



State of Oregon
Department of Environmental Quality

Supporting document: Matrix of options and criteria

Recycling Modernization Act Rulemaking 3: Technical Workgroup on Glass Collection

	1. Place glass packaging on the Local Government Recycling Acceptance List (statewide) and designate it for the Uniform Statewide Collection List	2A: Place glass packaging on the Local Government Recycling Acceptance List but exclude it from the Uniform Statewide Collection List. Statewide (no change in frequency)	2B: Place glass packaging on the Local Government Recycling Acceptance List but exclude it from the Uniform Statewide Collection List. Statewide, less frequently (former option 12).	2C: Place glass packaging on the Local Government Recycling Acceptance List but exclude it from the Uniform Statewide Collection List. Statewide but only commercial (former option 9). Existing PRO obligation (for depots) would be maintained for sectors and/or in communities where on-route collection is not mandated	2D: Place glass packaging on the Local Government Recycling Acceptance List but exclude it from the Uniform Statewide Collection List. Geographically, based on location (distance to collection point/market). Existing PRO obligation (for depots) would be maintained for sectors and/or in communities where on-route collection is not mandated.	2E: Place glass packaging on the Local Government Recycling Acceptance List but exclude it from the Uniform Statewide Collection List. Geographically, based on population. Existing PRO obligation (for depots) would be maintained for sectors and/or in communities where on-route collection is not mandated	3A: Place glass on the Local Government Recycling Acceptance List (statewide) but only for depot collection. PRO is simultaneously obligated to meet convenience standard, but not at sites where local governments or their service providers are separately obligated	3B: Place glass on the Local Government Recycling Acceptance List (statewide) but only for depot collection. No PRO obligation to support depots, anywhere	4. Maintain glass packaging on the PRO Recycling Acceptance List, but reduce the convenience standard	5. Re-examine the on-route collection subsidy	6. Build out a "hub-and-spoke" collection infrastructure to reduce transportation costs	7. Remove glass packaging from any and all recycling collection lists	8. Changes to transportation reimbursement rules (OAR 340-090-0770)
Cost to ratepayers (relative to status quo)	Lower collection costs might reduce garbage/recycling service rates charged to ratepayers.	Increase as collection subsidy would be removed and some communities currently lacking on-route collection would be required to implement it. Also costs to backfill depot collection costs (currently paid by PRO)	Mixed. In communities currently lacking on-route collection, rates would be higher. In communities currently offering on-route collection but that reduce frequency, rates would decrease (although that could happen absent this change) due to lower costs, but some of those savings would be offset by the loss of the collection incentive	Increase as collection subsidy would be removed and some communities currently lacking on-route collection would be required to implement it.	Increase, both for communities with existing service (would lose collection incentive) and even more so for those residents/communities receiving the new service. Everything else would operate status quo.	Same as 2D	Increase, as service providers would lose some/all (depending on community) of their collection subsidy, while local governments/facility operators would have to pick up the costs of depot collection	Similar to 3A but even higher costs, as service providers in all communities would lose all of their collection subsidy	Increase, as service providers would lose some of their collection subsidy	Increase in costs if the subsidy is decreased	Assuming the "hubs" are paid for by producers, no direct impact on ratepayers. However, if the provision of hubs means that fewer communities are able to take advantage of the transportation reimbursement under ORS 459A.890(2), this could force ratepayers to absorb the costs of transporting glass to nearby (<50 mile distant) hubs	Would shift some costs from recycling to garbage, but overall costs to ratepayers would likely decrease (although magnitude would depend on whether local governments continue voluntary investments in glass recycling).	Increase in ratepayer costs in some communities that currently benefit from the transportation reimbursement
Cost to producers (relative to status quo)	Reduced costs associated with collection, but higher costs associated with cost of processing (processor commodity risk fee would be increased) and also higher costs to Glass to Glass. Unclear whether net impact for producers would be an increase or decrease in costs	Overall reduction in cost, but mixed effects: higher cost associated with system expansion in communities currently lacking on-route collection (ORS 459A.890(5)), offset by lower costs from avoided collection subsidy and depot costs.	Same as 2A	Overall reduction in cost, but mixed effects: higher cost associated with system expansion in communities currently lacking on-route collection (ORS 459A.890(5)), offset by lower costs from reduced collection subsidy.	Similar to 2A, with fewer costs (system expansion) for PRO. Most communities close to Portland have maintained on-route collection.	Similar to 2A, with fewer costs (system expansion) for PRO. Most larger-population communities have maintained on-route collection, but a few (such as Medford) have not.	Reduction in cost (due to reduction in convenience standard)	Even greater reduction in cost than 3A.	Reduction in cost	Likely decrease but exact amount is unknown until changes are defined	Provision of hubs would raise costs to producers, but would reduce transportation payments. Net effect could be a small cost savings to producers.	Significant reduction in cost to producers.	Reduction in cost
Convenience to generators (relative to status quo)	Increase	Increase, especially in communities where only depot collection of glass was provided.	Mixed. In communities currently lacking on-route collection, more convenient. In communities that reduce frequency, it could cause some confusion.	Increased convenience for commercial generators	Would be more convenient for residents/businesses receiving the new service. Would be status quo for all other communities.	Same as 2D	Potential reduction in convenience: the reduced convenience standard would translate into a lower collection subsidy, which might cause some communities to discontinue on-route collection.	Similar to 3A but more pronounced change (greater loss of collection subsidy in more communities)	Decrease (fewer depots and if reduction in collection subsidy leads some local governments to discontinue on-route collection of glass)	Decrease if a reduction in subsidy leads communities to discontinue on-route collection	No impact (does not change the collection system)	Likely significant reduction in convenience to generators. With the loss of PRO depots and no collection subsidy, there would likely be fewer collection opportunities in some Oregon communities.	Decrease in communities currently using the transportation subsidy if a reduction in that subsidy leads those communities to curtail glass collection
Anticipated yield loss*	Increase. More glass would be lost to the residual stream at a CRPF, even where facilities deploy (new) glass cleaning technology.	Little change	Little change	Little change	Little change	Little change	Increase - In communities that went from convenient curbside/on-route collection to depot only, more glass would show up in curbside/on-route commingled recycling stream. Some of that glass would be captured at the CRPF, but more would be lost to the residual stream, making for less material moving to Glass to Glass and eventually an end market.	Similar to 3A but more pronounced change.	Potential increase in yield loss, if communities (due to lower collection subsidy) switch from on-route collection to depot collection, and some generators respond by moving their glass into the commingled cart	Similar to 4	Likely minimal change	Likely a modest increase in yield loss; in communities that drop or reduce glass collection, the amount of glass properly collected would go down, although some might transition (unintentionally) to the commingled mix.	Likely minimal change
Compatibility with existing recycling infrastructure*	Collection: general compatibility, though higher volume might cause trucks to fill sooner. Processing: poor compatibility. Investments would be needed at CRPFs to capture glass and further remove contamination.	Compatible, but investments in glass bins most likely necessary in numerous communities. Truck/worker investment for the collection of that glass may also be necessary.	Same as 2A	Compatible, but investments needed in communities not currently providing commercial glass collection (e.g., containers, trucks, drivers, etc.)	Compatible, but potential need for some investment in bins, trucks and workers if any subject communities don't currently provide on-route glass collection	Compatible, but potential need for some investment in bins, trucks and workers if any subject communities don't currently provide on-route glass collection	Limited investments needed as most (all?) existing transfer stations and etc. already provide for glass collection.	Same as 3A.	No change - consistent with current system	No change - consistent with current system	Investments into the proposed hub facilities would be necessary, but generally compatible.	Compatible with existing infrastructure.	No change - consistent with current system
Practicalities [for facility] of sorting and storing the material*	For CRPFs that don't already have such technology, glass cleaning technology would be necessary for glass removal. Other technology would possibly also be necessary regarding QC of other material (e.g., glass removal from fiber stream).	No change - consistent with current system.	No change - consistent with current system.	No change - consistent with current system.	No change - consistent with current system.	No change - consistent with current system.	Potential increase in contamination (caused by potential loss of on-route service) could impact CRPFs	Same as 3A.	Similar to 3A	Similar to 3A	No change - consistent with current system, though some CRPFs could see less glass for reloading purposes.	In communities that lose source segregated collection opportunities, some generators might try to recycle their glass by placing it into the commingled mix, with negative impacts on processing facilities	Likely no impact
Contamination*	Increases dramatically at the CRPF. Glass would impact the quality of outbound fiber coming from each processor	Little change	Little change	Little change	Little change	Little change	Contamination at CRPFs could increase, if/as more glass would show up in the commingled stream.	Same as 3A.	Similar to 3A	Similar to 3A	Likely no change	Likely some negative impacts of more glass contamination in the commingled mix (see above).	Likely no impact
Economic factors*	Costs would be reduced for service providers and ratepayers, as dedicated glass routes would be eliminated, as all material would go into a single truck. Costs at CRPFs would increase related to the labor/technology needed to remove glass from the commingled stream. Glass would also impact the value of the fiber products being moved to market. Currently, processors tip glass at Glass to Glass at no costs. Handling the lower-quality glass would increase costs to Glass to Glass, and those costs would be passed onto processors. Knowing those costs would most likely be covered by PCRPF funding, that would have producers paying increased costs for both higher processing costs and lower quality material going to market. PRO would also realize savings by avoiding depot requirements. Also undermines economic viability of paper recycling, which is central to commingled recycling.	Increase of labor/capital costs for haulers (and local gov'ts), as bins would need to be purchased, additional trucks may need to be purchased and workers may need to be hired to operate those trucks. Those costs would be passed onto ratepayers, other than capital costs (paid by CAA). Lower costs to PRO (see above).	Mixed. Depending on the community, on-route collection costs could increase. Less frequent collection of glass will have a lower cost-per-ton than more frequent collection. PRO and producers will realize savings.	Mixed, depending on community.	Mixed, depending on community. Lower costs to PRO (see above).	Mixed, depending on community. Lower costs to PRO (see above).	Compared to the current status quo, this isn't expected to change costs by much but rather will shift costs from the PRO to ratepayers. However, with a reduction in the collection incentive, there might be some shifting from on-route to depot collection, which will reduce overall costs.	Similar to 3A but greater potential for cost reductions.	Compared to the current status quo, this will reduce costs to the PRO and shift costs to ratepayers. Local governments might respond by discontinuing on-route collection in some areas, which would reduce overall system costs.	Similar to 4	Variable impacts depending on location of hubs and distance (greater or less than 50 miles) from communities. A larger number of consolidation points might allow for reductions in overall system costs.	Some negative impacts via higher burdens on the garbage system (e.g., garbage trucks serving commercial routes filling up more quickly) but these would likely be more than offset by reduced direct costs associated with segregated glass collection. Note that PRO would still be providing some support for glass recycling via transportation reimbursement (ORS 459A.890(2)). Overall reduction in recycling would increase indirect (social) costs (e.g., cost of pollution)	If a reduction in the transportation subsidy leads some communities to curtail glass collection, overall direct costs will likely decrease (and shift from the recycling system to the garbage system)
Environmental factors from a life cycle perspective: Impacts of the collection system (DEQ 2022 study)*	Vehicle traffic (and emissions/impacts) would decrease, as fewer dedicated trucks would be needed for the collection of material (on-route) and fewer personal vehicle trips would be used to deliver glass to depots.	Increase of truck traffic (some communities), offset by reduction in depot vehicle traffic. Likely an overall increase in environmental impacts (per DEQ 2022 study). An increase in emissions from that increased truck traffic would depend on the fuel source being used by the service provider's fleet.	Mixed effects of truck traffic (more in some communities, less in others if they choose to reduce frequency), offset by reduction in depot vehicle traffic. Any increase in emissions from that increased truck traffic would depend on the fuel source being used by the service provider's fleet.	Likely increase of truck traffic impacts, offset by increase in glass recycling. An increase in emissions from that increased truck traffic would depend on the fuel source being used by the service provider's fleet.	Potential small increase of truck traffic (and impacts), offset by small reduction in depot vehicle traffic.	Same as 2D	A potential decrease of truck traffic/air emissions coming from service providers, especially from dedicated glass routes. However, there would be an increase in emissions from vehicle traffic associated with generators transporting their glass for collection.	A potential decrease of truck traffic/air emissions coming from service providers, especially from dedicated glass routes. However, there would be an increase in emissions from vehicle traffic associated with generators transporting their glass for collection.	Lower density of depots was found to worsen environmental outcomes (when compared to a higher density of depots) in both DEQ's 2022 study and the Cascadia 2023 study.	A shift from on-route to depot collection may improve overall environmental outcomes (depending on community characteristics), per the 2022 DEQ study.	No change expected related to collection, as this option isn't expected to change collection systems. A larger number of consolidation points might allow for some reduction in long-haul transportation impacts.	Reduction in impacts of collection, resulting from reduced collection in some communities.	Potential reduction in impacts of collection, resulting from reduced collection if communities respond to reduced transportation subsidy by discontinuing service
Environmental factors from a life cycle perspective: Induced impacts of material substitution (glass to other materials), including potential reductions in materials use*	In all, more material may be captured at the curbside/on-route, but yield loss of material through the recycling process could lead to less post-consumer recycled material being available for bottle and fiberglass insulation manufacturing, among other applications. Could lead to increased use of virgin glass. Impact on producer fees is unclear (could be higher or lower than current fees), so induced impacts of competition from other materials is not known.	More material would be captured and a higher yield of the glass being captured would ensure more post-consumer recycled cullet being available for numerous applications. Lower fees to producers might increase market share for glass relative to competing materials.	Lower fees to producers might increase market share for glass relative to competing materials.	Similar to 2A, but not as significant	Lower fees to producers might increase market share for glass relative to competing materials.	Lower fees to producers might increase market share for glass relative to competing materials.	Lower fees to producer might increase market share for glass relative to competing materials; some potential for less cullet being available for production of recycled content glass	Similar to 3A, but larger potential.	Similar to 3A	Similar to 3A	Likely no change	Lower fees to producers might increase market share for glass relative to competing materials.	Lower fees to producers might increase market share for glass relative to competing materials.
Amount of material collected and ultimately recycled	More material may be collected but yield loss of material could actually lead to less material making it to an end market.	More material could be collected	Unknown and variable (by community)	More material could be collected	Possible slight increase	Possible slight increase	Less material would be collected statewide if/as communities abandon on-route collection in favor of less-expensive depots	Less material would be collected statewide if/as communities abandon on-route collection in favor of less-expensive depots	Reduction in volume collected (due to fewer collection points/less convenience)	Similar to 3A	Likely no change	Decrease	Potential decrease
Stability, maturity, accessibility and viability of responsible end markets*	Glass received at Glass to Glass from processors would be of lower quality. There would be no more direct routes to Glass to Glass, as material would no longer be collected in a source segregated fashion. Costs to Glass to Glass would increase, which would be passed onto facilities tipping material at Glass to Glass.	Glass would be of higher quality, being separate of the commingled stream.	Same as 2A	Same as 2A	Same as 2A	Same as 2A	No change, but could lead to less available cullet for end market use.	Similar to 3A	Similar to 3A	Similar to 3A	Likely no change	Likely no change	Likely no change
Environmental health and safety considerations*	Increased risk of CRPF workers handling broken glass.	Decreased risk to CRPF workers. Increased risk to service provider workers, who would be responsible for manually collecting each bin placed curbside for collection.	Similar to 2A with mixed effects on collection workers (more impacts in communities that add on-route; lower impacts in communities that reduce frequency)	Similar dynamics to 2A	Similar dynamics to 2A	Similar dynamics to 2A	Mixed, with risks shifting as collection modes and volumes shift (between on-route source segregated collection, depots, and potential contamination of the commingled stream)	Mixed, with risks shifting as collection modes and volumes shift (between on-route source segregated collection, depots, and potential contamination of the commingled stream)	Similar to 3A	Similar to 3A	Likely no change	Mixed results (fewer impacts associated with glass collection)	Mixed results

*These criteria are contained in ORS 459A.914(3)