

NARRATIVE SUMMARY: Nevada City Rotary Club Recycling/ Repurposing Project for Stretchable Plastic Film (Polyethylene)

BACKGROUND: In 2021, the Environmental Sustainability committee of the Nevada City Rotary Club (NCRC) identified an area of unmet need in our community: while various types of hard plastic are collected by Waste Management for recycling, plastic film or polyethylene film (such as produce bags, dry-cleaning bags, pallet wraps) is not collected. This leaves the majority of residential and commercial generators of this kind of plastic no choice but to put their plastic film waste in the general trash. Unfortunately, this leads to serious problems, both macroscopically (as threats to birds, reptiles and fish) and microscopically:

Environmental Toxicity and Biototoxicity of Polyethylene, from ScienceDirect 1 Sep 2022, Zhuang Yao et al.:

Regardless of where the polyethylene waste comes from, its accumulation in the environment is bound to cause serious problems. Estimates indicate that about 79% of polyethylene waste is sent to landfills (Canopoli et al., 2018, Ritchie and Roser, 2018). Over time, this waste will undergo a natural light oxidation process. The sun's warmth and ultraviolet rays will fragment some of the C-H bonds in the polymer structure to release the additives and plasticizers from the polymer into the environment and generate greenhouse gases (Iskander et al., 2016). This is a serious challenge to global warming and ozone depletion.

With this in mind, in Nov 2021 the Nevada City Rotary teamed with the TREX corporation in an effort to collect plastic film and have it delivered to TREX, for them to use in the creation of outdoor decking and furniture, thus keeping it in the "circular economy". We placed collection bins at six local retail and public sites, and also did pick-ups directly from five different merchants.

RESULTS: Within six months of initiation, we were picking up 700-800 lbs of plastic film monthly and taking the bags to the back of SaveMart Grocery in Grass Valley; their trucks transport the plastic to their regional HQ from where TREX picks them up. (Since the Grass Valley Rotary Club joined this effort, NC Rotary Club collections average 300-400 lbs/month.)

We believe our small program has just begun to uncover the potential for collecting plastic film in our county, and if this option were available to all merchants, as well as the general public, vast amounts of plastic could be collected and diverted from the landfill. However, our small Rotary Club is not capable of continuing, let alone expanding, these efforts.

NEXT STEPS: We have been in discussion with staff from Nevada County since early 2023 (led by Ariel Lovett) to discover if there is a path toward collaboration on this project. A variety of solutions have been looked at but have not been feasible, including:

- WM develop a new waste stream and collect plastic film from homes and businesses: they do not have funds or personnel for a new waste stream
- Nevada County provide a site for collection, with funding for staff time to come from a suitable grant: no site or grant available
- A non-profit with similar mission take this on, with Rotarians helping: it did not “pencil out” for InterFaith Food Ministry to take this on; other non-profits have not been explored
- Collaborate with a site, e.g. supermarket (Safeway, SaveMart) which is already transporting plastic film to Trex, but expand the program to the public: None appears to have a big enough footprint for this, although this option has not been fully explored
- Encourage a small entrepreneur to take this on: Gil Matthew of the ERC reported that his numbers show that this would not pencil out as a small business

Since it turns out that most of the plastic film that is generated in Nevada Co. comes from Grass Valley, we are now turning to you, the GV City Council, to ask for your input and thoughts. Specifically, here is how we envision the project’s needs:

1. A site for collection of plastic film donations that has either a circular driveway, or room for cars to enter and exit
2. A spot within that site approximately 20 ft by 30 ft, for the baler.
3. A protected area such as a shed, to store the bales until Trex could come to pick them up: they will not send a truck down from their Nevada factory until we have 1/2 a semi-truck load of bales which could take several months to accumulate
4. The baler itself can likely be leased or rented from Trex for approximately \$200/month

5. Staff to operate the baler during or after collections, which could be just once or twice a month. Suggestions have been made that funds for this staffing might come from a grant from Cal Recycles or other sources, although so far, County staff have not been able to find an applicable grant.

We will be grateful to you for any suggestions you may have that could make the collection, storage, and repurposing of this important environmental contaminant a reality.

Many thanks for your consideration.

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