

City of Columbus Biosolids Update

OWEA Biosolids Workshop

Brandon Fox
City of Columbus



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR



Mayor's Green Team

Green Principles

March 17, 2006

The **City of Columbus** is committed to achieving an environmentally sustainable community that meets today's needs without compromising the ability of future generations to meet their needs, and accepts the responsibility to promote these **Green Principles** in policy decisions and programs.

1. **Promote and implement environmental quality** for current and future generations when making decisions regarding growth management, transportation, energy, water, air quality and economic development.
2. **Provide for the needs of a growing population in a manner that enhances prosperity and sustains a diverse, resilient and healthy environment** when establishing policy on land use, infrastructure development, open space preservation, healthy lifestyles, preservation of natural resources, growing food locally, and the greening of the city through tree planting and parks development. Prioritize the impact of regional consequences and opportunities.
3. **Strengthen economic vitality** and economic security within the community through environmentally based policies that create jobs, promote entrepreneurship, and expand green business opportunities. Promote products and services that enhance environmental, social and economic vigor by adopting and implementing sustainable procurement practices. Utilize research & development as a vital tool in promoting green economic development, seeking advancements and break-through technologies.
4. **Reduce demand for natural resources** through energy efficiency, water conservation and sustainable land use. Promote construction of high-performance, green buildings based on long-term environmental impact and operating costs.
5. **Promote waste management strategies** that seek to reduce, reuse and recycle. Vastly improve awareness and participation in recycling programs in the community. Seek opportunities to reduce the waste stream of solid waste. Implement programs that address all forms of waste, including solid waste, wastewater and organic waste.
6. **Encourage transportation and mobility alternatives** that decrease use and dependence on petroleum-based fuels while improving outdoor air quality. Promote energy independence by seeking non-petroleum, renewable fuel sources. Support a variety of choices to the community that promote pedestrian access, transit, bikeways and healthy lifestyles.

Promote waste management strategies that seek to reduce, reuse and recycle. Vastly improve awareness and participation in recycling programs in the community. Seek opportunities to reduce the waste stream of solid waste. Implement programs that address all forms of waste, including solid waste, wastewater and organic waste.

Solids Treatment Utilization Master Plan Considerations (STUMP)

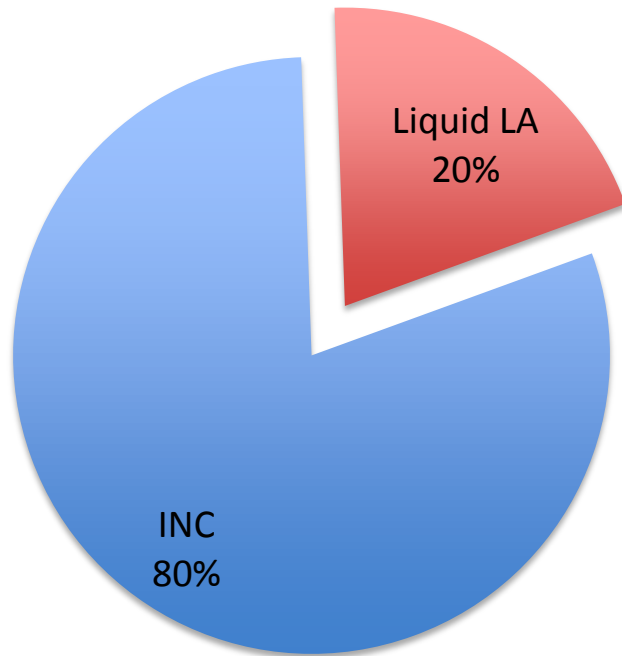
- 2009 Draft STUMP report generated, final report in 2010
- Recommendations of STUMP based on all biosolids alternatives using many years of collected WWTP and Compost Facility operational data
 - Optimize entire WWTP/Compost process network based on specified parameters
 - Costs
 - Energy usage
 - Greenhouse gas emissions
 - Analyzed social, environmental, economic and technical ramifications of all options

Solids Treatment Utilization Master Plan Findings

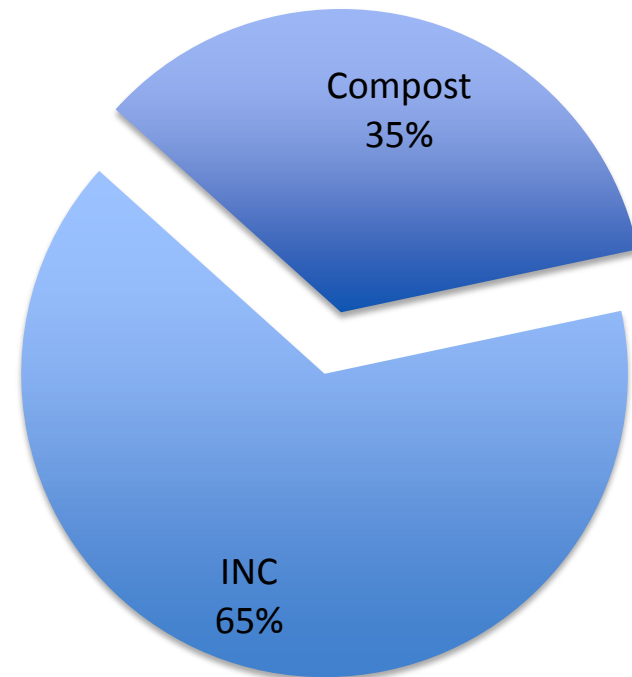
- Best options included:
 - Utilization by Third Parties
 - Combinations of Land Application and Composting
- Poor options included:
 - Incineration
 - Elimination of Digestion

Where we were..... Incineration Dependent!

**Jackson Pike Biosolids
2009, Dry Tons**



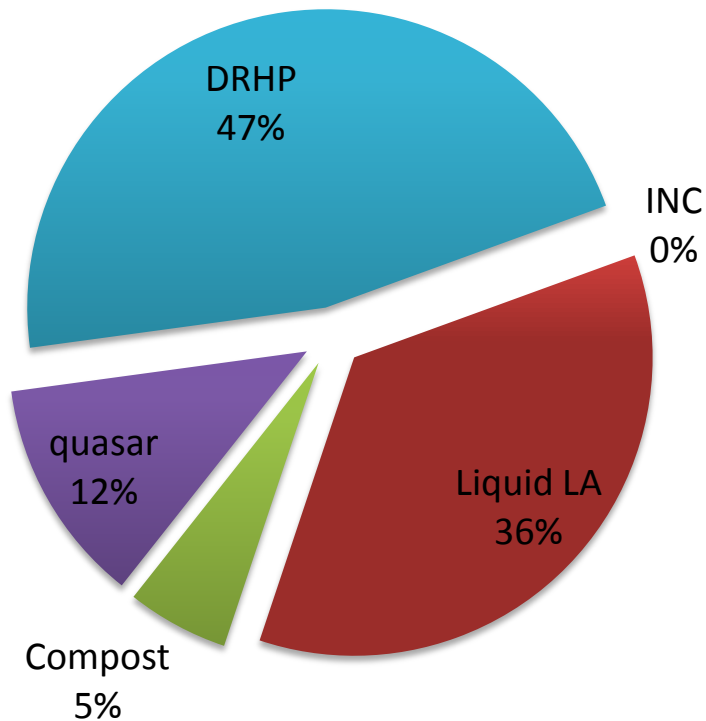
**Southerly Biosolids
2009, Dry Tons**



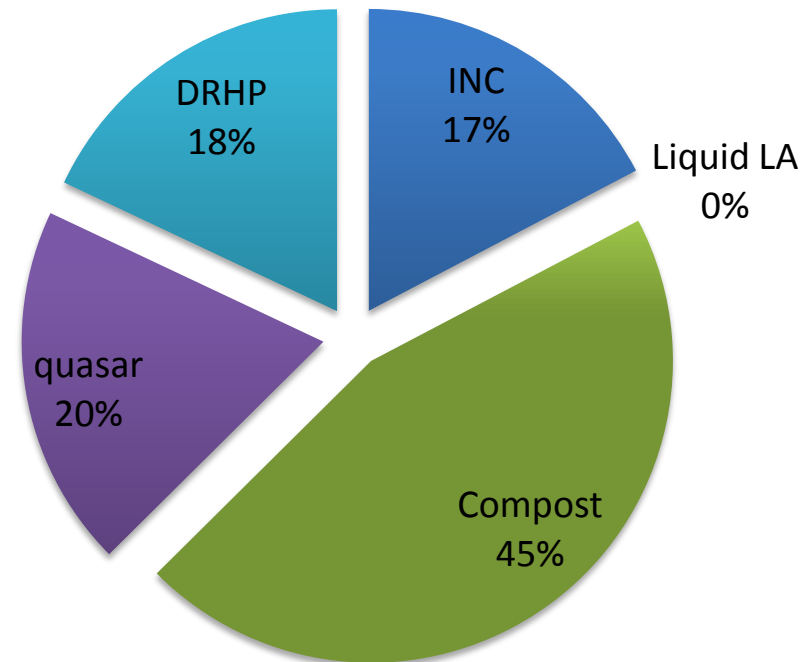
*STUMPing for the Environment 8.2010, Rob V.

Where we are..... Limited Incineration.

Jackson Pike Biosolids 2014, Dry Tons

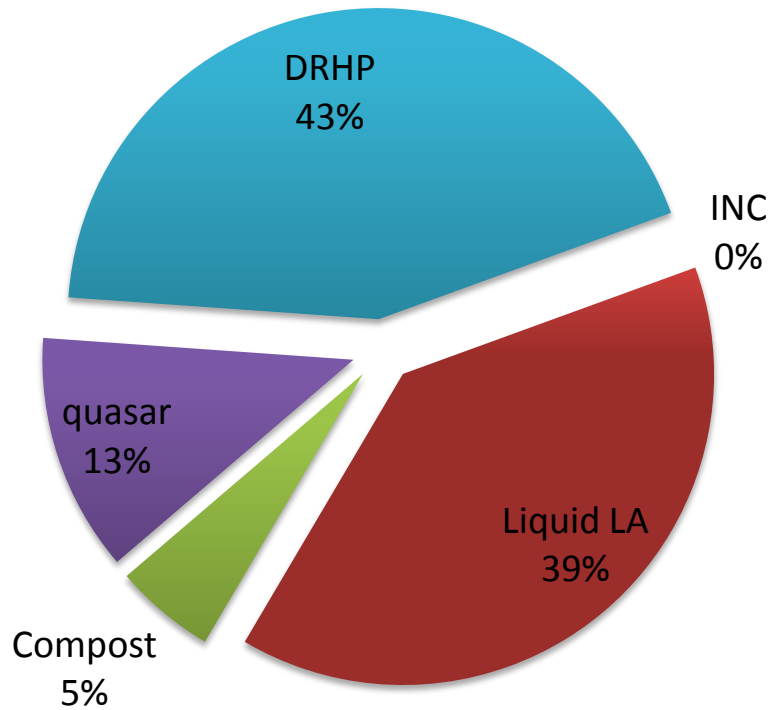


Southerly Biosolids 2014, Dry Tons

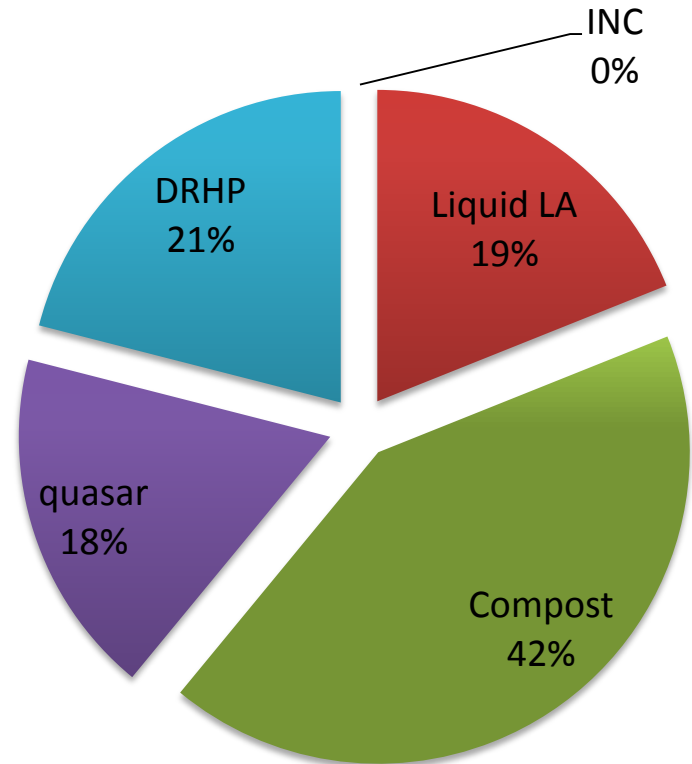


Where we are going..... 100 Percent Beneficial Reuse!

Jackson Pike Biosolids 2016+, Dry Tons

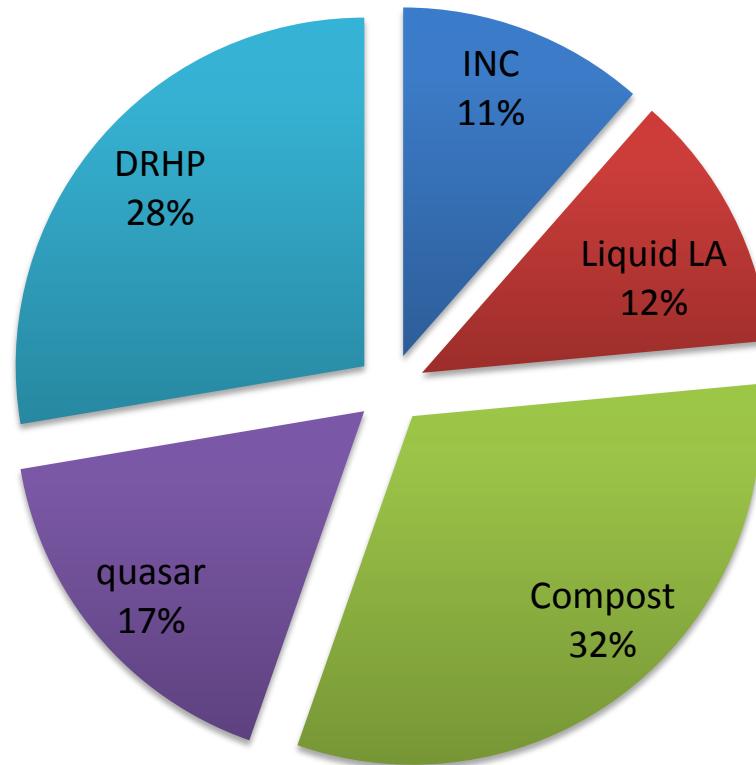


Southerly Biosolids 2016+, Dry Tons

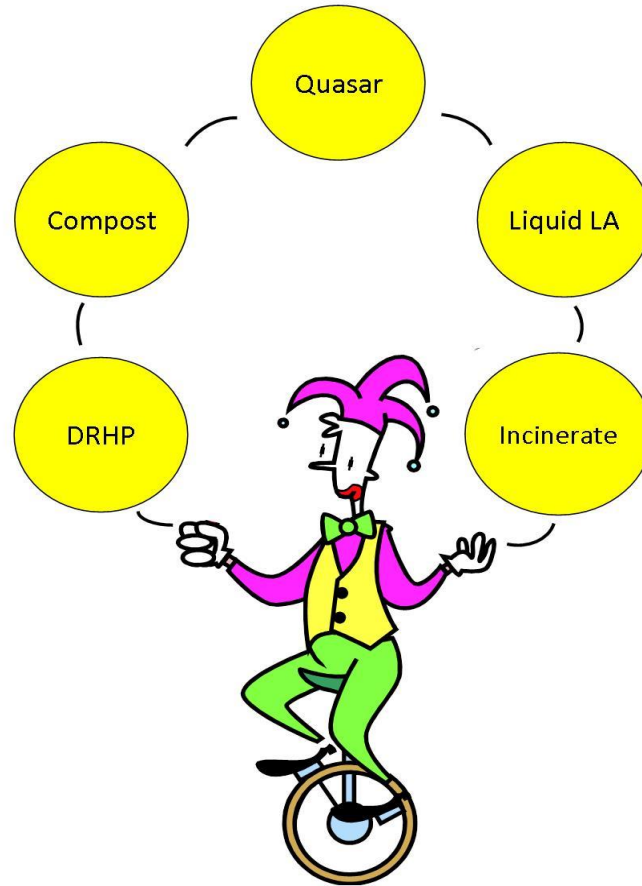


2014 Plants Combined

Southerly and Jackson Pike Biosolids 2014, Dry Tons



How is the City doing it?



Compost Facility

1. City has been Composting since 1980 at various levels
2. Produces approximately 40,000 yards of Com-til and Com-til Plus for commercial sale
3. Current biosolids processing average is 130 WT/Day of Class B or undigested dewatered cake
4. Maximum processing is 200 WT/Day
5. 2014- Will process 42,000 Wet Tons biosolids
6. Cost is approximately \$220/Dry Ton



Compost Facility



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Compost Facility



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Liquid Land Application

1. **Third Party Contract with Synagro LLC**
2. **City has land applied biosolids since 1980 in one form or another**
3. **Current program is liquid injection of +/- 8 MG/Year of 8-10% TS Class B biosolids**
4. **Contract goal 10 MG/Year but have never achieved**
5. **Current Price is \$106/Dry Ton**
6. **Current CIP's at Jackson Pike and Southerly to expand LA program to 15+ MG/year**



Liquid Land Application



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Liquid Land Application



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Liquid Land Application- Mother Nature sometimes wins!



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Quasar

1. **Third Party Contract with SWACO, Kurtz Brothers and City**
2. **Established in 2011 to assist in diverting biodegradable material from SWACO landfill.**
3. **Waste to Energy Anaerobic Digestion process to convert biosolids, regional food waste and FOG into power generation and biogas production.**
4. **Contract goal of 25,000 WT/Year of Class B or undigested dewatered cake biosolids**
5. **Current Cost is \$195/Dry Ton**



Quasar



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Deep Row Hybrid Poplar- DRHP

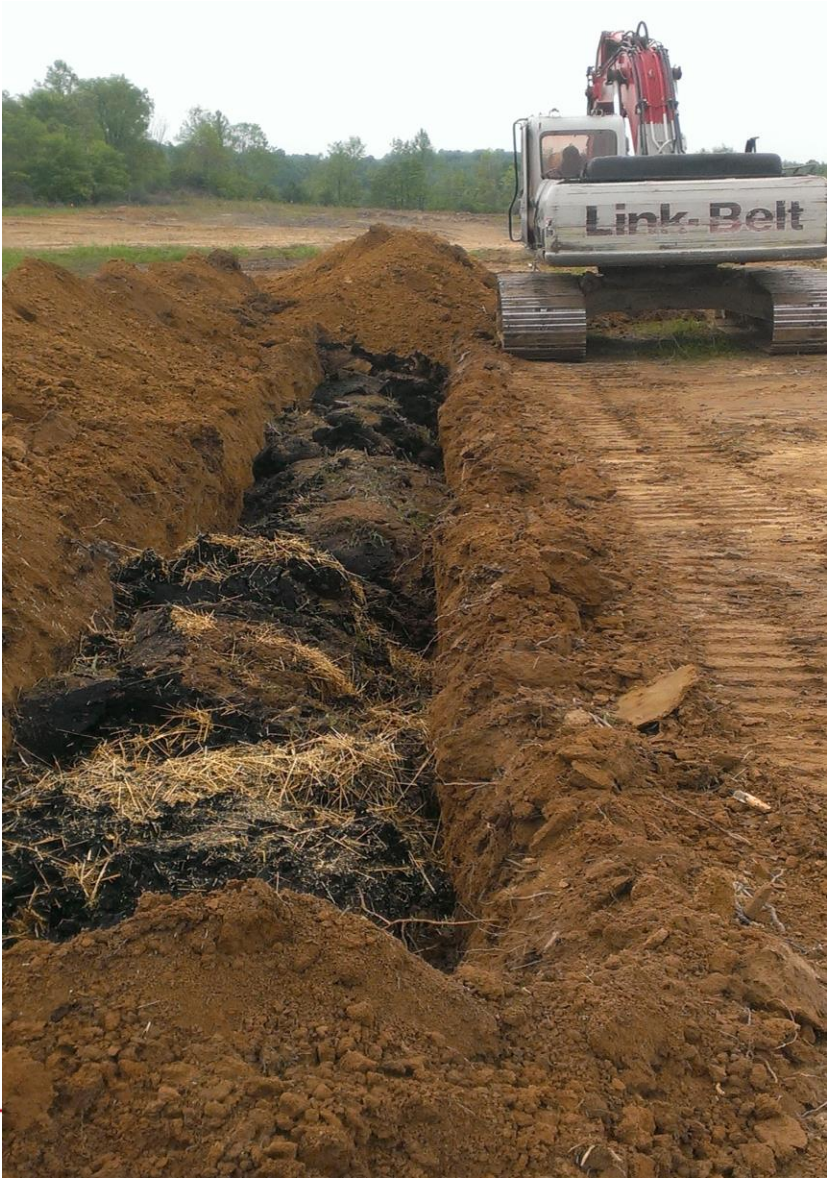
1. **Third Party Contract with Ohio Mulch**
2. **Established in 2013**
3. **1,000 acre strip mine reclamation using dewatered cake biosolids to grow hybrid poplar trees used for mulch production**
4. **Contract goal of 30,000 WT/Year of Class B dewatered cake biosolids**
5. **Current Price is \$152/Dry Ton.**



Ohio Mulch- DRHP



Ohio Mulch- DRHP



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Ohio Mulch- DRHP



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Ohio Mulch- DRHP



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Ohio Mulch- DRHP



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Ohio Mulch- DRHP



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Incineration

1. **City still operates incinerators at both plants as last resort disposal option**
2. **EPA MACT Standards cannot be achieved at Southerly without CIP**
3. **Southerly incinerators will run until March 2016**
4. **Jackson Pike incinerators being upgraded to be a viable alternative until 2026**
5. **Southerly incinerated approximately 14,000 WT in 2014**
6. **Current Price is approximately \$209/Dry Ton**



Incineration



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Conclusion

During the last 5 years a complete paradigm shift has occurred at the City of Columbus from incineration and landfilling of sludge to the beneficial reuse of this valuable product we call Biosolids.

City of Columbus is becoming a leader in the beneficial reuse of biosolids for wastewater treatment plants by utilizing “Green” technologies and innovative third party contracts,

IT CAN BE DONE!



And when you think your having a bad day..... **THINK AGAIN!**



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

Acknowledgments

OWEA

City of Columbus

Rob Van Evra

Lois Wachtman- HAPPY RETIREMENT!



Green it up, Columbus!



Brandon Fox
WW Residuals Manager
614-645-3153
bdfox@columbus.gov

THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

www.com-til.org

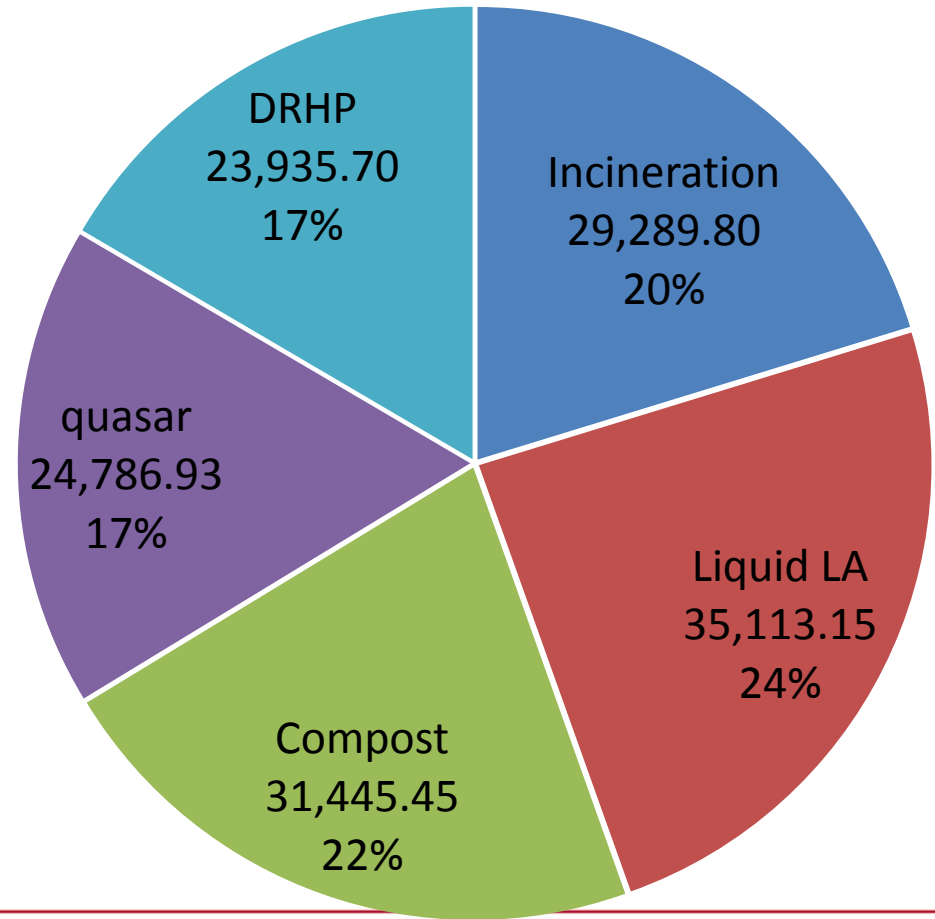
DEPARTMENT OF
PUBLIC UTILITIES



THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR

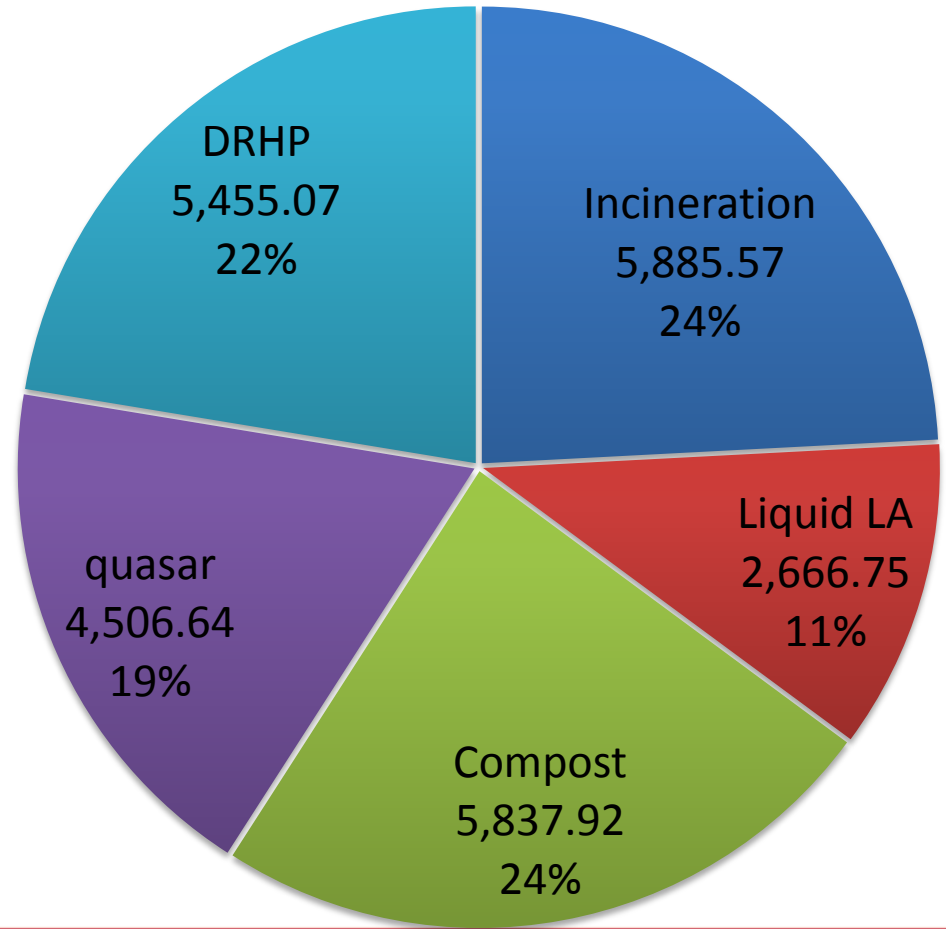
Jackson Pike and Southerly 2013, Wet Tons

Total 144,517 wet tons



Jackson Pike and Southerly 2013, Dry Tons

Total 24,352 dry tons





THE CITY OF
COLUMBUS
MICHAEL B. COLEMAN, MAYOR