



DOMESTIC PROCESSING OF MIXED PLASTICS: Preliminary Findings and Initial Next Steps

Background and Goals

Catalyzed by increasing concern about responsible recycling of mixed plastics and China's National Sword ban, Seattle Public Utilities (SPU) and King County Solid Waste Division facilitated an invitation-only meeting exploring the immediate and longer-term capabilities for increased sorting and processing of #3 – 7 and other mixed plastics domestically. Influential representatives from the recycling industry, government agencies, the Closed Loop Fund, and Zero Waste Washington were invited to join the conversation.

The goals of the event were:

- To bring together key recycling and solid waste management to take a serious look at the potential for sorting and processing #3 – 7 plastics domestically (including within British Columbia).
- To gain an understanding of efforts that can be enacted immediately in support of further domestic processing.
- To determine what conditions are needed to provide additional support and/or infrastructure for domestic sorting and processing.
- To gain clarity on whether existing Plastic Recovery Facilities (PRFs) can handle and sort increased volumes, if existing Material Recovery Facilities (MRFs) can handle increased capacity, or if new facilities are needed in the region.

The meeting was held on January 30, 2018 at the Seattle Municipal Tower. Detailed notes were taken and are contained in the document titled *Domestic Processing of Mixed Plastics: Meeting Summary*.

This document contains preliminary findings, some initial next steps, a comprehensive listing of options and possible next steps.

Preliminary Findings

Current Conditions

1. 3-7 plastics currently make up a comparatively small portion of the curbside collected materials. However, their use in consumer packaging is increasing rapidly. In addition, very significant tonnage of 3-7 plastics remain in the disposal stream.
2. When collected for recycling, these plastics have typically been exported to China or SE Asia due to their low value and high cost to sort. As of January 1, 2018, China is no longer accepting these plastics for recycling creating a reduction in processing capacity for these materials.

3. There is growing concern about the social and environmental impacts of exporting 3-7 plastics to Asia and other markets. Concerns include “leakage” of these plastics into the marine and other environments and pollution caused by burning.
4. “Alternative markets” to China may be available in Vietnam or other parts of SE Asia. There are concerns that the materials are not being responsibly recycled and that there is the potential of adding to plastic pollution through the use of those markets.
5. The near- and likely longer-term market value of 3-7 plastics alone will not offset the costs of the additional domestic sorting. Therefore, “alternative markets” in SE Asia may be the least cost means of “moving” collected mixed plastics. Unless somehow directed to existing domestic processing, or to envisioned new facilities such as a regional PRF or secondary MRF, low value mixed plastics will continue to be shipped off-shore.

Domestic Processing Capacity for 3-7 Plastics

1. There are barriers to sorting 3-7 plastics into specific resin types at the Material Recovery Facilities in Washington for a variety of reasons. These reasons vary, and include:
 - Additional equipment, such as additional optical sorters, would be needed to do so.
 - There is not available space within existing MRFs to add equipment.
 - Adding equipment is expensive, complicated and would require reconfiguration of existing equipment.
 - The value of the additionally sorted plastics does not justify the costs of new equipment and reconfiguration where it is possible.
 - There are or could be storage space issues for the baled plastics. Space is needed to store higher volume materials prior to shipping and lower volume materials take up space for too long as adequate amounts are accumulated for markets.
 - There is not adequate financing to support these MRF upgrades, even if spatially feasible.
 - MRFs are particularly focused on meeting increased paper bale quality to protect this primary commodity and revenue source.
2. Merlin Plastics, Vancouver BC has adequate capacity to receive 3-7 plastics from Washington State MRFs for further sorting and processing.
 - Due to operating within an Extended Producer Responsibility (product stewardship) system in B.C., these same limitations do not exist for Emterra and Merlin Plastics, and 3-7 plastics are sorted to resin type for domestic markets.
 - Merlin can also sort 1-7 plastics as well as mixed containers (plastics, aluminum and paper cartons).
 - Merlin charges a fee for sorting and a payment based on the value of the commodities received.
3. Collected 3-7 plastics should not be disposed. In the short term, 3-7 plastics should be redirected to Merlin or other domestic facilities for further sorting, processing and recycling of these materials.
 - How this is to be accomplished needs to be determined but likely requires a commitment to action by all parties, both private and public sector. This is the next step requiring immediate attention.

Long Term Domestic Processing Capacity

1. Policy, legislative and contractual tools need to be researched and determined to ensure that mixed plastics can be sorted domestically, including through the WUTC regulated collection services.
 - Without understanding and applying these tools, it is unclear if a new regional PRF or secondary MRF would be viable, or if so, what other factors would make it viable.
2. Research and steps are necessary to determine the need for and viability of a new PRF or secondary MRF to serve the region. While this may be a long-term solution, determining how this work can be done is a shorter-term task. Department of Commerce, Closed Loop Fund and Economic Development agencies could be key participants. Potential options include:
 - RFI process
 - Private sector initiatives and investment
 - Organizing a “co-op” structural and investment concept, etc.
3. Additional policy tools need to be explored for the long run. These include:
 - Policies that create market pull - recycled content legislation
 - Policies that provide financial support for more extensive and effective sorting and processing of packaging,
 - Financing depot or take back programs for materials problematic in the commingled recycling stream (such as product stewardship legislation).
4. Reducing the unnecessary use of single-use and low value plastics is an important and complimentary strategy.

Immediate Next Steps

As SPU and King County Solid Waste undertake the next steps below, we urge the private sector to proceed with directing 3-7 plastics to domestic sorting and processing and consider longer-term infrastructure needs.

SPU and King County Solid Waste, through the LinkUp Program, will continue to research and determine implementable steps that can be taken. Next steps are underway to:

1. Determine the feasibility of further sorting and processing 3-7 plastics utilizing capacity at existing domestic facilities. Interview Merlin Plastics to thoroughly understand any transportation issues, capacity, and costs.
2. Conduct a series of interviews with cities that contract for recycling services, UTC staff and others to determine the feasibility of directing 3-7 plastics to a domestic facility through contracts or existing policy and processes.
3. Conduct a series of individual interviews with MRFs to document current practices, the quantity of 3-7 plastics handled, and opportunities and barriers to ensuring domestic sorting and processing of 3-7 plastics.
4. Research additional policy approaches outlined in the *Long Term Domestic Processing Capacity* section above.
5. Hold discussions with Department of Commerce, economic development agencies and Closed Loop Fund to define facility funding opportunities.

6. Develop a web page on the LinkUp website to post progress and developments. Utilize C+C to support King County and SPU in ongoing communications and outreach efforts.

The Big List: Action Items for All Stakeholders

The following possible next steps have been identified by King County and SPU as starting points to keep the conversation energized.

- A. Determine and take immediate steps to get currently collected mixed plastics to existing regional or other domestic plastics recovery facility for further sorting and processing.
 - Utilize existing plastic processing facilities that currently have capacity, such as Merlin.

- B. Determine mechanisms for all entities to ensure plastics are sorted and processed into useable resins domestically and are responsibly recycled. Develop draft language to accomplish those mechanisms. Key players and possible mechanisms include:
 - *MRFs and processors.* Commit to ensure responsible sorting and processing by establishing corporate social and environmental policies or other approaches.
 - *Cities, counties, haulers, etc. in WUTC system.* Determine effective tools for programs within the WUTC system. How can the WUTC assist with this situation, through policy or otherwise?
 - *Cities that contract for collection services.* What provisions can be inserted into existing or upcoming contracts to ensure domestic sorting and responsible recycling? What actions can be taken without opening existing contracts?
 - *Cities directly contracting for MRF services.* What provisions can be inserted into existing or upcoming contracts to ensure domestic sorting and responsible recycling? What actions can be taken without opening existing contracts?
 - *Manufacturers.* What are mechanisms to provide financial support for domestic sorting, such as through price supports, investing in facilities and EPR approaches?

- C. Determine feasibility, costs, return on investment, etc. for various approaches to secure domestic processing and markets:
 - Upgrade all local MRFs to further sort plastics (and address issues around scale, storage of sorted plastics, etc.).
 - Establish a secondary processing facility in region to further sort mixed materials, mixed plastics, larger residuals etc.
 - Establish a new plastic recovery facility in the region. Determine scale. Include consideration of chemical processing of plastics that can't be mechanically sorted or have no markets.
 - Establish a new end market within the region that can directly manufacture product with recycled content using curbside generated mixed plastics. (Integrigo Composites might be model)
 - Determine existing plastic manufacturing companies in region and work to determine if any directly use curbside generated mixed plastics.
 - Establish a film washing and processing facility in the region as a stand alone or in combination with options above.



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- Examine the feasibility of a “co-op” approach, defined in the meeting as a shared ownership and commitment to leadership and action, to any of the above.
- D. Determine other mechanisms for creating market draw or financing:
- Develop legislation requiring EPR or some financing mechanism to apply to single-use plastics with no or limited markets, that are difficult to sort, or that cannot be assured to be responsibly recycled.
 - Require that garbage, recycling, and organics collection bins be made with post-consumer resins from #3-7 plastics through contracts, corporate policy, etc. Develop specification language.
 - Work with Association of Plastic Recyclers, Recycling Partnership, Closed Loop Fund, Sustainable Packaging Coalition etc. to develop collection containers from post-consumer resin from plastic packaging materials including #3-7 plastics collected at the curb.
 - Expand Association of Plastic Recyclers Recycling Demand Champions to include major waste companies such as WM, Republic, Recology, Waste Connections and local companies such as Amazon and Costco, etc. <https://www.plasticsrecycling.org/recycling-demand-champions>
 - Leverage Sustainable Packaging Coalition’s programs, influence and ASTRX project (in collaboration with Recycling Partnership.) <http://astrx.org/>
 - Develop recycled content legislation with recycled content credit mechanism.
- E. Determine mechanisms and programs to eliminate or reduce the use of single-use plastics with no or limited markets, that are difficult to sort, or that cannot be assured to be responsibly recycled. Waste prevention efforts can reduce the quantity of low value, difficult to sort single-use plastics.
- Implement bans and other policy or programmatic approaches to reduce the use of certain single-use plastics.
- F. Determine means to accomplish items above including:
- What financing is available through Closed Loop Fund or other sources and for what elements?
 - What assistance can be provided by Dept. of Commerce or Economic Development Agencies?
 - Who specifically should/can be engaged with accomplishing which tasks above?
 - What is the role of LinkUp Program?
 - Is an RFI process needed and for what?