



Memorandum

TO: HONORABLE MAYOR &
CITY COUNCIL

FROM: Councilmember Johnny Khamis
Councilmember Dev Davis
Councilmember Pam Foley

SUBJECT: SEE BELOW

DATE: February 06, 2020

APPROVED:

SUBJECT: EXPLORING PROCUREMENT OF A POLYPROPYLENE PLASTIC PURIFICATION AND RECYCLING PLANT TO ADVANCE REGIONAL WASTE SUSTAINABILITY

RECOMMENDATION

- 1) Direct the City Manager, through the Office of Economic Development as the lead, to initiate the exploration of attracting a Polypropylene Plastic Purification & Recycling Plant (PRP) to the City of San José, in consultation with Planning, Building, and Code Enforcement, Environmental Services, PureCycle Technologies, and any other offices, departments, and private sector entities deemed relevant to this pursuit.
- 2) Direct Staff to return to the appropriate Committee with periodic updates detailing all progress and any obstacles to this pursuit until the potential facility is either established or no longer deemed feasible, and adopt the following guiding principles in the execution of this recommendation:
 - a) Placement of the plant shall consider and prioritize the land being vacated adjacent to the San José - Santa Clara Regional Wastewater Facility.
 - b) Prospective PureCycle Facility should emulate, and ideally exceed, the processing capability of the PureCycle Technologies facility in Lawrence County, OH¹ (currently the only of its kind).
 - c) The first update shall contain an economic analysis of the San José/Silicon Valley waste stream.

¹ <https://purecycletech.com/2019/03/purecycle-technologies-partners-with-milliken-nestle-to-accelerate-revolutionary-plastics-recycling/>

BACKGROUND

Plastic waste constitutes a major challenge to environmental & wildlife health and sustainability. Twenty-five million tons of plastic enter U.S. landfills annually². It has prompted a litany of recycling campaigns domestically and internationally for several decades. Despite people's best efforts, however, consumption habits do not always acknowledge the non-recyclability of dirty plastics – as they either discard plastics into recycling bins in soiled and stained conditions, or discard them into their garbage bins.

Polypropylene plastics are of special concern, given the difficulty associated with attempting to cleanse them of odor, dyes, food residue, oil, gels, and other contaminants. Waste haulers often do not attempt to recycle such soiled polypropylene. The one percent that does get recycled through the existing mechanical process is formed into a grey/black, malodorous, synthetic substance which, unsuitable for reuse as consumer product packaging, is industrially repurposed towards auto parts, park benches, and other utilitarian applications.

Under the old waste management regime, the remaining unrecycled dirty plastics would be shipped to China, India, and Southeast Asia for disposal in their landfills. This placed a damaging burden on their environmental health, as unscrupulous carriers engaged in unlicensed dumping, contaminating foreign countries' waterways and farmlands, and filling natural canyons with our local waste³⁴.

In response, East, South, and Southeast Asian countries have instituted import bans against foreign plastic waste. As of March 2018 and March 2019, the People's Republic of China⁵ and the Republic of India⁶, respectively, have cancelled all importation of plastic waste, with Thailand, Malaysia, and other Southeast Asian states following their lead.

Consequently, plastic wastes are now stockpiling in warehouses domestically and are being dumped into local landfills or incinerated. This has had the double effect of negating the purpose of the recycling bin and adding to terrestrial and atmospheric pollution, in direct opposition to ongoing state & local GHG and waste reduction priorities.

ANALYSIS

In the next seven or eight years, the roughly 700 acre drying beds immediately adjacent to the San José – Santa Clara Regional Wastewater Facility are expected to be decommissioned, presenting the opportunity to acquire and build a revolutionary plastic waste recycling facility the likes of which only exists in Lawrence County, Ohio. Expected to go online by 2022, the Ohio facility is expected to process and filter 119 million pounds of soiled polypropylene into 105 million pounds of near-virgin

² <https://www.bloomberg.com/news/features/2019-09-25/polypropylene-plastic-can-finally-be-recycled>

³ <https://www.npr.org/sections/goatsandsoda/2019/03/13/702501726/where-will-your-plastic-trash-go-now-that-china-doesnt-want-it>

⁴ <https://www.nytimes.com/2019/06/07/world/asia/asia-trash.html>

⁵ Ibid

⁶ <https://pib.gov.in/PressReleaseDetail.aspx?PRID=1567682>

quality polypropylene in its first year, which constitutes an 88% reduction in received plastic waste volume⁷. The resulting cleaned polypropylene can then be reused to produce the same consumer goods packaging and products from whence it originated, eliminating the need for companies such as Proctor & Gamble, Nestle, and others, to buy virgin plastics for these purposes.

The company behind the Ohio PRP, PureCycle Technologies, is planning expansion of operations worldwide. Its polypropylene recycling process (licensed and patented by Proctor & Gamble), in contrast to the mechanical process, has the following key benefits:

- Is a chemical process employing the use of a non-toxic, EPA-approved solvent similar to Isopentane, a key ingredient in shaving cream;
- Emissions produced throughout the chemical recycling process are similar to those produced by other methods of recycling and have been determined to be compliant with EPA air permit standards;
- Requires only 1/7th of the energy used to produce virgin polypropylene⁸;
- Reduces dependence on fossil fuels as a feedstock for virgin plastic production;
- Eliminates previously un-recyclable items from our landfills such as containers soiled with food, lotions, soap, etc., chip bags, bottle labels, cosmetic containers, hinged containers, pump-dispensers, caps, single-use plastics, cutlery, cups, hangers, and carpets;
- Processing does not chemically react with remaining waste products so they remain in original condition, no more or less harmful to the environment than before being processed;
- PureCycle and others are working on solutions for recycling the remaining 14 million pounds of waste, with the eventual goal of zero waste;
- Provides much needed manufacturing jobs as it requires approximately 75 people to operate effectively, plus a potential increase in waste stream management employment, creating middle-class job opportunities;
- Reduces shipping costs by co-locating supplier and manufacturer, building a healthy manufacturing ecosystem;
- Generates tax revenues necessary to support services that the City provides to our 1+ million residents.

CONCLUSION

Procurement of this state-of-the-art dirty plastics recycling facility would present a major coup for San José's Climate Smart and 2040 General Plan objectives, and would place our City at the epicenter of the North American environmental sustainability movement. San José could acquire another title: "Capital of Sustainability", for leading the adoption of this technology among major cities worldwide.

With 100% of the first facility's output, and 65% of the second facility's output pre-sold to major

⁷ <https://www.azocleantech.com/article.aspx?ArticleID=240>

⁸ <https://www.bloomberg.com/news/features/2019-09-25/polypropylene-plastic-can-finally-be-recycled>

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corporations, there is clear evidence that there is both a market for these polypropylene products and the technology to manufacture at scale using the waste stream as a resource.

This new technology will not only dramatically reduce our unrecycled plastic waste and ease our landfill burden, it will disrupt the plastic packaging cycle worldwide, with the potential for eliminating the need for fossil-fuel based virgin plastic in the future.