**CLOVER FLAT LANDFILL**

**PRELIMINARY COST ESTIMATES TO IMPLEMENT PHASE IMPROVEMENT FOR THE**

**CLOVER FLAT RESOURCE RECOVERY PARK**

The Clover Flat Landfill is being transformed into the Clover Flat Resource Recovery Park (CFRRP) starting with the filing of a CUP application in November 2009 with anticipation to comply with the requirements of changing state laws and regulations. Most notably was the passage of AB 32, the Global Warming Solutions Act of 2006, which set the 2020 greenhouse gas emissions reduction goal into law which effective landfills and recycling in the state of California. The Use Permit and the mitigated Negative Declaration was adopted in December 2011 by the County Planning Commission. The Solid Waste Facility Permit Revision was sent from the County LEA to CalRecycle on June 6, 2014. CalRecycle is expected to concur within 60 days where Phase 2 planning and permitting will be completed by August 2014 to address the following changes in law:

* AB 32 Scoping Plan was adopted in December 2008, to control methane at landfills, increase commercial recycling, increase renewable energy, increase compost use, and decrease greenhouse gases.
* AB 341 Mandated Commercial Recycling started on July 1, 2012
* AB 341 set a statewide goal of 75% recycling by 2020
* AB 32 Scoping Plan First Update was adopted in May 2014 to prohibit/phase out of organics form landfills starting in 2016
* AB 1826 (Chesbro) as proposed would start a mandatory organic collection program starting in 2016 in accordance with the AB 32 Scoping Plan First Update.

***AB 32 Scoping Plan – High Recycling/Zero Waste***

CARB has adopted over 100 measures in the AB 32 Scoping Plan in December 2008 to reduce GHGs with high recycling, that are aimed at reducing methane emissions at landfills, increasing waste diversion, composting and other beneficial uses of organic materials, and mandating commercial recycling as California moves toward zero waste. As clearly stated in the AB 32 Scoping Plan, California has a long track record of reducing GHG emissions by turning waste into resources, exemplified by the statewide waste diversion rate from landfills of 65 percent (which exceeds the current 50 percent mandate) resulting from recovery of recyclable materials. Re-introducing recyclables with intrinsic energy value back into the manufacturing process reduces GHG emissions from multiple phases of product production including extraction of raw materials, pre-processing and manufacturing. Additionally, by recovering organic materials from the waste stream, and having a vibrant composting and organic materials industry, there is an opportunity to further reduce GHG emissions through the indirect benefits associated with the reduced need for water and fertilizer for California’s agricultural sector.

The AB 32 Scoping Plan anticipated reducing GHG emissions from the Recycling and Waste Sector as noted in Table 1 below. With the AB 32 Measure RW-1, CFL, Inc. has already instituted the discrete early action items to collect landfill gas and converting it into renewable energy with the installation of the landfill gas energy generation facility approved with a minor modification to the Use Permit. The landfill gas to energy system has just been commissioned and is operating today.

**Table 1**

**Recycling and Waste Sector Recommendation - Landfill**

**Methane Capture and High Recycling/Zero Waste**

**(MMTCO2E in 2020)**

|  |  |  |
| --- | --- | --- |
| **Measure No.** | **Measure Description** | **MMTCO2E Reductions** |
| RW-1 | Landfill Methane Control (Discrete Early Action) | 1 |
| RW-2 | Additional Reductions in Landfill Methane* Increase the Efficiency of Landfill Methane Capture
 | TBD |
| RW-3 | High Recycling/Zero Waste* Mandatory Commercial Recycling
* Increase Production and Markets for Organics Products
* Anaerobic Digestion
* Extended Producer Responsibility
* Environmentally Preferable Purchasing
 | 522TBDTBD |
|  | Total | 10 |

***AB 32 Recycling Plan***

The CFRRP project proposes to provide mandated commercial recycling processing services and process organic feedstocks for the Upper Napa Valley, as required in the AB 32 Scoping Plan, and generate renewable energy.

* Mandated Commercial Recycling:Five million metric tons of CO2 equivalent reductions are required by 2020. This project recognizes the current mixed commercial recycling processing of the bulkier dry waste and recyclables at the Material Recovery Facility, which will continue as part of the CFRRP.
* Compost Use:The use of compost isto reduce 2 million metric tons of CO2 equivalent reductions by 2020. CFL has already started a research commercial food waste in-vessel composting with plans to expand it further as part of the CFRRP. Residential co-collected green waste and food waste composting on a bio-filter is being added.
* Renewable Energy: The use of renewable energy from 20% to 33% by 2020 is mandated to reduce 21.2 million metric tons of CO2 equivalent reductions by 2020. CFRRP will become energy self-sufficient by adding a 1 mega-watt biomass gasification unit, and will convert the landfill gas flare into a landfill gas energy generation facility to generate 848 kilo-watt.

The following AB 32 Recycling Plan components were part of the Use Permit Application package for the CFRRP project:

* Extend the estimated closure date of the Landfill from 2021 to 2047, due to increased recycling, increased compaction, the use of synthetic tarps as alternative daily cover, and using an average annual disposal rate of 40,000 tons per year.
* Decrease the landfill capacity from 5.1 million cubic yards to 4.56 million cubic yards.
* Expand the gate operations area and the Recycling Operations area from 1.4 acres to 2.1 acres, increasing the permitted boundary of the SWFP by 1.01 acres.
* Apply for a Grading Permit for the proposed gate operations area which includes 70,000 cubic yards of cut material, and to create the proposed 2.1 acre Recycling Operations area.
* Add a 1 mega-watt biomass conversion facility that uses clean processed wood chips in a gasification unit.
* Add a Jenbacher engine to convert landfill gas into energy.
* Increase in-vessel food waste composting operations and food waste transfer and processing operations.
* Add covered residential co-collected green waste and food waste storage on a bio-filter and qualify it as composting.
* Increase the storage of recyclable materials.
* Add a series of commodity bunkers for wood chips, compost, top soil blends, aggregate materials, and landscape materials for the general public to purchase recyclable materials.
* Add a residential food waste drop-off at Recycling Operations area.
* Allow new inert alternative daily cover (ADC) material.

As part of the Use Permit application, as series of project components and conditions were added to mitigate impacts, including the following that will be part of the Phase 2 development plan:

* New septic system
* Addition of scale
* Litter fencing
* Vegetative Plan for grading operations

The following costs and implementation schedule for the project and mitigation measures are provided in Table 2 below:

**Table 2**

**Clover Flat Resource Recovery Park**

**Phase 2 Development Costs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Development** | **Schedule** | **Change of Law** | **Compliance** | **Description** | **Costs** |
| **Expand Gate Recycling Operations - $1,397,000** |
| **Expand Gate Recycling Operations** | **2015-2016** | **AB 341 – Mandatory Commercial Recycling and 75% recycling goal** | **Relocated and expand MRF for dry commercial, update gate operations and drop-off** | * **Operations in Joint Technical Document (JTD) – Appendix W**
* **Site Plan attached**
 | **$1,397,000** |
| * **Grading Plan**
 | **2015** | **CUP condtion** | **Preliminary numbers based upon closure plan costs – Need detailed bid** | * **Cut 70,000 CYD**
* **Fill 30,000 CYD**
* **Grade for paving and drainage**
* **$5.50/CYD**
 | **$385,000** |
| * **Landscape**
 | **2016** | **CUP Condition** | **Questa Engineering prepared study and provided cost estimate** | * **$10,000 planting**
* **$20,000 maintenance**
 | **$30,000** |
| * **AC Paving**
 | **2016** | **State minimum standards for access, traffic, stormwater, dust, and drainage** | **Pave Gate Operations. Need detailed bid.** | * **60,000 square feet**
* **AC 6 inches thick over 6 inches compacted AB**
 | **$300,000** |
| * **Concrete Paving**
 | **2016** | **State minimum standards for stormwater, dust, and drainage** | **Concrete under MRF Operations. Need detailed bid.** | * **30,000 square feet**
* **Concrete 6 inches thick**
 | **$350,000** |
| * **Gate House/**

**Office** | **2016** | **State minimum standards** | **Need detailed bid** | * **Commercial trailer**
* **12’ x 60’**
 | **$70,000** |
| * **Septic System**
 | **2016** | **CUP condition** | **REB Engineering prepared study and provided cost estimate** | * **Estimate from local contractor**
 | **$135,000** |
| * **Scale**
 | **2016** | **State minimum standards** | **Need detailed bid** | * **Add new scale**
 | **$50,000** |
| * **Relocated MRF line**
 | **2016** | **AB 341** | **Need detailed bid** | * **Move equipment and electrical**
 | **$30,000** |
| * **Litter Fencing**
 | **2016** | **State minimum standards** | **Need detailed bid** | * **300 foot fence**
 | **$15,000** |
| * **Lighting**
 | **2016** | **State minimum standards** | **Pole lighting** | * **3 poles**
* **$4,000 each**
 | **$12.000** |
| * **Expand Recycling Drop-off Center**
 | **2016** | **AB 341** | **Need detailed bid** | * **Add bunkers and bins for drop-off**
 | **$20,000** |
| **Food Waste Composting - $480,000** |
| **Food Waste Composting** | **2015-2017** | **AB 32 Scoping Plan First Update and AB 1826** | **8,333 TPY design In-vessel with biofilter** | * **Operations in Joint Technical Document (JTD) – Appendix X**
* **Site Plan attached**
 | **$480,000** |
| * **Fan Group 1**
 | **2012-2014** | **AB 32**  | **Already installed** | * **Fan Group 1 – 2,100 TPY**
 | **Current Program** |
| * **Fan Group 2**
 | **2015** | **AB 1826** | **16 vessels at $5,000 each, $2,000 for motor and blower, $10,000/yr for piping for 5 years, $25,000 for electrical** | * **Fan Group 2 – 2,100 TPY**
* **$160,000 per fan group**
 | **$160,000** |
| * **Fan Group 3**
 | **2016** | **AB 1826** | **Same as above.****Need detailed bid.** | * **Fan Group 3 – 2,100 TPY**
* **$160,000 per fan group**
 | **$160,000** |
| * **Fan Group 4**
 | **2018** | **AB 1826** | **Same as above.****Need detailed bid.** | * **Fan Group 4 – 2,100 TPY**
* **$160,000 per fan group**
 | **$160,000** |
| **Biomass Gasification Unit - $5,500,000** |
| **Biomass Gasification Unit** | **2017** | **AB 32 Scoping Plan First Update**  | **1 MW plant****40 TPD of wood waste** | * **Operations in Joint Technical Document (JTD)**
 | **$5,500,000** |