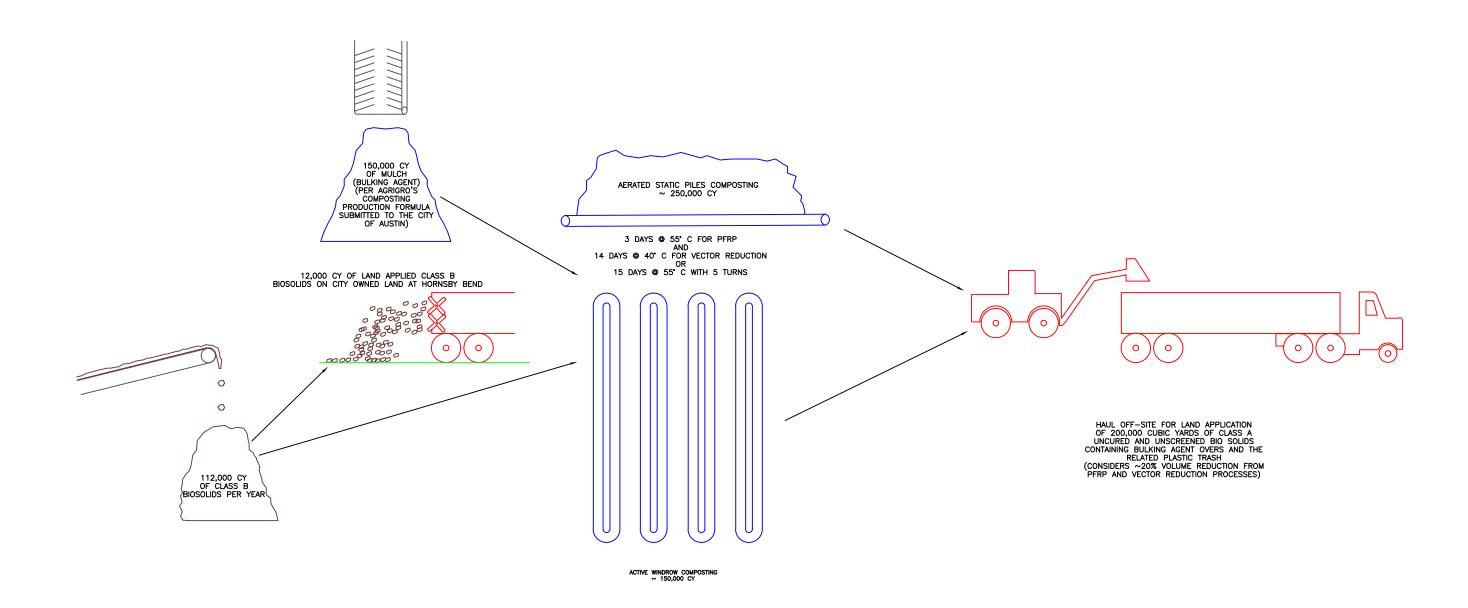
## HORNSBY BEND COMPOST PROCESS AGRICULTURAL COMPOSTING PRODUCTING "ALL GROW"



## **Various Scenarios - Hornsby Bend Biosolids**

(The following are estimates of the various amounts of inputs and outputs of different biosolids composting scenarios)

## **ASSUMPTIONS**

- (a) 2015 COA Biosolids generation (information provided in RFP)
  - 112,000 cubic yards per year = 94,360 tons per year
- (b) 1 cubic yard of Biosolids (information provided in RFP)
  - 1,685 lbs. per cubic yard = 0.8425 tons per cubic yard
- (c) 3 cubic yards of Bulking Agent is needed to fully and properly compost 1 cubic yard of Biosolids into "Dillo Dirt"
  - 500 lbs. per cubic yard = 0.25 tons per cubic yard
  - Bulking Agent is shredded yard trimmings, leaves, brush, limbs, etc.
- (d) 3 cubic yards of Bulking Agent is needed to fully and properly compost 1 cubic yard of Biosolids into "Dillo Dirt"
  - 1 cy of Biosolids plus 3 cy of Bulking Agent once composted produces 1 cy of cured and screened Dillo Dirt and 1 cy of "Overs" (larger pieces of carbon & plastic trash)
  - Screening typically produces a 50/50 split of Dillo Dirt "Fines" and carbon and plastic trash "Overs"
  - Dillo Dirt takes 6.5 months to produce, per City staff
- (e) 1.5 cubic yards of Bulking Agent is reported by Synagro to be needed to partially compost 1 cubic yard of Biosolids into "Ag Compost", which is not cured or screened of "Overs" and plastic trash
- (f) Truck cargo weights
  - Bulking agent: 40,000 lbs (80 cy)

- Agricultural Compost with unscreened "Overs" and plastic trash: 44,000 lbs (30 yds)

- Dillo Dirt: 42,000 lbs (45 cy)

- Class B land application: 44,000 lbs (26 cy)
- (h) Curbside collected yard waste and food waste cannot be processed at the Hornsby Bend facility, per City staff
  - The City currently collects approximately 100,000 cubic yards per year of unshredded yard waste Bulking Agent without food waste, per City staff
  - This volume is reduced to 50,000 cubic yards after shredding.

| Fully & properly compost 100% of Biosolids into Dillo Dirt |                                  |  |  |   |  |   |  |  |  |  |
|--|----------------------------------|--|--|---|--|---|--|--|--|--|
| <u>Process</u><br>Dillo Dirt                               | Volume of Biosolids 100,000 cy 1 | Current Yard waste <u>Available for Dillo Dirt</u> 50,000 cy | Additional Bulking Agent Required for Dillo Dirt 200,000 cy <sup>2</sup> | Cured & Screened Dillo Dirt Produced 100,000 cy | # Inbound Trucks<br>Bulking Agent<br>1,875 - 2,500 | # Outbound Trucks<br><u>Dillo Dirt</u><br>2,222 | # Outbound Trucks<br>Class B Land Apply<br>n/a | Inbound + Outbound <u>Truck Total (approx)</u> 4,097 - 4,722 |  |  |
|  | 84,250 tons                      | There is a <b>SHORTAGE OF 150,000</b>                        | CUBIC VARDS of bulking agent   | if current ward waste valu                      | imas ARE USED for con                              | nnosting 100% of the his                        | ocalide into Dilla Dist                        |  |  |  |

There is a <u>SHORTAGE OF 150,000 CUBIC YARDS</u> of bulking agent if current yard waste volumes <u>ARE USED</u> for composting 100% of the biosolids into Dillo Dirt
There is a <u>SHORTAGE OF 200,000 CUBIC YARDS</u> of bulking agent if current yard waste volumes <u>ARE NOT USED</u> for composting 100% of the biosolids into Dillo Dirt

- 1. Scenario considers direct land application of 12,000 cy of Class B Biosolids onsite at Hornsby Bend (an RFP requirement)
- 2. Scenario considers utilization of 100,000 cy of "Overs" in the composting process, therefore reducing the overall amount of required inbound Bulking Agent to 200,000 cy

|                              |   |  | • • •  | compost 50% of Bios<br>ation of 50% of Class                |  |   |   |   |
|------------------------------|---|--|--|---|--|---|---|---|
| <u>Process</u><br>Dillo Dirt | Volume of Biosolids 50,000 cy 42,125 tons | Current Yard waste <u>Available for Dillo Dirt</u> 50,000 cy                   | Additional Bulking Agent<br>Required for Dillo Dirt<br>100,000 cy <sup>2</sup> | Cured & Screened<br><u>Dillo Dirt Produced</u><br>50,000 cy | # Inbound Trucks Bulking Agent 625 - 1,250 | # Outbound Trucks<br><u>Dillo Dirt</u><br>1,111 | # Outbound Trucks<br>Class B Land Apply | Inbound + Outbound<br><u>Total Trucks (approx)</u><br>3,659 - 4,284 |
| Land Apply<br>Offsite        | 42,125 tons                               | There is a <u>SHORTAGE OF 50,000</u><br>tere is a <u>SHORTAGE OF 100,000 C</u> |  |   |  | · -   |   |   |

<sup>1.</sup> Scenario considers direct land application of 12,000 cy of Class B Biosolids onsite at Hornsby Bend (an RFP requirement)

<sup>2.</sup> Scenario considers utilization of 50,000 cy of "Overs" in the composting process, therefore reducing the overall amount of required inbound Bulking Agent to 100,000 cy

| Fully & properly compost 25% of Biosolids into Dillo Dirt Direct land application of 75% of Class B Biosolids offsite |   |  |   |   |   |   |   |   |  |
|---|---|--|---|---|---|---|---|---|--|
| <u>Process</u><br>Dillo Dirt  | Volume of Biosolids 25,000 cy 1 21,063 tons | Current Yard waste <u>Available for Dillo Dirt</u> 50,000 cy | Additional Bulking Agent Required for Dillo Dirt 50,000 cy <sup>2</sup> | Cured & Screened<br><u>Dillo Dirt Produced</u><br>25,000 cy | # Inbound Trucks<br>Bulking Agent<br>313    | # Outbound Trucks<br><u>Dillo Dirt</u><br>556         | # Outbound Trucks<br>Class B Land Apply | Inbound + Outbound<br><u>Total Trucks (approx)</u><br>3,754 |  |
| Land Apply<br>Offsite   | 75,000 cy<br>63,188 tons                    | There is a <u>SHORTAGE OF 50,000 CL</u>                      | n/a<br>n/a<br><u>IBIC YARDS</u> of bulking agent if c                   | n/a<br>n/a<br>surrent yard waste volum                      | n/a<br>n/a<br>nes <u>ARE NOT USED</u> for o | n/a<br>n/a<br>c <mark>omposting 25% of the b</mark> i | 2,885 iosolids into Dillo Dirt          |   |  |

<sup>1.</sup> Scenario considers land application of 12,000 cy onsite at Hornsby Bend (an RFP requirement)

<sup>2.</sup> Scenario considers utilization of 25,000 cy of "Overs" in the composting process, therefore reducing the overall amount of required inbound Bulking Agent to 50,000 cy

|   | Quick compos                           | ting of 100% of Biosolids ar                         | nd Bulking Agent without                            | curing or screening int                   | to "Agricultural Co               | mpost" and markete                      | d as "All Grow" (per                 | Synagro)   |  |
|---|--|--|---|---|-----------------------------------|---|--------------------------------------|--|--|
| <u>Process</u>  | Volume of<br><u>Biosolids</u>          | Current Yardwaste<br><u>Available for Dillo Dirt</u> | Additional Bulking Agent<br>Required for Ag Compost | Uncured & Unscreened Ag. Compost Produced | # Inbound Trucks<br>Bulking Agent | # Outbound Trucks<br>Class A Land Apply | # Outbound Trucks Class B Land Apply | Inbound + Outbound<br><u>Total Trucks (approx)</u> |  |
| Ag Compost  | 100,000 cy <sup>1</sup><br>84,250 tons | 50,000 cy  | 150,000 cy  | 85,225 tons                               | 1,875                             | 2,841                                   |                                      | 4,716  |  |
| There is a <u>SHORTAGE OF 100,000 CUBIC YARDS</u> of bulking agent if current yard waste volumes <u>ARE USED</u> for composting 100% of the biosolids in Agricultural Compost There is a <u>SHORTAGE OF 150,000 CUBIC YARDS</u> of bulking agent if current yard waste volumes <u>ARE NOT USED</u> for composting 100% of the biosolids into Agricultural Compost |  |  |   |   |                                   |   |                                      |  |  |

1. Scenario considers land application of 12,000 cy onsite at Hornsby Bend (an RFP requirement). Scenario also considers a 30% reduction of biosolids volume from moisture reduction and partial composting process.