

Montgomery County Recycling Consortium

Transfer Station Operations Assessment

Upper Dublin Township
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SCS ENGINEERS

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1 PROJECT DESCRIPTION

Upper Dublin Township (Township) is an Act 101 mandated recycling community. The Township collects single-stream recyclable materials curbside from residents on a weekly basis. Upper Dublin is part of the Montgomery County Recycling Consortium (Recycling Consortium) comprised of seven (7) municipalities within Montgomery County. The Transfer Station is used to consolidate recyclable materials originating from each of the seven municipalities into transfer trailers prior to being transported to a single stream processor. The Recycling Consortium contracts with a private company, currently JP Mascaro & Sons, Inc. (JP Mascaro) to operate the transfer station and to process and market recyclables.

Recycling Consortium members have experienced problems at the transfer station that have raised questions and concerns about its efficiency. In some cases, drivers wait 45 minutes or longer to tip recyclables. In exercising a six-month extension of the current five-year contract, consortium members will experience a significant increase in fixed processing fees and residue disposal. Recycling technical assistance is needed to evaluate existing transfer station operations, contracts, and land use agreement and to develop recommendations to improve the operating performance and cost-effectiveness of the transfer station.

2 SUMMARY OF WORK

This section summarizes the work activities performed as part of this recycling technical assistance project by key task.

Task 1 – Data Collection & Site Visit

MSW Consultants obtained background information to guide the development of recommendations to improve the transfer station operations. The following information was obtained and reviewed:

- Bid documents including transfer station contract and pricing structure
- Land use agreement
- Material quantity data
- Cost data
- Operational information

The project team conducted a site visit to observe transfer station operations.

Task 2 – Contract/Agreement Review

The project team reviewed transfer station implementation documents including the operating contract and the land use agreement.

Task 3 – Identify Transfer Station Operational/Process Improvements

Based on data, observations, and study findings the project team identified operational improvements to enhance the operating performance of the transfer station.

Task 4 – Final Report

This final report presents observations pertaining to transfer station operations and implementation documents and provides recommendations to improve transfer station operations.

3 CURRENT PROGRAM

SUMMARY

The Transfer Station is located at 1030 Fitzwatertown Road in Abington Township and is situated on approximately 10 acres. **Figure 1** presents an aerial view of the property. Resolution No. 1793 (2002) establishes the original construction, land development plans, and inbound/outbound vehicle limits for the transfer station for the Recycling Consortium membership. JP Mascaro & Sons, Inc. is the contracted facility operator and recyclables processor under the five-year service contract executed in September 2015. Due to the Covid-19 pandemic, the Recycling Consortium contract has been extended for six months starting October 2020, and includes a six-month extension option. The operating contract establishes the transfer station operating requirements and pricing structure for the recyclables transportation, processing, and marketing services. Upper Dublin Township administered the bidding process on behalf of the Recycling Consortium.

Figure 1. Transfer Station Aerial Photo



Source: GoogleEarthPro (2020)

OPERATIONS

Transfer station operating hours are 7:30 a.m. to 3:30 p.m. Monday through Friday. Approximately 15,000 tons of recyclable materials are brought to the transfer station annually by the seven (7) member municipalities, including Hatboro Borough and the following Townships: Abington, Cheltenham, Upper Dublin, Plymouth, Springfield, Upper Moreland. The transfer station is operated by three (3) staff provided by JP Mascaro & Sons, Inc. After consolidation into 90 – 100 cubic yard open top trailers, commingled and single stream recyclables are transported to Total Recycle, Inc. in Berks County where the materials are then sorted, baled, and marketed. **Table 1** presents the households served and the recyclable materials recovered for each Recycling Consortium member municipality in 2019. The Recycling Consortium diverted nearly 15,000 tons of recyclable materials in 2019, equivalent to over 500 pounds per household.

Table 2 presents daily and weekly inbound recycling quantities and the number of truckloads (i.e. deliveries) to the transfer station for each Recycling Consortium member. On average, each truckload contains 3.91 tons of recyclable materials. Upper Moreland Township delivers the most material per load at an average of 4.88 tons while Hatboro Borough delivers on average of only 2.54 tons per truckload. **Table 3** presents the outbound recycling load report data including total tons (for all September outbound loads), the average weight per load (16.46 tons), and the number of loads. Based on September quantities, approximately 1,020 loads (90 – 100 cubic yard trailers) averaging 16.46 tons per load is equivalent to 16,789 tons of recyclables transported annually.

Table 1. Recycling Consortium Recycling Quantities (2019)

Recycling Consortium Member	Households Serviced	Recycling Quantities (tons)	Annual Lbs./HH
Abington	18,200	2,909.87	319.77 ^[1]
Cheltenham	9,467	3,008.16	635.50
Hatboro	2,200	660.35	600.32
Springfield	6,900	2,221.59	643.94
Upper Dublin	8,500	2,802.98	659.52
Plymouth	4,900	1,265.09	516.36
Upper Moreland	7,200	2,029.41	563.73
Consortium Totals	57,367	14,897.45	519.37

[1] Abington's annual per household recovery is low because paper materials are diverted to another processor.

Table 2. Recycling Consortium Tons Per Load (2019)

Recycling Consortium Member	Tons/Week	Tons/Day	Avg. Incoming Loads/Week	Avg. Tons/Load
Abington	55.96	11.19	12	4.66
Cheltenham	57.85	11.57	12	4.82
Hatboro	12.70	2.54	5	2.54
Springfield	42.72	8.54	10	4.27
Upper Dublin	53.90	10.78	17	3.17
Plymouth	24.33	4.87	8	3.04
Upper Moreland	39.03	7.81	8	4.88
Total	286.49	57.30	63	3.91

Table 3. Recycling Consortium Outbound Loads (2019)

Total Commingled + Single Stream Monthly Tons	1,399	Estimated Total Annual Tons ^[1]	16,789
Avg. Tons/Load	16.46	Avg. Tons/Load	16.46
Total Monthly Loads	85	Estimated Total Annual Loads	1,020

[1] Annual estimates are projections based of September 2019 outbound reports.

COSTS

Reserves

Recycling Consortium funds are managed by Springfield Township. The Recycling Consortium holds approximately \$225,000 in reserves that originated from grant disbursements allocated for site and facility construction.

Capital/Operating Costs

Table 4 presents a simple cost summary of estimated annual operational and capital costs of the transfer station. The costs reflect historic known expenditures by the Recycling Consortium and some estimated or assumed costs. The exact operating costs for the transfer station are not known currently, because certain costs like utilities and labor are bundled within the fixed processing cost fee structure of the current transfer station contract between JP Mascaro & Sons, Inc. and the Recycling Consortium. Annual operating costs are estimated at \$221,749, which is equivalent to \$14.78 per ton assuming 15,000 tons of recyclable materials are processed annually.

Table 4. Transfer Station Simple Capital and Operating Cost Summary

Expenditure	10-Year Cost	Annual Cost
Operating Expenditures		
Labor (1 full-time manger, 2 full-time Laborers) ^[1]	\$2,080,000	\$208,000
Utilities ^[2]	\$24,000	\$2,400
Miscellaneous Maintenance/Repair	\$6,845	\$684
Scale Maintenance/Calibration	\$18,477	\$1,848
Landscaping/Cleaning	\$8,865	\$887
Subtotal	\$58,187	\$5,819
Capital Expenditures		
Signage	\$288	\$29
Fencing	\$8,100	\$810
Detention Basin/Site Work	\$9,100	\$910
Security Cameras	3625.5	\$363
Subtotal	\$21,114	\$2,111
TOTAL	\$2,217,489	\$221,749

[1] Actual labor cost unknown since contractor labor is built into processing fees. Assume \$40 per hour (salary+benefits) supervisor and \$30 per hour (salary+benefits) laborer.

[2] Actual utilities unknown since contractor pays utilities. Assumes \$200 per month for water and electric.

Six-Month Contract Extension

Beginning in October 2020, the six-month transfer station contract extension will increase fixed processing rates from \$98.78 per ton to \$135 per ton (36.7 percent), and residue disposal rates from \$80 per ton to \$84 per ton (five percent). By duplicating the invoice format and billing calculations, MSW Consultant’s estimated the cost increase expected under the contract extension pricing structure. The estimates are based on September 2020 data with the following assumptions: 17 percent residue, 234.08 commingled tons, 1,150.64 single stream tons, and commodity pricing for September 2020. The cost estimates are not actual projections but reflect cost impact estimates expected by the Recycling Consortium. As shown in **Table 5**, using September 2020 pricing and data assumptions (i.e., tonnages and composition), the \$36.22 per ton fixed processing fee increase and \$4.00 residue fee increase will have the following cost impacts:

- The monthly combined total invoice for the seven (7) Recycling Consortium members is estimated to increase from \$78,909 to \$130,032, or by about \$51,000 per month.
- The combined monthly fixed processing and residue cost is estimated to increase \$306,738 over the six-month contract extension.

Table 5. Contract Extension Cost Impact

Six-Month Cost Increase (commingle, 234 tons per mo.)	12-Month Cost Increase (commingle 234 tons per mo.)
\$ 51,856.77	\$ 103,713.54
Six-Month Cost Increase (single stream, 1150 tons/mo.)	12-Month Cost Increase (single stream. 1,150 tons/mo.)
\$ 254,881.44	\$ 509,762.88
Six-Month Total Cost Increase	12-Month Total Cost Increase
\$ 306,738.21	\$ 613,476.42

Residue Rate Analysis

The current residue rate for recovered recyclable materials as documented on Recycling Consortium invoices is approximately 17 percent. This residue rate is based on an audit of the Consortium's recyclable materials in 2015. With the potential to reduce material processing costs by reducing residue, MSW Consultants analyzed the impact of reducing residue from 17 percent (current) to 12 percent. **Table 6** shows that reducing residue to 12 percent for commingled material increases the Composition Net Price to \$50.11 per ton; resulting in an estimated savings of \$1,874 per month or \$22,488 per year (based on an estimated commingled tonnage of 219.16 tons per month after adjusting for the reduction in weight from residue). **Table 7** shows that reducing residue to 12 percent for single-stream increases the Composition Net Price to \$49.44 per ton; resulting in an estimated savings of \$9,108 per month or \$109,296 per year (based on an estimated single-stream tonnage of 1,077.81 tons per month after adjustment). The combined estimated monthly value (or savings) from reducing residue from 17 percent to 12 percent is about \$10,982 per month, or \$131,784 annually.

Table 6. Residue Rate Change Cost Impact (Commingled)

Commingled Material	September Price/Ton	Allocation (12% Residue)	Composition Net Price (12% Residue)	Allocation (17% Residue)	Composition Net Price (17% Residue)
PET	\$159.17	10.00%	\$15.91	9.36%	\$14.90
HD-NAT	\$1,203.33	2.46%	\$29.56	2.30%	\$27.68
HD-PIG	\$223.33	5.11%	\$11.40	4.78%	\$10.68
MIX PLASTICS	-	1.43%	-	1.34%	\$0.00
TIN	\$15.00	3.80%	\$0.57	3.56%	\$0.53
ALUM	\$980.00	1.86%	\$18.21	1.74%	\$17.05
ASEPTIC	\$22.50	0.27%	\$0.06	0.25%	\$0.06
RIGID	\$60.00	2.07%	\$1.24	1.94%	\$1.16
RESIDUE	(\$84.00)	12.00%	(\$10.08)	17.61%	(\$14.79)
GLASS	(\$27.50)	61.01%	(\$16.78)	57.12%	(\$15.71)
TOTAL		100.00%	\$50.11	100.00%	\$41.56

Table 7. Residue Rate Change Cost Impact (Single-Stream)

Single Stream Material	September Price	Allocation (12% Residue)	Composition Net Price (12% Residue)	Allocation (17% Residue)	Composition Net Price (17% Residue)
ONP	\$20.00	35.39%	\$7.08	33.15%	\$6.63
OCC	\$60.00	14.23%	\$8.54	13.33%	\$8.00
PET	\$159.17	5.75%	\$9.16	5.39%	\$8.58
HD-NAT	\$1,203.33	1.60%	\$19.27	1.50%	\$18.05
HD-PIG	\$223.33	1.63%	\$3.65	1.53%	\$3.42
MIX PLASTICS	-	0.18%	-	0.17%	\$0.00
TIN	\$15.00	2.70%	\$0.41	2.53%	\$0.38
ALUM	\$980.00	1.76%	\$17.26	1.65%	\$16.17
ASEPTIC	\$22.50	0.10%	\$0.02	0.09%	\$0.02
RIGID	\$60.00	1.05%	\$0.63	0.98%	\$0.59
RESIDUE	(\$84.00)	12.00%	(\$10.08)	17.57%	\$(14.76)
GLASS	(\$27.50)	23.60%	(\$6.49)	22.11%	\$(6.08)
TOTAL		100.00%	\$49.44	100.00%	\$40.99

SITE VISIT

MSW Consultants visited the transfer station on September 22, 2020. During an observation period of over four hours, two empty trailers were delivered and two full trailers were transported offsite. Three operators loaded recyclables into three empty trailers staged against the transfer area retaining wall. The site visit observations are supplemented with information provided by the Recycling Consortium. Site visit photos are presented in **Appendix A**. Key operational/process observations from site visits are presented below.

Observations

Loading

- **Retaining Wall** - The retaining wall deflector is damaged and recyclable materials fall between the trailer and wall.
- **Trailer Loading** - Inbound trucks dump directly into trailers and recyclable materials spill over the far side of the transfer trailer during the process.
- **Compacting Equipment** - Transfer station operators use two backhoes to tamp and compact recyclable materials into transfer trailers to maximize the tonnage per outbound load. The observed tamping process to finalize a load took 45 minutes. The time to tamp loads appeared excessive and contributed to increasing the amount of time inbound trucks wait to tip.
- **Compacting Method** - The method of tamping and compacting is not optimal. A two-foot by two-foot plate rather than the normal backhoe bucket is used to tamp/compact materials. Use of the narrow end of the tamper plate and plunging the tamper deep into the loaded trailer increases the time required to compact loads. It is not known if the use of the two-foot by two-foot plate achieves better compaction rates than the bucket or if an alternative tamper with a larger surface area is required.
- **Trailer Filling Sequence** - Operators load the two end trailers first, but once they are filled it took 30 to 40 minutes to switch out filled trailers with an empty container. The delay in switching out empties means inbound trucks wait to unload into the only empty trailer located in the middle position. This occurs with two empty trailers available but not staged for loading. All three loadable trailers are then filled simultaneously, and no active recyclable materials tipping can occur until the full-empty switch is performed.

Site Debris and Damaged Metal

- **Infrastructure Damage** - As shown in **Photo 8, Appendix A**, the damaged pieces of metal that have broken off the top of the retaining wall are abandoned on the ground around the site and create a potential safety or operating hazard. Maintaining the retaining wall is specified as the responsibility of the contracted facility operator in the technical specifications of the transfer station contract.

- **Litter** - There is significant spillage and accumulation of recyclable materials between the retaining wall and the trailer as well as spillage and accumulation of materials over and to the opposite side of the trailer. There is a need to clean the trailer staging area alongside the retaining wall every time a trailer is switched. It takes between 30 and 40 minutes to switch out the trailer which includes approximately 10 minutes to clean up the materials from the concrete access way.

Operations Compliance

Table 8 summarizes required contractual operating procedures, actual operations (observed and reported), and proposed corrective actions to address the operating deficiencies.

Table 8. Operations Compliance Summary and Corrective Actions

Required Operational Procedures	Actual Operations	Corrective Actions
Maximum truck wait time shall be 20 minutes or less.	Wait times have exceeded 45 minutes.	<p>Enforce compliance by transfer station Contractor:</p> <ul style="list-style-type: none"> • Reduce tamping time via using large side of tamper plate. • Switch full trailers immediately upon filling. • Only use outside trailers during slow delivery times; save middle trailer for heavy times. Fill one outside trailer at a time retaining two empties if multiple trucks are waiting. • Have one backhoe on the ramp to continuously tamp recyclable materials. • Use two backhoes to tamp during busier times. • Consider re-design and/or compactors.
Tipping wall damage shall be repaired by Contractor upon notice.	Retaining wall metal plates/edge bar have been knocked free of the retaining wall and are on the ground.	<p>Enforce compliance by the transfer station Contractor:</p> <ul style="list-style-type: none"> • Written notice to request repair with specified schedule for completion of the work. • Or issue notice to contractor that repairs will be performed by the Recycling Consortium with the cost to be paid by the transfer station Contractor either by invoice or deducting the amount from payment to the Contractor.

Required Operational Procedures	Actual Operations	Corrective Actions
Adequate trailer capacity at wall shall be maintained	Trailer capacity is not maintained due to extensive tamping time and because switching out full trailers with empties is not immediate.	<ul style="list-style-type: none"> Always assure at least one empty trailer on retaining wall via improved trailer switching
Keep site neat and orderly and in a workmanlike condition; removal of all litter at the end of each workday.	The site is not clean; metal, trash and recyclable materials litter the site.	<p>Enforce compliance by the transfer station Contractor:</p> <ul style="list-style-type: none"> Confirm site condition via photos and notify the contractor in writing of the need to clean the site daily.
Operating hours are 7:30 am to 3:30 pm and noise to be kept to a minimum	Maintenance performed on weekends that result in noise complaints.	<p>Enforce compliance by the transfer station Contractor:</p> <ul style="list-style-type: none"> Future contracts shall specify the penalties for operating hours and noise violations. Amend land use agreement to extend operating hours to 5:00 pm on weekdays, which would benefit operators and benefit inbound/outbound haulers.
Composition tests will be performed once per year, for each stream (single stream and commingled).	Composition tests/audits are not performed annually.	<p>Enforce compliance by the transfer station Contractor:</p> <ul style="list-style-type: none"> Require annual composition audits of single stream materials at the contracted processor's facility, with independent verification or auditors.

CONTRACTS/AGREEMENTS REVIEW

Key observations based on a review of the transfer station operations contract and recyclable materials processing bid documents include:

- Administrative** - The bid documents and contract do not adequately clarify the roles and responsibilities of a Recycling Consortium program manager including administrative and contractual/contractor oversight of transfer station operations. The bid documents and contract do not clearly identify the entity responsible for managing transfer station finances including responsibilities relating to contractor invoicing and pursuit of financial penalties that may be applied to the contractor.

- **Contractual Compliance** - The bid documents and contract do not explicitly list and define contractor non-compliance activities that may result in liquidated damages or contract deductions. Further, the process of pursuing and recovering financial penalties from the contractor is too vague.
- **Reporting** - The contracted operator is not required to submit monthly and/or quarterly transfer station operations reports. The contractor is not required to conduct and report daily transfer station inspections relating to safety, equipment, scale operations, and security.
- **Pricing Structure and Costs** - The invoices for services bundle the following:
 1. Transfer station operating costs (labor, utilities, and miscellaneous);
 2. Transportation costs;
 3. Processing costs; and
 4. Marketing costs within the fixed processing costs.

While bundling costs within invoices can be acceptable, there is no contractual requirement for the contractor to share the breakdown in costs of the different services. Consequently, the Recycling Consortium does not have full cost accounting for transfer station operating costs to benefit planning and future procurement of subsequent transfer station operators.

4 RECOMMENDATIONS

The following recommendations are provided for consideration by the Recycling Consortium. Due to the long distances, direct hauling of recyclable materials to regional processors is not recommended or feasible considering packer trucks with collection staff would be required to travel extensive distances, which would significantly increase costs. Therefore, the core recommendation is to enhance administrative, operational, and contractual arrangements of the existing transfer station facility.

To improve the operating efficiency of the transfer station it is recommended the Recycling Consortium consider the following:

- **Corrective Actions.** As soon as feasible, following execution of the six-month contract extension, the Recycling Consortium should schedule a call with the contractor to review and resolve all outstanding non-compliance issues. If the call does not resolve compliance items, issue a letter written in concert with legal counsel to the contractor detailing non-compliance items, resolution time frames, and actions that shall be taken if compliance issues are left unresolved. The letter should provide the history of prior notifications, duration of non-compliance, and reference the contract where applicable. Some corrective actions, such as modifying the land use agreement to extend operating hours to 5:00 p.m. are recommended to be resolved by the Recycling Consortium, and are not the responsibility of the contracted transfer station operator.

- **Material Composition Audit** - Separately, or as part of the non-compliance correspondence above, request the contractor to perform a waste composition audit (with independent oversight) in accordance with the contract. This would benchmark the Recycling Consortium's single-stream and commingled material composition, which would benefit future solicitations/ contracts for transfer station operations and recyclable material processing.
- **Tamping Procedures** - Instead of plunging through recyclable materials and tamping with the narrow end of the tamper, spread materials out across the trailer and tamp recyclables in layers using the entire tamper foot. Investigate if weight can be added to the rear of the backhoe to increase the capability of the backhoe to compact the load.
- **Facility Retrofits:**
 - a. **Retaining Wall Extension** - As shown in **Appendix B.1**, consider extending the retaining wall about 25 feet at each end to accommodate another trailer. Staging another trailer will improve capacity needs and operating flexibility.
 - b. **Installation of Compactors** - As shown in **Appendix B.2**, consider converting the transfer station to a compaction system using one or two compactors placed at the lower level of the retaining wall. Five (5) yard or larger compactors fitted with fabricated steel hoppers with at least seven (7) cubic yards of holding capacity would receive tipped materials from collection vehicles. A preliminary cost estimate is presented in **Table 9**.

The compacted materials would pack into 90 to 100 cubic yard enclosed transfer trailers at compaction cycle times ranging between 30 and 60 seconds. A compaction system offers several benefits compared to current procedures, including: 1) reduced truck wait times, 2) reduced spillage of recyclables, and 3) containment of recyclable materials that would reduce wind blown litter, prevent rain/moisture accumulation, and eliminate tarping trailers.

For retrofits, it is recommended that at least two different equipment vendors and/or construction contractors visit the site to provide input on final equipment selection needs and configuration. Issuing a short request for proposals can also be used to obtain costs and recommended equipment and configuration details that may vary among different vendors.

Preliminary Cost Estimate for Installation of Compactors

Expenditure	Estimated Unit Cost	Estimated Total Cost
Five Cubic Yard Compactor (Qty., 2)	\$12,500	\$25,000
Hopper Fabrication/Install (Qty., 2)	\$50,000	\$100,000
100 Cubic Yard Transfer Trailer (Qty., 4) ⁽¹⁾	\$50,000	\$200,000
Electric Upgrade/Configuration	\$3,500	\$3,500
Miscellaneous Construction	\$7,500	\$7,500
Contingency (10 percent)	-	33,600\$
	TOTAL	\$370,200

- (1) Note: Transfer trailers could be purchased, leased, or included as part of contractual arrangements for hauling. The cost of the tractor/truck is not included and assumed part of hauling services.

To improve the administration, implementation, and overall effectiveness and quality of bid documents, procurement for services, and contractual performance it is recommended the Recycling Consortium consider the following revisions to bid documents and contracts:

- **Memorandum of Understanding (MOU)/Recycling Consortium Agreement.** The Recycling Consortium should update or develop a new Recycling Consortium MOU or Agreement to more clearly define:
 1. The role and responsibilities of Upper Dublin Township pertaining to transfer station operations including oversight of the contractor operating the facility. As part of operations oversight it is recommended a representative from Upper Dublin Township perform monthly inspections and complete a Site Inspection Checklist that is submitted to the contractor and shared with Recycling Consortium members (Refer to **Appendix C** for an draft Site Inspection Checklist).
 2. The role and responsibilities of Springfield Township relating to transfer station financials including capital expenses, repairs, invoicing, and recovery of financial penalties from the Contractor.
 3. The roles and responsibilities of each Recycling Consortium member municipality relating to enrollment, eligibility, collection methods, public education, cost sharing, and other expectations relating to participation.
 4. When existing operating deficiencies are addressed, the Recycling Consortium should consider adding member municipalities which increases program scale and total recyclables recovered, and potentially reduces the total costs borne per participating member for managing recyclable materials.

- **Bid Documents and Contract Restructuring.** The Recycling Consortium should revise its bid documents and contract(s), and consider significant changes to its procurement process and pricing structure with these considerations:
 1. Restructure the bid documents to request contracted services for the following separate service components:

- Transfer station operation
- Material transportation
- Recyclable material processing and marketing (to include commodity pricing based on market index)

Under this bid structure (which differs from bundling services in the current contract), the Recycling Consortium may elect to award one or more services to a contractor, or contract with a separate vendor for each service. Additionally, restructuring the bid may allow the Recycling Consortium to compare anticipated transfer station operating costs to the option of operating the transfer station through the Recycling Consortium, designated member municipality, or an authority.

2. Provide greater details and requirements for transfer station operations, reporting, non-compliance resolution, contract deductions and breach of contract.
 3. Reporting and invoice format requirements should be updated so that the combination of transfer station operational reports, recycling reports, and invoices provide the Recycling Consortium with transparent full-cost accounting.
 4. Replace general language regarding penalties with a detailed list of non-compliance activities tied to specific “contract deductions.” Contract deductions should refer to an appropriate cost for different violations; specify reasonable time frames to correct the non-compliance following notification; and indicate how contract deductions will be applied to invoices and payments, usually as a deduction in a subsequent invoice payment after the timeframe for corrective action is exceeded.
- **Improve Material Quality/Residue Reduction.** Align/standardize (to the extent practical) the education program across all Recycling Consortium members and consider these measures:
 1. Implement a curbside bin monitoring program to confirm residential participation rates among member municipalities and to identify customers that repeatedly contaminate recyclables.
 2. Establish an aggressive contamination and residue rate target. For example, reduce residue from 17 percent (existing) to 12 percent by 2023. The residue reduction strategy should be developed with input from the processor and may include eliminating problematic recyclable materials from curbside collection programs. Prior to eliminating materials from the recycling program (particularly glass), carefully consider the reduction of Act 101, Section 904 grants awarded to municipalities.
 3. Require the contractor to perform material composition studies annually, independently verified and observed by an independent qualified consultant.
 - **Recycling Consortium Operation of the Transfer Station.** With consideration of the extreme volatility of the waste and recycling industry and markets, including the inability to control certain costs and actions by contractors, the Recycling Consortium should consider staffing and assuming control of transfer station operations. The legal mechanism to do this should be evaluated and could include the formation of a municipal authority. The benefit of direct operation of the transfer station is the ability to know and manage costs and to assure the proper management of the facility that reflects the best interests of Upper Dublin Township (as host) and the member municipalities.

- **Allocation of Performance Grant Funds:** In the interest of long-term financial investment and economic sustainability, Recycling Consortium members should consider allocating at minimum a portion of annual Act 101 Performance Grants to help offset transfer station costs. This could be established as an enterprise fund leveraged to manage transfer station operating and maintenance costs and/or costs relating to transportation and processing. Since performance grant awards are based on recycled tons, the share contributed by member municipalities could be calculated and therefore equitably applied.
- **Evaluate Staggered Collection Routes and Inbound Deliveries:** The Recycling Consortium members should evaluate if it is feasible to stagger start times and/or truckload deliveries to the transfer station to minimize the occurrence of multiple trucks arriving simultaneously.

5 CONCLUSIONS

Extremely volatile waste and recycling markets significantly increased fixed processing costs under a six-month contract extension with the Recycling Consortium's transfer station contractor in 2020. Due to transfer station cost increases and operational challenges it is time for the Recycling Consortium to restructure transfer station operating arrangements. The continued operation of the transfer station remains a viable option to serve the recycling needs of the seven (7) member municipalities. Consequently, it is advisable that the Recycling Consortium invest in improving transfer station operations and administration to help manage and control costs over the long term. This requires that the Recycling Consortium do the following:

- 1) Develop improved bid documents that more effectively leverages competitive procurement to secure fair pricing and improved performance by contractors;
- 2) Evaluate the opportunity of directly operating the transfer station as a Recycling Consortium without contractor support as a measure to directly manage facility operations to benefit and serve member municipalities, and;
- 3) Consider facility upgrades as described in this report.



APPENDIX A SITE VISIT PHOTOS

Appendix A - Site Visit Photos

PHOTO #1 Entrance/Sign



PHOTO #2 - Equipment/Tampers



PHOTO #3 Tamping Foot



PHOTO #4 Tamping Foot (Narrow end use)



PHOTO #5 PLACARD (TRZ-2)



PHOTO #6 TIPPED LOAD



PHOTO #7 Material Spillage



PHOTO #8 Tamping/Damaged Edgbar



APPENDIX B.1
SITE IMPROVEMENT CONCEPT – EXTEND RETAINING WALL

Transfer Station

Conceptual Site Improvement (Draft)





APPENDIX B.2
SITE IMPROVEMENT CONCEPT - COMPACTORS

Transfer Station

Conceptual Site Improvement (Draft)



APPENDIX C
TRANSFER STATION SITE INSPECTION CHECKLIST

Appendix C

Transfer Station – Site Inspection Checklist (**DRAFT**)

Site Location: **995 Fitzwatertown Road**

Inspected By:

Inspection Date:

Note: Checked boxes means conditions are satisfactory.

1. **Basin Area Maintained:** Comment:

2. **Inlet Maintenance/Filters
Cleaned:** Comment:

3. **Grass Mowing Completed:** Comment:

4. **Site Cleaning Completed:** Comment:

5. **Scale Calibrated:** Comment:

6. **Scale Reports submitted
and complete:** Comment:

7. **Wall / Structure Condition
Satisfactory** Comment:

8. **Scale structure/equipment
in satisfactory working
condition:** Comment:

9. Fencing/gate in satisfactory condition: Comment:

10. Satisfactory winter access maintained (i.e. deicing and snow plowing): Comment:

11. Water supply/hose bib protected: Comment:

12. Fuel/oil spills, clean up and incident reports performed: Comment:

13. Fuel/oils storage containment areas used properly: Comment:

14. Storage trailers in satisfactory condition: Comment:

15. Satisfactory site safety measures/conditions maintained: Comment:
