Admin Staff Parking Lot																	
Replace Parking Lot	25																
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ 105,957	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25																
Main Entrance - Scale/Building																	
Replace Pads	20							$ 9,800									
Replace Building	50																
Replace Scales	20							$ 610,921									
Replace Mechanical	10							$ 57,274									
Replace Utility Connections	30							$ 442,918									
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 1,120,913	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20								$ 155,718								
Replace Building	50																
Replace Utility Connections	30								$ 143,185								
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 298,903	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30			$ 35,796													
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ 35,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30			$ 112,196	$ 112,196												
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ 112,196	$ 112,196	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2097 75	2098 76	2099 77	2100 78	2101 79	2102 80	2103 81	2104 82	2105 83	2106 84	2107 85	2108 86	2109 87	Remaining Useful Life
INITIAL CAPITAL AND REPLACEMENT COSTS															
	Replacement Frequency Interval (Years)														
Necessary Supporting Elements															
Admin															
Admin Staff Bldg															
Replace Building	50														$ (1,861,399.80)
Replace Utility Connections	30														$ (17,659.43)
Admin Staff Parking Lot															
Replace Parking Lot	25			$ 74,376											$ (44,625.71)
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ 74,376	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,923,685)
Main Entrance															
Main Entrance - Roadways															
Replace Roadways	25						$ 802,788								$ (578,007.59)
Main Entrance - Scale/Building															
Replace Pads	20											$ 9,800			$ (8,820.17)
Replace Building	50														$ (16,494.87)
Replace Scales	20											$ 610,921			$ (549,828.86)
Replace Mechanical	10	$ 57,274										$ 57,274			$ (45,819.07)
Replace Utility Connections	30														$ (118,111.39)
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ 57,274	$ -	$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ 677,995	$ -	$ -	$ (1,317,082)
Western Entrance															
Western Entrance - Roadways															
Replace Roadways	25														
Western Entrance - Scale/Building															
Replace Pads	20														
Replace Building	50														
Replace Scales	20														
Replace Mechanical	10														
Replace Utility Connections	30														
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass															
Overpass															
Replace Overpass	25														
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Recovered Materials Storage															
Recyclables Storage Building															
Replace Pads	20												$ 155,718		$ (147,932.12)
Replace Building	50														$ (3,033,474.57)
Replace Utility Connections	30														$ (42,955.38)
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718	$ -	$ (3,224,362)
Primary Maintenance Facility															
Primary Maintenance - Maintenance Area (250' x 300')															
Replace Pads	20														
Replace Building	50														$ (465,795.92)
Replace Utility Connections	30														$ (4,772.82)
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (470,569)
Satellite Maintenance and Staff Facility															
Satellite Maintenance and Staff - Maintenance Area															
Replace Pads	20														
Replace Building	50														
Replace Utility Connections	30														
Satellite Maintenance and Staff - Staff Bldg and Parking Area															
Replace Pads	20														
Replace Building	50														
Replace Utility Connections	30														
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond															
New Stormwater Ponds															
Replace Stormwater Ponds (liner)	30														$ (33,658.69)
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (33,659)

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

	Replacement Frequency Interval (Years)	Base Data 2017 -5	2018 -4	2019 -3	2020 -2	2021 -1	2022 0	2023 1	2024 2	2025 3	2026 4	2027 5	2028 6	2029 7	2030 8	2031 9	2032 10
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal							$ 217,629										
Compost Pond Removal - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 217,629	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits													$ 4,423,996				
Geotechnical Investigation								$ 30,000					$ 30,000				
Special Permits and Allow - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 4,453,996	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation			$ -	$ -	$ -	$ -	$ 987,453	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 987,453	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification								$ 882,548	$ 3,818			$ 2,864					
Replace Landscaping	15																
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 882,548	$ 3,818	$ -	$ -	$ 2,864	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal								$ 2,866,952									
Site-wide Demolition - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 2,866,952	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	$ 3,061,096
Site Utilities - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,061,096
MRF Upgrade to TS																	
MRF Upgrade to TS																	
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

	Replacement Frequency Interval (Years)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15						$ 263,120										
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ 263,120	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS																	$ 415,766
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15					$ 263,120											
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 263,120	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS																	
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080
		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15				$ 263,120												
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ -	$ 263,120	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS																	
Replace Pads	20							$ 33,940									
Replace Scales	20							$ 381,826									
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096
		59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15			$ 263,120													
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ 263,120	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS																	
Replace Pads	20											$ 33,940					
Replace Scales	20											$ 381,826					
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 0

		2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	Remaining Useful Life
		75	76	77	78	79	80	81	82	83	84	85	86	87	
INITIAL CAPITAL AND REPLACEMENT COSTS															
	Replacement Frequency Interval (Year														
Non-Critical Elements															
Main Site HHW Facility															
HHW Building (65' x 75')															
Replace Pads	20														
Replace Building	50														
Replace Utility Connections	30														
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed															
Compost Pond Removal															
Compost Pond Removal															
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements															
Special Permits and Allow															
Special Permits															
Geotechnical Investigation															
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation															
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification															
Facility Beautification															
Replace Landscaping	15		$ 263,120												$ (70,165.40)
Replace Fencing	40														
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ 263,120	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (70,165)
Site-wide Demolition															
Site-wide Demolition and Disposal															
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities															
Shared Site Utilities															
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS															
MRF Upgrade to TS															
Replace Pads	20														$ (3,394.01)
Replace Scales	20														$ (38,182.56)
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (41,577)

Appendix 4A-3
Capital Cost Outlay
Plan Concept 1

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

	Replacement Frequency Interval (Years)	Base Data															
		2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Critical Elements																	
Public Area																	
Public Area - Roadways								$ 1,799,189									
Replace Roadways	25																
Public Area - Buyback (220' x 230')										$ 2,655,780							
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Public Area - HHW (300' x 100')										$ 1,787,519							
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Public Area - Reuse Store Area (155' x 140')													$ 1,909,078				
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Public Area - Tipping Area										$ 8,856,534							
Replace Pads	20																
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30																
Public Area - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 1,799,189	$ -	$ 13,299,832	$ -	$ -	$ 1,909,078	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																	
C&D - C&D Pad								$ 5,727,598									
Replace Pads	20																
Replace Overhang Structure	50																
C&D - Processing Line								$ 7,686,627									
Replace Processing Equipment	10																
Replace Utility Connections	30																
C&D - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 13,414,225	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')								$ 1,404,545									
Replace Pads	20																
Compost - Wood Waste Pad (115' x 225')								$ 769,156									
Replace Pads	20																
Compost - Outdoor Receiving Area (90' x 200')								$ 2,533,970									
Replace Pads	20																
Replace Specialty Equipment	10																
Replace Utility Connections	30																
Compost - Screening and Product Storage Pad (400' x 350')								$ 5,896,655									
Replace Pads	20																
Replace Specialty Equipment	10																
Replace Utility Connections	30																
Compost - Temporary Positive ASP System							$ 470,829										
Compost - Active Composting System (205' x 880')								$ 7,405,812				$ 3,702,906					$ 3,702,906
Replace Pads	20																
Replace ASPs (concrete replacement schedule)	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Compost - Biofilter (135' x 880')								$ 2,561,311				$ 1,280,656					$ 1,280,656
Replace Pads	20																
Replace Biofilters (concrete replacement schedule)	20																
Compost - ASP Curing System (185' x 880')								$ 6,098,117				$ 3,049,059					$ 3,049,059
Replace Pads	20																
Replace ASPs (concrete replacement schedule)	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Compost - Dedicated Stormwater Ponds								$ 1,057,713									
Replace Stormwater Ponds (liner)	30																
Compost - Miscellaneous Equipment								$ 12,409									
Replace Mechanical	10																
Compost - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 470,829	$ 27,739,689	$ -	$ -	$ -	$ 8,032,620	$ -	$ -	$ -	$ -	$ 8,032,620
Compost - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Landfill																	
Landfill Construction																	$ 21,413,261
Unlined Area Excavation/Backfill																	
Stockpile Relocation																$ 13,363,896	
Closure Costs																	
Landfill - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 13,363,896	$ 21,413,261

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

		2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25																$ 1,799,189
Public Area - Buyback (220' x 230')																	
Replace Pads	20													$ 786,391			
Replace Building	50																
Replace Utility Connections	30																
Public Area - HHW (300' x 100')																	
Replace Pads	20													$ 588,126			
Replace Building	50																
Replace Utility Connections	30																
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20																$ 342,244
Replace Building	50																
Replace Utility Connections	30																
Public Area - Tipping Area																	
Replace Pads	20													$ 2,116,291			
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30																
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,490,808	$ -	$ -	$ 2,141,433
C&D																	
C&D - C&D Pad																	
Replace Pads	20											$ 3,436,645					
Replace Overhang Structure	50																
C&D - Processing Line																	
Replace Processing Equipment	10	$ 7,636,512										$ 7,636,512					
Replace Utility Connections	30																
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ 7,636,512	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,073,157	$ -	$ -	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20											$ 1,404,545					
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20											$ 769,156					
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20											$ 453,020					
Replace Specialty Equipment	10	$ 1,995,039										$ 1,995,039					
Replace Utility Connections	30																
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20											$ 4,161,735					
Replace Specialty Equipment	10	$ 1,627,532										$ 1,627,532					
Replace Utility Connections	30																
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20											$ 2,686,872				$ 1,343,436	
Replace ASPs (concrete replacement schedule)	20											$ 4,665,246				$ 2,332,623	
Replace Mechanical	10	$ 645,371				$ 322,685					$ 322,685						
Replace Utility Connections	30																
Compost - Biofilter (135' x 880')																	
Replace Pads	20											$ 1,765,714				$ 882,857	
Replace Biofilters (concrete replacement schedule)	20											$ 788,438				$ 394,219	
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20											$ 2,419,697				$ 1,209,849	
Replace ASPs (concrete replacement schedule)	20											$ 3,617,566				$ 1,808,783	
Replace Mechanical	10	$ 448,509				$ 224,255					$ 224,255						
Replace Utility Connections	30																
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Compost - Miscellaneous Equipment																	
Replace Mechanical	10	$ 12,409										$ 12,409					
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ 4,728,860	$ -	$ -	$ -	$ 546,940	$ -	$ -	$ -	$ -	$ 546,940	$ 26,366,970	$ -	$ -	$ -	$ 7,971,767	$ -
Landfill																	
Landfill Construction											$ 21,413,261						
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs												$ 8,809,463					
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,413,261	$ 8,809,463	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

	Replacement Frequency Interval (Years)	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25																
Public Area - Buyback (220' x 230')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30							$ 59,249									
Public Area - HHW (300' x 100')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30							$ 143,185									
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30										$ 37,771						
Public Area - Tipping Area																	
Replace Pads	20																
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30							$ 141,703									
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 344,137	$ -	$ -	$ 37,771	$ -	$ -	$ -	$ -	$ -	$ -
C&D																	
C&D - C&D Pad																	
Replace Pads	20															$ 3,436,645	
Replace Overhang Structure	50																
C&D - Processing Line																	
Replace Processing Equipment	10					$ 7,636,512										$ 7,636,512	
Replace Utility Connections	30					$ 50,115											
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 7,686,627	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,073,157	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20															$ 1,404,545	
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20															$ 769,156	
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20															$ 453,020	
Replace Specialty Equipment	10					$ 1,995,039										$ 1,995,039	
Replace Utility Connections	30					$ 85,911											
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20															$ 4,161,735	
Replace Specialty Equipment	10					$ 1,627,532										$ 1,627,532	
Replace Utility Connections	30					$ 107,388											
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20				$ 1,343,436											$ 2,686,872	
Replace ASPs (concrete replacement schedule)	20				$ 2,332,623											$ 4,665,246	
Replace Mechanical	10					$ 645,371				$ 322,685					$ 322,685		
Replace Utility Connections	30					$ 53,694				$ 26,847					$ 26,847		
Compost - Biofilter (135' x 880')																	
Replace Pads	20				$ 882,857											$ 1,765,714	
Replace Biofilters (concrete replacement schedule)	20				$ 394,219											$ 788,438	
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20				$ 1,209,849											$ 2,419,697	
Replace ASPs (concrete replacement schedule)	20				$ 1,808,783											$ 3,617,566	
Replace Mechanical	10					$ 448,509				$ 224,255					$ 224,255		
Replace Utility Connections	30					$ 53,694				$ 26,847					$ 26,847		
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30					$ 557,924											
Compost - Miscellaneous Equipment																	
Replace Mechanical	10					$ 12,409										$ 12,409	
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ -	$ -	$ 7,971,767	$ 5,587,471	$ -	$ -	$ -	$ 600,634	$ -	$ -	$ -	$ -	$ 600,634	$ 26,366,970	$ -
Landfill																	
Landfill Construction					$ 21,413,261										$ 42,826,522		
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs						$ 8,809,463										$ 8,809,463	
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ 21,413,261	$ 8,809,463	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 42,826,522	$ 8,809,463	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

	Replacement Frequency Interval (Year	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080
		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25									$ 1,799,189							
Public Area - Buyback (220' x 230')																	
Replace Pads	20	$ 786,391															
Replace Building	50											$ 1,810,140					
Replace Utility Connections	30																
Public Area - HHW (300' x 100')																	
Replace Pads	20	$ 588,126															
Replace Building	50											$ 1,056,209					
Replace Utility Connections	30																
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20				$ 342,244												
Replace Building	50														$ 1,529,063		
Replace Utility Connections	30																
Public Area - Tipping Area																	
Replace Pads	20	$ 2,116,291															
Replace Tipping Building	50											$ 5,250,629					
Replace Building - Specialty	50											$ 1,347,910					
Replace Utility Connections	30																
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ 3,490,808	$ -	$ -	$ 342,244	$ -	$ -	$ -	$ -	$ 1,799,189	$ -	$ 9,464,887	$ -	$ -	$ 1,529,063	$ -	$ -
C&D																	
C&D - C&D Pad																	
Replace Pads	20																
Replace Overhang Structure	50									$ 2,290,954							
C&D - Processing Line																	
Replace Processing Equipment	10									$ 7,636,512							
Replace Utility Connections	30																
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,927,466	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20																
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20																
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20																
Replace Specialty Equipment	10									$ 1,995,039							
Replace Utility Connections	30																
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20																
Replace Specialty Equipment	10									$ 1,627,532							
Replace Utility Connections	30																
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20			$ 1,343,436					$ 1,343,436								
Replace ASPs (concrete replacement schedule)	20			$ 2,332,623					$ 2,332,623								
Replace Mechanical	10									$ 645,371				$ 322,685			
Replace Utility Connections	30																
Compost - Biofilter (135' x 880')																	
Replace Pads	20			$ 882,857					$ 882,857								
Replace Biofilters (concrete replacement schedule)	20			$ 394,219					$ 394,219								
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20			$ 1,209,849					$ 1,209,849								
Replace ASPs (concrete replacement schedule)	20			$ 1,808,783					$ 1,808,783								
Replace Mechanical	10									$ 448,509				$ 224,255			
Replace Utility Connections	30																
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Compost - Miscellaneous Equipment																	
Replace Mechanical	10									$ 12,409							
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ -	$ 7,971,767	$ -	$ -	$ -	$ -	$ 7,971,767	$ 4,728,860	$ -	$ -	$ -	$ 546,940	$ -	$ -	$ -
Landfill																	
Landfill Construction									$ 21,413,261								
Unlined Area Excavation/Backfill							$ 40,731,437	$ 40,731,437									
Stockpile Relocation																	
Closure Costs										$ 17,618,927							
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ 40,731,437	$ 40,731,437	$ 21,413,261	$ 17,618,927	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

		2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096
		59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25																
Public Area - Buyback (220' x 230')																	
Replace Pads	20					$ 786,391											
Replace Building	50																
Replace Utility Connections	30					$ 59,249											
Public Area - HHW (300' x 100')																	
Replace Pads	20					$ 588,126											
Replace Building	50																
Replace Utility Connections	30					$ 143,185											
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20								$ 342,244								
Replace Building	50																
Replace Utility Connections	30								$ 37,771								
Public Area - Tipping Area																	
Replace Pads	20					$ 2,116,291											
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30					$ 141,703											
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 3,834,945	$ -	$ -	$ 380,015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																	
C&D - C&D Pad																	
Replace Pads	20			$ 3,436,645													
Replace Overhang Structure	50																
C&D - Processing Line																	
Replace Processing Equipment	10			$ 7,636,512										$ 7,636,512			
Replace Utility Connections	30			$ 50,115													
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ 11,123,271	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,636,512	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20			$ 1,404,545													
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20			$ 769,156													
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20			$ 453,020													
Replace Specialty Equipment	10			$ 1,995,039										$ 1,995,039			
Replace Utility Connections	30			$ 85,911													
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20			$ 4,161,735													
Replace Specialty Equipment	10			$ 1,627,532										$ 1,627,532			
Replace Utility Connections	30			$ 107,388													
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20			$ 2,686,872				$ 1,343,436					$ 1,343,436				
Replace ASPs (concrete replacement schedule)	20			$ 4,665,246				$ 2,332,623					$ 2,332,623				
Replace Mechanical	10		$ 322,685											$ 645,371			
Replace Utility Connections	30			$ 53,694				$ 26,847					$ 26,847				
Compost - Biofilter (135' x 880')																	
Replace Pads	20			$ 1,765,714				$ 882,857					$ 882,857				
Replace Biofilters (concrete replacement schedule)	20			$ 788,438				$ 394,219					$ 394,219				
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20			$ 2,419,697				$ 1,209,849					$ 1,209,849				
Replace ASPs (concrete replacement schedule)	20			$ 3,617,566				$ 1,808,783					$ 1,808,783				
Replace Mechanical	10		$ 224,255											$ 448,509			
Replace Utility Connections	30			$ 53,694				$ 26,847					$ 26,847				
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30			$ 557,924													
Compost - Miscellaneous Equipment																	
Replace Mechanical	10			$ 12,409										$ 12,409			
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ 546,940	$ 27,225,581	$ -	$ -	$ -	$ 8,025,461	$ -	$ -	$ -	$ -	$ 8,025,461	$ 4,728,860	$ -	$ -	$ -
Landfill																	
Landfill Construction			$ 21,413,261										$ 21,413,261				
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs				$ 8,809,463										$ 8,809,463			
Landfill - Subtotal Initial Costs		$ -	$ 21,413,261	$ 8,809,463	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,413,261	$ 8,809,463	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

	Replacement Frequency Interval (Years)	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	Remaining Useful Life
		75	76	77	78	79	80	81	82	83	84	85	86	87	
INITIAL CAPITAL AND REPLACEMENT COSTS															
Critical Elements															
Public Area															
Public Area - Roadways															
Replace Roadways	25		$ 1,799,189												$ (1,007,546)
Public Area - Buyback (220' x 230')															
Replace Pads	20									$ 786,391					$ (629,113)
Replace Building	50														$ (579,245)
Replace Utility Connections	30														$ (11,850)
Public Area - HHW (300' x 100')															
Replace Pads	20									$ 588,126					$ (470,501)
Replace Building	50														$ (337,987)
Replace Utility Connections	30														$ (28,637)
Public Area - Reuse Store Area (155' x 140')															
Replace Pads	20												$ 342,244		$ (325,132)
Replace Building	50														$ (581,044)
Replace Utility Connections	30														$ (11,331)
Public Area - Tipping Area															
Replace Pads	20									$ 2,116,291					$ (1,693,033)
Replace Tipping Building	50														$ (1,680,201)
Replace Building - Specialty	50														$ (431,331)
Replace Utility Connections	30														$ (28,341)
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ 1,799,189	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,490,808	$ -	$ -	$ 342,244	$ -	$ (7,815,291)
C&D															
C&D - C&D Pad															
Replace Pads	20							$ 3,436,645							$ (2,405,651)
Replace Overhang Structure	50														$ (641,467)
C&D - Processing Line															
Replace Processing Equipment	10							$ 7,636,512							$ (3,054,605)
Replace Utility Connections	30														$ (6,682)
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 11,073,157	$ -	$ -	$ -	$ -	$ -	$ -	$ (6,108,405)
Composting															
Compost - Green Waste Pad (210' x 225')															
Replace Pads	20							$ 1,404,545							$ (983,182)
Compost - Wood Waste Pad (115' x 225')															
Replace Pads	20							$ 769,156							$ (538,409)
Compost - Outdoor Receiving Area (90' x 200')															
Replace Pads	20							$ 453,020							$ (317,114)
Replace Specialty Equipment	10							$ 1,995,039							$ (798,016)
Replace Utility Connections	30														$ (11,455)
Compost - Screening and Product Storage Pad (400' x 350')															
Replace Pads	20							$ 4,161,735							$ (2,913,215)
Replace Specialty Equipment	10							$ 1,627,532							$ (651,013)
Replace Utility Connections	30														$ (14,318)
Compost - Temporary Positive ASP System															
Compost - Active Composting System (205' x 880')															
Replace Pads	20							$ 2,686,872				$ 1,343,436			$ (3,291,418)
Replace ASPs (concrete replacement schedule)	20							$ 4,665,246				$ 2,332,623			$ (5,714,926)
Replace Mechanical	10	$ 322,685					$ 322,685								$ 354,954
Replace Utility Connections	30														$ (25,952)
Compost - Biofilter (135' x 880')															
Replace Pads	20							$ 1,765,714				$ 882,857			$ (2,163,000)
Replace Biofilters (concrete replacement schedule)	20							$ 788,438				$ 394,219			$ (965,837)
Compost - ASP Curing System (185' x 880')															
Replace Pads	20							$ 2,419,697				$ 1,209,849			$ (2,964,129)
Replace ASPs (concrete replacement schedule)	20							$ 3,617,566				$ 1,808,783			$ (4,431,519)
Replace Mechanical	10	$ 224,255					$ 224,255								$ 246,680
Replace Utility Connections	30														$ (25,952)
Compost - Dedicated Stormwater Ponds															
Replace Stormwater Ponds (liner)	30														$ (74,390)
Compost - Miscellaneous Equipment															
Replace Mechanical	10							$ 12,409							$ (4,964)
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ 546,940	$ -	$ -	$ -	$ -	$ 546,940	$ 26,366,970	$ -	$ -	$ -	$ 7,971,767	$ -	$ -	$ (25,287,173)
Landfill															
Landfill Construction							$ 21,413,261								
Unlined Area Excavation/Backfill															
Stockpile Relocation															
Closure Costs								$ 8,809,463					$ 8,809,463		
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ 21,413,261	$ 8,809,463	$ -	$ -	$ -	$ -	$ 8,809,463	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

		Base Data															
		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg									$ 15,493,528								
Replace Building	50																
Replace Utility Connections	30																
Admin Staff Parking Lot									$ 172,583								
Replace Parking Lot	25																
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,666,111	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways												$ 802,788					
Replace Roadways	25																
Main Entrance - Scale/Building												$ 1,166,732					
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,969,520	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways								$ 4,235,400									
Replace Roadways	25																
Western Entrance - Scale/Building								$ 615,948									
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 4,851,349	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass										$ 9,278,433							
Replace Overpass (paving)	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,278,433	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building													$ 8,174,342				
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,174,342	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')								$ 1,842,538									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 1,842,538	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area								$ 2,394,397									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area								$ 917,290									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 3,311,687	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds								$ 1,799,616	$ 1,258,425								
Replace Stormwater Ponds (liner)	30																
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 1,799,616	$ 1,258,425	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

	Replacement Frequency Interval (Years)	2033 11	2034 12	2035 13	2036 14	2037 15	2038 16	2039 17	2040 18	2041 19	2042 20	2043 21	2044 22	2045 23	2046 24	2047 25	2048 26
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50																
Replace Utility Connections	30																
Admin Staff Parking Lot																	
Replace Parking Lot	25																
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25																
Main Entrance - Scale/Building																	
Replace Pads	20															$ 9,800	
Replace Building	50																
Replace Scales	20															$ 610,921	
Replace Mechanical	10					$ 57,274										$ 57,274	
Replace Utility Connections	30																
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 57,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 677,995	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																$ 4,235,400
Western Entrance - Scale/Building																	
Replace Pads	20											$ 9,800					
Replace Building	50																
Replace Scales	20											$ 420,008					
Replace Mechanical	10	$ 57,274										$ 57,274					
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ 57,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 487,082	$ -	$ -	$ -	$ -	$ 4,235,400
Overpass																	
Overpass																	
Replace Overpass (paving)	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20																$ 155,718
Replace Building	50																
Replace Utility Connections	30																
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20											$ 1,115,869					
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20											$ 327,370					
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,443,238	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

	Replacement Frequency Interval (Year	2049 27	2050 28	2051 29	2052 30	2053 31	2054 32	2055 33	2056 34	2057 35	2058 36	2059 37	2060 38	2061 39	2062 40	2063 41	2064 42
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50																
Replace Utility Connections	30						$ 105,957										
Admin Staff Parking Lot																	
Replace Parking Lot	25	$ 172,583															
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ 172,583	$ -	$ -	$ -	$ -	$ 105,957	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25				$ 802,788												
Main Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10									$ 57,274							
Replace Utility Connections	30									$ 442,918							
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ 500,192	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20															$ 9,800	
Replace Building	50																
Replace Scales	20															$ 420,008	
Replace Mechanical	10					$ 57,274										$ 57,274	
Replace Utility Connections	30					$ 83,047											
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 140,321	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 487,082	$ -
Overpass																	
Overpass																	
Replace Overpass (paving)	25		$ 213,822														
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ 213,822	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30										$ 35,796						
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 35,796	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30					$ 35,796											
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 35,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20															$ 1,115,869	
Replace Building	50																
Replace Utility Connections	30					$ 71,592											
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20															$ 327,370	
Replace Building	50																
Replace Utility Connections	30					$ 246,278											
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 317,870	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,443,238	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30					$ 753,327	$ 753,327										
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 753,327	$ 753,327	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

	Replacement Frequency Interval (Year	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080
		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50										$ 15,387,572						
Replace Utility Connections	30																
Admin Staff Parking Lot																	
Replace Parking Lot	25										$ 172,583						
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,560,155	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25													$ 802,788			
Main Entrance - Scale/Building																	
Replace Pads	20			$ 9,800													
Replace Building	50													$ 45,819			
Replace Scales	20			$ 610,921													
Replace Mechanical	10			$ 57,274										$ 57,274			
Replace Utility Connections	30																
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ 677,995	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 905,881	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25									$ 4,235,400							
Western Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50									$ 45,819							
Replace Scales	20																
Replace Mechanical	10									$ 57,274							
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,338,493	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass (paving)	25											$ 213,822					
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 213,822	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20				$ 155,718												
Replace Building	50														$ 7,982,828		
Replace Utility Connections	30																
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ 155,718	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,982,828	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50									$ 1,663,557							
Replace Utility Connections	30																
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,663,557	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20																
Replace Building	50									$ 1,192,618							
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50									$ 343,643							
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,536,261	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

	Replacement Frequency Interval (Years)	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096
		59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50																
Replace Utility Connections	30				$ 105,957												
Admin Staff Parking Lot																	
Replace Parking Lot	25																
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ 105,957	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25																
Main Entrance - Scale/Building																	
Replace Pads	20							$ 9,800									
Replace Building	50																
Replace Scales	20							$ 610,921									
Replace Mechanical	10							$ 57,274									
Replace Utility Connections	30							$ 442,918									
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 1,120,913	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20			$ 9,800													
Replace Building	50																
Replace Scales	20			$ 420,008													
Replace Mechanical	10			$ 57,274										$ 57,274			
Replace Utility Connections	30			$ 83,047													
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ 570,129	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 57,274	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass (paving)	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20								$ 155,718								
Replace Building	50																
Replace Utility Connections	30								$ 35,796								
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 191,514	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30			$ 35,796													
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ 35,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20			$ 1,115,869													
Replace Building	50																
Replace Utility Connections	30			$ 71,592													
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20			$ 327,370													
Replace Building	50																
Replace Utility Connections	30			$ 246,278													
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ 1,761,108	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30			$ 753,327	$ 753,327												
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ 753,327	$ 753,327	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

		2097 75	2098 76	2099 77	2100 78	2101 79	2102 80	2103 81	2104 82	2105 83	2106 84	2107 85	2108 86	2109 87	Remaining Useful Life
INITIAL CAPITAL AND REPLACEMENT COSTS															
	Replacement Frequency Interval (Years)														
Necessary Supporting Elements															
Admin															
Admin Staff Bldg															
Replace Building	50														$ (4,616,272)
Replace Utility Connections	30														$ (17,659)
Admin Staff Parking Lot															
Replace Parking Lot	25			$ 172,583											$ (103,550)
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ 172,583	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (4,737,481)
Main Entrance															
Main Entrance - Roadways															
Replace Roadways	25						$ 802,788								$ (578,008)
Main Entrance - Scale/Building															
Replace Pads	20											$ 9,800			$ (8,820)
Replace Building	50														$ (16,495)
Replace Scales	20											$ 610,921			$ (549,829)
Replace Mechanical	10	$ 57,274										$ 57,274			$ (45,819)
Replace Utility Connections	30														$ (118,111)
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ 57,274	$ -	$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ 677,995	$ -	$ -	$ (1,317,082)
Western Entrance															
Western Entrance - Roadways															
Replace Roadways	25		$ 4,235,400												$ (2,371,824)
Western Entrance - Scale/Building															
Replace Pads	20							$ 9,800							$ (6,860)
Replace Building	50														$ (12,829)
Replace Scales	20							$ 420,008							$ (294,006)
Replace Mechanical	10							$ 57,274							$ (22,910)
Replace Utility Connections	30														$ (11,073)
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ 4,235,400	$ -	$ -	$ -	$ -	$ 487,082	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,719,502)
Overpass															
Overpass															
Replace Overpass (paving)	25				$ 213,822										$ (136,846)
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ 213,822	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (136,846)
Recovered Materials Storage															
Recyclables Storage Building															
Replace Pads	20												$ 155,718		$ (147,932)
Replace Building	50														$ (3,033,475)
Replace Utility Connections	30														$ (10,739)
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718	$ -	$ (3,192,146)
Primary Maintenance Facility															
Primary Maintenance - Maintenance Area (250' x 300')															
Replace Pads	20														
Replace Building	50														$ (465,796)
Replace Utility Connections	30														$ (4,773)
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (470,569)
Satellite Maintenance and Staff Facility															
Satellite Maintenance and Staff - Maintenance Area															
Replace Pads	20							$ 1,115,869							$ (781,108)
Replace Building	50														$ (333,933)
Replace Utility Connections	30														$ (9,546)
Satellite Maintenance and Staff - Staff Bldg and Parking Area															
Replace Pads	20							$ 327,370							$ (229,159)
Replace Building	50														$ (96,220)
Replace Utility Connections	30														$ (32,837)
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 1,443,238	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,482,802)
Stormwater Pond															
New Stormwater Ponds															
Replace Stormwater Ponds (liner)	30														$ (225,998)
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (225,998)

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

		Base Data															
		2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')								$ 236,971									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 236,971	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal										$ 217,629							
Compost Pond Removal - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 217,629	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits								$ 4,427,576							$ 3,854,387		
Geotechnical Investigation								$ 30,000					$ 30,000				
Special Permits and Allow - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 4,457,576	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ 3,854,387	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation			$ -	$ -	$ -	$ -	$ 12,878,109	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 12,878,109	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification								$ 2,690,865	$ 3,818			$ 2,864					
Replace Landscaping	15																
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 2,690,865	$ 3,818	$ -	$ -	$ 2,864	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal								$ 860,086			$ 2,006,867						
Site-wide Demolition - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 860,086	$ -	$ -	$ 2,006,867	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities									$ 3,776,446								
Site Utilities - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ 3,776,446	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS	20																
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

		2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years																
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation		$ 30,000					$ 30,000					$ 30,000					$ 30,000
Special Permits and Allow - Subtotal Initial Costs		$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15						$ 452,917										
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ 452,917	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS	20																
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

	Replacement Frequency Interval (Years)	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15					$ 452,917											
Replace Fencing	40															$ 1,173,064	
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 452,917	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,173,064	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS	20																
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

		2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080
		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50									$ 222,652							
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 222,652	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15				$ 452,917												
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ -	$ 452,917	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS	20																
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

	Replacement Frequency Interval (Year	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096
		59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15			$ 452,917													
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ 452,917	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS	20																
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 1

		2097 75	2098 76	2099 77	2100 78	2101 79	2102 80	2103 81	2104 82	2105 83	2106 84	2107 85	2108 86	2109 87	Remaining Useful Life
INITIAL CAPITAL AND REPLACEMENT COSTS															
	Replacement Frequency Interval (Years)														
Non-Critical Elements															
Main Site HHW Facility															
HHW Building (65' x 75')															
Replace Pads	20														
Replace Building	50														$ (62,343)
Replace Utility Connections	30														
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (62,343)
Existing Features to be Removed															
Compost Pond Removal															
Compost Pond Removal															
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements															
Special Permits and Allow															
Special Permits															
Geotechnical Investigation															
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation															
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification															
Facility Beautification															
Replace Landscaping	15		$ 452,917												$ (120,778)
Replace Fencing	40							$ 1,173,064							$ (997,104)
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ 452,917	$ -	$ -	$ -	$ -	$ 1,173,064	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,117,882)
Site-wide Demolition															
Site-wide Demolition and Disposal															
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities															
Shared Site Utilities															
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS															
MRF Upgrade to TS	20												$ 415,766		$ (394,977)
Replace Pads	20														
Replace Scales	20														
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766	$ -	$ (394,977)
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Appendix 4A-3
Capital Cost Outlay
Plan Concept 2

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

	Replacement Frequency Interval (Years)	Base Data 2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Critical Elements																	
Public Area																	
Public Area - Roadways								$ 1,799,189									
Replace Roadways	25																
Public Area - Buyback (220' x 230')								$ 2,655,780									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Public Area - HHW (300' x 100')								$ 1,787,519									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Public Area - Reuse Store Area (155' x 140')								$ 1,909,078									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Public Area - Tipping Area								$ 8,856,534									
Replace Pads	20																
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30																
Public Area - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 17,008,099	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																	
C&D - C&D Pad										$ 10,175,809							
Replace Pads	20																
Replace Overhang Structure	50																
C&D - Processing Line										$ 7,922,881							
Replace Processing Equipment	10																
Replace Utility Connections	30																
C&D - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,098,690	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')													$ 702,273				
Replace Pads	20																
Compost - Wood Waste Pad (115' x 225')													$ 384,578				
Replace Pads	20																
Compost - Outdoor Receiving Area (90' x 200')													$ 2,228,708				
Replace Pads	20																
Replace Specialty Equipment	10																
Replace Utility Connections	30																
Compost - Screening and Product Storage Pad (400' x 350')													$ 3,779,991				
Replace Pads	20																
Replace Specialty Equipment	10																
Replace Utility Connections	30																
Compost - Temporary Positive ASP System							$ 470,829										
Compost - Active Composting System (205' x 880')													$ 7,405,812				
Replace Pads	20																
Replace ASPs (concrete replacement schedule)	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Compost - Biofilter (135' x 880')													$ 2,561,311				
Replace Pads	20																
Replace Biofilters (concrete replacement schedule)	20																
Compost - ASP Curing System (185' x 880')							$ 4,853,713						$ 3,671,261				
Replace Pads	20																
Replace ASPs (concrete replacement schedule)	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Compost - Dedicated Stormwater Ponds							$ 1,057,713										
Replace Stormwater Ponds (liner)	30																
Compost - Miscellaneous Equipment							$ 12,409										
Replace Mechanical	10																$ 12,409
Compost - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 6,394,665	$ -	$ -	$ -	$ -	$ -	$ 20,733,934	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,409
Landfill																	
Landfill Construction								$ 36,419,538									$ 36,419,538
Unlined Area Excavation/Backfill							$ 40,731,437	$ 40,731,437	$ 20,882,042								
Stockpile Relocation							$ 6,681,948						$ 6,681,948				$ 13,363,896
Closure Costs																	
Landfill - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 47,413,385	$ 77,150,975	$ 20,882,042	$ -	$ -	$ -	$ 6,681,948	$ -	$ -	$ -	$ 49,783,434

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

	Replacement Frequency Interval (Years)	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25																$ 1,799,189
Public Area - Buyback (220' x 230')																	
Replace Pads	20											$ 786,391					
Replace Building	50																
Replace Utility Connections	30																
Public Area - HHW (300' x 100')																	
Replace Pads	20											$ 588,126					
Replace Building	50																
Replace Utility Connections	30																
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20											$ 342,244					
Replace Building	50																
Replace Utility Connections	30																
Public Area - Tipping Area																	
Replace Pads	20											$ 2,116,291					
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30																
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,833,052	$ -	$ -	$ -	$ -	$ 1,799,189
C&D																	
C&D - C&D Pad																	
Replace Pads	20													$ 7,884,855			
Replace Overhang Structure	50																
C&D - Processing Line																	
Replace Processing Equipment	10			$ 7,636,512										$ 7,636,512			
Replace Utility Connections	30																
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ 7,636,512	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,521,367	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')		$ 351,136					$ 351,136										
Replace Pads	20																$ 702,273
Compost - Wood Waste Pad (115' x 225')		$ 192,289					$ 192,289										
Replace Pads	20																$ 384,578
Compost - Outdoor Receiving Area (90' x 200')		$ 116,835					$ 116,835										
Replace Pads	20																$ 226,510
Replace Specialty Equipment	10						$ 1,995,039										$ 1,995,039
Replace Utility Connections	30																
Compost - Screening and Product Storage Pad (400' x 350')		$ 1,076,230					$ 1,076,230										
Replace Pads	20																$ 2,080,868
Replace Specialty Equipment	10						$ 1,627,532										$ 1,627,532
Replace Utility Connections	30																
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')		$ 3,702,906					$ 3,702,906										
Replace Pads	20																$ 2,686,872
Replace ASPs (concrete replacement schedule)	20																$ 4,665,246
Replace Mechanical	10						$ 645,371					$ 322,685					$ 322,685
Replace Utility Connections	30																
Compost - Biofilter (135' x 880')		$ 1,280,656					$ 1,280,656										
Replace Pads	20																$ 1,765,714
Replace Biofilters (concrete replacement schedule)	20																$ 788,438
Compost - ASP Curing System (185' x 880')		$ 1,835,630					$ 1,835,630										
Replace Pads	20																$ 2,419,697
Replace ASPs (concrete replacement schedule)	20																$ 3,617,566
Replace Mechanical	10						$ 448,509					$ 224,255					$ 224,255
Replace Utility Connections	30																
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Compost - Miscellaneous Equipment																	
Replace Mechanical	10										$ 12,409						
Compost - Subtotal Initial Costs		$ 8,555,682	$ -	$ -	$ -	$ -	$ 8,555,682	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ 4,716,450	$ -	$ -	$ -	$ 12,409	$ 546,940	$ -	$ -	$ -	$ -	$ 23,507,272
Landfill																	
Landfill Construction											$ 36,419,538						
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs		$ 15,214,206										$ 15,214,206					
Landfill - Subtotal Initial Costs		$ 15,214,206	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,419,538	$ 15,214,206	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

		2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25																
Public Area - Buyback (220' x 230')																	
Replace Pads	20															$ 786,391	
Replace Building	50																
Replace Utility Connections	30					$ 59,249											
Public Area - HHW (300' x 100')																	
Replace Pads	20															$ 588,126	
Replace Building	50																
Replace Utility Connections	30					$ 143,185											
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20															$ 342,244	
Replace Building	50																
Replace Utility Connections	30					$ 37,771											
Public Area - Tipping Area																	
Replace Pads	20															$ 2,116,291	
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30					$ 141,703											
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 381,908	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,833,052	$ -
C&D																	
C&D - C&D Pad																	
Replace Pads	20																
Replace Overhang Structure	50																
C&D - Processing Line																	
Replace Processing Equipment	10							$ 7,636,512									
Replace Utility Connections	30							$ 286,369									
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 7,922,881	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20					$ 351,136					$ 351,136						
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20					$ 192,289					$ 192,289						
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20					$ 113,255					$ 113,255						
Replace Specialty Equipment	10										$ 1,995,039						
Replace Utility Connections	30										$ 7,159					$ 3,580	
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20					$ 1,040,434					$ 1,040,434						
Replace Specialty Equipment	10										$ 1,627,532						
Replace Utility Connections	30										$ 71,592					$ 35,796	
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20					$ 1,343,436					$ 1,343,436						
Replace ASPs (concrete replacement schedule)	20					$ 2,332,623					$ 2,332,623						
Replace Mechanical	10										$ 645,371					$ 322,685	
Replace Utility Connections	30										$ 53,694					$ 26,847	
Compost - Biofilter (135' x 880')																	
Replace Pads	20					$ 882,857					$ 882,857						
Replace Biofilters (concrete replacement schedule)	20					$ 394,219					$ 394,219						
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20					$ 1,209,849					$ 1,209,849						
Replace ASPs (concrete replacement schedule)	20					$ 1,808,783					$ 1,808,783						
Replace Mechanical	10										$ 448,509					$ 224,255	
Replace Utility Connections	30										$ 53,694					$ 26,847	
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30				$ 557,924												
Compost - Miscellaneous Equipment																	
Replace Mechanical	10				$ 12,409										$ 12,409		
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ -	$ -	$ 570,333	$ 9,668,881	$ -	$ -	$ -	$ -	$ 14,571,471	$ -	$ -	$ -	$ 12,409	$ 640,010	$ -
Landfill																	
Landfill Construction					$ 36,419,538										$ 36,419,538		
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs						$ 15,214,206										$ 15,214,206	
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ 36,419,538	$ 15,214,206	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,419,538	$ 15,214,206	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

	Replacement Frequency Interval (Years)	2065 43	2066 44	2067 45	2068 46	2069 47	2070 48	2071 49	2072 50	2073 51	2074 52	2075 53	2076 54	2077 55	2078 56	2079 57	2080 58
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25									$ 1,799,189							
Public Area - Buyback (220' x 230')																	
Replace Pads	20																
Replace Building	50									$ 1,810,140							
Replace Utility Connections	30																
Public Area - HHW (300' x 100')																	
Replace Pads	20																
Replace Building	50									$ 1,056,209							
Replace Utility Connections	30																
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20																
Replace Building	50									$ 1,529,063							
Replace Utility Connections	30																
Public Area - Tipping Area																	
Replace Pads	20																
Replace Tipping Building	50									$ 5,250,629							
Replace Building - Specialty	50									$ 1,347,910							
Replace Utility Connections	30																
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,793,139	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																	
C&D - C&D Pad																	
Replace Pads	20	$ 7,884,855															
Replace Overhang Structure	50											$ 2,290,954					
C&D - Processing Line																	
Replace Processing Equipment	10	$ 7,636,512										$ 7,636,512					
Replace Utility Connections	30																
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ 15,521,367	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,927,466	$ -	$ -	$ -	$ -	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20				$ 702,273					$ 351,136					$ 351,136		
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20				$ 384,578					$ 192,289					$ 192,289		
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20				$ 226,510					$ 113,255					$ 113,255		
Replace Specialty Equipment	10				$ 1,995,039										$ 1,995,039		
Replace Utility Connections	30				$ 3,580												
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20				$ 2,080,868					$ 1,040,434					$ 1,040,434		
Replace Specialty Equipment	10				$ 1,627,532										$ 1,627,532		
Replace Utility Connections	30				$ 35,796												
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20				$ 2,686,872					$ 1,343,436					$ 1,343,436		
Replace ASPs (concrete replacement schedule)	20				$ 4,665,246					$ 2,332,623					$ 2,332,623		
Replace Mechanical	10				$ 322,685										$ 645,371		
Replace Utility Connections	30				$ 26,847												
Compost - Biofilter (135' x 880')																	
Replace Pads	20				$ 1,765,714					$ 882,857					$ 882,857		
Replace Biofilters (concrete replacement schedule)	20				$ 788,438					$ 394,219					$ 394,219		
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20				$ 2,419,697					$ 1,209,849					$ 1,209,849		
Replace ASPs (concrete replacement schedule)	20				$ 3,617,566					$ 1,808,783					$ 1,808,783		
Replace Mechanical	10				$ 224,255										$ 448,509		
Replace Utility Connections	30				$ 26,847												
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Compost - Miscellaneous Equipment																	
Replace Mechanical	10								$ 12,409								
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ -	$ -	$ 23,600,342	$ -	$ -	$ -	$ 12,409	$ 9,668,881	$ -	$ -	$ -	$ -	$ 14,385,331	$ -	$ -
Landfill																	
Landfill Construction									$ 36,419,538								
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs										$ 15,214,206							
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,419,538	$ 15,214,206	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

		2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096
		59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Critical Elements																	
Public Area																	
Public Area - Roadways																	
Replace Roadways	25																
Public Area - Buyback (220' x 230')																	
Replace Pads	20			$ 786,391													
Replace Building	50																
Replace Utility Connections	30			$ 59,249													
Public Area - HHW (300' x 100')																	
Replace Pads	20			$ 588,126													
Replace Building	50																
Replace Utility Connections	30			$ 143,185													
Public Area - Reuse Store Area (155' x 140')																	
Replace Pads	20			$ 342,244													
Replace Building	50																
Replace Utility Connections	30			$ 37,771													
Public Area - Tipping Area																	
Replace Pads	20			$ 2,116,291													
Replace Tipping Building	50																
Replace Building - Specialty	50																
Replace Utility Connections	30			$ 141,703													
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ -	$ 4,214,960	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																	
C&D - C&D Pad																	
Replace Pads	20					$ 7,884,855											
Replace Overhang Structure	50																
C&D - Processing Line																	
Replace Processing Equipment	10					$ 7,636,512										$ 7,636,512	
Replace Utility Connections	30					$ 286,369											
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 15,807,736	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,636,512	$ -
Composting																	
Compost - Green Waste Pad (210' x 225')																	
Replace Pads	20								$ 702,273					$ 351,136			
Compost - Wood Waste Pad (115' x 225')																	
Replace Pads	20								$ 384,578					$ 192,289			
Compost - Outdoor Receiving Area (90' x 200')																	
Replace Pads	20								$ 226,510					$ 113,255			
Replace Specialty Equipment	10								$ 1,995,039								
Replace Utility Connections	30								$ 7,159					$ 3,580			
Compost - Screening and Product Storage Pad (400' x 350')																	
Replace Pads	20								$ 2,080,868					$ 1,040,434			
Replace Specialty Equipment	10								$ 1,627,532								
Replace Utility Connections	30								$ 71,592					$ 35,796			
Compost - Temporary Positive ASP System																	
Compost - Active Composting System (205' x 880')																	
Replace Pads	20								$ 2,686,872					$ 1,343,436			
Replace ASPs (concrete replacement schedule)	20								$ 4,665,246					$ 2,332,623			
Replace Mechanical	10			$ 322,685					$ 322,685								
Replace Utility Connections	30								$ 53,694					$ 26,847			
Compost - Biofilter (135' x 880')																	
Replace Pads	20								$ 1,765,714					$ 882,857			
Replace Biofilters (concrete replacement schedule)	20								$ 788,438					$ 394,219			
Compost - ASP Curing System (185' x 880')																	
Replace Pads	20								$ 2,419,697					$ 1,209,849			
Replace ASPs (concrete replacement schedule)	20								$ 3,617,566					$ 1,808,783			
Replace Mechanical	10			$ 224,255					$ 224,255								
Replace Utility Connections	30								$ 53,694					$ 26,847			
Compost - Dedicated Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30		$ 557,924														
Compost - Miscellaneous Equipment																	
Replace Mechanical	10		$ 12,409										$ 12,409				
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ 570,333	$ 546,940	$ -	$ -	$ -	$ -	$ 23,693,412	$ -	$ -	$ -	$ 12,409	$ 9,761,951	$ -	$ -	$ -
Landfill																	
Landfill Construction			$ 36,419,538														
Unlined Area Excavation/Backfill																	
Stockpile Relocation																	
Closure Costs				$ 15,214,206					$ 15,214,206								
Landfill - Subtotal Initial Costs		$ -	$ 36,419,538	$ 15,214,206	$ -	$ -	$ -	$ -	$ 15,214,206	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

	Replacement Frequency Interval (Year	2097 75	2098 76	2099 77	2100 78	2101 79	2102 80	2103 81	2104 82	2105 83	2106 84	2107 85	2108 86	2109 87	Remaining Useful Life
INITIAL CAPITAL AND REPLACEMENT COSTS															
Critical Elements															
Public Area															
Public Area - Roadways															
Replace Roadways	25		$ 1,799,189												$ (1,007,546)
Public Area - Buyback (220' x 230')															
Replace Pads	20							$ 786,391							$ (550,474)
Replace Building	50														$ (506,839)
Replace Utility Connections	30														$ (7,900)
Public Area - HHW (300' x 100')															
Replace Pads	20							$ 588,126							$ (411,688)
Replace Building	50														$ (295,738)
Replace Utility Connections	30														$ (19,091)
Public Area - Reuse Store Area (155' x 140')															
Replace Pads	20							$ 342,244							$ (239,571)
Replace Building	50														$ (428,138)
Replace Utility Connections	30														$ (5,036)
Public Area - Tipping Area															
Replace Pads	20							$ 2,116,291							$ (1,481,404)
Replace Tipping Building	50														$ (1,470,176)
Replace Building - Specialty	50														$ (377,415)
Replace Utility Connections	30														$ (18,894)
Public Area - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Subtotal Replacement Costs		$ -	$ 1,799,189	$ -	$ -	$ -	$ -	$ 3,833,052	$ -	$ -	$ -	$ -	$ -	$ -	$ (6,819,909)
C&D															
C&D - C&D Pad															
Replace Pads	20									$ 7,884,855					$ (6,307,884)
Replace Overhang Structure	50														$ (733,105)
C&D - Processing Line															
Replace Processing Equipment	10									$ 7,636,512					$ (4,581,907)
Replace Utility Connections	30														$ (57,274)
C&D - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,521,367	$ -	$ -	$ -	$ -	$ (11,680,170)
Composting															
Compost - Green Waste Pad (210' x 225')															
Replace Pads	20		$ 351,136										$ 702,273		$ (895,398)
Compost - Wood Waste Pad (115' x 225')															
Replace Pads	20		$ 192,289										$ 384,578		$ (490,337)
Compost - Outdoor Receiving Area (90' x 200')															
Replace Pads	20		$ 113,255										$ 226,510		$ (288,800)
Replace Specialty Equipment	10		$ 1,995,039										$ 1,995,039		$ (1,795,535)
Replace Utility Connections	30		$ 3,580												$ (6,085)
Compost - Screening and Product Storage Pad (400' x 350')															
Replace Pads	20		$ 1,040,434										$ 2,080,868		$ (2,653,106)
Replace Specialty Equipment	10		$ 1,627,532										$ 1,627,532		$ (1,464,778)
Replace Utility Connections	30		$ 35,796												$ (60,853)
Compost - Temporary Positive ASP System															
Compost - Active Composting System (205' x 880')															
Replace Pads	20		$ 1,343,436										$ 2,686,872		$ (3,425,762)
Replace ASPs (concrete replacement schedule)	20		$ 2,332,623										$ 4,665,246		$ (5,948,188)
Replace Mechanical	10		$ 645,371					$ 322,685					$ 322,685		$ (354,954)
Replace Utility Connections	30		$ 26,847												$ (45,640)
Compost - Biofilter (135' x 880')															
Replace Pads	20		$ 882,857										$ 1,765,714		$ (2,251,286)
Replace Biofilters (concrete replacement schedule)	20		$ 394,219										$ 788,438		$ (1,005,258)
Compost - ASP Curing System (185' x 880')															
Replace Pads	20		$ 1,209,849										$ 2,419,697		$ (3,085,114)
Replace ASPs (concrete replacement schedule)	20		$ 1,808,783										$ 3,617,566		$ (4,612,397)
Replace Mechanical	10		$ 448,509					$ 224,255					$ 224,255		$ (246,680)
Replace Utility Connections	30		$ 26,847												$ (45,640)
Compost - Dedicated Stormwater Ponds															
Replace Stormwater Ponds (liner)	30														$ (55,792)
Compost - Miscellaneous Equipment															
Replace Mechanical	10						$ 12,409								$ (3,723)
Compost - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Subtotal Replacement Costs		$ -	$ 14,478,401	$ -	$ -	$ -	$ 12,409	$ 546,940	$ -	$ -	$ -	$ -	$ 23,507,272	$ -	$ (28,735,328)
Landfill															
Landfill Construction															
Unlined Area Excavation/Backfill															
Stockpile Relocation															
Closure Costs															
Landfill - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

	Replacement Frequency Interval (Years)	Base Data 2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg									$ 15,493,528								
Replace Building	50																
Replace Utility Connections	30																
Admin Staff Parking Lot									$ 172,583								
Replace Parking Lot	25																
Admin - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ 15,666,111	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways												$ 802,788					
Replace Roadways	25																
Main Entrance - Scale/Building							$ 381,826					$ 1,166,732					
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Main Entrance - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 381,826	$ -	$ -	$ -	$ -	$ 1,969,520	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass (paving)	25																
Overpass - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building													$ 8,281,730				
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Recovered Materials Storage - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,281,730	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')								$ 1,842,538									
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Primary Maintenance - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 1,842,538	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds								$ 2,239,342	$ 2,239,342								
Replace Stormwater Ponds (liner)	30																
Stormwater Pond - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 2,239,342	$ 2,239,342	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

		2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048
		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50																
Replace Utility Connections	30																
Admin Staff Parking Lot																	
Replace Parking Lot	25																
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25																
Main Entrance - Scale/Building																	
Replace Pads	20															$ 9,800	
Replace Building	50																
Replace Scales	20															$ 610,921	
Replace Mechanical	10					$ 57,274										$ 57,274	
Replace Utility Connections	30																
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 57,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 677,995	$ -
Western Entrance																	
Western Entrance - Roadways																$ 775,106	
Replace Roadways	25																
Western Entrance - Scale/Building																$ 360,125	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10																
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,135,231	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																$ 9,278,433	
Replace Overpass (paving)	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,278,433	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20																$ 155,718
Replace Building	50																
Replace Utility Connections	30																
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

	Replacement Frequency Interval (Years)	2049 27	2050 28	2051 29	2052 30	2053 31	2054 32	2055 33	2056 34	2057 35	2058 36	2059 37	2060 38	2061 39	2062 40	2063 41	2064 42
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50																
Replace Utility Connections	30						$ 105,957										
Admin Staff Parking Lot																	
Replace Parking Lot	25	$ 172,583															
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ 172,583	$ -	$ -	$ -	$ -	$ 105,957	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25				$ 802,788												
Main Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10									$ 57,274							
Replace Utility Connections	30									$ 442,918							
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ 500,192	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20																
Replace Building	50																
Replace Scales	20																
Replace Mechanical	10									$ 57,274							
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 57,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass (paving)	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30										$ 143,185						
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 143,185	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30					$ 35,796											
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 35,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area		$ 2,394,397															
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ 2,394,397	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30					$ 1,197,329	$ 1,197,329										
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 1,197,329	$ 1,197,329	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

		2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080
		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50										$ 15,387,572						
Replace Utility Connections	30																
Admin Staff Parking Lot																	
Replace Parking Lot	25										$ 172,583						
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,560,155	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25													$ 802,788			
Main Entrance - Scale/Building																	
Replace Pads	20			$ 9,800													
Replace Building	50													$ 45,819			
Replace Scales	20			$ 610,921													
Replace Mechanical	10			$ 57,274										$ 57,274			
Replace Utility Connections	30																
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ 677,995	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 905,881	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25								$ 775,106								
Western Entrance - Scale/Building																	
Replace Pads	20			$ 9,800													
Replace Building	50																
Replace Scales	20			$ 210,004													
Replace Mechanical	10			$ 57,274										$ 57,274			
Replace Utility Connections	30													$ 83,047			
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ 277,078	$ -	$ -	$ -	$ -	$ 775,106	$ -	$ -	$ -	$ -	$ 140,321	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass (paving)	25								$ 213,822								
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 213,822	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20				$ 155,718												
Replace Building	50														$ 7,982,828		
Replace Utility Connections	30																
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ 155,718	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,982,828	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50									$ 1,663,557							
Replace Utility Connections	30																
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,663,557	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20					$ 1,115,869											
Replace Building	50																
Replace Utility Connections	30															$ 71,592	
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 1,115,869	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 71,592	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30																
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

		2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096
		59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Necessary Supporting Elements																	
Admin																	
Admin Staff Bldg																	
Replace Building	50																
Replace Utility Connections	30				$ 105,957												
Admin Staff Parking Lot																	
Replace Parking Lot	25																
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ -	$ 105,957	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																	
Main Entrance - Roadways																	
Replace Roadways	25																
Main Entrance - Scale/Building																	
Replace Pads	20							$ 9,800									
Replace Building	50																
Replace Scales	20							$ 610,921									
Replace Mechanical	10							$ 57,274									
Replace Utility Connections	30							$ 442,918									
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 1,120,913	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																	
Western Entrance - Roadways																	
Replace Roadways	25																
Western Entrance - Scale/Building																	
Replace Pads	20							$ 9,800									
Replace Building	50																
Replace Scales	20							$ 210,004									
Replace Mechanical	10							$ 57,274									
Replace Utility Connections	30																
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ 277,078	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																	
Overpass																	
Replace Overpass (paving)	25																
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																	
Recyclables Storage Building																	
Replace Pads	20								$ 155,718								
Replace Building	50																
Replace Utility Connections	30								$ 143,185								
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 298,903	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																	
Primary Maintenance - Maintenance Area (250' x 300')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30			$ 35,796													
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ 35,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																	
Satellite Maintenance and Staff - Maintenance Area																	
Replace Pads	20									$ 1,115,869							
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Staff Bldg and Parking Area																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,115,869	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																	
New Stormwater Ponds																	
Replace Stormwater Ponds (liner)	30			$ 1,197,329	$ 1,197,329												
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ 1,197,329	$ 1,197,329	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

	Replacement Frequency Interval (Years)	2097 75	2098 76	2099 77	2100 78	2101 79	2102 80	2103 81	2104 82	2105 83	2106 84	2107 85	2108 86	2109 87	Remaining Useful Life
INITIAL CAPITAL AND REPLACEMENT COSTS															
Necessary Supporting Elements															
Admin															
Admin Staff Bldg															
Replace Building	50														$ (4,616,272)
Replace Utility Connections	30														$ (17,659)
Admin Staff Parking Lot															
Replace Parking Lot	25			$ 172,583											$ (103,550)
Admin - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin - Subtotal Replacement Costs		$ -	$ -	$ 172,583	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (4,737,481)
Main Entrance															
Main Entrance - Roadways															
Replace Roadways	25						$ 802,788								$ (578,008)
Main Entrance - Scale/Building															
Replace Pads	20											$ 9,800			$ (8,820)
Replace Building	50														$ (16,495)
Replace Scales	20											$ 610,921			$ (549,829)
Replace Mechanical	10	$ 57,274										$ 57,274			$ (45,819)
Replace Utility Connections	30														$ (118,111)
Main Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Subtotal Replacement Costs		$ 57,274	$ -	$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ 677,995	$ -	$ -	$ (1,317,082)
Western Entrance															
Western Entrance - Roadways															
Replace Roadways	25	$ 775,106													
Western Entrance - Scale/Building															
Replace Pads	20											$ 9,800			$ (8,820)
Replace Building	50														$ -
Replace Scales	20											$ 210,004			$ (189,004)
Replace Mechanical	10	$ 57,274										$ 57,274			$ (45,819)
Replace Utility Connections	30											$ 83,047			$ (77,511)
Western Entrance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Subtotal Replacement Costs		$ 832,380	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 360,125	$ -	$ -	$ (321,154)
Overpass															
Overpass															
Replace Overpass (paving)	25	$ 213,822													$ (111,188)
Overpass - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass - Subtotal Replacement Costs		$ 213,822	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (111,188)
Recovered Materials Storage															
Recyclables Storage Building															
Replace Pads	20												$ 155,718		$ (147,932)
Replace Building	50														$ (3,033,475)
Replace Utility Connections	30														$ (42,955)
Recovered Materials Storage - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718	$ -	$ (3,224,362)
Primary Maintenance Facility															
Primary Maintenance - Maintenance Area (250' x 300')															
Replace Pads	20														
Replace Building	50														$ (465,796)
Replace Utility Connections	30														$ (4,773)
Primary Maintenance - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (470,569)
Satellite Maintenance and Staff Facility															
Satellite Maintenance and Staff - Maintenance Area															
Replace Pads	20													$ 1,115,869	$ (1,115,869)
Replace Building	50			$ 1,192,618											$ (954,094)
Replace Utility Connections	30													$ 71,592	$ (71,592)
Satellite Maintenance and Staff - Staff Bldg and Parking Area															
Replace Pads	20														
Replace Building	50														
Replace Utility Connections	30														
Satellite Maintenance and Staff - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Subtotal Replacement Costs		$ -	$ -	$ 1,192,618	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,187,461	$ (2,141,555)
Stormwater Pond															
New Stormwater Ponds															
Replace Stormwater Ponds (liner)	30														$ (359,199)
Stormwater Pond - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (359,199)

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

		Base Data															
		2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Years)																
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal							$ 217,629										
Compost Pond Removal - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 217,629	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits													$ 4,423,996				
Geotechnical Investigation								$ 30,000					$ 30,000				
Special Permits and Allow - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 4,453,996	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation			$ -	$ -	$ -	$ -	$ 8,222,370	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ 8,222,370	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification								$ 3,136,507	$ 3,818			$ 2,864					
Replace Landscaping	15																
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 3,136,507	$ 3,818	$ -	$ -	$ 2,864	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal								$ 2,866,952									
Site-wide Demolition - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ 2,866,952	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	$ 3,061,096
Site Utilities - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,061,096
MRF Upgrade to TS																	
MRF Upgrade to TS	20																
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs			$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

	Replacement Frequency Interval (Year	2033 11	2034 12	2035 13	2036 14	2037 15	2038 16	2039 17	2040 18	2041 19	2042 20	2043 21	2044 22	2045 23	2046 24	2047 25	2048 26
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits														$ 2,549,368			
Geotechnical Investigation		$ 30,000					$ 30,000					$ 30,000					$ 30,000
Special Permits and Allow - Subtotal Initial Costs		$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ 2,549,368	$ -	$ -	$ 30,000
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15						$ 548,959										
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ 548,959	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS	20																
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

	Replacement Frequency Interval (Years)	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064
		27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
INITIAL CAPITAL AND REPLACEMENT COSTS																	
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15					$ 548,959											
Replace Fencing	40															$ 1,297,252	
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ 548,959	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,297,252	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS	20																
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

		2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080
		43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15				$ 548,959												
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ -	$ 548,959	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS	20																
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

		2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096
		59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
INITIAL CAPITAL AND REPLACEMENT COSTS																	
	Replacement Frequency Interval (Year																
Non-Critical Elements																	
Main Site HHW Facility																	
HHW Building (65' x 75')																	
Replace Pads	20																
Replace Building	50																
Replace Utility Connections	30																
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																	
Compost Pond Removal																	
Compost Pond Removal																	
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																	
Special Permits and Allow																	
Special Permits																	
Geotechnical Investigation																	
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																	
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																	
Facility Beautification																	
Replace Landscaping	15			$ 548,959													
Replace Fencing	40																
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ -	$ 548,959	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																	
Site-wide Demolition and Disposal																	
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																	
Shared Site Utilities																	
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																	
MRF Upgrade to TS	20								$ 415,766								
Replace Pads	20																
Replace Scales	20																
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Initial Capital and Replacement Inputs
Plan Concept: 2

		2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	Remaining Useful Life
		75	76	77	78	79	80	81	82	83	84	85	86	87	
INITIAL CAPITAL AND REPLACEMENT COSTS															
	Replacement Frequency Interval (Year														
Non-Critical Elements															
Main Site HHW Facility															
HHW Building (65' x 75')															
Replace Pads	20														
Replace Building	50														
Replace Utility Connections	30														
Main Site HHW Facility - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Site HHW Facility - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed															
Compost Pond Removal															
Compost Pond Removal															
Compost Pond Removal - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements															
Special Permits and Allow															
Special Permits															
Geotechnical Investigation															
Special Permits and Allow - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation															
Wetlands Mitigation		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-	
Wetlands Mitigation - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification															
Facility Beautification															
Replace Landscaping	15		$ 548,959												$ (146,389)
Replace Fencing	40							$ 1,297,252							$ (1,102,665)
Site Beautification - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification - Subtotal Replacement Costs		$ -	$ 548,959	$ -	$ -	$ -	$ -	$ 1,297,252	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,249,054)
Site-wide Demolition															
Site-wide Demolition and Disposal															
Site-wide Demolition - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities															
Shared Site Utilities															
Site Utilities - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS															
MRF Upgrade to TS	20														
Replace Pads	20												$ 33,940		$ (32,243)
Replace Scales	20												$ 381,826		$ (362,734)
MRF Upgrade to TS - Subtotal Initial Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS - Subtotal Replacement Costs		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766	$ -	$ (394,977)

Appendix 4B
Operational Cost Basis

Appendix 4B. Operational Cost Basis

This appendix contains the basis for operational costs developed for the Plan Concepts. The Operations and Maintenance (O&M) cost for each Plan Concept was based on the following overarching assumptions:

- The existing O&M costs for the Western Placer Waste Management Authority (WPWMA) facility provide a reasonable basis for projecting O&M cost changes.
- The existing O&M cost structure can be used to project O&M costs for each Plan Concept, meaning the relative public/private operating cost components and breakdown.
- General assumptions about the anticipated increase in operating cost attributable to implementing the different Plan Concepts can be based overall on percent change, as backed up, with the exception of long-haul trucking and post-closure care.
- The model for long-haul trucking of waste for remote disposal assumes that this is performed by a private entity under contract, and that all waste transport and disposal is included as an O&M cost and is not part of the capital cost.
- Post-closure care costs can be obtained and developed from a combination of the current landfill O&M costs and the facility's existing post-closure cost estimate.

The primary basis of operational costs was derived from WPWMA's operational costs for the facility in year 2017, provided in "preliminary budget 18-19.xlsm." WPWMA staff worked with the CH2M Team to identify the applicable costs to include in the overall O&M cost estimate. The WPWMA operating cost data extracted from this spreadsheet were then prorated into the related operating components, and operating costs per ton were developed for 2017 as a "base year." These per-ton operating costs were back-checked with the tonnage to confirm that the applicable costs were reflected in the unit rates. The CH2M Team then reviewed the unit costs with WPWMA staff and the operator to gather input on whether these rates appeared to be applicable and what increases to these unit costs might be necessary to reflect operating condition changes outside of the master planning project. Using this input, the CH2M Team made adjustments to the base year unit costs, and incorporated other increases for the near planning term. Using this method, the following unit operating costs were developed for each of the following categories:

- Landfill operations (per ton)
- Public Area operations (per ton)
- C&D Area operations (per ton)
- Compost Area operations (per ton)
- WPWMA administrative operations (per ton)

For each of these O&M cost categories, unit costs were multiplied by waste stream projections to calculate future operational costs. Note that for the Public Area, C&D Area, and Compost Area, the unit cost was developed by extracting the tonnages allocated from these areas and the relative portion of the fees paid to the facility operator in 2017 for either the landfill or material recovery facility (MRF), as applicable, and as indicated in the waste stream flow contained in "preliminary budget 18-19.xlsm."

O&M costs for two additional components were developed with approaches specific to the cost type and as described in the following sections of this appendix:

- Offsite disposal and long-haul trucking operations (per ton, after closure of the landfill)
- Post-closure care operations (per acre)

In general, the offsite disposal and long-haul trucking O&M cost is a function of assumptions for haul distance, receiving site tip fee, and trucking fleet cost allocation. Post-closure cost is a function of the acres in post-closure at a given time, duration of post-closure within the analysis period, and the unit cost for post-closure.

The offsite disposal and long-haul trucking unit costs were multiplied by waste stream projections to calculate future operational costs for the years in which long-haul trucking and offsite disposal occurred for each Plan Concept. For post-closure care operations, the unit cost was applied to the total acres in post-closure in the year after the site reached capacity under each Plan Concept, and continued for a period of 30 years. Partial phased closure was considered as further described in this appendix.

For all of the O&M cost categories listed above, other adjustment factors were applied based on anticipated conditions as described in the following sections along with detail on the methodology to derive applicable operational costs.

Detailed operational costs for each Plan Concept are provided in Appendix 4B-1.

4B.1 Landfill Operations

The landfill base year unit operating cost was calculated by dividing the total landfill operational expenses by the total disposed tonnage as listed in the WPWMA spreadsheet "preliminary budget 18-19.xlsm." Total buried tonnage was taken from the "Landfill O&M" sheet in the "preliminary budget 18-19.xlsm" spreadsheet and the costs from the "LF Operational Expenses" spreadsheet. That base cost was then adjusted by the factors listed in Table 4B-1 for the applicable Plan Concepts.

Table 4B-1. Landfill Operations Adjustment Factors

Plan Concept	Year	Adjustment Factor	Rationale
0 1 2	All	+ 2.12%	Forecasted tonnage increase year over year to reflect increased tonnage from population growth.
0 1 2	0	+ 35%	Increase in operational costs upon commencement of master plan as the current landfill operating cost is based on having the same operator for both the landfill and other site functions, which has not always been the case and may not be in the future. Also, changes in operating practices to address cover requirements, odor, and other regulations are expected to increase the current landfill operations costs regardless of landfill configuration.
2	27	+ 5%	Increase administrative costs in landfill O&M by 5% when operating both the western and existing landfills to account for additional water quality monitoring/reporting, landfill gas monitoring and reporting, and minor maintenance labor and equipment. Assume negligible increase for transportation (have crossing). Start in year 27 (assumes first West landfill cell is constructed in that time frame and existing landfill goes to partial post-closure).

4B.2 Public Area Operations

Because of the way the WPWMA currently pays for operating services at the facility, the public area base year unit operating cost was calculated using the same approach as the Compost and C&D Areas. Non-landfill operating costs are currently paid in one combined MRF operating fee by the WPWMA. Thus, calculating the base year unit operating cost for the non-landfill components consisted of a weighted average of the calculated per ton fee for landfill and MRF operating costs using the associated amount of waste that ultimately goes to the MRF and the landfill after it is received in the Public, Compost, and C&D Areas. The data for these calculations were obtained from the "Tonnages & Tip Fees" sheet and the "MRF Operating Expenses" sheet in the WPWMA spreadsheet "preliminary budget 18-19.xlsm" and from differences between Plan Concepts. The base cost was then adjusted by the factors listed in Table 4B-2 for the applicable Plan Concepts.

Table 4B-2. Public Area Operations Adjustment Factors

Plan Concept	Year	Adjustment Factor	Rationale
0 1 2	All	+ 2.12%	Forecasted tonnage increase year over year to reflect increased tonnage from population growth.
0 1 2	0	+ 10%	Increase in operational costs upon commencement of master plan attributable to anticipated staffing and operational needs.
0 2	1	+ 10%	Increase in operational costs attributable to additional staffing and operational needs the year that the new costs Public Area is built.
0 2	2	+ 50%	Increase attributable to commencement of operations of the new Public Area (switch to Z-wall).
1	3	+ 10%	Increase in operational costs attributable to additional staffing and operational needs the year that the new costs Public Area is built.
1	4	+ 60%	Increase attributable to commencement of operations of the new Public Area (switch to Z-wall) and with the Public Area being on a different property than the existing facility.

4B.3 C&D Area Operations

Because of the way the WPWMA currently pays for operating services at the facility, the C&D Area base year unit operating cost was calculated using the same approach as the Public and Compost Areas. Non-landfill operating costs are currently paid in one combined MRF operating fee by the WPWMA. Thus, calculating the base year unit operating cost for the non-landfill components consisted of a weighted average of the calculated per-ton fee for landfill and MRF operating costs using the associated amount of waste that ultimately goes to the MRF and the landfill after it is received in the Public, Compost, and C&D Areas. The data for these calculations were obtained from the “Tonnages & Tip Fees” sheet and the “MRF Operating Expenses” sheet in the WPWMA spreadsheet “preliminary budget 18-19.xlsm” and from differences between Plan Concepts. The base cost was then adjusted by the factors listed in Table 4B-3 for the applicable Plan Concepts.

Table 4B-3. C&D Area Operations Adjustment Factors

Plan Concept	Year	Adjustment Factor	Rationale
0 1 2	All	+ 2.12%	Forecasted tonnage increase year over year to reflect increased tonnage from population growth.
0 1 2	0, -2[a]	+ 50%	Increase to account for additional diversion operations.
0 1 2	0, -2[a]	+ 50%	Increase to account for additional incoming C&D debris and diversion operations.

[a] Adjustment factor is applied in Year -2 (prior to the Year 0 project start), but impacts the O&M costs starting in Year 0.

4B.4 Compost Area Operations

Because of the way the WPWMA currently pays for operating services at the facility, the Compost Area base year unit operating cost was calculated using the same approach as the Public and C&D Areas. Non-landfill operating costs are currently paid in one combined MRF operating fee by the WPWMA. Thus, calculating the base year unit operating cost for the non-landfill components consisted of a weighted average of the calculated per-ton fee for landfill and MRF operating costs using the associated amount of waste that ultimately goes to the MRF and the landfill after it is received in the Public, Compost, and C&D Areas. The data for these calculations were obtained from the “Tonnages & Tip Fees” sheet and the “MRF Operating Expenses” sheet in the WPWMA spreadsheet “preliminary budget 18-19.xlsm” and from differences between Plan Concepts. The base cost was then adjusted by the factors listed in Table 4B-4 for the applicable Plan Concepts.

Table 4B-4. Compost Area Operations Adjustment Factors

Plan Concept	Year	Adjustment Factor	Rationale
0 1 2	All	+ 2.12%	Forecasted tonnage increase year over year to reflect increased tonnage from population growth.
0 1 2	0	+ 30%	Increase corresponds to an anticipated additional $10 per ton over the current $34 per ton cost to account for the implementation of aerated static pile (ASP) operating methods.

4B.5 WPWMA Administrative Operational Costs

The WPWMA Administrative base year unit operating cost was calculated by dividing the total of WPWMA Administrative operating costs in 2017 by the total of inbound tonnage at the facility during that period. Total inbound tonnage was taken from the "Tonnages & Tip Fees" sheet of WPWMA's spreadsheet "preliminary budget 18-19.xlsm." Administrative base year costs were compiled from the "255 Detail" and "Financial Forecast" sheets of the "preliminary budget 18-19.xlsm" spreadsheet. The cost categories used in the WPWMA Administrative Operating Costs base year were included based on consultation with WPWMA staff. These costs include staffing, operational, technical, consulting, and other costs that are not included in the facility operator's contract, but that are a part of operating the facility. The base cost was then adjusted by the factors listed in Table 4B-5 for the applicable Plan Concepts.

Table 4B-5. WPWMA Administrative Operations Adjustment Factors

Plan Concept	Year	Adjustment Factor	Rationale
0 1 2	All	+ 2.12%	Forecasted tonnage increase year over year to reflect increased tonnage from population growth.
0 1 2	-2[a]	+ 15.03%	Increase corresponds to the addition of three staff, assuming $225,000 annual cost per staff and current operational cost of $4,492,156.
0	5	+ 20.03%	Increase corresponds to the addition of four staff (on top of staff addition in Year -2), assuming $225,000 annual cost per staff and current operational cost of $4,492,156.
1	5	+ 35.06%	Increase corresponds to the addition of seven staff (on top of staff addition in Year -2), assuming $225,000 annual cost per staff and current operational cost of $4,492,156.
2	5	+ 25.04%	Increase corresponds to the addition of five staff (on top of staff addition in Year -2), assuming $225,000 annual cost per staff and current operational cost of $4,492,156.

[a] Adjustment factor is applied in Year -2 (prior to the Year 0 project start), but impacts the O&M costs starting in Year 0.

4B.6 Offsite Disposal and Long-haul Trucking Operations

The offsite disposal and long-haul trucking unit cost was based on the assumption of 150 miles round-trip for remote disposal and the unit rate as calculated in the transportation cost model. The assumptions for offsite disposal location were developed by WPWMA staff based on a survey of currently permitted sites with existing or planned capacity in the analysis calculation period and that could reasonably be expected to accept the WPWMA waste for disposal. The trucking cost assumes that trucking is provided under contract; therefore, all trucking costs are included in the per-ton mile rate and are not included as separate capital in the analysis. This calculation includes a range of assumptions such as fuel cost; insurance; truck life and replacement; loading, unloading, and turnaround time; and labor.

The trucking unit cost was multiplied by the projected tonnage and was applied in applicable years as shown in Table 4B-6. The transportation cost model is provided in Figure 4B-1.

Table 4B-6. Offsite Disposal and Long-haul Trucking Operations Applicability

Plan Concept	Years	Rationale
0	31 to 87	Starts in year after Plan Concept 0 reaches landfill capacity until the last year of analysis.
1	87	Starts in year after Plan Concept 1 reaches landfill capacity (last year of analysis).
2	71 to 87	Starts in year after Plan Concept 2 reaches landfill capacity until the last year of analysis.

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: JACOBS Transportation Cost Model
Plan Concept: 0, 1, 2

Operating Assumptions		**Equipment Cost**	
Origin Location	Local	Tractor Make and Model	New 2018
Destination	Landfill	Percent spares	15%
miles (one way)	75.0	Number of Trucks in the Fleet	42.6
Average miles per Hour	45	Unit Life in Years	5.0
Workdays per Week	6	Salvage Percentage	15%
Annual Workdays	312	Price	$155,000
Annual Tons	466,538	US Federal Excise Tax	$18,600
Annual Trips	23,327	Sales Tax	$0
Average Tons per Trip	20.0	Vehicle Cost	$173,600
Average Loading Time (min.)	20	Interest Expense @ 5 years	$22,963
Average Unloading Time (min.)	20	Total Truck Financed Cost	$196,563
Average Roundtrip Time (hrs.)	3.3		
Total Time per Trip (hrs)	4.0	Trailers per tractor	3.0
		Number of Trailers in the Fleet	127.7
Labour Assumptions		Unit Life in Years	10.0
Driver hours per day	8.0	Salvage Percentage	10%
Non-Driving hours per day	1.0	Price	$75,000
Total hours per day	9.0	US Federal Excise Tax	$9,000
Benefit Percentage	40%	Sales Tax	$0
Driver Annual Wage	$70,000	Trailer Cost	$84,000
Driver Annual Wage + benefits	$98,000	Interest Expense @ 5 years	$11,111
Trips per Driver	2.0	Total Trailer Financed Cost	$95,111
Loads per day	74.8		
Drivers needed per day	37.4	Total Truck Expense	$8,363,746
		Total Trailer Expense	$12,140,921
Operational Assumptions		Total Capital Expense	$20,504,667
Overhead Percentage	15%		
Profit Margin Percentage	12%	Required Truck Quantity	42.6
Interest Rate	5.00%	Required Trailer Quantity	127.7
Fuel Cost		**Licenses & Taxes**	
Fuel miles/gallon	4.5	State	California
Fuel Cost per Gallon	$3.00	Annual Registration (per truck)	$1,673
		Annual Federal Hwy Use Tax	$550
Repair & Maintenance		Insurance (per truck per year)	$7,000
Truck Cost per mile	$0.20	Annual Insurance	$297,850
Trailer Cost per mile	$0.15		

See also: https://www.dat.com/blog/post/what-does-it-cost-to-run-your-trucking-company1
https://www.fhwa.dot.gov/ohim/hwytaxes/2001/pt11b.htm
https://www.irs.gov/pub/irs-pdf/f2290.pdf

	Annual Cost per Truck	Annual Trucking Costs	Cost per Ton	Cost per mi
Truck	$34,663	$1,474,892	$3.16	$0.84
Trailer	$8,761	$1,118,355	$2.40	$0.64
Labor		$3,663,520	$7.85	$2.09
Fuel		$2,332,690	$5.00	$1.33
R&M		$1,224,662	$2.63	$0.70
Insurance		$297,850	$0.64	$0.17
License & Fees		$94,589	$0.20	$0.05
G&A		$1,530,984	$3.28	$0.88
Profit		$1,408,505	$3.02	$0.81
Total		$13,146,045	$28.18	$7.51

Hours	93,308
$ per hour	$140.89

Cost per ton-mile	
One-way	$0.38
Two-way	$0.19

Figure 4B-1. Transportation Cost Model

4B.7 Post-closure Care Operations

Based on the most recent post-closure care estimate from SCS Engineers (Figure 4B-2), dated September 26, 2017, the post-closure care unit cost is estimated to be approximately $1,606 per acre per year ($369,290 annual divided by 230 acres as stated in Figure 4B-2).

TABLE 10.2
POST-CLOSURE MAINTENANCE COST SUMMARY
WESTERN REGIONAL SANITARY LANDFILL

Item	Quantity	Unit	Unit Cost	Total
1. Revegetation[1]	2.9	ac	$ 1,576	$ 4,570
2. Maintenace Oversight	52	Weekly	$ 460	$ 23,920
3. Monitoring Systems[2]				
a. Surface Water Monitoring	1	Annually	$ 4,500	$ 4,500
b. Groundwater Monitoring	1	Annually	$ 30,586	$ 30,600
c. Leachate Monitoring	1	Annually	$ 11,376	$ 11,400
d. Vadose Monitoring	1	Annually	$ 16,679	$ 16,700
e. Leak Detection Monitoring	1	Annually	$ 18,639	$ 18,700
4. Drainage				
a. Annual Drainage Maintenance	1	Annually	$ 16,459	$ 16,500
5. Site Security	1	Annually	$ 1,097	$ 1,100
6. Inspections				
a. Annual Inspections	1	Annually	$ 5,228	$ 5,300
7. Final Cover Maintenance				
a. Annual Regrading	1	Annually	$ 8,528	$ 8,600
8. LFG Control System & Leachate O&M				
a. Leachate Disposal	1	Annually	$ 25,181	$ 25,200
b. O&M	1	Annually	$ 158,709	$ 158,800
c. Landfill Gas Detection System Monitoring	1	Annually	$ 27,570	$ 27,600
9. 5-year Iso-Settlement Survey				
a. Aerial Survey	0.2	5-yr	$ 5,000	$ 1,000
b. Iso-Settlement Analysis	0.2	5-yr	$ 6,000	$ 1,200
c. Settlement Grading	0.2	5-yr	$ 62,537	$ 12,600
10. Groundwater Well Replacement	1	Annually	$ 904	$ 1,000
			Annual Total:	**$ 369,290**
			30-Year Present-Day Total:	**$ 11,078,689**

Notes:
1. Assumes 1% of total area (230 acres) per year will need hydroseeding
2. Sampling and testing costs based on testing protocol outlined in the WDR's.

Figure 4B-2. Post-closure Estimate by SCS Engineers, 2017

The post-closure care period begins at the end of landfill life. Therefore, the post-closure care unit cost of $1,606 per acre per year was applied to the total post-closure acres for the 30-year period starting the year after closure of the complete landfill. Table 4B-7 shows the estimated landfill closure years and associated post-closure acreages.

Table 4B-7. Post-closure Care Operations Summary

Plan Concept	Post-closure Acres	Landfill Closure
0	148	Year 26 (2048)
1	321	Year 86 (2108)
2	365	Year 66 (2088)

The analysis also considered that the site may be subject to partial final closure as different modules and landfill areas are filled to capacity. This situation was addressed by the assumption that the landfill operating unit cost would cover the costs of O&M for the closed portions of the site until the time when post-closure is applicable to the entire site.

Appendix 4B-1
Operational Cost Estimates

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Summary Input for NPV_PC# Sheets
Plan Concept: 0, 1, 2

	-5	-4	-3	-2	-1	0	1	2	3	4	5
Year	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
Plan Concept 0											
Landfill Operations (years 0-26)	$2,026,382.93	$2,069,342.25	$2,113,212.30	$2,158,012.40	$2,203,762.27	$3,021,798.82	$3,085,860.95	$3,151,281.21	$3,218,088.37	$3,286,311.84	$3,355,981.65
Public Area Operations (years 0-87)	$646,038.46	$659,734.48	$673,720.85	$688,003.73	$702,589.41	$787,743.24	$883,217.73	$1,343,550.80	$1,372,034.08	$1,401,121.20	$1,430,824.97
C&D Area Operations (years 0-87)	$2,088,179.75	$2,132,449.16	$2,177,657.08	$4,401,480.49	$4,494,791.87	$9,084,873.34	$9,277,472.65	$9,474,155.07	$9,675,007.16	$9,880,117.31	$10,089,575.80
Compost Area Operations (years 0-87)	$2,291,087.92	$2,339,658.98	$2,389,259.75	$2,439,912.06	$2,491,638.19	$3,291,952.38	$3,361,741.77	$3,433,010.70	$3,505,790.52	$3,580,113.28	$3,656,011.68
WPWMA Operational Costs (years 0-87)	$4,492,155.83	$4,587,389.54	$4,684,642.19	$5,487,879.98	$5,604,223.04	$5,723,032.56	$5,844,360.85	$5,968,261.30	$6,094,788.44	$6,223,997.96	$7,602,919.97
Long Haul Trucking (years 27-87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (years 27-56)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$11,543,844.88	$11,788,574.40	$12,038,492.17	$15,175,288.66	$15,497,004.78	$21,909,400.34	$22,452,653.96	$23,370,259.08	$23,865,708.58	$24,371,661.60	$26,135,314.07
Plan Concept 1											
Landfill Operations (years 0-86)	$2,026,382.93	$2,069,342.25	$2,113,212.30	$2,158,012.40	$2,203,762.27	$3,021,798.82	$3,085,860.95	$3,151,281.21	$3,218,088.37	$3,286,311.84	$3,355,981.65
Public Area Operations (years 0-87)	$646,038.46	$659,734.48	$673,720.85	$688,003.73	$702,589.41	$787,743.24	$804,443.40	$821,497.60	$921,063.11	$1,493,227.52	$1,524,883.94
C&D Area Operations (years 0-87)	$2,088,179.75	$2,132,449.16	$2,177,657.08	$4,401,480.49	$4,494,791.87	$9,084,873.34	$9,277,472.65	$9,474,155.07	$9,675,007.16	$9,880,117.31	$10,089,575.80
Compost Area Operations (years 0-87)	$2,291,087.92	$2,339,658.98	$2,389,259.75	$2,439,912.06	$2,491,638.19	$3,291,952.38	$3,361,741.77	$3,433,010.70	$3,505,790.52	$3,580,113.28	$3,656,011.68
WPWMA Operational Costs (years 0-87)	$4,492,155.83	$4,587,389.54	$4,684,642.19	$5,487,879.98	$5,604,223.04	$5,723,032.56	$5,844,360.85	$5,968,261.30	$6,094,788.44	$6,223,997.96	$8,538,149.91
Long Haul Trucking (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$11,543,844.88	$11,788,574.40	$12,038,492.17	$15,175,288.66	$15,497,004.78	$21,909,400.34	$22,373,879.63	$22,848,205.88	$23,414,737.60	$24,463,767.91	$27,164,602.98
Plan Concept 2											
Landfill Operations (years 0-66)	$2,026,382.93	$2,069,342.25	$2,113,212.30	$2,158,012.40	$2,203,762.27	$3,021,798.82	$3,085,860.95	$3,151,281.21	$3,218,088.37	$3,286,311.84	$3,355,981.65
Public Area Operations (years 0-87)	$646,038.46	$659,734.48	$673,720.85	$688,003.73	$702,589.41	$787,743.24	$883,217.73	$1,343,550.80	$1,372,034.08	$1,401,121.20	$1,430,824.97
C&D Area Operations (years 0-87)	$2,088,179.75	$2,132,449.16	$2,177,657.08	$4,401,480.49	$4,494,791.87	$9,084,873.34	$9,277,472.65	$9,474,155.07	$9,675,007.16	$9,880,117.31	$10,089,575.80
Compost Area Operations (years 0-87)	$2,291,087.92	$2,339,658.98	$2,389,259.75	$2,439,912.06	$2,491,638.19	$3,291,952.38	$3,361,741.77	$3,433,010.70	$3,505,790.52	$3,580,113.28	$3,656,011.68
WPWMA Operational Costs (years 0-87)	$4,492,155.83	$4,587,389.54	$4,684,642.19	$5,487,879.98	$5,604,223.04	$5,723,032.56	$5,844,360.85	$5,968,261.30	$6,094,788.44	$6,223,997.96	$7,914,663.28
Long Haul Trucking (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$11,543,844.88	$11,788,574.40	$12,038,492.17	$15,175,288.66	$15,497,004.78	$21,909,400.34	$22,452,653.96	$23,370,259.08	$23,865,708.58	$24,371,661.60	$26,447,057.39

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Summary Input for NPV_PC# Sheets
Plan Concept: 0, 1, 2

	6	7	8	9	10	11	12	13	14	15	16
Year	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**
Plan Concept 0											
Landfill Operations (years 0-26)	$3,427,128.46	$3,499,783.59	$3,573,979.00	$3,649,747.35	$3,727,122.00	$3,806,136.98	$3,886,827.09	$3,969,227.82	$4,053,375.45	$4,139,307.01	$4,227,060.32
Public Area Operations (years 0-87)	$1,461,158.46	$1,492,135.02	$1,523,768.29	$1,556,072.17	$1,589,060.90	$1,622,748.99	$1,657,151.27	$1,692,282.88	$1,728,159.28	$1,764,796.25	$1,802,209.93
C&D Area Operations (years 0-87)	$10,303,474.81	$10,521,908.47	$10,744,972.93	$10,972,766.36	$11,205,389.00	$11,442,943.25	$11,685,533.65	$11,933,266.96	$12,186,252.22	$12,444,600.77	$12,708,426.30
Compost Area Operations (years 0-87)	$3,733,519.13	$3,812,669.74	$3,893,498.33	$3,976,040.50	$4,060,332.56	$4,146,411.61	$4,234,315.53	$4,324,083.02	$4,415,753.58	$4,509,367.56	$4,604,966.15
WPWMA Operational Costs (years 0-87)	$7,764,101.87	$7,928,700.83	$8,096,789.29	$8,268,441.22	$8,443,732.17	$8,622,739.30	$8,805,541.37	$8,992,218.85	$9,182,853.89	$9,377,530.39	$9,576,334.03
Long Haul Trucking (years 27-87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (years 27-56)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$26,689,382.73	$27,255,197.65	$27,833,007.84	$28,423,067.60	$29,025,636.64	$29,640,980.13	$30,269,368.91	$30,911,079.53	$31,566,394.42	$32,235,601.98	$32,918,996.74
Plan Concept 1											
Landfill Operations (years 0-86)	$3,427,128.46	$3,499,783.59	$3,573,979.00	$3,649,747.35	$3,727,122.00	$3,806,136.98	$3,886,827.09	$3,969,227.82	$4,053,375.45	$4,139,307.01	$4,227,060.32
Public Area Operations (years 0-87)	$1,557,211.48	$1,590,224.36	$1,623,937.12	$1,658,364.59	$1,693,521.91	$1,729,424.58	$1,766,088.38	$1,803,529.45	$1,841,764.28	$1,880,809.68	$1,920,682.85
C&D Area Operations (years 0-87)	$10,303,474.81	$10,521,908.47	$10,744,972.93	$10,972,766.36	$11,205,389.00	$11,442,943.25	$11,685,533.65	$11,933,266.96	$12,186,252.22	$12,444,600.77	$12,708,426.30
Compost Area Operations (years 0-87)	$3,733,519.13	$3,812,669.74	$3,893,498.33	$3,976,040.50	$4,060,332.56	$4,146,411.61	$4,234,315.53	$4,324,083.02	$4,415,753.58	$4,509,367.56	$4,604,966.15
WPWMA Operational Costs (years 0-87)	$8,719,158.68	$8,904,004.85	$9,092,769.75	$9,285,536.47	$9,482,389.84	$9,683,416.51	$9,888,704.94	$10,098,345.48	$10,312,430.41	$10,531,053.93	$10,754,312.27
Long Haul Trucking (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$27,740,492.56	$28,328,591.00	$28,929,157.13	$29,542,455.26	$30,168,755.32	$30,808,332.93	$31,461,469.59	$32,128,452.74	$32,809,575.94	$33,505,138.95	$34,215,447.90
Plan Concept 2											
Landfill Operations (years 0-66)	$3,427,128.46	$3,499,783.59	$3,573,979.00	$3,649,747.35	$3,727,122.00	$3,806,136.98	$3,886,827.09	$3,969,227.82	$4,053,375.45	$4,139,307.01	$4,227,060.32
Public Area Operations (years 0-87)	$1,461,158.46	$1,492,135.02	$1,523,768.29	$1,556,072.17	$1,589,060.90	$1,622,748.99	$1,657,151.27	$1,692,282.88	$1,728,159.28	$1,764,796.25	$1,802,209.93
C&D Area Operations (years 0-87)	$10,303,474.81	$10,521,908.47	$10,744,972.93	$10,972,766.36	$11,205,389.00	$11,442,943.25	$11,685,533.65	$11,933,266.96	$12,186,252.22	$12,444,600.77	$12,708,426.30
Compost Area Operations (years 0-87)	$3,733,519.13	$3,812,669.74	$3,893,498.33	$3,976,040.50	$4,060,332.56	$4,146,411.61	$4,234,315.53	$4,324,083.02	$4,415,753.58	$4,509,367.56	$4,604,966.15
WPWMA Operational Costs (years 0-87)	$8,082,454.14	$8,253,802.17	$8,428,782.78	$8,607,472.97	$8,789,951.40	$8,976,298.37	$9,166,595.89	$9,360,927.73	$9,559,379.39	$9,762,038.24	$9,968,993.45
Long Haul Trucking (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$27,007,735.00	$27,580,298.99	$28,165,001.32	$28,762,099.35	$29,371,855.86	$29,994,539.20	$30,630,423.43	$31,279,788.41	$31,942,919.93	$32,620,109.83	$33,311,656.16

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Summary Input for NPV_PC# Sheets
Plan Concept: 0, 1, 2

	17	18	19	20	21	22	23	24	25	26	27	28
Year	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**
Plan Concept 0												
Landfill Operations (years 0-26)	$4,316,674.00	$4,408,187.49	$4,501,641.06	$4,597,075.85	$4,694,533.86	$4,794,057.98	$4,895,692.01	$4,999,480.68	$5,105,469.67	$5,213,705.63	$0.00	
Public Area Operations (years 0-87)	$1,840,416.78	$1,879,433.62	$1,919,277.61	$1,959,966.30	$2,001,517.58	$2,043,949.76	$2,087,281.49	$2,131,531.86	$2,176,720.34	$2,222,866.81	$2,269,991.58	$2,318,115.40
C&D Area Operations (years 0-87)	$12,977,844.94	$13,252,975.25	$13,533,938.33	$13,820,857.82	$14,113,860.01	$14,413,073.84	$14,718,631.01	$15,030,665.98	$15,349,316.10	$15,674,721.60	$16,007,025.70	$16,346,374.65
Compost Area Operations (years 0-87)	$4,702,591.43	$4,802,286.37	$4,904,094.84	$5,008,061.65	$5,114,232.56	$5,222,654.29	$5,333,374.56	$5,446,442.10	$5,561,906.68	$5,679,819.10	$5,800,231.26	$5,923,196.17
WPWMA Operational Costs (years 0-87)	$9,779,352.31	$9,986,674.58	$10,198,392.09	$10,414,598.00	$10,635,387.47	$10,860,857.69	$11,091,107.87	$11,326,239.36	$11,566,355.63	$11,811,562.37	$12,061,967.50	$12,317,681.21
Long Haul Trucking (years 27-87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$47,356,803.30	$48,360,767.53
Post Closure Care Costs (years 27-56)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$237,688.00	$237,688.00
Total Operating Cost Not Including MRF	$33,616,879.47	$34,329,557.32	$35,057,343.93	$35,800,559.62	$36,559,531.49	$37,334,593.56	$38,126,086.94	$38,934,359.98	$39,759,768.41	$40,602,675.51	$83,733,707.34	$85,503,822.95
Plan Concept 1												
Landfill Operations (years 0-86)	$4,316,674.00	$4,408,187.49	$4,501,641.06	$4,597,075.85	$4,694,533.86	$4,794,057.98	$4,895,692.01	$4,999,480.68	$5,105,469.67	$5,213,705.63	$5,324,236.18	$5,437,109.99
Public Area Operations (years 0-87)	$1,961,401.32	$2,002,983.03	$2,045,446.27	$2,088,809.73	$2,133,092.50	$2,178,314.06	$2,224,494.32	$2,271,653.60	$2,319,812.65	$2,368,992.68	$2,419,215.33	$2,470,502.69
C&D Area Operations (years 0-87)	$12,977,844.94	$13,252,975.25	$13,533,938.33	$13,820,857.82	$14,113,860.01	$14,413,073.84	$14,718,631.01	$15,030,665.98	$15,349,316.10	$15,674,721.60	$16,007,025.70	$16,346,374.65
Compost Area Operations (years 0-87)	$4,702,591.43	$4,802,286.37	$4,904,094.84	$5,008,061.65	$5,114,232.56	$5,222,654.29	$5,333,374.56	$5,446,442.10	$5,561,906.68	$5,679,819.10	$5,800,231.26	$5,923,196.17
WPWMA Operational Costs (years 0-87)	$10,982,303.69	$11,215,128.53	$11,452,889.26	$11,695,690.51	$11,943,639.15	$12,196,844.30	$12,455,417.40	$12,719,472.25	$12,989,125.06	$13,264,494.51	$13,545,701.79	$13,832,870.67
Long Haul Trucking (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$34,940,815.39	$35,681,560.68	$36,438,009.76	$37,210,495.57	$37,999,358.08	$38,804,944.47	$39,627,609.29	$40,467,714.61	$41,325,630.16	$42,201,733.52	$43,096,410.27	$44,010,054.16
Plan Concept 2												
Landfill Operations (years 0-66)	$4,316,674.00	$4,408,187.49	$4,501,641.06	$4,597,075.85	$4,694,533.86	$4,794,057.98	$4,895,692.01	$4,999,480.68	$5,105,469.67	$5,213,705.63	$5,584,921.47	$5,703,321.80
Public Area Operations (years 0-87)	$1,840,416.78	$1,879,433.62	$1,919,277.61	$1,959,966.30	$2,001,517.58	$2,043,949.76	$2,087,281.49	$2,131,531.86	$2,176,720.34	$2,222,866.81	$2,269,991.58	$2,318,115.40
C&D Area Operations (years 0-87)	$12,977,844.94	$13,252,975.25	$13,533,938.33	$13,820,857.82	$14,113,860.01	$14,413,073.84	$14,718,631.01	$15,030,665.98	$15,349,316.10	$15,674,721.60	$16,007,025.70	$16,346,374.65
Compost Area Operations (years 0-87)	$4,702,591.43	$4,802,286.37	$4,904,094.84	$5,008,061.65	$5,114,232.56	$5,222,654.29	$5,333,374.56	$5,446,442.10	$5,561,906.68	$5,679,819.10	$5,800,231.26	$5,923,196.17
WPWMA Operational Costs (years 0-87)	$10,180,336.11	$10,396,159.23	$10,616,557.81	$10,841,628.83	$11,071,471.37	$11,306,186.56	$11,545,877.71	$11,790,650.32	$12,040,612.11	$12,295,873.09	$12,556,545.59	$12,822,744.36
Long Haul Trucking (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$34,017,863.27	$34,739,041.97	$35,475,509.66	$36,227,590.46	$36,995,615.38	$37,779,922.43	$38,580,856.78	$39,398,770.95	$40,234,024.89	$41,086,986.22	$42,218,715.61	$43,113,752.38

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Summary Input for NPV_PC# Sheets
Plan Concept: 0, 1, 2

	29	30	31	32	33	34	35	36	37	38	39	40
Year	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**
Plan Concept 0												
Landfill Operations (years 0-26)												
Public Area Operations (years 0-87)	$2,341,296.56	$2,364,709.52	$2,388,356.62	$2,412,240.19	$2,436,362.59	$2,460,726.21	$2,485,333.48	$2,510,186.81	$2,535,288.68	$2,560,641.56	$2,586,247.98	$2,612,110.46
C&D Area Operations (years 0-87)	$16,509,838.39	$16,674,936.78	$16,841,686.14	$17,010,103.01	$17,180,204.04	$17,352,006.08	$17,525,526.14	$17,700,781.40	$17,877,789.21	$18,056,567.10	$18,237,132.77	$18,419,504.10
Compost Area Operations (years 0-87)	$5,982,428.13	$6,042,252.41	$6,102,674.93	$6,163,701.68	$6,225,338.70	$6,287,592.09	$6,350,468.01	$6,413,972.69	$6,478,112.41	$6,542,893.54	$6,608,322.47	$6,674,405.70
WPWMA Operational Costs (years 0-87)	$12,440,858.02	$12,565,266.60	$12,690,919.26	$12,817,828.46	$12,946,006.74	$13,075,466.81	$13,206,221.48	$13,338,283.69	$13,471,666.53	$13,606,383.19	$13,742,447.03	$13,879,871.50
Long Haul Trucking (years 27-87)	$48,844,375.21	$49,332,818.96	$49,826,147.15	$50,324,408.62	$50,827,652.71	$51,335,929.23	$51,849,288.52	$52,367,781.41	$52,891,459.22	$53,420,373.82	$53,954,577.55	$54,494,123.33
Post Closure Care Costs (years 27-56)	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00
Total Operating Cost Not Including MRF	$86,356,484.30	$87,217,672.26	$88,087,472.11	$88,965,969.95	$89,853,252.77	$90,749,408.42	$91,654,525.62	$92,568,694.00	$93,492,004.06	$94,424,547.22	$95,366,415.81	$96,317,703.09
Plan Concept 1												
Landfill Operations (years 0-86)	$5,491,481.09	$5,546,395.90	$5,601,859.86	$5,657,878.46	$5,714,457.24	$5,771,601.82	$5,829,317.84	$5,887,611.01	$5,946,487.12	$6,005,952.00	$6,066,011.52	$6,126,671.63
Public Area Operations (years 0-87)	$2,495,207.72	$2,520,159.79	$2,545,361.39	$2,570,815.01	$2,596,523.16	$2,622,488.39	$2,648,713.27	$2,675,200.40	$2,701,952.41	$2,728,971.93	$2,756,261.65	$2,783,824.27
C&D Area Operations (years 0-87)	$16,509,838.39	$16,674,936.78	$16,841,686.14	$17,010,103.01	$17,180,204.04	$17,352,006.08	$17,525,526.14	$17,700,781.40	$17,877,789.21	$18,056,567.10	$18,237,132.77	$18,419,504.10
Compost Area Operations (years 0-87)	$5,982,428.13	$6,042,252.41	$6,102,674.93	$6,163,701.68	$6,225,338.70	$6,287,592.09	$6,350,468.01	$6,413,972.69	$6,478,112.41	$6,542,893.54	$6,608,322.47	$6,674,405.70
WPWMA Operational Costs (years 0-87)	$13,971,199.38	$14,110,911.37	$14,252,020.49	$14,394,540.69	$14,538,486.10	$14,683,870.96	$14,830,709.67	$14,979,016.76	$15,128,806.93	$15,280,095.00	$15,432,895.95	$15,587,224.91
Long Haul Trucking (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$44,450,154.71	$44,894,656.25	$45,343,602.82	$45,797,038.84	$46,255,009.23	$46,717,559.32	$47,184,734.92	$47,656,582.27	$48,133,148.09	$48,614,479.57	$49,100,624.37	$49,591,630.61
Plan Concept 2												
Landfill Operations (years 0-66)	$5,760,355.02	$5,817,958.57	$5,876,138.15	$5,934,899.54	$5,994,248.53	$6,054,191.02	$6,114,732.93	$6,175,880.26	$6,237,639.06	$6,300,015.45	$6,363,015.60	$6,426,645.76
Public Area Operations (years 0-87)	$2,341,296.56	$2,364,709.52	$2,388,356.62	$2,412,240.19	$2,436,362.59	$2,460,726.21	$2,485,333.48	$2,510,186.81	$2,535,288.68	$2,560,641.56	$2,586,247.98	$2,612,110.46
C&D Area Operations (years 0-87)	$16,509,838.39	$16,674,936.78	$16,841,686.14	$17,010,103.01	$17,180,204.04	$17,352,006.08	$17,525,526.14	$17,700,781.40	$17,877,789.21	$18,056,567.10	$18,237,132.77	$18,419,504.10
Compost Area Operations (years 0-87)	$5,982,428.13	$6,042,252.41	$6,102,674.93	$6,163,701.68	$6,225,338.70	$6,287,592.09	$6,350,468.01	$6,413,972.69	$6,478,112.41	$6,542,893.54	$6,608,322.47	$6,674,405.70
WPWMA Operational Costs (years 0-87)	$12,950,971.81	$13,080,481.52	$13,211,286.34	$13,343,399.20	$13,476,833.19	$13,611,601.53	$13,747,717.54	$13,885,194.72	$14,024,046.66	$14,164,287.13	$14,305,930.00	$14,448,989.30
Long Haul Trucking (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$43,544,889.90	$43,980,338.80	$44,420,142.19	$44,864,343.61	$45,312,987.05	$45,766,116.92	$46,223,778.09	$46,686,015.87	$47,152,876.03	$47,624,404.79	$48,100,648.83	$48,581,655.32

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Summary Input for NPV_PC# Sheets
Plan Concept: 0, 1, 2

	41	42	43	44	45	46	47	48	49	50	51	52
Year	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**	**2072**	**2073**	**2074**
Plan Concept 0												
Landfill Operations (years 0-26)												
Public Area Operations (years 0-87)	$2,638,231.56	$2,664,613.88	$2,691,260.02	$2,718,172.62	$2,745,354.35	$2,772,807.89	$2,800,535.97	$2,828,541.33	$2,856,826.74	$2,885,395.01	$2,914,248.96	$2,943,391.45
C&D Area Operations (years 0-87)	$18,603,699.14	$18,789,736.13	$18,977,633.50	$19,167,409.83	$19,359,083.93	$19,552,674.77	$19,748,201.52	$19,945,683.53	$20,145,140.37	$20,346,591.77	$20,550,057.69	$20,755,558.27
Compost Area Operations (years 0-87)	$6,741,149.75	$6,808,561.25	$6,876,646.86	$6,945,413.33	$7,014,867.47	$7,085,016.14	$7,155,866.30	$7,227,424.97	$7,299,699.22	$7,372,696.21	$7,446,423.17	$7,520,887.40
WPWMA Operational Costs (years 0-87)	$14,018,670.21	$14,158,856.91	$14,300,445.48	$14,443,449.94	$14,587,884.44	$14,733,763.28	$14,881,100.91	$15,029,911.92	$15,180,211.04	$15,332,013.15	$15,485,333.28	$15,640,186.62
Long Haul Trucking (years 27-87)	$55,039,064.56	$55,589,455.21	$56,145,349.76	$56,706,803.26	$57,273,871.29	$57,846,610.00	$58,425,076.10	$59,009,326.87	$59,599,420.13	$60,195,414.34	$60,797,368.48	$61,405,342.16
Post Closure Care Costs (years 27-56)	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00
Total Operating Cost Not Including MRF	$97,278,503.24	$98,248,911.39	$99,229,023.62	$100,218,936.98	$101,218,749.47	$102,228,560.08	$103,248,468.81	$104,278,576.61	$105,318,985.50	$106,369,798.47	$107,431,119.58	$108,503,053.89
Plan Concept 1												
Landfill Operations (years 0-86)	$6,187,938.35	$6,249,817.73	$6,312,315.91	$6,375,439.07	$6,439,193.46	$6,503,585.39	$6,568,621.25	$6,634,307.46	$6,700,650.53	$6,767,657.04	$6,835,333.61	$6,903,686.94
Public Area Operations (years 0-87)	$2,811,662.51	$2,839,779.14	$2,868,176.93	$2,896,858.70	$2,925,827.28	$2,955,085.56	$2,984,636.41	$3,014,482.78	$3,044,627.60	$3,075,073.88	$3,105,824.62	$3,136,882.87
C&D Area Operations (years 0-87)	$18,603,699.14	$18,789,736.13	$18,977,633.50	$19,167,409.83	$19,359,083.93	$19,552,674.77	$19,748,201.52	$19,945,683.53	$20,145,140.37	$20,346,591.77	$20,550,057.69	$20,755,558.27
Compost Area Operations (years 0-87)	$6,741,149.75	$6,808,561.25	$6,876,646.86	$6,945,413.33	$7,014,867.47	$7,085,016.14	$7,155,866.30	$7,227,424.97	$7,299,699.22	$7,372,696.21	$7,446,423.17	$7,520,887.40
WPWMA Operational Costs (years 0-87)	$15,743,097.16	$15,900,528.13	$16,059,533.41	$16,220,128.75	$16,382,330.03	$16,546,153.34	$16,711,614.87	$16,878,731.02	$17,047,518.33	$17,217,993.51	$17,390,173.45	$17,564,075.18
Long Haul Trucking (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$50,087,546.92	$50,588,422.39	$51,094,306.61	$51,605,249.68	$52,121,302.17	$52,642,515.19	$53,168,940.35	$53,700,629.75	$54,237,636.05	$54,780,012.41	$55,327,812.53	$55,881,090.66
Plan Concept 2												
Landfill Operations (years 0-66)	$6,490,912.22	$6,555,821.34	$6,621,379.55	$6,687,593.35	$6,754,469.28	$6,822,013.98	$6,890,234.11	$6,959,136.46	$7,028,727.82	$7,099,015.10	$7,170,005.25	$7,241,705.30
Public Area Operations (years 0-87)	$2,638,231.56	$2,664,613.88	$2,691,260.02	$2,718,172.62	$2,745,354.35	$2,772,807.89	$2,800,535.97	$2,828,541.33	$2,856,826.74	$2,885,395.01	$2,914,248.96	$2,943,391.45
C&D Area Operations (years 0-87)	$18,603,699.14	$18,789,736.13	$18,977,633.50	$19,167,409.83	$19,359,083.93	$19,552,674.77	$19,748,201.52	$19,945,683.53	$20,145,140.37	$20,346,591.77	$20,550,057.69	$20,755,558.27
Compost Area Operations (years 0-87)	$6,741,149.75	$6,808,561.25	$6,876,646.86	$6,945,413.33	$7,014,867.47	$7,085,016.14	$7,155,866.30	$7,227,424.97	$7,299,699.22	$7,372,696.21	$7,446,423.17	$7,520,887.40
WPWMA Operational Costs (years 0-87)	$14,593,479.19	$14,739,413.99	$14,886,808.13	$15,035,676.21	$15,186,032.97	$15,337,893.30	$15,491,272.23	$15,646,184.95	$15,802,646.80	$15,960,673.27	$16,120,280.00	$16,281,482.80
Long Haul Trucking (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$49,067,471.87	$49,558,146.59	$50,053,728.06	$50,554,265.34	$51,059,807.99	$51,570,406.07	$52,086,110.13	$52,606,971.24	$53,133,040.95	$53,664,371.36	$54,201,015.07	$54,743,025.22

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Summary Input for NPV_PC# Sheets
Plan Concept: 0, 1, 2

	53	54	55	56	57	58	59	60	61	62	63
Year	**2075**	**2076**	**2077**	**2078**	**2079**	**2080**	**2081**	**2082**	**2083**	**2084**	**2085**
Plan Concept 0											
Landfill Operations (years 0-26)											
Public Area Operations (years 0-87)	$2,972,825.36	$3,002,553.62	$3,032,579.15	$3,062,904.94	$3,093,533.99	$3,124,469.33	$3,155,714.03	$3,187,271.17	$3,219,143.88	$3,251,335.32	$3,283,848.67
C&D Area Operations (years 0-87)	$20,963,113.85	$21,172,744.99	$21,384,472.44	$21,598,317.16	$21,814,300.33	$22,032,443.34	$22,252,767.77	$22,475,295.45	$22,700,048.40	$22,927,048.89	$23,156,319.37
Compost Area Operations (years 0-87)	$7,596,096.28	$7,672,057.24	$7,748,777.81	$7,826,265.59	$7,904,528.24	$7,983,573.53	$8,063,409.26	$8,144,043.35	$8,225,483.79	$8,307,738.63	$8,390,816.01
WPWMA Operational Costs (years 0-87)	$15,796,588.48	$15,954,554.37	$16,114,099.91	$16,275,240.91	$16,437,993.32	$16,602,373.25	$16,768,396.99	$16,936,080.96	$17,105,441.77	$17,276,496.18	$17,449,261.14
Long Haul Trucking (years 27-87)	$62,019,395.58	$62,639,589.54	$63,265,985.44	$63,898,645.29	$64,537,631.74	$65,183,008.06	$65,834,838.14	$66,493,186.52	$67,158,118.39	$67,829,699.57	$68,507,996.57
Post Closure Care Costs (years 27-56)	$237,688.00	$237,688.00	$237,688.00	$237,688.00							
Total Operating Cost Not Including MRF	$109,585,707.55	$110,679,187.75	$111,783,602.75	$112,899,061.89	$113,787,987.63	$114,925,867.51	$116,075,126.18	$117,235,877.45	$118,408,236.22	$119,592,318.58	$120,788,241.77
Plan Concept 1											
Landfill Operations (years 0-86)	$6,972,723.81	$7,042,451.05	$7,112,875.56	$7,184,004.32	$7,255,844.36	$7,328,402.80	$7,401,686.83	$7,475,703.70	$7,550,460.74	$7,625,965.35	$7,702,225.00
Public Area Operations (years 0-87)	$3,168,251.69	$3,199,934.21	$3,231,933.55	$3,264,252.89	$3,296,895.42	$3,329,864.37	$3,363,163.02	$3,396,794.65	$3,430,762.59	$3,465,070.22	$3,499,720.92
C&D Area Operations (years 0-87)	$20,963,113.85	$21,172,744.99	$21,384,472.44	$21,598,317.16	$21,814,300.33	$22,032,443.34	$22,252,767.77	$22,475,295.45	$22,700,048.40	$22,927,048.89	$23,156,319.37
Compost Area Operations (years 0-87)	$7,596,096.28	$7,672,057.24	$7,748,777.81	$7,826,265.59	$7,904,528.24	$7,983,573.53	$8,063,409.26	$8,144,043.35	$8,225,483.79	$8,307,738.63	$8,390,816.01
WPWMA Operational Costs (years 0-87)	$17,739,715.93	$17,917,113.09	$18,096,284.22	$18,277,247.06	$18,460,019.53	$18,644,619.73	$18,831,065.93	$19,019,376.59	$19,209,570.35	$19,401,666.06	$19,595,682.72
Long Haul Trucking (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$56,439,901.56	$57,004,300.58	$57,574,343.58	$58,150,087.02	$58,731,587.89	$59,318,903.77	$59,912,092.81	$60,511,213.74	$61,116,325.87	$61,727,489.13	$62,344,764.02
Plan Concept 2											
Landfill Operations (years 0-66)	$7,314,122.36	$7,387,263.58	$7,461,136.21	$7,535,747.58	$7,611,105.05	$7,687,216.10	$7,764,088.26	$7,841,729.15	$7,920,146.44	$7,999,347.90	$8,079,341.38
Public Area Operations (years 0-87)	$2,972,825.36	$3,002,553.62	$3,032,579.15	$3,062,904.94	$3,093,533.99	$3,124,469.33	$3,155,714.03	$3,187,271.17	$3,219,143.88	$3,251,335.32	$3,283,848.67
C&D Area Operations (years 0-87)	$20,963,113.85	$21,172,744.99	$21,384,472.44	$21,598,317.16	$21,814,300.33	$22,032,443.34	$22,252,767.77	$22,475,295.45	$22,700,048.40	$22,927,048.89	$23,156,319.37
Compost Area Operations (years 0-87)	$7,596,096.28	$7,672,057.24	$7,748,777.81	$7,826,265.59	$7,904,528.24	$7,983,573.53	$8,063,409.26	$8,144,043.35	$8,225,483.79	$8,307,738.63	$8,390,816.01
WPWMA Operational Costs (years 0-87)	$16,444,297.63	$16,608,740.61	$16,774,828.02	$16,942,576.30	$17,112,002.06	$17,283,122.08	$17,455,953.30	$17,630,512.83	$17,806,817.96	$17,984,886.14	$18,164,735.00
Long Haul Trucking (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 67)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$55,290,455.47	$55,843,360.03	$56,401,793.63	$56,965,811.57	$57,535,469.68	$58,110,824.38	$58,691,932.62	$59,278,851.95	$59,871,640.47	$60,470,356.87	$61,075,060.44

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Summary Input for NPV_PC# Sheets
Plan Concept: 0, 1, 2

	64	65	66	67	68	69	70	71	72	73	74
Year	**2086**	**2087**	**2088**	**2089**	**2090**	**2091**	**2092**	**2093**	**2094**	**2095**	**2096**
Plan Concept 0											
Landfill Operations (years 0-26)											
Public Area Operations (years 0-87)	$3,316,687.16	$3,349,854.03	$3,383,352.57	$3,417,186.09	$3,451,357.96	$3,485,871.54	$3,520,730.25	$3,555,937.55	$3,591,496.93	$3,627,411.90	$3,663,686.02
C&D Area Operations (years 0-87)	$23,387,882.57	$23,621,761.39	$23,857,979.01	$24,096,558.80	$24,337,524.39	$24,580,899.63	$24,826,708.63	$25,074,975.71	$25,325,725.47	$25,578,982.72	$25,834,772.55
Compost Area Operations (years 0-87)	$8,474,724.17	$8,559,471.41	$8,645,066.13	$8,731,516.79	$8,818,831.96	$8,907,020.28	$8,996,090.48	$9,086,051.38	$9,176,911.90	$9,268,681.02	$9,361,367.83
WPWMA Operational Costs (years 0-87)	$17,623,753.76	$17,799,991.29	$17,977,991.21	$18,157,771.12	$18,339,348.83	$18,522,742.32	$18,707,969.74	$18,895,049.44	$19,083,999.93	$19,274,839.93	$19,467,588.33
Long Haul Trucking (years 27-87)	$69,193,076.53	$69,885,007.30	$70,583,857.37	$71,289,695.95	$72,002,592.90	$72,722,618.83	$73,449,845.02	$74,184,343.47	$74,926,186.91	$75,675,448.78	$76,432,203.26
Post Closure Care Costs (years 27-56)											
Total Operating Cost Not Including MRF	$121,996,124.19	$123,216,085.43	$124,448,246.28	$125,692,728.75	$126,949,656.03	$128,219,152.59	$129,501,344.12	$130,796,357.56	$132,104,321.14	$133,425,364.35	$134,759,617.99
Plan Concept 1											
Landfill Operations (years 0-86)	$7,779,247.25	$7,857,039.72	$7,935,610.12	$8,014,966.22	$8,095,115.88	$8,176,067.04	$8,257,827.71	$8,340,405.99	$8,423,810.05	$8,508,048.15	$8,593,128.63
Public Area Operations (years 0-87)	$3,534,718.13	$3,570,065.31	$3,605,765.96	$3,641,823.62	$3,678,241.86	$3,715,024.28	$3,752,174.52	$3,789,696.27	$3,827,593.23	$3,865,869.16	$3,904,527.85
C&D Area Operations (years 0-87)	$23,387,882.57	$23,621,761.39	$23,857,979.01	$24,096,558.80	$24,337,524.39	$24,580,899.63	$24,826,708.63	$25,074,975.71	$25,325,725.47	$25,578,982.72	$25,834,772.55
Compost Area Operations (years 0-87)	$8,474,724.17	$8,559,471.41	$8,645,066.13	$8,731,516.79	$8,818,831.96	$8,907,020.28	$8,996,090.48	$9,086,051.38	$9,176,911.90	$9,268,681.02	$9,361,367.83
WPWMA Operational Costs (years 0-87)	$19,791,639.54	$19,989,555.94	$20,189,451.50	$20,391,346.01	$20,595,259.47	$20,801,212.07	$21,009,224.19	$21,219,316.43	$21,431,509.60	$21,645,824.69	$21,862,282.94
Long Haul Trucking (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$62,968,211.66	$63,597,893.78	$64,233,872.72	$64,876,211.44	$65,524,973.56	$66,180,223.29	$66,842,025.53	$67,510,445.78	$68,185,550.24	$68,867,405.74	$69,556,079.80
Plan Concept 2											
Landfill Operations (years 0-66)	$8,160,134.80	$8,241,736.14	$8,324,153.50	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Public Area Operations (years 0-87)	$3,316,687.16	$3,349,854.03	$3,383,352.57	$3,417,186.09	$3,451,357.96	$3,485,871.54	$3,520,730.25	$3,555,937.55	$3,591,496.93	$3,627,411.90	$3,663,686.02
C&D Area Operations (years 0-87)	$23,387,882.57	$23,621,761.39	$23,857,979.01	$24,096,558.80	$24,337,524.39	$24,580,899.63	$24,826,708.63	$25,074,975.71	$25,325,725.47	$25,578,982.72	$25,834,772.55
Compost Area Operations (years 0-87)	$8,474,724.17	$8,559,471.41	$8,645,066.13	$8,731,516.79	$8,818,831.96	$8,907,020.28	$8,996,090.48	$9,086,051.38	$9,176,911.90	$9,268,681.02	$9,361,367.83
WPWMA Operational Costs (years 0-87)	$18,346,382.35	$18,529,846.18	$18,715,144.64	$18,902,296.08	$19,091,319.04	$19,282,232.24	$19,475,054.56	$19,669,805.10	$19,866,503.15	$20,065,168.19	$20,265,819.87
Long Haul Trucking (year 67)	$0.00	$0.00	$0.00	$71,289,695.95	$72,002,592.90	$72,722,618.83	$73,449,845.02	$74,184,343.47	$74,926,186.91	$75,675,448.78	$76,432,203.26
Post Closure Care Costs (year 67)	$0.00	$0.00	$0.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00
Total Operating Cost Not Including MRF	$61,685,811.04	$62,302,669.16	$62,925,695.85	$127,023,443.71	$128,287,816.25	$129,564,832.51	$130,854,618.94	$132,157,303.22	$133,473,014.36	$134,801,882.60	$136,144,039.53

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Summary Input for NPV_PC# Sheets
Plan Concept: 0, 1, 2

	75	76	77	78	79	80	81	82	83	84	85
Year	**2097**	**2098**	**2099**	**2100**	**2101**	**2102**	**2103**	**2104**	**2105**	**2106**	**2107**
Plan Concept 0											
Landfill Operations (years 0-26)											
Public Area Operations (years 0-87)	$3,700,322.88	$3,737,326.11	$3,774,699.37	$3,812,446.36	$3,850,570.82	$3,889,076.53	$3,927,967.30	$3,967,246.97	$4,006,919.44	$4,046,988.63	$4,087,458.52
C&D Area Operations (years 0-87)	$26,093,120.28	$26,354,051.48	$26,617,591.99	$26,883,767.91	$27,152,605.59	$27,424,131.65	$27,698,372.97	$27,975,356.69	$28,255,110.26	$28,537,661.36	$28,823,037.98
Compost Area Operations (years 0-87)	$9,454,981.51	$9,549,531.32	$9,645,026.63	$9,741,476.90	$9,838,891.67	$9,937,280.59	$10,036,653.39	$10,137,019.93	$10,238,390.13	$10,340,774.03	$10,444,181.77
WPWMA Operational Costs (years 0-87)	$19,662,264.22	$19,858,886.86	$20,057,475.73	$20,258,050.48	$20,460,630.99	$20,665,237.30	$20,871,889.67	$21,080,608.57	$21,291,414.65	$21,504,328.80	$21,719,372.09
Long Haul Trucking (years 27-87)	$77,196,525.30	$77,968,490.55	$78,748,175.46	$79,535,657.21	$80,331,013.78	$81,134,323.92	$81,945,667.16	$82,765,123.83	$83,592,775.07	$84,428,702.82	$85,272,989.85
Post Closure Care Costs (years 27-56)											
Total Operating Cost Not Including MRF	$136,107,214.17	$137,468,286.31	$138,842,969.18	$140,231,398.87	$141,633,712.86	$143,050,049.98	$144,480,550.48	$145,925,355.99	$147,384,609.55	$148,858,455.64	$150,347,040.20
Plan Concept 1											
Landfill Operations (years 0-86)	$8,679,059.92	$8,765,850.52	$8,853,509.02	$8,942,044.11	$9,031,464.55	$9,121,779.20	$9,212,996.99	$9,305,126.96	$9,398,178.23	$9,492,160.01	$9,587,081.61
Public Area Operations (years 0-87)	$3,943,573.13	$3,983,008.86	$4,022,838.95	$4,063,067.34	$4,103,698.01	$4,144,734.99	$4,186,182.34	$4,228,044.17	$4,270,324.61	$4,313,027.86	$4,356,158.13
C&D Area Operations (years 0-87)	$26,093,120.28	$26,354,051.48	$26,617,591.99	$26,883,767.91	$27,152,605.59	$27,424,131.65	$27,698,372.97	$27,975,356.69	$28,255,110.26	$28,537,661.36	$28,823,037.98
Compost Area Operations (years 0-87)	$9,454,981.51	$9,549,531.32	$9,645,026.63	$9,741,476.90	$9,838,891.67	$9,937,280.59	$10,036,653.39	$10,137,019.93	$10,238,390.13	$10,340,774.03	$10,444,181.77
WPWMA Operational Costs (years 0-87)	$22,080,905.77	$22,301,714.83	$22,524,731.97	$22,749,979.29	$22,977,479.09	$23,207,253.88	$23,439,326.42	$23,673,719.68	$23,910,456.88	$24,149,561.45	$24,391,057.06
Long Haul Trucking (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Post Closure Care Costs (year 87)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total Operating Cost Not Including MRF	$70,251,640.60	$70,954,157.00	$71,663,698.57	$72,380,335.56	$73,104,138.92	$73,835,180.30	$74,573,532.11	$75,319,267.43	$76,072,460.10	$76,833,184.70	$77,601,516.55
Plan Concept 2											
Landfill Operations (years 0-66)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Public Area Operations (years 0-87)	$3,700,322.88	$3,737,326.11	$3,774,699.37	$3,812,446.36	$3,850,570.82	$3,889,076.53	$3,927,967.30	$3,967,246.97	$4,006,919.44	$4,046,988.63	$4,087,458.52
C&D Area Operations (years 0-87)	$26,093,120.28	$26,354,051.48	$26,617,591.99	$26,883,767.91	$27,152,605.59	$27,424,131.65	$27,698,372.97	$27,975,356.69	$28,255,110.26	$28,537,661.36	$28,823,037.98
Compost Area Operations (years 0-87)	$9,454,981.51	$9,549,531.32	$9,645,026.63	$9,741,476.90	$9,838,891.67	$9,937,280.59	$10,036,653.39	$10,137,019.93	$10,238,390.13	$10,340,774.03	$10,444,181.77
WPWMA Operational Costs (years 0-87)	$20,468,478.07	$20,673,162.85	$20,879,894.48	$21,088,693.42	$21,299,580.35	$21,512,576.16	$21,727,701.92	$21,944,978.94	$22,164,428.73	$22,386,073.02	$22,609,933.75
Long Haul Trucking (year 67)	$77,196,525.30	$77,968,490.55	$78,748,175.46	$79,535,657.21	$80,331,013.78	$81,134,323.92	$81,945,667.16	$82,765,123.83	$83,592,775.07	$84,428,702.82	$85,272,989.85
Post Closure Care Costs (year 67)	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00
Total Operating Cost Not Including MRF	$137,499,618.02	$138,868,752.30	$140,251,577.93	$141,648,231.80	$143,058,852.22	$144,483,578.84	$145,922,552.73	$147,375,916.36	$148,843,813.62	$150,326,389.86	$151,823,791.86

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: Summary Input for NPV_PC# Sheets
Plan Concept: 0, 1, 2

	86	87	Remaining Useful Life/Liability
Year	**2108**	**2109**	**2110**
Plan Concept 0			
Landfill Operations (years 0-26)			
Public Area Operations (years 0-87)	$4,128,333.11	$4,169,616.44	
C&D Area Operations (years 0-87)	$29,111,268.36	$29,402,381.04	
Compost Area Operations (years 0-87)	$10,548,623.58	$10,654,109.82	
WPWMA Operational Costs (years 0-87)	$21,936,565.81	$22,155,931.47	
Long Haul Trucking (years 27-87)	$86,125,719.75	$86,986,976.94	
Post Closure Care Costs (years 27-56)			
Total Operating Cost Not Including MRF	$151,850,510.60	$153,369,015.71	
Plan Concept 1			
Landfill Operations (years 0-86)	$9,682,952.43	$0.00	
Public Area Operations (years 0-87)	$4,399,719.72	$4,443,716.91	
C&D Area Operations (years 0-87)	$29,111,268.36	$29,402,381.04	
Compost Area Operations (years 0-87)	$10,548,623.58	$10,654,109.82	
WPWMA Operational Costs (years 0-87)	$24,634,967.63	$24,881,317.31	
Long Haul Trucking (year 87)	$0.00	$86,986,976.94	
Post Closure Care Costs (year 87)	$0.00	$515,526.00	$14,950,254.00
Total Operating Cost Not Including MRF	$78,377,531.72	$156,884,028.03	
Plan Concept 2			
Landfill Operations (years 0-66)	$0.00	$0.00	
Public Area Operations (years 0-87)	$4,128,333.11	$4,169,616.44	
C&D Area Operations (years 0-87)	$29,111,268.36	$29,402,381.04	
Compost Area Operations (years 0-87)	$10,548,623.58	$10,654,109.82	
WPWMA Operational Costs (years 0-87)	$22,836,033.08	$23,064,393.41	
Long Haul Trucking (year 67)	$86,125,719.75	$86,986,976.94	
Post Closure Care Costs (year 67)	$586,190.00	$586,190.00	$5,275,710.00
Total Operating Cost Not Including MRF	$153,336,167.88	$154,863,667.66	

Appendix 4B-1
Operational Cost Estimates
Raw Backend Calculations

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 0

PLAN CONCEPT 0
Raw calculations only, refer to Summary for actual annual allocations

	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12
Year	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Landfill Operations																		
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (none)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)		0.00%	0.00%	0.00%	0.00%	35.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	243,079	248,232.27	253,494.80	258,868.89	264,356.91	362,486.19	370,170.90	378,018.52	386,032.52	394,216.41	402,573.79	411,108.36	419,823.86	428,724.12	437,813.07	447,094.71	456,573.12	466,252.47
Total Operating Costs	$2,026,382.93	$2,069,342.25	$2,113,212.30	$2,158,012.40	$2,203,762.27	$3,021,798.82	$3,085,860.95	$3,151,281.21	$3,218,088.37	$3,286,311.84	$3,355,981.65	$3,427,128.46	$3,499,783.59	$3,573,979.00	$3,649,747.35	$3,727,122.00	$3,806,136.98	$3,886,827.09
Public Area Operations																		
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (50% increase starting in year 2)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0 and 10% increase in year Public area is built)		0.00%	0.00%	0.00%	0.00%	10.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	17,207	17,571.28	17,943.79	18,324.20	18,712.67	20,980.65	23,523.50	35,783.95	36,542.57	37,317.27	38,108.40	38,916.29	39,741.32	40,583.84	41,444.21	42,322.83	43,220.07	44,136.34
Total Operating Costs	$646,038.46	$659,734.48	$673,720.85	$688,003.73	$702,589.41	$787,743.24	$883,217.73	$1,343,550.80	$1,372,034.08	$1,401,121.20	$1,430,824.97	$1,461,158.46	$1,492,135.02	$1,523,768.29	$1,556,072.17	$1,589,060.90	$1,622,748.99	$1,657,151.27
C&D Operations																		
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (50% increase in Year -2and Year -0 to account for additional diversion)		0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year -0 for additional C&D expected)		0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	83,896	85,674.08	87,490.38	176,835.55	180,584.46	364,997.31	372,735.25	380,637.24	388,706.75	396,947.33	405,362.62	413,956.30	422,732.18	431,694.10	440,846.02	450,191.95	459,736.02	469,482.42
Total Operating Costs	$2,088,179.75	$2,132,449.16	$2,177,657.08	$4,401,480.49	$4,494,791.87	$9,084,873.34	$9,277,472.65	$9,474,155.07	$9,675,007.16	$9,880,117.31	$10,089,575.80	$10,303,474.81	$10,521,908.47	$10,744,972.93	$10,972,766.36	$11,205,389.00	$11,442,943.25	$11,685,533.65
Composting Operations																		
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (30% increase in year 0)		0.00%	0.00%	0.00%	0.00%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	65,594	66,984.44	68,404.51	69,854.69	71,335.61	94,248.61	96,246.68	98,287.11	100,370.79	102,498.65	104,671.63	106,890.66	109,156.75	111,470.87	113,834.05	116,247.33	118,711.78	121,228.47
Total Operating Costs	$2,291,087.92	$2,339,658.98	$2,389,259.75	$2,439,912.06	$2,491,638.19	$3,291,952.38	$3,361,741.77	$3,433,010.70	$3,505,790.52	$3,580,113.28	$3,656,011.68	$3,733,519.13	$3,812,669.74	$3,893,498.33	$3,976,040.50	$4,060,332.56	$4,146,411.61	$4,234,315.53
WPWMA Operations																		
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 4 staff in 2027)		0.00%	0.00%	15.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	20.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	456,561	466,239.80	476,124.09	557,761.24	569,585.78	581,661.00	593,992.21	606,584.85	619,444.44	632,576.67	772,723.55	789,105.28	805,834.32	822,918.00	840,363.87	858,179.58	876,372.99	894,952.09
Total Operating Costs	$4,492,155.83	$4,587,389.54	$4,684,642.19	$5,487,879.98	$5,604,223.04	$5,723,032.56	$5,844,360.85	$5,968,261.30	$6,094,788.44	$6,223,997.96	$7,602,919.97	$7,764,101.87	$7,928,700.83	$8,096,789.29	$8,268,441.22	$8,443,732.17	$8,622,739.30	$8,805,541.37
Offsite Disposal and Long Haul Trucking																		
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	290,957	297,125.29	303,424.34	309,856.94	316,425.91	323,134.14	329,984.58	336,980.25	344,124.24	351,419.67	358,869.77	366,477.81	374,247.13	382,181.17	390,283.41	398,557.42	407,006.84	415,635.39
Total Operating Costs	$24,201,182.27	$24,714,247.33	$25,238,189.38	$25,773,238.99	$26,319,631.66	$26,877,607.85	$27,447,413.14	$28,029,298.30	$28,623,519.42	$29,230,338.03	$29,850,021.20	$30,482,841.65	$31,129,077.89	$31,789,014.34	$32,462,941.44	$33,151,155.80	$33,853,960.31	$34,571,664.26
Post Closure Care O&M																		
Tonnage Based Growth Rate (not used)		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost (starts in year 27, 31 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Total Operating Costs	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 0

PLAN CONCEPT 0
Raw calculations only, refer to Summary for actual annual allocations

	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Year	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**
Landfill Operations																		
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	476,137.02	486,231.13	496,539.23	507,065.86	517,815.65	528,793.34	540,003.76	551,451.84	563,142.62	575,081.25	587,272.97	599,723.16	612,437.29	625,420.96	638,679.88	652,219.89	658,742.09	665,329.51
Total Operating Costs	$3,969,227.82	$4,053,375.45	$4,139,307.01	$4,227,060.32	$4,316,674.00	$4,408,187.49	$4,501,641.06	$4,597,075.85	$4,694,533.86	$4,794,057.98	$4,895,692.01	$4,999,480.68	$5,105,469.67	$5,213,705.63	$5,324,236.18	$5,437,109.99	$5,491,481.09	$5,546,395.90
Public Area Operations																		
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0 and 10% increase in year Public area is built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	45,072.03	46,027.56	47,003.34	47,999.81	49,017.41	50,056.58	51,117.78	52,201.47	53,308.15	54,438.28	55,592.37	56,770.93	57,974.47	59,203.53	60,458.65	61,740.37	62,357.77	62,981.35
Total Operating Costs	$1,692,282.88	$1,728,159.28	$1,764,796.25	$1,802,209.93	$1,840,416.78	$1,879,433.62	$1,919,277.61	$1,959,966.30	$2,001,517.58	$2,043,949.76	$2,087,281.49	$2,131,531.86	$2,176,720.34	$2,222,866.81	$2,269,991.58	$2,318,115.40	$2,341,296.56	$2,364,709.52
C&D Operations																		
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2and Year -0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year -0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	479,435.45	489,599.48	499,978.99	510,578.55	521,402.81	532,456.55	543,744.63	555,272.02	567,043.78	579,065.11	591,341.29	603,877.73	616,679.93	629,753.55	643,104.32	656,738.14	663,305.52	669,938.57
Total Operating Costs	$11,933,266.96	$12,186,252.22	$12,444,600.77	$12,708,426.30	$12,977,844.94	$13,252,975.25	$13,533,938.33	$13,820,857.82	$14,113,860.01	$14,413,073.84	$14,718,631.01	$15,030,665.98	$15,349,316.10	$15,674,721.60	$16,007,025.70	$16,346,374.65	$16,509,838.39	$16,674,936.78
Composting Operations																		
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	123,798.51	126,423.04	129,103.21	131,840.19	134,635.21	137,489.47	140,404.25	143,380.82	146,420.49	149,524.61	152,694.53	155,931.65	159,237.41	162,613.24	166,060.64	169,581.12	171,276.94	172,989.70
Total Operating Costs	$4,324,083.02	$4,415,753.58	$4,509,367.56	$4,604,966.15	$4,702,591.43	$4,802,286.37	$4,904,094.84	$5,008,061.65	$5,114,232.56	$5,222,654.29	$5,333,374.56	$5,446,442.10	$5,561,906.68	$5,679,819.10	$5,800,231.26	$5,923,196.17	$5,982,428.13	$6,042,252.41
WPWMA Operations																		
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 4 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	913,925.08	933,300.29	953,086.26	973,291.68	993,925.47	1,014,996.69	1,036,514.62	1,058,488.73	1,080,928.69	1,103,844.38	1,127,245.88	1,151,143.49	1,175,547.73	1,200,469.34	1,225,919.29	1,251,908.78	1,264,427.87	1,277,072.15
Total Operating Costs	$8,992,218.85	$9,182,853.89	$9,377,530.39	$9,576,334.03	$9,779,352.31	$9,986,674.58	$10,198,392.09	$10,414,598.00	$10,635,387.47	$10,860,857.69	$11,091,107.87	$11,326,239.36	$11,566,355.63	$11,811,562.37	$12,061,967.50	$12,317,681.21	$12,440,858.02	$12,565,266.60
Offsite Disposal and Long Haul Trucking																		
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	424,446.86	433,445.13	442,634.17	452,018.01	461,600.79	471,386.73	481,380.13	491,585.39	502,007.00	512,649.54	523,517.71	534,616.29	545,950.16	557,524.30	569,343.81	581,413.90	587,228.04	593,100.32
Total Operating Costs	$35,304,583.55	$36,053,040.72	$36,817,365.18	$37,597,893.32	$38,394,968.66	$39,208,942.00	$40,040,171.57	$40,889,023.20	$41,755,870.50	$42,641,094.95	$43,545,086.16	$44,468,241.99	$45,410,968.72	$46,373,681.26	$47,356,803.30	$48,360,767.53	$48,844,375.21	$49,332,818.96
Post Closure Care O&M																		
Tonnage Based Growth Rate (not used)	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
O&M Unit Cost (starts in year 27, 31 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Total Operating Costs	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 0

PLAN CONCEPT 0
Raw calculations only, refer to Summary for actual annual allocations

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Year	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**	**2069**	**2070**
Landfill Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	671,982.81	678,702.64	685,489.66	692,344.56	699,268.01	706,260.69	713,323.29	720,456.53	727,661.09	734,937.70	742,287.08	749,709.95	757,207.05	764,779.12	772,426.91	780,151.18	787,952.69	795,832.22
Total Operating Costs	$5,601,859.86	$5,657,878.46	$5,714,457.24	$5,771,601.82	$5,829,317.84	$5,887,611.01	$5,946,487.12	$6,005,952.00	$6,066,011.52	$6,126,671.63	$6,187,938.35	$6,249,817.73	$6,312,315.91	$6,375,439.07	$6,439,193.46	$6,503,585.39	$6,568,621.25	$6,634,307.46
Public Area Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0 and 10% increase in year Public area is built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	63,611.16	64,247.28	64,889.75	65,538.65	66,194.03	66,855.97	67,524.53	68,199.78	68,881.77	69,570.59	70,266.30	70,968.96	71,678.65	72,395.44	73,119.39	73,850.59	74,589.09	75,334.98
Total Operating Costs	$2,388,356.62	$2,412,240.19	$2,436,362.59	$2,460,726.21	$2,485,333.48	$2,510,186.81	$2,535,288.68	$2,560,641.56	$2,586,247.98	$2,612,110.46	$2,638,231.56	$2,664,613.88	$2,691,260.02	$2,718,172.62	$2,745,354.35	$2,772,807.89	$2,800,535.97	$2,828,541.33
C&D Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2and Year -0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year -0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	676,637.96	683,404.34	690,238.38	697,140.76	704,112.17	711,153.29	718,264.83	725,447.48	732,701.95	740,028.97	747,429.26	754,903.55	762,452.59	770,077.11	777,777.88	785,555.66	793,411.22	801,345.33
Total Operating Costs	$16,841,686.14	$17,010,103.01	$17,180,204.04	$17,352,006.08	$17,525,526.14	$17,700,781.40	$17,877,789.21	$18,056,567.10	$18,237,132.77	$18,419,504.10	$18,603,699.14	$18,789,736.13	$18,977,633.50	$19,167,409.83	$19,359,083.93	$19,552,674.77	$19,748,201.52	$19,945,683.53
Composting Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	174,719.60	176,466.80	178,231.47	180,013.78	181,813.92	183,632.06	185,468.38	187,323.06	189,196.29	191,088.26	192,999.14	194,929.13	196,878.42	198,847.20	200,835.68	202,844.03	204,872.47	206,921.20
Total Operating Costs	$6,102,674.93	$6,163,701.68	$6,225,338.70	$6,287,592.09	$6,350,468.01	$6,413,972.69	$6,478,112.41	$6,542,893.54	$6,608,322.47	$6,674,405.70	$6,741,149.75	$6,808,561.25	$6,876,646.86	$6,945,413.33	$7,014,867.47	$7,085,016.14	$7,155,866.30	$7,227,424.97
WPWMA Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 4 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,289,842.87	1,302,741.30	1,315,768.71	1,328,926.40	1,342,215.66	1,355,637.82	1,369,194.20	1,382,886.14	1,396,715.00	1,410,682.15	1,424,788.97	1,439,036.86	1,453,427.23	1,467,961.51	1,482,641.12	1,497,467.53	1,512,442.21	1,527,566.63
Total Operating Costs	$12,690,919.26	$12,817,828.46	$12,946,006.74	$13,075,466.81	$13,206,221.48	$13,338,283.69	$13,471,666.53	$13,606,383.19	$13,742,447.03	$13,879,871.50	$14,018,670.21	$14,158,856.91	$14,300,445.48	$14,443,449.94	$14,587,884.44	$14,733,763.28	$14,881,100.91	$15,029,911.92
Offsite Disposal and Long Haul Trucking																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	599,031.33	605,021.64	611,071.86	617,182.57	623,354.40	629,587.94	635,883.82	642,242.66	648,665.09	655,151.74	661,703.26	668,320.29	675,003.49	681,753.53	688,571.06	695,456.77	702,411.34	709,435.45
Total Operating Costs	$49,826,147.15	$50,324,408.62	$50,827,652.71	$51,335,929.23	$51,849,288.52	$52,367,781.41	$52,891,459.22	$53,420,373.82	$53,954,577.55	$54,494,123.33	$55,039,064.56	$55,589,455.21	$56,145,349.76	$56,706,803.26	$57,273,871.29	$57,846,610.00	$58,425,076.10	$59,009,326.87
Post Closure Care O&M																		
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 27, 31 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Total Operating Costs	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 0

PLAN CONCEPT 0

Raw calculations only, refer to Summary for actual annual allocations

	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
Year	**2071**	**2072**	**2073**	**2074**	**2075**	**2076**	**2077**	**2078**	**2079**	**2080**	**2081**	**2082**	**2083**	**2084**	**2085**	**2086**	**2087**	**2088**
Landfill Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	803,790.54	811,828.45	819,946.73	828,146.20	836,427.66	844,791.94	853,239.86	861,772.26	870,389.98	879,093.88	887,884.82	896,763.66	905,731.30	914,788.61	923,936.50	933,175.87	942,507.62	951,932.70
Total Operating Costs	$6,700,650.53	$6,767,657.04	$6,835,333.61	$6,903,686.94	$6,972,723.81	$7,042,451.05	$7,112,875.56	$7,184,004.32	$7,255,844.36	$7,328,402.80	$7,401,686.83	$7,475,703.70	$7,550,460.74	$7,625,965.35	$7,702,225.00	$7,779,247.25	$7,857,039.72	$7,935,610.12
Public Area Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0 and 10% increase in year Public area is built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	76,088.33	76,849.22	77,617.71	78,393.89	79,177.82	79,969.60	80,769.30	81,576.99	82,392.76	83,216.69	84,048.86	84,889.34	85,738.24	86,595.62	87,461.58	88,336.19	89,219.55	90,111.75
Total Operating Costs	$2,856,826.74	$2,885,395.01	$2,914,248.96	$2,943,391.45	$2,972,825.36	$3,002,553.62	$3,032,579.15	$3,062,904.94	$3,093,533.99	$3,124,469.33	$3,155,714.03	$3,187,271.17	$3,219,143.88	$3,251,335.32	$3,283,848.67	$3,316,687.16	$3,349,854.03	$3,383,352.57
C&D Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2and Year -0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year -0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	809,358.79	817,452.37	825,626.90	833,883.17	842,222.00	850,644.22	859,150.66	867,742.17	876,419.59	885,183.78	894,035.62	902,975.98	912,005.74	921,125.80	930,337.05	939,640.42	949,036.83	958,527.20
Total Operating Costs	$20,145,140.37	$20,346,591.77	$20,550,057.69	$20,755,558.27	$20,963,113.85	$21,172,744.99	$21,384,472.44	$21,598,317.16	$21,814,300.33	$22,032,443.34	$22,252,767.77	$22,475,295.45	$22,700,048.40	$22,927,048.89	$23,156,319.37	$23,387,882.57	$23,621,761.39	$23,857,979.01
Composting Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	208,990.41	211,080.31	213,191.12	215,323.03	217,476.26	219,651.02	221,847.53	224,066.01	226,306.67	228,569.73	230,855.43	233,163.99	235,495.63	237,850.58	240,229.09	242,631.38	245,057.69	247,508.27
Total Operating Costs	$7,299,699.22	$7,372,696.21	$7,446,423.17	$7,520,887.40	$7,596,096.28	$7,672,057.24	$7,748,777.81	$7,826,265.59	$7,904,528.24	$7,983,573.53	$8,063,409.26	$8,144,043.35	$8,225,483.79	$8,307,738.63	$8,390,816.01	$8,474,724.17	$8,559,471.41	$8,645,066.13
WPWMA Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 4 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,542,842.30	1,558,270.72	1,573,853.43	1,589,591.96	1,605,487.88	1,621,542.76	1,637,758.19	1,654,135.77	1,670,677.13	1,687,383.90	1,704,257.74	1,721,300.31	1,738,513.32	1,755,898.45	1,773,457.43	1,791,192.01	1,809,103.93	1,827,194.97
Total Operating Costs	$15,180,211.04	$15,332,013.15	$15,485,333.28	$15,640,186.62	$15,796,588.48	$15,954,554.37	$16,114,099.91	$16,275,240.91	$16,437,993.32	$16,602,373.25	$16,768,396.99	$16,936,080.96	$17,105,441.77	$17,276,496.18	$17,449,261.14	$17,623,753.76	$17,799,991.29	$17,977,991.21
Offsite Disposal and Long Haul Trucking																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	716,529.81	723,695.11	730,932.06	738,241.38	745,623.79	753,080.03	760,610.83	768,216.94	775,899.11	783,658.10	791,494.68	799,409.63	807,403.72	815,477.76	823,632.54	831,868.86	840,187.55	848,589.43
Total Operating Costs	$59,599,420.13	$60,195,414.34	$60,797,368.48	$61,405,342.16	$62,019,395.58	$62,639,589.54	$63,265,985.44	$63,898,645.29	$64,537,631.74	$65,183,008.06	$65,834,838.14	$66,493,186.52	$67,158,118.39	$67,829,699.57	$68,507,996.57	$69,193,076.53	$69,885,007.30	$70,583,857.37
Post Closure Care O&M																		
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 27, 31 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Total Operating Costs	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 0

PLAN CONCEPT 0

Raw calculations only, refer to Summary for actual annual allocations

	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
Year	**2089**	**2090**	**2091**	**2092**	**2093**	**2094**	**2095**	**2096**	**2097**	**2098**	**2099**	**2100**	**2101**	**2102**	**2103**	**2104**	**2105**	**2106**
Landfill Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	961,452.03	971,066.55	980,777.21	990,584.98	1,000,490.83	1,010,495.74	1,020,600.70	1,030,806.71	1,041,114.77	1,051,525.92	1,062,041.18	1,072,661.59	1,083,388.21	1,094,222.09	1,105,164.31	1,116,215.96	1,127,378.11	1,138,651.90
Total Operating Costs	$8,014,966.22	$8,095,115.88	$8,176,067.04	$8,257,827.71	$8,340,405.99	$8,423,810.05	$8,508,048.15	$8,593,128.63	$8,679,059.92	$8,765,850.52	$8,853,509.02	$8,942,044.11	$9,031,464.55	$9,121,779.20	$9,212,996.99	$9,305,126.96	$9,398,178.23	$9,492,160.01
Public Area Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0 and 10% increase in year Public area is built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	91,012.87	91,923.00	92,842.23	93,770.65	94,708.35	95,655.44	96,611.99	97,578.11	98,553.89	99,539.43	100,534.83	101,540.17	102,555.58	103,581.13	104,616.94	105,663.11	106,719.74	107,786.94
Total Operating Costs	$3,417,186.09	$3,451,357.96	$3,485,871.54	$3,520,730.25	$3,555,937.55	$3,591,496.93	$3,627,411.90	$3,663,686.02	$3,700,322.88	$3,737,326.11	$3,774,699.37	$3,812,446.36	$3,850,570.82	$3,889,076.53	$3,927,967.30	$3,967,246.97	$4,006,919.44	$4,046,988.63
C&D Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2and Year -0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year -0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	968,112.47	977,793.59	987,571.53	997,447.24	1,007,421.72	1,017,495.93	1,027,670.89	1,037,947.60	1,048,327.08	1,058,810.35	1,069,398.45	1,080,092.44	1,090,893.36	1,101,802.29	1,112,820.32	1,123,948.52	1,135,188.01	1,146,539.89
Total Operating Costs	$24,096,558.80	$24,337,524.39	$24,580,899.63	$24,826,708.63	$25,074,975.71	$25,325,725.47	$25,578,982.72	$25,834,772.55	$26,093,120.28	$26,354,051.48	$26,617,591.99	$26,883,767.91	$27,152,605.59	$27,424,131.65	$27,698,372.97	$27,975,356.69	$28,255,110.26	$28,537,661.36
Composting Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	249,983.35	252,483.19	255,008.02	257,558.10	260,133.68	262,735.02	265,362.37	268,015.99	270,696.15	273,403.11	276,137.14	278,898.51	281,687.50	284,504.37	287,349.42	290,222.91	293,125.14	296,056.39
Total Operating Costs	$8,731,516.79	$8,818,831.96	$8,907,020.28	$8,996,090.48	$9,086,051.38	$9,176,911.90	$9,268,681.02	$9,361,367.83	$9,454,981.51	$9,549,531.32	$9,645,026.63	$9,741,476.90	$9,838,891.67	$9,937,280.59	$10,036,653.39	$10,137,019.93	$10,238,390.13	$10,340,774.03
WPWMA Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 4 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,845,466.92	1,863,921.59	1,882,560.80	1,901,386.41	1,920,400.27	1,939,604.28	1,959,000.32	1,978,590.32	1,998,376.23	2,018,359.99	2,038,543.59	2,058,929.02	2,079,518.31	2,100,313.50	2,121,316.63	2,142,529.80	2,163,955.10	2,185,594.65
Total Operating Costs	$18,157,771.12	$18,339,348.83	$18,522,742.32	$18,707,969.74	$18,895,049.44	$19,083,999.93	$19,274,839.93	$19,467,588.33	$19,662,264.22	$19,858,886.86	$20,057,475.73	$20,258,050.48	$20,460,630.99	$20,665,237.30	$20,871,889.67	$21,080,608.57	$21,291,414.65	$21,504,328.80
Offsite Disposal and Long Haul Trucking																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	857,075.32	865,646.07	874,302.53	883,045.56	891,876.02	900,794.78	909,802.72	918,900.75	928,089.76	937,370.66	946,744.36	956,211.81	965,773.92	975,431.66	985,185.98	995,037.84	1,004,988.22	1,015,038.10
Total Operating Costs	$71,289,695.95	$72,002,592.90	$72,722,618.83	$73,449,845.02	$74,184,343.47	$74,926,186.91	$75,675,448.78	$76,432,203.26	$77,196,525.30	$77,968,490.55	$78,748,175.46	$79,535,657.21	$80,331,013.78	$81,134,323.92	$81,945,667.16	$82,765,123.83	$83,592,775.07	$84,428,702.82
Post Closure Care O&M																		
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 27, 31 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Total Operating Costs	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00	$237,688.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 0

PLAN CONCEPT 0
Raw calculations only, refer to Summary for actual annual allocations

	85	86	87
Year	**2107**	**2108**	**2109**
Landfill Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	1,150,038.42	1,161,538.80	1,173,154.19
Total Operating Costs	$9,587,081.61	$9,682,952.43	$9,779,781.95
Public Area Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0 and 10% increase in year Public area is built)	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55
Total Tonnage Processed	108,864.81	109,953.46	111,052.99
Total Operating Costs	$4,087,458.52	$4,128,333.11	$4,169,616.44
C&D Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2and Year -0 to account for additional diversion)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year -0 for additional C&D expected)	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89
Total Tonnage Processed	1,158,005.29	1,169,585.34	1,181,281.19
Total Operating Costs	$28,823,037.98	$29,111,268.36	$29,402,381.04
Composting Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93
Total Tonnage Processed	299,016.96	302,007.13	305,027.20
Total Operating Costs	$10,444,181.77	$10,548,623.58	$10,654,109.82
WPWMA Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 4 staff in 2027)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84
Total Tonnage Inbound	2,207,450.59	2,229,525.10	2,251,820.35
Total Operating Costs	$21,719,372.09	$21,936,565.81	$22,155,931.47
Offsite Disposal and Long Haul Trucking			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18
Total Tonnage Disposed	1,025,188.48	1,035,440.37	1,045,794.77
Total Operating Costs	$85,272,989.85	$86,125,719.75	$86,986,976.94
Post Closure Care O&M			
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 27, 31 years from 2018)	$1,606.00	$1,606.00	$1,606.00
Units (acres)	148	148	148
Total Operating Costs	$237,688.00	$237,688.00	$237,688.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 1

PLAN CONCEPT 1

Raw calculations only, refer to Summary for actual annual allocations

	-5	-4	-3	-2	-1	0	1	2	3
Year	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Landfill Operations									
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (none)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)		0.00%	0.00%	0.00%	0.00%	35.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	243,079	248,232.27	253,494.80	258,868.89	264,356.91	362,486.19	370,170.90	378,018.52	386,032.52
Total Operating Costs	$2,026,382.93	$2,069,342.25	$2,113,212.30	$2,158,012.40	$2,203,762.27	$3,021,798.82	$3,085,860.95	$3,151,281.21	$3,218,088.37
Public Area Operations									
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (60% increase starting in year 4)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built or Year 3 (majority of Public a))		0.00%	0.00%	0.00%	0.00%	10.00%	0.00%	0.00%	10.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	17,207	17,571.28	17,943.79	18,324.20	18,712.67	20,980.65	21,425.44	21,879.65	24,531.47
Total Operating Costs	$646,038.46	$659,734.48	$673,720.85	$688,003.73	$702,589.41	$787,743.24	$804,443.40	$821,497.60	$921,063.11
C&D Operations									
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)		0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)		0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	83,896	85,674.08	87,490.38	176,835.55	180,584.46	364,997.31	372,735.25	380,637.24	388,706.75
Total Operating Costs	$2,088,179.75	$2,132,449.16	$2,177,657.08	$4,401,480.49	$4,494,791.87	$9,084,873.34	$9,277,472.65	$9,474,155.07	$9,675,007.16
Composting Operations									
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (30% increase in year 0)		0.00%	0.00%	0.00%	0.00%	30.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	65,594	66,984.44	68,404.51	69,854.69	71,335.61	94,248.61	96,246.68	98,287.11	100,370.79
Total Operating Costs	$2,291,087.92	$2,339,658.98	$2,389,259.75	$2,439,912.06	$2,491,638.19	$3,291,952.38	$3,361,741.77	$3,433,010.70	$3,505,790.52
WPWMA Operations									
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 7 staff in 2027)		0.00%	0.00%	15.03%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	456,561	466,239.80	476,124.09	557,761.24	569,585.78	581,661.00	593,992.21	606,584.85	619,444.44
Total Operating Costs	$4,492,155.83	$4,587,389.54	$4,684,642.19	$5,487,879.98	$5,604,223.04	$5,723,032.56	$5,844,360.85	$5,968,261.30	$6,094,788.44
Offsite Disposal and Long Haul Trucking									
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	290,957	297,125.29	303,424.34	309,856.94	316,425.91	323,134.14	329,984.58	336,980.25	344,124.24
Total Operating Costs	$24,201,182.27	$24,714,247.33	$25,238,189.38	$25,773,238.99	$26,319,631.66	$26,877,607.85	$27,447,413.14	$28,029,298.30	$28,623,519.42
Post Closure Care O&M									
Tonnage Based Growth Rate (not used)		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost (starts in year 87, 91 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	321	321	321	321	321	321	321	321	321
Total Operating Costs	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00

	4	5	6	7	8	9	10	11	12
Year	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Landfill Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	394,216.41	402,573.79	411,108.36	419,823.86	428,724.12	437,813.07	447,094.71	456,573.12	466,252.47
Total Operating Costs	$3,286,311.84	$3,355,981.65	$3,427,128.46	$3,499,783.59	$3,573,979.00	$3,649,747.35	$3,727,122.00	$3,806,136.98	$3,886,827.09
Public Area Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (60% increase starting in year 4)	60.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built or Year 3 (majority of Public a))	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	39,770.42	40,613.55	41,474.56	42,353.82	43,251.72	44,168.66	45,105.03	46,061.26	47,037.76
Total Operating Costs	$1,493,227.52	$1,524,883.94	$1,557,211.48	$1,590,224.36	$1,623,937.12	$1,658,364.59	$1,693,521.91	$1,729,424.58	$1,766,088.38
C&D Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	396,947.33	405,362.62	413,956.30	422,732.18	431,694.10	440,846.02	450,191.95	459,736.02	469,482.42
Total Operating Costs	$9,880,117.31	$10,089,575.80	$10,303,474.81	$10,521,908.47	$10,744,972.93	$10,972,766.36	$11,205,389.00	$11,442,943.25	$11,685,533.65
Composting Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	102,498.65	104,671.63	106,890.66	109,156.75	111,470.87	113,834.05	116,247.33	118,711.78	121,228.47
Total Operating Costs	$3,580,113.28	$3,656,011.68	$3,733,519.13	$3,812,669.74	$3,893,498.33	$3,976,040.50	$4,060,332.56	$4,146,411.61	$4,234,315.53
WPWMA Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 7 staff in 2027)	0.00%	35.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	632,576.67	867,775.74	886,172.58	904,959.44	924,144.58	943,736.44	963,743.66	984,175.02	1,005,039.53
Total Operating Costs	$6,223,997.96	$8,538,149.91	$8,719,158.68	$8,904,004.85	$9,092,769.75	$9,285,536.47	$9,482,389.84	$9,683,416.51	$9,888,704.94
Offsite Disposal and Long Haul Trucking									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	351,419.67	358,869.77	366,477.81	374,247.13	382,181.17	390,283.41	398,557.42	407,006.84	415,635.39
Total Operating Costs	$29,230,338.03	$29,850,021.20	$30,482,841.65	$31,129,077.89	$31,789,014.34	$32,462,941.44	$33,151,155.80	$33,853,960.31	$34,571,664.26
Post Closure Care O&M									
Tonnage Based Growth Rate (not used)	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost (starts in year 87, 91 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	321	321	321	321	321	321	321	321	321
Total Operating Costs	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 1

PLAN CONCEPT 1
Raw calculations only, refer to Summary for actual annual allocations

	13	14	15	16	17	18	19	20	21
Year	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2041**	**2042**	**2043**
Landfill Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	476,137.02	486,231.13	496,539.23	507,065.86	517,815.65	528,793.34	540,003.76	551,451.84	563,142.62
Total Operating Costs	$3,969,227.82	$4,053,375.45	$4,139,307.01	$4,227,060.32	$4,316,674.00	$4,408,187.49	$4,501,641.06	$4,597,075.85	$4,694,533.86
Public Area Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (60% increase starting in year 4)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built or Year 3 (majority of Public a	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	48,034.96	49,053.30	50,093.23	51,155.20	52,239.69	53,347.18	54,478.14	55,633.07	56,812.49
Total Operating Costs	$1,803,529.45	$1,841,764.28	$1,880,809.68	$1,920,682.85	$1,961,401.32	$2,002,983.03	$2,045,446.27	$2,088,809.73	$2,133,092.50
C&D Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	479,435.45	489,599.48	499,978.99	510,578.55	521,402.81	532,456.55	543,744.63	555,272.02	567,043.78
Total Operating Costs	$11,933,266.96	$12,186,252.22	$12,444,600.77	$12,708,426.30	$12,977,844.94	$13,252,975.25	$13,533,938.33	$13,820,857.82	$14,113,860.01
Composting Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	123,798.51	126,423.04	129,103.21	131,840.19	134,635.21	137,489.47	140,404.25	143,380.82	146,420.49
Total Operating Costs	$4,324,083.02	$4,415,753.58	$4,509,367.56	$4,604,966.15	$4,702,591.43	$4,802,286.37	$4,904,094.84	$5,008,061.65	$5,114,232.56
WPWMA Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 7 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,026,346.37	1,048,104.91	1,070,324.74	1,093,015.62	1,116,187.55	1,139,850.73	1,164,015.57	1,188,692.70	1,213,892.98
Total Operating Costs	$10,098,345.48	$10,312,430.41	$10,531,053.93	$10,754,312.27	$10,982,303.69	$11,215,128.53	$11,452,889.26	$11,695,690.51	$11,943,639.15
Offsite Disposal and Long Haul Trucking									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	424,446.86	433,445.13	442,634.17	452,018.01	461,600.79	471,386.73	481,380.13	491,585.39	502,007.00
Total Operating Costs	$35,304,583.55	$36,053,040.72	$36,817,365.18	$37,597,893.32	$38,394,968.66	$39,208,942.00	$40,040,171.57	$40,889,023.20	$41,755,870.50
Post Closure Care O&M									
Tonnage Based Growth Rate (not used)	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost (starts in year 87, 91 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	321	321	321	321	321	321	321	321	321
Total Operating Costs	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00

	22	23	24	25	26	27	28	29	30
Year	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**	**2050**	**2051**	**2052**
Landfill Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	575,081.25	587,272.97	599,723.16	612,437.29	625,420.96	638,679.88	652,219.89	658,742.09	665,329.51
Total Operating Costs	$4,794,057.98	$4,895,692.01	$4,999,480.68	$5,105,469.67	$5,213,705.63	$5,324,236.18	$5,437,109.99	$5,491,481.09	$5,546,395.90
Public Area Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (60% increase starting in year 4)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built or Year 3 (majority of Public a	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	58,016.92	59,246.88	60,502.91	61,785.57	63,095.43	64,433.05	65,799.03	66,457.02	67,121.59
Total Operating Costs	$2,178,314.06	$2,224,494.32	$2,271,653.60	$2,319,812.65	$2,368,992.68	$2,419,215.33	$2,470,502.69	$2,495,207.72	$2,520,159.79
C&D Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	579,065.11	591,341.29	603,877.73	616,679.93	629,753.55	643,104.32	656,738.14	663,305.52	669,938.57
Total Operating Costs	$14,413,073.84	$14,718,631.01	$15,030,665.98	$15,349,316.10	$15,674,721.60	$16,007,025.70	$16,346,374.65	$16,509,838.39	$16,674,936.78
Composting Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	149,524.61	152,694.53	155,931.65	159,237.41	162,613.24	166,060.64	169,581.12	171,276.94	172,989.70
Total Operating Costs	$5,222,654.29	$5,333,374.56	$5,446,442.10	$5,561,906.68	$5,679,819.10	$5,800,231.26	$5,923,196.17	$5,982,428.13	$6,042,252.41
WPWMA Operations									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 7 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,239,627.51	1,265,907.62	1,292,744.86	1,320,151.05	1,348,138.25	1,376,718.78	1,405,905.22	1,419,964.27	1,434,163.91
Total Operating Costs	$12,196,844.30	$12,455,417.40	$12,719,472.25	$12,989,125.06	$13,264,494.51	$13,545,701.79	$13,832,870.67	$13,971,199.38	$14,110,911.37
Offsite Disposal and Long Haul Trucking									
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	512,649.54	523,517.71	534,616.29	545,950.16	557,524.30	569,343.81	581,413.90	587,228.04	593,100.32
Total Operating Costs	$42,641,094.95	$43,545,086.16	$44,468,241.99	$45,410,968.72	$46,373,681.26	$47,356,803.30	$48,360,767.53	$48,844,375.21	$49,332,818.96
Post Closure Care O&M									
Tonnage Based Growth Rate (not used)	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	1.00%	1.00%
O&M Unit Cost (starts in year 87, 91 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	321	321	321	321	321	321	321	321	321
Total Operating Costs	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 1

PLAN CONCEPT 1
Raw calculations only, refer to Summary for actual annual allocations

	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Year	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**	**2061**	**2062**	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**	**2069**	**2070**
Landfill Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	671,982.81	678,702.64	685,489.66	692,344.56	699,268.01	706,260.69	713,323.29	720,456.53	727,661.09	734,937.70	742,287.08	749,709.95	757,207.05	764,779.12	772,426.91	780,151.18	787,952.69	795,832.22
Total Operating Costs	$5,601,859.86	$5,657,878.46	$5,714,457.24	$5,771,601.82	$5,829,317.84	$5,887,611.01	$5,946,487.12	$6,005,952.00	$6,066,011.52	$6,126,671.63	$6,187,938.35	$6,249,817.73	$6,312,315.91	$6,375,439.07	$6,439,193.46	$6,503,585.39	$6,568,621.25	$6,634,307.46
Public Area Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (60% increase starting in year 4)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built or Year 3 (majority of Public a	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	67,792.81	68,470.74	69,155.44	69,847.00	70,545.47	71,250.92	71,963.43	72,683.07	73,409.90	74,143.99	74,885.43	75,634.29	76,390.63	77,154.54	77,926.08	78,705.34	79,492.40	80,287.32
Total Operating Costs	$2,545,361.39	$2,570,815.01	$2,596,523.16	$2,622,488.39	$2,648,713.27	$2,675,200.40	$2,701,952.41	$2,728,971.93	$2,756,261.65	$2,783,824.27	$2,811,662.51	$2,839,779.14	$2,868,176.93	$2,896,858.70	$2,925,827.28	$2,955,085.56	$2,984,636.41	$3,014,482.78
C&D Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	676,637.96	683,404.34	690,238.38	697,140.76	704,112.17	711,153.29	718,264.83	725,447.48	732,701.95	740,028.97	747,429.26	754,903.55	762,452.59	770,077.11	777,777.88	785,555.66	793,411.22	801,345.33
Total Operating Costs	$16,841,686.14	$17,010,103.01	$17,180,204.04	$17,352,006.08	$17,525,526.14	$17,700,781.40	$17,877,789.21	$18,056,567.10	$18,237,132.77	$18,419,504.10	$18,603,699.14	$18,789,736.13	$18,977,633.50	$19,167,409.83	$19,359,083.93	$19,552,674.77	$19,748,201.52	$19,945,683.53
Composting Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	174,719.60	176,466.80	178,231.47	180,013.78	181,813.92	183,632.06	185,468.38	187,323.06	189,196.29	191,088.26	192,999.14	194,929.13	196,878.42	198,847.20	200,835.68	202,844.03	204,872.47	206,921.20
Total Operating Costs	$6,102,674.93	$6,163,701.68	$6,225,338.70	$6,287,592.09	$6,350,468.01	$6,413,972.69	$6,478,112.41	$6,542,893.54	$6,608,322.47	$6,674,405.70	$6,741,149.75	$6,808,561.25	$6,876,646.86	$6,945,413.33	$7,014,867.47	$7,085,016.14	$7,155,866.30	$7,227,424.97
WPWMA Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 7 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,448,505.55	1,462,990.61	1,477,620.52	1,492,396.72	1,507,320.69	1,522,393.89	1,537,617.83	1,552,994.01	1,568,523.95	1,584,209.19	1,600,051.28	1,616,051.80	1,632,212.31	1,648,534.44	1,665,019.78	1,681,669.98	1,698,486.68	1,715,471.55
Total Operating Costs	$14,252,020.49	$14,394,540.69	$14,538,486.10	$14,683,870.96	$14,830,709.67	$14,979,016.76	$15,128,806.93	$15,280,095.00	$15,432,895.95	$15,587,224.91	$15,743,097.16	$15,900,528.13	$16,059,533.41	$16,220,128.75	$16,382,330.03	$16,546,153.34	$16,711,614.87	$16,878,731.02
Offsite Disposal and Long Haul Trucking																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	599,031.33	605,021.64	611,071.86	617,182.57	623,354.40	629,587.94	635,883.82	642,242.66	648,665.09	655,151.74	661,703.26	668,320.29	675,003.49	681,753.53	688,571.06	695,456.77	702,411.34	709,435.45
Total Operating Costs	$49,826,147.15	$50,324,408.62	$50,827,652.71	$51,335,929.23	$51,849,288.52	$52,367,781.41	$52,891,459.22	$53,420,373.82	$53,954,577.55	$54,494,123.33	$55,039,064.56	$55,589,455.21	$56,145,349.76	$56,706,803.26	$57,273,871.29	$57,846,610.00	$58,425,076.10	$59,009,326.87
Post Closure Care O&M																		
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 87, 91 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	321	321	321	321	321	321	321	321	321	321	321	321	321	321	321	321	321	321
Total Operating Costs	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 1

PLAN CONCEPT 1
Raw calculations only, refer to Summary for actual annual allocations

	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
Year	**2071**	**2072**	**2073**	**2074**	**2075**	**2076**	**2077**	**2078**	**2079**	**2080**	**2081**	**2082**	**2083**	**2084**	**2085**	**2086**	**2087**	**2088**
Landfill Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	803,790.54	811,828.45	819,946.73	828,146.20	836,427.66	844,791.94	853,239.86	861,772.26	870,389.98	879,093.88	887,884.82	896,763.66	905,731.30	914,788.61	923,936.50	933,175.87	942,507.62	951,932.70
Total Operating Costs	$6,700,650.53	$6,767,657.04	$6,835,333.61	$6,903,686.94	$6,972,723.81	$7,042,451.05	$7,112,875.56	$7,184,004.32	$7,255,844.36	$7,328,402.80	$7,401,686.83	$7,475,703.70	$7,550,460.74	$7,625,965.35	$7,702,225.00	$7,779,247.25	$7,857,039.72	$7,935,610.12
Public Area Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (60% increase starting in year 4)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built or Year 3 (majority of Public a	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	81,090.20	81,901.10	82,720.11	83,547.31	84,382.78	85,226.61	86,078.88	86,939.66	87,809.06	88,687.15	89,574.02	90,469.76	91,374.46	92,288.21	93,211.09	94,143.20	95,084.63	96,035.48
Total Operating Costs	$3,044,627.60	$3,075,073.88	$3,105,824.62	$3,136,882.87	$3,168,251.69	$3,199,934.21	$3,231,933.55	$3,264,252.89	$3,296,895.42	$3,329,864.37	$3,363,163.02	$3,396,794.65	$3,430,762.59	$3,465,070.22	$3,499,720.92	$3,534,718.13	$3,570,065.31	$3,605,765.96
C&D Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	809,358.79	817,452.37	825,626.90	833,883.17	842,222.00	850,644.22	859,150.66	867,742.17	876,419.59	885,183.78	894,035.62	902,975.98	912,005.74	921,125.80	930,337.05	939,640.42	949,036.83	958,527.20
Total Operating Costs	$20,145,140.37	$20,346,591.77	$20,550,057.69	$20,755,558.27	$20,963,113.85	$21,172,744.99	$21,384,472.44	$21,598,317.16	$21,814,300.33	$22,032,443.34	$22,252,767.77	$22,475,295.45	$22,700,048.40	$22,927,048.89	$23,156,319.37	$23,387,882.57	$23,621,761.39	$23,857,979.01
Composting Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	208,990.41	211,080.31	213,191.12	215,323.03	217,476.26	219,651.02	221,847.53	224,066.01	226,306.67	228,569.73	230,855.43	233,163.99	235,495.63	237,850.58	240,229.09	242,631.38	245,057.69	247,508.27
Total Operating Costs	$7,299,699.22	$7,372,696.21	$7,446,423.17	$7,520,887.40	$7,596,096.28	$7,672,057.24	$7,748,777.81	$7,826,265.59	$7,904,528.24	$7,983,573.53	$8,063,409.26	$8,144,043.35	$8,225,483.79	$8,307,738.63	$8,390,816.01	$8,474,724.17	$8,559,471.41	$8,645,066.13
WPWMA Operations																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 7 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,732,626.26	1,749,952.52	1,767,452.05	1,785,126.57	1,802,977.84	1,821,007.61	1,839,217.69	1,857,609.87	1,876,185.97	1,894,947.83	1,913,897.30	1,933,036.28	1,952,366.64	1,971,890.31	1,991,609.21	2,011,525.30	2,031,640.55	2,051,956.96
Total Operating Costs	$17,047,518.33	$17,217,993.51	$17,390,173.45	$17,564,075.18	$17,739,715.93	$17,917,113.09	$18,096,284.22	$18,277,247.06	$18,460,019.53	$18,644,619.73	$18,831,065.93	$19,019,376.59	$19,209,570.35	$19,401,666.06	$19,595,682.72	$19,791,639.54	$19,989,555.94	$20,189,451.50
Offsite Disposal and Long Haul Trucking																		
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	716,529.81	723,695.11	730,932.06	738,241.38	745,623.79	753,080.03	760,610.83	768,216.94	775,899.11	783,658.10	791,494.68	799,409.63	807,403.72	815,477.76	823,632.54	831,868.86	840,187.55	848,589.43
Total Operating Costs	$59,599,420.13	$60,195,414.34	$60,797,368.48	$61,405,342.16	$62,019,395.58	$62,639,589.54	$63,265,985.44	$63,898,645.29	$64,537,631.74	$65,183,008.06	$65,834,838.14	$66,493,186.52	$67,158,118.39	$67,829,699.57	$68,507,996.57	$69,193,076.53	$69,885,007.30	$70,583,857.37
Post Closure Care O&M																		
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 87, 91 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	321	321	321	321	321	321	321	321	321	321	321	321	321	321	321	321	321	321
Total Operating Costs	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 1

PLAN CONCEPT 1
Raw calculations only, refer to Summary for actual annual allocations

	67	68	69	70	71	72	73	74	75
Year	**2089**	**2090**	**2091**	**2092**	**2093**	**2094**	**2095**	**2096**	**2097**
Landfill Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	961,452.03	971,066.55	980,777.21	990,584.98	1,000,490.83	1,010,495.74	1,020,600.70	1,030,806.71	1,041,114.77
Total Operating Costs	$8,014,966.22	$8,095,115.88	$8,176,067.04	$8,257,827.71	$8,340,405.99	$8,423,810.05	$8,508,048.15	$8,593,128.63	$8,679,059.92
Public Area Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (60% increase starting in year 4)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built or Year 3 (majority of Public a	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	96,995.83	97,965.79	98,945.45	99,934.90	100,934.25	101,943.59	102,963.03	103,992.66	105,032.59
Total Operating Costs	$3,641,823.62	$3,678,241.86	$3,715,024.28	$3,752,174.52	$3,789,696.27	$3,827,593.23	$3,865,869.16	$3,904,527.85	$3,943,573.13
C&D Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	968,112.47	977,793.59	987,571.53	997,447.24	1,007,421.72	1,017,495.93	1,027,670.89	1,037,947.60	1,048,327.08
Total Operating Costs	$24,096,558.80	$24,337,524.39	$24,580,899.63	$24,826,708.63	$25,074,975.71	$25,325,725.47	$25,578,982.72	$25,834,772.55	$26,093,120.28
Composting Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	249,983.35	252,483.19	255,008.02	257,558.10	260,133.68	262,735.02	265,362.37	268,015.99	270,696.15
Total Operating Costs	$8,731,516.79	$8,818,831.96	$8,907,020.28	$8,996,090.48	$9,086,051.38	$9,176,911.90	$9,268,681.02	$9,361,367.83	$9,454,981.51
WPWMA Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 7 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	2,072,476.53	2,093,201.29	2,114,133.31	2,135,274.64	2,156,627.39	2,178,193.66	2,199,975.60	2,221,975.35	2,244,195.11
Total Operating Costs	$20,391,346.01	$20,595,259.47	$20,801,212.07	$21,009,224.19	$21,219,316.43	$21,431,509.60	$21,645,824.69	$21,862,282.94	$22,080,905.77
Offsite Disposal and Long Haul Trucking									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	857,075.32	865,646.07	874,302.53	883,045.56	891,876.02	900,794.78	909,802.72	918,900.75	928,089.76
Total Operating Costs	$71,289,695.95	$72,002,592.90	$72,722,618.83	$73,449,845.02	$74,184,343.47	$74,926,186.91	$75,675,448.78	$76,432,203.26	$77,196,525.30
Post Closure Care O&M									
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 87, 91 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	321	321	321	321	321	321	321	321	321
Total Operating Costs	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00

	76	77	78	79	80	81	82	83	84
Year	**2098**	**2099**	**2100**	**2101**	**2102**	**2103**	**2104**	**2105**	**2106**
Landfill Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	1,051,525.92	1,062,041.18	1,072,661.59	1,083,388.21	1,094,222.09	1,105,164.31	1,116,215.96	1,127,378.11	1,138,651.90
Total Operating Costs	$8,765,850.52	$8,853,509.02	$8,942,044.11	$9,031,464.55	$9,121,779.20	$9,212,996.99	$9,305,126.96	$9,398,178.23	$9,492,160.01
Public Area Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (60% increase starting in year 4)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built or Year 3 (majority of Public a	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	106,082.91	107,143.74	108,215.18	109,297.33	110,390.30	111,494.21	112,609.15	113,735.24	114,872.59
Total Operating Costs	$3,983,008.86	$4,022,838.95	$4,063,067.34	$4,103,698.01	$4,144,734.99	$4,186,182.34	$4,228,044.17	$4,270,324.61	$4,313,027.86
C&D Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	1,058,810.35	1,069,398.45	1,080,092.44	1,090,893.36	1,101,802.29	1,112,820.32	1,123,948.52	1,135,188.01	1,146,539.89
Total Operating Costs	$26,354,051.48	$26,617,591.99	$26,883,767.91	$27,152,605.59	$27,424,131.65	$27,698,372.97	$27,975,356.69	$28,255,110.26	$28,537,661.36
Composting Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	273,403.11	276,137.14	278,898.51	281,687.50	284,504.37	287,349.42	290,222.91	293,125.14	296,056.39
Total Operating Costs	$9,549,531.32	$9,645,026.63	$9,741,476.90	$9,838,891.67	$9,937,280.59	$10,036,653.39	$10,137,019.93	$10,238,390.13	$10,340,774.03
WPWMA Operations									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 7 staff in 2027)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	2,266,637.06	2,289,303.43	2,312,196.46	2,335,318.43	2,358,671.61	2,382,258.33	2,406,080.91	2,430,141.72	2,454,443.14
Total Operating Costs	$22,301,714.83	$22,524,731.97	$22,749,979.29	$22,977,479.09	$23,207,253.88	$23,439,326.42	$23,673,719.68	$23,910,456.88	$24,149,561.45
Offsite Disposal and Long Haul Trucking									
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	937,370.66	946,744.36	956,211.81	965,773.92	975,431.66	985,185.98	995,037.84	1,004,988.22	1,015,038.10
Total Operating Costs	$77,968,490.55	$78,748,175.46	$79,535,657.21	$80,331,013.78	$81,134,323.92	$81,945,667.16	$82,765,123.83	$83,592,775.07	$84,428,702.82
Post Closure Care O&M									
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 87, 91 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	321	321	321	321	321	321	321	321	321
Total Operating Costs	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00	$515,526.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 1

PLAN CONCEPT 1
Raw calculations only, refer to Summary for actual annual allocations

	85	86	87
Year	**2107**	**2108**	**2109**
Landfill Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (none)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	1,150,038.42	1,161,538.80	1,173,154.19
Total Operating Costs	$9,587,081.61	$9,682,952.43	$9,779,781.95
Public Area Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (60% increase starting in year 4)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built or Year 3 (majority of Public a	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55
Total Tonnage Processed	116,021.32	117,181.53	118,353.35
Total Operating Costs	$4,356,158.13	$4,399,719.72	$4,443,716.91
C&D Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89
Total Tonnage Processed	1,158,005.29	1,169,585.34	1,181,281.19
Total Operating Costs	$28,823,037.98	$29,111,268.36	$29,402,381.04
Composting Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93
Total Tonnage Processed	299,016.96	302,007.13	305,027.20
Total Operating Costs	$10,444,181.77	$10,548,623.58	$10,654,109.82
WPWMA Operations			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 7 staff in 2027)	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84
Total Tonnage Inbound	2,478,987.57	2,503,777.44	2,528,815.22
Total Operating Costs	$24,391,057.06	$24,634,967.63	$24,881,317.31
Offsite Disposal and Long Haul Trucking			
Tonnage Based Growth Rate	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18
Total Tonnage Disposed	1,025,188.48	1,035,440.37	1,045,794.77
Total Operating Costs	$85,272,989.85	$86,125,719.75	$86,986,976.94
Post Closure Care O&M			
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 87, 91 years from 2018)	$1,606.00	$1,606.00	$1,606.00
Units (acres)	321	321	321
Total Operating Costs	$515,526.00	$515,526.00	$515,526.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 2

PLAN CONCEPT 2
Raw calculations only, refer to Summary for actual annual allocations

	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Year	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**
Landfill Operations																						
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (5% increase year 27)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)		0.00%	0.00%	0.00%	0.00%	35.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	243,079	248,232.27	253,494.80	258,868.89	264,356.91	362,486.19	370,170.90	378,018.52	386,032.52	394,216.41	402,573.79	411,108.36	419,823.86	428,724.12	437,813.07	447,094.71	456,573.12	466,252.47	476,137.02	486,231.13	496,539.23	507,065.86
Total Operating Costs	$2,026,382.93	$2,069,342.25	$2,113,212.30	$2,158,012.40	$2,203,762.27	$3,021,798.82	$3,085,860.95	$3,151,281.21	$3,218,088.37	$3,286,311.84	$3,355,981.65	$3,427,128.46	$3,499,783.59	$3,573,979.00	$3,649,747.35	$3,727,122.00	$3,806,136.98	$3,886,827.09	$3,969,227.82	$4,053,375.45	$4,139,307.01	$4,227,060.32
Public Area Operations																						
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (50% increase starting in year 2)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built)		0.00%	0.00%	0.00%	0.00%	10.00%	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	17,207	17,571.28	17,943.79	18,324.20	18,712.67	20,980.65	23,523.50	35,783.95	36,542.57	37,317.27	38,108.40	38,916.29	39,741.32	40,583.84	41,444.21	42,322.83	43,220.07	44,136.34	45,072.03	46,027.56	47,003.34	47,999.81
Total Operating Costs	$646,038.46	$659,734.48	$673,720.85	$688,003.73	$702,589.41	$787,743.24	$883,217.73	$1,343,550.80	$1,372,034.08	$1,401,121.20	$1,430,824.97	$1,461,158.46	$1,492,135.02	$1,523,768.29	$1,556,072.17	$1,589,060.90	$1,622,748.99	$1,657,151.27	$1,692,282.88	$1,728,159.28	$1,764,796.25	$1,802,209.93
C&D Operations																						
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)		0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)		0.00%	0.00%	50.00%	0.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	83,896	85,674.08	87,490.38	176,835.55	180,584.46	364,997.31	372,735.25	380,637.24	388,706.75	396,947.33	405,362.62	413,956.30	422,732.18	431,694.10	440,846.02	450,191.95	459,736.02	469,482.42	479,435.45	489,599.48	499,978.99	510,578.55
Total Operating Costs	$2,088,179.75	$2,132,449.16	$2,177,657.08	$4,401,480.49	$4,494,791.87	$9,084,873.34	$9,277,472.65	$9,474,155.07	$9,675,007.16	$9,880,117.31	$10,089,575.80	$10,303,474.81	$10,521,908.47	$10,744,972.93	$10,972,766.36	$11,205,389.00	$11,442,943.25	$11,685,533.65	$11,933,266.96	$12,186,252.22	$12,444,600.77	$12,708,426.30
Composting Operations																						
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (30% increase in year 0)		0.00%	0.00%	0.00%	0.00%	30.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	65,594	66,984.44	68,404.51	69,854.69	71,335.61	94,248.61	96,246.68	98,287.11	100,370.79	102,498.65	104,671.63	106,890.66	109,156.75	111,470.87	113,834.05	116,247.33	118,711.78	121,228.47	123,798.51	126,423.04	129,103.21	131,840.19
Total Operating Costs	$2,291,087.92	$2,339,658.98	$2,389,259.75	$2,439,912.06	$2,491,638.19	$3,291,952.38	$3,361,741.77	$3,433,010.70	$3,505,790.52	$3,580,113.28	$3,656,011.68	$3,733,519.13	$3,812,669.74	$3,893,498.33	$3,976,040.50	$4,060,332.56	$4,146,411.61	$4,234,315.53	$4,324,083.02	$4,415,753.58	$4,509,367.56	$4,604,966.15
WPWMA Operations																						
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 5 staff in 2027))		0.00%	0.00%	15.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	25.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	456,561	466,239.80	476,124.09	557,761.24	569,585.78	581,661.00	593,992.21	606,584.85	619,444.44	632,576.67	804,407.61	821,461.05	838,876.02	856,660.20	874,821.39	893,367.61	912,307.00	931,647.91	951,398.84	971,568.50	992,165.75	1,013,199.66
Total Operating Costs	$4,492,155.83	$4,587,389.54	$4,684,642.19	$5,487,879.98	$5,604,223.04	$5,723,032.56	$5,844,360.85	$5,968,261.30	$6,094,788.44	$6,223,997.96	$7,914,663.28	$8,082,454.14	$8,253,802.17	$8,428,782.78	$8,607,472.97	$8,789,951.40	$8,976,298.37	$9,166,595.89	$9,360,927.73	$9,559,379.39	$9,762,038.24	$9,968,993.45
Offsite Disposal and Long Haul Trucking																						
Tonnage Based Growth Rate		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	290,957	297,125.29	303,424.34	309,856.94	316,425.91	323,134.14	329,984.58	336,980.25	344,124.24	351,419.67	358,869.77	366,477.81	374,247.13	382,181.17	390,283.41	398,557.42	407,006.84	415,635.39	424,446.86	433,445.13	442,634.17	452,018.01
Total Operating Costs	$24,201,182.27	$24,714,247.33	$25,238,189.38	$25,773,238.99	$26,319,631.66	$26,877,607.85	$27,447,413.14	$28,029,298.30	$28,623,519.42	$29,230,338.03	$29,850,021.20	$30,482,841.65	$31,129,077.89	$31,789,014.34	$32,462,941.44	$33,151,155.80	$33,853,960.31	$34,571,664.26	$35,304,583.55	$36,053,040.72	$36,817,365.18	$37,597,893.32
Post Closure Care O&M																						
Tonnage Based Growth Rate (not used)		2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost (starts in year 67, 71 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
Total Operating Costs	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 2

PLAN CONCEPT 2

Raw calculations only, refer to Summary for actual annual allocations

	17	18	19	20	21	22	23	24	25	26	27
Year	**2039**	**2040**	**2041**	**2042**	**2043**	**2044**	**2045**	**2046**	**2047**	**2048**	**2049**
Landfill Operations											
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (5% increase year 27)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	517,815.65	528,793.34	540,003.76	551,451.84	563,142.62	575,081.25	587,272.97	599,723.16	612,437.29	625,420.96	669,950.93
Total Operating Costs	$4,316,674.00	$4,408,187.49	$4,501,641.06	$4,597,075.85	$4,694,533.86	$4,794,057.98	$4,895,692.01	$4,999,480.68	$5,105,469.67	$5,213,705.63	$5,584,921.47
Public Area Operations											
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	49,017.41	50,056.58	51,117.78	52,201.47	53,308.15	54,438.28	55,592.37	56,770.93	57,974.47	59,203.53	60,458.65
Total Operating Costs	$1,840,416.78	$1,879,433.62	$1,919,277.61	$1,959,966.30	$2,001,517.58	$2,043,949.76	$2,087,281.49	$2,131,531.86	$2,176,720.34	$2,222,866.81	$2,269,991.58
C&D Operations											
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	521,402.81	532,456.55	543,744.63	555,272.02	567,043.78	579,065.11	591,341.29	603,877.73	616,679.93	629,753.55	643,104.32
Total Operating Costs	$12,977,844.94	$13,252,975.25	$13,533,938.33	$13,820,857.82	$14,113,860.01	$14,413,073.84	$14,718,631.01	$15,030,665.98	$15,349,316.10	$15,674,721.60	$16,007,025.70
Composting Operations											
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	134,635.21	137,489.47	140,404.25	143,380.82	146,420.49	149,524.61	152,694.53	155,931.65	159,237.41	162,613.24	166,060.64
Total Operating Costs	$4,702,591.43	$4,802,286.37	$4,904,094.84	$5,008,061.65	$5,114,232.56	$5,222,654.29	$5,333,374.56	$5,446,442.10	$5,561,906.68	$5,679,819.10	$5,800,231.26
WPWMA Operations											
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 5 staff in 2027))	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,034,679.50	1,056,614.70	1,079,014.93	1,101,890.05	1,125,250.12	1,149,105.42	1,173,466.46	1,198,343.95	1,223,748.84	1,249,692.31	1,276,185.79
Total Operating Costs	$10,180,336.11	$10,396,159.23	$10,616,557.81	$10,841,628.83	$11,071,471.37	$11,306,186.56	$11,545,877.71	$11,790,650.32	$12,040,612.11	$12,295,873.09	$12,556,545.59
Offsite Disposal and Long Haul Trucking											
Tonnage Based Growth Rate	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	461,600.79	471,386.73	481,380.13	491,585.39	502,007.00	512,649.54	523,517.71	534,616.29	545,950.16	557,524.30	569,343.81
Total Operating Costs	$38,394,968.66	$39,208,942.00	$40,040,171.57	$40,889,023.20	$41,755,870.50	$42,641,094.95	$43,545,086.16	$44,468,241.99	$45,410,968.72	$46,373,681.26	$47,356,803.30
Post Closure Care O&M											
Tonnage Based Growth Rate (not used)	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%	2.12%
O&M Unit Cost (starts in year 67, 71 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	365	365	365	365	365	365	365	365	365	365	365
Total Operating Costs	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00

	28	29	30	31	32	33	34	35	36	37	38
Year	**2050**	**2051**	**2052**	**2053**	**2054**	**2055**	**2056**	**2057**	**2058**	**2059**	**2060**
Landfill Operations											
Tonnage Based Growth Rate	2.12%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (5% increase year 27)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	684,153.89	690,995.43	697,905.38	704,884.44	711,933.28	719,052.61	726,243.14	733,505.57	740,840.63	748,249.03	755,731.52
Total Operating Costs	$5,703,321.80	$5,760,355.02	$5,817,958.57	$5,876,138.15	$5,934,899.54	$5,994,248.53	$6,054,191.02	$6,114,732.93	$6,175,880.26	$6,237,639.06	$6,300,015.45
Public Area Operations											
Tonnage Based Growth Rate	2.12%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	61,740.37	62,357.77	62,981.35	63,611.16	64,247.28	64,889.75	65,538.65	66,194.03	66,855.97	67,524.53	68,199.78
Total Operating Costs	$2,318,115.40	$2,341,296.56	$2,364,709.52	$2,388,356.62	$2,412,240.19	$2,436,362.59	$2,460,726.21	$2,485,333.48	$2,510,186.81	$2,535,288.68	$2,560,641.56
C&D Operations											
Tonnage Based Growth Rate	2.12%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	656,738.14	663,305.52	669,938.57	676,637.96	683,404.34	690,238.38	697,140.76	704,112.17	711,153.29	718,264.83	725,447.48
Total Operating Costs	$16,346,374.65	$16,509,838.39	$16,674,936.78	$16,841,686.14	$17,010,103.01	$17,180,204.04	$17,352,006.08	$17,525,526.14	$17,700,781.40	$17,877,789.21	$18,056,567.10
Composting Operations											
Tonnage Based Growth Rate	2.12%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	169,581.12	171,276.94	172,989.70	174,719.60	176,466.80	178,231.47	180,013.78	181,813.92	183,632.06	185,468.38	187,323.06
Total Operating Costs	$5,923,196.17	$5,982,428.13	$6,042,252.41	$6,102,674.93	$6,163,701.68	$6,225,338.70	$6,287,592.09	$6,350,468.01	$6,413,972.69	$6,478,112.41	$6,542,893.54
WPWMA Operations											
Tonnage Based Growth Rate	2.12%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 5 staff in 2027))	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,303,240.93	1,316,273.34	1,329,436.07	1,342,730.43	1,356,157.74	1,369,719.31	1,383,416.51	1,397,250.67	1,411,223.18	1,425,335.41	1,439,588.77
Total Operating Costs	$12,822,744.36	$12,950,971.81	$13,080,481.52	$13,211,286.34	$13,343,399.20	$13,476,833.19	$13,611,601.53	$13,747,717.54	$13,885,194.72	$14,024,046.66	$14,164,287.13
Offsite Disposal and Long Haul Trucking											
Tonnage Based Growth Rate	2.12%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	581,413.90	587,228.04	593,100.32	599,031.33	605,021.64	611,071.86	617,182.57	623,354.40	629,587.94	635,883.82	642,242.66
Total Operating Costs	$48,360,767.53	$48,844,375.21	$49,332,818.96	$49,826,147.15	$50,324,408.62	$50,827,652.71	$51,335,929.23	$51,849,288.52	$52,367,781.41	$52,891,459.22	$53,420,373.82
Post Closure Care O&M											
Tonnage Based Growth Rate (not used)	2.12%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 67, 71 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	365	365	365	365	365	365	365	365	365	365	365
Total Operating Costs	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 2

PLAN CONCEPT 2
Raw calculations only, refer to Summary for actual annual allocations

	39	40	41	42	43	44	45	46	47	48	49
Year	**2061**	**2062**	**2063**	**2064**	**2065**	**2066**	**2067**	**2068**	**2069**	**2070**	**2071**
Landfill Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (5% increase year 27)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	763,288.84	770,921.73	778,630.94	786,417.25	794,281.43	802,224.24	810,246.48	818,348.95	826,532.44	834,797.76	843,145.74
Total Operating Costs	$6,363,015.60	$6,426,645.76	$6,490,912.22	$6,555,821.34	$6,621,379.55	$6,687,593.35	$6,754,469.28	$6,822,013.98	$6,890,234.11	$6,959,136.46	$7,028,727.82
Public Area Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	68,881.77	69,570.59	70,266.30	70,968.96	71,678.65	72,395.44	73,119.39	73,850.59	74,589.09	75,334.98	76,088.33
Total Operating Costs	$2,586,247.98	$2,612,110.46	$2,638,231.56	$2,664,613.88	$2,691,260.02	$2,718,172.62	$2,745,354.35	$2,772,807.89	$2,800,535.97	$2,828,541.33	$2,856,826.74
C&D Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	732,701.95	740,028.97	747,429.26	754,903.55	762,452.59	770,077.11	777,777.88	785,555.66	793,411.22	801,345.33	809,358.79
Total Operating Costs	$18,237,132.77	$18,419,504.10	$18,603,699.14	$18,789,736.13	$18,977,633.50	$19,167,409.83	$19,359,083.93	$19,552,674.77	$19,748,201.52	$19,945,683.53	$20,145,140.37
Composting Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	189,196.29	191,088.26	192,999.14	194,929.13	196,878.42	198,847.20	200,835.68	202,844.03	204,872.47	206,921.20	208,990.41
Total Operating Costs	$6,608,322.47	$6,674,405.70	$6,741,149.75	$6,808,561.25	$6,876,646.86	$6,945,413.33	$7,014,867.47	$7,085,016.14	$7,155,866.30	$7,227,424.97	$7,299,699.22
WPWMA Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 5 staff in 2027))	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,453,984.65	1,468,524.50	1,483,209.74	1,498,041.84	1,513,022.26	1,528,152.48	1,543,434.01	1,558,868.35	1,574,457.03	1,590,201.60	1,606,103.62
Total Operating Costs	$14,305,930.00	$14,448,989.30	$14,593,479.19	$14,739,413.99	$14,886,808.13	$15,035,676.21	$15,186,032.97	$15,337,893.30	$15,491,272.23	$15,646,184.95	$15,802,646.80
Offsite Disposal and Long Haul Trucking											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	648,665.09	655,151.74	661,703.26	668,320.29	675,003.49	681,753.53	688,571.06	695,456.77	702,411.34	709,435.45	716,529.81
Total Operating Costs	$53,954,577.55	$54,494,123.33	$55,039,064.56	$55,589,455.21	$56,145,349.76	$56,706,803.26	$57,273,871.29	$57,846,610.00	$58,425,076.10	$59,009,326.87	$59,599,420.13
Post Closure Care O&M											
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 67, 71 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	365	365	365	365	365	365	365	365	365	365	365
Total Operating Costs	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00

	50	51	52	53	54	55	56	57	58	59	60
Year	**2072**	**2073**	**2074**	**2075**	**2076**	**2077**	**2078**	**2079**	**2080**	**2081**	**2082**
Landfill Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (5% increase year 27)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	851,577.20	860,092.97	868,693.90	877,380.84	886,154.64	895,016.19	903,966.35	913,006.02	922,136.08	931,357.44	940,671.01
Total Operating Costs	$7,099,015.10	$7,170,005.25	$7,241,705.30	$7,314,122.36	$7,387,263.58	$7,461,136.21	$7,535,747.58	$7,611,105.05	$7,687,216.10	$7,764,088.26	$7,841,729.15
Public Area Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	76,849.22	77,617.71	78,393.89	79,177.82	79,969.60	80,769.30	81,576.99	82,392.76	83,216.69	84,048.86	84,889.34
Total Operating Costs	$2,885,395.01	$2,914,248.96	$2,943,391.45	$2,972,825.36	$3,002,553.62	$3,032,579.15	$3,062,904.94	$3,093,533.99	$3,124,469.33	$3,155,714.03	$3,187,271.17
C&D Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	817,452.37	825,626.90	833,883.17	842,222.00	850,644.22	859,150.66	867,742.17	876,419.59	885,183.78	894,035.62	902,975.98
Total Operating Costs	$20,346,591.77	$20,550,057.69	$20,755,558.27	$20,963,113.85	$21,172,744.99	$21,384,472.44	$21,598,317.16	$21,814,300.33	$22,032,443.34	$22,252,767.77	$22,475,295.45
Composting Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	211,080.31	213,191.12	215,323.03	217,476.26	219,651.02	221,847.53	224,066.01	226,306.67	228,569.73	230,855.43	233,163.99
Total Operating Costs	$7,372,696.21	$7,446,423.17	$7,520,887.40	$7,596,096.28	$7,672,057.24	$7,748,777.81	$7,826,265.59	$7,904,528.24	$7,983,573.53	$8,063,409.26	$8,144,043.35
WPWMA Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 5 staff in 2027))	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,622,164.65	1,638,386.30	1,654,770.16	1,671,317.86	1,688,031.04	1,704,911.35	1,721,960.47	1,739,180.07	1,756,571.87	1,774,137.59	1,791,878.97
Total Operating Costs	$15,960,673.27	$16,120,280.00	$16,281,482.80	$16,444,297.63	$16,608,740.61	$16,774,828.02	$16,942,576.30	$17,112,002.06	$17,283,122.08	$17,455,953.30	$17,630,512.83
Offsite Disposal and Long Haul Trucking											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	723,695.11	730,932.06	738,241.38	745,623.79	753,080.03	760,610.83	768,216.94	775,899.11	783,658.10	791,494.68	799,409.63
Total Operating Costs	$60,195,414.34	$60,797,368.48	$61,405,342.16	$62,019,395.58	$62,639,589.54	$63,265,985.44	$63,898,645.29	$64,537,631.74	$65,183,008.06	$65,834,838.14	$66,493,186.52
Post Closure Care O&M											
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 67, 71 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	365	365	365	365	365	365	365	365	365	365	365
Total Operating Costs	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 2

PLAN CONCEPT 2

Raw calculations only, refer to Summary for actual annual allocations

	61	62	63	64	65	66	67	68	69	70	71
Year	**2083**	**2084**	**2085**	**2086**	**2087**	**2088**	**2089**	**2090**	**2091**	**2092**	**2093**
Landfill Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (5% increase year 27)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	950,077.72	959,578.50	969,174.28	978,866.03	988,654.69	998,541.23	1,008,526.65	1,018,611.91	1,028,798.03	1,039,086.01	1,049,476.87
Total Operating Costs	$7,920,146.44	$7,999,347.90	$8,079,341.38	$8,160,134.80	$8,241,736.14	$8,324,153.50	$8,407,395.04	$8,491,468.99	$8,576,383.68	$8,662,147.52	$8,748,768.99
Public Area Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	85,738.24	86,595.62	87,461.58	88,336.19	89,219.55	90,111.75	91,012.87	91,923.00	92,842.23	93,770.65	94,708.35
Total Operating Costs	$3,219,143.88	$3,251,335.32	$3,283,848.67	$3,316,687.16	$3,349,854.03	$3,383,352.57	$3,417,186.09	$3,451,357.96	$3,485,871.54	$3,520,730.25	$3,555,937.55
C&D Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	912,005.74	921,125.80	930,337.05	939,640.42	949,036.83	958,527.20	968,112.47	977,793.59	987,571.53	997,447.24	1,007,421.72
Total Operating Costs	$22,700,048.40	$22,927,048.89	$23,156,319.37	$23,387,882.57	$23,621,761.39	$23,857,979.01	$24,096,558.80	$24,337,524.39	$24,580,899.63	$24,826,708.63	$25,074,975.71
Composting Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	235,495.63	237,850.58	240,229.09	242,631.38	245,057.69	247,508.27	249,983.35	252,483.19	255,008.02	257,558.10	260,133.68
Total Operating Costs	$8,225,483.79	$8,307,738.63	$8,390,816.01	$8,474,724.17	$8,559,471.41	$8,645,066.13	$8,731,516.79	$8,818,831.96	$8,907,020.28	$8,996,090.48	$9,086,051.38
WPWMA Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 5 staff in 2027))	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	1,809,797.76	1,827,895.73	1,846,174.69	1,864,636.44	1,883,282.80	1,902,115.63	1,921,136.79	1,940,348.16	1,959,751.64	1,979,349.15	1,999,142.64
Total Operating Costs	$17,806,817.96	$17,984,886.14	$18,164,735.00	$18,346,382.35	$18,529,846.18	$18,715,144.64	$18,902,296.08	$19,091,319.04	$19,282,232.24	$19,475,054.56	$19,669,805.10
Offsite Disposal and Long Haul Trucking											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	807,403.72	815,477.76	823,632.54	831,868.86	840,187.55	848,589.43	857,075.32	865,646.07	874,302.53	883,045.56	891,876.02
Total Operating Costs	$67,158,118.39	$67,829,699.57	$68,507,996.57	$69,193,076.53	$69,885,007.30	$70,583,857.37	$71,289,695.95	$72,002,592.90	$72,722,618.83	$73,449,845.02	$74,184,343.47
Post Closure Care O&M											
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 67, 71 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	365	365	365	365	365	365	365	365	365	365	365
Total Operating Costs	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00

	72	73	74	75	76	77	78	79	80	81	82
Year	**2094**	**2095**	**2096**	**2097**	**2098**	**2099**	**2100**	**2101**	**2102**	**2103**	**2104**
Landfill Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (5% increase year 27)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	1,059,971.64	1,070,571.36	1,081,277.07	1,092,089.84	1,103,010.74	1,114,040.85	1,125,181.26	1,136,433.07	1,147,797.40	1,159,275.37	1,170,868.13
Total Operating Costs	$8,836,256.68	$8,924,619.25	$9,013,865.44	$9,104,004.10	$9,195,044.14	$9,286,994.58	$9,379,864.52	$9,473,663.17	$9,568,399.80	$9,664,083.80	$9,760,724.64
Public Area Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	95,655.44	96,611.99	97,578.11	98,553.89	99,539.43	100,534.83	101,540.17	102,555.58	103,581.13	104,616.94	105,663.11
Total Operating Costs	$3,591,496.93	$3,627,411.90	$3,663,686.02	$3,700,322.88	$3,737,326.11	$3,774,699.37	$3,812,446.36	$3,850,570.82	$3,889,076.53	$3,927,967.30	$3,967,246.97
C&D Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	1,017,495.93	1,027,670.89	1,037,947.60	1,048,327.08	1,058,810.35	1,069,398.45	1,080,092.44	1,090,893.36	1,101,802.29	1,112,820.32	1,123,948.52
Total Operating Costs	$25,325,725.47	$25,578,982.72	$25,834,772.55	$26,093,120.28	$26,354,051.48	$26,617,591.99	$26,883,767.91	$27,152,605.59	$27,424,131.65	$27,698,372.97	$27,975,356.69
Composting Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	262,735.02	265,362.37	268,015.99	270,696.15	273,403.11	276,137.14	278,898.51	281,687.50	284,504.37	287,349.42	290,222.91
Total Operating Costs	$9,176,911.90	$9,268,681.02	$9,361,367.83	$9,454,981.51	$9,549,531.32	$9,645,026.63	$9,741,476.90	$9,838,891.67	$9,937,280.59	$10,036,653.39	$10,137,019.93
WPWMA Operations											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 5 staff in 2027))	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	2,019,134.07	2,039,325.41	2,059,718.67	2,080,315.85	2,101,119.01	2,122,130.20	2,143,351.50	2,164,785.02	2,186,432.87	2,208,297.20	2,230,380.17
Total Operating Costs	$19,866,503.15	$20,065,168.19	$20,265,819.87	$20,468,478.07	$20,673,162.85	$20,879,894.48	$21,088,693.42	$21,299,580.35	$21,512,576.16	$21,727,701.92	$21,944,978.94
Offsite Disposal and Long Haul Trucking											
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	900,794.78	909,802.72	918,900.75	928,089.76	937,370.66	946,744.36	956,211.81	965,773.92	975,431.66	985,185.98	995,037.84
Total Operating Costs	$74,926,186.91	$75,675,448.78	$76,432,203.26	$77,196,525.30	$77,968,490.55	$78,748,175.46	$79,535,657.21	$80,331,013.78	$81,134,323.92	$81,945,667.16	$82,765,123.83
Post Closure Care O&M											
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 67, 71 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	365	365	365	365	365	365	365	365	365	365	365
Total Operating Costs	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: O&M Inputs
Plan Concept: 2

PLAN CONCEPT 2

Raw calculations only, refer to Summary for actual annual allocations

	83	84	85	86	87
Year	**2105**	**2106**	**2107**	**2108**	**2109**
Landfill Operations					
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (5% increase year 27)	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (35% increase in Year 0)	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$8.34	$8.34	$8.34	$8.34	$8.34
Total Landfill Tonnage Excluding Tonnage Attributable to Other Facilities	1,182,576.81	1,194,402.58	1,206,346.60	1,218,410.07	1,230,594.17
Total Operating Costs	$9,858,331.88	$9,956,915.20	$10,056,484.35	$10,157,049.20	$10,258,619.69
Public Area Operations					
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase starting in year 2)	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (10% increase in Year 0, 10% increase in year Public area built)	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$37.55	$37.55	$37.55	$37.55	$37.55
Total Tonnage Processed	106,719.74	107,786.94	108,864.81	109,953.46	111,052.99
Total Operating Costs	$4,006,919.44	$4,046,988.63	$4,087,458.52	$4,128,333.11	$4,169,616.44
C&D Operations					
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (50% increase in Year -2 and Year 0 to account for additional diversion)	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (50% increase in Year -2 and Year 0 for additional C&D expected)	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$24.89	$24.89	$24.89	$24.89	$24.89
Total Tonnage Processed	1,135,188.01	1,146,539.89	1,158,005.29	1,169,585.34	1,181,281.19
Total Operating Costs	$28,255,110.26	$28,537,661.36	$28,823,037.98	$29,111,268.36	$29,402,381.04
Composting Operations					
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (30% increase in year 0)	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$34.93	$34.93	$34.93	$34.93	$34.93
Total Tonnage Processed	293,125.14	296,056.39	299,016.96	302,007.13	305,027.20
Total Operating Costs	$10,238,390.13	$10,340,774.03	$10,444,181.77	$10,548,623.58	$10,654,109.82
WPWMA Operations					
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%
% Adjustment for Operational Change (increase by 3 staff in 2020, increase by 5 staff in 2027))	0.00%	0.00%	0.00%	0.00%	0.00%
Other % Adjustment, if applicable (none)	0.00%	0.00%	0.00%	0.00%	0.00%
O&M Unit Cost	$9.84	$9.84	$9.84	$9.84	$9.84
Total Tonnage Inbound	2,252,683.97	2,275,210.81	2,297,962.92	2,320,942.55	2,344,151.97
Total Operating Costs	$22,164,428.73	$22,386,073.02	$22,609,933.75	$22,836,033.08	$23,064,393.41
Offsite Disposal and Long Haul Trucking					
Tonnage Based Growth Rate	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost	$83.18	$83.18	$83.18	$83.18	$83.18
Total Tonnage Disposed	1,004,988.22	1,015,038.10	1,025,188.48	1,035,440.37	1,045,794.77
Total Operating Costs	$83,592,775.07	$84,428,702.82	$85,272,989.85	$86,125,719.75	$86,986,976.94
Post Closure Care O&M					
Tonnage Based Growth Rate (not used)	1.00%	1.00%	1.00%	1.00%	1.00%
O&M Unit Cost (starts in year 67, 71 years from 2018)	$1,606.00	$1,606.00	$1,606.00	$1,606.00	$1,606.00
Units (acres)	365	365	365	365	365
Total Operating Costs	$586,190.00	$586,190.00	$586,190.00	$586,190.00	$586,190.00

Appendix 4C
Present Value Analysis

Appendix 4C. Present Value Analysis

The present value analysis was completed to provide a way to compare the lifecycle capital and operating costs of the three Plan Concepts. A present value analysis calculates the current (in this case 2018) worth of a future sum of money or stream of cash flows given a specified rate of return. Future cash flows are adjusted per estimated discount rates. The present value analysis provides a level perspective to facilitate comparison of the Plan Concepts, in which varying costs in each Plan Concept are incurred at different points in time. The following sections discuss some of the key components for this present value analysis.

4C.1 Components of the Analysis

4C.1.1 Period of Analysis

While the present value analysis by design brings all costs after the base year (2018) back to the base year, in this case, the CH2M Team assumed that the capital and operations and maintenance (O&M) costs for each Plan Concept do not start until 2022 (termed Year 0 of the master plan project). The analysis period was set to start in 2022, as the CH2M Team and WPWMA staff estimated that 2022 was the soonest that the project would be implemented given permitting, engineering, and construction preparation. The period of analysis includes costs from years 2022 (analysis Year 0) through 2109 (analysis Year 87). This period was chosen based on the longest landfill life amongst the three Plan Concepts. Plan Concept 1 is expected to have the longest landfill life at approximately 90 years from 2018. After factoring an additional out year for the start of post-closure, the period of analysis is reflected as 87 years from 2022.

4C.1.2 Discount Rate

A real discount rate of 2 percent was used in the present value analysis (Appendix 4C-1). A real discount rate accounts for the time value of money but does not include the effects of inflation.

A real discount rate was utilized instead of a nominal discount rate; a nominal discount rate includes inflation, unlike the real discount rate. The rationale behind using a real discount rate is that inflation is often difficult to forecast, and changes in inflation rates are typically unlikely to have noticeable effects on the relative costs of alternatives when comparing one alternative to another. Therefore, using a real discount rate results in a simpler model without requiring highly speculative forecasts of inflation in future years.

4C.1.3 Cost Inputs and Timing

The present value analysis includes two main cost inputs: capital costs (both initial capital and replacement capital) and O&M (or operational) costs. Revenues were not modeled as part of this analysis.

The initial capital outlay and capital replacement cost inputs follow timing and phasing sequences unique to each Plan Concept, as detailed in Sections 2 and 4 of the main report.

The operational cost inputs follow timing and phasing sequences, as detailed in Section 4 of the main report. Most types of operational costs are incurred annually. However, some operational costs, such as those for landfill operations, post-closure care, and offsite disposal and long-haul trucking, have specific start and end dates depending on facility operations.

4C.1.4 Remaining Useful Life/Liability

Remaining useful life refers to the dollar value associated with the remaining life of a constructed element, such as a concrete pad, at the end of the period of analysis. Remaining useful life is factored into the present value analysis as a credit for years outside of the analysis period. Similarly, remaining liability refers to the liable cost remaining in mandated periods, such as the post-closure care period. The remaining liability is factored into the present value analysis as an additional cost for years outside of the analysis period.

4C.2 Present Value Analysis Results

The results of the present value analysis are presented in Appendix 4C-2. Table 4C-1 shows the total present values of the three Plan Concepts.

Table 4C-1. Summary of Present Value Costs

Plan Concept	Capital Spending (Present Value)	Operational Costs (Present Value)	Total Project Present Value
0	$394,300,000	$2,697,800,000	$3,092,100,000
1	$407,300,000	$1,710,000,000	$2,117,300,000
2	$539,900,000	$1,957,300,000	$2,497,200,000

Notes:

Values are shown in present value 2018 dollars.

As an additional way to compare the Plan Concepts, the CH2M Team calculated the annualized present value cost for each Plan Concept. The annualized present value represents an annual value when capital expenditures and O&M costs are normalized into an annual cost that includes all charges. The annualized capital cost can be a useful comparison between how the Plan Concepts look relative to each other given their differences in capital and operating expenditures over the evaluation period; but this value does not represent the actual estimated costs in any given year. The annualized cost represents the value in current dollars (2018), with later years being the discounted annualized cost as appropriate for each year. The annualized present values in 2018 dollars are best for comparison and are presented in Table 4C-2.

Table 4C-2. Summary of Annualized Present Value Costs

Plan Concept	Annualized Capital Spending (Present Value)	Annualized Operational Costs (Present Value)	Annualized Project Present Value
0	$9,400,000	$64,600,000	$74,100,000
1	$9,800,000	$41,000,000	$50,700,000
2	$12,900,000	$46,900,000	$59,800,000

Notes:

Values are shown in present value 2018 dollars.

Values represent the total Plan Concept present value cost spread out on an equal per year basis, discounted and applied from year 2019 through 2109.

4C.2.1 Capital Spending at a Glance

For charts showing capital spending over the analysis period, refer to Appendix 4C-3. These charts present capital spending (including capital replacement costs) in the following formats:

- Annual Capital Spending for Years 0 through 87 (dollars not adjusted for present value)
  - All Plan Concepts
  - Plan Concept 0
  - Plan Concept 1
  - Plan Concept 2
- Annual Capital Spending for Years 0 through 10 (dollars not adjusted for present value)
  - All Plan Concepts

- Plan Concept 0
- Plan Concept 1
- Plan Concept 2

Note that the charts in Appendix 4C-3 depict total initial capital and have not been adjusted to reflect present values.

4C.2.2 Cumulative Spending at a Glance

Cumulative capital spending, operational spending, and total project spending over the analysis period is presented on charts in Appendix 4C-4. The charts present cumulative spending in the following formats:

- Cumulative Total Spending for All Plan Concepts (dollars reflect present value)
  - Years 0 through 87
  - Years 0 through 20
- Cumulative Capital Spending for All Plan Concepts (dollars reflect present value)
  - Years 0 through 87
  - Years 0 through 20
- Cumulative Operational Spending for All Plan Concepts (dollars reflect present value)
  - Years 0 through 87
  - Years 0 through 20

Note that the real discount rate was applied to values in Appendix 4C-4; thus, these values reflect present value 2018 dollars (consistent with Tables 4C-1 and 4C-2).

Appendix 4C-1
Discount Rate Documentation

Documentation for Real Discount Rate

From: Pitzler, Dan/SEA
Sent: Friday, October 19, 2018 11:52 AM
To: McRae, Jennifer/SJC; Goodrich, Janet/SAC
Subject: Discount Rate

Didn't find too much current stuff from local cities. Here's another approach. Current benchmark 30-year bond yield is 3.45%, see https://www.bloomberg.com/quote/BVMB30Y:IND

CBOs Budget and Economic Outlook: 2018 to 2028 at https://www.cbo.gov/system/files?file=115th-congress-2017-2018/reports/53651-outlook.pdf CPI inflation ranges from 2.0% to 2.5% over then next 10 years.

Thus, the real discount rate could be as low as 1-1.5%. That is quite low historically (excluding the past 5-10 years).

On the basis of this information, I recommend a 2% real discount rate.

Dan

Daniel R. Pitzler
Jacobs
Principal Economist, Decision Science Practice Lead
425.233.3592
425.241.1837 mobile
dan.pitzler@jacobs.com

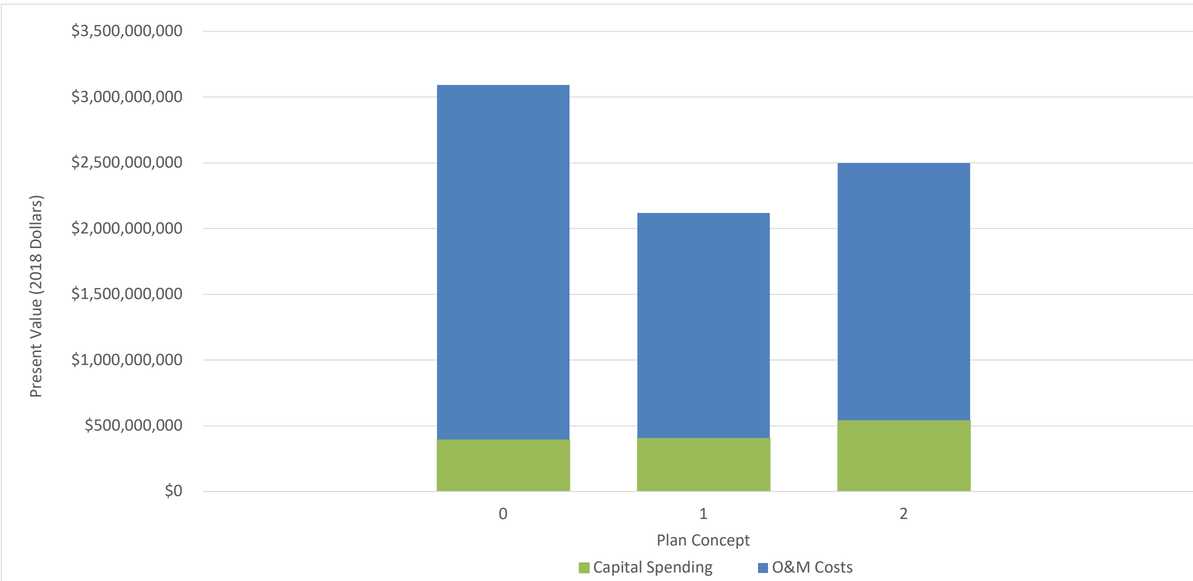
1100 112th Ave. N.E.
Bellevue, WA.
USA
www.jacobs.com

Appendix 4C-2
Present Value Analysis Results

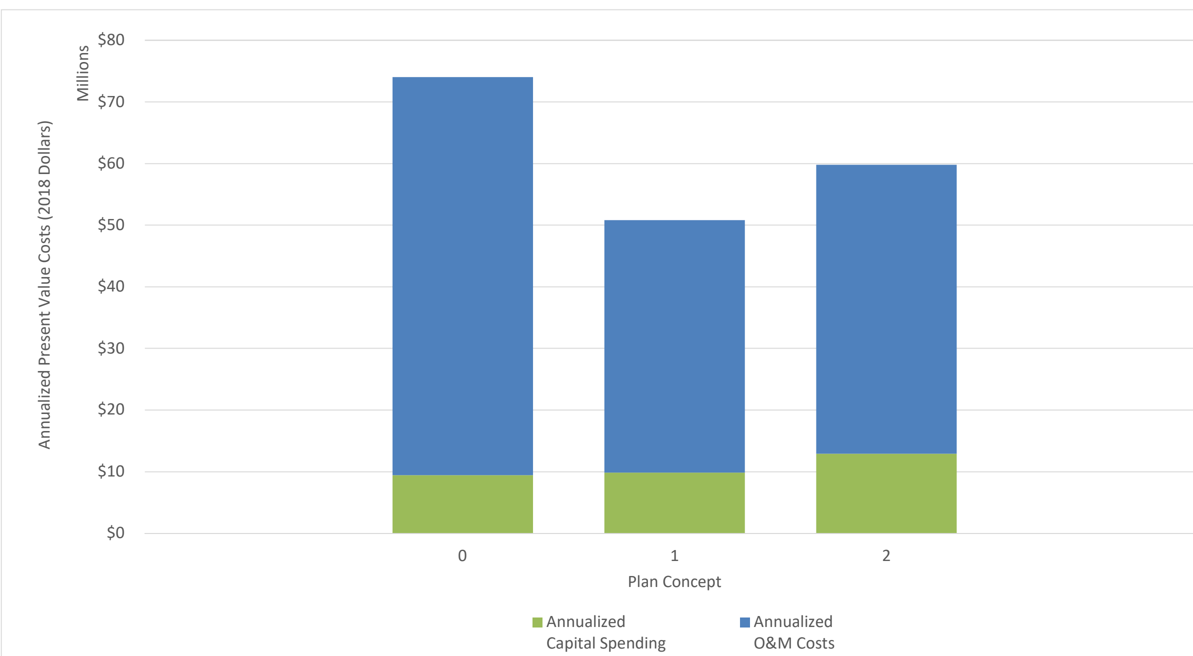
Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018

Summary of Concept Costs, Present Value, 2018 Dollars (Rounded)

Plan Concept	Capital Spending (PV)	O&M Costs (PV)	Total Project Present Value (PV)	Annualized Capital Spending (PV)	Annualized O&M Costs (PV)	Annualized Project Present Value (PV)
0 Existing Site Reconfigured	$394,300,000	$2,697,800,000	**$3,092,100,000**	$9,400,000	$64,600,000	**$74,100,000**
1 Landfill East	$407,300,000	$1,710,000,000	**$2,117,300,000**	$9,800,000	$41,000,000	**$50,700,000**
2 Landfill West	$539,900,000	$1,957,300,000	**$2,497,200,000**	$12,900,000	$46,900,000	**$59,800,000**



Numbers shown are the present value of costs.



Client: WPWMA **Model Assumptions**
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018

Parameter	Variable Name	Value	Units	Notes
Real Discount Rate	RDR	2%		Per Jacobs Economist (Dan Pitzler) email, 10/19/2018: Recommends using 2%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 0

		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
BACKGROUND DATA																				
Total Disposed Tons		238,419	243,474	248,636	253,907	259,289	264,786	270,400	276,132	281,986	287,964	294,069	300,304	306,670	313,171	319,811	326,591	333,514	340,585	347,805
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	-	-	-	-	-	-	1,799,189	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Buyback (220' x 230')	$ 2,405,422	-	-	-	-	-	-	2,655,780	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - HHW (300' x 100')	$ 1,619,011	-	-	-	-	-	-	1,787,519	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	-	-	-	-	-	-	1,909,078	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Tipping Area	$ 8,021,635	-	-	-	-	-	-	8,856,534	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 10,539,547	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C&D																				
C&D - C&D Pad	$ 8,858,654	-	-	-	-	-	-	-	-	10,175,809	-	-	-	-	-	-	-	-	-	-
C&D - Processing Line	$ 6,897,345	-	-	-	-	-	-	-	-	7,922,881	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 34,424,388	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,636,512
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	-	-	-	-	-	-	-	-	-	-	-	702,273	-	-	-	-	351,136	-	-
Compost - Wood Waste Pad (115' x 225')	$ 587,766	-	-	-	-	-	-	-	-	-	-	-	384,578	-	-	-	-	192,289	-	-
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	-	-	-	-	-	-	-	-	-	-	-	2,228,708	-	-	-	-	116,835	-	-
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	-	-	-	-	-	-	-	-	-	-	-	3,779,991	-	-	-	-	1,076,230	-	-
Compost - Temporary Positive ASP System	$ 434,973	-	-	-	-	-	470,829	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Active Composting System (205' x 880')	$ 11,318,608	-	-	-	-	-	-	-	-	-	-	-	7,405,812	-	-	-	-	3,702,906	-	-
Compost - Biofilter (135' x 880')	$ 3,914,558	-	-	-	-	-	-	-	-	-	-	-	2,561,311	-	-	-	-	1,280,656	-	-
Compost - ASP Curing System (185' x 880')	$ 10,095,020	-	-	-	-	-	4,853,713	-	-	-	-	-	3,671,261	-	-	-	-	1,835,630	-	-
Compost - Dedicated Stormwater Ponds	$ 977,164	-	-	-	-	-	1,057,713	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Miscellaneous Equipment	$ 11,464	-	-	-	-	-	12,409	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 55,736,072	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12,409	-	-	-
Landfill																				
Landfill Construction	$ 41,298,977	-	-	-	-	-	-	18,071,362	-	-	-	-	-	-	-	-	18,071,362	-	-	-
Unlined Area Excavation/Backfill	$ 93,063,925	-	-	-	-	-	40,731,437	40,731,437	20,882,042	-	-	-	-	-	-	-	-	-	-	-
Stockpile Relocation	$ 30,091,396	-	-	-	-	-	6,681,948	-	-	-	-	-	6,681,948	-	-	-	13,363,896	-	-	-
Closure Costs	$ 27,436,388	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,405,203	-	-
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 5,603,652	-	-	-	-	-	-	-	6,310,623	-	-	-	-	-	-	-	-	-	-	-
Admin Staff Parking Lot	$ 66,044	-	-	-	-	-	-	-	74,376	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,896,212	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Main Entrance																				
Main Entrance - Roadways	$ 671,737	-	-	-	-	-	-	-	-	-	-	802,788	-	-	-	-	-	-	-	-
Main Entrance - Scale/Building	$ 1,329,017	-	-	-	-	-	381,826	-	-	-	-	1,166,732	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,953,480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Western Entrance																				
Western Entrance - Roadways	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Western Entrance - Scale/Building	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overpass																				
Overpass	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,793,903	-	-	-	-	-	-	-	-	-	-	-	8,281,730	-	-	-	-	-	-	-
Replacement Costs	$ 2,221,159	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300'	$ 1,668,843	-	-	-	-	-	-	1,842,538	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 511,471	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stormwater Pond																				
New Stormwater Ponds	$ 1,124,789	-	-	-	-	-	-	627,077	627,077	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 166,994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 201,056	-	-	-	-	-	217,629	-	-	-	-	-	-	-	-	-	-	-	-	-
General Elements																				
Special Permits and Allow																				
Special Permits	$ 3,629,218	-	-	-	-	-	-	-	-	-	-	-	4,423,996	-	-	-	-	-	-	-
Geotechnical Investigation	$ 51,782	-	-	-	-	-	-	30,000	-	-	-	-	30,000	-	-	-	-	-	-	-
Wetlands Mitigation																				
Wetlands Mitigation	$ 912,254	-	-	-	-	-	987,453	-	-	-	-	-	-	-	-	-	-	-	-	-
Site Beautification																				
Facility Beautification	$ 805,138	-	-	-	-	-	-	882,548	3,818	-	-	2,864	-	-	-	-	-	-	-	-
Replacement Costs	$ 521,652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Site-wide Demolition																				
Site-wide Demolition and Disposa	$ 2,596,687	-	-	-	-	-	-	2,866,952	-	-	-	-	-	-	-	-	-	-	-	-
Site Utilities																				
Shared Site Utilities	$ 2,319,928	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,061,096	-	-	-
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 229,532	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 236,792	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	$ 394,294,246	-	-	-	-	-	55,394,958	82,060,012	27,897,936	18,098,690	-	1,972,384	40,151,609	-	-	-	34,508,763	22,960,885	-	7,636,512
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-26)	$ 76,539,405	-	-	-	-	-	3,021,799	3,085,861	3,151,281	3,218,088	3,286,312	3,355,982	3,427,128	3,499,784	3,573,979	3,649,747	3,727,122	3,806,137	3,886,827	3,969,228
Public Area Operations (years 0-87)	$ 89,003,429	-	-	-	-	-	787,743	883,218	1,343,551	1,372,034	1,401,121	1,430,825	1,461,158	1,492,135	1,523,768	1,556,072	1,589,061	1,622,749	1,657,151	1,692,283
C&D Area Operations (years 0-87)	$ 633,637,876	-	-	-	-	-	9,084,873	9,277,473	9,474,155	9,675,007	9,880,117	10,089,576	10,303,475	10,521,908	10,744,973	10,972,766	11,205,389	11,442,943	11,685,534	11,933,267
Compost Area Operations (years 0-87)	$ 229,602,069	-	-	-	-	-	3,291,952	3,361,742	3,433,011	3,505,791	3,580,113	3,656,012	3,733,519	3,812,670	3,893,498	3,976,040	4,060,333	4,146,412	4,234,316	4,324,083
WPWMA Operational Costs (years 0-87)	$ 472,274,111	-	-	-	-	-	5,723,033	5,844,361	5,968,261	6,094,788	6,223,998	7,602,920	7,764,102	7,928,701	8,096,789	8,268,441	8,443,732	8,622,739	8,805,541	8,992,219
Long Haul Trucking (years 27-87)	$ 1,193,833,093	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Post Closure Care Costs (years 27-56)	$ 2,938,877	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	$ 2,697,828,860	-	-	-	-	-	21,909,400	22,452,654	23,370,259	23,865,709	24,371,662	26,135,314	26,689,383	27,255,198	27,833,008	28,423,068	29,025,637	29,640,980	30,269,369	30,911,080
ANNUAL NET COST		-	-	-	-	-	77,304,358	104,512,666	51,268,195	41,964,398	24,371,662	28,107,698	66,840,992	27,255,198	27,833,008	28,423,068	63,534,400	52,601,865	30,269,369	38,547,592
CUMULATIVE SPENDING		-	-	-	-	-	77,304,358	181,817,024	233,085,219	275,049,617	299,421,279	327,528,977	394,369,968	421,625,166	449,458,174	477,881,241	541,415,641	594,017,506	624,286,875	662,834,467

Project Life	
Total Capital Spending (PV	$ 394,294,246
Annualized Capital Spending (PV	$ 9,443,746
Total Operating and Maintenance Spending (PV	$ 2,697,828,860
Annualized Operating and Maintenance Spending (PV	$ 64,615,728
Project Total (PV)	$ 3,092,123,106
Annualized Project Total Spending (PV	$ 74,059,474
Real Discount Rate	2.0%

Notes:
(a) Pink cells denote present values. All other values are shown in 2018 dollar
(b) Grants, avoided spending, and revenue impacts are not included in this PV analysis because they are difficult to quantify and forecast. Not including revenues will lend a more conservative ana
(c) Project costs begin in 2022. This Year 0 is assumed to be reasonable due to permitting activities needed prior to constructi
(d) Demolition costs for replacement components are not included in capital replacement cost
(e) Postclosure care for partial closure modules is covered in required O&M. Assume postclosure care costs begin after full closure of land
(f) Annualized Capital Spending (PV), Annualized Operating and Maintenance Spending (PV), and Annualized Project Total Spending (PV) present the equivalent annual spending per year starting in 2

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 0

		2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054
		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
BACKGROUND DATA																				
Total Disposed Tons		355,179	362,709	370,398	378,250	386,269	394,458	402,821	411,361	420,081	428,987	438,082	447,369	456,853	466,538	476,429	481,193	486,005	490,865	495,774
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Buyback (220' x 230')	$ 2,405,422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - HHW (300' x 100')	$ 1,619,011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Tipping Area	$ 8,021,635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 10,539,547	-	-	-	-	-	-	-	3,833,052	-	-	-	-	1,799,189	-	-	-	-	381,908	-
C&D																				
C&D - C&D Pad	$ 8,858,654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C&D - Processing Line	$ 6,897,345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 34,424,388	-	-	-	-	-	-	-	-	-	15,521,367	-	-	-	-	-	-	-	-	-
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	-	-	351,136	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Wood Waste Pad (115' x 225')	$ 587,766	-	-	192,289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	-	-	116,835	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	-	-	1,076,230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Temporary Positive ASP System	$ 434,973	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Active Composting System (205' x 880')	$ 11,318,608	-	-	3,702,906	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Biofilter (135' x 880')	$ 3,914,558	-	-	1,280,656	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - ASP Curing System (185' x 880')	$ 10,095,020	-	-	1,835,630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Dedicated Stormwater Ponds	$ 977,164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Miscellaneous Equipment	$ 11,464	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 55,736,072	-	-	4,716,450	-	-	-	12,409	546,940	-	-	-	-	23,507,272	-	-	-	570,333	9,668,881	-
Landfill																				
Landfill Construction	$ 41,298,977	-	-	-	-	-	-	18,071,362	-	-	-	-	-	-	-	-	-	-	-	-
Unlined Area Excavation/Backfill	$ 93,063,925	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stockpile Relocation	$ 30,091,396	-	-	-	-	-	-	13,363,896	-	-	-	-	-	-	-	-	-	-	-	-
Closure Costs	$ 27,436,388	-	-	-	-	-	-	-	14,405,203	-	-	-	-	14,405,203	-	-	-	-	-	-
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 5,603,652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Admin Staff Parking Lot	$ 66,044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,896,212	-	-	-	-	-	-	-	-	-	-	-	-	-	74,376	-	-	-	-	105,957
Main Entrance																				
Main Entrance - Roadways	$ 671,737	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Main Entrance - Scale/Building	$ 1,329,017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,953,480	-	57,274	-	-	-	-	-	-	-	-	-	677,995	-	-	-	-	802,788	-	-
Western Entrance																				
Western Entrance - Roadways	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Western Entrance - Scale/Building	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overpass																				
Overpass	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,793,903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 2,221,159	-	-	-	-	-	-	-	-	-	-	-	-	155,718	-	-	-	-	-	-
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300	$ 1,668,843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 511,471	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35,796	-
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stormwater Pond																				
New Stormwater Ponds	$ 1,124,789	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 166,994	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	112,196	112,196
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 201,056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Elements																				
Special Permits and Allow																				
Special Permits	$ 3,629,218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geotechnical Investigation	$ 51,782	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wetlands Mitigation																				
Wetlands Mitigation	$ 912,254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Site Beautification																				
Facility Beautification	$ 805,138	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 521,652	-	-	263,120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	263,120	-
Site-wide Demolition																				
Site-wide Demolition and Disposa	$ 2,596,687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Site Utilities																				
Shared Site Utilities	$ 2,319,928	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 229,532	-	-	-	-	-	-	-	-	-	-	-	-	415,766	-	-	-	-	-	-
Replacement Costs	$ 236,792	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	$ 394,294,246	-	57,274	13,535,252	-	-	-	31,447,667	18,785,196	-	15,521,367	-	677,995	40,283,148	74,376	-	-	1,373,121	10,461,901	218,152
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-26)	$ 76,539,405	4,053,375	4,139,307	4,227,060	4,316,674	4,408,187	4,501,641	4,597,076	4,694,534	4,794,058	4,895,692	4,999,481	5,105,470	5,213,706	-	-	-	-	-	-
Public Area Operations (years 0-87)	$ 89,003,429	1,728,159	1,764,796	1,802,210	1,840,417	1,879,434	1,919,278	1,959,966	2,001,518	2,043,950	2,087,281	2,131,532	2,176,720	2,222,867	2,269,992	2,318,115	2,341,297	2,364,710	2,388,357	2,412,240
C&D Area Operations (years 0-87)	$ 633,637,876	12,186,252	12,444,601	12,708,426	12,977,845	13,252,975	13,533,938	13,820,858	14,113,860	14,413,074	14,718,631	15,030,666	15,349,316	15,674,722	16,007,026	16,346,375	16,509,838	16,674,937	16,841,686	17,010,103
Compost Area Operations (years 0-87)	$ 229,602,069	4,415,754	4,509,368	4,604,966	4,702,591	4,802,286	4,904,095	5,008,062	5,114,233	5,222,654	5,333,375	5,446,442	5,561,907	5,679,819	5,800,231	5,923,196	5,982,428	6,042,252	6,102,675	6,163,702
WPWMA Operational Costs (years 0-87)	$ 472,274,111	9,182,854	9,377,530	9,576,334	9,779,352	9,986,675	10,198,392	10,414,598	10,635,387	10,860,858	11,091,108	11,326,239	11,566,356	11,811,562	12,061,967	12,317,681	12,440,858	12,565,267	12,690,919	12,817,828
Long Haul Trucking (years 27-87)	$ 1,193,833,093	-	-	-	-	-	-	-	-	-	-	-	-	-	47,356,803	48,360,768	48,844,375	49,332,819	49,826,147	50,324,409
Post Closure Care Costs (years 27-56)	$ 2,938,877	-	-	-	-	-	-	-	-	-	-	-	-	-	237,688	237,688	237,688	237,688	237,688	237,688
Subtotal	$ 2,697,828,860	31,566,394	32,235,602	32,918,997	33,616,879	34,329,557	35,057,344	35,800,560	36,559,531	37,334,594	38,126,087	38,934,360	39,759,768	40,602,676	83,733,707	85,503,823	86,356,484	87,217,672	88,087,472	88,965,970
ANNUAL NET COST		31,566,394	32,292,876	46,454,249	33,616,879	34,329,557	35,057,344	67,248,227	55,344,727	37,334,594	53,647,454	38,934,360	40,437,763	80,885,823	83,808,084	85,503,823	86,356,484	88,590,793	98,549,373	89,184,122
CUMULATIVE SPENDING		694,400,861	726,693,737	773,147,986	806,764,866	841,094,423	876,151,767	943,399,994	998,744,721	1,036,079,314	1,089,726,768	1,128,661,128	1,169,098,892	1,249,984,715	1,333,792,798	1,419,296,621	1,505,653,106	1,594,243,899	1,692,793,272	1,781,977,394

Project Life	
Total Capital Spending (PV)	$ 394,294,246
Annualized Capital Spending (PV	$ 9,443,746
Total Operating and Maintenance Spending (PV	$ 2,697,828,860
Annualized Operating and Maintenance Spending (PV	$ 64,615,728
Project Total (PV)	$ 3,092,123,106
Annualized Project Total Spending (PV	$ 74,059,474
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 0

		2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073
		33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
BACKGROUND DATA																				
Total Disposed Tons		500,732	505,739	510,796	515,904	521,063	526,274	531,537	536,852	542,221	547,643	553,119	558,651	564,237	569,879	575,578	581,334	587,147	593,019	598,949
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,405,422	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,619,011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 8,021,635	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 10,539,547	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,833,052	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,793,139
C&D																				
C&D - C&D Pad	$ 8,858,654	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,897,345	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 34,424,388	$ 7,922,881	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,521,367	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 587,766	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 11,318,608	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Biofilter (135' x 880')	$ 3,914,558	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,095,020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 977,164	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,464	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 55,736,072	$ -	$ -	$ -	$ 14,571,471	$ -	$ -	$ -	$ 12,409	$ 640,010	$ -	$ -	$ -	$ -	$ 23,600,342	$ -	$ -	$ -	$ 12,409	$ 9,668,881
Landfill																				
Landfill Construction	$ 41,298,977	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unlined Area Excavation/Backfill	$ 93,063,925	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 30,091,396	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closure Costs	$ 27,436,388	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 5,603,652	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 66,044	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,896,212	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																				
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 1,329,017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ -	$ 500,192	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 677,995	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																				
Western Entrance - Roadways	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																				
Overpass	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,793,903	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,221,159	$ -	$ -	$ -	$ 143,185	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300'	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,663,557
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																				
New Stormwater Ponds	$ 1,124,789	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 166,994	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 201,056	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																				
Special Permits and Allow																				
Special Permits	$ 3,629,218	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 51,782	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																				
Wetlands Mitigation	$ 912,254	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																				
Facility Beautification	$ 805,138	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 521,652	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 263,120	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																				
Site-wide Demolition and Disposa	$ 2,596,687	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																				
Shared Site Utilities	$ 2,319,928	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 229,532	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 236,792	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766	$ -	$ -
Subtotal	$ 394,294,246	$ 7,922,881	$ -	$ 500,192	$ 14,714,656	$ -	$ -	$ -	$ 12,409	$ 4,473,062	$ -	$ 15,521,367	$ -	$ 677,995	$ 24,019,180	$ -	$ -	$ 415,766	$ 12,409	$ 24,125,577
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-26)	$ 76,539,405	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area Operations (years 0-87)	$ 89,003,429	$ 2,436,363	$ 2,460,726	$ 2,485,333	$ 2,510,187	$ 2,535,289	$ 2,560,642	$ 2,586,248	$ 2,612,110	$ 2,638,232	$ 2,664,614	$ 2,691,260	$ 2,718,173	$ 2,745,354	$ 2,772,808	$ 2,800,536	$ 2,828,541	$ 2,856,827	$ 2,885,395	$ 2,914,249
C&D Area Operations (years 0-87)	$ 633,637,876	$ 17,180,204	$ 17,352,006	$ 17,525,526	$ 17,700,781	$ 17,877,789	$ 18,056,567	$ 18,237,133	$ 18,419,504	$ 18,603,699	$ 18,789,736	$ 18,977,633	$ 19,167,410	$ 19,359,084	$ 19,552,675	$ 19,748,202	$ 19,945,684	$ 20,145,140	$ 20,346,592	$ 20,550,058
Compost Area Operations (years 0-87)	$ 229,602,069	$ 6,225,339	$ 6,287,592	$ 6,350,468	$ 6,413,973	$ 6,478,112	$ 6,542,894	$ 6,608,322	$ 6,674,406	$ 6,741,150	$ 6,808,561	$ 6,876,647	$ 6,945,413	$ 7,014,867	$ 7,085,016	$ 7,155,866	$ 7,227,425	$ 7,299,699	$ 7,372,696	$ 7,446,423
WPWMA Operational Costs (years 0-87)	$ 472,274,111	$ 12,946,007	$ 13,075,467	$ 13,206,221	$ 13,338,284	$ 13,471,667	$ 13,606,383	$ 13,742,447	$ 13,879,871	$ 14,018,670	$ 14,158,857	$ 14,300,445	$ 14,443,450	$ 14,587,884	$ 14,733,763	$ 14,881,101	$ 15,029,912	$ 15,180,211	$ 15,332,013	$ 15,485,333
Long Haul Trucking (years 27-87)	$ 1,193,833,093	$ 50,827,653	$ 51,335,929	$ 51,849,289	$ 52,367,781	$ 52,891,459	$ 53,420,374	$ 53,954,578	$ 54,494,123	$ 55,039,065	$ 55,589,455	$ 56,145,350	$ 56,706,803	$ 57,273,871	$ 57,846,610	$ 58,425,076	$ 59,009,327	$ 59,599,420	$ 60,195,414	$ 60,797,368
Post Closure Care Costs (years 27-56)	$ 2,938,877	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688	$ 237,688
Subtotal	$ 2,697,828,860	$ 89,853,253	$ 90,749,408	$ 91,654,526	$ 92,568,694	$ 93,492,004	$ 94,424,547	$ 95,366,416	$ 96,317,703	$ 97,278,503	$ 98,248,911	$ 99,229,024	$ 100,218,937	$ 101,218,749	$ 102,228,560	$ 103,248,469	$ 104,278,577	$ 105,318,985	$ 106,369,798	$ 107,431,120
ANNUAL NET COST		$ 97,776,134	$ 90,749,408	$ 92,154,717	$ 107,283,350	$ 93,492,004	$ 94,424,547	$ 95,366,416	$ 96,330,112	$ 101,751,565	$ 98,248,911	$ 114,750,391	$ 100,218,937	$ 101,896,744	$ 126,247,740	$ 103,248,469	$ 104,278,577	$ 105,734,751	$ 106,382,208	$ 131,556,696
CUMULATIVE SPENDING		$ 1,879,753,528	$ 1,970,502,937	$ 2,062,657,654	$ 2,169,941,004	$ 2,263,433,008	$ 2,357,857,555	$ 2,453,223,971	$ 2,549,554,083	$ 2,651,305,648	$ 2,749,554,560	$ 2,864,304,950	$ 2,964,523,887	$ 3,066,420,632	$ 3,192,668,372	$ 3,295,916,841	$ 3,400,195,418	$ 3,505,930,169	$ 3,612,312,377	$ 3,743,869,073

Project Life	
Total Capital Spending (PV)	$ 394,294,246
Annualized Capital Spending (PV	$ 9,443,746
Total Operating and Maintenance Spending (PV	$ 2,697,828,860
Annualized Operating and Maintenance Spending (PV	$ 64,615,728
Project Total (PV)	$ 3,092,123,106
Annualized Project Total Spending (PV	$ 74,059,474
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 0

		2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092
		52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
BACKGROUND DATA																				
Total Disposed Tons		604,939	610,988	617,098	623,269	629,501	635,796	642,154	648,576	655,062	661,612	668,228	674,911	681,660	688,476	695,361	702,315	709,338	716,431	723,596
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Buyback (220' x 230')	$ 2,405,422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - HHW (300' x 100')	$ 1,619,011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Tipping Area	$ 8,021,635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 10,539,547	-	-	-	-	-	-	-	-	-	4,214,960	-	-	-	-	-	-	-	-	-
C&D																				
C&D - C&D Pad	$ 8,858,654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C&D - Processing Line	$ 6,897,345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 34,424,388	-	9,927,466	-	-	-	-	-	-	-	-	-	15,807,736	-	-	-	-	-	-	-
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Wood Waste Pad (115' x 225')	$ 587,766	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Temporary Positive ASP System	$ 434,973	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Active Composting System (205' x 880')	$ 11,318,608	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Biofilter (135' x 880')	$ 3,914,558	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - ASP Curing System (185' x 880')	$ 10,095,020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Dedicated Stormwater Ponds	$ 977,164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Miscellaneous Equipment	$ 11,464	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 55,736,072	-	-	-	-	14,385,331	-	-	-	570,333	546,940	-	-	-	-	23,693,412	-	-	-	12,409
Landfill																				
Landfill Construction	$ 41,298,977	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unlined Area Excavation/Backfill	$ 93,063,925	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stockpile Relocation	$ 30,091,396	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Closure Costs	$ 27,436,388	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 5,603,652	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Admin Staff Parking Lot	$ 66,044	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,896,212	6,279,042	-	-	-	-	-	-	-	-	-	105,957	-	-	-	-	-	-	-	-
Main Entrance																				
Main Entrance - Roadways	$ 671,737	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Main Entrance - Scale/Building	$ 1,329,017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,953,480	-	-	-	905,881	-	-	-	-	-	-	-	-	-	1,120,913	-	-	-	-	-
Western Entrance																				
Western Entrance - Roadways	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Western Entrance - Scale/Building	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overpass																				
Overpass	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,793,903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 2,221,159	-	-	-	-	7,982,828	-	-	-	-	-	-	-	-	-	298,903	-	-	-	-
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300	$ 1,668,843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 511,471	-	-	-	-	-	-	-	-	-	35,796	-	-	-	-	-	-	-	-	-
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stormwater Pond																				
New Stormwater Ponds	$ 1,124,789	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 166,994	-	-	-	-	-	-	-	-	-	112,196	112,196	-	-	-	-	-	-	-	-
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 201,056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Elements																				
Special Permits and Allow																				
Special Permits	$ 3,629,218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geotechnical Investigation	$ 51,782	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wetlands Mitigation																				
Wetlands Mitigation	$ 912,254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Site Beautification																				
Facility Beautification	$ 805,138	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 521,652	-	-	-	-	-	-	-	-	-	263,120	-	-	-	-	-	-	-	-	-
Site-wide Demolition																				
Site-wide Demolition and Disposa	$ 2,596,687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Site Utilities																				
Shared Site Utilities	$ 2,319,928	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 229,532	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 236,792	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	415,766	-
Subtotal	$ 394,294,246	6,279,042	9,927,466	-	905,881	22,368,159	-	-	-	570,333	5,173,012	218,152	15,807,736	-	1,120,913	23,992,315	-	-	415,766	12,409
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-26)	$ 76,539,405	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area Operations (years 0-87)	$ 89,003,429	2,943,391	2,972,825	3,002,554	3,032,579	3,062,905	3,093,534	3,124,469	3,155,714	3,187,271	3,219,144	3,251,335	3,283,849	3,316,687	3,349,854	3,383,353	3,417,186	3,451,358	3,485,872	3,520,730
C&D Area Operations (years 0-87)	$ 633,637,876	20,755,558	20,963,114	21,172,745	21,384,472	21,598,317	21,814,300	22,032,443	22,252,768	22,475,295	22,700,048	22,927,049	23,156,319	23,387,883	23,621,761	23,857,979	24,096,559	24,337,524	24,580,900	24,826,709
Compost Area Operations (years 0-87)	$ 229,602,069	7,520,887	7,596,096	7,672,057	7,748,778	7,826,266	7,904,528	7,983,574	8,063,409	8,144,043	8,225,484	8,307,739	8,390,816	8,474,724	8,559,471	8,645,066	8,731,517	8,818,832	8,907,020	8,996,090
WPWMA Operational Costs (years 0-87)	$ 472,274,111	15,640,187	15,796,588	15,954,554	16,114,100	16,275,241	16,437,993	16,602,373	16,768,397	16,936,081	17,105,442	17,276,496	17,449,261	17,623,754	17,799,991	17,977,991	18,157,771	18,339,349	18,522,742	18,707,970
Long Haul Trucking (years 27-87)	$ 1,193,833,093	61,405,342	62,019,396	62,639,590	63,265,985	63,898,645	64,537,632	65,183,008	65,834,838	66,493,187	67,158,118	67,829,700	68,507,997	69,193,077	69,885,007	70,583,857	71,289,696	72,002,593	72,722,619	73,449,845
Post Closure Care Costs (years 27-56)	$ 2,938,877	237,688	237,688	237,688	237,688	237,688	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	$ 2,697,828,860	108,503,054	109,585,708	110,679,188	111,783,603	112,899,062	113,787,988	114,925,868	116,075,126	117,235,877	118,408,236	119,592,319	120,788,242	121,996,124	123,216,085	124,448,246	125,692,729	126,949,656	128,219,153	129,501,344
ANNUAL NET COST		114,782,096	119,513,173	110,679,188	112,689,484	135,267,221	113,787,988	114,925,868	116,075,126	117,806,210	123,581,248	119,810,471	136,595,978	121,996,124	124,336,998	148,440,561	125,692,729	126,949,656	128,634,918	129,513,753
CUMULATIVE SPENDING		3,858,651,169	3,978,164,342	4,088,843,530	4,201,533,014	4,336,800,235	4,450,588,223	4,565,514,090	4,681,589,216	4,799,395,427	4,922,976,675	5,042,787,146	5,179,383,124	5,301,379,248	5,425,716,246	5,574,156,807	5,699,849,536	5,826,799,192	5,955,434,110	6,084,947,863

Project Life	
Total Capital Spending (PV)	$ 394,294,246
Annualized Capital Spending (PV	$ 9,443,746
Total Operating and Maintenance Spending (PV	$ 2,697,828,860
Annualized Operating and Maintenance Spending (PV	$ 64,615,728
Project Total (PV)	$ 3,092,123,106
Annualized Project Total Spending (PV	$ 74,059,474
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 0

		2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	Remaining Useful Life/Liability
		71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	
BACKGROUND DATA																			
Total Disposed Tons		730,832	738,140	745,521	752,977	760,506	768,111	775,793	783,550	791,386	799,300	807,293	815,366	823,519	831,755	840,072	848,473	856,958	
CAPITAL COSTS																			
	Element PV																		
Critical Elements																			
Public Area																			
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,405,422	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,619,011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 8,021,635	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 10,539,547	$ -	$ -	$ -	$ -	$ -	$ 1,799,189	$ -	$ -	$ -	$ -	$ 3,833,052	$ -	$ -	$ -	$ -	$ -	$ -	$ (6,819,909)
C&D																			
C&D - C&D Pad	$ 8,858,654	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,897,345	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 34,424,388	$ -	$ -	$ 7,636,512	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,521,367	$ -	$ -	$ -	$ -	$ (11,680,170)
Composting																			
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 587,766	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 11,318,608	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Biofilter (135' x 880')	$ 3,914,558	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,095,020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 977,164	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,464	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 55,736,072	$ 9,761,951	$ -	$ -	$ -	$ -	$ 14,478,401	$ -	$ -	$ -	$ 12,409	$ 546,940	$ -	$ -	$ -	$ -	$ 23,507,272	$ -	$ (28,735,328)
Landfill																			
Landfill Construction	$ 41,298,977	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unlined Area Excavation/Backfill	$ 93,063,925	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 30,091,396	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closure Costs	$ 27,436,388	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Necessary Supporting Elements																			
Admin																			
Admin Staff Bldg	$ 5,603,652	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 66,044	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,896,212	$ -	$ -	$ -	$ -	$ -	$ -	$ 74,376	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,923,685)
Main Entrance																			
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 1,329,017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ -	$ -	$ -	$ 57,274	$ -	$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ 677,995	$ -	$ -	$ (1,317,082)
Western Entrance																			
Western Entrance - Roadways	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																			
Overpass	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																			
Recyclables Storage Building	$ 6,793,903	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,221,159	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718	$ -	$ (3,224,362)
Primary Maintenance Facility																			
Primary Maintenance - Maintenance Area (250' x 300'	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (470,569)
Satellite Maintenance and Staff Facility																			
Satellite Maintenance and Staff - Maintenance Area	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																			
New Stormwater Ponds	$ 1,124,789	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 166,994	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (33,659)
Non-Critical Elements																			
Main Site HHW Facility																			
HHW Building (65' x 75')	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																			
Compost Pond Removal																			
Compost Pond Removal	$ 201,056	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																			
Special Permits and Allow																			
Special Permits	$ 3,629,218	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 51,782	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																			
Wetlands Mitigation	$ 912,254	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																			
Facility Beautification	$ 805,138	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 521,652	$ -	$ -	$ -	$ -	$ -	$ 263,120	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (70,165)
Site-wide Demolition																			
Site-wide Demolition and Disposa	$ 2,596,687	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																			
Shared Site Utilities	$ 2,319,928	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																			
MRF Upgrade to TS	$ 229,532	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 236,792	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (41,577)
Subtotal	$ 394,294,246	$ 9,761,951	$ -	$ 7,636,512	$ -	$ 57,274	$ 16,540,710	$ 74,376	$ -	$ -	$ 815,198	$ 4,379,992	$ -	$ 15,521,367	$ -	$ 677,995	$ 23,662,990	$ -	$ (54,316,505)
OPERATION AND MAINTENANCE COSTS																			
Landfill Operations (years 0-26)	$ 76,539,405	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area Operations (years 0-87)	$ 89,003,429	$ 3,555,938	$ 3,591,497	$ 3,627,412	$ 3,663,686	$ 3,700,323	$ 3,737,326	$ 3,774,699	$ 3,812,446	$ 3,850,571	$ 3,889,077	$ 3,927,967	$ 3,967,247	$ 4,006,919	$ 4,046,989	$ 4,087,459	$ 4,128,333	$ 4,169,616	$ -
C&D Area Operations (years 0-87)	$ 633,637,876	$ 25,074,976	$ 25,325,725	$ 25,578,983	$ 25,834,773	$ 26,093,120	$ 26,354,051	$ 26,617,592	$ 26,883,768	$ 27,152,606	$ 27,424,132	$ 27,698,373	$ 27,975,357	$ 28,255,110	$ 28,537,661	$ 28,823,038	$ 29,111,268	$ 29,402,381	$ -
Compost Area Operations (years 0-87)	$ 229,602,069	$ 9,086,051	$ 9,176,912	$ 9,268,681	$ 9,361,368	$ 9,454,982	$ 9,549,531	$ 9,645,027	$ 9,741,477	$ 9,838,892	$ 9,937,281	$ 10,036,653	$ 10,137,020	$ 10,238,390	$ 10,340,774	$ 10,444,182	$ 10,548,624	$ 10,654,110	$ -
WPWMA Operational Costs (years 0-87)	$ 472,274,111	$ 18,895,049	$ 19,084,000	$ 19,274,840	$ 19,467,588	$ 19,662,264	$ 19,858,887	$ 20,057,476	$ 20,258,050	$ 20,460,631	$ 20,665,237	$ 20,871,890	$ 21,080,609	$ 21,291,415	$ 21,504,329	$ 21,719,372	$ 21,936,566	$ 22,155,931	$ -
Long Haul Trucking (years 27-87)	$ 1,193,833,093	$ 74,184,343	$ 74,926,187	$ 75,675,449	$ 76,432,203	$ 77,196,525	$ 77,968,491	$ 78,748,175	$ 79,535,657	$ 80,331,014	$ 81,134,324	$ 81,945,667	$ 82,765,124	$ 83,592,775	$ 84,428,703	$ 85,272,990	$ 86,125,720	$ 86,986,977	$ -
Post Closure Care Costs (years 27-56)	$ 2,938,877	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 2,697,828,860	$ 130,796,358	$ 132,104,321	$ 133,425,364	$ 134,759,618	$ 136,107,214	$ 137,468,286	$ 138,842,969	$ 140,231,399	$ 141,633,713	$ 143,050,050	$ 144,480,550	$ 145,925,356	$ 147,384,610	$ 148,858,456	$ 150,347,040	$ 151,850,511	$ 153,369,016	$ -
ANNUAL NET COST		$ 140,558,308	$ 132,104,321	$ 141,061,876	$ 134,759,618	$ 136,164,488	$ 154,008,996	$ 138,917,345	$ 140,231,399	$ 141,633,713	$ 143,865,248	$ 148,860,543	$ 145,925,356	$ 162,905,976	$ 148,858,456	$ 151,025,035	$ 175,513,501	$ 153,369,016	$ (54,316,505)
CUMULATIVE SPENDING		$ 6,225,506,172	$ 6,357,610,493	$ 6,498,672,369	$ 6,633,431,987	$ 6,769,596,475	$ 6,923,605,472	$ 7,062,522,817	$ 7,202,754,216	$ 7,344,387,929	$ 7,488,253,176	$ 7,637,113,719	$ 7,783,039,075	$ 7,945,945,051	$ 8,094,803,507	$ 8,245,828,542	$ 8,421,342,043	$ 8,574,711,059	

Project Life	
Total Capital Spending (PV)	$ 394,294,246
Annualized Capital Spending (PV	$ 9,443,746
Total Operating and Maintenance Spending (PV	$ 2,697,828,860
Annualized Operating and Maintenance Spending (PV	$ 64,615,728
Project Total (PV)	$ 3,092,123,106
Annualized Project Total Spending (PV	$ 74,059,474
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 1

		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
BACKGROUND DATA																				
Total Disposed Tons		238,419	243,474	248,636	253,907	259,289	264,786	270,400	276,132	281,986	287,964	294,069	300,304	306,670	313,171	319,811	326,591	333,514	340,585	347,805
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,799,189	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,312,016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,655,780	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,556,143	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,787,519	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,566,109	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,909,078	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 7,710,145	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,856,534	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 9,944,624	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																				
C&D - C&D Pad	$ 5,187,662	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,727,598	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,962,015	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,686,627	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 30,018,948	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,636,512	$ -	$ -
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,272,140	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,404,545	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 696,648	$ -	$ -	$ -	$ -	$ -	$ -	$ 769,156	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 2,295,094	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,533,970	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 5,340,782	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,896,655	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ 470,829	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 12,612,437	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,405,812	$ -	$ -	$ -	$ 3,702,906	$ -	$ -	$ -	$ -	$ 3,702,906	$ -	$ -	$ -
Compost - Biofilter (135' x 880')	$ 4,362,031	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,561,311	$ -	$ -	$ -	$ 1,280,656	$ -	$ -	$ -	$ -	$ 1,280,656	$ -	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,385,374	$ -	$ -	$ -	$ -	$ -	$ -	$ 6,098,117	$ -	$ -	$ -	$ 3,049,059	$ -	$ -	$ -	$ -	$ 3,049,059	$ -	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 958,004	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,057,713	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,240	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,409	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 65,548,096	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,728,860	$ -	$ -
Landfill																				
Landfill Construction	$ 80,764,584	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,413,261	$ -	$ -	$ -
Unlined Area Excavation/Backfill	$ 28,805,273	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 10,330,726	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 13,363,896	$ -	$ -	$ -	$ -
Closure Costs	$ 26,862,765	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 13,757,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,493,528	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 153,249	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 172,583	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 4,575,941	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																				
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 976,269	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,166,732	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																				
Western Entrance - Roadways	$ 3,836,133	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,235,400	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ 557,883	$ -	$ -	$ -	$ -	$ -	$ -	$ 615,948	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 5,097,319	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 57,274	$ -	$ -
Overpass																				
Overpass	$ 8,077,434	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 9,278,433	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 202,642	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,705,808	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,174,342	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,150,884	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,842,538	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ 2,168,679	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,394,397	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ 830,818	$ -	$ -	$ -	$ -	$ -	$ -	$ 917,290	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,662,073	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																				
New Stormwater Ponds	$ 2,747,412	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,799,616	$ 1,258,425	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,121,267	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ 214,631	$ -	$ -	$ -	$ -	$ -	$ -	$ 236,971	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 64,841	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removec																				
Compost Pond Removal																				
Compost Pond Removal	$ 189,459	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 217,629	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																				
Special Permits and Allow																				
Special Permits	$ 7,049,350	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,427,576	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,854,387	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 129,110	$ -	$ -	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -
Wetlands Mitigation																				
Wetlands Mitigation	$ 11,897,382	$ -	$ -	$ -	$ -	$ -	$ 12,878,109	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																				
Facility Beautificatior	$ 2,442,986	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,690,865	$ 3,818	$ -	$ -	$ 2,864	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,435,788	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																				
Site-wide Demolition and Disposa	$ 2,491,847	$ -	$ -	$ -	$ -	$ -	$ -	$ 860,086	$ -	$ -	$ 2,006,867	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																				
Shared Site Utilities	$ 3,353,376	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,776,446	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 6,079	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 407,269,413	$ -	$ -	$ -	$ -	$ -	$ 13,348,938	$ 63,003,790	$ 20,704,800	$ 22,795,894	$ 2,006,867	$ 10,005,004	$ 10,113,420	$ -	$ 3,854,387	$ 13,363,896	$ 29,445,881	$ 12,452,645	$ -	$ -
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-86)	$ 209,146,517	$ -	$ -	$ -	$ -	$ -	$ 3,021,799	$ 3,085,861	$ 3,151,281	$ 3,218,088	$ 3,286,312	$ 3,355,982	$ 3,427,128	$ 3,499,784	$ 3,573,979	$ 3,649,747	$ 3,727,122	$ 3,806,137	$ 3,886,827	$ 3,969,228
Public Area Operations (years 0-87)	$ 93,669,410	$ -	$ -	$ -	$ -	$ -	$ 787,743	$ 804,443	$ 821,498	$ 921,063	$ 1,493,228	$ 1,524,884	$ 1,557,211	$ 1,590,224	$ 1,623,937	$ 1,658,365	$ 1,693,522	$ 1,729,425	$ 1,766,088	$ 1,803,529
C&D Area Operations (years 0-87)	$ 633,637,876	$ -	$ -	$ -	$ -	$ -	$ 9,084,873	$ 9,277,473	$ 9,474,155	$ 9,675,007	$ 9,880,117	$ 10,089,576	$ 10,303,475	$ 10,521,908	$ 10,744,973	$ 10,972,766	$ 11,205,389	$ 11,442,943	$ 11,685,534	$ 11,933,267
Compost Area Operations (years 0-87)	$ 229,602,069	$ -	$ -	$ -	$ -	$ -	$ 3,291,952	$ 3,361,742	$ 3,433,011	$ 3,505,791	$ 3,580,113	$ 3,656,012	$ 3,733,519	$ 3,812,670	$ 3,893,498	$ 3,976,040	$ 4,060,333	$ 4,146,412	$ 4,234,316	$ 4,324,083
WPWMA Operational Costs (years 0-87)	$ 527,108,690	$ -	$ -	$ -	$ -	$ -	$ 5,723,033	$ 5,844,361	$ 5,968,261	$ 6,094,788	$ 6,223,998	$ 8,538,150	$ 8,719,159	$ 8,904,005	$ 9,092,770	$ 9,285,536	$ 9,482,390	$ 9,683,417	$ 9,888,705	$ 10,098,345
Long Haul Trucking (year 87)	$ 14,349,561	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
Post Closure Care Costs (year 87)	$ 2,502,911	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	-
Subtotal	$ 1,710,017,034	$ -	$ -	$ -	$ -	$ -	$ 21,909,400	$ 22,373,880	$ 22,848,206	$ 23,414,738	$ 24,463,768	$ 27,164,603	$ 27,740,493	$ 28,328,591	$ 28,929,157	$ 29,542,455	$ 30,168,755	$ 30,808,333	$ 31,461,470	$ 32,128,453
ANNUAL NET COST		$ -	$ -	$ -	$ -	$ -	$ 35,258,338	$ 85,377,669	$ 43,553,006	$ 46,210,632	$ 26,470,634	$ 37,169,607	$ 37,853,913	$ 28,328,591	$ 32,783,544	$ 42,906,351	$ 59,614,637	$ 43,260,978	$ 31,461,470	$ 32,128,453
CUMULATIVE SPENDING		$ -	$ -	$ -	$ -	$ -	$ 35,258,338	$ 120,636,007	$ 164,189,013	$ 210,399,645	$ 236,870,279	$ 274,039,886	$ 311,893,799	$ 340,222,390	$ 373,005,935	$ 415,912,286	$ 475,526,922	$ 518,787,901	$ 550,249,370	$ 582,377,823

Project Life	
Total Capital Spending (PV)	$ 407,269,413
Annualized Capital Spending (PV	$ 9,754,514
Total Operating and Maintenance Spending (PV	$ 1,710,017,034
Annualized Operating and Maintenance Spending (PV	$ 40,956,636
Project Total (PV)	$ 2,117,286,447
Annualized Project Total Spending (PV	$ 50,711,151
Real Discount Rate	2.0%

Notes:
(a) Pink cells denote present values. All other values are shown in 2018 dollar
(b) Grants, avoided spending, and revenue impacts are not included in this analysis because they are difficult to quantify and forecast. Not including revenues will lend a more conservative ana
[c) Project costs begin in 2022. This Year 0 is assumed to be reasonable due to permitting activities needed prior to constructic
(d) Demolition costs for replacement components are not included in capital replacement cost
(e) Postclosure care for partial closure modules is covered in required O&M. Assume postclosure care costs begin after full closure of land
(f) Annualized Capital Spending (PV), Annualized Operating and Maintenance Spending (PV), and Annualized Project Total Spending (PV) present the equivalent annual spending per year starting in 2

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 1

		2036 14	2037 15	2038 16	2039 17	2040 18	2041 19	2042 20	2043 21	2044 22	2045 23	2046 24	2047 25	2048 26	2049 27	2050 28	2051 29	2052 30	2053 31	2054 32
BACKGROUND DATA																				
Total Disposed Tons		355,179	362,709	370,398	378,250	386,269	394,458	402,821	411,361	420,081	428,987	438,082	447,369	456,853	466,538	476,429	481,193	486,005	490,865	495,774
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,312,016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,556,143	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,566,109	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 7,710,145	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 9,944,624	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,490,808	$ -	$ -	$ 2,141,433	$ -	$ -	$ -	$ -	$ -	$ -
C&D																				
C&D - C&D Pad	$ 5,187,662	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,962,015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 30,018,948	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,073,157	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,686,627	$ -
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,272,140	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 696,648	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 2,295,094	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 5,340,782	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 12,612,437	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Biofilter (135' x 880')	$ 4,362,031	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,385,374	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 958,004	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,240	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 65,548,096	$ -	$ 546,940	$ -	$ -	$ -	$ -	$ 546,940	$ 26,366,970	$ -	$ -	$ -	$ 7,971,767	$ -	$ -	$ -	$ -	$ 7,971,767	$ 5,587,471	$ -
Landfill																				
Landfill Construction	$ 80,764,584	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,413,261	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,413,261	$ -	$ -
Unlined Area Excavation/Backfill	$ 28,805,273	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 10,330,726	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closure Costs	$ 26,862,765	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,809,463	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,809,463	$ -
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 13,757,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 153,249	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 4,575,941	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 172,583	$ -	$ -	$ -	$ -	$ 105,957
Main Entrance																				
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 976,269	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ 57,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 677,995	$ -	$ -	$ -	$ -	$ 802,788	$ -	$ -
Western Entrance																				
Western Entrance - Roadways	$ 3,836,133	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ 557,883	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 5,097,319	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 487,082	$ -	$ -	$ -	$ -	$ 4,235,400	$ -	$ -	$ -	$ -	$ 140,321	$ -
Overpass																				
Overpass	$ 8,077,434	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 202,642	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 213,822	$ -	$ -	$ -	$ -
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,705,808	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,150,884	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 35,796	$ -
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ 2,168,679	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ 830,818	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,662,073	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,443,238	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 317,870	$ -
Stormwater Pond																				
New Stormwater Ponds	$ 2,747,412	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,121,267	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 753,327	$ 753,327
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ 214,631	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 64,841	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 189,459	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																				
Special Permits and Allow																				
Special Permits	$ 7,049,350	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 129,110	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																				
Wetlands Mitigation	$ 11,897,382	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																				
Facility Beautification	$ 2,442,986	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,435,788	$ -	$ -	$ 452,917	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 452,917	$ -
Site-wide Demolition																				
Site-wide Demolition and Disposa	$ 2,491,847	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																				
Shared Site Utilities	$ 3,353,376	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 6,079	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 407,269,413	$ -	$ 604,214	$ 482,917	$ -	$ -	$ -	$ 21,960,201	$ 48,209,910	$ -	$ 3,490,808	$ -	$ 8,649,762	$ 6,562,551	$ 172,583	$ 213,822	$ -	$ 30,187,816	$ 23,783,792	$ 859,283
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-86)	$ 209,146,517	$ 4,053,375	$ 4,139,307	$ 4,227,060	$ 4,316,674	$ 4,408,187	$ 4,501,641	$ 4,597,076	$ 4,694,534	$ 4,794,058	$ 4,895,692	$ 4,999,481	$ 5,105,470	$ 5,213,706	$ 5,324,236	$ 5,437,110	$ 5,491,481	$ 5,546,396	$ 5,601,860	$ 5,657,878
Public Area Operations (years 0-87)	$ 93,669,410	$ 1,841,764	$ 1,880,810	$ 1,920,683	$ 1,961,401	$ 2,002,983	$ 2,045,446	$ 2,088,810	$ 2,133,092	$ 2,178,314	$ 2,224,494	$ 2,271,654	$ 2,319,813	$ 2,368,993	$ 2,419,215	$ 2,470,503	$ 2,495,208	$ 2,520,160	$ 2,545,361	$ 2,570,815
C&D Area Operations (years 0-87)	$ 633,637,876	$ 12,186,252	$ 12,444,601	$ 12,708,426	$ 12,977,845	$ 13,252,975	$ 13,533,938	$ 13,820,858	$ 14,113,860	$ 14,413,074	$ 14,718,631	$ 15,030,666	$ 15,349,316	$ 15,674,722	$ 16,007,026	$ 16,346,375	$ 16,509,838	$ 16,674,937	$ 16,841,686	$ 17,010,103
Compost Area Operations (years 0-87)	$ 229,602,069	$ 4,415,754	$ 4,509,368	$ 4,604,966	$ 4,702,591	$ 4,802,286	$ 4,904,095	$ 5,008,062	$ 5,114,233	$ 5,222,654	$ 5,333,375	$ 5,446,442	$ 5,561,907	$ 5,679,819	$ 5,800,231	$ 5,923,196	$ 5,982,428	$ 6,042,252	$ 6,102,675	$ 6,163,702
WPWMA Operational Costs (years 0-87)	$ 527,108,690	$ 10,312,430	$ 10,531,054	$ 10,754,312	$ 10,982,304	$ 11,215,129	$ 11,452,889	$ 11,695,691	$ 11,943,639	$ 12,196,844	$ 12,455,417	$ 12,719,472	$ 12,989,125	$ 13,264,495	$ 13,545,702	$ 13,832,871	$ 13,971,199	$ 14,110,911	$ 14,252,020	$ 14,394,541
Long Haul Trucking (year 87)	$ 14,349,561	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Closure Care Costs (year 87)	$ 2,502,911	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 1,710,017,034	$ 32,809,576	$ 33,505,139	$ 34,215,448	$ 34,940,815	$ 35,681,561	$ 36,438,010	$ 37,210,496	$ 37,999,358	$ 38,804,944	$ 39,627,609	$ 40,467,715	$ 41,325,630	$ 42,201,734	$ 43,096,410	$ 44,010,054	$ 44,450,155	$ 44,894,656	$ 45,343,603	$ 45,797,039
ANNUAL NET COST		$ 32,809,576	$ 34,109,353	$ 34,698,365	$ 34,940,815	$ 35,681,561	$ 36,438,010	$ 59,170,697	$ 86,209,268	$ 38,804,944	$ 43,118,418	$ 40,467,715	$ 49,975,392	$ 48,764,285	$ 43,268,993	$ 44,223,877	$ 44,450,155	$ 75,082,472	$ 69,127,394	$ 46,656,322
CUMULATIVE SPENDING		$ 615,187,399	$ 649,296,752	$ 683,995,117	$ 718,935,932	$ 754,617,493	$ 791,055,503	$ 850,226,200	$ 936,435,468	$ 975,240,412	$ 1,018,358,830	$ 1,058,826,544	$ 1,108,801,936	$ 1,157,566,221	$ 1,200,835,214	$ 1,245,059,090	$ 1,289,509,245	$ 1,364,591,717	$ 1,433,719,112	$ 1,480,375,434

Project Life	
Total Capital Spending (PV)	$ 407,269,413
Annualized Capital Spending (PV	$ 9,754,514
Total Operating and Maintenance Spending (PV	$ 1,710,017,034
Annualized Operating and Maintenance Spending (PV	$ 40,956,636
Project Total (PV)	$ 2,117,286,447
Annualized Project Total Spending (PV	$ 50,711,151
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 1

		2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073
		33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
BACKGROUND DATA																				
Total Disposed Tons		500,732	505,739	510,796	515,904	521,063	526,274	531,537	536,852	542,221	547,643	553,119	558,651	564,237	569,879	575,578	581,334	587,147	593,019	598,949
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Buyback (220' x 230')	$ 2,312,016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - HHW (300' x 100')	$ 1,556,143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Reuse Store Area (155' x 140')	$ 1,566,109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Tipping Area	$ 7,710,145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 9,944,624	344,137	-	-	37,771	-	-	-	-	-	-	3,490,808	-	-	342,244	-	-	-	-	1,799,189
C&D																				
C&D - C&D Pad	$ 5,187,662	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C&D - Processing Line	$ 6,962,015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 30,018,948	-	-	-	-	-	-	-	-	11,073,157	-	-	-	-	-	-	-	-	-	9,927,466
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,272,140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Wood Waste Pad (115' x 225')	$ 696,648	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Outdoor Receiving Area (90' x 200')	$ 2,295,094	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Screening and Product Storage Pad (400' x 3	$ 5,340,782	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Temporary Positive ASP System	$ 434,973	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Active Composting System (205' x 880')	$ 12,612,437	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Biofilter (135' x 880')	$ 4,362,031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - ASP Curing System (185' x 880')	$ 10,385,374	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Dedicated Stormwater Ponds	$ 958,004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Miscellaneous Equipment	$ 11,240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 65,548,096	-	-	600,634	-	-	-	-	600,634	26,366,970	-	-	-	7,971,767	-	-	-	-	7,971,767	4,728,860
Landfill																				
Landfill Construction	$ 80,764,584	-	-	-	-	-	-	-	42,826,522	-	-	-	-	-	-	-	-	-	21,413,261	-
Unlined Area Excavation/Backfill	$ 28,805,273	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40,731,437	40,731,437	-	-
Stockpile Relocation	$ 10,330,726	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Closure Costs	$ 26,862,765	-	-	-	-	-	-	-	-	8,809,463	-	-	-	-	-	-	-	-	-	17,618,927
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 13,757,810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Admin Staff Parking Lot	$ 153,249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 4,575,941	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Main Entrance																				
Main Entrance - Roadways	$ 671,737	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Main Entrance - Scale/Building	$ 976,269	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,953,480	-	-	500,192	-	-	-	-	-	-	-	-	-	677,995	-	-	-	-	-	-
Western Entrance																				
Western Entrance - Roadways	$ 3,836,133	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Western Entrance - Scale/Building	$ 557,883	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 5,097,319	-	-	-	-	-	-	-	-	487,082	-	-	-	-	-	-	-	-	-	4,338,493
Overpass																				
Overpass	$ 8,077,434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 202,642	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,705,808	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 2,150,884	-	-	-	35,796	-	-	-	-	-	-	-	-	-	155,718	-	-	-	-	-
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300'	$ 1,668,843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 511,471	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,663,557
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ 2,168,679	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Satellite Maintenance and Staff - Staff Bldg and Parking	$ 830,818	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 2,662,073	-	-	-	-	-	-	-	-	1,443,238	-	-	-	-	-	-	-	-	-	1,536,261
Stormwater Pond																				
New Stormwater Ponds	$ 2,747,412	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,121,267	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ 214,631	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 64,841	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	222,652
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 189,459	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Elements																				
Special Permits and Allow																				
Special Permits	$ 7,049,350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Geotechnical Investigation	$ 129,110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wetlands Mitigation																				
Wetlands Mitigation	$ 11,897,382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Site Beautification																				
Facility Beautification	$ 2,442,986	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,435,788	-	-	-	-	-	-	-	-	1,173,064	-	-	-	-	452,917	-	-	-	-	-
Site-wide Demolition																				
Site-wide Demolition and Disposal	$ 2,491,847	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Site Utilities																				
Shared Site Utilities	$ 3,353,376	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 6,079	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	$ 407,269,413	$ 344,137	$ -	$ 1,100,826	$ 73,567	$ -	$ -	$ -	$ 43,427,156	$ 49,352,974	$ -	$ 3,490,808	$ -	$ 8,649,762	$ 950,879	$ -	$ 40,731,437	$ 40,731,437	$ 29,385,028	$ 41,835,404
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-86)	$ 209,146,517	5,714,457	5,771,602	5,829,318	5,887,611	5,946,487	6,005,952	6,066,012	6,126,672	6,187,938	6,249,818	6,312,316	6,375,439	6,439,193	6,503,585	6,568,621	6,634,307	6,700,651	6,767,657	6,835,334
Public Area Operations (years 0-87)	$ 93,669,410	2,596,523	2,622,488	2,648,713	2,675,200	2,701,952	2,728,972	2,756,262	2,783,824	2,811,663	2,839,779	2,868,177	2,896,859	2,925,827	2,955,086	2,984,636	3,014,483	3,044,628	3,075,074	3,105,825
C&D Area Operations (years 0-87)	$ 633,637,876	17,180,204	17,352,006	17,525,526	17,700,781	17,877,789	18,056,567	18,237,133	18,419,504	18,603,699	18,789,736	18,977,633	19,167,410	19,359,084	19,552,675	19,748,202	19,945,684	20,145,140	20,346,592	20,550,058
Compost Area Operations (years 0-87)	$ 229,602,069	6,225,339	6,287,592	6,350,468	6,413,973	6,478,112	6,542,894	6,608,322	6,674,406	6,741,150	6,808,561	6,876,647	6,945,413	7,014,867	7,085,016	7,155,866	7,227,425	7,299,699	7,372,696	7,446,423
WPWMA Operational Costs (years 0-87)	$ 527,108,690	14,538,486	14,683,871	14,830,710	14,979,017	15,128,807	15,280,095	15,432,896	15,587,225	15,743,097	15,900,528	16,059,533	16,220,129	16,382,330	16,546,153	16,711,615	16,878,731	17,047,518	17,217,994	17,390,173
Long Haul Trucking (year 87)	$ 14,349,561	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Post Closure Care Costs (year 87)	$ 2,502,911	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	$ 1,710,017,034	$ 46,255,009	$ 46,717,559	$ 47,184,735	$ 47,656,582	$ 48,133,148	$ 48,614,480	$ 49,100,624	$ 49,591,631	$ 50,087,547	$ 50,588,422	$ 51,094,307	$ 51,605,250	$ 52,121,302	$ 52,642,515	$ 53,168,940	$ 53,700,630	$ 54,237,636	$ 54,780,012	$ 55,327,813
ANNUAL NET COST		$ 46,599,146	$ 46,717,559	$ 48,285,561	$ 47,730,150	$ 48,133,148	$ 48,614,480	$ 49,100,624	$ 93,018,787	$ 99,440,521	$ 50,588,422	$ 54,585,115	$ 51,605,250	$ 60,771,064	$ 53,593,394	$ 53,168,940	$ 94,432,067	$ 94,969,073	$ 84,165,040	$ 97,163,216
CUMULATIVE SPENDING		$ 1,526,974,580	$ 1,573,692,139	$ 1,621,977,700	$ 1,669,707,849	$ 1,717,840,998	$ 1,766,455,477	$ 1,815,556,101	$ 1,908,574,889	$ 2,008,015,409	$ 2,058,603,832	$ 2,113,188,946	$ 2,164,794,196	$ 2,225,565,260	$ 2,279,158,654	$ 2,332,327,595	$ 2,426,759,661	$ 2,521,728,734	$ 2,605,893,774	$ 2,703,056,991

Project Life	
Total Capital Spending (PV)	$ 407,269,413
Annualized Capital Spending (PV	$ 9,754,514
Total Operating and Maintenance Spending (PV	$ 1,710,017,034
Annualized Operating and Maintenance Spending (PV	$ 40,956,636
Project Total (PV)	$ 2,117,286,447
Annualized Project Total Spending (PV	$ 50,711,151
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 1

		2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092
		52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
BACKGROUND DATA																				
Total Disposed Tons		604,939	610,988	617,098	623,269	629,501	635,796	642,154	648,576	655,062	661,612	668,228	674,911	681,660	688,476	695,361	702,315	709,338	716,431	723,596
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,312,016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,556,143	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,566,109	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 7,710,145	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 9,944,624	$ -	$ 9,464,887	$ -	$ -	$ 1,529,063	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,834,945	$ -	$ -	$ 380,015	$ -	$ -	$ -	$ -
C&D																				
C&D - C&D Pad	$ 5,187,662	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,962,015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 30,018,948	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,123,271	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,272,140	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 696,648	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 2,295,094	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 5,340,782	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 12,612,437	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Biofilter (135' x 880')	$ 4,362,031	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,385,374	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 958,004	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,240	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 65,548,096	$ -	$ -	$ -	$ 546,940	$ -	$ -	$ -	$ -	$ 546,940	$ 27,225,581	$ -	$ -	$ -	$ 8,025,461	$ -	$ -	$ -	$ -	$ 8,025,461
Landfill																				
Landfill Construction	$ 80,764,584	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,413,261	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,413,261
Unlined Area Excavation/Backfill	$ 28,805,273	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 10,330,726	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closure Costs	$ 26,862,765	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,809,463	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 13,757,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 153,249	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 4,575,941	$ 15,560,155	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 105,957	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																				
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 976,269	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ -	$ -	$ 905,881	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,120,913	$ -	$ -	$ -	$ -	$ -
Western Entrance																				
Western Entrance - Roadways	$ 3,836,133	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ 557,883	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 5,097,319	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 570,129	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																				
Overpass	$ 8,077,434	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 202,642	$ -	$ 213,822	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,705,808	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,150,884	$ -	$ -	$ -	$ -	$ 7,982,828	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 191,514	$ -	$ -	$ -	$ -
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 35,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ 2,168,679	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ 830,818	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,662,073	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,761,108	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																				
New Stormwater Ponds	$ 2,747,412	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,121,267	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 753,327	$ 753,327	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ 214,631	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 64,841	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 189,459	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																				
Special Permits and Allow																				
Special Permits	$ 7,049,350	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 129,110	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																				
Wetlands Mitigation	$ 11,897,382	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																				
Facility Beautification	$ 2,442,986	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,435,788	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 452,917	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																				
Site-wide Demolition and Disposal	$ 2,491,847	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																				
Shared Site Utilities	$ 3,353,376	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 6,079	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 407,269,413	$ 15,560,155	$ 9,678,710	$ -	$ 1,452,821	$ 9,511,891	$ -	$ -	$ -	$ 21,960,201	$ 50,731,593	$ 859,283	$ 3,834,945	$ -	$ 9,146,374	$ 571,529	$ -	$ -	$ -	$ 29,438,722
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-86)	$ 209,146,517	$ 6,903,687	$ 6,972,724	$ 7,042,451	$ 7,112,876	$ 7,184,004	$ 7,255,844	$ 7,328,403	$ 7,401,687	$ 7,475,704	$ 7,550,461	$ 7,625,965	$ 7,702,225	$ 7,779,247	$ 7,857,040	$ 7,935,610	$ 8,014,966	$ 8,095,116	$ 8,176,067	$ 8,257,828
Public Area Operations (years 0-87)	$ 93,669,410	$ 3,136,883	$ 3,168,252	$ 3,199,934	$ 3,231,934	$ 3,264,253	$ 3,296,895	$ 3,329,864	$ 3,363,163	$ 3,396,795	$ 3,430,763	$ 3,465,070	$ 3,499,721	$ 3,534,718	$ 3,570,065	$ 3,605,766	$ 3,641,824	$ 3,678,242	$ 3,715,024	$ 3,752,175
C&D Area Operations (years 0-87)	$ 633,637,876	$ 20,755,558	$ 20,963,114	$ 21,172,745	$ 21,384,472	$ 21,598,317	$ 21,814,300	$ 22,032,443	$ 22,252,768	$ 22,475,295	$ 22,700,048	$ 22,927,049	$ 23,156,319	$ 23,387,883	$ 23,621,761	$ 23,857,979	$ 24,096,559	$ 24,337,524	$ 24,580,900	$ 24,826,709
Compost Area Operations (years 0-87)	$ 229,602,069	$ 7,520,887	$ 7,596,096	$ 7,672,057	$ 7,748,778	$ 7,826,266	$ 7,904,528	$ 7,983,574	$ 8,063,409	$ 8,144,043	$ 8,225,484	$ 8,307,739	$ 8,390,816	$ 8,474,724	$ 8,559,471	$ 8,645,066	$ 8,731,517	$ 8,818,832	$ 8,907,020	$ 8,996,090
WPWMA Operational Costs (years 0-87)	$ 527,108,690	$ 17,564,075	$ 17,739,716	$ 17,917,113	$ 18,096,284	$ 18,277,247	$ 18,460,020	$ 18,644,620	$ 18,831,066	$ 19,019,377	$ 19,209,570	$ 19,401,666	$ 19,595,683	$ 19,791,640	$ 19,989,556	$ 20,189,451	$ 20,391,346	$ 20,595,259	$ 20,801,212	$ 21,009,224
Long Haul Trucking (year 87)	$ 14,349,561	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Closure Care Costs (year 87)	$ 2,502,911	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 1,710,017,034	$ 55,881,091	$ 56,439,902	$ 57,004,301	$ 57,574,344	$ 58,150,087	$ 58,731,588	$ 59,318,904	$ 59,912,093	$ 60,511,214	$ 61,116,326	$ 61,727,489	$ 62,344,764	$ 62,968,212	$ 63,597,894	$ 64,233,873	$ 64,876,211	$ 65,524,974	$ 66,180,223	$ 66,842,026
ANNUAL NET COST		$ 71,441,245	$ 66,118,611	$ 57,004,301	$ 59,027,165	$ 67,661,978	$ 58,731,588	$ 59,318,904	$ 59,912,093	$ 82,471,415	$ 111,847,919	$ 62,586,772	$ 66,179,709	$ 62,968,212	$ 72,744,267	$ 64,805,402	$ 64,876,211	$ 65,524,974	$ 66,180,223	$ 96,280,748
CUMULATIVE SPENDING		$ 2,774,498,236	$ 2,840,616,847	$ 2,897,621,147	$ 2,956,648,312	$ 3,024,310,291	$ 3,083,041,878	$ 3,142,360,782	$ 3,202,272,875	$ 3,284,744,290	$ 3,396,592,209	$ 3,459,178,981	$ 3,525,358,690	$ 3,588,326,902	$ 3,661,071,169	$ 3,725,876,571	$ 3,790,752,782	$ 3,856,277,756	$ 3,922,457,979	$ 4,018,738,727

Project Life	
Total Capital Spending (PV)	$ 407,269,413
Annualized Capital Spending (PV	$ 9,754,514
Total Operating and Maintenance Spending (PV	$ 1,710,017,034
Annualized Operating and Maintenance Spending (PV	$ 40,956,636
Project Total (PV)	$ 2,117,286,447
Annualized Project Total Spending (PV	$ 50,711,151
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 1

	Element PV	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	Remaining Useful Life/Liability
		71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	
BACKGROUND DATA																			
Total Disposed Tons		730,832	738,140	745,521	752,977	760,506	768,111	775,793	783,550	791,386	799,300	807,293	815,366	823,519	831,755	840,072	848,473	856,958	
CAPITAL COSTS																			
	Element PV																		
Critical Elements																			
Public Area																			
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,312,016	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,556,143	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,566,109	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 7,710,145	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 9,944,624	$ -	$ -	$ -	$ -	$ -	$ 1,799,189	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,490,808	$ -	$ -	$ 342,244	$ -	$ (7,815,291)
C&D																			
C&D - C&D Pad	$ 5,187,662	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,962,015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 30,018,948	$ 7,636,512	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 11,073,157	$ -	$ -	$ -	$ -	$ -	$ -	$ (6,108,405)
Composting																			
Compost - Green Waste Pad (210' x 225')	$ 1,272,140	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 696,648	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 2,295,094	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 5,340,782	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 12,612,437	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Biofilter (135' x 880')	$ 4,362,031	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,385,374	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 958,004	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,240	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 65,548,096	$ 4,728,860	$ -	$ -	$ -	$ 546,940	$ -	$ -	$ -	$ -	$ 546,940	$ 26,366,970	$ -	$ -	$ -	$ 7,971,767	$ -	$ -	$ (25,287,173)
Landfill																			
Landfill Construction	$ 80,764,584	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 21,413,261	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unlined Area Excavation/Backfill	$ 28,805,273	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 10,330,726	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closure Costs	$ 26,862,765	$ 8,809,463	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,809,463	$ -	$ -	$ -	$ -	$ 8,809,463	$ -	$ -
Necessary Supporting Elements																			
Admin																			
Admin Staff Bldg	$ 13,757,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 153,249	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 4,575,941	$ -	$ -	$ -	$ -	$ -	$ -	$ 172,583	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (4,737,481)
Main Entrance																			
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 976,269	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ -	$ -	$ -	$ 57,274	$ -	$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ 677,995	$ -	$ -	$ (1,317,082)
Western Entrance																			
Western Entrance - Roadways	$ 3,836,133	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ 557,883	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 5,097,319	$ 57,274	$ -	$ -	$ -	$ -	$ 4,235,400	$ -	$ -	$ -	$ -	$ 487,082	$ -	$ -	$ -	$ -	$ -	$ -	$ (2,719,502)
Overpass																			
Overpass	$ 8,077,434	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 202,642	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 213,822	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (136,846)
Recovered Materials Storage																			
Recyclables Storage Building	$ 6,705,808	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,150,884	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718	$ -	$ (3,192,146)
Primary Maintenance Facility																			
Primary Maintenance - Maintenance Area (250' x 300	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (470,569)
Satellite Maintenance and Staff Facility																			
Satellite Maintenance and Staff - Maintenance Area	$ 2,168,679	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ 830,818	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,662,073	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,443,238	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,482,802)
Stormwater Pond																			
New Stormwater Ponds	$ 2,747,412	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,121,267	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (225,998)
Non-Critical Elements																			
Main Site HHW Facility																			
HHW Building (65' x 75')	$ 214,631	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 64,841	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (62,343)
Existing Features to be Removec																			
Compost Pond Removal																			
Compost Pond Removal	$ 189,459	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																			
Special Permits and Allow																			
Special Permits	$ 7,049,350	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 129,110	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																			
Wetlands Mitigation	$ 11,897,382	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																			
Facility Beautificatior	$ 2,442,986	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,435,788	$ -	$ -	$ -	$ -	$ -	$ 452,917	$ -	$ -	$ -	$ -	$ 1,173,064	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,117,882)
Site-wide Demolition																			
Site-wide Demolition and Disposa	$ 2,491,847	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																			
Shared Site Utilities	$ 3,353,376	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																			
MRF Upgrade to TS	$ 6,079	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766	$ -	$ (394,977)
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 407,269,413	$ 21,232,109	$ -	$ -	$ -	$ 604,214	$ 6,487,506	$ 172,583	$ 213,822	$ -	$ 22,762,989	$ 49,352,974	$ -	$ 3,490,808	$ -	$ 8,649,762	$ 9,723,191	$ -	$ (55,068,497)
OPERATION AND MAINTENANCE COSTS																			
Landfill Operations (years 0-86)	$ 209,146,517	$ 8,340,406	$ 8,423,810	$ 8,508,048	$ 8,593,129	$ 8,679,060	$ 8,765,851	$ 8,853,509	$ 8,942,044	$ 9,031,465	$ 9,121,779	$ 9,212,997	$ 9,305,127	$ 9,398,178	$ 9,492,160	$ 9,587,082	$ 9,682,952	$ -	$ -
Public Area Operations (years 0-87)	$ 93,669,410	$ 3,789,696	$ 3,827,593	$ 3,865,869	$ 3,904,528	$ 3,943,573	$ 3,983,009	$ 4,022,839	$ 4,063,067	$ 4,103,698	$ 4,144,735	$ 4,186,182	$ 4,228,044	$ 4,270,325	$ 4,313,028	$ 4,356,158	$ 4,399,720	$ 4,443,717	$ -
C&D Area Operations (years 0-87)	$ 633,637,876	$ 25,074,976	$ 25,325,725	$ 25,578,983	$ 25,834,773	$ 26,093,120	$ 26,354,051	$ 26,617,592	$ 26,883,768	$ 27,152,606	$ 27,424,132	$ 27,698,373	$ 27,975,357	$ 28,255,110	$ 28,537,661	$ 28,823,038	$ 29,111,268	$ 29,402,381	$ -
Compost Area Operations (years 0-87)	$ 229,602,069	$ 9,086,051	$ 9,176,912	$ 9,268,681	$ 9,361,368	$ 9,454,982	$ 9,549,531	$ 9,645,027	$ 9,741,477	$ 9,838,892	$ 9,937,281	$ 10,036,653	$ 10,137,020	$ 10,238,390	$ 10,340,774	$ 10,444,182	$ 10,548,624	$ 10,654,110	$ -
WPWMA Operational Costs (years 0-87)	$ 527,108,690	$ 21,219,316	$ 21,431,510	$ 21,645,825	$ 21,862,283	$ 22,080,906	$ 22,301,715	$ 22,524,732	$ 22,749,979	$ 22,977,479	$ 23,207,254	$ 23,439,326	$ 23,673,720	$ 23,910,457	$ 24,149,561	$ 24,391,057	$ 24,634,968	$ 24,881,317	$ -
Long Haul Trucking (year 87)	$ 14,349,561	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 86,986,977	$ -
Post Closure Care Costs (year 87)	$ 2,502,911	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 515,526	$ 14,950,254
Subtotal	$ 1,710,017,034	$ 67,510,446	$ 68,185,550	$ 68,867,406	$ 69,556,080	$ 70,251,641	$ 70,954,157	$ 71,663,699	$ 72,380,336	$ 73,104,139	$ 73,835,180	$ 74,573,532	$ 75,319,267	$ 76,072,460	$ 76,833,185	$ 77,601,517	$ 78,377,532	$ 156,884,028	$ 14,950,254
ANNUAL NET COST		$ 88,742,555	$ 68,185,550	$ 68,867,406	$ 69,556,080	$ 70,855,854	$ 77,441,663	$ 71,836,281	$ 72,594,158	$ 73,104,139	$ 96,598,170	$ 123,926,506	$ 75,319,267	$ 79,563,268	$ 76,833,185	$ 86,251,278	$ 88,100,723	$ 156,884,028	$ (40,118,243)
CUMULATIVE SPENDING		$ 4,107,481,281	$ 4,175,666,832	$ 4,244,534,237	$ 4,314,090,317	$ 4,384,946,172	$ 4,462,387,835	$ 4,534,224,116	$ 4,606,818,274	$ 4,679,922,413	$ 4,776,520,583	$ 4,900,447,089	$ 4,975,766,356	$ 5,055,329,625	$ 5,132,162,809	$ 5,218,414,088	$ 5,306,514,810	$ 5,463,398,838	

Project Life	
Total Capital Spending (PV)	$ 407,269,413
Annualized Capital Spending (PV	$ 9,754,514
Total Operating and Maintenance Spending (PV	$ 1,710,017,034
Annualized Operating and Maintenance Spending (PV	$ 40,956,636
Project Total (PV)	$ 2,117,286,447
Annualized Project Total Spending (PV	$ 50,711,151
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 2

		2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
		-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
BACKGROUND DATA																				
Total Disposed Tons		238,419	243,474	248,636	253,907	259,289	264,786	270,400	276,132	281,986	287,964	294,069	300,304	306,670	313,171	319,811	326,591	333,514	340,585	347,805
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,799,189	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,405,422	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,655,780	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,619,011	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,787,519	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,909,078	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 8,021,635	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,856,534	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 10,539,547	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																				
C&D - C&D Pad	$ 8,858,654	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 10,175,809	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,897,345	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,922,881	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 34,424,388	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,636,512
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 702,273	$ -	$ -	$ -	$ -	$ 351,136	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 587,766	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 384,578	$ -	$ -	$ -	$ -	$ 192,289	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,228,708	$ -	$ -	$ -	$ -	$ 116,835	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,779,991	$ -	$ -	$ -	$ -	$ 1,076,230	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ 470,829	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 11,318,608	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,405,812	$ -	$ -	$ -	$ -	$ 3,702,906	$ -	$ -
Compost - Biofilter (135' x 880')	$ 3,914,558	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,561,311	$ -	$ -	$ -	$ -	$ 1,280,656	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,095,020	$ -	$ -	$ -	$ -	$ -	$ 4,853,713	$ -	$ -	$ -	$ -	$ -	$ 3,671,261	$ -	$ -	$ -	$ -	$ 1,835,630	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 977,164	$ -	$ -	$ -	$ -	$ -	$ 1,057,713	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,464	$ -	$ -	$ -	$ -	$ -	$ 12,409	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 55,736,072	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,409	$ -	$ -	$ -
Landfill																				
Landfill Construction	$ 139,798,664	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,419,538	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,419,538	$ -	$ -	$ -
Unlined Area Excavation/Backfill	$ 93,063,925	$ -	$ -	$ -	$ -	$ -	$ 40,731,437	$ 40,731,437	$ 20,882,042	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 21,782,775	$ -	$ -	$ -	$ -	$ -	$ 6,681,948	$ -	$ -	$ -	$ -	$ -	$ 6,681,948	$ -	$ -	$ -	$ 13,363,896	$ -	$ -	$ -
Closure Costs	$ 47,549,757	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,214,206	$ -	$ -
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 13,757,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,493,528	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 153,249	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 172,583	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 4,575,941	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																				
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 1,329,017	$ -	$ -	$ -	$ -	$ -	$ 381,826	$ -	$ -	$ -	$ -	$ 1,166,732	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																				
Western Entrance - Roadways	$ 436,472	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ 202,791	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 695,798	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Overpass																				
Overpass	$ 5,224,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 100,143	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,793,903	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 8,281,730	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,221,159	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300'	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,842,538	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ 1,295,958	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 790,726	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stormwater Pond																				
New Stormwater Ponds	$ 4,016,713	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,239,342	$ 2,239,342	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,782,129	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 201,056	$ -	$ -	$ -	$ -	$ -	$ 217,629	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																				
Special Permits and Allow																				
Special Permits	$ 5,122,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,423,996	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 129,110	$ -	$ -	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ 30,000	$ -	$ -
Wetlands Mitigation																				
Wetlands Mitigation	$ 7,596,199	$ -	$ -	$ -	$ -	$ -	$ 8,222,370	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																				
Facility Beautification	$ 2,846,618	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,136,507	$ 3,818	$ -	$ -	$ 2,864	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,683,138	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																				
Site-wide Demolition and Disposa	$ 2,596,687	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,866,952	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																				
Shared Site Utilities	$ 2,319,928	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,061,096	$ -	$ -	$ -
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 103,953	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 6,079	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 539,875,043	$ -	$ -	$ -	$ -	$ -	$ 62,629,874	$ 104,274,413	$ 38,791,314	$ 18,098,690	$ -	$ 1,972,384	$ 40,151,609	$ -	$ -	$ -	$ 52,856,939	$ 23,799,888	$ -	$ 7,636,512
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-66)	$ 178,044,123	$ -	$ -	$ -	$ -	$ -	$ 3,021,799	$ 3,085,861	$ 3,151,281	$ 3,218,088	$ 3,286,312	$ 3,355,982	$ 3,427,128	$ 3,499,784	$ 3,573,979	$ 3,649,747	$ 3,727,122	$ 3,806,137	$ 3,886,827	$ 3,969,228
Public Area Operations (years 0-87)	$ 89,003,429	$ -	$ -	$ -	$ -	$ -	$ 787,743	$ 883,218	$ 1,343,551	$ 1,372,034	$ 1,401,121	$ 1,430,825	$ 1,461,158	$ 1,492,135	$ 1,523,768	$ 1,556,072	$ 1,589,061	$ 1,622,749	$ 1,657,151	$ 1,692,283
C&D Area Operations (years 0-87)	$ 633,637,876	$ -	$ -	$ -	$ -	$ -	$ 9,084,873	$ 9,277,473	$ 9,474,155	$ 9,675,007	$ 9,880,117	$ 10,089,576	$ 10,303,475	$ 10,521,908	$ 10,744,973	$ 10,972,766	$ 11,205,389	$ 11,442,943	$ 11,685,534	$ 11,933,267
Compost Area Operations (years 0-87)	$ 229,602,069	$ -	$ -	$ -	$ -	$ -	$ 3,291,952	$ 3,361,742	$ 3,433,011	$ 3,505,791	$ 3,580,113	$ 3,656,012	$ 3,733,519	$ 3,812,670	$ 3,893,498	$ 3,976,040	$ 4,060,333	$ 4,146,412	$ 4,234,316	$ 4,324,083
WPWMA Operational Costs (years 0-87)	$ 490,552,304	$ -	$ -	$ -	$ -	$ -	$ 5,723,033	$ 5,844,361	$ 5,968,261	$ 6,094,788	$ 6,223,998	$ 7,914,663	$ 8,082,454	$ 8,253,802	$ 8,428,783	$ 8,607,473	$ 8,789,951	$ 8,976,298	$ 9,166,596	$ 9,360,928
Long Haul Trucking (year 67)	$ 333,133,621	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Closure Care Costs (year 67)	$ 3,346,454	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 1,957,319,876	$ -	$ -	$ -	$ -	$ -	$ 21,909,400	$ 22,452,654	$ 23,370,259	$ 23,865,709	$ 24,371,662	$ 26,447,057	$ 27,007,735	$ 27,580,299	$ 28,165,001	$ 28,762,099	$ 29,371,856	$ 29,994,539	$ 30,630,423	$ 31,279,788
ANNUAL NET COST		$ -	$ -	$ -	$ -	$ -	$ 84,539,274	$ 126,727,067	$ 62,161,573	$ 41,964,398	$ 24,371,662	$ 28,419,441	$ 67,159,344	$ 27,580,299	$ 28,165,001	$ 28,762,099	$ 82,228,795	$ 53,794,427	$ 30,630,423	$ 38,916,300
CUMULATIVE SPENDING		$ -	$ -	$ -	$ -	$ -	$ 84,539,274	$ 211,266,342	$ 273,427,914	$ 315,392,313	$ 339,763,974	$ 368,183,415	$ 435,342,759	$ 462,923,058	$ 491,088,060	$ 519,850,159	$ 602,078,954	$ 655,873,381	$ 686,503,804	$ 725,420,105

Project Life	
Total Capital Spending (PV)	$ 539,875,043
Annualized Capital Spending (PV	$ 12,930,553
Total Operating and Maintenance Spending (PV	$ 1,957,319,876
Annualized Operating and Maintenance Spending (PV	$ 46,879,789
Project Total (PV)	$ 2,497,194,919
Annualized Project Total Spending (PV	$ 59,810,342
Real Discount Rate	2.0%

Notes:
(a) Pink cells denote present values. All other values are shown in 2018 dollar
(b) Grants, avoided spending, and revenue impacts are not included in this PV analysis because they are difficult to quantify and forecast. Not including revenues will lend a more conservative ana
[c) Project costs begin in 2022. This Year 0 is assumed to be reasonable due to permitting activities needed prior to constructi
(d) Demolition costs for replacement components are not included in capital replacement cost
(e) Postclosure care for partial closure modules is covered in required O&M. Assume postclosure care costs begin after full closure of land
(f) Annualized Capital Spending (PV), Annualized Operating and Maintenance Spending (PV), and Annualized Project Total Spending (PV) present the equivalent annual spending per year starting in 2

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 2

		2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054
		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
BACKGROUND DATA																				
Total Disposed Tons		355,179	362,709	370,398	378,250	386,269	394,458	402,821	411,361	420,081	428,987	438,082	447,369	456,853	466,538	476,429	481,193	486,005	490,865	495,774
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Buyback (220' x 230')	$ 2,405,422	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - HHW (300' x 100')	$ 1,619,011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Public Area - Tipping Area	$ 8,021,635	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 10,539,547	-	-	-	-	-	-	-	3,833,052	-	-	-	-	1,799,189	-	-	-	-	381,908	-
C&D																				
C&D - C&D Pad	$ 8,858,654	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C&D - Processing Line	$ 6,897,345	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 34,424,388	-	-	-	-	-	-	-	-	-	15,521,367	-	-	-	-	-	-	-	-	-
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	-	-	351,136	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Wood Waste Pad (115' x 225')	$ 587,766	-	-	192,289	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	-	-	116,835	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	-	-	1,076,230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Temporary Positive ASP System	$ 434,973	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Active Composting System (205' x 880')	$ 11,318,608	-	-	3,702,906	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Biofilter (135' x 880')	$ 3,914,558	-	-	1,280,656	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - ASP Curing System (185' x 880')	$ 10,095,020	-	-	1,835,630	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Dedicated Stormwater Ponds	$ 977,164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Compost - Miscellaneous Equipment	$ 11,464	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 55,736,072	-	-	4,716,450	-	-	-	12,409	546,940	-	-	-	-	23,507,272	-	-	-	570,333	9,668,881	-
Landfill																				
Landfill Construction	$ 139,798,664	-	-	-	-	-	-	36,419,538	-	-	-	-	-	-	-	-	-	36,419,538	-	-
Unlined Area Excavation/Backfill	$ 93,063,925	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stockpile Relocation	$ 21,782,775	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Closure Costs	$ 47,549,757	-	-	-	-	-	-	-	15,214,206	-	-	-	-	-	-	-	-	-	15,214,206	-
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 13,757,810	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Admin Staff Parking Lot	$ 153,249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 4,575,941	-	-	-	-	-	-	-	-	-	-	-	-	-	172,583	-	-	-	-	105,957
Main Entrance																				
Main Entrance - Roadways	$ 671,737	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Main Entrance - Scale/Building	$ 1,329,017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,953,480	-	57,274	-	-	-	-	-	-	-	-	-	677,995	-	-	-	-	802,788	-	-
Western Entrance																				
Western Entrance - Roadways	$ 436,472	-	-	-	-	-	-	-	-	-	-	-	775,106	-	-	-	-	-	-	-
Western Entrance - Scale/Building	$ 202,791	-	-	-	-	-	-	-	-	-	-	-	360,125	-	-	-	-	-	-	-
Replacement Costs	$ 695,798	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overpass																				
Overpass	$ 5,224,800	-	-	-	-	-	-	-	-	-	-	-	9,278,433	-	-	-	-	-	-	-
Replacement Costs	$ 100,143	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,793,903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 2,221,159	-	-	-	-	-	-	-	-	-	-	-	-	155,718	-	-	-	-	-	-
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300	$ 1,668,843	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 511,471	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35,796	-
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ 1,295,958	-	-	-	-	-	-	-	-	-	-	-	-	-	2,394,397	-	-	-	-	-
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 790,726	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stormwater Pond																				
New Stormwater Ponds	$ 4,016,713	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,782,129	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,197,329	1,197,329
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 201,056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
General Elements																				
Special Permits and Allow																				
Special Permits	$ 5,122,796	-	-	-	-	-	-	-	-	-	2,549,368	-	-	-	-	-	-	-	-	-
Geotechnical Investigation	$ 129,110	-	-	30,000	-	-	-	-	30,000	-	-	-	-	30,000	-	-	-	-	-	-
Wetlands Mitigation																				
Wetlands Mitigation	$ 7,596,199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Site Beautification																				
Facility Beautification	$ 2,846,618	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 1,683,138	-	-	548,959	-	-	-	-	-	-	-	-	-	-	-	-	-	-	548,959	-
Site-wide Demolition																				
Site-wide Demolition and Disposa	$ 2,596,687	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Site Utilities																				
Shared Site Utilities	$ 2,319,928	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 103,953	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Replacement Costs	$ 6,079	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	$ 539,875,043	-	57,274	13,851,091	-	-	-	36,431,947	19,624,198	-	18,070,735	-	11,091,659	25,492,179	2,566,980	-	-	37,792,659	27,047,078	1,303,285
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-66)	$ 178,044,123	4,053,375	4,139,307	4,227,060	4,316,674	4,408,187	4,501,641	4,597,076	4,694,534	4,794,058	4,895,692	4,999,481	5,105,470	5,213,706	5,584,921	5,703,322	5,760,355	5,817,959	5,876,138	5,934,900
Public Area Operations (years 0-87)	$ 89,003,429	1,728,159	1,764,796	1,802,210	1,840,417	1,879,434	1,919,278	1,959,966	2,001,518	2,043,950	2,087,281	2,131,532	2,176,720	2,222,867	2,269,992	2,318,115	2,341,297	2,364,710	2,388,357	2,412,240
C&D Area Operations (years 0-87)	$ 633,637,876	12,186,252	12,444,601	12,708,426	12,977,845	13,252,975	13,533,938	13,820,858	14,113,860	14,413,074	14,718,631	15,030,666	15,349,316	15,674,722	16,007,026	16,346,375	16,509,838	16,674,937	16,841,686	17,010,103
Compost Area Operations (years 0-87)	$ 229,602,069	4,415,754	4,509,368	4,604,966	4,702,591	4,802,286	4,904,095	5,008,062	5,114,233	5,222,654	5,333,375	5,446,442	5,561,907	5,679,819	5,800,231	5,923,196	5,982,428	6,042,252	6,102,675	6,163,702
WPWMA Operational Costs (years 0-87)	$ 490,552,304	9,559,379	9,762,038	9,968,993	10,180,336	10,396,159	10,616,558	10,841,629	11,071,471	11,306,187	11,545,878	11,790,650	12,040,612	12,295,873	12,556,546	12,822,744	12,950,972	13,080,482	13,211,286	13,343,399
Long Haul Trucking (year 67)	$ 333,133,621	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Post Closure Care Costs (year 67)	$ 3,346,454	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	$ 1,957,319,876	31,942,920	32,620,110	33,311,656	34,017,863	34,739,042	35,475,510	36,227,590	36,995,615	37,779,922	38,580,857	39,398,771	40,234,025	41,086,986	42,218,716	43,113,752	43,544,890	43,980,339	44,420,142	44,864,344
ANNUAL NET COST		31,942,920	32,677,384	47,162,747	34,017,863	34,739,042	35,475,510	72,659,538	56,619,813	37,779,922	56,651,591	39,398,771	51,325,684	66,579,165	44,785,696	43,113,752	43,544,890	81,772,998	71,467,221	46,167,629
CUMULATIVE SPENDING		757,363,024	790,040,408	837,203,156	871,221,019	905,960,061	941,435,570	1,014,095,108	1,070,714,922	1,108,494,844	1,165,146,435	1,204,545,206	1,255,870,890	1,322,450,055	1,367,235,751	1,410,349,503	1,453,894,393	1,535,667,391	1,607,134,612	1,653,302,240

Project Life	
Total Capital Spending (PV)	$ 539,875,043
Annualized Capital Spending (PV	$ 12,930,553
Total Operating and Maintenance Spending (PV	$ 1,957,319,876
Annualized Operating and Maintenance Spending (PV	$ 46,879,789
Project Total (PV)	$ 2,497,194,919
Annualized Project Total Spending (PV	$ 59,810,342
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plan
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 2

	Element PV	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073
		33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
BACKGROUND DATA																				
Total Disposed Tons		500,732	505,739	510,796	515,904	521,063	526,274	531,537	536,852	542,221	547,643	553,119	558,651	564,237	569,879	575,578	581,334	587,147	593,019	598,949
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,405,422	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,619,011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 8,021,635	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 10,539,547	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,833,052	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,793,139
C&D																				
C&D - C&D Pad	$ 8,858,654	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,897,345	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 34,424,388	$ 7,922,881	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,521,367	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 587,766	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 11,318,608	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Biofilter (135' x 880')	$ 3,914,558	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,095,020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 977,164	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,464	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 55,736,072	$ -	$ -	$ -	$ 14,571,471	$ -	$ -	$ -	$ 12,409	$ 640,010	$ -	$ -	$ -	$ -	$ 23,600,342	$ -	$ -	$ -	$ 12,409	$ 9,668,881
Landfill																				
Landfill Construction	$ 139,798,664	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,419,538	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,419,538	$ -
Unlined Area Excavation/Backfill	$ 93,063,925	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 21,782,775	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closure Costs	$ 47,549,757	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,214,206	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,214,206
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 13,757,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 153,249	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 4,575,941	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																				
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 1,329,017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ -	$ 500,192	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 677,995	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance																				
Western Entrance - Roadways	$ 436,472	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ 202,791	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 695,798	$ -	$ -	$ 57,274	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 277,078	$ -	$ -	$ -	$ -	$ 775,106	$ -
Overpass																				
Overpass	$ 5,224,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 100,143	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 213,822	$ -
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,793,903	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,221,159	$ -	$ -	$ -	$ 143,185	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718	$ -	$ -	$ -	$ -	$ -
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,663,557
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ 1,295,958	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 790,726	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,115,869	$ -	$ -	$ -	$ -
Stormwater Pond																				
New Stormwater Ponds	$ 4,016,713	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,782,129	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 201,056	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																				
Special Permits and Allow																				
Special Permits	$ 5,122,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 129,110	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																				
Wetlands Mitigation	$ 7,596,199	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																				
Facility Beautification	$ 2,846,618	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,683,138	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,297,252	$ -	$ -	$ -	$ -	$ 548,959	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																				
Site-wide Demolition and Disposal	$ 2,596,687	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																				
Shared Site Utilities	$ 2,319,928	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 103,953	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 6,079	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 539,875,043	$ 7,922,881	$ -	$ 557,465	$ 14,714,656	$ -	$ -	$ -	$ 36,431,947	$ 20,984,520	$ -	$ 15,521,367	$ -	$ 955,073	$ 24,305,019	$ 1,115,869	$ -	$ -	$ 37,420,876	$ 39,339,783
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-66)	$ 178,044,123	$ 5,994,249	$ 6,054,191	$ 6,114,733	$ 6,175,880	$ 6,237,639	$ 6,300,015	$ 6,363,016	$ 6,426,646	$ 6,490,912	$ 6,555,821	$ 6,621,380	$ 6,687,593	$ 6,754,469	$ 6,822,014	$ 6,890,234	$ 6,959,136	$ 7,028,728	$ 7,099,015	$ 7,170,005
Public Area Operations (years 0-87)	$ 89,003,429	$ 2,436,363	$ 2,460,726	$ 2,485,333	$ 2,510,187	$ 2,535,289	$ 2,560,642	$ 2,586,248	$ 2,612,110	$ 2,638,232	$ 2,664,614	$ 2,691,260	$ 2,718,173	$ 2,745,354	$ 2,772,808	$ 2,800,536	$ 2,828,541	$ 2,856,827	$ 2,885,395	$ 2,914,249
C&D Area Operations (years 0-87)	$ 633,637,876	$ 17,180,204	$ 17,352,006	$ 17,525,526	$ 17,700,781	$ 17,877,789	$ 18,056,567	$ 18,237,133	$ 18,419,504	$ 18,603,699	$ 18,789,736	$ 18,977,633	$ 19,167,410	$ 19,359,084	$ 19,552,675	$ 19,748,202	$ 19,945,684	$ 20,145,140	$ 20,346,592	$ 20,550,058
Compost Area Operations (years 0-87)	$ 229,602,069	$ 6,225,339	$ 6,287,592	$ 6,350,468	$ 6,413,973	$ 6,478,112	$ 6,542,894	$ 6,608,322	$ 6,674,406	$ 6,741,150	$ 6,808,561	$ 6,876,647	$ 6,945,413	$ 7,014,867	$ 7,085,016	$ 7,155,866	$ 7,227,425	$ 7,299,699	$ 7,372,696	$ 7,446,423
WPWMA Operational Costs (years 0-87)	$ 490,552,304	$ 13,476,833	$ 13,611,602	$ 13,747,718	$ 13,885,195	$ 14,024,047	$ 14,164,287	$ 14,305,930	$ 14,448,989	$ 14,593,479	$ 14,739,414	$ 14,886,808	$ 15,035,676	$ 15,186,033	$ 15,337,893	$ 15,491,272	$ 15,646,185	$ 15,802,647	$ 15,960,673	$ 16,120,280
Long Haul Trucking (year 67)	$ 333,133,621	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Post Closure Care Costs (year 67)	$ 3,346,454	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 1,957,319,876	$ 45,312,987	$ 45,766,117	$ 46,223,778	$ 46,686,016	$ 47,152,876	$ 47,624,405	$ 48,100,649	$ 48,581,655	$ 49,067,472	$ 49,558,147	$ 50,053,728	$ 50,554,265	$ 51,059,808	$ 51,570,406	$ 52,086,110	$ 52,606,971	$ 53,133,041	$ 53,664,371	$ 54,201,015
ANNUAL NET COST		$ 53,235,868	$ 45,766,117	$ 46,781,243	$ 61,400,672	$ 47,152,876	$ 47,624,405	$ 48,100,649	$ 85,013,603	$ 70,051,992	$ 49,558,147	$ 65,575,095	$ 50,554,265	$ 52,014,881	$ 75,875,425	$ 53,201,979	$ 52,606,971	$ 53,133,041	$ 91,085,247	$ 93,540,798
CUMULATIVE SPENDING		$ 1,706,538,109	$ 1,752,304,226	$ 1,799,085,469	$ 1,860,486,141	$ 1,907,639,017	$ 1,955,263,422	$ 2,003,364,070	$ 2,088,377,673	$ 2,158,429,665	$ 2,207,987,812	$ 2,273,562,907	$ 2,324,117,172	$ 2,376,132,053	$ 2,452,007,479	$ 2,505,209,457	$ 2,557,816,428	$ 2,610,949,469	$ 2,702,034,716	$ 2,795,575,514

Project Life	
Total Capital Spending (PV)	$ 539,875,043
Annualized Capital Spending (PV	$ 12,930,553
Total Operating and Maintenance Spending (PV	$ 1,957,319,876
Annualized Operating and Maintenance Spending (PV	$ 46,879,789
Project Total (PV)	$ 2,497,194,919
Annualized Project Total Spending (PV	$ 59,810,342
Real Discount Rate	2.0%

Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 2

		2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092
		52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
BACKGROUND DATA																				
Total Disposed Tons		604,939	610,988	617,098	623,269	629,501	635,796	642,154	648,576	655,062	661,612	668,228	674,911	681,660	688,476	695,361	702,315	709,338	716,431	723,596
CAPITAL COSTS																				
	Element PV																			
Critical Elements																				
Public Area																				
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,405,422	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,619,011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 8,021,635	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 10,539,547	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 4,214,960	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D																				
C&D - C&D Pad	$ 8,858,654	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,897,345	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 34,424,388	$ -	$ 9,927,466	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,807,736	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Composting																				
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 587,766	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 11,318,608	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Biofilter (135' x 880')	$ 3,914,558	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,095,020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 977,164	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,464	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 55,736,072	$ -	$ -	$ -	$ -	$ 14,385,331	$ -	$ -	$ -	$ 570,333	$ 546,940	$ -	$ -	$ -	$ -	$ 23,693,412	$ -	$ -	$ -	$ 12,409
Landfill																				
Landfill Construction	$ 139,798,664	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 36,419,538	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unlined Area Excavation/Backfill	$ 93,063,925	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 21,782,775	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closure Costs	$ 47,549,757	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,214,206	$ -	$ -	$ -	$ -	$ 15,214,206	$ -	$ -	$ -	$ -
Necessary Supporting Elements																				
Admin																				
Admin Staff Bldg	$ 13,757,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 153,249	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 4,575,941	$ 15,560,155	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 105,957	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance																				
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 1,329,017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ -	$ -	$ 905,881	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,120,913	$ -	$ -	$ -	$ -	$ -
Western Entrance																				
Western Entrance - Roadways	$ 436,472	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ 202,791	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 695,798	$ -	$ -	$ -	$ 140,321	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 277,078	$ -	$ -	$ -	$ -	$ -
Overpass																				
Overpass	$ 5,224,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 100,143	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Recovered Materials Storage																				
Recyclables Storage Building	$ 6,793,903	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,221,159	$ -	$ -	$ -	$ -	$ 7,982,828	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 298,903	$ -	$ -	$ -	$ -
Primary Maintenance Facility																				
Primary Maintenance - Maintenance Area (250' x 300	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 35,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff Facility																				
Satellite Maintenance and Staff - Maintenance Area	$ 1,295,958	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 790,726	$ -	$ -	$ -	$ -	$ -	$ 71,592	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,115,869	$ -	$ -	$ -
Stormwater Pond																				
New Stormwater Ponds	$ 4,016,713	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,782,129	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,197,329	$ 1,197,329	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Non-Critical Elements																				
Main Site HHW Facility																				
HHW Building (65' x 75')	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removed																				
Compost Pond Removal																				
Compost Pond Removal	$ 201,056	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																				
Special Permits and Allow																				
Special Permits	$ 5,122,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 129,110	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																				
Wetlands Mitigation	$ 7,596,199	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																				
Facility Beautification	$ 2,846,618	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,683,138	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 548,959	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site-wide Demolition																				
Site-wide Demolition and Disposa	$ 2,596,687	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																				
Shared Site Utilities	$ 2,319,928	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																				
MRF Upgrade to TS	$ 103,953	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766	$ -	$ -	$ -	$ -
Replacement Costs	$ 6,079	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal	$ 539,875,043	$ 15,560,155	$ 9,927,466	$ -	$ 1,046,202	$ 22,368,159	$ 71,592	$ -	$ -	$ 36,989,871	$ 21,758,190	$ 1,303,285	$ 15,807,736	$ -	$ 1,397,991	$ 39,622,286	$ 1,115,869	$ -	$ -	$ 12,409
OPERATION AND MAINTENANCE COSTS																				
Landfill Operations (years 0-66)	$ 178,044,123	$ 7,241,705	$ 7,314,122	$ 7,387,264	$ 7,461,136	$ 7,535,748	$ 7,611,105	$ 7,687,216	$ 7,764,088	$ 7,841,729	$ 7,920,146	$ 7,999,348	$ 8,079,341	$ 8,160,135	$ 8,241,736	$ 8,324,154	$ -	$ -	$ -	$ -
Public Area Operations (years 0-87)	$ 89,003,429	$ 2,943,391	$ 2,972,825	$ 3,002,554	$ 3,032,579	$ 3,062,905	$ 3,093,534	$ 3,124,469	$ 3,155,714	$ 3,187,271	$ 3,219,144	$ 3,251,335	$ 3,283,849	$ 3,316,687	$ 3,349,854	$ 3,383,353	$ 3,417,186	$ 3,451,358	$ 3,485,872	$ 3,520,730
C&D Area Operations (years 0-87)	$ 633,637,876	$ 20,755,558	$ 20,963,114	$ 21,172,745	$ 21,384,472	$ 21,598,317	$ 21,814,300	$ 22,032,443	$ 22,252,768	$ 22,475,295	$ 22,700,048	$ 22,927,049	$ 23,156,319	$ 23,387,883	$ 23,621,761	$ 23,857,979	$ 24,096,559	$ 24,337,524	$ 24,580,900	$ 24,826,709
Compost Area Operations (years 0-87)	$ 229,602,069	$ 7,520,887	$ 7,596,096	$ 7,672,057	$ 7,748,778	$ 7,826,266	$ 7,904,528	$ 7,983,574	$ 8,063,409	$ 8,144,043	$ 8,225,484	$ 8,307,739	$ 8,390,816	$ 8,474,724	$ 8,559,471	$ 8,645,066	$ 8,731,517	$ 8,818,832	$ 8,907,020	$ 8,996,090
WPWMA Operational Costs (years 0-87)	$ 490,552,304	$ 16,281,483	$ 16,444,298	$ 16,608,741	$ 16,774,828	$ 16,942,576	$ 17,112,002	$ 17,283,122	$ 17,455,953	$ 17,630,513	$ 17,806,818	$ 17,984,886	$ 18,164,735	$ 18,346,382	$ 18,529,846	$ 18,715,145	$ 18,902,296	$ 19,091,319	$ 19,282,232	$ 19,475,055
Long Haul Trucking (year 67)	$ 333,133,621	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 71,289,696	$ 72,002,593	$ 72,722,619	$ 73,449,845
Post Closure Care Costs (year 67)	$ 3,346,454	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 586,190	$ 586,190	$ 586,190	$ 586,190
Subtotal	$ 1,957,319,876	$ 54,743,025	$ 55,290,455	$ 55,843,360	$ 56,401,794	$ 56,965,812	$ 57,535,470	$ 58,110,824	$ 58,691,933	$ 59,278,852	$ 59,871,640	$ 60,470,357	$ 61,075,060	$ 61,685,811	$ 62,302,669	$ 62,925,696	$ 127,023,444	$ 128,287,816	$ 129,564,833	$ 130,854,619
ANNUAL NET COST		$ 70,303,180	$ 65,217,921	$ 55,843,360	$ 57,447,996	$ 79,333,971	$ 57,607,062	$ 58,110,824	$ 58,691,933	$ 96,268,723	$ 81,629,830	$ 61,773,642	$ 76,882,797	$ 61,685,811	$ 63,700,660	$ 102,547,982	$ 128,139,312	$ 128,287,816	$ 129,564,833	$ 130,867,028
CUMULATIVE SPENDING		$ 2,865,878,694	$ 2,931,096,615	$ 2,986,939,975	$ 3,044,387,971	$ 3,123,721,941	$ 3,181,329,003	$ 3,239,439,828	$ 3,298,131,760	$ 3,394,400,483	$ 3,476,030,313	$ 3,537,803,955	$ 3,614,686,752	$ 3,676,372,563	$ 3,740,073,223	$ 3,842,621,205	$ 3,970,760,517	$ 4,099,048,333	$ 4,228,613,166	$ 4,359,480,194

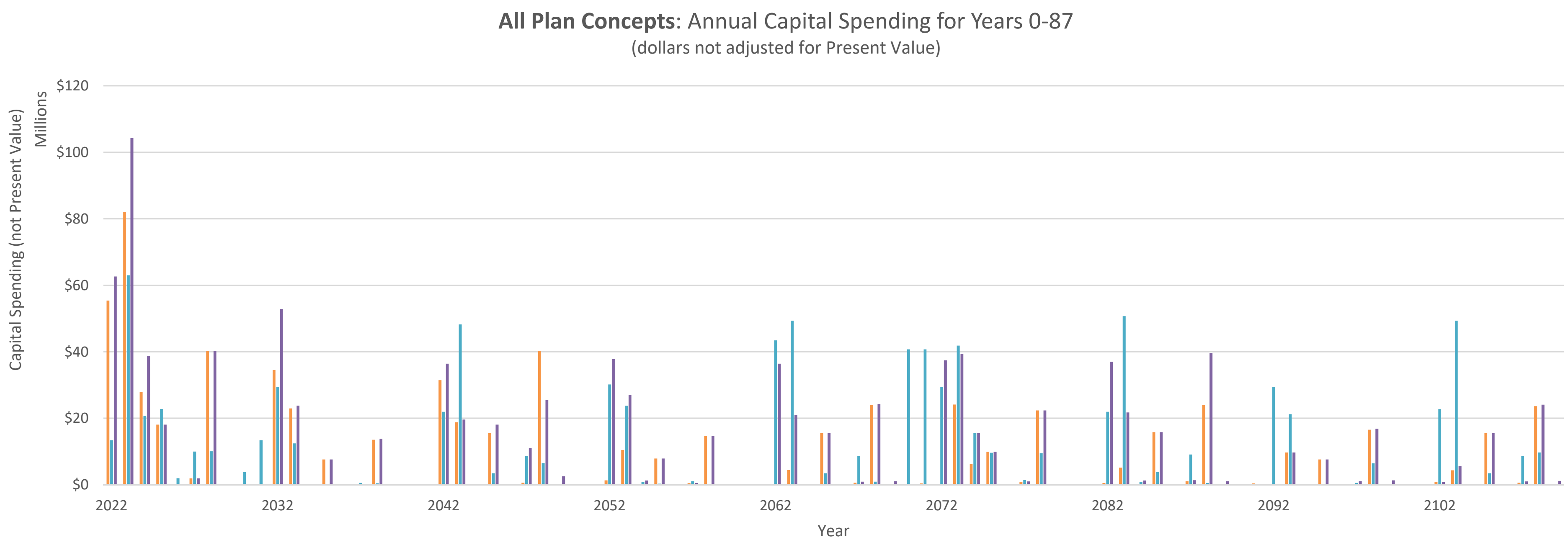
Project Life	
Total Capital Spending (PV)	$ 539,875,043
Annualized Capital Spending (PV	$ 12,930,553
Total Operating and Maintenance Spending (PV	$ 1,957,319,876
Annualized Operating and Maintenance Spending (PV	$ 46,879,789
Project Total (PV)	$ 2,497,194,919
Annualized Project Total Spending (PV	$ 59,810,342
Real Discount Rate	2.0%

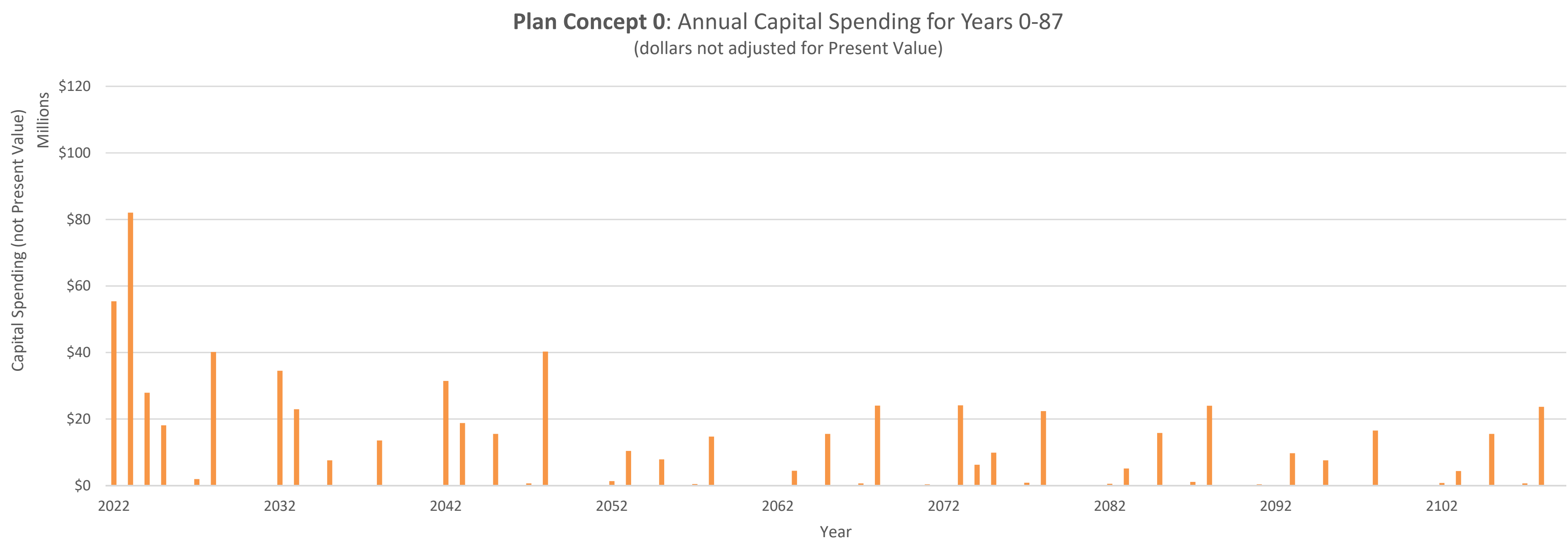
Client: WPWMA
Project: Renewable Placer - Waste Action Plar
Date: Nov-16-2018
Worksheet: PV Analysis
Plan Concept: 2

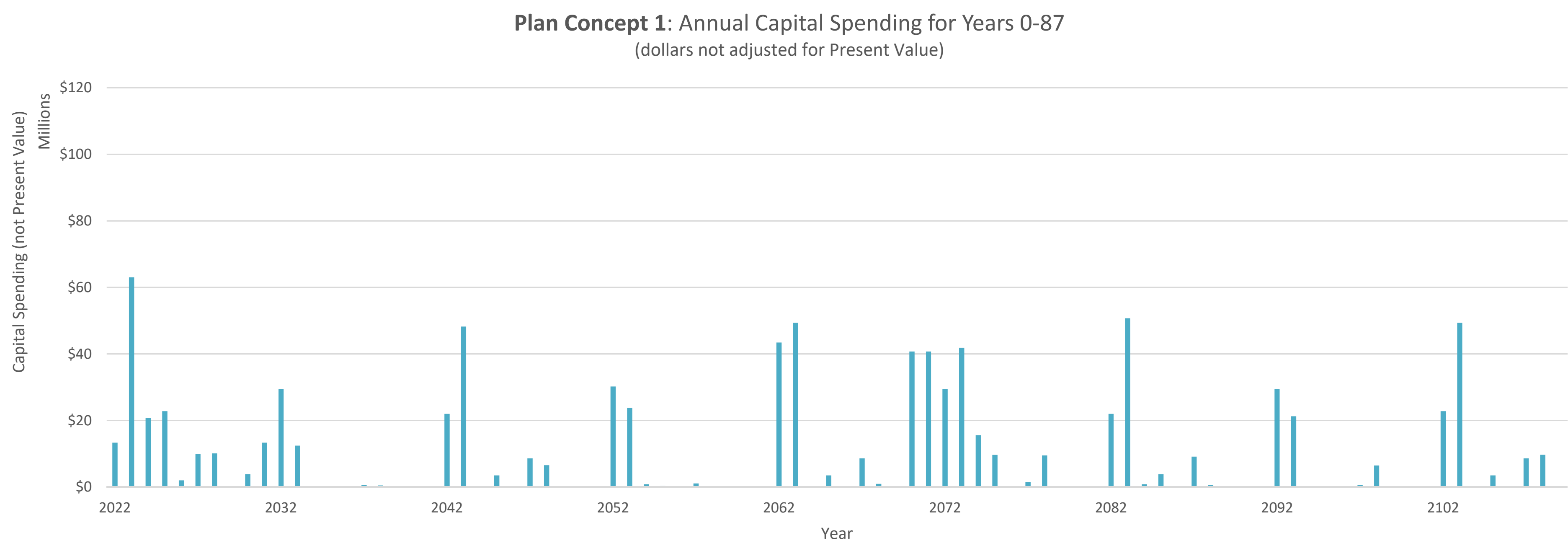
		2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	Remaining Useful Life/Liability
		71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	
BACKGROUND DATA																			
Total Disposed Tons		730,832	738,140	745,521	752,977	760,506	768,111	775,793	783,550	791,386	799,300	807,293	815,366	823,519	831,755	840,072	848,473	856,958	
CAPITAL COSTS																			
	Element PV																		
Critical Elements																			
Public Area																			
Public Area - Roadways	$ 1,629,581	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Buyback (220' x 230')	$ 2,405,422	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - HHW (300' x 100')	$ 1,619,011	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Reuse Store Area (155' x 140')	$ 1,729,111	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area - Tipping Area	$ 8,021,635	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 10,539,547	$ -	$ -	$ -	$ -	$ -	$ 1,799,189	$ -	$ -	$ -	$ -	$ 3,833,052	$ -	$ -	$ -	$ -	$ -	$ -	$ (6,819,909)
C&D																			
C&D - C&D Pad	$ 8,858,654	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
C&D - Processing Line	$ 6,897,345	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 34,424,388	$ -	$ -	$ 7,636,512	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 15,521,367	$ -	$ -	$ -	$ -	$ (11,680,170)
Composting																			
Compost - Green Waste Pad (210' x 225')	$ 1,073,312	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Wood Waste Pad (115' x 225')	$ 587,766	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Outdoor Receiving Area (90' x 200')	$ 1,993,753	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Screening and Product Storage Pad (400' x 3	$ 4,624,836	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Temporary Positive ASP System	$ 434,973	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Active Composting System (205' x 880')	$ 11,318,608	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Biofilter (135' x 880')	$ 3,914,558	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - ASP Curing System (185' x 880')	$ 10,095,020	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Dedicated Stormwater Ponds	$ 977,164	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Compost - Miscellaneous Equipment	$ 11,464	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 55,736,072	$ 9,761,951	$ -	$ -	$ -	$ -	$ 14,478,401	$ -	$ -	$ -	$ 12,409	$ 546,940	$ -	$ -	$ -	$ -	$ 23,507,272	$ -	$ (28,735,328)
Landfill																			
Landfill Construction	$ 139,798,664	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Unlined Area Excavation/Backfill	$ 93,063,925	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Stockpile Relocation	$ 21,782,775	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Closure Costs	$ 47,549,757	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Necessary Supporting Elements																			
Admin																			
Admin Staff Bldg	$ 13,757,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Admin Staff Parking Lot	$ 153,249	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 4,575,941	$ -	$ -	$ -	$ -	$ -	$ -	$ 172,583	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (4,737,481)
Main Entrance																			
Main Entrance - Roadways	$ 671,737	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Main Entrance - Scale/Building	$ 1,329,017	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,953,480	$ -	$ -	$ -	$ -	$ 57,274	$ -	$ -	$ -	$ -	$ 802,788	$ -	$ -	$ -	$ -	$ 677,995	$ -	$ -	$ (1,317,082)
Western Entrance																			
Western Entrance - Roadways	$ 436,472	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Western Entrance - Scale/Building	$ 202,791	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 695,798	$ -	$ -	$ -	$ -	$ 832,380	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 360,125	$ -	$ -	$ (321,154)
Overpass																			
Overpass	$ 5,224,800	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 100,143	$ -	$ -	$ -	$ -	$ 213,822	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (111,188)
Recovered Materials Storage																			
Recyclables Storage Building	$ 6,793,903	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 2,221,159	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 155,718	$ -	$ (3,224,362)
Primary Maintenance Facility																			
Primary Maintenance - Maintenance Area (250' x 300'	$ 1,668,843	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 511,471	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (470,569)
Satellite Maintenance and Staff Facility																			
Satellite Maintenance and Staff - Maintenance Area	$ 1,295,958	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Satellite Maintenance and Staff - Staff Bldg and Parking	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 790,726	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,192,618	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,187,461	$ (2,141,555)
Stormwater Pond																			
New Stormwater Ponds	$ 4,016,713	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,782,129	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (359,199)
Non-Critical Elements																			
Main Site HHW Facility																			
HHW Building (65' x 75')	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Existing Features to be Removec																			
Compost Pond Removal																			
Compost Pond Removal	$ 201,056	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Elements																			
Special Permits and Allow																			
Special Permits	$ 5,122,796	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Geotechnical Investigation	$ 129,110	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Wetlands Mitigation																			
Wetlands Mitigation	$ 7,596,199	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Beautification																			
Facility Beautificatior	$ 2,846,618	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 1,683,138	$ -	$ -	$ -	$ -	$ -	$ 548,959	$ -	$ -	$ -	$ -	$ 1,297,252	$ -	$ -	$ -	$ -	$ -	$ -	$ (1,249,054)
Site-wide Demolition																			
Site-wide Demolition and Disposa	$ 2,596,687	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Site Utilities																			
Shared Site Utilities	$ 2,319,928	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
MRF Upgrade to TS																			
MRF Upgrade to TS	$ 103,953	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Replacement Costs	$ 6,079	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 415,766	$ -	$ (394,977)
Subtotal	$ 539,875,043	$ 9,761,951	$ -	$ 7,636,512	$ -	$ 1,103,476	$ 16,826,549	$ 1,365,201	$ -	$ -	$ 815,198	$ 5,677,245	$ -	$ 15,521,367	$ -	$ 1,038,120	$ 24,078,756	$ 1,187,461	$ (61,562,027)
OPERATION AND MAINTENANCE COSTS																			
Landfill Operations (years 0-66)	$ 178,044,123	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Public Area Operations (years 0-87)	$ 89,003,429	$ 3,555,938	$ 3,591,497	$ 3,627,412	$ 3,663,686	$ 3,700,323	$ 3,737,326	$ 3,774,699	$ 3,812,446	$ 3,850,571	$ 3,889,077	$ 3,927,967	$ 3,967,247	$ 4,006,919	$ 4,046,989	$ 4,087,459	$ 4,128,333	$ 4,169,616	$ -
C&D Area Operations (years 0-87)	$ 633,637,876	$ 25,074,976	$ 25,325,725	$ 25,578,983	$ 25,834,773	$ 26,093,120	$ 26,354,051	$ 26,617,592	$ 26,883,768	$ 27,152,606	$ 27,424,132	$ 27,698,373	$ 27,975,357	$ 28,255,110	$ 28,537,661	$ 28,823,038	$ 29,111,268	$ 29,402,381	$ -
Compost Area Operations (years 0-87)	$ 229,602,069	$ 9,086,051	$ 9,176,912	$ 9,268,681	$ 9,361,368	$ 9,454,982	$ 9,549,531	$ 9,645,027	$ 9,741,477	$ 9,838,892	$ 9,937,281	$ 10,036,653	$ 10,137,020	$ 10,238,390	$ 10,340,774	$ 10,444,182	$ 10,548,624	$ 10,654,110	$ -
WPWMA Operational Costs (years 0-87)	$ 490,552,304	$ 19,669,805	$ 19,866,503	$ 20,065,168	$ 20,265,820	$ 20,468,478	$ 20,673,163	$ 20,879,894	$ 21,088,693	$ 21,299,580	$ 21,512,576	$ 21,727,702	$ 21,944,979	$ 22,164,429	$ 22,386,073	$ 22,609,934	$ 22,836,033	$ 23,064,393	$ -
Long Haul Trucking (year 67)	$ 333,133,621	$ 74,184,343	$ 74,926,187	$ 75,675,449	$ 76,432,203	$ 77,196,525	$ 77,968,491	$ 78,748,175	$ 79,535,657	$ 80,331,014	$ 81,134,324	$ 81,945,667	$ 82,765,124	$ 83,592,775	$ 84,428,703	$ 85,272,990	$ 86,125,720	$ 86,986,977	$ -
Post Closure Care Costs (year 67)	$ 3,346,454	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 586,190	$ 5,275,710
Subtotal	$ 1,957,319,876	$ 132,157,303	$ 133,473,014	$ 134,801,883	$ 136,144,040	$ 137,499,618	$ 138,868,752	$ 140,251,578	$ 141,648,232	$ 143,058,852	$ 144,483,579	$ 145,922,553	$ 147,375,916	$ 148,843,814	$ 150,326,390	$ 151,823,792	$ 153,336,168	$ 154,863,668	$ 5,275,710
ANNUAL NET COST		$ 141,919,254	$ 133,473,014	$ 142,438,395	$ 136,144,040	$ 138,603,094	$ 155,695,301	$ 141,616,779	$ 141,648,232	$ 143,058,852	$ 145,298,777	$ 151,599,797	$ 147,375,916	$ 164,365,181	$ 150,326,390	$ 152,861,912	$ 177,414,924	$ 156,051,128	$ (56,286,317)
CUMULATIVE SPENDING		$ 4,501,399,448	$ 4,634,872,463	$ 4,777,310,857	$ 4,913,454,897	$ 5,052,057,991	$ 5,207,753,292	$ 5,349,370,071	$ 5,491,018,302	$ 5,634,077,155	$ 5,779,375,931	$ 5,930,975,728	$ 6,078,351,645	$ 6,242,716,825	$ 6,393,043,215	$ 6,545,905,127	$ 6,723,320,051	$ 6,879,371,179	

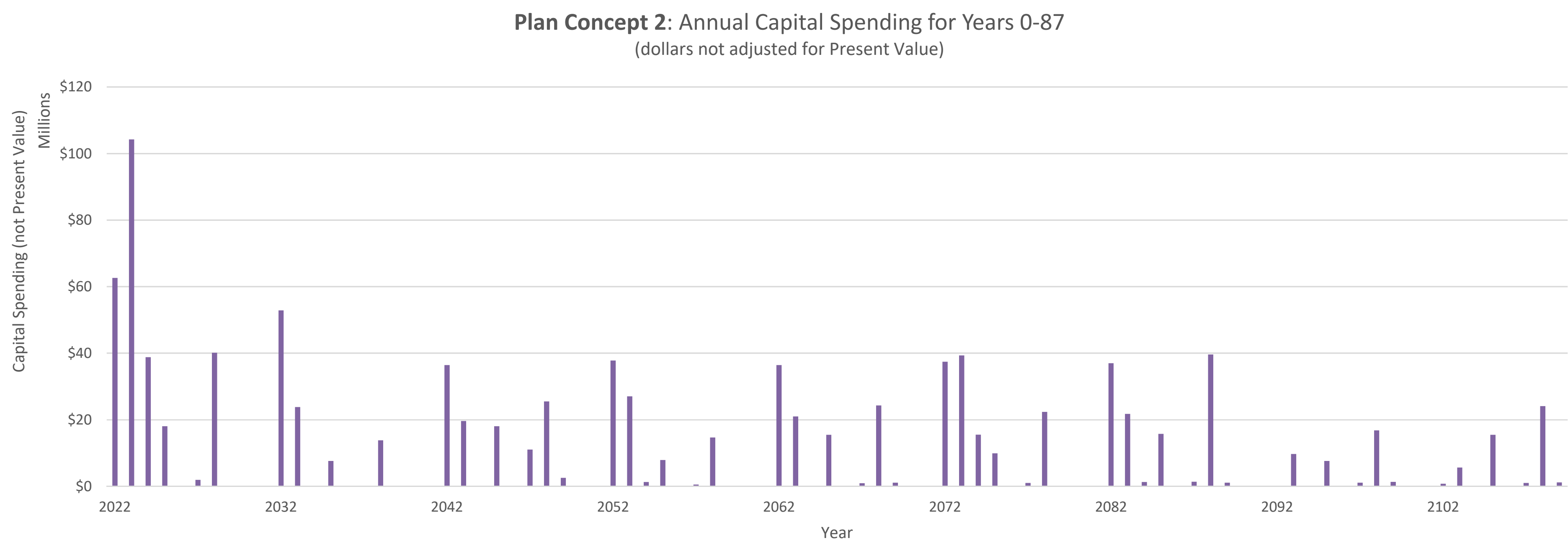
Project Life	
Total Capital Spending (PV	$ 539,875,043
Annualized Capital Spending (PV	$ 12,930,553
Total Operating and Maintenance Spending (PV	$ 1,957,319,876
Annualized Operating and Maintenance Spending (PV	$ 46,879,789
Project Total (PV)	$ 2,497,194,919
Annualized Project Total Spending (PV	$ 59,810,342
Real Discount Rate	2.0%

Appendix 4C-3
Capital Spending Charts

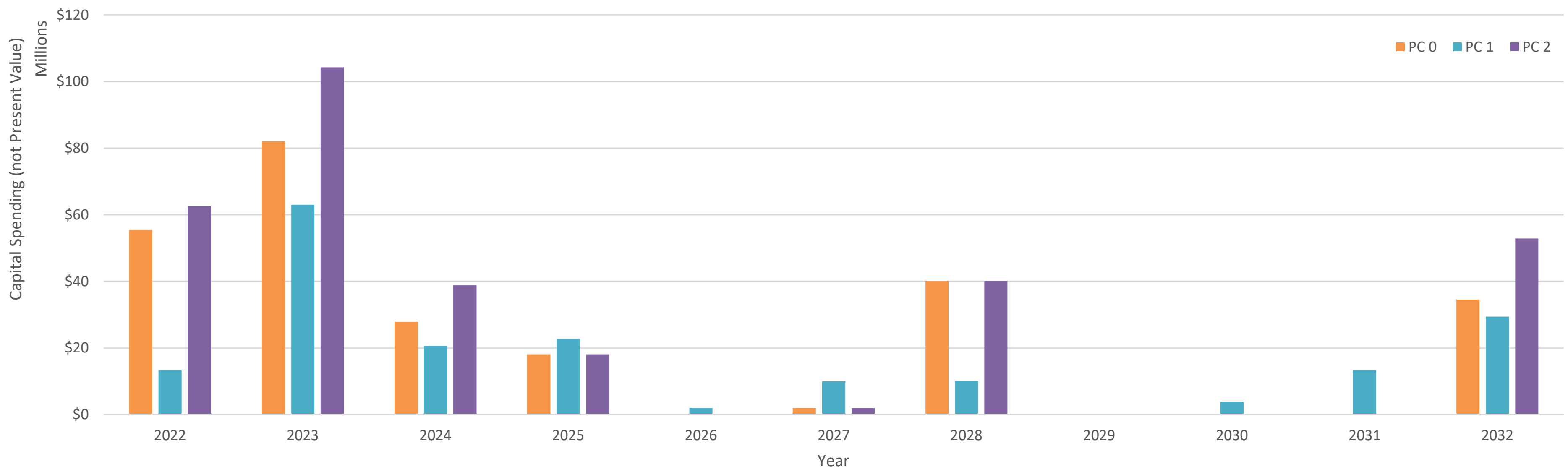

All Plan Concepts: Annual Capital Spending for Years 0-87
(dollars not adjusted for Present Value)
Capital Spending (not Present Value)
Millions
$120
$100
$80
$60
$40
$20
$0
2022
2032
2042
2052
2062
2072
2082
2092
2102
Year


Plan Concept 0: Annual Capital Spending for Years 0-87
(dollars not adjusted for Present Value)
Capital Spending (not Present Value)
Millions
$120
$100
$80
$60
$40
$20
$0
2022
2032
2042
2052
2062
2072
2082
2092
2102
Year

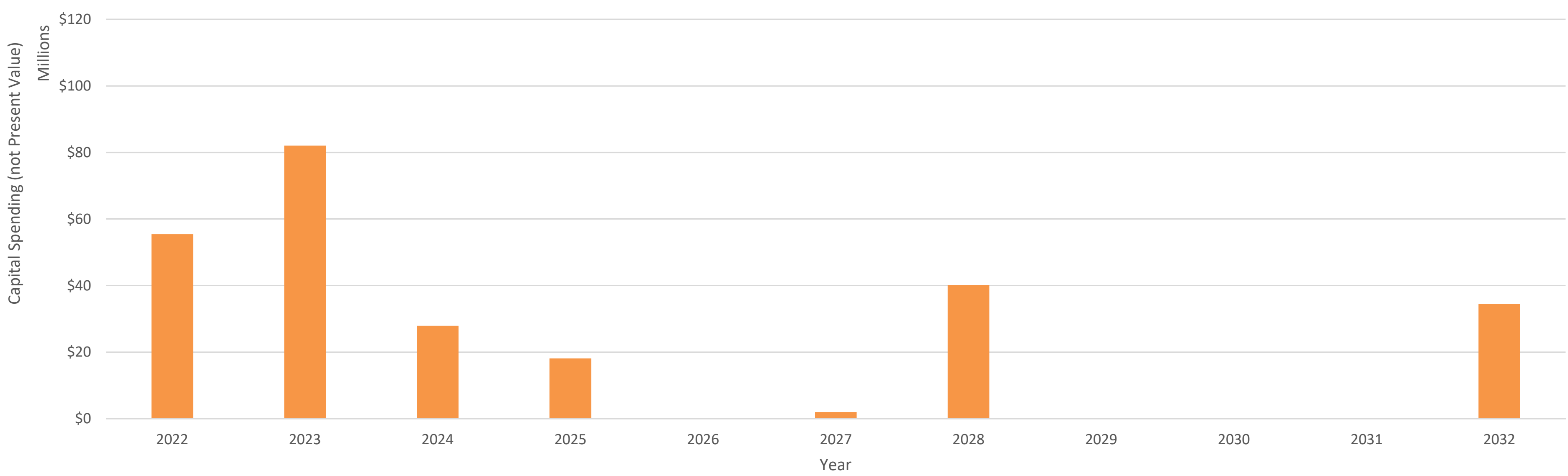

Plan Concept 1: Annual Capital Spending for Years 0-87
(dollars not adjusted for Present Value)
Capital Spending (not Present Value)
Millions
$120
$100
$80
$60
$40
$20
$0
2022
2032
2042
2052
2062
2072
2082
2092
2102
Year


Plan Concept 2: Annual Capital Spending for Years 0-87
(dollars not adjusted for Present Value)
Capital Spending (not Present Value)
Millions
$120
$100
$80
$60
$40
$20
$0
2022
2032
2042
2052
2062
2072
2082
2092
2102
Year

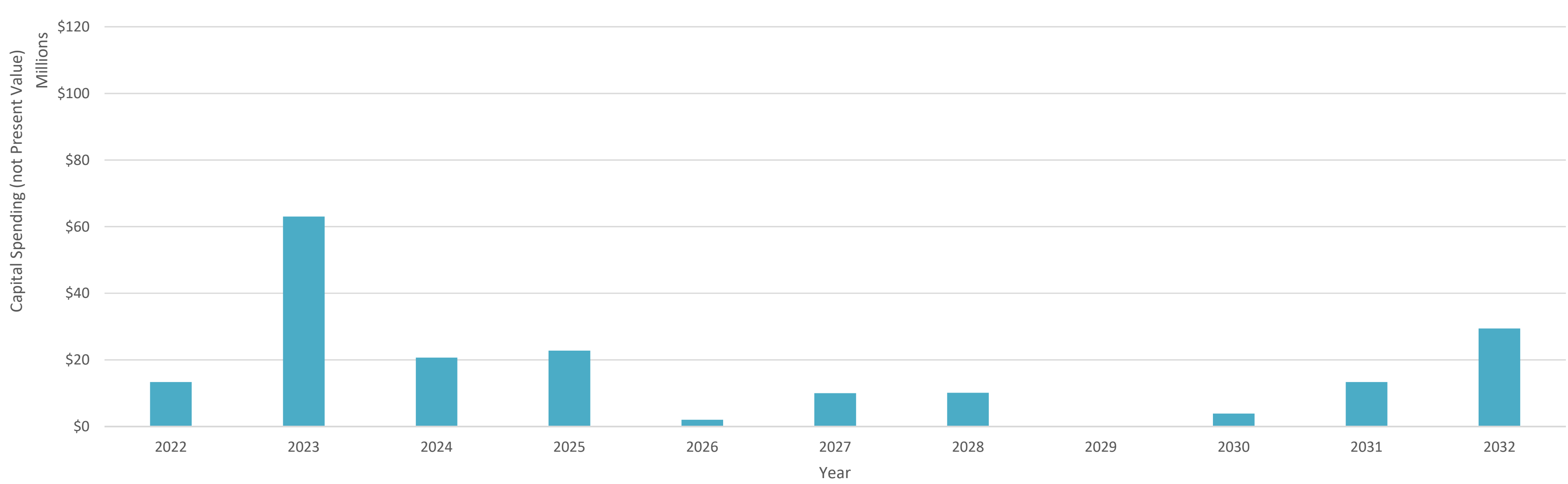
All Plan Concepts: Annual Capital Spending for Years 0-10
(dollars not adjusted for Present Value)



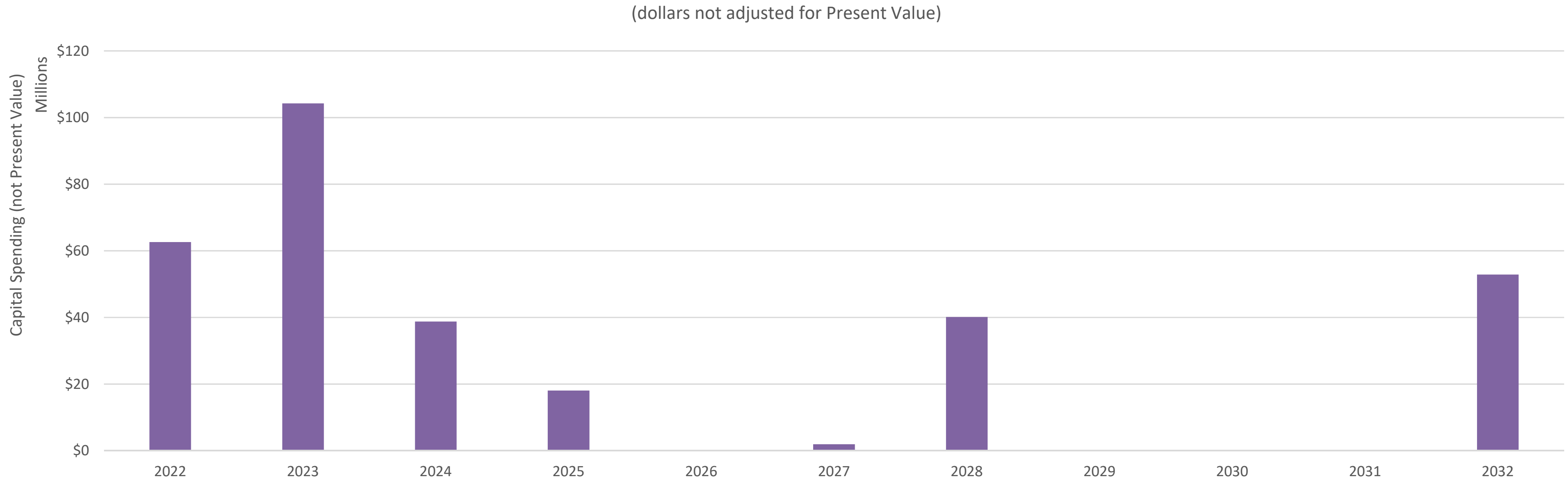
Plan Concept 0: Annual Capital Spending for Years 0-10
(dollars not adjusted for Present Value)



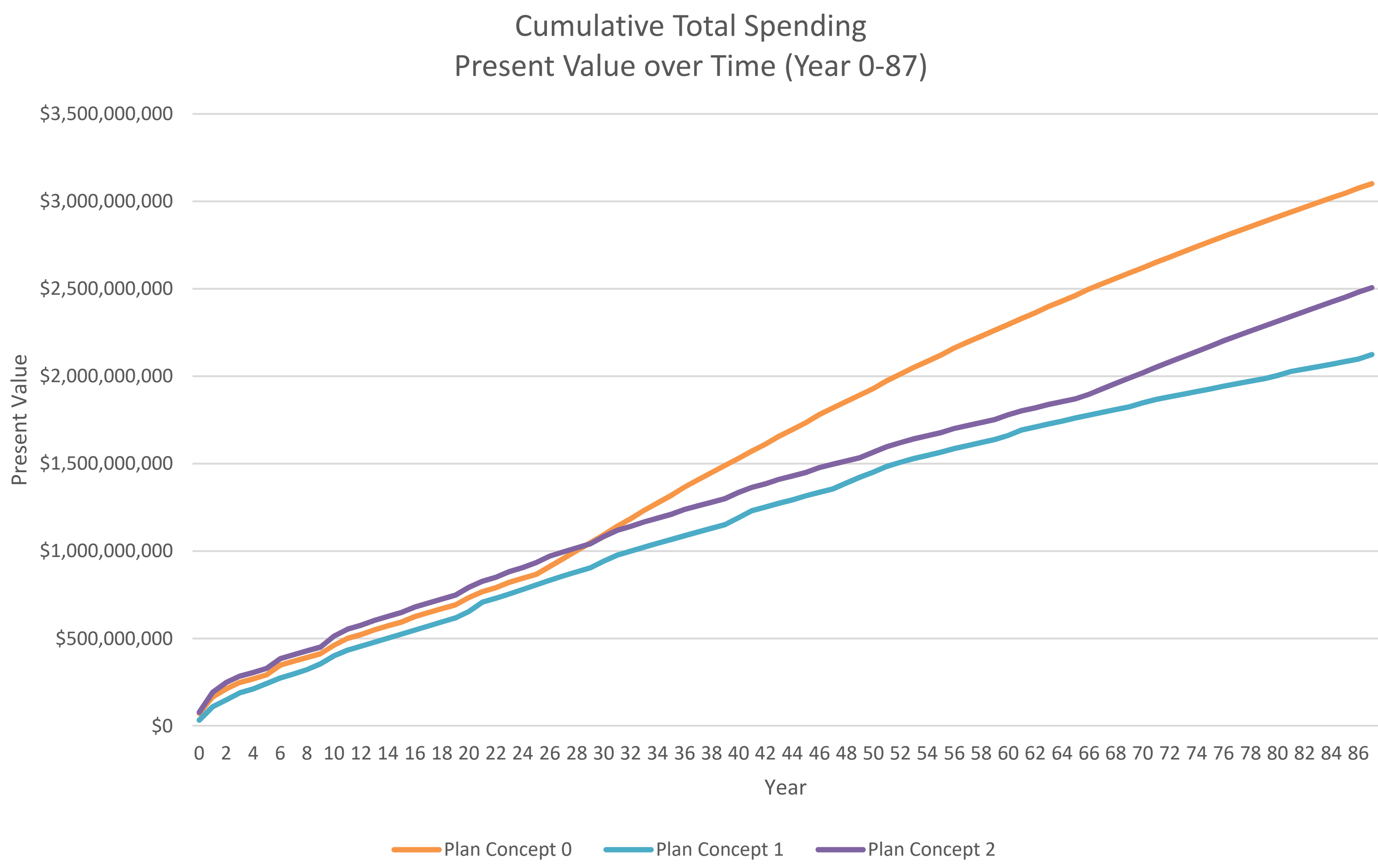
Plan Concept 1: Annual Capital Spending for Years 0-10
(dollars not adjusted for Present Value)



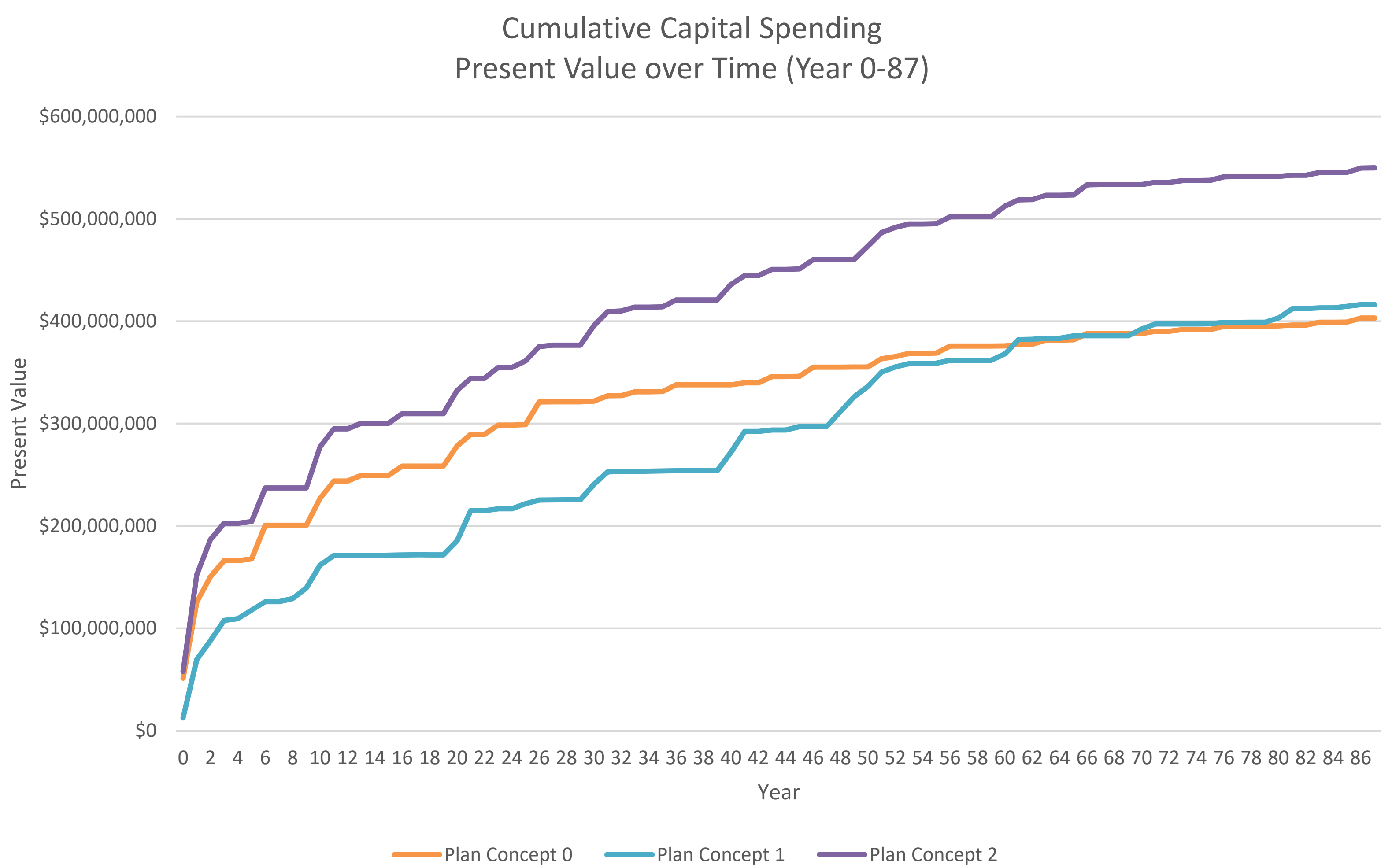
Plan Concept 2: Annual Capital Spending for Years 0-10
(dollars not adjusted for Present Value)

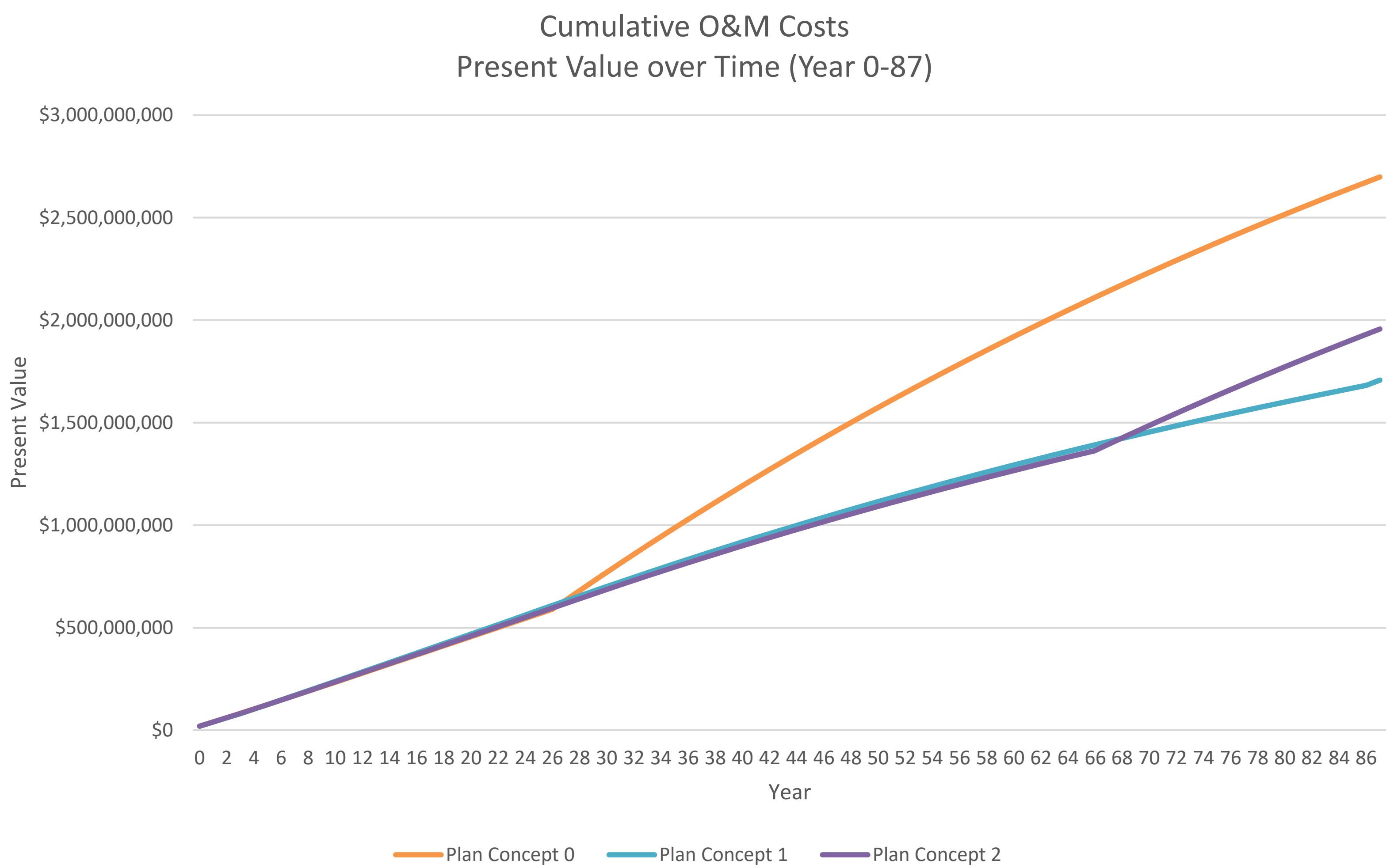


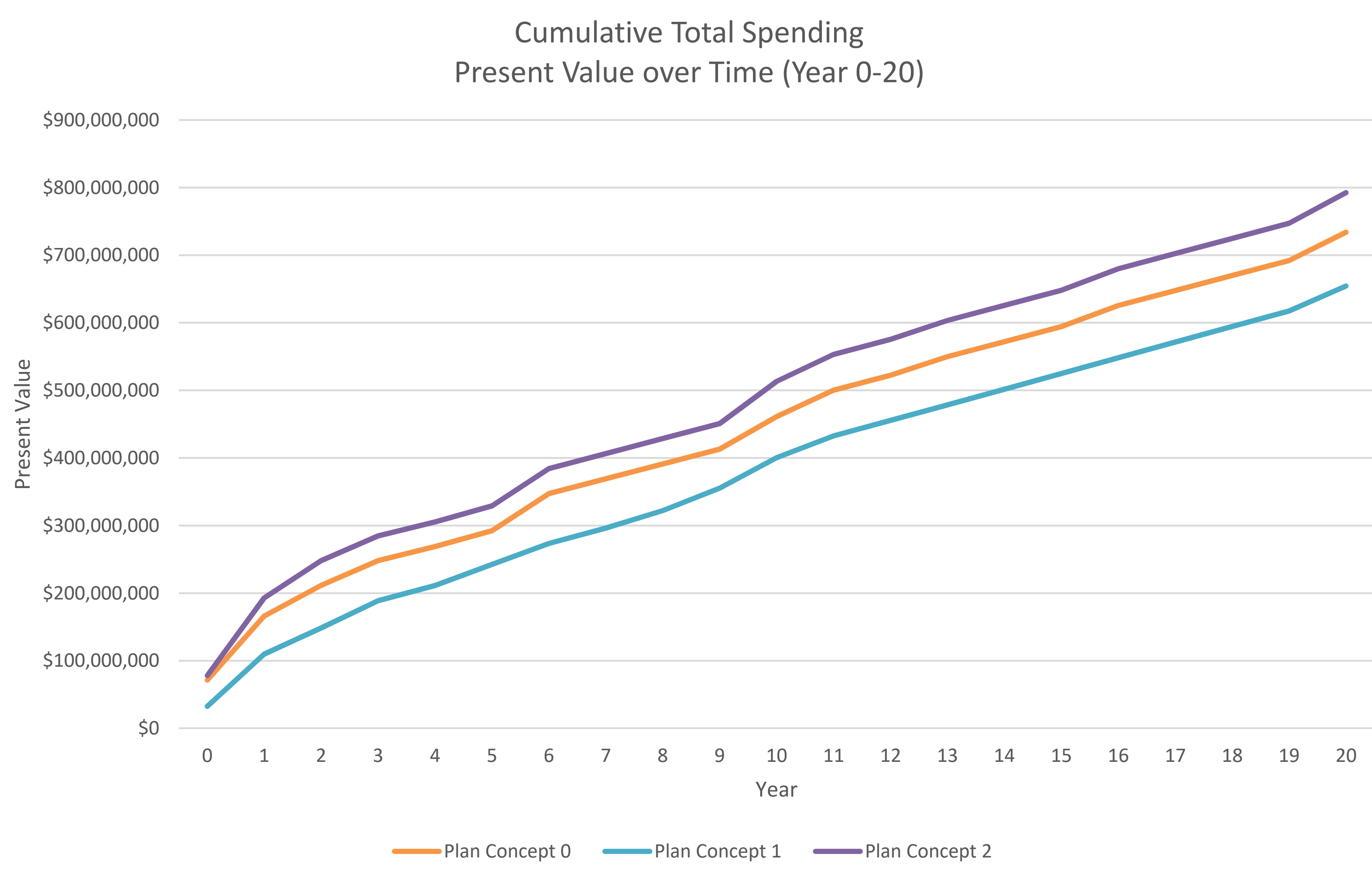
Appendix 4C-4
Cumulative Spending Charts

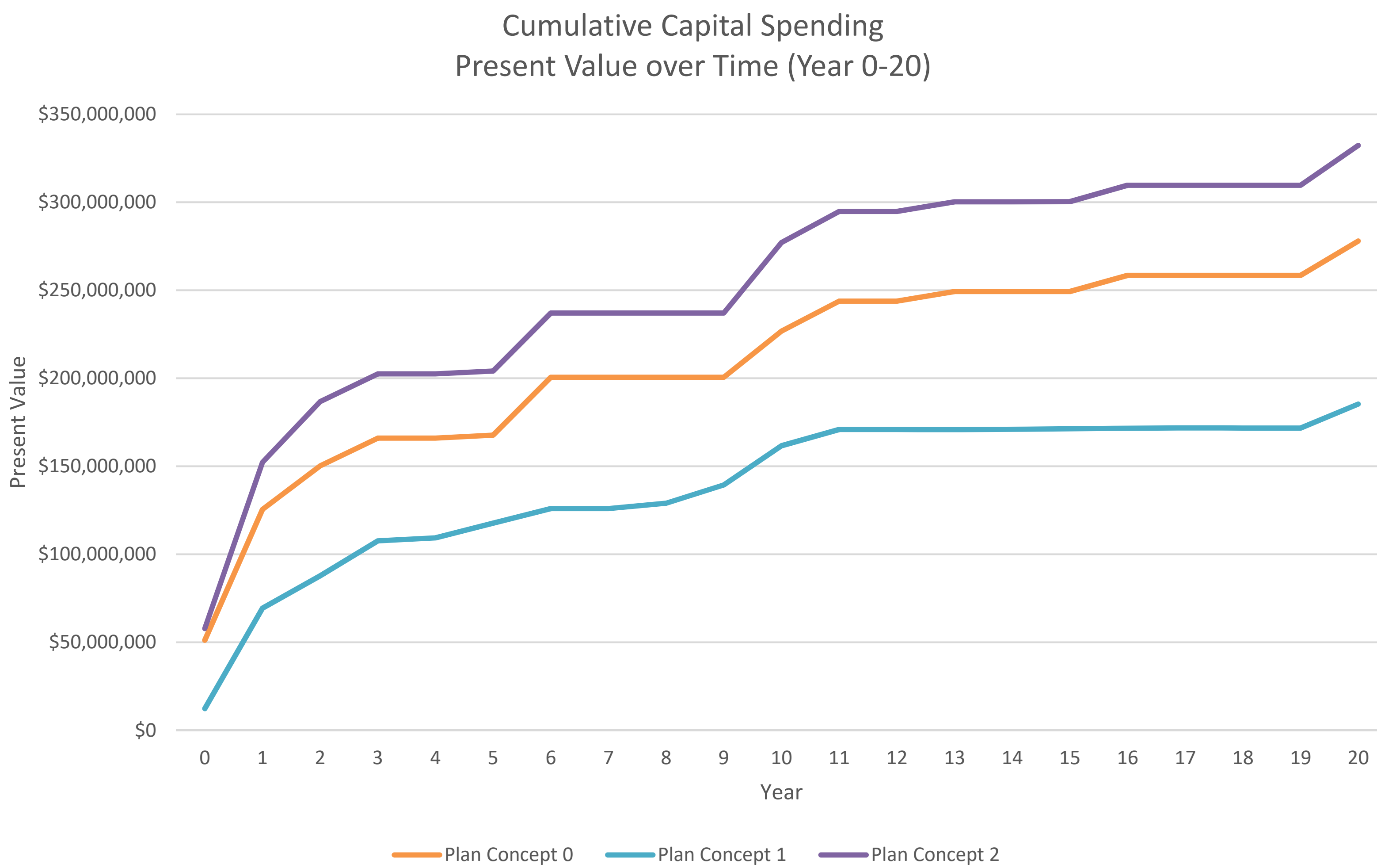


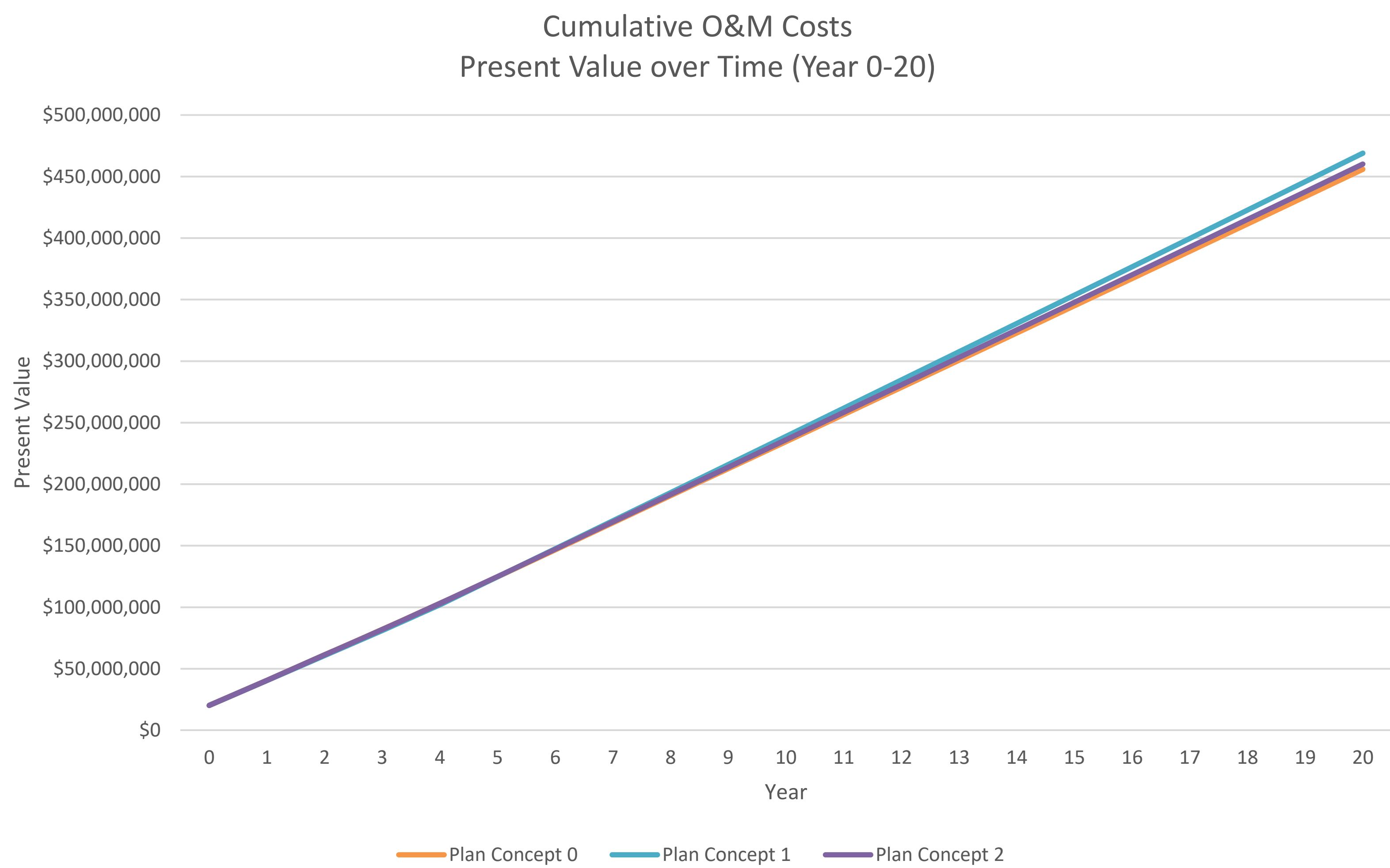
Cumulative Total Spending
Present Value over Time (Year 0-87)
$3,500,000,000
$3,000,000,000
$2,500,000,000
$2,000,000,000
$1,500,000,000
$1,000,000,000
$500,000,000
$0
Present Value
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86
Year
Plan Concept 0
Plan Concept 1
Plan Concept 2


Cumulative Capital Spending
Present Value over Time (Year 0-87)
Present Value
$600,000,000
$500,000,000
$400,000,000
$300,000,000
$200,000,000
$100,000,000
$0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86
Year
Plan Concept 0
Plan Concept 1
Plan Concept 2


Cumulative O&M Costs
Present Value over Time (Year 0-87)
$3,000,000,000
$2,500,000,000
$2,000,000,000
$1,500,000,000
$1,000,000,000
$500,000,000
$0
Present Value
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 84 86
Year
Plan Concept 0
Plan Concept 1
Plan Concept 2


Cumulative Total Spending
Present Value over Time (Year 0-20)
$900,000,000
$800,000,000
$700,000,000
$600,000,000
$500,000,000
$400,000,000
$300,000,000
$200,000,000
$100,000,000
$0
Present Value
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Year
Plan Concept 0
Plan Concept 1
Plan Concept 2


Cumulative Capital Spending
Present Value over Time (Year 0-20)
$350,000,000
$300,000,000
$250,000,000
$200,000,000
$150,000,000
$100,000,000
$50,000,000
$0
Present Value
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Year
Plan Concept 0
Plan Concept 1
Plan Concept 2


Cumulative O&M Costs
Present Value over Time (Year 0-20)
$500,000,000
$450,000,000
$400,000,000
$350,000,000
$300,000,000
$250,000,000
$200,000,000
$150,000,000
$100,000,000
$50,000,000
$0
Present Value
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Year
Plan Concept 0
Plan Concept 1
Plan Concept 2