



PUBLIC WORKS DEPARTMENT

CITY HALL

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CITY COUNCIL STAFF REPORT

Meeting: October 18, 2016

Subject

Study Session regarding Sustainable Strategies for Recycling and Waste Management.

Recommended Action

1. Receive information and public comment at study session;
2. Direct staff to investigate sustainable strategies that strengthen solid waste reduction measures as identified in the City of Cupertino Climate Action Plan (CAP), and;
3. Solicit future input from the Sustainability Commission in evaluating strategies that maximize the amount of waste products that are recycled, reused or composted, and;
4. As determined necessary, schedule for Council consideration the amendment of applicable chapters of the City of Cupertino Municipal Code to enforce solid waste reduction measures, and;
5. As determined necessary, schedule for Council consideration the authorization and negotiation of agreements between the City of Cupertino and potential recycling/organic processing sites.
6. As determined necessary, schedule for Council consideration amendments to the Franchise Agreement between the City of Cupertino and Recology Cupertino for Collection and Processing of Recyclable and Compostable Materials, and the Collection and Disposal of Garbage (Franchise Agreement).

Description

Waste disposal creates emissions when organic waste (e.g., food scraps, yard trimmings, paper and wood products) is buried in landfills and anaerobic digestion takes place, emitting methane. Additionally, extracting and processing raw materials for consumer products, distributing them to consumers and disposing them creates greenhouse gas emissions (GHG). In Cupertino, approximately 2% of GHG emissions are associated with solid waste generation and disposal in landfills.

Recent efforts to reduce long-term waste generation have incorporated the principle of zero waste, with the goal of being able to recycle, reuse, or compost all disposed products. Implementation programs to achieve zero waste can include community-wide recycling,

organics collection (e.g., food scraps, compostable paper), and green design to minimize construction-related waste. Business procurement policies can also be developed to give preference to materials that support a zero waste goal. Paperless office policies can incorporate technological hardware and software to minimize office paper waste. Manufacturing processes can be designed to eliminate supply stream waste and reduce operating expenses. A combination of these practices can potentially lead to lower landfill-related emissions, and help to extend the useful operating life of local landfills. The measures included within the CAP Solid Waste Strategy provide total GHG emission reduction potential of 275 metric tons CO₂e/year in 2020, and 1,300 metric tons CO₂e/year in 2035. This represents approximately 2.0% of total local CAP measure reductions. Measures identified in the CAP for the reduction of solid waste are:

Measure	Goal
C-SW-1 Zero Waste	Maximize solid waste diversion community-wide through preparation of a zero waste strategic plan.
C-SW-2 Food Scrap and Compostable Paper Diversion	Continue to promote the collection of food scraps and compostable paper through the City's organics collection program.
C-SW-3 Construction & Demolition Waste Diversion Program	Continue to enforce diversion requirements in City's Construction & Demolition Debris Diversion and Green Building Ordinances.

Discussion

The Franchise Agreement provides the Franchisee (Recology) the exclusive privilege (with some exceptions) to collect and process recyclable materials, compostable materials, construction and demolition debris, and garbage. Diversion of waste from landfills is specified in the Franchise Agreement and targets include:

1. 75% waste diversion rate by population (set by CalRecycle) for calendar year 2015, and;
2. 75% waste diversion rate by employment (set by CalRecycle) for calendar year 2015, and;
3. 60% diversion of commercial waste by November 1, 2016.

To date only the second target has been met. This is despite the implementation of the first two tiers of the City's mandatory commercial organics recycling ordinance in September 2015 and January 2016 that required large and medium food-generating businesses to separate organic materials. Last month Recology reported that commercial

waste diversion was averaging 45% per month (up from 41% in 2014). CalRecycle reported that the City achieved a 75% diversion rate by employment and a 65% diversion rate by population, respectively for 2015.¹

To meet diversion goals staff has concluded that significant program changes are needed. With food scraps the largest component of material remaining in the waste stream, future efforts need to be focused on a refined organic collection and processing program. Desired program characteristics will include:

- Effective and efficient removal of contaminants from organic waste.
- Maximum diversion of organics and food scraps.
- Making it as convenient as possible for businesses and residents.
- Minimize GHG emissions by
 - Reducing travel distance to processing sites
 - Utilizing process treatments that make the highest and best use of all organics collected.
- Minimize collection costs and impacts by considering
 - Pilot programs for commercial and residential customers
 - Partnering with neighboring public agencies
- Delivery of garbage (anything that is not being recycled or reused) to Newby Island until November 2023 (end of the contract term).

Staff has met with Recology to discuss resources available to build an organic collection and processing program. Recology has informed staff they will support the City with any program to increase diversion by providing collection services and maintaining existing processing services only. Recology is not interested in expanding processing services. As a result, staff and the City's waste diversion consultant (For Sustainability Too) have identified three preferable processing options out of ten bay area sites that best meet the measures of the CAP and the complimentary program characteristics described above. Another option, while not preferable, is to continue processing of various materials as currently provided by Recology.

1. Zero Waste Energy Development (ZWED), San José

The Zero Waste Energy Development (ZWED) facility at 685 Los Esteros Rd in San José, is located approximately 15.5 miles from Cupertino. The facility utilizes anaerobic digestion to biologically break down organic materials and generate methane gas during the digestion process. The methane is collected and converted to electricity. This facility is approximately 3 years old and to be effective, requires the incoming organic materials to be relatively free of contaminants (e.g. glass, plastics and batteries). At the current time,

¹AB939, regulated by CalRecycle requires 50% diversion. AB341 sets a statewide goal of 75 percent recycling, composting or source reduction of solid waste by 2020. Cupertino is exceeding this requirement.

this facility does not have additional capacity to accommodate Cupertino's food scraps. In late 2017, Phase 2 of ZWED is expected to be complete and additional capacity to accommodate Cupertino may become available. To determine if Cupertino's organics stream is appropriate for ZWED, a waste characterization study will need to be completed to identify potential issues and if these issues can be resolved with education or enforcement. Contamination removed from ZWED is taken to the landfill. Only food scraps and yard trimmings, not recyclables or garbage, are processed at this facility. If included in a future Cupertino program, this facility would reduce GHG emissions of processed organics. Diversion of materials from landfill would be unchanged.

2. Sustainable Alternative Feed Enterprises (SAFE)

The SAFE facility in Santa Clara is located at 1060 Walsh Avenue near Scott Boulevard, approximately 7.5 miles from Cupertino. This facility is 2 years old and produces an end product that is rated preferable to energy produced by recovering methane from an anaerobic digester. Food scraps processed at SAFE meet USDA feed requirements for animals such as pigs, chickens and fish. The nutrient-rich finished product of SAFE is high on the EPA's food recovery hierarchy (Attachment 1). The SAFE process does not generate methane gas, is not land intensive and conserves virgin resources that would otherwise have been expended to produce animal feed. Removed contamination from SAFE is landfilled at Newby Island. Only food scraps, not recyclables, green waste and/or garbage, are processed at this facility.

The process used by SAFE utilizes a "spoke and hub" system. Food scraps are collected, contaminants removed, and the food is reduced to a liquid mash at the "spoke." At the "hub," the mash is converted to the finished animal feed product. Presently, the only "hub" of the system is at the SAFE facility in Santa Clara. The only "spoke" is at the Mission Trail corporation yard (also in Santa Clara) where food wastes collected from residents in the City of San José and businesses in the City of Sunnyvale are processed and delivered to the "hub." Mission Trail currently does not have the capacity to accept Cupertino food wastes. To increase capacity, additional "spokes" at added locations are planned by SAFE. The City of Sunnyvale has approved the installation of a "spoke" at the SMaRT Station to accept both residential and commercial food scraps. If included in a future Cupertino program, the SAFE facility system would reduce GHG emissions of processed organics and the end product would have a higher use than compost. Diversion of materials away from landfill would be unchanged.

3. SMaRT (Sunnyvale Materials Recovery and Transfer Station)

The SMaRT Station serves the City of Sunnyvale and the SMaRT Station agency partners, Mountain View and Palo Alto. Cupertino has the opportunity to become an agency partner of the SMaRT Station. This material recovery facility processes all streams of materials including recyclables, yard trimmings and food scraps. It is located at 301 Carl

Road in Sunnyvale, approximately 6.2 miles from Cupertino. This facility is approximately 23 years old. Recycled materials that are received at the SMaRT station are sorted by type and sold as commodities. Green wastes are pre-processed on site and then transported 46 miles to Z-Best (a Zanker facility) located at 980 CA-25 Southeast of Gilroy to complete the composting process. New equipment (spoke to the SAFE hub) is being installed the SMaRT Station to pre-process food scraps on-site with plans for the processed mash to be hauled to the SAFE facility located 6.3 miles away. Contaminants removed from the food scraps at the SMaRT Station are landfilled at the Kirby Canyon Landfill in San José. If included in a future Cupertino program as an agency partner of the SMaRT Station, it is estimated that commercial recycling and food scraps diversion from the landfill would increase substantially while transportation costs and environmental impacts would be significantly reduced.

4. Recology

Recology collected materials include garbage, recyclables, yard trimmings, food scraps and construction & demolition debris. The table below summarizes where and how these materials are processed and the end product that results from the process:

Material	Process Location	Process Type	End Product
Garbage	Newby Island ⁽¹⁾ (San José)	Landfill	None
Recyclables	Green Waste Recovery (Charles St., San José)	Sorting	Various Commodities
Green Waste & Food Waste	Rogers Avenue (San José) then transferred to Blossom Valley Organics (Tracy)	Windrow	Compost
Construction & demolition	Newby Island (San José)	Sorting	Clean dirt, concrete, asphalt, untreated wood

(1) City is contractually obligated to take garbage to Newby through 2023

Some of these processes, particularly those related the sorting of garbage and treatment of organics, can be improved. CAP measures will not be achieved and the 75% CalRecycle and 60% commercial diversion goals will not be met. Costs to customers that have their materials processed by Recology would not increase.

Next Steps

The availability and costs are uncertain with each processing facility identified. Next steps will be to conduct waste audits and determine potential efficiencies, greenhouse gas reductions, landfill reductions and costs. Both commercial and residential pilot programs will likely be recommended.

Discussions with potential recycling/organic processing sites will continue as will discussions with Recology to potentially amend the Franchise Agreement. Staff would bring a report, Franchise Agreement amendment and the authorization and negotiation of agreements between the City and potential recycling/organic processing sites for Council consideration as early as the next six months.

The current Franchise Agreement expires in January 2019 and includes a provision that allows the Franchisee an option to negotiate a new ten year agreement that may begin as early as January 31, 2017 provided certain diversion requirements are met. Based on current performance of Recology as a hauler, quality of services delivered, and low cost, staff is likely to recommend an extension of time to allow a focused organic program to be established and to preserve to Recology the option to negotiate a new agreement at a future date to be determined.

The Construction & Demolition Waste Diversion Program will be evaluated and changes recommended depending on processing technologies that may increase effectiveness.

Sustainability Impacts

CalRecycle reports that of the nearly 35 million tons of waste that reach California's landfills each year, approximately 80% could be recoverable through organics and construction and demolition debris collection programs. Though Cupertino is exceeding existing state mandates for waste diversion, new technology and expected future mandates have encouraged the City to strive for improvements that will help the City achieve its zero waste targets recommended by Council in the City's Climate Action Plan.

Fiscal Impact

There will be no immediate fiscal impact. Diverting organics and recycling from the landfill lowers landfill disposal fees and postpones the purchase of new landfill space. Additional costs, if any, to implement new processing alternatives, are uncertain until research and discussions with partnering agencies has been conducted.

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Attachments:

A – EPA's Food Recovery Hierarchy