Appendix D

Detailed Descriptions of Commercial Waste Programs
Appendix D

Detailed Descriptions of Commercial Waste Programs

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D.1 Commercial Program Performance

An analysis of the relative performance of programs was conducted by SERA staff. These results – including abbreviated summaries of the cost-effectiveness and strengths and weaknesses – are presented in Figures D.1 and D.2, respectively. Detailed descriptions of all the commercial programs reviewed are in Appendix D.3, which provides more detail on the strengths, weaknesses, and program characteristics.

Figure D.1: Relative Performance of the Commercial Program Options Included in the Model (Yellow and Blue for especially high performance)

<table>
<thead>
<tr>
<th>ID row</th>
<th>Program Type</th>
<th>Name</th>
<th>Short Description</th>
<th>Relative Tonnage Performance</th>
<th>Relative Cost to Jurisdiction</th>
<th>Cost-Effectiveness</th>
<th>Relative cost to Comm'l Sector</th>
<th>Relative cost to Haulers</th>
<th>Drives Change</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Community preparation</td>
<td>Establish Recycling Committee, Speakers Bureau</td>
<td>Establish recycling committee, speakers bureau, attendance at meetings</td>
<td>None</td>
<td>Low</td>
<td>NA</td>
<td>None</td>
<td>None</td>
<td>M</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Community preparation</td>
<td>Educate Elected Officials</td>
<td>Educate elected officials about commercial sector / recycling</td>
<td>None</td>
<td>Low</td>
<td>NA</td>
<td>None</td>
<td>None</td>
<td>M</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Community preparation</td>
<td>Tracking &amp; Goals</td>
<td>Measure / estimate current recycling, set goals</td>
<td>None</td>
<td>Low</td>
<td>NA</td>
<td>None</td>
<td>LM</td>
<td>H</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Community preparation</td>
<td>Adopt ZW/Aggressive Goal</td>
<td>ZW Goal, sustainability plan</td>
<td>None</td>
<td>Low</td>
<td>NA</td>
<td>None</td>
<td>L</td>
<td>H</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Requirements through Ordinance</td>
<td>Ordinances / Space for Recycling</td>
<td>Ordinance for &quot;space for recycling&quot; or &quot;recycling in lease&quot;</td>
<td>Low/Med</td>
<td>Low</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>Requirements through Ordinance</td>
<td>Require Commercial Recycling Plans, Recycling in Leases</td>
<td>Require recycling plans and/or require recycling in leases</td>
<td>Low/Med</td>
<td>Low</td>
<td>L</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Requirements through Ordinance</td>
<td>Licensing with Tonnage Reporting Required</td>
<td>License with commercial tonnage reporting (for garbage, recycling, compost) required</td>
<td>None</td>
<td>Low</td>
<td>NA</td>
<td>None</td>
<td>LM</td>
<td>M</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Requirements through Ordinance</td>
<td>Business Diversion Goals</td>
<td>Businesses (or businesses in certain sectors) must reach diversion goals / rates &amp; dates or face fines</td>
<td>Med</td>
<td>Low</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>MH</td>
<td>3</td>
</tr>
<tr>
<td>ID</td>
<td>Program Type</td>
<td>Name</td>
<td>Short Description</td>
<td>Relative Tonnage Performance</td>
<td>Relative Cost to Jurisdiction</td>
<td>Cost-Effectiveness</td>
<td>Relative Cost to Comm’l Sector</td>
<td>Relative cost to Haulers</td>
<td>Drives Change</td>
<td>Phase</td>
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</tr>
<tr>
<td>9</td>
<td>Requirements through Ordinance</td>
<td>Require Clear Hauler Invoices &amp; Contracts</td>
<td>As part of hauler license or ability to provide service in the area, require clarity of bills, invoices, contracts (clear statement of costs, prices for services and volumes provided, contract terms)</td>
<td>Med</td>
<td>Low</td>
<td>H</td>
<td>L</td>
<td>LM</td>
<td>H</td>
<td>2</td>
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<tr>
<td>10</td>
<td>Procurement</td>
<td>Procurement Requiring Local Compost</td>
<td>Procurement initiative, specifically requiring use of local compost as soil amendment, in construction, in parks, etc.</td>
<td>Med</td>
<td>Low</td>
<td>M</td>
<td>LM</td>
<td>None</td>
<td>MH</td>
<td>3</td>
</tr>
<tr>
<td>11</td>
<td>Require to offer</td>
<td>Require Haulers to Offer Recycling</td>
<td>Hauler license requires OFFERING recycling to customer businesses</td>
<td>Low/Med</td>
<td>Low</td>
<td>L</td>
<td>MH</td>
<td>LM</td>
<td>LM</td>
<td>2</td>
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<tr>
<td>12</td>
<td>Require to offer</td>
<td>Require Haulers to Offer Food Scraps</td>
<td>Hauler license requires OFFERING food waste to commercial customers</td>
<td>Low/Med</td>
<td>Low</td>
<td>L</td>
<td>MH</td>
<td>LM</td>
<td>LM</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>Business incentives</td>
<td>Recycling Service Discounts / Rebates</td>
<td>Business incentives - Money off trash or recycling if businesses sign up for recycling</td>
<td>Low/Med</td>
<td>Med</td>
<td>L</td>
<td>M</td>
<td>None</td>
<td>LM</td>
<td>3</td>
</tr>
<tr>
<td>14</td>
<td>Business incentives</td>
<td>Recycling / Food Scraps Embedded for All Businesses</td>
<td>All businesses must pay for recycling and/or food scraps collection if used or not (all embedded in trash bill)</td>
<td>High</td>
<td>Low</td>
<td>H</td>
<td>M</td>
<td>LM</td>
<td>H</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>Hauler goals</td>
<td>Hauler Incentives for Meeting Goals</td>
<td>Financial incentives or other incentives (e.g. contract extensions) for meeting goals. Financial incentives include lower franchise fee, varying tip fees, lower taxes/fees, etc.</td>
<td>High</td>
<td>Low</td>
<td>H</td>
<td>LM</td>
<td>LM</td>
<td>H</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>Hauler incentives</td>
<td>Two-Tiered Disposal Rates for Haulers Meeting Goals</td>
<td>Two-tiered rates for qualified haulers at landfill / transfer station; lower fees for those haulers meeting goals, offering desired programs, etc.</td>
<td>Med/High</td>
<td>Low/Med</td>
<td>MH</td>
<td>LM</td>
<td>LM</td>
<td>H</td>
<td>4</td>
</tr>
<tr>
<td>17</td>
<td>Incentives</td>
<td>Taxes on Some Waste Streams</td>
<td>Taxes on trash stream, omitted on recyclables to lower the effective cost for recyclables and increase the differentials.</td>
<td>Med</td>
<td>Low</td>
<td>M</td>
<td>LM</td>
<td>L</td>
<td>M</td>
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<tr>
<td>ID row</td>
<td>Program Type</td>
<td>Name</td>
<td>Short Description</td>
<td>Relative Tonnage Performance</td>
<td>Relative Cost to Jurisdiction</td>
<td>Cost-Effectiveness</td>
<td>Relative cost to Comm'l Sector</td>
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<td>Drives Change</td>
<td>Phase</td>
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<td>18</td>
<td>Incentives - Business</td>
<td>Require Incentive Rates for Recycling / Compost service</td>
<td>Require incentive rates charged by haulers for recycling and composting service; each service must be offered for less than the same volume of trash service.</td>
<td>Med/High</td>
<td>Low</td>
<td>MH</td>
<td>MH</td>
<td>L</td>
<td>MH</td>
<td>4</td>
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<tr>
<td>19</td>
<td>Incentives - Business</td>
<td>PAYT Trash Bags for All Businesses</td>
<td>PAYT bag programs for all trash service, making &quot;more&quot; trash more costly than &quot;less&quot; trash -- translating to the smallest businesses.</td>
<td>Med</td>
<td>Low</td>
<td>M</td>
<td>H</td>
<td>MH</td>
<td>M</td>
<td>5</td>
</tr>
<tr>
<td>20</td>
<td>Outreach / TA / Recognition</td>
<td>Education on Bidding &amp; Contracts</td>
<td>Education on bidding &amp; contracts so businesses understand the options available from haulers, and the conditions that are more favorable to recycling.</td>
<td>Med</td>
<td>Low/Med</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>MH</td>
<td>2</td>
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<tr>
<td>21</td>
<td>Outreach / TA / Recognition</td>
<td>Business Outreach – Information and tips</td>
<td>Outreach / information / tips / materials / videos on recycling, potentially with peer-to-peer information by business type or for key materials.</td>
<td>Low/Med</td>
<td>Med</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>2</td>
</tr>
<tr>
<td>22</td>
<td>Outreach / TA / Recognition</td>
<td>Business Recognition Program</td>
<td>Recognition on website, other venues for recycling, meeting graduated criteria (more stars for those with greener practices).</td>
<td>Low/Med</td>
<td>Med</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>3</td>
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<tr>
<td>24</td>
<td>Outreach / TA / Recognition</td>
<td>Door-to-Door Outreach on Comm'l Food Scraps Diversion</td>
<td>Outreach on food scraps opportunities / door-to-door</td>
<td>Med</td>
<td>Med/High</td>
<td>LM</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>3</td>
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<tr>
<td>ID row</td>
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<td>Short Description</td>
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<td>Cost-Effectiveness</td>
<td>Relative cost to Comm'l Sector</td>
<td>Relative cost to Haulers</td>
<td>Drives Change</td>
<td>Phase</td>
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<tr>
<td>26</td>
<td>Market Development</td>
<td>Market Development Initiatives</td>
<td>Market development, including grants for businesses, co-location of waste and re-use businesses, subsidies for business plans, business redevelopment zones, helping design specifications for recycled product or use of recycled product, outreach to users to familiarize with recycled goods that can replace virgin materials.</td>
<td>Low</td>
<td>Med/High</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>27</td>
<td>Small businesses</td>
<td>Small businesses eligible for Residential Curbside Recycling Service</td>
<td>Small businesses added to curbside recycling program; no fee or small fixed fee charged.</td>
<td>Med</td>
<td>Med</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>LM</td>
<td>MH</td>
</tr>
<tr>
<td>28</td>
<td>Small businesses</td>
<td>96 Gallons of Recycling for All Businesses</td>
<td>All businesses get 96 gallons of recycling service embedded in trash rate; larger businesses may pay extra for larger containers or multiple 96’s.</td>
<td>Med/High</td>
<td>Low</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>MH</td>
</tr>
<tr>
<td>29</td>
<td>Small businesses</td>
<td>Free Recycling Carts for Small Businesses</td>
<td>Free recycling carts provided to small businesses</td>
<td>Med</td>
<td>Med</td>
<td>LM</td>
<td>L</td>
<td>M</td>
<td>MH</td>
<td>4</td>
</tr>
<tr>
<td>30</td>
<td>Small businesses</td>
<td>PAYT Trash Bags for Small Commercial businesses</td>
<td>PAYT bag program for small commercial, so those with service less than 1 cubic yard can pay less for less trash.</td>
<td>Med</td>
<td>Low</td>
<td>MH</td>
<td>M</td>
<td>LM</td>
<td>MH</td>
<td>4</td>
</tr>
<tr>
<td>31</td>
<td>Mandates and Bans</td>
<td>Targeted Mandatory Recycling / Selected Generators</td>
<td>Mandatory recycling required for selected commercial generators (delimited by type of business, trash size in CY, large employee thresholds; criteria can start at high levels and phase in lower over time)</td>
<td>High</td>
<td>Low</td>
<td>H</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>5</td>
</tr>
<tr>
<td>32</td>
<td>Mandates and Bans</td>
<td>All Beverage Containers - Mandatory for Selected Businesses</td>
<td>Businesses generating beverage containers must recycle containers; enforced with possible loss of liquor license.</td>
<td>High</td>
<td>Low</td>
<td>H</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>5</td>
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4 | USDN Study Appendices: “Roadmap for Implementing Effective Commercial ...”
<table>
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<tr>
<th>ID row</th>
<th>Program Type</th>
<th>Name</th>
<th>Short Description</th>
<th>Relative Tonnage Performance</th>
<th>Relative Cost to Jurisdiction</th>
<th>Cost-Effectiveness</th>
<th>Relative cost to Comm’l Sector</th>
<th>Relative cost to Haulers</th>
<th>Drives Change</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>33 Mandates and Bans</td>
<td>Mandatory Recycling Commercial-Wide</td>
<td>Mandatory recycling for all commercial generators (it can be phased in over time); may be enforced by hauler or city, etc.</td>
<td>High</td>
<td>Low</td>
<td>H</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>34 Mandates and Bans</td>
<td>Targeted Commercial Food Scraps Program</td>
<td>Commercial Food Scraps (Pilot, then Full-scale) for selected business types (grocery, restaurant, etc)</td>
<td>High</td>
<td>Low</td>
<td>H</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>35 Mandates and Bans</td>
<td>PAYT / Costs for Commercial Recycling Embedded in trash rate</td>
<td>PAYT trash rates (rates by trash volume) that embed the cost of recycling needed, covering all businesses. The requirement may be open (whatever recycling is needed) or limited (recycling equal to 1/2 the trash volume, equal to the trash volume, 1.5x the trash volume, etc.)</td>
<td>High</td>
<td>Low</td>
<td>H</td>
<td>M</td>
<td>L</td>
<td>H</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>36 Mandates and Bans</td>
<td>No Bin No Barrel</td>
<td>No trash may be collected if recycling is not set out for collection.</td>
<td>Med/High</td>
<td>Low</td>
<td>MH</td>
<td>M</td>
<td>H</td>
<td>MH</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>37 Mandates and Bans</td>
<td>Material Bans</td>
<td>Material ban - from collection OR disposal from commercial generators. May be enforced at transfer or disposal site or required of haulers.</td>
<td>High</td>
<td>Low/Med</td>
<td>H</td>
<td>LM</td>
<td>MH</td>
<td>H</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>38 Policy &amp; Incentives</td>
<td>Taxes / Surcharges on Disposal Fees</td>
<td>Taxes or surcharges on disposal stream / MSW to increase tipping fee relative to recycling or compost streams (tip fees).</td>
<td>Med</td>
<td>Low</td>
<td>M</td>
<td>LM</td>
<td>L</td>
<td>M</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>39 Policy &amp; Incentives</td>
<td>ADFs on Selected Products</td>
<td>ADFs / deposits on some products to encourage (fund) proper disposal</td>
<td>Low</td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>LM</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>40 Policy &amp; Incentives</td>
<td>ADF / Single use bag fee or ban</td>
<td>Fee placed on single use bag at the business (or ban on single use bags). Fee proceeds usually split with retailer and city, and city portion funds oversight and related recycling / litter / clean-up programs.</td>
<td>Low</td>
<td>LM</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>LM</td>
<td>6</td>
<td></td>
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<tr>
<td>ID</td>
<td>Program Type</td>
<td>Name</td>
<td>Short Description</td>
<td>Relative Tonnage Performance</td>
<td>Relative Cost to Jurisdiction</td>
<td>Cost-Effectiveness</td>
<td>Relative cost to Comm'l Sector</td>
<td>Relative cost to Haulers</td>
<td>Drives Change</td>
<td>Phase</td>
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<tr>
<td>41</td>
<td>Policy &amp; Incentives</td>
<td>ADFs / Recycled Content Requirements</td>
<td>Recycled content requirements for some products (e.g. newspapers printed in town) to drive demand for recycled product</td>
<td>Low</td>
<td>H</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>6</td>
</tr>
<tr>
<td>42</td>
<td>Collection &amp; Contracting</td>
<td>Targeted food scraps programs</td>
<td>Community contacts small sample of businesses with food scraps and designs a small-scale commercial food scraps program or develops partnerships that will result in sufficient food along a route to lead to cost-effective collection by haulers.</td>
<td>Med</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>LM</td>
<td>M</td>
<td>5</td>
</tr>
<tr>
<td>43</td>
<td>Collection &amp; Contracting</td>
<td>Starting / subsidizing food collection</td>
<td>Community helps run pilot to demonstrate food collection, or to start permitted facility, or provides incentive for businesses using food collection</td>
<td>Low/Med</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>LM</td>
<td>M</td>
<td>4</td>
</tr>
<tr>
<td>44</td>
<td>Collection &amp; Contracting</td>
<td>Starting / subsidizing recycling collection</td>
<td>Community helps set up recycling pilot or run pilot to demonstrate food collection, or to start permitted facility, or provides incentive for businesses using food collection</td>
<td>Low/Med</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>LM</td>
<td>M</td>
<td>3</td>
</tr>
<tr>
<td>45</td>
<td>Collection &amp; Contracting</td>
<td>Contract for Commercial Collection</td>
<td>City or business association or others organize to issue RFP and contract / franchise / district for commercial collection for all businesses or businesses in a specific zone.</td>
<td>Med/High</td>
<td>M</td>
<td>MH</td>
<td>L</td>
<td>M</td>
<td>H</td>
<td>6</td>
</tr>
<tr>
<td>46</td>
<td>Collection &amp; Contracting</td>
<td>Municipal Collection for Commercial</td>
<td>City takes over collection for commercial (all businesses or specific geographic zone)</td>
<td>Med/High</td>
<td>MH</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>H</td>
<td>6</td>
</tr>
<tr>
<td>47</td>
<td>Partnerships and Facilities</td>
<td>Cooperative collection for recycling arranged</td>
<td>Community identifies small businesses that may not have sufficient quantities for cost-effective hauler recycling collection, and arranges for collection route from multiple businesses, or establishes a convenient centrally-located recycling container for collection.</td>
<td>Low</td>
<td>LM</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>LM</td>
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<tr>
<td>48</td>
<td>Partnerships and Facilities</td>
<td>Commercial Drop-off Recycling</td>
<td>Businesses allowed / encouraged to use recycling drop-off at transfer station or drop-off location</td>
<td>Low/Med</td>
<td>LM</td>
<td>H</td>
<td>L</td>
<td>L</td>
<td>LM</td>
<td>2</td>
</tr>
<tr>
<td>49</td>
<td>Partnerships and Facilities</td>
<td>Hub and Spoke Recycling Collection Assistance</td>
<td>Hub and spoke incentives / grants / partnerships to aggregate tonnages from outlying areas, reduce duplication of processing facilities, and make recycling accessible to outlying areas.</td>
<td>M</td>
<td>M</td>
<td>LM</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>4</td>
</tr>
<tr>
<td>50</td>
<td>Partnerships and Facilities</td>
<td>Partnerships on Recycling / Composting Facilities</td>
<td>Partnerships on local needed facilities</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>MH</td>
<td>4</td>
</tr>
<tr>
<td>51</td>
<td>Partnerships and Facilities</td>
<td>Dirty MRF- Post collection separation of recyclables</td>
<td>Sector's waste is collected as trash, and easy recyclables sorted out at a mixed waste facility / &quot;dirty MRF&quot;.</td>
<td>Med/High</td>
<td>MH</td>
<td>M</td>
<td>L</td>
<td>LM</td>
<td>M</td>
<td>6</td>
</tr>
<tr>
<td>52</td>
<td>C&amp;D</td>
<td>C&amp;D: Higher Permit Fees</td>
<td>Community establishes higher permit fees for C&amp;D projects not recycling or meeting recycling thresholds.</td>
<td>Med</td>
<td>L</td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>5</td>
</tr>
<tr>
<td>53</td>
<td>C&amp;D</td>
<td>C&amp;D Deposit Program</td>
<td>Community collects a &quot;deposit&quot; (higher for larger projects) with the C&amp;D permit application, and all or part of the deposit is rebated based on the amount of recycling that occurred at the site (with weight slips or other documentation required)</td>
<td>High</td>
<td>L</td>
<td>H</td>
<td>L</td>
<td>L</td>
<td>H</td>
<td>5</td>
</tr>
<tr>
<td>54</td>
<td>C&amp;D</td>
<td>C&amp;D On-Site Sales</td>
<td>Obtaining C&amp;D permit requires on-site sale or contact of a dismantler before the construction phase can begin.</td>
<td>Med</td>
<td>L</td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>5</td>
</tr>
<tr>
<td>55</td>
<td>C&amp;D</td>
<td>Discounted / Higher Rates for C&amp;D</td>
<td>Discounted disposal rates are provided for those C&amp;D projects that recycle or reuse threshold / qualifying amounts on the project. Alternatively (or in addition) higher rates than trash rates are charged for C&amp;D to encourage its separation and recycling.</td>
<td>Med</td>
<td>LM</td>
<td>M</td>
<td>L</td>
<td>L</td>
<td>MH</td>
<td>5</td>
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<tr>
<td>56</td>
<td>C&amp;D</td>
<td>Developer Incentives for C&amp;D, Recycling</td>
<td>Incentives that are attractive to developers (higher development ratios, lower set-backs, etc.) if they use recycled or recyclable materials, recycle on-site, or meet other desired behaviors in construction.</td>
<td>Low/Med</td>
<td>MH</td>
<td>LM</td>
<td>L</td>
<td>L</td>
<td>MH</td>
<td>5</td>
</tr>
<tr>
<td>57</td>
<td>C&amp;D</td>
<td>C&amp;D Material Ban</td>
<td>Ban C&amp;D from the landfill.</td>
<td>Med/High</td>
<td>L</td>
<td>MH</td>
<td>L</td>
<td>L</td>
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</table>
D.2 Commercial Program Strengths and Weaknesses

Figure D.2 provides a summary overview of the strengths and weaknesses of each program in turn. More detail on each program is provided in section D.3. Note that, in many cases, a change to how businesses must address their waste will increase their operating costs; if recycling is cheaper in a community, economics would suggest it would already be fairly widespread in the sector. This issue should be expected by communities implementing programs.

**Figure D.2: Strengths and Weaknesses and Auxiliary Benefits Associated with the Commercial Program Options Included in the Model**

<table>
<thead>
<tr>
<th>ID</th>
<th>Program Type</th>
<th>Name</th>
<th>Key Strengths / Opportunities</th>
<th>Key Barriers / Weaknesses</th>
<th>Auxiliary Benefits/Co-Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Community preparation</td>
<td>Establish Recycling Committee</td>
<td>Begins dialog on commercial recycling; Engages citizens / businesses that are interested; Provides an avenue for community to examine options and receiving input and advice on options and move beyond residential recycling</td>
<td>No direct tonnage savings; Volunteer-type committees can struggle to keep useful involvement; Staff time would be needed for recruitment / management.</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>Community preparation</td>
<td>Educate Elected Officials about Com’l Recycling</td>
<td>Staff and elected officials begin a dialog on commercial recycling; Provides background to elected officials to take temperature prior to presentations on program options by staff; Allows staff to begin to examine the local commercial context.</td>
<td>No direct tonnage savings.</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>Community preparation</td>
<td>Tracking Recycling, Establishing Goals</td>
<td>Provides data for a baseline for recycling / diversion in the commercial sector; Provides an indication of the state of current recycling (which can be an impetus for change or setting goals); Provides an opportunity to understand some of “current practices” in the commercial sector; Fairly straightforward to require via ordinance or license or other means.</td>
<td>No direct tonnage savings; May take community legal review to determine the best way to acquire / exercise the authority; Measuring / reporting commercial tonnage is complicated when hauler routes include commercial plus other sectors, or cross community boundaries, but estimates can be used’ Some (minimal) change to hauler practices may be needed to comply.</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>Community preparation</td>
<td>Adopt Community ZW/Aggressive Goal</td>
<td>Developing a goal and crafting a plan to meet goals encourages stakeholders to talk / cooperate and encourages consideration of potential options; Setting an aggressive goal with specific strategies and timelines along with enforcement can have a significant (follow-on) effect when implemented; Many examples in other communities.</td>
<td>Plans themselves don’t lead to direct tonnage savings; Facilities and various support infrastructure may be missing / may need to be developed and funded; Public support / public process and political support needed to implement and fund Plan.</td>
<td>None</td>
</tr>
<tr>
<td>ID</td>
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<td>Key Barriers / Weaknesses</td>
<td>Auxiliary Benefits/C o-Benefits</td>
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<td>5</td>
<td>Requirements through Ordinance</td>
<td>Ordinances / Space for Recycling, Recycling in Leases</td>
<td>Removes an important and widespread barrier to commercial recycling / expansion; Addresses a structural problem (opportunity to recycle in the building) that would otherwise persist for the life of the building; Easy to implement; Low cost to community (ordinance); Inexpensive to design into new buildings; Flexible – can be designed to cover new and remodeling, large or small, etc. as needed; Many examples in other communities.</td>
<td>Does not directly lead to tonnage savings; Does not require recycling / participation so attributable tons low (but removes barrier to recycling); Additional cost for existing / remodeled buildings; Needs collection / processing infrastructure for tons freed up for programs.</td>
<td>Low GHG</td>
</tr>
<tr>
<td>6</td>
<td>Requirements through Ordinance</td>
<td>Require Commercial Recycling Plans</td>
<td>Requiring businesses to think about recycling through developing a plan can move some toward implementation; Easy to implement; Low cost to community (easy forms; seldom strongly enforced) and to businesses; Many examples in other communities; Can be flexibly designed to target sectors or material streams, include simple checklists or more complex plans, and informal or more formal filing to meet needs of the community.</td>
<td>Does not directly lead to tonnage savings; Does not require recycling / participation so attributable tons low (but removes education barrier to recycling); Needs design decisions / development of forms and filing / enforcement requirements; Follow-on will add collection costs to many (not all) businesses; Needs collection / processing infrastructure for tons freed up for programs.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Requirements through Ordinance</td>
<td>Licensing with Tonnage Reporting Required</td>
<td>Provides data for a baseline for recycling / diversion in the commercial sector; Provides an indication of the state of current recycling (which can be an impetus for change or setting goals); Provides an opportunity to understand some of current players, capabilities, and “current practices” in the commercial sector that is useful information for planning; Fairly straightforward to require via ordinance or license or other means.</td>
<td>No direct tonnage savings; May take community legal review to determine the best way to acquire / exercise the authority; Measuring / reporting commercial tonnage is complicated when hauler routes include commercial plus other sectors, or cross community boundaries, but estimates can be used; Some (minimal) change to hauler practices may be needed to comply.</td>
<td>None</td>
</tr>
<tr>
<td>8</td>
<td>Requirements through Ordinance</td>
<td>Business Diversion Goals</td>
<td>Flexible - May be voluntary or mandatory, sector-wide or targeted to business or material types or size; Goals can be ramped up for continued progress; Mandatory results in significant recycled tons (if enforced); Jumpstarts commercial sector recycling; Limited examples in other communities; May be fairly costly to enforce.</td>
<td>Can be difficult to measure / enforce, especially if collection is not provided by community or via contract; Must determine if local authority is available; Need political support; Not very effective if not enforced; Businesses may be resistant and see this as an additional cost.</td>
<td>Med GHG</td>
</tr>
<tr>
<td>9</td>
<td>Requirements through Ordinance</td>
<td>Require Clear Hauler Invoices &amp; Contracts</td>
<td>Addresses important barrier to additional recycling because businesses often do not know the service they are subscribed to or the contract terms; If businesses are inspired to negotiate or re-bid for additional recycling service they can achieve savings and recycle more (more opportunity and more incentive); Lower costs likely because clarity of service on invoice supports comparison shopping (impeded with current obscure invoice information); Inexpensive for community to implement / enforce; Fits / benefits all business types.</td>
<td>Haulers may be unhappy / uncooperative with better educated commercial customers and perceived threat to status quo customer base (and community interference); Customers may still not change behaviors / inertia and may not increase diversion tons; Community may not have authority; Some businesses don’t have (local) control over their service contracts.</td>
<td>Med GHG</td>
</tr>
<tr>
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<tr>
<td>10</td>
<td>Procurement</td>
<td>Procurement Requiring Local Compost</td>
<td>Requiring use of recycled content compost in governmental supplies / contracts (road construction), municipal parks, and revising building codes requiring the product for soil amendment can be very effective in stimulating demand for a locally-generated product that otherwise can have market problems; Can assure tonnage demand that stimulates development or expansion of needed processing capacity; Easy to implement; Low cost for community to implement; More tonnage diversion is stimulated if the requirement specifies use of “local” compost.</td>
<td>Requires local infrastructure for collection and processing; Assuring consistent / reliable product quality; There also may be state or regional laws requiring open purchasing policies; Costs may be higher than other product; If collection programs aren’t robust enough there may be supply issues.</td>
<td>Med GHG; some job creation incl. locally</td>
</tr>
<tr>
<td>11</td>
<td>Require to offer</td>
<td>Require Haulers to Offer Recycling</td>
<td>Can attract diversion from businesses wanting service; Can help build demand for infrastructure construction; Builds (requires development of) capacity in hauler capabilities for the service; Lets businesses know service is available (especially if annual requirement); Enforcement can be done with fines or license revocation, etc; Can transition to later mandates if needed (collection and processing infrastructure developed “seeded”).</td>
<td>Enforcement important (especially making sure haulers are offering service) but can be easily checked if requirements are low (e.g. only requiring having it on website or bill, etc.); Does not require favorable pricing, and does not mandate use, so usage may be low; Collection and processing capacity needed; Small haulers may not have capability initially and may complain; Need support from decision-makers.</td>
<td>Low/Med GHG, Low Job Creation, incl. local haulers</td>
</tr>
<tr>
<td>12</td>
<td>Require to offer</td>
<td>Require Haulers to Offer Food Scraps</td>
<td>Can attract diversion from businesses wanting service; Can help build demand for infrastructure construction; Builds (requires development of) capacity in hauler capabilities for the service; Lets businesses know service is available (especially if annual requirement); Enforcement can be done with fines or license revocation, etc; Can transition to later mandates if needed (collection and processing infrastructure developed “seeded”).</td>
<td>Enforcement important (especially making sure haulers are offering service) but can be easily checked if requirements are low (e.g. only requiring having it on website or bill, etc.); Does not require favorable pricing, and does not mandate use, so usage may be low; Collection and processing capacity needed; Small haulers may not have capability initially and may complain; Need support from decision-makers.</td>
<td>Low/Med GHG; Some job creation, incl. local haulers</td>
</tr>
<tr>
<td>13</td>
<td>Business incentives</td>
<td>Recycling Service Discounts / Rebates</td>
<td>Kick-starts businesses into recycling by providing short term discounts or rebates for signing up for service; Can increase tons and start recycling by additional businesses; Can be targeted by businesses type, size, etc; Examples in other communities; Fairly low cost program (depending on how designed); Can be used for recycling or food scraps; Every community should have this authority.</td>
<td>Finding funding; Advertising needed; Need collection and processing capacity; Must make payment and other arrangements with hauler (unless municipal collection); Space for recycling at business site; Voluntary / no requirement, and short term subsidy only, so may result in lower tons.</td>
<td>Low/Med GHG, some job creation</td>
</tr>
<tr>
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<td>Key Barriers / Weaknesses</td>
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<tr>
<td>14</td>
<td>Business incentives</td>
<td>Recycling / Food Scraps Embedded for All Businesses</td>
<td>Significantly increases tonnage diverted; No separate charge for diversion programs assures the cost of trash plus diversion is not more than trash alone, which significantly increase incentives for more recycling / organics diversion; Universal service spreads the cost of recycling / food scraps programs and reaches economies of scale / lower program costs; Low cost to community / user funded; Hauler costs are covered by user fee changes and expands their business.</td>
<td>Space constraints at some businesses; Costs increase for many businesses; Need collection and processing capacity; Resistance from businesses; Needs support from decision-makers; Significant up-front investment in containers, etc. for haulers, and on-going staffing needs; Doesn’t require use of the service (but economic incentives are strong).</td>
<td>High GHG, medium job creation, including local haulers</td>
</tr>
<tr>
<td>15</td>
<td>Hauler goals</td>
<td>Hauler Incentives for Meeting Goals</td>
<td>Financial and other incentives (extensions of contracts / franchises, reductions in fees, etc.) are effective at encouraging haulers to meet goals – and increase recycling: Examples in other communities; Not costly for community; Can be adjusted over time to encourage increasing diversion; Can be self-funding if rates are set appropriately.</td>
<td>Enforcement is needed (especially tracking tons, diversion compliance, etc.); May be revenue shortfalls (in franchise fees, etc.) if rates not set appropriately; Need processing capacity for additional tons diverted; Community may not have authority or haulers in a situation to easily influence; Need elected official support.</td>
<td>High GHG, medium job creation, including local haulers</td>
</tr>
<tr>
<td>16</td>
<td>Hauler incentives</td>
<td>Two-Tiered Disposal Rates for Haulers Meeting Goals</td>
<td>Discounts (or avoidance of surcharges) on MSW disposal fees can be provided to communities or haulers meeting targeted goals, encouraging diversion to meet those goals; Pricing can be set to achieve desired behavior / higher tons; Clear and long-lasting signals; If the authority exists, can be fairly easily implemented; Successful examples in other locations; Tiers can be adjusted over time; Additional tiers can be added as rewards for meeting higher goals; Self-funding once rates are readjusted.</td>
<td>Community may not have authority or own the landfills / disposal / diversion sites; If available, haulers or communities may choose to take materials elsewhere, undermining the incentive.</td>
<td>Med/High GHG, low job creation</td>
</tr>
<tr>
<td>17</td>
<td>Incentives</td>
<td>Taxes on Some Waste Streams</td>
<td>Can realign economic incentives to change behavior and divert tons; Relative pricing can be set to affect / divert significant tonnages; Clear and long-lasting signals; If the authority exists, can be fairly easily implemented; Successful examples in other locations.</td>
<td>Community may not have authority or own the landfills / disposal / diversion sites; If available, haulers may choose to take materials elsewhere, undermining the incentive.</td>
<td>Med GHG, low job creation</td>
</tr>
<tr>
<td>18</td>
<td>Incentives - Business</td>
<td>Require Incentive Rates for Recycling / Compost service</td>
<td>Requiring discounts for recycling or composting service relative to trash service will encourage greater separation and tonnage diversion; Price signals (economic incentives) change behavior long-term and provide clear motivation; Price signals can be crafted to deliver high tonnage diversion; Should be self-funding once rates are re-calculated to recover revenue requirements.</td>
<td>In most communities, program will require subsidies between waste streams pricing, which can be complicated (unless contract or municipal service); Must have authority; must have collection and processing capacity; Short term risk to haulers (or service providers) until rates are re-calculated to cover subsidies.</td>
<td>Med GHG, some job creation</td>
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<tr>
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<td>19</td>
<td>Incentives - Business</td>
<td>PAYT Trash Bags for All Businesses</td>
<td>Provides recycling incentive for small businesses that cannot reduce trash bill beyond smallest dumpster service level; In place in other jurisdictions; Easy to understand; Can put bags in dumpsters or other containers; Self-funding / user fees; Bag prices can be set to encourage recycling; More recycling is encouraged if recycling cost is embedded in PAYT bag fees.</td>
<td>Can be inconvenient / inefficient for large businesses (best for small); Enforcement system needed for bag compliance; Businesses must have bags on hand when needed; Need distribution system for bags; Recycling program must be convenient and available to these businesses; Illegal dumping may be a concern; Community must have authority. Must have collection capability and processing facility available to handle material stream; If not collected in dumpsters, collection cost will increase for many businesses (and litter from broken bags may result); Must have local hauler(s) available to deliver the program (unless community is interested / able).</td>
<td>Med GHG, medium job creation incl. local haulers</td>
</tr>
<tr>
<td>20</td>
<td>Outreach / TA / Recognition</td>
<td>Education on Bidding &amp; Contracts</td>
<td>Addresses important information gap for businesses who often do not know the service they are subscribed to or the contract terms; Businesses implementing suggestions on bidding and contracts may achieve savings and recycle more (more opportunity and more incentive); Lower costs likely for customers implementing recommendations; Inexpensive to deliver the program (outreach, websites, etc.); No special authorities needed; Fits all business types.</td>
<td>Haulers may be unhappy / uncooperative with better educated commercial customers and perceived Community interference; Customers may still not change behaviors / inertia and may not increase diversion tons; Some businesses don’t have (local) control over their service contracts.</td>
<td>Low/Med GHG, low job creation</td>
</tr>
<tr>
<td>21</td>
<td>Outreach / TA / Recognition</td>
<td>Business Outreach – Information and tips</td>
<td>Outreach / awareness can increase recycling; Message can be targeted (material, business type, etc.); Many different outreach methods available; Relatively inexpensive; Used in many other communities; Can have hauler or community deliver.</td>
<td>Generally quite modest tonnage impacts; Most impacts short-term; Can be costly per ton; Hard to engage business sector – multiple decision-makers, etc.</td>
<td>Low GHG</td>
</tr>
<tr>
<td>22</td>
<td>Outreach / TA / Recognition</td>
<td>Business Recognition Program</td>
<td>Diverts tons; Low cost incentive; Graduated programs can provide incentive to keep businesses improving practices; Opportunity for recognition of many forms (social media, decals, advertising, etc.); Can progress over time as standard business practice evolves; Can be incorporated with multiple streams (water, etc.) to increase cost effectiveness and impacts; Many examples in other communities; businesses seem to care and change practice to distinguish themselves in the market; Can be simple to set up; Can target specific industries (by streams, problems, etc).</td>
<td>Must establish program design/ parameters and recruit / advertise; Must have staff to certify / inspect and check back; Need small, continuous source of funding; Non-mandatory an may affect small number of businesses.</td>
<td>Med GHG, some short term jobs</td>
</tr>
<tr>
<td>23</td>
<td>Outreach / TA / Recognition</td>
<td>Commercials Outreach / Social Marketing</td>
<td>Diverts tons; Outreach that focuses on tailored motivators and barriers can provide better impact per contact; Prompts and other elements for program can lead to a new expectation about business behaviors; Can divert significant tons.</td>
<td>Needs more specific research and tailored materials than traditional outreach (potentially higher cost); Not a mandatory program so tons less; Need collection / processing capacity; Uncertain how long the effects last.</td>
<td>Med GHG, some short term jobs</td>
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<tr>
<td>24</td>
<td>Outreach / TA / Recognition</td>
<td>Door-to-Door Outreach on Com’l Food Scraps Diversion</td>
<td>Door-to-Door approach tends to divert more tons per contact and tonnage effect lasts longer; Allows tailored discussion of motivations and barriers for specific business.</td>
<td>Door-to-door approach is costly per business visited (although cost per ton can be less expensive); Language can be an issue; Time consuming; Need funding for tailored collateral materials / handouts; Cost may only allow outreach to smaller share of businesses each year; Must have collection capability and processing facility available to handle material stream.</td>
<td>Med GHG, some job creation</td>
</tr>
<tr>
<td>25</td>
<td>Outreach / TA / recognition</td>
<td>Business Technical Assistance / Audits</td>
<td>Diverts tons through targeted behavioral and facility changes; Addressed information gaps that are barriers to recycling; Can be low cost or efficient program per ton diverted; Can target specific business types (or materials) appropriate to the community; Multiple design available (neighborhood sweeps, business or size focus, delivered by consultant or community staff, etc); In place in many communities; Best targeted at small to medium businesses.</td>
<td>Needs funding source; Staff training (or RFP for consultants) needed; Difficult to include large businesses (expertise level critical); Information only / doesn’t mandate recycling and practices may fall off over time; Program needs significant recruitment and follow-up efforts.</td>
<td>Low/med GHG, some job creation</td>
</tr>
<tr>
<td>26</td>
<td>Market Development</td>
<td>Market Development Initiatives</td>
<td>Addresses the “big picture”, trying to increase local demand and supply of recyclables, and generate jobs, economic activity, etc.; Could attract materials from other areas.</td>
<td>Historically difficult to enact successfully; Needs careful design.</td>
<td>Low to none, unless businesses pick up; then can be larger GHG and local jobs</td>
</tr>
<tr>
<td>27</td>
<td>Small businesses</td>
<td>Small businesses eligible for Residential Curbside Recycling Service</td>
<td>Diverts tons; Allows small businesses to get service at cheaper rate than may otherwise be available; Addresses potential cost barrier for small businesses to recycle (service and containers); May provide option for smaller recycling container that may fit better in limited trash enclosures than recycling dumpsters; Self-funding through (embedded) use fees; If free, Recycling plus trash is not more expensive than trash service, and more tons result..</td>
<td>Lack of storage space; Best if businesses near residential neighborhoods; Provides same recycling mix as residential service (positive and negative); Enforcement needed (for volumes / compliance and potential contamination); Needs political support; Community needs authority; Must have collection capability and processing facility available to handle material stream.</td>
<td>Med GHG, some job creation, including local haulers</td>
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<tr>
<td>28</td>
<td>Small businesses</td>
<td>96 Gallons of Recycling for All Businesses</td>
<td>Diverts tons; Addresses potential cost barrier for small businesses to recycle (service and containers); May provide option for smaller recycling container that may fit better in limited trash enclosures than recycling dumpsters; Allows larger businesses to potentially contract for larger volumes but provides “starter” volumes for all businesses and encourages participation (they are already paying for the service); Self-funding through (embedded) use fees; Recycling plus trash is not more expensive than trash service.</td>
<td>Lack of storage space; Need to clarify contracting procedures for those needing more than 96 gallons of (embedded) service; Enforcement needed (for volumes / compliance and potential contamination); Needs political support; Community needs authority; Must have collection capability and processing facility available to handle material stream; Must have local hauler(s) available to deliver the program (unless community is interested / able).</td>
<td>Med GHG, medium job creation, including local haulers</td>
</tr>
<tr>
<td>29</td>
<td>Small businesses</td>
<td>Free Recycling Carts for Small Businesses</td>
<td>Diverts tons; Addresses potential cost barrier for small businesses to recycle / compost; May provide option for smaller recycling container that may fit better in limited trash enclosures than recycling dumpsters; If free cart and free service option selected, more tons will result.</td>
<td>Lack of storage space; Finding funding for the program, unless haulers are required to provide containers (if food scraps are considered, special containers may be needed, and collection frequency will need to be adjusted); Pricing incentives will be needed to encourage real participation / trash plus recycling may still be more expensive than trash; Needs political support; Community needs authority. Must have collection capability and processing facility available to handle material stream; Must have local hauler(s) available to deliver the program (unless community is interested / able).</td>
<td>Med GHG, some job creation, including local haulers</td>
</tr>
<tr>
<td>30</td>
<td>Small businesses</td>
<td>PAYT Trash Bags for Small Commercial businesses</td>
<td>Provides recycling incentive for small businesses that cannot reduce trash bill beyond smallest dumpster service level; Impacts a large number of firms (although they are small, so tonnage affected is less than proportional); In place in other jurisdictions; Easy to understand.</td>
<td>Enforcement system needed / important, and program must be clearly defined (size of business, etc.); Businesses must have bags on hand when needed; Need distribution system for bags; Recycling program must be convenient and available to these businesses; Illegal dumping may be a concern; Community must have authority. Must have collection capability and processing facility available to handle material stream; Must have local hauler(s) available to deliver the program (unless community is interested / able).</td>
<td>Med GHG, medium job creation, including local haulers</td>
</tr>
<tr>
<td>31</td>
<td>Mandates and Bans</td>
<td>Targeted Mandatory Recycling / Selected Generators</td>
<td>Commences a program to capture a potentially large recyclable waste stream and community can select highest volume generators; Program can expand to other generators over time; Mandates draw large tons; Economies of scale in program, once mandatory; Self-funding.</td>
<td>Must have collection capability and processing facility available to handle material stream; Must have local hauler(s) available to deliver the program (unless community is interested / able); Enforcement needed; Potential resistance from businesses / will cost businesses more and space may be a barrier; Needs political support; Community needs authority.</td>
<td>High GHG, med job creation incl. local haulers</td>
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<tr>
<td>32</td>
<td>Mandates and Bans</td>
<td>All Beverage Containers - Mandatory for Selected Businesses</td>
<td>Commences a program to capture a potentially clear recyclable waste stream from a targeted set of generators; Mandates draw large tons; Economies of scale in program, once mandatory; Self-funding; Can piggyback on existing systems for enforcement (revocation of liquor license for non-compliance); Examples in other locations.</td>
<td>Must have collection capability and processing facility available to handle material stream; Must have local hauler(s) available to deliver the program (unless community is interested / able); Enforcement needed; Potential resistance from restaurant and bar sector/ will cost businesses more (and space may be an issue); Needs political support; Community needs authority.</td>
<td>High GHG, medium job creation including local haulers</td>
</tr>
<tr>
<td>33</td>
<td>Mandates and Bans</td>
<td>Mandatory Recycling Commercial-Wide</td>
<td>Commences a program to capture a potentially-large waste stream; Mandates draw large tons; Economies of scale in program, once mandatory; Dedicated and assured tonnage stream helps fund development of necessary processing infrastructure; Self-funding; Examples in other locations.</td>
<td>Must have collection capability and processing facility available to handle a potentially-large material stream; Must have local hauler(s) available to deliver the program (unless community is interested / able); Enforcement needed; Potential resistance from business community / will cost businesses more (and space may be an issue); Needs political support; Community needs authority.</td>
<td>High GHG; medium = high job creation including local haulers</td>
</tr>
<tr>
<td>34</td>
<td>Mandates and Bans</td>
<td>Targeted Commercial Food Scraps Program</td>
<td>Commences a program to capture a potentially-large waste stream; Mandates draw large tons; Allows targeting of businesses with greatest potential tons; Economies of scale in program, once mandatory; Dedicated and assured tonnage stream helps fund development of necessary processing infrastructure.</td>
<td>Must have collection capability and processing facility available to handle a potentially-large and sometimes-complex material stream; Must have local hauler(s) available to deliver the program (unless community is interested / able); Enforcement needed (identifying food-generating businesses isn’t always simple); Post consumer food programs can have contamination and will need enforcement; Potential resistance from business community / will cost businesses more; Needs political support.</td>
<td>Medium GHG: Medium job creation (including local haulers and composters)</td>
</tr>
<tr>
<td>35</td>
<td>Mandates and Bans</td>
<td>PAYT / Costs for Commercial Recycling Embedded in trash rate</td>
<td>Significant impact on recycling tonnages from strong economic signal; Examples in other locations / communities; Piggy-backs on existing incentive-based trash fee system; Near universal participation decreases recycling cost per businesses (economies of scale); Embedded recycling option provides incentive to maximize recycling; Can be crafted with limits on recycling vs. trash container sizes to limit risk to haulers; “Voluntary” participation avoids mandates (but mandatory pay).</td>
<td>Need collection and processing capacity for the new tons; Space at businesses for new containers may be tight; Need support from businesses, elected officials, public; Costs to non-recycling businesses (and some recycling businesses) will increase; Enforcement and exceptions need to be worked out; Risk to haulers in initial rate-setting since recycling sizes will be unknown.</td>
<td>High GHG; Moderate-high job creation (including local haulers)</td>
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<tr>
<td>36</td>
<td>Mandates and Bans</td>
<td>No Bin No Barrel</td>
<td>Unambiguous program / clear signal; Potential to reduce significant tons (mandatory, so it diverts more tons than voluntary options); Self-funding; Easily implemented by community (if they have authority);</td>
<td>Defining the level of recycling needed to comply; Setting up enforcement mechanism (community or hauler, steps, etc.); May pose hardship on businesses for cost or space for recycling; Small generators or self-haulers or those using drop-offs may need special rules.</td>
<td>Low to medium GHG and job creation (haulers)</td>
</tr>
<tr>
<td>37</td>
<td>Mandates and Bans</td>
<td>Material Bans</td>
<td>High impact on tonnage diversion (for all sectors); Low cost to implement; Options on where to enforce (collection vs. disposal, facility or curb, etc.); In place in many other locations; Can easily target specific materials; Additional materials can be added easily; Extends landfill life.</td>
<td>Enforcement required to be successful, and can be complicated (for haulers or community enforcement entity); Need sufficient processing capacity / facilities; May pose hardship on businesses for cost or space for recycling.</td>
<td>High GHG; Moderate-high job creation (including local haulers)</td>
</tr>
<tr>
<td>38</td>
<td>Policy &amp; Incentives</td>
<td>Taxes / Surcharges on Disposal Fees</td>
<td>Can realign economic incentives to change behavior and divert tons; Can be set to affect significant tonnages; Clear and long-lasting signals; If the authority exists, can be fairly easily implemented.</td>
<td>Community may not have authority or own the landfills / disposal sites; If available, haulers may choose to take materials elsewhere, undermining the incentive.</td>
<td>Medium GHG; limited effect on jobs.</td>
</tr>
<tr>
<td>39</td>
<td>Policy &amp; Incentives</td>
<td>ADFs on Selected Products</td>
<td>Leads to recycling and provides funding system for specific hard-to-recycled target products; Decreases illegal dumping and encourages proper disposal / management; Encourages use of less toxic or less hard-to-recycle substitutes; User-specific (can avoid fee if use substitutes); Equitable; Self-funding; Flexible (can be charged / designed multiple ways); In use in other communities; Encourages changes in design / management / disposal behavior all up the chain from manufacturing through consumer; Can set fees appropriate to change behavior; Possibility of revenues from uncollected deposits.</td>
<td>ADFs are generally on products that are not extremely high volume, but are high cost / high environmental cost / hard-to-recycle; Needs administrative system for audit, enforcement, and fees (can select products to minimize); Requires special study to be conducted to identify the attributable costs (“nexus” study, unless results are borrowed from another community); Retailers are affected; Public and elected official support needed. Substitution to other items (or reduction in purchase) can reduce community sales tax; Some concerns about cross-border transit of deposit items.</td>
<td>Minimal GHG, job impact</td>
</tr>
<tr>
<td>40</td>
<td>Policy &amp; Incentives</td>
<td>ADF / Single use bag fee or ban</td>
<td>Both bans and fees significantly decrease use; Associated environmental benefits (streams, litter, etc.); Targets a hard-to-recycle commodity (with well-known substitutes); Many communities have implemented nationwide; Programs can be made to be attractive to retailers (revenue sharing) and to elected officials (well-selected exemptions).</td>
<td>Does not reduce many tons (plastic bags are not heavy); Must set up auditing / administrative system and fee-collection system (for administration and clean-up, etc.) – or ban enforcement personnel / system; Needs special study to be conducted to identify the attributable costs (“nexus” study, unless results are borrowed from another community); Retailers are affected; Public and elected official support needed.</td>
<td>Minimal GHG, job impact</td>
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<td>41</td>
<td>Policy &amp; Incentives</td>
<td>ADFs / Recycled Content Requirements</td>
<td>Implementing recycled content requirements in products (e.g. newspapers, etc.) increases demand for recycled content product and the underlying recycled commodities, “closing the loop”; If implemented widely (state or national level), can have a very strong impact on tons, perception, practices, economies of scale.</td>
<td>Tonnage impacts are unlikely to be directly local (recycling markets are international), but increases demand; Community may or may not have authority to implement; May cost more for those affected.</td>
<td>Low GHG, job impact</td>
</tr>
<tr>
<td>42</td>
<td>Collection &amp; Contracting</td>
<td>Targeted food scraps programs</td>
<td>Commences a program to capture a potentially-large waste stream / provides bridge to privatization and user-fee funding; Works out kinks in design / delivery before going full-scale, which is especially important in food scraps (including processing changes); Diverts targeted tons; Allows targeting of businesses with greatest potential tons; Community can help recruit participants; Piloting and partnering allows opportunities to explore efficiencies of delivery including relationships with haulers, container manufacturers, and finding limited opportunities for co-location where it makes sense (e.g. potentially sharing bins between, for example, neighboring restaurants in a district, etc.). Community and hauler may explore options for grants, etc.</td>
<td>Must have collection capability and processing facility available to handle a potentially-large material stream; Must have willing partners and program participants, especially interested haulers; Recruitment efforts are needed, often with the assistance of the community; Program must be attractive enough to garner sufficient participation to be cost-effective; Post consumer food programs can have contamination and will need enforcement or the program can start by targeting other groups.</td>
<td>Medium GHG (methane is potent GHG); moderate local job creation</td>
</tr>
<tr>
<td>43</td>
<td>Collection &amp; Contracting</td>
<td>Starting / subsidizing food collection</td>
<td>Jump start a program to capture a potentially-large waste stream / provides bridge to privatization and user-fee funding; Works out kinks in design / delivery before going full-scale, which is especially important in food scraps (including processing changes); Helps address start-up costs; Diverts targeted tons; Flexibility in the design of how this is implemented – with / without private sector, grants vs. subsidies vs other, targeted businesses, etc.</td>
<td>Requires initial funding and coordination, and plan for on-going funding source or transition to self-funding (or funding arrangement); Must develop initial design (including allowed materials, business targets), and monitor / solve problems for full-scale program; Encouraging businesses to participate if trash plus recycling costs more than trash only; Need appropriate collection capacity and processing infrastructure; Partnerships will need interested haulers.</td>
<td>Medium GHG (methane is potent GHG); moderate local job creation</td>
</tr>
<tr>
<td>44</td>
<td>Collection &amp; Contracting</td>
<td>Starting / subsidizing recycling collection</td>
<td>Jump start a program to capture a potentially-large waste stream / provides bridge to privatization and user-fee funding; Works out kinks in design / delivery before going full-scale; Helps address start-up costs; Diverts targeted tons; Flexibility in the design of how this is implemented – with / without private sector, grants vs. subsidies vs other, etc.</td>
<td>Requires initial funding and coordination, and plan for on-going funding source or transition to self-funding (or funding arrangement); Must develop initial design, and monitor / solve problems for full-scale program; Encouraging businesses to participate if trash plus recycling costs more than trash only; Need appropriate collection capacity and processing infrastructure; Partnerships will need interested haulers.</td>
<td>Low GHG; minimal job creation</td>
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<tr>
<td>45</td>
<td>Collection &amp; Contracting</td>
<td>Contract for Commercial Collection</td>
<td>Potential for strong diversion depending on how programs and incentives are set up; Community gets strong control and authority and has flexibility in incentives and services needed to achieve tonnage diversion through the contract arrangement; Economies of scale in collection with single- or geographically-concentrated hauler(s); Less wear and tear on roads; If there wasn’t widespread recycling before, job creation results; Easy for tonnage reporting / tracking / measurement; Easier to implement other programs (authority / control); User fees pay for the program.</td>
<td>Getting the authority to issue RFP; Must develop / advertise / issue / evaluate RFP and negotiate competitive contract; Need strong support from elected officials / haulers will object.</td>
<td>Medium GHG; potential job creation depending on design</td>
</tr>
<tr>
<td>46</td>
<td>Collection &amp; Contracting</td>
<td>Municipal Collection for Commercial</td>
<td>Potential for strong diversion depending on how programs and incentives are set up; Community gets strong control and authority and has flexibility in incentives and services needed to achieve tonnage diversion; Economies of scale in collection with single- or geographically-concentrated hauler; Less wear and tear on roads; If there wasn’t widespread recycling before, job creation results; Easy for tonnage reporting / tracking / measurement; Easier to implement other programs (authority / control); User fees pay for the program.</td>
<td>Getting the authority to take over the sector; Capital costs and set-up of the system is a large investment / complex and expensive undertaking; Need strong support from elected officials / haulers will object.</td>
<td>Medium GHG; potential job creation depending on design</td>
</tr>
<tr>
<td>47</td>
<td>Partnerships and Facilities</td>
<td>Cooperative collection for recycling arranged</td>
<td>Workable options for recycling for small businesses for targeted materials; More acceptable because it is not a mandate; Efficiencies in collection, so lower cost; Community helps achieve recycling without directly providing collection; May interest haulers in setting up more programs; Low cost to community (staff time); Flexibility in options available (shared recycling dumpsters, collection routing, etc.).</td>
<td>Finding co-located businesses with similar recycling needs; Negotiating shared responsibilities and payment arrangements; Staff time required; May not lead to large amounts of tons.</td>
<td>Low GHG, negligible job creation</td>
</tr>
<tr>
<td>48</td>
<td>Partnerships and Facilities</td>
<td>Commercial Drop-off Recycling</td>
<td>Provides option for interested medium-to-small businesses; Diverts tons for targeted / included materials; May be cost-sharing if partners; Low cost (no cost) to user businesses / small generators (and other users allowed, like households, etc.); Allows collection of materials not collected in normal routes (scrap metal, etc.).</td>
<td>Finding suitable locations; Funding start-up and on-going costs; Negotiating contracts and agreements; Vandalism, illegal dumping, and poaching and may require staffing and/or limited hours; Doesn’t require use of site or recycling (voluntary) so lower tons; Must be serviced regularly to prevent overflowing containers.</td>
<td>Low GHG, negligible job creation</td>
</tr>
<tr>
<td>49</td>
<td>Partnerships and Facilities</td>
<td>Hub and Spoke Recycling Collection Assistance</td>
<td>Makes collection, processing, and marketing more cost-effective for rural areas; Efficient use of facilities; Shares costs; Can keep facility costs reasonable because material processing can be tailored to market needs; Increases diversion tonnage options for small and rural areas.</td>
<td>Getting communities and other partners to cooperate; Negotiating, developing, and funding a central hub facility; Distances for transporting materials; Population density barriers; Facilities needed for multiple materials, and materials without the facilities cannot be collected; Sharing the authority can be difficult (varying sizes of partners, etc.); Must carefully craft agreements (public and private).</td>
<td>Low GHG, low job creation</td>
</tr>
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<td>Name</td>
<td>Key Strengths / Opportunities</td>
<td>Key Barriers / Weaknesses</td>
<td>Auxiliary Benefits/C o-Benefits</td>
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</tr>
<tr>
<td>50</td>
<td>Partnerships and Facilities</td>
<td>Partnerships on Recycling / Composting Facilities</td>
<td>Provides a feasible way to address infrastructure gaps; Financial savings by sharing the cost; Uses the capabilities of each entity (operators operate, etc.); Good for small / rural areas with lower material volumes; Does not directly lead to tonnage diversion / necessary support.</td>
<td>Facilities can be expensive (communities might prefer to encourage flows through other programs that lead to private facility development of facilities); Sharing the authority can be difficult (varying sizes of partners, etc.); Must carefully craft agreements (public and private).</td>
<td>n/a</td>
</tr>
<tr>
<td>51</td>
<td>Partnerships and Facilities</td>
<td>Dirty MRF-Post collection separation of recyclables</td>
<td>Doesn’t require behavior change by hard-to-change customers; Provides option to pull out specific and high-value materials; Can be effective at recovering fairly high tons with careful routing and relatively simple equipment; Increases diversion rate.</td>
<td>Concerns about cleanliness and quality of materials to market; Doesn’t change behaviors so requires on-going program.</td>
<td>Medium GHG, moderate job creation</td>
</tr>
<tr>
<td>52</td>
<td>C&amp;D</td>
<td>C&amp;D: Higher Permit Fees</td>
<td>Directly affects C&amp;D; Low cost; Simple to implement; Fees can be varied until desired behavior is achieved.</td>
<td>Requires local options / infrastructure for what the community wants done with the C&amp;D instead of disposal; Enforcement of loads and practices.</td>
<td>Low GHG, low job creation</td>
</tr>
<tr>
<td>53</td>
<td>C&amp;D</td>
<td>C&amp;D Deposit Program</td>
<td>High impact on C&amp;D; Well-demonstrated program elsewhere; Begins to guarantee a flow, which helps support development of infrastructure; Provides an unanticipated revenue from unclaimed deposits; Leverages on existing enforcement mechanism (permit process); Pricing can be varied to accomplish the required goals; Low cost.</td>
<td>Required C&amp;D recycling infrastructure / markets; Requires enforcement and administration.</td>
<td>Medium GHG; some job creation potential</td>
</tr>
<tr>
<td>54</td>
<td>C&amp;D</td>
<td>C&amp;D On-Site Sales</td>
<td>Allows for reuse as well as recycling and (attempts to) clearly identifies value of materials; Job creation for dismantlers.</td>
<td>Lack of skilled dismantlers / knowledge of safe and effective de-construction (technical as well as hazardous materials); Complexity and storage concerns for recovered materials (takes a lot of space); Must set up program and decide thresholds for requirement, etc.</td>
<td>Low GHG, low job creation</td>
</tr>
<tr>
<td>55</td>
<td>C&amp;D</td>
<td>Discounted / Higher Rates for C&amp;D</td>
<td>Direct affects C&amp;D tons; Economic incentive is clear; Cleaner loads may be provided; Low cost to community; Incentives can be set / adjusted to provide the desired behavior.</td>
<td>Enforcement / inspection; Facilities may not be owned by the community, making implementation and enforcement more complicated; Disposal rates need to be recomputed to cover the subsidy.</td>
<td>Low GHG, low job creation</td>
</tr>
<tr>
<td>ID</td>
<td>Program Type</td>
<td>Name</td>
<td>Key Strengths / Opportunities</td>
<td>Key Barriers / Weaknesses</td>
<td>Auxiliary Benefits/Co-Benefits</td>
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<tr>
<td>56</td>
<td>C&amp;D</td>
<td>Developer Incentives for C&amp;D, Recycling</td>
<td>Addresses a point in time that has consequences for the life of the building (100 years?); Includes flexible incentives designed to appeal to builders; Can be designed to address recycling, recyclability, re-use, design and ongoing operations; Directly affects C&amp;D, as well as other materials in the future (in-house recycling); Not all incentives must be direct financial incentives (design concessions, etc.)</td>
<td>Local markets may not make it feasible / lack of suitable recycled content materials; Costs for building can be higher; Incentives may not be carefully constructed enough to avoid unintended consequences (complicated / may end up with clever builders taking advantage of compounding incentives); Might be difficult to enforce for actions taken (and rewarded) beyond what builder would have done anyway.</td>
<td>Low GHG, low job creation</td>
</tr>
<tr>
<td>57</td>
<td>C&amp;D</td>
<td>C&amp;D Material Ban</td>
<td>Affects tons directly; High impact; Low cost to implement / enforce for community, especially relative to tons recovered.</td>
<td>Requires enforcement; requires infrastructure to deal specifically with C&amp;D; Potential illegal dumping if rules / options unclear or costs prohibitive.</td>
<td>Med/High GHG, some job creation</td>
</tr>
</tbody>
</table>
D.3 Detailed Descriptions of Commercial Programs

This appendix provides a summary of the commercial programs identified and analyzed by SERA staff, and included in the study. Tailored subsets of these programs are selected for communities, based on their answers to 23 questions, as part of the operations of the associated “Commercial Pick” model. Preceding each program number / name is the “category” associated with the program.

Community Preparation

Program Number 1: Establish Recycling Committee, Speakers Bureau

**Description:** This program would establish a recycling committee to help with ideas and recommendations for assessing, establishing or expanding commercial recycling in the community. It can be incorporated into an already existing committee or established separately for commercial issues only. A speaker’s bureau is an outlet for the jurisdiction to involve and inform residents about upcoming programs or changes and to collect feedback. It could also be used to encourage public attendance at council or other recycling-related meetings.

**Design Considerations:** If a committee will be established, decide whether it will be a general recycling committee or one specific for commercial programs. If it will be a commercially focused committee, then include representatives of the business community, in addition to citizen, hauler, and other stakeholder members. Members could be given specific programs to look into and provide feedback on, or the agenda could be open for their own input. As it is an advisory committee, structure is typically informal with only a chair, but should follow the same format as other committees set up by council. Some communities allow committees to read town documents or attend closed sessions if they pertain to recycling. Determine minimum frequencies, venue, and number of members for meetings and a staff liaison (non-voting). Also, determine if the committee will have a budget for training information or developing presentations for council. Some committees are required to present a quarterly (annually) update at council meetings. A speaker’s bureau can include presentations by staff or invite representatives from the field, such as from composting facilities or from a local waste collection service. Presentations could be held at a Chamber of Commerce, local restaurant, or in Community / County buildings. There could be a progression of topics, given every month, or a list of topics that can be requested on a per call basis. For either of these programs materials should be provided to encourage continued involvement and attendance at public meetings with these agenda items. There are many examples of communities with these programs; PAYTNOW. ORG also has steps on establishing a recycling committee.

**Implementation:** A resolution should be passed for the establishment of the committee. A small budget for the committee to work with should be established, staff should be delegated for either liaison or presentations (either providing speeches or finding qualified speakers), and bylaws for the committee should be established. Advertising at local Chambers and through community publications can be done to recruit members for the committee. For either a committee or presentation, staff should be educated on current issues and infrastructure in the jurisdiction.

**Sectors & Materials:** The program potentially positively affects all sectors and materials.
Enforcement: Enforcement issues could include concerns with confidential information. Members could be required to sign a confidentiality clause. Habitual lack of attendance could be addressed by having attendance requirements for members, especially if there is a waiting list for membership. Common methods for addressing this is to require attendance of X number of meetings a year.

Barriers: The largest barrier to the program would be lack of interest. Staff would need to advertise through appropriate channels and information should be relatable.

Program Impact: Low: This program does not set up specific recycling programs, but establishes a way of examining options and receiving input and advice on specific programs, or other objectives

Cost Impacts: Low: Cost impact is low and would only require a small budget, a meeting room or presentation venue, and a few hours of staff time.

Community Examples / Population: Ann Arbor, MI: 113,939; Baltimore, MD: 620,961; Lake County, FL: 303,186

Materials:

- Food Waste / Food Scraps: This would be an excellent way for a community to help establish a food waste collection program, by getting input and interest from the generators themselves. It also provides the outlet for educating businesses on potential economic benefits of starting a food waste program.

Considerations by Community Size (if any):

- Very Small to Small: The smaller the community, the more potential exists for lack of members to make the program ineffective. Smaller communities may also find there is a shorter process time for committee members to see recommendations implemented due to fewer governmental layers.
- Medium to Large: The larger the community, the more likely they are to have adequate interest and attendance. Larger communities may also find there is a longer process time for committee members to see recommendations implemented, but the impacts have the potential to be on a larger scale.

Community Preparation

Program Number 2: Educate Elected Officials about Commercial Sector

Description: Provide information through briefings or work sessions to community decision makers on commercial recycling status, topics, and context.

Design Considerations: Elected officials should be educated on the value and process of measurement (if available); the status of their community compared to surrounding / leading communities; and laws or programs relative to state or other jurisdictions that might exist; the general environmental and jobs benefits of recycling (if applicable) and the pros and cons of intervening. Staff has to be savvy in the politics, noting that the education must suit both “green” decision-makers and those that believe intervention in private markets (like the traditional commercial sector MSW operation) is in appropriate. A combination of data and case studies will be very important in helping educate elected officials on
MSW; few realize that the commercial sector is about half the waste stream, and fewer still understand some of the barriers to recycling faced by the medium-to-smaller businesses (space, net cost, etc). Although those businesses may represent smaller tonnages per business than large businesses (which more commonly have sustainability or resource / recycling staff), there are many more small businesses, which can be a key point to business-interested decision-makers. Ultimately, elected officials should be given clear, concise, and relatable information that will allow them to make informed decisions regarding the benefits to the community of commercial recycling.

Implementation: The first step would be to assemble information showing the benefits and barriers for commercial recycling. Assemble stakeholders such as haulers, businesses, or representatives from the local chamber of commerce or business association for a meeting with elected officials to discuss community specific issues. Establish a goal or comprehensive plan for the community including intentions relating to commercial recycling programs, whether it is interest, support, or specific plans for programs. Eventually, these steps should lead to implementation of a specific program.

Sectors & Materials: This has the potential to affect all sectors and materials. However, in this initial stage focus is on a broader range sectors and materials, and general program intentions.

Enforcement: N/A

Barriers: The largest barrier will be lack of interest from the elected officials and business community. Clear, concise information that shows community specific benefits and clear actions to take will help provide direction.

Program Impacts: Low to Medium: This will depend on whether general goals are established as a result of the education or if specific programs are considered.

Cost Impacts: Low: This will mainly be a staff effort, but certainly a consultant could be hired for this purpose.

Community Examples / Population: Any community with a mandatory program, or in the case study section, would be a good example of educating elected officials.

Considerations by Community Size (if any):

- Very small <10K: Very small communities may find this a less extensive process due to smaller commercial participants and haulers. It may be easier to work together with smaller numbers; however, there may be issues of available businesses in proximity for a hauler to establish a full route.
- Large: Larger communities may have additional work due to the potential variety of programs to consider. Larger communities typically have a broader range of commercial establishments as well as the potential of multiple haulers and other stakeholders. Understanding your business community makeup will be important to provide useful information for the elected officials.

Community Preparation / Tracking and Goals

Program Number 3: Measure / Estimate Current Recycling in the Community and Set Goals
Description: This program would set up a process to measure current waste streams and recycling efforts in order to establish clear goals and methods to achieve those goals. It can be a precursor to establishing a Zero Waste plan or be used to target a specific material such as cardboard.

Design Considerations: If this is a precursor to a Zero Waste plan, communities would want to look at the entire waste stream. It is possible to only look at specific streams such as yard waste, and perhaps have information provided by a hauler or yard waste facility; however, it is worthwhile to get a full picture in order to see recycling and waste areas that may overlap and to establish the current recycling rate. Are you looking for municipally-run programs or more towards education or partnering? Your Community’s budget, council and public attitudes, and available facilities will all influence which programs and goals you may set. Options already available through current haulers may also impact potential goals. There are many education- and outreach-oriented programs available that have low costs, but programs with higher impacts usually involve some sort of mandate or ban.

Implementation: It is crucial to determine the current diversion rate of your Community before you can establish desired goals and policy to enable achievement of those goals. A waste composition study of all the waste streams is an important first step. A detailed community specific waste composition study is ideal and can be done by staff or by a hired consultant, but looking at a community of comparable size and make-up would be a sound alternative. Additional steps include taking inventory of current programs, including those in the private sector, examining facilities, and determining the capacity for new programs. For example if yard or food scraps diversion is a goal, you may have to help establish a composting site if none currently exists. Do you want to invest in publicly-owned facilities and are there markets for the materials? Is the recycling staff adequate for programs you want or will you need to hire additional staff? The Community will need to research other programs and determine what programs are feasible in your community before setting goals, and to set up a system for tracking waste if one is currently not in place (EPA has recommended guidelines for measurement). This is most easily done through passing an ordinance that requires the haulers or waste facilities to keep track of trash and recycling tonnages they collect or handle from the Community. This should also include a requirement for monthly or quarterly reporting to the Community. Other options could involve language in the hauler contracts and / or franchise agreements and / or in the facility contracts that would require the same monitoring. Involvement with the Chamber of Commerce or establishing a recycling committee can help provide important feedback. It is important to establish a plan that has incremental goals and benchmarks. Typically the lowest costing, easiest sectors and materials are targeted first. And finally, ask council to pass a resolution accepting these goals and announce to the community the intents and goals.

Sectors & Materials: Potentially all sectors and materials depending on goals.

Enforcement: Enforcement is not needed in this initial step.

Barriers: Depending on the hauler arrangement and local authority, getting clear tonnage amounts and billing information may be difficult. If this is not a council priority, then finding staff time to devote to this may be a barrier.

Program Impacts: Low: This is more of a preparatory step, and until programs are initiated, there is little impact other than knowledge gained and setting a course for action.

Cost Impacts: Low: The majority of the costs associated with this type of program come from information gathering and staff time. These costs can be deferred and possibly reduced if a consultant is hired to handle the details of the program.
Community Examples / Population: Cincinnati, OH: 296,550; Largo, FL: 77,878

Sectors:

- All: All sectors are potential targets based on current programs and future goals.

Materials:

- All: All materials are potential targets based on current programs and future goals.

Considerations by Community Size (if any):

- Small: Smaller towns may have less existing infrastructure and therefore high costs in initially starting new programs and will have to consider this when establishing goals. Small towns benefit from a smaller waste stream that may be easier to measure and monitor. It may be easier in a small town to get public support if there are clear reasons and specific goals for beginning this process.
- Medium: Medium sized towns may benefit from more infrastructure than a small town, but will also have more outreach and monitoring costs for programs.
- Large: Large communities may have concerns with measuring their current waste due to the sheer volume of waste that may be generated. They may benefit from existing infrastructure and ability to partner or motivate private creation of new facilities due to the anticipated increase in waste. Job creation may be a direct benefit for a large municipality. The cost of implementing programs may be higher with larger populations.

Community Preparation

Program Number 4: Adopt Community Zero Waste (ZW) Goal, Aggressive Sustainability Plan

Description: Zero Waste is the concept of reducing the amount of waste sent to landfills and incinerators as well as reducing the amount of non-reusable items, preferably down to zero (or darn close, as the Zero Waste advocates term it). The goal is to affect product design decisions toward reuse and recycling, as well as purchase and disposal / management decisions all along the chain from creation to demise of products, with communities and generator behaviors (residential and commercial) an important part of the chain. Motivations can be based on environmental reasons and / or economic reasons. Usually for communities it is a combination of both. This program would involve establishing a Zero Waste Goal for the Community with a clear deadline for and path about achieving that goal. A more aggressive plan would involve establishing programs that may include mandates and bans to achieve zero waste within a much shorter timeline. Many communities that have successfully advanced toward zero waste have done so through aggressive policies, public support, and working with haulers for mutually beneficial programs.

Design Considerations: Most communities examine diversion rates and set goals in increments (called “rates and dates”), such as 50% diversion from landfills by 5 years from now, 75% diversion in 10 years, and zero waste by a certain date even further in the future. Zero waste goals are guidelines to help create awareness of the waste problem and are used as an example for community practices. In the plan, the Municipality sets up best practices to follow, such as all county offices will purchase recycled-content paper, or no disposable water bottles can be sold at community venues. The Municipality will encourage businesses to follow suit. If there is a very large company or factory in your community, you
might check to see if they have already established a plan, and use that as an example to show to other businesses. It is useful to set up specific indicators of progress, such as number of new programs implemented, tons diverted from the landfill, passage of Zero Waste legislation or product stewardship initiatives, and/or starting composting in schools (see the Zero Waste website www.zwia.org for additional ideas on tracking indicators and concepts, as well as Zero Waste communities to investigate further). Zero waste community events can be established, such as celebrating America Recycles Day or a Zero Waste Fourth of July. Plans typically involve supporting the establishment, or expansion of recycling or composting facilities and encouraging or mandating haulers to provide these services. Establish a PAYT type system, especially if the municipality conducts collections. There are many websites with information on establishing PAYT programs including PAYTNOW.ORG. The Municipality may want to provide for outreach which includes waste audits, help right-sizing (updating and balancing choices of recycling and trash container service sizes to reduce bills and increase recycling), as well as encouraging businesses to develop Zero Waste plans. Short term goals may start with existing programs and facilities and education. Longer term goals may be more aggressive with bans and mandates and programs requiring responsibility from manufacturers.

**Implementation:** It is crucial to determine the diversion rate of your Community before you can establish desired goals and policy to enable achievement of those goals. A waste composition study of all the waste streams would be an important first step. A detailed community specific waste composition is ideal and can be done by staff or by a hired consultant, but looking at a community of comparable size and make-up would be a sound alternative. Take an inventory of the current programs in the community. Set a resolution stating the reason Zero Waste is important to your community, and announce the adoption of a Zero Waste plan and general actions for reducing waste. Establish tracking procedures if none are in place to monitor progress. Hold meetings or conduct surveys to determine interest in your community. Often communities create a Zero Waste committee to help provide feedback and ideas. Develop program and outreach materials with a consistent message and contact persons for events and businesses seeking more information about Zero Waste. Establish a plan that has incremental goals and benchmarks. Typically the lowest costing, easiest sectors and materials are targeted first, such as residential recycling and yard waste collections. Later steps involve addressing the commercial sector, establishing (usually, in turn, recycling, C&D, and multifamily programs, followed by jurisdiction-wide food scraps programs). Eventually as communities get closer to their goal they start looking at programs targeting manufacturers and items such as plastic bags and clothing.

**Sectors & Materials:** Eventually all sectors and materials will need to be addressed to achieve Zero Waste.

**Enforcement:** This will vary greatly depending on future programs enacted, but just the development and establishment of a Zero Waste plan will only involve self policing for following purchasing and other guidelines.

**Barriers:** Barriers include: lack of infrastructure or facilities, public understanding of reasons and needs for Zero Waste goals, resistance to planned programs requiring change or responsibility, and lack of strategic vision, clear examples, or leadership to make behavioral or attitudinal changes community wide. Municipalities that have incinerators have special issues. In addition, often there are residents against burning, but there may be the economic benefits from energy creation.

**Program Impact:** Low to High: Just the establishment of a plan will provide little impact on diversion, but may perhaps encourage people to begin looking at options; however, setting-up an aggressive plan and/or programs with specific tools and timelines as well as enforcement can have a significant effect.
**Cost Impacts:** Low to High: The actual passage of a resolution and adoption of a Zero Waste plan should have few associated costs other than research or the cost of a consultant. If the plan involves establishing multiple municipally-run programs, then the costs will increase in proportion to the number and type of programs initiated. There are however many programs with significant impact that are not expensive to launch.

**Community Examples / Population:** Boulder County, CO: 305,318; Seattle, WA: 634,535; Austin, TX: 842,592; San Francisco, CA: 825,863; Borough of South Plainsfield, NJ: 23,669

**Sectors:**
- All: At some point most sectors will have to be targeted in some way in order to achieve Zero Waste, but it may be most economical to begin with targeting the largest generators in your area.

**Materials:**
- Food Waste / Food Scraps: Most Zero Waste programs at some point will target this material, but it is important to understand your waste stream to effectively go after the materials that make up the largest portion of waste.

**Considerations for Community Size (if any):**
- Very Small to Small: Smaller towns may have less existing infrastructure and therefore high costs initially. They will benefit from a smaller waste stream that may be easier to monitor. It may be easier in a small town to get public support if there are clear reasons and specific goals.
- Medium: Medium sized towns may benefit from more infrastructure than a small town, but will also have more outreach and monitoring costs for programs.
- Large: Large communities have specific concerns with establishing Zero Waste goals due to the sheer volume of waste that may be generated. They may benefit from existing infrastructure and ability to partner or motivate private creation of new facilities due to the anticipated increase in waste. Job creation may be a direct benefit for a large municipality. The cost of implementing programs may be higher with larger populations.

**Requirements Through Ordinance**

**Program Number 5: Ordinance for "Space for Recycling" or "Recycling in Lease"**

**Description:** For all new commercial construction and significant remodeling, require in building codes that additional space be required for recycling containers within and outside the building. Existing codes usually require a specific trash volume per square foot; this requirement would add similar (or a ratio of) space for recycling in addition to the space set aside for trash. Regulate the location of recycling and trash containers, as well as enclosures in order to provide adequate, convenient space for the collection, storage and loading of recycled materials at commercial sites; require that businesses offer recycling or make it available to their tenants or require tenants to recycle in their lease.

**Design Considerations:** In this program, the building codes are revised so that all new commercial construction and significant remodeling must include mandated minimum additional space in the trash areas for the placement of recycling containers, preferably inside and outside the building. Existing codes usually require a specific trash volume per square foot; this requirement would add similar (or a
ratio of) space for recycling in addition to the space set aside for trash. The ordinance is sometimes specified for new buildings; in other cases, substantial remodels are included. This is critical to remove the common complaint from the commercial sector that they do not have space for recycling on their premise. Other ordinances may include a requirement that the space is screened from view, preferences for types of materials that must be used, the location on the property, and the pad base material (concrete or gravel). It could specify if and what type of containers the property owner must provide, what type of signage, locations, and whether businesses can self haul or must use a recycling service. Communities can also recommend that building managers require clauses in the leases that require residents or businesses to recycle, or that they have access to recycling.

Implementation: Discussions with Public Works or the Building Department will likely be needed to define and pass changes in the building code requiring additional space (with specific size ratios) for recycling along with the existing requirements for appropriated space for trash containers inside and outside the building. This will generally require passage by the jurisdiction’s elected body. Preliminary discussions with the hauler or with Public Works on the specifics for adequate space to allow access for the trucks will help ensure the efficacy of this program. Another option is to pass an ordinance stating that required space for recycling or requiring recycling is included in the lease for all tenants. Technical assistance, even in the form of lists of companies that offer commercial recycling or signage, is important. Businesses in existing buildings that are having difficulty finding space for recycling containers may need assistance on how to reduce their garbage container size to be able to accommodate recycling containers. If there is not a very dense business sector a hauler might not be able to find enough generators on one route making it more difficult to find a hauler who offers commercial recycling. Before implementation, the Municipality might first want to identify a partner hauler and then work with the hauler to find enough businesses to generate a full collection route.

Sectors & Materials: This program works for all sectors, though it is more common for only newer construction / renovation. It also works for all of the normally recycled materials.

Enforcement: There are a variety of enforcement mechanisms for this type of a program depending on the design of the ordinance. Plan approval and checks prior to occupancy permits are effective enforcement for the “space for recycling” requirements in new construction and remodel. Examples range from only requiring a copy of the recycling service contract or a copy of the tenant lease showing it is included. For established businesses, fines could be either so much per day, or a certain dollar amount per square foot of building space when a business is not in compliance.

Barriers: While this program sets up the conditions and opportunity for recycling (and removes barriers), it does not require the business to actually recycle. Existing buildings may have a difficult time finding space and in very dense communities square footage for recycling could be seen as an unnecessary additional cost. Adding recycling to the lease may cause an increase in the rent for existing tenants. Additional barriers occur in multi-tenant businesses where the landlords do not provide or pay for recycling, and where some tenants might not desire such service.

Program Impacts: Low to Medium: Requiring space for recycling in new construction sets up the accessibility for recycling programs. Requiring landlords to make it available to their tenants in the lease could have a higher impact that would depending on enforcement.

Cost Impacts: Low

Community Examples / Population: New York City, NY; 8,337,000; Miami-Dade, FL: 2,591,000; Chicago, IL: 2,715,000
Sectors:

- **Office or Similar:** Large office buildings usually have space out back already set aside for trash and may be able to simply add a recycling bin. Technical assistance could be offered to show how to reduce the size of the trash bin and take advantage of lower recycling rates. Determining if tenants are recycling is more difficult in large, multi-tenant buildings, but it could be included as a requirement in the lease; not only that it is offered, but that the tenant actually recycles.

- **Restaurants, Bars and Cafeterias:** For those in this sector that back up to an alleyway, they may not have enough space for additional containers or be able to screen those containers. This is where technical assistance would be important to help find space, either through reducing trash container numbers or size or sharing, etc.

- **Grocery and Similar:** Small grocery stores and small businesses may not have much space or may be leasing their space.

**Considerations by Community Size (if any):**

- **Large:** A large community with a very dense commercial sector should consider that buildings may have difficulty finding space and may need assistance on how to reduce their garbage container size to accommodate recycling containers.

**Requirements Through Ordinance**

**Program Number 6: Require Commercial Recycling Plans**

**Description:** This type of program would require all businesses or property managers to file a recycling plan with the jurisdiction (or hauler, designs vary) describing their working recycling plan and materials they will be recycling. It can be tied to business licenses or just required of all businesses within so many days of occupancy, annually, or with change of ownership or major renovations. Basic plan forms or guidelines are typically provided, often on-line for ease of download, instructions, and submission. The most lenient ordinance would only require filing of a plan where a stricter version would require proof of recycling of materials stated in the recycling plan.

**Design Considerations:** Decide whether the recycling plan will be stand-alone or tied to a business license / permit. Then decide the type of detail that will be required in the plan regarding materials; will offices have to recycle paper, do they choose from a list of materials, or can they choose based on their most-generated materials? Common plans require businesses / property managers to recycle "at least" items, such as office paper or cardboard, or have a list to choose three items from with materials such as pallets, food scraps and compostables, film, and OCC. This is when knowing your sector is important to be able to target the most-generated items. The Community can require recycling plans to be filed by the businesses / property managers at start up or occupancy, and then every year or every three years after that. Some plans ask for the hauler information as well. Other considerations are how the plan will be distributed to tenants or employees, and how often, and who will be in charge of documenting and enforcing this ordinance? Options would include filing the recycling plans with the hauler, the Community / County Licensing or Solid Waste Departments, haulers (in some cases) or simply having one onsite to be shown to inspectors. Exceptions should be considered for very small businesses or those generators producing less than some minimal number of cubic yards per week of trash service.
Implementation: A standardized recycling plan should be developed as a guide or example by the Community before enacting this regulation. It can be either a word document that can be mailed out or a website link. Standardized plans can be found in numerous places on the web (see the sample communities, for instance). The method of tracking for compliance should be established. Outreach and assistance should be provided well in advance, either in the form of written guidelines on how to set up a program or technical assistance that’s provided on site.

Sectors & Materials: Depending on the set up, this program can cover all materials and sectors or target the largest generated materials. If all commercial establishments must recycle office paper, but there are a disproportionate amount of restaurants and industrial waste generators, then this program would miss the mark. Knowing details about your particular community’s commercial sector prior to implementation is crucial.

Enforcement: If this ordinance is tied to a permit or license, than enforcement can be non issuance of that permit. Some places send out reminder notices about compliance only and other communities have fines such as $300 per square foot for failure to provide plans. Businesses can be required to provide quotes as proof that they looked into costs or providers for their recyclables. Generally this type of plan is about getting businesses to consider the options for recycling and start looking into it. Exceptions to requiring a recycling plan should be considered for very small businesses or those generators producing less than so many cubic yards per week.

Barriers: Requiring business owners / property managers to develop and file recycling plans stops short of requiring recycling, but motivates some buildings to sign up for recycling. This program may be seen as an inconvenience to employers or property managers who have not already set up a recycling program and don’t want to take time to fill out another form or look into how to go about recycling. Those who do recycle may also see it as a waste of time since they already recycle. Having an easy, preset form on-line helps alleviate some of the issues. Small businesses may not see a recycling plan as important since they may not have much generation and may see recycling as cost prohibitive.

Program Impact: Low to Medium: The impact depends on the strictness of this program. Filing a recycling plan establishes a context in which other programs could take effect. Requiring proof of recycling would have a higher impact.

Community Examples / Population: Philadelphia, PA: 1,548,000; Miami-Dade County, FL: 2,591,000

Sectors:

- Offices or Similar: To achieve the most from this sector, you could require that all businesses of this type choose one item to recycle from a list of most generated materials such as paper, chipboard, and clear plastic bottles, as well as one from a list of other commonly generated materials. Or, every business of this type must include all materials from a particular list in their recycling plan.
- Restaurants, Bars and Cafeterias: To achieve the most from this sector, you could require that all businesses of this type choose one item to recycle from a list of most generated materials such as bottles, food waste, and Styrofoam as well as one from a list of other commonly generated materials. Or, every business of this type must include all materials from a particular list in their recycling plan.
- Grocery and Similar: To achieve the most from this sector, you could require that all businesses of this type choose one item to recycle from a list of most generated materials such as
cardboard, food waste, and chipboard as well as one from a list of other commonly generated materials. Or, every business of this type must include all materials from a particular list in their recycling plan.

**Materials:**

- **Food Waste / Food Scraps:** Diversion of food scraps and compostables can be accomplished by offering that in the selection of choices for businesses to choose from, or restaurants could be required to include food scraps and compostables in their recycling plan.
- **Bottles & Cans:** Diversion of bottles and cans can be accomplished by offering that in the selection of choices for businesses to choose from or restaurants and bars could be required to include bottles and cans in their recycling plan.
- **Paper:** Diversion of paper can be accomplished by offering that in the selection of choices for businesses to choose from or all offices could be required to include paper in their recycling plan.
- **Cardboard:** Diversion of cardboard can be accomplished by offering that in the selection of choices for businesses to choose from or all retail establishments could be required to include cardboard in their recycling plan.
- **C&D:** There are multiple examples of requiring recycling plans in order to receive a construction permit. Proof of following the plan may be required to receive the certificate of occupancy.

**Considerations by Community Size (if any):**

- **Very Small:** Prior to establishing this program, very small communities need to make sure there are haulers offering recycling at a fair price and that they do not switch materials collected based on current market conditions.
- **Very Large:** For very large communities, tracking of filed plans becomes a greater issue and a process or dedicated staff must be in place before implementation.

**Requirements Through Ordinance**

**Program Number 7: License with Reporting Required as Part of License**

**Description:** This type of ordinance would typically require all haulers to report (trash and recycling / organics) tonnages in order to maintain their license that allows them to operate in the jurisdiction. Often the requirement calls for quarterly or annual reporting of total tons collected, or tonnages broken down by material type or client type. Some ordinances of this type also require haulers to report which businesses have contracted for recycling services. This is an excellent starting point for communities who are just expanding into the commercial sector and need to see what their tonnages look like in order to create more effective program.

**Design Considerations:** Fees for licensing can be on a per truck basis or a per company basis. They can vary depending on the type of service provided. Reports can be required for any time frame, but are often provided monthly, quarterly, or annually. Will hand written reports be acceptable or will you require electronic submission? Some communities require all haulers, including those for yard waste and C&D to report, while others exclude those haulers. The reports can be as simple as tons disposed and tons recycled, but often they are broken down into tonnages of different materials such as plastics, electronics, and other specific materials, as well as into commercial and residential tonnages. Considering how local landfills and recycling facilities are set up is important - if there are local material
bans, then many of these items may already be separated out from the waste stream and therefore may be easier to report. It is important to keep in mind that haulers may not be able to report quantities of certain materials if the required hauler report is too detailed. A clear system of enforcement must be included with the licensing application. The severity of penalties for not reporting should be determined.

**Implementation:** For the licensing, work with legal counsel to determine state or regional laws influencing licensing requirements. Work with stakeholders, such as landfill and recycling center operators, and haulers to determine what types of materials can easily be tracked. Requesting participation in the design of the reports from the stakeholders and haulers may ease resistance to the program (haulers may also have forms from other jurisdictions to use as a template).

**Sectors & Materials:** This program can apply to all sectors or to simply trash and general recyclables.

**Enforcement:** With licensing, the enforcement is in the hands of the jurisdiction. If a hauler fails to comply with the reporting requirements, the penalties could be on an escalating scale of letters and / or fines, and could result in revoking or denying a license to operate.

**Barriers:** Licensing could have some legal barriers depending on your state, but typically it is from haulers themselves. The licensing fee could be a barrier if it is seen as cost prohibitive. Including haulers in the process can help enlighten the jurisdiction as to potential issues. Smaller haulers may not have systems in place and may need reminders about filing the reports.

**Program Impact:** Low: This program would have a low impact on any changes in recycling but has a very high impact on the knowledge and understanding of the waste stream for later implementation of programs.

**Cost Impacts:** Low

**Community Examples / Population:** Vail, CO: 5253; Alexandria, VA: 4,031,000

**Considerations by Community Size (if any):**

- **Small:** This could be very effective for a small community that might not have other resources to determine what is in their waste stream. Small communities often lack competition for waste services and need to ensure the licensing fee is not cost prohibitive.
- **Large:** Large communities that have multiple haulers will need to consider the processing of these reports prior to establishing the program to ensure adequate staff time is available.

**Requirements Through Ordinance**

**Program Number 8: Business Diversion Goals / Rates & Dates with Fines**

**Description:** This can be a very aggressive program depending on the goals set. It is a variation of mandatory recycling and can have a large impact on diversion depending on the level of diversion required and the enforcement mechanism. Commercial entities are required to reach specified diversion goals within a specific time frame. Programs range from single materials such as cardboard, to percentage goals for diversion of the total waste generated, or to simply requiring all businesses to make their own goals and show proof of recycling. This is a mandatory program through an established ordinance and can be lenient with no penalties or strictly enforced with fines or other penalties.
**Design Considerations:** Define what materials will be included in this program, and what a reasonable and achievable level of diversion is. It could be set up where businesses must divert a certain percentage of their most common wastes, or all businesses must divert a certain percentage of one or two types of materials. Businesses could be required to develop their own plans and goals, or based on business type, have specified materials they must divert at a certain level. Will goal attainment be verified through self-reporting, reports from haulers, or staff inspections? Another consideration is fines vs. incentives. Programs have been set up where businesses are charged higher fees if not meeting their goal, or inversely, receiving discounts of perhaps $1 per cubic yard on trash service if meeting their goals. This is easiest to achieve if there is municipal collections or contracted haulers where there is control over rates. An alternative would be to give tax credits or discounts on business license renewals. The Community will need to determine whether there will be exceptions for certain businesses based on size, volume, or other criteria.

**Implementation:** Community collaboration will help ensure success and easier transition of this program, and could include haulers, businesses and janitorial companies. This program requires an ordinance to be passed. It should be verified through legal that there is no discrimination toward particular business types as a result of or within the ordinance itself. The Community will need to set up a system for reporting and tracking. Extensive outreach, well in advance, is important to allow businesses to set goals, create space, inform janitorial staff, and establish recycling service if not already contracted. Some form of technical assistance would be helpful to ensure attainable goals.

**Sectors & Materials:** All businesses will typically be included in this program. It can include all materials across the waste stream or target the most common or easily diverted such as cardboard or office paper.

**Enforcement:** This program can be very effective with proper enforcement. Staff time or hauler involvement will be required to verify diversion levels. Self reporting is an option, but less effective. Letters can be sent and fines applied or even non-renewal of a business license. However, economic advantages of meeting their goal, such as discounted trash service or reimbursement of service cost at a certain level or time frame can be very motivating and will maintain better relationships with the business community.

**Barriers:** In communities with open hauler arrangements, verification of diversion may require more staff time than with municipal collections or contracted haulers. Also, tracking and verification could require additional staff time. Businesses may be resistant and see this as an additional cost to doing business in this community. Early involvement with business representatives can help address this issue.

**Program Impact:** High: This has the potential to have significant impact if properly enforced. It can give a great jumpstart to the commercial diversion rate especially if there currently is low recycling participation in the business sector.

**Cost Impacts:** Low: This is mostly in the form of oversight and technical assistance.

**Community Examples / Population:** n/a

**Sectors:**

- Offices or Similar: To help businesses successfully reach their goals, technical assistance may be required to help determine space for recycling and education for employees and janitorial staff. Providing lists of haulers that provide recycling or drop-off locations would be useful.
• Restaurants, Bars and Cafeterias: For those in this sector that back up to an alleyway, they may not have enough space for additional containers or be able to screen those containers. This is where technical assistance would be important to help find space for recycling, either through reducing trash container numbers or size, or sharing, etc.

Materials:

• Food Waste / Food Scraps: Diversion of food scraps / compostables can be accomplished by offering that in the selection of choices for businesses to choose from, or restaurants could be required to include food scraps / compostables in their recycling plan.
• Bottles & Cans: Diversion of bottles and cans can be accomplished by offering that in the selection of choices for businesses to choose from, or restaurants and bars could be required to include bottles and cans in their recycling plan.
• Paper: Diversion of paper can be accomplished by offering that in the selection of choices for businesses to choose from, or all offices could be required to include paper in their recycling plan.
• Cardboard: Diversion of cardboard can be accomplished by offering that in the selection of choices for businesses to choose from, or all retail establishments could be required to include cardboard in their recycling plan.
• C&D: There are multiple examples of requiring recycling plans in order to receive a construction permit. Proof of following the plan may be required to receive the certificate of occupancy.

Considerations by Community Size (if any):

• Very Small and Small: This program can work well for any size community. Small and very small communities will benefit from lower oversight and auditing costs, but the smaller number of business accounts that are available may result in less impact.
• Medium and Large: This program can work well for any size community. Medium and large communities may have higher costs for oversight and auditing, but the larger number of business accounts that are available may result in a higher program impact.

Requirements Through Ordinance

Program Number 9: Hauler License Requirement for Clarity of Commercial Bills, Invoices, Contracts

Description: This ordinance sets up requirements for haulers, as part of their licensing agreement, to provide invoices to customers that clearly lay out the services, streams (e.g. recycling vs. trash), volumes, and frequencies of service provided, along with the cost, and to provide contracts with easily understood terms to better inform businesses. These conditions can generally have the effect of encouraging recycling services by businesses. This provides businesses with clear options for services and renewal, the ability to price compare, awareness of rebates, revenues, and tax incentives available and the potential to reduce trash service through recycling.

Design Considerations: Commercial trash invoices in many cases have a reference number for service size, frequency, etc., which makes it hard to understand which services are being paid for and whether the business’ service is “right-sized” and makes it hard for businesses to comparison shop with other haulers. An ordinance could require haulers to use a set form for contracts and invoices, or require their contracts and invoices to contain specific information such as clear labeling of the type of material collected (trash, recycling, compostables), the price for each, the frequency and size of container. Since
many haulers do not provide contracts to businesses, the businesses are often unaware of their obligations, specifically when it comes to contract rollover or the ability to cancel service. Some contracts include the clause that the hauler can increase rates without written notice. Often contracts or invoices do not clearly label taxes or fees. In communities where recycling is not taxed, businesses would not be aware of that savings. Other important contract clauses to clarify are how to cancel, specific dates of automatic renewal, and written notice of rate increases. Also, requiring haulers to send out periodic reminders of what items are included in their current service may remind customers to recycle those materials more often. Monitoring this program could be an issue for communities with large numbers of haulers. More staff time will be required to keep track of hauler compliance.

Implementation: If there are few haulers or a single hauler, the jurisdiction may be able to work with them to design a mutually agreeable invoice form (or content) and contract to use. A public meeting with businesses or the Community’s Chamber of Commerce can help provide information as to what labels would be most helpful in your area. This program could start out as a voluntary program with contract samples given to each licensed hauler, or could be more aggressive through the licensing regulation requiring haulers to follow a particular format. When dealing with contract issues it is always a good idea to consult with a lawyer for proper language on what can be required. Outreach to the commercial sector would be important as well so they can know what to request of haulers and how to file complaints if those haulers not complying. Providing samples to businesses of what they should look for in invoices and bidding forms will help companies shop and compare for the best service.

Sectors & Materials: The focus of this is on haulers for all business and material types.

Enforcement: If this type of licensing is created through an ordinance requiring this of all licensed haulers, then non renewal or non issuance of their license would be the penalty for non compliance. Other options could be a dollar amount per each day that they are in non compliance or a set penalty amount. The jurisdiction could require each hauler to provide a copy of an actual invoice or contract as proof of compliance.

Barriers: The most resistance for this program would most likely be with haulers who may not wish their clients to be able to easily shop around. This also could cause some cost / labor issues for haulers when they have to reconfigure their invoicing procedures. However, if all parties are included in the planning process, this issue may be avoided.

Program Impact: Low to Medium: The base impact of this program is fairly low to overall diversion rates; however, if it is in conjunction with tax incentives or other programs, the clarity for business owners may encourage them to make changes that could have more significant impacts.

Cost Impacts: Low: This should have a fairly low cost impact. Initially there will be staff time for meeting with stake holders and drafting a sample invoice as well as the ordinance. Outreach is important, but does not have to be costly; it could just be announcements in current newsletters or inserts in hauler invoices.

Community Examples: Population: New Jersey: 8,865,000

Sectors:

- Offices or Similar: Since office paper takes up so much of the waste stream for this sector, showing them how they can cut down on trash service by beginning recycling services will help reduce this waste steam.
• Bottles & Cans: Since bottles and cans take up so much of the waste stream for this sector, showing them how they can cut down on trash service by beginning recycling services will help reduce this waste stream.

• Restaurants, Bars and Cafeterias: Cardboard is an easy target and affects multiple sectors such as retail and grocery stores. Services for this material are usually available in most markets and haulers usually find this service cost effective. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

• Grocery and Similar: Cardboard is an easy target and affects multiple sectors such as retail and grocery stores. Services for this material are usually available in most markets and haulers usually find this service cost effective. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

Materials:

• Food Waste / Food Scraps and Yard Waste: If there are separate charges for collection of these materials, then clear invoices with the amount charged for these identified will help businesses shop around for service. Also, if there is no tax on this service as opposed to regular trash service, knowing this may also encourage customers to increase recycling.

• Paper: Knowing what items are already included in their service through reminders or clear invoices may help encourage businesses to recycle those items. Also, if there is no tax on this service as opposed to regular trash service, knowing this may also encourage customers to increase recycling.

• Cardboard: Knowing what items are already included in their service through reminders or clear invoices may help encourage businesses to recycle those items. Also, if there is no tax on this service as opposed to regular trash service, knowing this may also encourage customers to increase recycling.

Considerations by Community Size (if any):

• Small: Small communities often have little competition in haulers. If there are only one or two local haulers, they may feel they are being singled out. Working with them early on in the process and allowing them to provide input is important.

Procurement

Program Number 10: Procurement - Require Use of Local Composter

Description: This requirement would typically target communities that use compost on a regular basis for parks and municipal operations. Many communities have basic "green purchasing" guidelines that they have to follow, and this local composter requirement could aid in solidifying some of their procurement practices, and provide a strong source of compost demand, aiding markets for the local composter. Another possible procurement option for the local compost material could be for road / street maintenance, compost for reseeding along roads, or for soil amendment for new building and home construction. For effectiveness, the requirement would be written into the municipal code, and into contracts for municipal services and contracts. If the purchase amount is substantial, it could have a significant effect on diversion rates as well as economic benefits to local composters.
Design Considerations: Consider other purchasing guidelines (if any) and whether municipal contractors are required to follow them, or only staff. Will it be from any local composters or only ones that use the local waste stream or particular practices? Do your departments require a particular grade of compost and are there any local facilities that can provide that grade.

Implementation: Review legal instruments that may influence procurement procedures. Determine habitual amounts purchased by staff and municipal contractors. Contact local facilities to determine if they could supply enough material. If more food scraps / compostables and yard waste will be required to produce enough compost, work with local restaurants, grocery stores, and landscapers to increase material diversion to local facilities. Alter code requiring local procurement for compost, and craft language for use in contracts for street and other construction. Provide notice to all staff and contractors regarding new procedures.

Sectors & Materials: All sectors with compostable materials, particularly, restaurants, grocery stores, and landscapers.

Enforcement: This would involve the same type of internal reviews and monitoring as other internal policies.

Barriers: There may be resistance from staff and producers if there is a long established relationship with a particular provider who has a well-trusted product. There also may be state or regional laws requiring open purchasing policies.

Program Impacts: Low to Medium: If the purchase amount is substantial, it could have a significant effect on diversion rates for this material as well as economic benefits to local composters.

Cost Impacts: Low: Cost impacts would depend on the previous purchase price versus the new price from the local facility. Implementation would involve staff time for research and meeting with stakeholders and well as changing code for the new requirements.

Community Examples: Population: n/a

Sectors:

- Restaurants, Bars, and Cafeterias: This could have a significant impact on this sector if they are not currently diverting compostable material. If the composter has a steady market for compost, concessions may be given for pick-up service for this sector. Educating this sector on the cost savings of composting instead of trash service will help encourage change.

- Grocery and Similar: This could have a significant impact on this sector if they are not currently diverting compostable material. If the composter has a steady market for compost, concessions may be given for pick-up service for this sector. Educating this sector on the cost savings of composting instead of trash service will help encourage change.

Materials:

- Food Waste / Food Scraps and Yard Waste: This could have a significant impact on this sector if they are not currently diverting compostable material. If the composter has a steady market for compost, concessions may be given for pickup service for this sector. Educating this sector on the cost savings of composting instead of trash service will help encourage change.

Considerations by Community Size (if any):
• Very Small Communities: Very small communities may not have a sufficient enough requirement for compost to effect change on local business. However, if they do have regular compost usage and there are few (or only one) local composters, this could have a significant effect on that business.

• Large: This could be a significant boon to local composters if a large community has substantial usage of compost. However, large communities that have high population densities may have issues finding a "local" composter as most of these facilities are located outside of large cities.

Requirement to Offer

Program Number 11: Commercial Hauler License Requirement to Offer Recycling Collection

Description: This program would require all haulers to offer recycling services (to business customers) in order to receive their hauling license. This can be a very straight forward program requiring only that haulers show proof that they offer the service. There are no other stipulations. It could also be combined with other prerequisites such as outreach, requiring recycling service to be less expensive than trash service, or accepting certain types of materials.

Design Considerations: The main determination for design should be centered on desired goals. If the goal is to begin awareness of commercial recycling and to gauge interest from the business community, than simply requiring haulers to offer the service may be sufficient. However, without outreach, the benefits of this program may not be realized since most businesses do not relook at services once established. Another consideration centers on materials to be collected. Is it sufficient that haulers offer only one or two materials for their recycling service, or is there a desired list of materials to be targeted? The total list could be included in the requirement, or the hauler could be required to offer 3 out of 10 materials for collection, or offer all standard recyclables plus composting service. Lastly, the Community must determine how to monitor and determine the penalties for failure to comply.

Implementation: Investigate if some haulers are currently offering this service to use as examples for other haulers. Determine if there are sufficient local or regional facilities to accept the additional material. This does not have to be an exhaustive search; it may be as simple as asking a hauler or looking facilities up on line. Provide ample notice to haulers, or provide a grace period so they may establish service before their license is up for renewal. Also, adequate notice needs to be given to haulers so they can purchase additional equipment if necessary. Clearly state the penalties associated with non compliance.

Sectors & Materials: All sectors and all recyclable materials can be included in this program, or this can be used to target certain materials

Enforcement: With licensing, the enforcement is in the hands of the jurisdiction. If a hauler fails to comply with the requirements, the penalties could be on an escalating scale of letters, fines, to revoking or denying a license to operate.

Barriers: Licensing could have some legal barriers depending on your state, but typically it is from haulers themselves. The cost to haulers for establishing recycling routes could be a barrier if it is seen as cost prohibitive, especially if there is not enough initial business for a full route. Also some haulers may need to purchase additional equipment in order to comply with licensing requirements. Including haulers in the process can help enlighten the jurisdiction as to potential issues.
Program Impacts: Medium: If there are no haulers that currently offer recycling services, then this initiative could have a larger impact. Impacts will depend on outreach and cost of the recycling services offered.

Cost Impacts: Low: For the jurisdiction, there is little cost involved aside from monitoring the program.

Community Examples / Population: Cambridge, MA: 106,471; Portland, OR: 603,106

Sectors:
- Offices or Similar: Office paper and cardboard recycling would be beneficial for these businesses.
- Restaurants, Bars and Cafeterias: Cardboard, as well as bottle and can recycling would be greatly beneficial to these types of businesses.
- Grocery and Similar: Cardboard recycling would be greatly beneficial to these types of businesses.

Materials:
- Bottles & Cans: Restaurants, bars, and cafeterias generate large quantities of these materials and can greatly benefit by recycling these materials. There is often a strong market for metals that can be taken advantage of by the haulers.
- Paper: Offices and similar can benefit from recycling this material. Services for this material are usually available in most markets; haulers usually find this service cost effective. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.
- Cardboard: Cardboard is an easy target and affects multiple sectors such as retail and grocery stores. Services for this material are usually available in most markets; haulers usually find this service cost effective. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

Considerations by Community Size (if any):
- Very Small and Small: Smaller communities will most likely have an easier time implementing this program due to fewer haulers to monitor or verify compliance. They also may see a smaller impact due to fewer commercial accounts available to take advantage of the program.
- Medium: Medium communities may have additional costs implementing this program due to more haulers to monitor or verify compliance. They also may see a larger impact due to more commercial accounts available to take advantage of the program.
- Large: Large communities may have additional costs implementing this program due to more haulers to monitor or verify compliance. They also may see a larger impact due to more commercial accounts available to take advantage of the program.

Requirement to Offer

Program Number 12: Commercial Hauler License Requirements to Offer Food Scrap Collection
**Description:** This program would require all haulers to offer food waste recycling services in order to receive their hauling license. This can be a very straight forward program with only requiring haulers to show proof that they offer the service and no other stipulations. It could also be combined with other prerequisites such as outreach, requiring recycling service to be less expensive than trash service, or accepting certain types of materials.

**Design Considerations:** The main determination for design should be centered on desired goals. If the goal is to begin awareness of commercial food scraps composting and to gauge interest from the business community, than simply requiring haulers to offer the service may be sufficient. However, without outreach, the benefits of this program may not be realized as most businesses do not relook at services once established. The jurisdictions may simply require offering service to all businesses, or may only require it for a subset of most appropriate business types (restaurants, bars, cafeterias, etc.).

Another consideration centers on materials to be collected. Is it sufficient that haulers offer only one or two materials for their composting service or are there specific materials such as meat that must be included? There could be a specific list put in the requirement or the hauler could be required to offer 3 out of 10 materials for collection. Cities should consider including food-soiled paper and compostable plastics in the food scraps collection, because food-soiled paper can be a very large contributor to weights and volumes captured, and simplify the program’s instructions for users. With food scraps there is also the consideration of materials sitting out too long, so determine if there will be the requirement to offer collection no less than once per week (usually more frequent). Lastly, determine how to monitor and penalties for failure to comply.

**Implementation:** Investigate if some haulers are currently offering this service to use as examples for other haulers. Determine if there are sufficient local or regional facilities to accept the additional food scrap material, and consider including food-soiled paper and compostable plastics in the collection. This does not have to be an exhaustive search; it may be as simple as asking a hauler or looking facilities up on line. Determine if the requirement is commercial sector-wide, or focused on specific business types. Provide ample notice to haulers, or provide a grace period so they may establish service before their license is up for renewal. Clearly state the penalties associated with non compliance.

**Sectors & Materials:** All sectors for food scrap materials

**Enforcement:** With licensing, the enforcement is in the hands of the jurisdiction. If a hauler fails to comply with the requirements, the penalties could be on an escalating scale of letters, fines, to revoking or denying a license to operate.

**Barriers:** Licensing could have some legal barriers depending on your state, but typically it is from haulers themselves. The cost to haulers for establishing composting routes could be a barrier if it is seen as cost prohibitive, especially if there is not enough initial business for a full route. Including haulers in the process can help enlighten the jurisdiction as to potential issues.

**Program Impacts:** Low to Medium: If there are no haulers that currently offer food scraps services, then this could have a larger impact. Impacts will depend on outreach and cost of the food scraps services offered.

**Cost Impacts:** Low: For the jurisdiction, there is little cost involved aside from monitoring the program. Given it is voluntary, costs would presumably be covered by user fees.

**Community Examples / Population:** n/a
Sectors:

- Restaurants, Bars and Cafeterias: Restaurants and bars are typically the largest generators of food scraps, food-soiled paper and compostable plastics, and would be most affected by a program including this material. Due to the weight of this material, an embedded program could greatly lower their waste costs if they had compost collection available. It is important to determine local sites that would have capacity to begin accepting this waste stream before requiring haulers to offer food waste services.

- Grocery and Similar: Grocery stores are a large generator of food scraps, food-soiled paper and compostable plastics, and would be most affected by a program including this material. Due to the weight of this material, an embedded program could greatly lower their waste costs if they had compost collection available. It is important to determine local sites that would have capacity to begin accepting this waste stream before requiring haulers to offer food waste services.

Materials:

- Food Waste / Food Scraps: This program specifically targets food scraps, often with the additions of food-soiled paper and compostable plastics.

Business Incentives


Description: This format is intended to be a voluntary program to encourage recycling overall, or for a particular material stream, through monetary incentives. It can be established with or without accompanying recycling ordinances. This program establishes a system where businesses that participate are eligible for discounts or rebates on the cost of the recycling service (up to 100%) for preset time frames, or discounts on trash service. There is a multitude of options in existing programs for participation requirements from simply signing up for any recycling service, to requiring service which includes particular materials and pick-up frequencies, or percent refunds based on diversion amounts.

Design Considerations: Much of the deliberation around this program’s design will depend on the funding available and the jurisdictional authorities for service. Some programs are initiated through the community, but implemented through the hauler. A hauler can be given a grant (some have matched the amount) to establish a recycling, composting, or glass and beverage container program offered free for a certain amount of time or at a significant discount. Some programs set up refund systems where businesses pay for collection of trash, recycling and compost service and then receive a monthly recycling discount for a maximum number of months based on their participation and tonnages (with the difference made up by funding from the community). Other programs refund the cost of purchasing recycling containers or give a flat discount (rebate) on recycling service. If a community provides trash collection, or has contracted haulers, they can give a per cubic yard discount for those that sign up for recycling service. This could also be arranged with multiple haulers through subsidies by the community. If the requirement for receiving the discount is more than just signing up for service, then the time frame for maintaining recycling service must be established, which could range anywhere from three months to one year of service. Limits must be established for the amount of the refund, such as up to...
50% of the cost of service, or one refund coupon for trash service for every two months of recycling service. Only the largest generators or those generating over a certain amount of waste could be targeted for this program. Some programs provide incentives by discounting your business permit or a providing a discount on your taxes for participating in a program.

**Implementation:** First assess the current economic ability to provide discounted service or rebates, or review contracts or franchise agreements for allowable alterations. Research either internally (if municipal collections), or through a stakeholder meeting or surveys what price point will allow continued success from the provider side. Discuss with businesses or the local Chamber of Commerce what discount or rebate would be the tipping point to motivate change in the commercial sector. Establish rate discounts or rebates, and provide sufficient notice for haulers. Set up outreach or technical assistance, either by the Community, or through haulers to educate businesses on the financial advantages.

**Sectors & Materials:** All, this program can target types of services (recycling / composting) or specific materials/ businesses such as bars/ restaurants and beverage containers.

**Enforcement:** Enforcement can be aided by haulers who report customers with recycling service or when service is stopped. Fines could be applied if a business applies for a rebate without proper recycling service.

**Barriers:** Outreach may be the biggest barrier to establishing this program as businesses may expect this type of program and might not seek out information. A long term funding source for a successful program is often an issue. Some communities charge an extra tax or tipping fee surcharge to cover the cost.

**Program Impacts:** Low to Medium: Economic incentives tend to be a very effective motivator. The key to the extent of the impact will be whether the discounts or rebates are at a significant enough level to encourage change.

**Cost Impacts:** Low to Medium: The cost impact for this program will depend on how success and financial amount of the rebates or discounts and whether there is a continued funding source versus a onetime grant.

**Community Examples / Population:** Santa Barbara, CA: 89,639; Fort Collins, CO: 148,612; Boulder, CO: 101,808

**Materials:**

- **Food Waste / Food Scraps:** Restaurants and grocery stores are typically the largest generators of food scraps, food-soiled paper and compostable plastics, and would be most affected by a program including offering discounts or rebates for composting this material. It is important to determine local sites that would have capacity to begin accepting this waste stream.
- **Yard waste:** The largest generators in this sector are landscape and lawn care. Many jurisdictions at the state or regional level have mandatory yard waste recycling programs and enforce them at the landfills. It is important to determine local sites that would have capacity to begin accepting this waste stream.
- **Bottles & Cans:** A program offering discounts for recycling bottles and cans would be targeting bars and restaurants and can be a very effective way to capture this portion of the waste stream.
• Paper: Rebates or discounts for services including office paper not only affect the office only type buildings, but affects most businesses since almost all businesses have at least a small office.

• Cardboard: Cardboard is an easy target and affects multiple sectors such as retail and grocery stores. Services for this material are usually available in most markets; haulers usually find this service cost effective. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service as well as the discount/rebate on recycling can be an effective way to reduce this material in the waste stream.

Considerations by Community Size (if any):

• Very Small: For implementation, very small communities may have an easier time with enforcement and oversight due to fewer commercial accounts; however staff is usually smaller as well and may lack available staff for inspections. This is an important consideration when setting up the program. The impact on diversion may be less than with a larger community due to the smaller percentage of commercial accounts, a fact which will need to be weighed against the cost of implementation and enforcement.

• Small: For implementation, small communities may have an easier time with enforcement and oversight due to fewer commercial accounts. However, smaller businesses may be at a disadvantage due to the lack of volume of recyclable materials may not reduce trash service enough to offset the cost of the additional service if the discount/ rebate are not sufficient. Consideration of available capacity for additional materials is still important, though perhaps less of a concern than for very large communities due to the smaller number of businesses.

• Medium: This type of approach is ideal for medium size communities due to several factors. Typically there is enough staff to follow through with enforcement. There are usually enough commercial entities to see a significant increase in diversion, and there are not too many commercial accounts to make it unmanageable. Available capacity for new or additional materials is important.

• Large: Large communities can see a great impact in diversion to do the potential number of impacted businesses. However, they also have unique challenges with enforcement due to the large number of businesses needing to be monitored as well as the variety. Small businesses may have a harder time meeting a specific target or maybe overlooked in favor of larger generators. Lack of space for recycling can also be a problem in dense communities. Special considerations or exceptions for these issues need to be included in the ordinance. The availability of facilities with additional capacity is extremely important for large communities due to the potential increase in volume of recycled materials.

Business Incentives

Program Number 14: Recycling and/or Food Scraps Embedded for All Commercial Customers

Description: Under this incentive-based program, the trash bill for each business in the Community / County is required to include the cost of recycling and/or food scraps collection, and all businesses are eligible to use the service(s). Commercial MSW fees are often volume-based, so including recycling or diversion service at no additional cost (embedded in the trash bill) provides an incentive for commercial generators to divert recycling or compost in order to reduce trash service levels and save money. This is especially useful for smaller generators who might find the regular price for service too cost prohibitive.
Whether or not they choose to use the service is entirely up to the generator; however they will all be paying for the service and those that choose to use it will have a lower trash bill than those that do not. It also helps to alleviate issues of low route density and allows haulers to spread the costs of service among all generators. In many cases, the amount of maximum recycling or compost service available under the program is linked to the trash service volumes provided; for instance, the embedded service haulers are required to provide is 100%, 150%, or 200% of the trash volume. This helps the hauler know the maximum of alternative services they must include as part of their “revenue requirements” when calculating trash rates that will be sufficient to cover the cost of all services provided. This calculation would be more difficult if the maximum recycling volumes were unlimited (!).

**Design Considerations:** Determine if the hauler will "embed" the fee for commercial recycling or compost collection in their cost of trash service and how that will be monitored. In some cases, the fee might be charged by the municipality to fund the program with the haulers reimbursed for the additional cost of collection. For those businesses that claim lack of space for recycling and food scraps collection, will they be exempted from the program or will they be given technical assistance. Spelling out the exact requirements for recycling and composting service is vital if this is a standalone program. Will haulers be required to offer recycling for materials of their choice or will there be a specific list. Will compostable materials be collected as well? How often must recycling and composting be collected? Who will pay for the recycling and composting containers, the community, hauler, or business (the preferred option is to have these costs all embedded in the trash bill)? Will cooperative containers be allowed, that allow small businesses to share a recycling container, in cases where space is constrained, etc.? In these cases, how near will the containers have to be to qualify? If recycling service costs are embedded in the trash bill, this kind of shared service should be manageable, and the size of that container must reflect the multiple businesses using it.

**Implementation:** Determine if there are adequate facilities for the additional recycling or compostable food materials. Prepare outreach not only for the haulers, but also for the commercial community. Pass an ordinance or renegotiate contracts / licensing regulations requiring all haulers serving commercial accounts to provide a designated level of recycling service with the costs of the service embedded in the trash rates. Unlike ordinances that target generators, this ordinance targets the licensed haulers.

**Sectors & Materials:** All sectors and any materials that the jurisdiction chooses to require. If left unspecified, haulers would probably only collect the most profitable recyclables in the local region, and may not include the collection of compostable materials at all.

**Enforcement:** Without enforcement the program does not work. Included in the ordinance should be a mechanism that allows the regulatory authority to audit hauler records to ascertain compliance.

**Barriers:** Lack of space for recycling and composting is often an issue in densely spaced communities, and some businesses may feel they are not able to participate in the program even though they are required to pay for it. In some space-constrained areas, the program could allow for shared, or cooperative, recycling containers nearby, because the cost is covered by the trash bills. Some monitoring would be required, or responsibility established to assure it is used for recycling (a clearer responsibility when containers are not shared). While businesses must pay for the recycling and / or composting service, this type of program does not require businesses to actually recycle or compost, but it provides strong financial incentives to do so.
Program Impact: High: Provided there is adequate public education or haulers are required to inform their accounts, the program will have significant impact on the waste stream through reduction in recyclable and compostable materials.

Cost Impacts: Low: User fees ultimately pay for additional costs of services as haulers will pass it along. There will be a larger cost impact to those businesses that don’t recycle/compost as they will not realize a reduction in their trash services/volume.

Community Examples / Population: Salt Lake City, UT: 186,443

Sectors:

- Restaurants, Bars and Cafeterias: Restaurants, bars and cafeterias are one of the largest generators of food waste and would be most affected by a program including this material. Due to the weight of this material, recycling could greatly lower their waste costs if they had compost collection available. It is important to determine local sites that would have capacity to begin accepting this waste stream before requiring haulers to offer food waste services.
- Grocery and Similar: Grocery stores are one of the largest generators of food waste and would be significantly affected by a program including this material. Due to the weight of this material, an embedded program could greatly lower their waste costs if they had compost collection available. It is important to determine local sites that would have capacity to begin accepting this waste stream before requiring haulers to offer food waste services.

Materials:

- Food Waste / Food Scraps: Restaurants and grocery stores are typically the largest generators of food waste and would be most affected by a program including this material. Due to the weight of this material, an embedded program could greater lower their waste costs if they had compost collection available. It is important to determine local sites that would have capacity to begin accepting this waste stream before establishing this program.
- Bottles & Cans: Restaurants and bars are large generators of bottles and can and would be most affected by a program including this material. Due to the weight of this material, an embedded program could greatly lower their waste costs if they began using this service. It is important to determine local sites that would have capacity to begin accepting this waste stream before establishing this program.
- Cardboard: Cardboard is an easy target and affects multiple sectors such as retail and grocery stores. Services for this material are usually available in most markets; haulers usually find this service cost effective. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

Consideration by Community Size (if any):

- Very Small: For implementation, very small communities may have an easier time with enforcement and oversight due to fewer haulers, however staff is usually smaller as well and may lack available staff for audits. This is an important consideration when setting up the program. The impact on diversion may be less than with larger communities due to the smaller percentage of commercial accounts, a fact which will need to be weighed against the cost of implementation and enforcement.
- Small: For implementation, small communities may have an easier time with enforcement and oversight due to fewer haulers. However, smaller businesses may be at a disadvantage due to
the lack of volume of recyclable materials may not reduce trash service enough to offset the cost of the additional service if the discount/ rebate are not sufficient. Consideration of available capacity for additional materials is still important, though perhaps less of a concern than for very large communities due to the smaller number of businesses.

- Medium: This type of approach is ideal for medium size communities due to several factors. Typically there is enough staff to follow through with enforcement. There are usually enough commercial entities to see a significant increase in diversion. Available capacity for new or additional materials is important.

- Large: Large communities can see a great impact in diversion to do the potential number of impacted businesses. However, they also have unique challenges with enforcement due to potentially the large number of haulers needing to be monitored. Lack of space for recycling can also be a problem in dense communities and businesses may not use the service even though they pay for it. The availability of facilities with additional capacity is extremely important for large communities due to the potential increase in volume of recycled materials.

**Hauler Goals**

**Program Number 15: Hauler Incentives for Meeting Goals (Extensions, lower franchise fees, varying tip fees, etc.)**

**Description:** Haulers are given specific recycling or diversion goals and are rewarded through incentives such as lower franchise or tip fees, or extensions of community-wide commercial contracts or franchise agreements (where they exist, highly valued by contractors). The incentives can be based on a set or sliding scale of diversion levels (25% off if you meet 25%, or an increasing discount for higher diversions) and can be applied to all materials or specific types such as C&D. These incentives can be implemented in communities with a single contracted hauler, multiple licensed haulers, or an open hauler permit system. In addition, the program can vary in complexity and allows for creativity and flexibility on behalf of the community designers. This program can be combined with other programs such as mandatory source separation or stand alone.

**Design Considerations:** Since there is a broad spectrum of hauler situations and material types this program can be applied to, the design considerations will vary based on community structure; however, all scenarios will be based on the overall level of waste diversion achieved by a hauler (and its underlying customers). In a franchise system, fees can be lowered by a certain percentage for diverting a specific amount, or franchise periods can be extended. Fees can also be set so that they drop proportionally for every tier level of diversion they reach (note that the design should reward high levels of diversion more than proportionally, or not linearly, as they are harder to reach). It can be applied to specific materials as well. For example C&D can be exempt from franchise fees if the haulers take it to a recycling facility. Depending on the local landfill authority (whether private or public) or the contract, haulers that achieve over a certain level of diversion can have reduced tipping fees. If trying to target a specific sector, such as institutional, haulers that achieve a specific diversion rate in that sector could also have discounted fees. Permit fees can also be waived or discounted if a hauler reaches a specific diversion rate. Determine how this will be monitored either through self-reporting or staff time. Most programs use self-reporting with some verification at facilities.

**Implementation:** When dealing with contracts or franchise agreements, check with legal staff to determine what change is allowable. Discuss with stakeholders what level of incentive would lead to
change. If using discounted tip fees, determine what authority is available or whether contracts need to be renegotiated. Provide advance notice to haulers and develop standard reporting forms and determine how often they should be filed.

**Sectors & Materials:** All sectors and materials or can be used to target specific areas such as institutional or C&D.

**Enforcement:** Reporting should be set up in such a manner that the jurisdiction can verify the amount of materials diverted. If the hauler fails to meet the required amount then the will pay the higher franchise, or permit fees. If reports are filed often enough, warnings can be given informing the hauler of their progress in reaching the required diversion rate.

**Barriers:** As an incentive based program, minor resistance from the haulers is expected; complaints may be focused on reporting requirements or disputes over diversion rate. Internally, there may be some concerns over lower income due to lower fees collected.

**Program Impacts:** Medium to High. Setting the incentive at the correct amount will determine the success of this program. If haulers are greatly motivated and push their services through adjusting rates and extensive outreach, this could have a significant impact on diversion.

**Cost Impacts:** Low to Medium: The community incurs some cost for designing and enforcing compliance. It will also see a drop in fees paid by some haulers – either as license / franchise fees or lower tipping fees at municipally-owned facilities that may be offered to the haulers as incentives. Communities will usually reconfigure the hauler fees to make sure they remain revenue neutral (increasing the fees for those not reaching thresholds in order to cover the reduced revenues from those meeting goals).

**Community Examples / Population:** Antioch, CA: 105,508; Monrovia, CA: 36,590; Santa Clara, CA: 119,311; Los Angeles, CA: 3,858,000; Oroville, CA: 15,566

**Hauler Incentives**

**Program Number 16: Two-Tiered Disposal Rates for Qualified Haulers at Landfill / Transfer Station**

**Description:** Under this program, the community sets up lower tipping fees for haulers (or communities) that meet diversion goals, thresholds, or other positive service standards set by the community. These qualified haulers (with qualification status certified by the community / entity) pay less to dispose of trash at the landfill or transfer station. This may be constructed as a base fee for those haulers meeting standards, and a surcharge assessed to those haulers not meeting the qualification thresholds, or set up as a discount for those meeting the thresholds. Note that in some instances, this has been constructed as communities that meet recycling thresholds pay less at the county transfer stations or landfills, again, with qualification status assigned by the county or entity. This is usually set up as a differential fee for MSW (to provide an added incentive to recycle more), but it could feasibly apply to reward separation of other material streams as well (higher recycling revenues, or lower tip fees at community-owned composting facilities as well). A system must be set up for initially identifying qualifying haulers, and for re-certifying as needed. This may be from an analysis of weight slips over a period of time, or other methods.
**Design Considerations:** This type of program is easier to establish for publicly owned sites. For privately held sites, consider whether the state or county has authority to assess surcharges, or consider the willingness of the owner/operator to work with the jurisdiction or reevaluate current contracts. Define what limit will be required to receive the lower fee. For communities implementing this particular program, the percentage of diversion reaches a threshold (in conjunction with, perhaps, contamination limits). What will the criteria be based on, a per load basis, or recycling at the facility or offsite? Enforcement and pricing will be a key to success. The incentive needs to be high enough to change hauler behavior, and outweigh their costs to achieve the threshold diversion. Most programs require confirmation through weight slips or other accounting; another verification system could be devised by the community.

**Implementation:** There are many things that need to be done to implement this type of program. The most important ones include researching the legal statutes of your state regarding special pricing; determining the price point (through researching other communities or meeting with haulers) which will encourage haulers to separate materials and reach desired goals; working with landfill/recycling center staff (public) or negotiating contracts (private) to establish and implement the pricing and surcharge/discount system; and providing ample notice and outreach to the haulers since they may need to change service standards in order to take advantage of the incentives.

**Sectors & Materials:** Because this type of program is hauler–based, it could be used for waste from all of the sectors. The program usually covers lower costs per ton for MSW, as a reward for achieving goals in diversion through recycling or composting. The program could be expanded to modify the prices for recycling and/or composting (or presumably C&D) as an added incentive.

**Enforcement:** Most programs rely on tonnage reports from haulers (paired with weight slip verifications) to identify which haulers are qualified to receive the discounts or incentive pricing at the landfill or transfer station (or other facility). Once qualified, haulers should have to re-qualify each year, or each half year or quarter to assure continued compliance and equity within the program.

**Barriers:** This program would only be successful if there is easy access for diverting materials, such as composting, C&D, or recycling facilities available. Identifying a feasible way to implement the program in communities in which there are significant private facilities may be one of the more difficult implementation elements; success in that case may depend on whether there are local and state powers or authorities allowing imposition of discounts and surcharges more broadly.

**Program Impacts:** Medium: The level of impact will depend on whether the price differential is enough to incentivize haulers and if there is easy access for diverting materials.

**Cost Impacts:** Low: Program costs would largely include qualification and oversight, initial set-up, and potentially a more complicated rate study for the disposal facilities in order to compute rates that will cover the subsidized service provided.

**Community Examples / Population:** Santa Cruz, CA: 62,041; San Diego, CA: 1,338,000;

**Materials:**
- Yard Waste: Programs for discounts of this are very common and have been effective.
- Paper: Programs for discounts of this are very common and have been effective.
- Cardboard: Programs for discounts of this are very common and have been effective.
Incentives

Program Number 17: Taxes on Some Material Streams

Description: A community may have sales taxes or other taxes (a few communities have special solid waste taxes) imposed on the disposal, transfer, or collection of solid waste. In this program, recycling and/or composting streams are excluded or exempted from the tax, making the collection, transportation, and management of these materials cheaper relative to MSW than they would otherwise be. Haulers may then pass on these savings, or promote services for recycling and composting, to their customers. Variations of this program use existing taxes such as a business tax and exclude revenues made from recycling or composting. Many examples of this program are established on a statewide basis, but can work at any government level. Revenues from the tax are used to fund a variety of uses, but most often are used to establish/ maintain recycling or other solid waste programs.

Design Considerations: The tax can be applied as a percentage of collection or transportation revenues or sales price of services (an internet search found ranges from 3% to 17% in various communities). The tax can also be applied on a per ton basis (searches found a range from $2 to $12 per ton for example). Alternatively, existing taxes such as sales or franchise taxes can be discounted or waived for recycling / composting collection or transportation. Some communities with PAYT systems also charge taxes on required "bag / tag" sales, but not on recyclables or compostables collected. Collection of the tax can be at the disposal location or through regular reporting and filing. Requiring that tax be clearly labeled on billing invoices will help generators make informed decisions about the additional cost of not recycling/ composting. Consider clarifying if and how this tax may be noted on business solid waste bills; it may be worth identifying acceptable language that is consistent with the objective of the differential tax and language that is supportive of the behavioral change desired.

Implementation: Verify adequate facilities exist for the exempt waste streams. Prepare outreach with sufficient notice for haulers in inform their accounts as ultimately it will be the generator that pays the additional tax. Determine how the tax will be collected; prepare forms or on-line reporting process. Pass an ordinance which clearly states how the tax will be collected, reporting process, what the funds will be used for, and any fines or penalties.

Sectors & Materials: Ultimately all sectors, but this is applied specifically to haulers or solid waste storage facilities. It targets non recycled/composted waste.

Enforcement: Enforcement would follow the process of other tax collection processes with auditing to ascertain compliance and fines or other penalties for failure to comply.

Barriers: Expect some initial resistance from haulers over this program. Businesses may voice concerns when haulers begin passing this on. Outreach educating businesses on how they can avoid this tax through recycling or composting will be the key to success.

Program Impact: Low to Medium: Impacts will be determined according to how aggressive the tax. If the differentiated amount is too low, then there will be little financial incentive to change habits.

Cost Impacts: Low: The cost impact centers on monitoring the program and audits. However, this can be done with existing resources for other tax collections.

Community Examples / Population: New Jersey: 8,865,000; Iowa: 3,074,000; Minnesota: 5,379,000
Sectors:

- Restaurants, Bars and Cafeterias: Restaurants, bars and cafeterias generate large amounts of food waste and would be most affected by a program excluding the material from additional taxes. Due to the weight of this material, recycling could greatly lower their waste costs if they had compost collection available.
- Grocery and Similar: Grocery stores and similar are one of the largest generators of food waste and would be most affected by a program excluding the material from additional taxes. Due to the weight of this material, recycling could greatly lower their waste costs if they had compost collection available.

Materials:

- Food Waste / Food Scraps: For food scraps and compostables, this can create a clear incentive for businesses to begin composting services. However, unless the program is properly marketed and explained (through the jurisdiction or the collection provider) businesses might not be aware of the economic advantage.
- Yard Waste: For yard waste, this can create a clear incentive for businesses to begin composting services. However, unless the program is properly marketed and explained (through the jurisdiction or the collection provider) businesses might not be aware of the economic advantage.
- Bottles & Cans Paper & Cardboard: This can create a clear incentive for businesses to begin recycling services. However, unless the program is properly marketed and explained (through the jurisdiction or the collection provider) businesses might not be aware of the economic advantage.
- Paper: This can create a clear incentive for businesses to begin recycling services. However, unless the program is properly marketed and explained (through the jurisdiction or the collection provider) businesses might not be aware of the economic advantage.
- Cardboard: This can create a clear incentive for businesses to begin recycling services. However, unless the program is properly marketed and explained (through the jurisdiction or the collection provider) businesses might not be aware of the economic advantage.

Considerations by Community Size (if any):

- All: This program can work well for any size community. Smaller communities will benefit from lower oversight and auditing costs, but the amount of taxes collected may not be sufficient to fund significant programs. Larger communities will have greater oversight and auditing costs, but the amount of taxes collected may be more substantial for program funding.

Incentives – Business

Program Number 18: Require Incentive Rates for Recycling / Composting Service

Description: This format is intended to be a voluntary program on the part of businesses to encourage recycling overall, or for a particular material stream, through monetary incentives. Discounted rates are established for types of service, recycling or composting; generally rates that are lower than trash service, which may require subsidized rates in some cases. These can be set through the municipalities’ collection service if available, or through contracts by the jurisdiction. However, if there is not municipal collection or a contact arrangement (with fairly direct control over rates) rate structure regulations (not
rate levels) can often be established with or without an ordinance, but without an ordinance in an open market it would require cooperation with the haulers. Alternatives would be requirements in licensing to establish discounted rates. This program establishes a system where businesses are encouraged to participate through monetary advantages; under the new system, bills can generally be reduced if the business diverts more through recycling or organics collection service.

**Design Considerations:** Much of the design considerations for this program will depend on the economics of the current programs and the jurisdictional authorities for service. Many businesses have general apathy with regard to investigating or changing disposal service once established, so rates must provide strong enough financial incentives to encourage diversion. Some programs refund the cost of purchasing recycling containers to help businesses initiate service. Usually some reimbursement for technical assistance or waste evaluation is provided to educate businesses on how they can save money by diverting more waste. Rates differences can easily be set if a community provides commercial services, or has a single contract hauler. In a multiple hauler situation, the municipality could allow each hauler to establish their own rates as long as it is less than the trash service, or they could require a specific discount. If this is the case, then rates must be set at a fair and reasonable level that will allow sustainable revenues and is not a significant cost disadvantage for the hauler. Communities have also subsidized haulers to a certain extent, or given them discounts on their hauling license or considerations in their franchise agreements if they participate. If a community has very specific rate goals or lacks cooperation of haulers, they may want to pass an ordinance establishing a requirement for a discounted rate structure.

**Implementation:** The first step will be to assess the current arrangement for disposal to determine if an ordinance will need to be passed, or review contracts or franchise agreements for allowable alterations. Research either internally (if municipal collections), or through a stakeholder meeting or surveys, what price point will allow continued success from the provider side. Discuss with businesses or the local chamber of commerce what discount would be the tipping point to motivate change in the commercial sector. Set up outreach or technical assistance, either by the community, or haulers.

**Sectors & Materials:** All, this program can target types of services (recycling / composting) or specific materials/ businesses such as bars/ restaurants and beverage containers.

**Enforcement:** If this is established through an ordinance or contract, then fines can be applied or none renewal of contracts or licenses. Periodic pricing checks will be needed to verify haulers are in compliance with the regulation.

**Barriers:** Hauler may be very resistant to this program if they feel the discounted price will create economic hardships. Also reductions in providing trash service may be surpassed by the amount of additional service required for recycling. Including haulers in the process can help address these issues. Setting the correct rate structure is crucial. If it is too small a differential, they businesses may not be motivated to change, too large and haulers may no longer offer the service.

**Program Impacts:** Medium to High: Economic incentives tend to be a very effective motivator. The key to the extent of the impact will be whether the discounts or rebates are at a significant enough level to encourage change. Education will be the key to inform businesses of the potential savings.

**Cost Impacts:** Low: The only costs will be initially the outreach to inform the business community and continuing oversight verifying that haulers are offering the incentives. Ultimately, haulers will pass on the costs to the users/ generators.
Community Examples / Population: n/a

Sectors:

- Offices or Similar: A program that include most general recycling materials will not only affect the typical office building, but other sectors as well since most all have at least a small office on site.
- Restaurants, Bars and Cafeterias: Restaurants and bars are large generators of bottles and cans as well as food scraps and would be most affected by a program discounting service on these materials. Due to the weight of this material, a discounted service could greatly lower their waste costs. It is important to determine local sites that would have capacity to begin accepting this waste stream before establishing this program.
- Grocery and Similar: Grocery stores are typically one of the largest generators of food waste and would be most affected by a program including this material. Due to the weight of this material, a composting service could greatly lower their waste costs. It is important to determine local sites that would have capacity to begin accepting this waste stream before establishing this program.

Materials:

- Food Waste / Food Scraps: Restaurants and grocery stores are typically the largest generators of food scraps and compostables and would be most affected by a program including this material. Due to the weight of this material, a composting service could greatly lower their waste costs. It is important to determine local sites that would have capacity to begin accepting this waste stream before establishing this program.
- Bottles & Cans: Restaurants and bars are large generators of bottles and cans and would be most affected by a program including this material. Due to the weight of this material, a discounted service could greatly lower their waste costs. It is important to determine local sites that would have capacity to begin accepting this waste stream before establishing this program.
- Cardboard is an easy target and affects multiple sectors such as retail and grocery stores. Services for this material are usually available in most markets; haulers usually find this service cost effective. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

Considerations by Community Size (if any):

- Very Small: For implementation, very small communities may have an easier time with enforcement and oversight due to fewer haulers; however staff is usually smaller as well and may lack available staff for audits. This is an important consideration when setting up the program. The impact on diversion may be less than with a larger community due to the smaller percentage of commercial accounts, a fact which will need to be weighed against the cost of implementation and enforcement.
- Small: For implementation, small communities may have an easier time with enforcement and oversight due to fewer haulers. However, smaller businesses may be at a disadvantage due to the lack of volume of recyclable materials may not reduce trash service enough to offset the cost of the additional service if the discount/rebate are not sufficient. Consideration of available capacity for additional materials is still important, though perhaps less of a concern than for very large communities due to the smaller number of businesses.
• Medium: This type of approach is ideal for medium size communities due to several factors. Typically there is enough staff to follow through with enforcement. There are usually enough commercial entities to see a significant increase in diversion. Available capacity for new or additional materials is important.

• Large: Large communities can see a great impact in diversion to do the potential number of impacted businesses. However, they also have unique challenges with enforcement due to potentially the large number of haulers needing to be monitored. Lack of space for recycling can also be a problem in dense communities and businesses may not use the service even though they pay for it. The availability of facilities with additional capacity is extremely important for large communities due to the potential increase in volume of recycled materials.

Incentives - Business

Program Number 19: Pre-Paid PAYT Trash Bag System for Commercial Sector

Description: The PAYT Bag Program for commercial generators encourages commercial customers to decrease their garbage and increase recycling and organics collection. The most feasible implementation of this program focuses on small commercial businesses — specifically those on the smallest container size for collection (one cubic yard per week). Other, larger disposers already have a price incentive to reduce waste; they can reduce their container size or collection frequency to save money. The participating businesses are required to purchase special PAYT bags from the Community to use for disposal of their trash. Trash costs to the business can often be reduced by minimizing the number of bags used by diverting as many materials as possible to recycling and organics collection. With this type of program, some municipalities / haulers may charge businesses a monthly base rate for trash service in addition to the cost of the bags, and others may only charge for the bags. The assumption is that these bags are placed in the small dumpster for disposal; alternatively, smaller containers could be used. When coupled with a program offering embedded or subsidized recycling collection (even limited to 96 gallons), the program can be especially effective at increasing recycling among small generators. Organics collection can be handled in a similar fashion, but is often an additional charge. In general, commercial routes are often volume based and while this type of program does not require businesses to recycle, it provides a financial incentive for them to utilize recycling services.

Design Considerations: The program works best for businesses that produce less than one cubic yard of trash per week because with more than that amount of trash, they would be better off with a dumpster. Commercial accounts are given the choice of contracting for trash and recycling individually, or using the Community-wide commercial PAYT bag program for trash collection. Bag sizes and corresponding costs, frequency of collection, and whether there will be any monthly base fees charged for the program need to be determined, by the hauler if they provide collection, or by the community if they are the collection agent directly or via contract. Pricing will be complicated. Collection via Dumpster TM is cheaper than by bag or container. To encourage reductions, the cost of the bags disposed in the container will need to be less than the cost of one cubic yard service once per week. To achieve this goal, the rate per bag may need to be less than the actual cost of service for the bag, which implicitly requires subsidies from other customers. The community will need to determine whether they will pass additional regulations around supporting programs (recycling or composting). To encourage recycling and to make this system most effective, costs to the business for recycling service should be significantly less than for trash; the community could make no changes, or it could embed recycling costs in the costs of the PAYT trash bags, allow them to participate in the residential recycling program, or make other allowances.
Revenues from recycling could help with these costs. If food-scrap-producing establishments are going to participate in this program, then avenues may be needed to provide organics collection to the businesses to achieve the highest diversion. Although the same criteria could be established for organics collection as for recycling, businesses are often charged for this service. It is helpful to have a few different sized bags available for businesses to purchase and these should be available at a number of retail and / or local establishments. The corresponding bag prices should cover the cost of collection and disposal of the waste and could even pay for or help pay for recycling service. Billing is necessary for the community / hauler only if base costs for trash collection and additional costs for recycling services are in place; otherwise bags are purchased directly and no billing is needed. Although this type of program does not require businesses to recycle, it encourages them to and it works well in conjunction with other recycling bans or mandates. Either the community or haulers could provide education and outreach about the program. Advice for setting up this type of program is available at www.PAYTnow.org and many good examples can also be found on-line. Enforcement and qualification procedures will also be needed, to assure that businesses that actually need higher levels of service are not trying to use a service level for which they may not be eligible.

**Implementation:** Commercial generators are given the choice of contracting for trash and recycling individually, or using the Community-wide commercial PAYT bag program for trash collection. Program elements including bag sizes and corresponding costs, frequency of collection, and whether there will be any monthly base fees charged for the program need to be determined. Changes to any supporting recycling and composting programs need to be determined; for example, will the programs be offered for free or discounted rates to these customers, what materials will be included, what container sizes are appropriate, as well as other questions. If food-scrap-producing establishments are going to participate in this program, then there must be avenues to provide organics collection to the businesses. The criteria and cost for organics collection need to be determined as well. Billing for any costs must be set-up. It may be helpful to have a few different sized trash bags available for businesses to purchase and these should be made available from the hauler or community, as well as potentially at a number of retail and / or local establishments. To support the program, recycling and / or organics carts may need to be delivered or obtained. Finally, routing changes may be needed, depending on how the program is designed and delivered (by hauler or community, with similar or new types of recycling service, etc.). Either the community or haulers could provide education and outreach about the program. This program can be implemented directly if the community provides service, or potentially via ordinance if private haulers provide service. Alternatively, the community may be able to consider a contract covering all the small generators; however this is considerably more complicated from a legal, coordination, and routing perspective.

**Sectors & Materials:** Businesses in all commercial sectors will benefit from this type of program. However this program works best for businesses that produce less than one cubic yard of trash per week. All types of recyclable materials also can be collected. For food-scrap-producing establishments, there must however be avenues to provide free or low-cost food scrap/compostable collection to these businesses.

**Enforcement:** The most important question for enforcement is confirming the bags are being used. If the participating businesses place waste in the container that are not paid for (in the specially-logoed bags), they are not paying their fair share. Enforcement could be done at the curb by the haulers (although bags in dumpsters are not readily visible). Violations could result in fines, trash left uncollected, or in repeat offenders possible cessation of the special trash service.
**Barriers:** Unless the community already provides commercial collection, one barrier to the program is identifying and reaching out to potential customers; it is not obvious when a business has only one cubic yard of collection once a week (the size of collection is clear, but not the frequency). Thus, obtaining a list of potential participants is not easy, and haulers are unlikely to provide the information, and it is difficult to envision a way they can be forced. Another complexity is that the program will need to deal with a large number of individual businesses. Those on the smallest trash container size are often a fairly high percentage of all businesses in a community. Setting up the program via ordinance is complex, with multiple moving parts. Participating businesses will need to purchase the bags and have a large enough supply of them on the day of trash collection. The costs to the community/hauler for providing subsidized or embedded recycling should be covered by the revenues from the bag purchases (or sector-wide), so this should not be a barrier for this program. Lack of space for storage of the recycling containers could be an issue. The Community must work closely with the haulers and generators to find the best place to store trash containers, look at existing municipal codes covering enclosures to ensure they are not too restrictive (if applicable), and enforce existing codes requiring equal space for trash and recycling in new construction and significant remodels.

**Program Impacts:** Medium: The program impacts from this type of program are medium. The affected businesses are the smaller businesses in a community. They will be encouraged to recycle more in order to reduce their trash costs (an incentive that is enhanced if the recycling program is convenient, embedded, or discounted). The amount of recyclables from all of the businesses will add up to a significant amount and can contribute to overall waste diversion.

**Cost Impacts:** Medium: The cost impacts from this type of program are medium. Businesses can control their trash costs by recycling as much as possible. Since recycling services will be free (embedded), or at least less than the cost of trash service, businesses will save money in this way as well. Businesses that produce more than one cubic yard of trash per week can reduce service and save money, and will likely not benefit from the program (they may be excluded from eligibility). The preferred situation is to have the price of the trash bags cover the cost of collection for the community/hauler; however, given that the point is to reduce bills to small disposers, the cost for the bags will need to total to less than the cost of once weekly, one cubic yard service. Thus, the bags may need to be subsidized by other customers. This will not be an impact to the community, but will be a cost to other commercial generators.

**Community Examples / Population:** Eugene, OR: 157,986; Olathe, KS: 130,045; Richland, WA: 51,440; Tillamook, OR: 4942; Tucson, AZ: 524,295; Stuart, FL: 15,841; San Francisco, CA: 825,863; Toronto, Ontario: 2,503,000

**Sectors:**
- Office or Similar: Target office paper and cardboard
- Restaurants, Bars, and Cafeterias: Target food waste, bottles, cans and cardboard
- Grocery and Similar: Target food waste, cardboard, and plastic film

**Materials:**
- Food Waste / Food Scraps: Will be available only where there is the possibility of food scrap / composting collection; Target restaurants, bars, cafeterias, and grocery or similar; Restaurants and grocery stores are typically the largest generators of food waste and would be affected by a program including this material. Due to the weight of this material, a PAYT bag system could greatly lower their waste costs if they had compost collection available. It is important to
determine local sites that would have capacity to begin accepting this waste stream before requiring haulers to offer food waste services.

- **Yard Waste**: This material often doesn't make up a very large part of the commercial waste stream. The largest generators in this sector are landscape and lawn care. Many jurisdictions at the state or regional level have mandatory yard waste recycling programs and enforce them at the landfills. It is important to determine local sites that would have capacity to begin accepting this waste stream before requiring haulers to offer this service.

- **Bottles & Cans**: Target restaurants, bars and cafeterias
- **Paper**: Target office or similar
- **Cardboard**: Target office, restaurants, bars, cafeterias and grocery or similar

**Considerations by Community Size (if any):**

- **Very Small <10K**: Community size isn't really an issue for this type of program.
- **Small**: Community size isn't really an issue for this type of program.
- **Medium**: Community size isn't really an issue for this type of program.
- **Large**: Community size isn't really an issue for this type of program.

**Outreach / Technical Assistance /Recognition**

**Program Number 20: Education on Bidding or Contracts**

**Description**: Many haulers do not provide contracts or detailed invoices to businesses leaving them unaware of their obligations, specifically when it comes to what they are paying for, what service levels they are receiving, contract rollover, ability to cancel service, or economic advantages of recycling or food waste services. Invoices may only have a reference number for service size, frequency, etc., which makes it hard to comparison shop. Businesses do not realize the savings that might be achieved by working with their current hauler to “right-size” containers and service mix, and may also be unaware of savings they might achieve by going out for new bids for their trash and recycling service. In some cases, businesses did not even know their trash collector might provide recycling service. This program would provide education to businesses to specifically address these issues, either through educational brochures, website information, training seminars, or door-to-door or requested site visits.

**Design Considerations**: Businesses often have legacy service, using the same contractors for many years (and often engaged before the current manager got there) as long as they don’t have a problem. However, the conditions of the contract are often unknown, or there may not even be a contract. The competitiveness of the cost of service is also often unknown to businesses. Some pay for services they aren’t receiving, and others are receiving an inappropriate mix of services that could be remedied by an audit or “right-sizing” conducted in conjunction with their existing hauler (or a new hauler). Some contracts include the clause that the hauler can increase rates without written notice. Often contracts or invoices do not clearly label taxes or fees. In communities in which recycling is not taxed, but solid waste is, if opaque invoicing is used, businesses may not be aware of the savings they could achieve from recycling. Education could involve having businesses request invoices or contracts to contain specific information such as clear labeling of type of material collected (trash, recycling, composting), the price for each, the frequency and size of container as well how to cancel, specific dates of automatic renewal and written notice of rate increases. Determine how involved the approach will be for educating businesses, either through simple mailings and information on the community website, or through door-
to-door or requested site visits, scheduled training sessions, or educational talks at Chamber of Commerce or other business community meetings.

**Implementation:** First of all, budgeting for the program must be determined. Staff must then be trained on hidden clauses that may be included in invoices and contracts, determine the particular services available to the commercial sector, and how to determine the best size of service for the particular business, all of which can be incorporated into the check-list. In order to be knowledgeable about potential savings for the businesses, it is necessary to have knowledge of the rates, container sizes, and requirements for commercial services available from haulers in their area. It is then necessary to set up a format for how businesses sign-up or qualify for a training session. If outreach through a neighborhood sweep is conducted, the community should first get a list of businesses in the neighborhood. Then teams would either go door-to-door to the businesses and have someone go over their current services and potential options, or there can be advance mailings with information for businesses about how to sign up for an evaluation. Web-based information (sample contracts, clauses to look for, solicitation letters, etc.) can be included on a website, and the program could be advertised through a trusted venue like the local Chamber of Commerce, etc.

**Sectors & Materials:** All businesses and all recyclable or compostable materials.

**Enforcement:** None required

**Barriers:** Inertia is the largest barrier; if it is not perceived as broken; businesses don’t feel they have time to fix it. Haulers work hard to make sure there are no problems to retain customers. In addition, many businesses have no control over trash-related decisions (offsite by property management companies, corporate decisions). Decisions may not reflect the actual desires of the business owners, for instance a property owner may provide the same service to all tenants in a strip mall. Educating these businesses may encourage them to approach the owner or property management company with requests to re-bid for service. Commonly businesses are not interested in making changes to trash services, once the service is in place they rarely relook at it.

**Program Impact:** Low to Medium: This program will have a low impact initially, but begins giving businesses the tools to start to look at recycling and composting options. If there has not been any outreach previously, or if there is a single hauler who has not encouraged alternative options to begin recycling or composting, this could have a larger impact.

**Cost Impacts:** Low: This does not have to be a massive outreach campaign, but can be an informal process using existing websites, staff or other materials they may inform the business community.

**Community Examples / Population:** New Jersey: 8,865,000

**Sectors:**

- Offices or Similar: All business types can benefit from this knowledge, but offices will want to look more at savings from recycling options.
- Restaurants, Bars and Cafeterias: All business types can benefit from this knowledge. This will sector will want to look more at savings from recycling options for beverage containers, but especially for options for food scrap service.
- Grocery and Similar: All business types can benefit from this knowledge. This will want to look at savings from recycling options, but especially for options for food scrap service.

**Materials:**
Food Waste / Food Scraps: As this makes up a large percentage of the waste from restaurants and grocery stores, any education and help starting a food scraps program can specifically affect this material.

Bottles & Cans: As this makes up a large percentage of the waste from restaurants, any education and help starting a recycling program can specifically affect this material.

Cardboard: Cardboard is an easy target and affects multiple sectors such as retail and grocery stores. Services for this material are usually available in most markets. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

Considerations by Community Size (if any):

- Very Small and Small: Smaller communities will have less outreach costs associated with this program due to fewer accounts. However, they may not have in place the existing outreach outlets that may currently exist in a larger community. Smaller communities may have fewer options for alternative services due to lack of hauler competition, but information about right sizing trash service and hidden clauses will still be important knowledge.
- Medium and Large: Larger communities may benefit from currently existing outlets for outreach as well as staff hours available for business assistance. They also may have more haulers and competitive services for recycling and composting.

Outreach / Technical Assistance /Recognition

Program Number 21: Business Information and Tips

Description: This program would provide information and education to businesses through brochures, website information, training seminars, or public service announcements in the form of print ads or videos. The information should be directed toward providing practical ways for businesses to reduce their waste for economical and / or environmental benefits. The best information would be tailored by business type, to some degree, and should include multiple languages, as appropriate to the community.

Design Considerations: Education and outreach to businesses can help identify savings, access, case studies, and other information that can encourage recycling at a business. Note that information about savings achieved by other businesses in the same industry are most effective (hospital story for hospitals, etc.), and articles or case studies authored by individuals in the field (perhaps ghost written or assisted by community staff to get them completed) are well-received. The types of recycling programs in place in other businesses, or the savings achieved by changing janitorial practices may provide practical examples to businesses. Information might include facts about contracts and invoices: savings from right-sizing; the influence of material-specific taxes that could lead to savings; or suggestions to reach out for new service bids or review their bills for potential savings. The Community could provide information on right sizing trash needs based on business size or activity, and options for finding space for recycling containers. Outreach materials may contain a list of all service providers of recycling and composting options and what questions a business should ask when looking for these services. It will need to be determined if there is there a specific hauler who would be willing to help work with this effort and provide information. Determine if outreach materials need to be translated into other languages. If trying to target specific materials, there are numerous videos available on line that show the impact of not recycling, such as plastic bags. Links to these sites could be included in materials or on the community / county website. Do not forget social media sites as a source for providing information.
If planning mailing materials, some programs address every business in town, others target only the largest generators, or some target only ones of a specific type.

**Implementation:** Determine what type of budget you will have and whether the design of materials will be in-house or hired out. Information that can be posted on a current website or other public information venues such as a newsletter will be less costly than new mailings. Catchy phrases are easier to remember and help create interest such as a kid’s crayon drawing saying "don't trash our future" or "don't be trashy, recycle", and "Recycling Plastic, feels fantastic!" Creative ideas can be found on sites such as sloganonenvironment.com and many others such as paytnow.org. Be sure to provide information that will help businesses to get employees to "buy in" to the program, including downloadable signage on what can be recycled. If developing all new materials or a campaign, focus groups can provide specific feedback of how well the message will resonate with the target audience. Staff should be trained and knowledgeable of all publicized information and programs.

**Sectors & Materials:** All businesses and all recyclable or compostable materials.

**Enforcement:** Not required

**Barriers:** Lack of interest, materials with poorly written or non-specific information.

**Program Impact:** Low: This program will have a low impact initially, but begins giving businesses the tools to start to look at recycling and composting options. This program could have a large impact if outreach has previously been overlooked, or if a single hauler provides services, such as composting, but does not encourage use of this service.

**Cost Impacts:** Low: This will most likely be a low cost program but could adjust upward depending on the aggressiveness of the approach (hiring campaign consultants or graphic designers, mailing to all of the business community, etc.).

**Community Examples / Population:** n/a

**Sectors:**

- Offices or Similar: Information addressed to offices will most likely target office paper and small containers such as water bottles and gable top containers. Most businesses will at least have a small office.
- Restaurants, Bars and Cafeterias: Restaurants and cafeterias are one of the largest generators of food waste and would be most affected by outreach including this material. Due to the weight of this material, a food scrap program could greater lower their waste costs if they had compost collection available.
- Grocery and Similar: Grocery stores are typically the one of the largest generators of food waste as well as cardboard and would be most affected by outreach including these materials. Due to the weight of food scraps and the bulkiness of cardboard, recycling and composting services could greater lower their waste costs.

**Materials:**

- Food Waste / Food Scraps: This program can be very effective in drumming up interest in a food waste program, especially if effective outreach materials highlight the cost savings of downsizing trash once food waste service is established. If there are haulers that currently provide this service, it may be possible to partner with them at least on some of the outreach materials.
• Bottles & Cans: Target restaurants, bars and cafeterias
• Paper: Target office or similar
• Cardboard: Retail is one of the largest generators of this material as well as grocery stores.

Considerations by Community Size (if any):

• Very Small <10K: In a very small community it may be possible to contact a greater percentage of businesses. However the necessary financial support for a larger outreach campaign may or may not be present. This can be greatly influenced through the support of community councils and chambers of commerce. Smaller communities also may not have hauler who offers adequate recycling or food scrap programs due to lack of resources. It must be financially feasible from the hauler standpoint as well; therefore there must be enough accounts for a full haul which may be more difficult in a very small town.

• Small: The necessary financial support for business may or may not be present in a small community. It will probably be necessary to limit the number of businesses that are targeted. Program support can be greatly influenced through the support of community councils and chambers of commerce. In some communities, chamber of commerce members have helped provide outreach.

• Medium: In a medium-sized community the necessary financial support for business outreach contact may or may not be present. It most likely will be necessary to limit the number of businesses that are targeted. There is often the desire to save money and meet diversion goals, so commercial recycling/composting/food scrap programs are often seen as a means to help with this and thus some sort of funds are available to provide assistance to the businesses.

• Large: The necessary financial support for business outreach may or may not be present in a large community due to the large scale of outreach needed to contact all businesses. Community leaders often have some diversion goals, so commercial recycling/composting/food scrap programs are often seen as a means to help with this and thus some sort of funds are available to provide outreach. Large communities have more potential to find enough businesses on a route to make it financially feasible for a hauler to offer food scrap service if none is currently available.

Outreach / Technical Assistance /Recognition

Program Number 22: Business Recognition Program

Description: Many businesses will take any opportunity available to distinguish themselves from their competitors. Businesses often respond positively to an invitation to become part of the community “green business program” and show their commitment to the environment and sustainability. The community can establish a program that awards points for recycling programs, use of less toxic materials in manufacturing or services, and other green behaviors. Interested businesses can request an inspection, and be granted recognition if they meet the minimum thresholds, according to the criteria. Visible decals for business doors or windows, and the right to advertise the status should be part of the program. Recognition is the key to this program’s success. This allows them to display decals in their windows that show they are a "green business", to receive a framed "green certificate" to hang in their building, and to be recognized as a "green business" on the Community’s website, in Community publications, at community meetings, on the Community’s Facebook page and on the Community’s
Twitter accounts. In addition, sustainability practices in the business world can save the businesses money, as well as improve their recognition and image.

**Design Considerations:** A graduated program of one, two and three stars or points is helpful to give the businesses something to move toward after achieving the initial level. This will lead to an increase in their efficiency, higher green levels, and more diversion of recyclable materials. There should be some kind of window decal available for achieving the first level. Receiving a framed "green certificate" to hang in their building that shows the years that they achieved the particular "green" level can be useful too as it demonstrates year to year participation. As a reward for higher numbers of stars or points, being recognized as a "green business" on the Community's website, in Community publications, at community meetings, on the Community's Facebook page and Twitter accounts can provide additional kudos. The "green" designations should expire after one year or some defined time so the businesses have to continue to demonstrate and hopefully increase green business practices over time. Application renewals could possibly be abbreviated or streamlined.

**Implementation:** Implementation of this program can be done in-house and has a quick turn-around time. First the community must get the support of elected officials and stakeholders. Staff can identify key criteria by business type (or can start with one business type for a pilot, and then expand); these programs exist in many other communities, and their forms or checklists may be very appropriate for other communities. These designs can be modified to identify criteria for the local program, what measures will be rewarded; the thresholds for number of stars or points. Many programs cover more than just recycling, including recycling and waste reduction, water and energy conservation, pollution prevention, energy efficiency, alternative transportation, and green purchasing policies. The community will have to figure out the process for businesses to apply to get their green recognition from the program with an on-line application usually making the process easier and faster. On-site visits may be necessary to confirm the compliance with the program parameters or terms listed on the application. Whether a business is earning stickers posted to post in a window, being featured in a newsletter, and/or being listed on a website, a clear differentiation of the levels of "green" is necessary. Some communities review the criteria they establish with a focus group of the business type or types covered by the program to inform them and to tweak criteria based on how the criteria will fit with their practices and community goals – and gather feedback on whether the businesses feel they are too aggressive or not aggressive enough. The community can advertise the program through the chambers of commerce and other channels. Finally the community will accept applicants, assure compliance, distribute the stickers / points, and grant the proper recognition. The community's Chamber of Commerce can arrange the above mentioned programs as well.

**Sectors & Materials:** This program would apply to the commercial sector and could include all recyclable materials as well areas such as waste reduction, water and energy conservation, pollution prevention, energy efficiency, alternative transportation, and green purchasing policies. Sometimes the Community’s Chamber of Commerce runs these programs.

**Enforcement:** Compliance and enforcement are important. It is best to resolve any issues with the program requirements as stated on the businesses’ application before they are officially accepted into the program. It is important to have a site visit prior to awarding any recognition. If after being awarded recognition the business changes its practices so it is no longer compliant with the terms of the program, then application for the next year's program could be denied or put on hold until the issue is resolved. Perhaps a mid-year evaluation could be performed on non-complying businesses.
**Barriers:** Elected officials or stakeholders may not see the value of or promote this type of program. There may be some discord over what measures and levels are to be included in the program. Some businesses may feel forced to participate to "keep up with the Joneses". Some businesses also may need to be educated about measures they can take to participate. Having Community staff monitor the compliance of the businesses as well as run the program could be costly and time-consuming. Long-term maintenance of recognition programs is very important and some communities don’t plan for year - after - year promotions.

**Program Impacts:** Low to High: Impacts will vary based on the particular program requirements, recognitions, and community/staff involvement. If the requirements are more stringent, then there may be less participation and therefore recognition. If the recognition isn't more than a decal, then businesses don't have a lot of incentive to participate as well. If there is minimal outreach and Community involvement, it will take longer for the program benefits to become known. Impacts are driven by the number of participants, and the degree of behavior change required meeting the qualifications.

**Cost Impacts:** Low: Most of the costs will be incurred during implementation of the program and will involve deciding on the requirements, creating an application, advertising the program, and getting the businesses signed-up. The largest cost will most likely come from the initial checks for program compliance before the applications are processed. Once the program is established and if the re-application process is simplified, the costs will decrease, but there will be some small costs associated with ongoing recognition.

**Community Examples / Population:** Will County, IL: 682,518; Long Beach, CA: 467,892; Village of Downers Grove, IL: 49,399; East Tennessee, TN: 3,119,505; Rancho Cucamonga, CA: 170,746; Central PA, PA: 1,781,295; Knoxville, TN: 182,200; Thousand Oaks, CA: 128,412; Chicago, IL: 2,715,000; Houston, TX: 2,161,000; Lexington, KY: 305,489; Austin, TX: 842,592; Portland, OR: 603,106;

**Sectors:**
- Office or Similar: Focus on recycling office paper and cardboard; reducing waste, green purchasing, energy efficiency and conservation
- Restaurants, Bars and Cafeterias: Focus on recycling glass, cardboard, food waste and compostables; reducing waste, water and energy conservation, energy efficiency, green purchasing, and alternate transportation
- Grocery and Similar: Focus on recycling cardboard, food waste and compostables; reducing waste, water and energy conservation, energy efficiency, green purchasing, and alternate transportation

**Materials:**
- Food Waste / Food Scraps: Target restaurants, bars, cafeterias, and grocery or similar
- Yard Waste: This material often doesn't make up a very large part of the commercial waste stream.
- Bottles & Cans: Target restaurants, bars and cafeterias
- Paper: Target office or similar
- Cardboard: Target office, restaurants, bars, cafeterias and grocery or similar

**Considerations by Community Size (if any):**
• **Very Small and Small:** In very small and small communities there often aren't too many businesses, and community/staff may be able to monitor for program compliance. However there still may not be enough money in the budget to allow for this and the ongoing recognition. There also may not be quite as much competition among similar businesses, so the program may not have quite as much impact.

• **Medium and Large:** In medium-sized and large communities, it can be impractical or take too much time for community/staff to monitor for program compliance since there are quite a large number of businesses. Since there are often many businesses of similar types, this program can provide recognition and advantage to the "green businesses".

**Outreach / Technical Assistance /Recognition**

**Program Number 23: Commercial Outreach / Social Marketing**

**Description:** This program involves outreach and social marketing with neighborhood sweeps engaging and informing the commercial sector in recycling & composting options.

**Design Considerations:** Deciding how much education and outreach is enough, or good enough, is complicated. Traditional education on solid waste and recycling programs has rarely been measured, and it is difficult for traditional methods to compete with the big-budget expenditures by product manufacturers like Proctor and Gamble™ or McDonalds™. Effectiveness must be part of decision-making on outreach and education. Some studies are indicating that social marketing may be a stronger way of achieving the types of behavioral change desired to increase recycling (see source below). Social marketing uses traditional marketing techniques combined with sociological and psychological concepts to change target behaviors, typically focusing on actions with a positive social value. Social marketing, or community-based social marketing (CBSM) argues that engaging personal commitments, social interaction, pledges, and other personal responsibility elements to achieve behavioral change can be more effective than traditional broad-based, impersonal advertising. CBSM literature implies that programs based on this approach provide greater participation and behavior change, penetration to previously unconverted participants, and greater retention of the behavioral change. Social marketing uses traditional marketing techniques combined with sociological and psychological concepts to change target behaviors, typically focusing on actions with a positive social value. Social marketing is not the same as social media. Although social marketing campaigns often incorporate web-based tools and social media sites, social marketing is an overall approach to behavior change while social media is a tool in the arsenal. Traditional efforts that include sending out fliers or placing advertisements in local media do not constitute an effective social marketing campaign. If a community decides to invest in recycling education, knowing how to effectively spend those education dollars on a campaign that actually changes behavior is important. Understanding the barriers to participation, including personal and environmental barriers, knowing the motivations to participate, and the factors that influence decision making, are all key to effectively changing recycling and diversion related behaviors. Traditional education campaigns that simply provide information to raise awareness are not enough.

**Implementation:** Social marketing, or community-based social marketing (CBSM) has been receiving growing attention for the last 15-20 years. This strategy (with proponents Doug McKenzie-Mohr, Wes Schultz, and William Smith) argues that engaging personal commitments, social interaction, pledges, and other personal responsibility elements to achieve behavioral change can be more effective than traditional broad-based, impersonal advertising. Social marketing approaches recommend structuring
programs based on five key elements: 1) commitments to behavioral change (written commitments, public or group commitments, active involvement, leveraging from existing points of contact, helping people view themselves as concerned); 2) prompts (noticeable, self-explanatory, proximate, encouraging); 3) norms (evolution of visible community norms, reinforced by personal contact); 4) incentives (paired to behavior, rewarding, visible, monetary and non-monetary); and 5) communication (credible, well-framed, personalized, memorable, goal-oriented, feedback-providing) to effect changes and participation. CBSM literature implies that programs based on this approach provide greater participation and behavior change, penetration to previously unconverted participants, and greater retention of the behavioral change. See, as a practical recycling-related resource, Skumatz, Lisa A., Ph.D., and D. Juri Freeman, “Getting the Most from Colorado’s Recycling Programs and Infrastructure: Best Management Practices, Impacts, and Cost-Effectiveness of Social Marketing”, Skumatz Economic Research Associates, Superior, CO, May 2011.

Sectors & Materials: This program can be applied to all sectors and materials

Enforcement: Enforcement is not specifically needed for this program, but follow-up for pledges, commitment, etc will be very important.

Barriers: Elected officials or stakeholders may not see the value of or promote this type of program. There may be some discord over what measures and levels are to be included in the program. Educating decision makers may be a necessary first step.

Program Impacts: Low: This may adjust upward depending on types of social marketing and commitments.

Cost Impacts: Low to Medium: Costs to the businesses will be low, but for the community it will vary depending on percentage of businesses approached, type and cost of media used and amount of follow-up.

Community Examples / Population: North Carolina: RE3 project; Raleigh, NC: 403,892; Tacoma, WA: 198,397; Denver, CO: 600,158; California, used oil program, CalRecycle; Broadlands, CO (report at http://www.colorado.gov/cs/Satellite?blobcol=urldata&blobheadername1=Content-Disposition&blobheadername2=Content-Type&blobheadervalue1=inline%3B+filename%3D%22Skumatz+Economic+Research+Associates+(SERA).pdf%22&blobheadervalue2=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1251888397052&ssbinary=true) Broadlands CO project: www.serainc.com

Considerations by Community Size (if any):

- Very Small <10K: A very small community may have additional cost considerations. They may not have the availability to produce some materials in house or the available staff needed to devote to this process. However, small communities may have more personal contact with business owners on a regular basis and fewer businesses to contact.
- Large: Larger communities may face additional costs due to larger number of businesses to reach and larger geographical areas to canvas. They may benefit from more available staff and the potential to produce materials in house.

Outreach / Technical Assistance /Recognition
**Program Number 24: Outreach on Food Scraps Diversion / Door-To-Door**

**Description:** Many businesses, especially small businesses are unaware of the significant cost savings resulting from diverting food scraps, food-soiled paper, and compostable plastics from their trash service. Through outreach, specifically door-to-door interaction, a community can target those businesses that would most likely benefit from a composting service for food scraps and compostable materials. In the process they can educate those businesses about the economic benefits and logistics of the program. Door-to-door programs provide an opportunity to make a connection and provide tailored information, and especially effective if designed with social marketing principles as part of the program (a focus on motivations and barriers). This form of outreach also allows jurisdictions to gain valuable insight into the amount of interest in and the barriers to composting through direct feedback.

**Design Considerations:** The cost of door-to-door service is higher than general mailed materials; however, the impacts appear to be higher (demonstrated in literature from the solid waste field, as well as “get out the vote“ election staff, who use this as a core technique). Given the cost, the community may focus first on one or two sectors, or one or two neighborhoods / districts, working their way through the community over a number of years. The community then prepares suitable outreach materials, either using traditional education approaches, or preferably, integrating key messages from the social marketing literature, which incorporates elements of motivations and barriers, which may improve uptake of strategies and behaviors (see Skumatz and Freeman 2011 toolkit on the topic prepared for the Colorado CDPHE, or numerous Doug McKenzie-Mohr references on-line). In addition to door-to-door outreach, social marketing tools can help create the incentive for businesses to change their attitudes and behavior in dealing with waste. Determine if outreach needs to be translated into other languages. Is there a specific hauler that may be willing to help work with this effort or will outreach materials contain a list of all service providers? Advance notice mailings can be helpful to alert business owners and establish validity to outreach workers. If there are haulers that currently provide this service, it may be possible to partner with them at least on some of the outreach materials or follow-up regarding programs. Determine what percentage of businesses will be covered in this outreach campaign. Some communities target only the largest generators, while other target all businesses in a certain geographic area, or specific business sectors such as grocery stores.

**Implementation:** The community, or community plus hauler, would identify how many door-to-door business visits can be conducted within the available budget. Choices can then be made about the phasing of the door-to-door visits. Will they start with biggest businesses, or will that require more specialized expertise than the staff possess about business operations? Should they instead focus first on medium or smaller businesses, which will more likely benefit from the types of general information addressed by these types of door-to-door programs (and perhaps even hire specialists to work with any large businesses that don’t already have dedicated sustainability specialists)? Neighborhood sweeps also work quite well for medium-to-small businesses, with the outreach staff walking from business to business. This tends to save significant time in scheduling, etc. Understand the businesses in the target area (geographic area or target sector) to determine any language barriers as well as motivations and potential barriers. Provide materials that will address common questions such as cost, space, and odors, and provide information to make signing up for service as easy as possible with phone numbers, questions to ask, and how and where to place containers. While the cost of door-to-door outreach and developing social marketing tools may be more costly than simple mailings, they are also more effective and have longer lasting results. Many sites are available on-line providing social marketing tools (including www.cbsm.com; or www.socialmarketinghowto.com, or others). Working with a business
association can also provide legitimacy and inclusiveness and help determine in advance possible motivators or barriers.

**Sectors & Materials:** Food scraps, food-soiled paper and compostable plastics are the materials that would be targeted.

**Enforcement:** None

**Barriers:** Depending on the community demographics there may be language barriers. Many businesses are reluctant to invest time in researching alternative services once their initial service is in place. Also composting infrastructure must be in place before food scraps / compostables collections can be implemented.

**Program Impact:** Low to Medium: This program will have a low impact initially, but begins giving businesses the tools to start to look at composting options. If there has not been any outreach previously, or if there is a single hauler who has not encouraged alternative options such as composting, but provides this service, this could have a larger impact.

**Cost Impacts:** Low to Medium: This will most likely be a low cost program but could adjust upward depending on the aggressiveness of the approach (multiple visits, complete canvassing of business community, etc.).

**Community Examples / Population:** San Francisco, CA: 825,863

- **Restaurants, Bars and Cafeterias:** Restaurants and cafeterias are one of the largest generators of food waste, food-soiled paper, and compostable plastics and would be most affected by a program including this material. Due to the weight of this material, a food scrap collection program could greatly lower their waste costs if they had compost collection available. It is important to determine local sites that would have capacity to begin accepting this waste stream before actively promoting this to businesses.

- **Grocery and Similar:** Grocery stores are typically the one of the largest generators of food waste, food-soiled paper, and compostable plastics and would be most affected by a program including this material. Due to the weight of this material, a food scrap collection program could greatly lower their waste costs if they had compost collection available. It is important to determine local sites that would have capacity to begin accepting this waste stream before actively promoting this to businesses.

**Materials:**

- **Food Waste / Food Scraps:** This program specifically targets food scraps, food-soiled paper, and compostable plastics. It can be very effective in drumming up interest in a food scrap program, especially if combined with social market tools and effective outreach materials. If there are haulers that currently provide this service, it may be possible to partner with them at least on some of the outreach materials.

**Considerations by Community Size (if any):**

- **Very Small <10K:** In a very small community it may be possible to contact a greater percentage of businesses. However the necessary financial support for the door-to-door outreach may or may not be present. This can be greatly influenced through the support of community councils and chambers of commerce. Smaller communities also may not have hauler who offer food scrap programs due to lack of resources. It must be financially feasible from the hauler
standpoint as well; therefore there must be enough accounts for a full haul which may be more difficult in a very small town.

- **Small:** The necessary financial support for businesses may or may not be present in a small community. It will probably be necessary to limit the number of businesses that are approached. Program support can be greatly influenced through the support of community councils and chambers of commerce. In some communities, chamber of commerce members have provided door-to-door outreach.

- **Medium:** In a medium-sized community the necessary financial support for business outreach and door-to-door contact may or may not be present. It most likely will be necessary to limit the number of businesses that are approached. There is often the desire to save money and meet diversion goals, so commercial recycling/composting/food scrap programs are often seen as a means to help with this and thus some sort of funds are available to provide assistance to the businesses.

- **Large:** The necessary financial support for business outreach and door-to-door contact may or may not be present in a large community. Often the desire to save money and meet diversion goals is prominent, so commercial recycling/composting/food scrap programs are often seen as a means to help with this and thus some sort of funds are available to provide assistance to the businesses. Large communities more potential to find enough businesses on a route to make it financially feasible for a hauler to offer food scrap service if none are currently available.

**Outreach / Technical Assistance /Recognition**

**Program Number 25: Business Technical Assistance / Audits (materials, practices, diversion, rightsizing, bidding)**

**Description:** This program uses municipal staff (or in some cases, specialized business sector experts or consultants) to provide technical assistance and waste audits to interested businesses. Successful technical assistance programs utilize waste audits and include estimates of potential monthly savings to help businesses right-size their trash service as well as provide information about bidding RFPs for commercial waste service. By right-sizing trash service businesses can save on their monthly bills and increase diversion and through tips about bidding businesses could get the best waste service possible. The program is voluntary and increased participation is common, because of the economic incentive (decreased monthly bills). Mandatory commercial recycling would increase the demand for this type of program.

**Design Considerations:** These audits are usually conducted on a sign-up and scheduled basis; however, neighborhood sweeps are sometimes used, with staff knocking on doors for every business in an area and engage, and conduct a waste audit. Technical assistance is usually provided by experienced, trained municipal staff, or by experts or specialized consultants hired by the jurisdiction. Some programs use a simple check-list for the audit covering the amount of each recyclable material generated a potential amount to be diverted, and / or saved. In addition, a free, on-line how-to-guide is available to download for businesses? This approach is usually used for small and medium businesses. The website should also contain information on bidding RFPs for commercial trash and recycling service. By bidding for new service, businesses can end up saving money on both new and revised services. Coordinating with other agencies (energy, water) for multi-resource audits can also increase the effectiveness of the program. Another alternative is to hire a consultant or business expert to conduct the outreach along with more
detailed audits; this is essential for large businesses, which are reluctant to take advice from “generalists” who do not know their industry well. An alternative and more aggressive approach is for a community or county to adopt an ordinance or licensing requirement dictating that haulers must offer free technical assistance to eligible businesses. This would decrease program costs to the community. Evaluation of program success will be important. It is not just how many businesses are spoken with, but how many actually implement recommendations and maintains an appropriate level of service.

Implementation: After determining the available budget and the number of businesses that can be visited or assisted, the target should be identified. Will the program use sector, size, or neighborhood approaches? The next steps are to research barriers and motivations for the group (feel free to look to the literature, to case study cities below, or conduct a few simple surveys or focus groups). Prepare materials tailored to this group. If you are going to spend the money to go door-to-door, it is worth spending the little extra money to prepare appropriate supporting materials. Suitable or adaptable materials may be available from other communities (look on-line, or make some calls). Staff (or consultants or experts) must then be trained to conduct the audit, becoming familiar with the particular materials that businesses can divert from their waste stream, and how to determine the best size of service for the particular business. This information can be incorporated into a supporting check-list, which can organize the audit (and keep it efficient) and provide a product that can be left with the business. The auditor should be familiar with area trash and recycling rates. This is harder than it sounds, as commercial rates are generally negotiated, and not “fixed” across the sector. Calling around to a few businesses to get copies of their bills may help on this topic (preferably, call enough to get samples representing several haulers). In order to be knowledgeable about potential savings for the businesses, it is necessary to have knowledge of the rates, container sizes and requirements for commercial services that are available from haulers in their area. This helps identify changes to in-house behaviors and practices that can not only divert more, but save money. Depending on program funding, the Community may potentially have to limit the number of audits offered, so qualification criteria may need to be advertised (and the technical assistance / auditor staff must know who is eligible). For a neighborhood sweep approach, a list of businesses in the area will be helpful, and several teams of two (consisting of staff and / or volunteers) are supplied with clipboards and forms, visit businesses during the slow part of the businesses’ day and confirm that they represent the Community. If the manager or appropriate person is not available at that time, the team may want to leave a card with a phone number that the person can call to set up an appointment to meet on a later date. Then the teams ask to walk around the space, walk through the checklist, inspect the trash and recycling containers, and ask about materials generated, procedures, and customers. They can then discuss the materials that are the biggest problems with the business manager and talk about right-sizing. The staffers / volunteers can say that the Community will follow-up in three to six months to see if they adopted any of their suggestions or if the suggestions were useful. This follow-up can provide valuable information; in addition, knowledge that a follow-up will happen has been found to significantly increase uptake of behavior change. Another more formal approach to outreach is to issue an RFP to hire a consultant to provide the outreach. This requires developing a Request for Proposals (RFP), outlining the general scope, goals, design and technical level(s) of the audit, expected business sectors to be visited qualifications / experience requested, evaluation criteria, and available budget. The RFP should also clarify whether the community or contractor will be responsible for recruitment, and should require detailed progress reports, and specify the types of reports to be developed as an outcome of the audit. The responses should also identify the technical expertise, estimated length of time per audit, and other information.
Sectors & Materials: All sectors of businesses can benefit from waste audits through this program. However, it makes the most sense for places with food licenses and food waste to gather information on their disposal of food waste and compostables, for businesses that serve liquor and other drinks to focus on bottles and cans, and for offices and similar to find out about their paper and cardboard disposal.

Enforcement: NA

Barriers: Conducting successful technical assistance takes knowledgeable staff and significant staff time. Several communities (San Jose, CA, Alameda StopWaste) reported that they spend as much as 20 hours per year providing technical assistance with each of their largest business participants. Each county, community, or hauler can only assist a limited number of businesses per year and the program does not impact the entire sector.

Program Impacts: Low to Medium: The program impacts for this type of program can be relatively low. Costs can increase if a more detailed technical audit, or case study, is performed using consultants or business sector experts. More businesses can potentially be reached through a door-to-door, concentrated neighborhood sweep and as a consequence, program tonnage impacts may be higher; however, the “bang for the buck” may also be improved by selection of business types that the community may know has particularly weak existing recycling. Staff training would positively impact the success of the program; few large businesses react well to having “generalists” advise them on their operations, as their operations are often complex and specialized. In these cases, consultants or experts may have greater knowledge and experience, and their credibility may result in more businesses adopting their suggestions.

Cost Impacts: Low to Medium: The costs for this type of program can be relatively low if a neighborhood sweep is conducted to medium if a consultant is hired.

Community Examples / Population: Salt Lake City, UT: 186,443; Seattle, WA: 634,535; San Francisco, CA: 825,863

Sector:
- Office or Similar: Target office paper and cardboard; can be pretty easy to audit since there is a limited waste stream.
- Restaurants, Bars, and Cafeterias: Target food waste, bottles and cans and cardboard
- Grocery and Similar: Target food waste, cardboard, plastic film and wooden pallets

Materials:
- Food Waste / Food Scraps: Target restaurants, bars, cafeterias, and grocery or similar
- Yard Waste: This material often doesn't make up a very large part of the commercial waste stream.
- Bottles & Cans: Target restaurants, bars and cafeterias
- Paper: Target office or similar
- Cardboard: Target office, restaurants, bars, cafeterias and grocery or similar

Considerations by Community Size (if any):
- Very Small <10K: In a very small community it may be possible to assist a greater percentage of businesses. However, the necessary financial support for the audit and business assistance may
or may not be present. This can be greatly influenced through the support of community councils and chambers of commerce.

- **Small:** The necessary financial support for business audits and technical assistance may or may not be present in a small community. It will probably be necessary to limit the number of businesses that receive assistance. Program support can be greatly influenced through the support of community councils and chambers of commerce.

- **Medium:** In a medium-sized community the necessary financial support for business audits and technical assistance may or may not be present. It most likely will be necessary to limit the number of businesses that receive assistance. There is often the desire to save money and meet diversion goals, so commercial recycling/composting programs are often seen as a means to help with this and thus some sort of funds are available to provide assistance to the businesses.

- **Large:** The necessary financial support for business audits and technical assistance may or may not be present in a large community. There is often the desire to save money and meet diversion goals, so commercial recycling/composting programs are often seen as a means to help with this and thus some sort of funds are available to provide assistance to the businesses.

**Market Development**

**Program Number 26: Market Development**

**Description:** The emphasis of this program is market development, including grants for businesses, co-location of waste and re-use businesses, subsidies for business plans, business redevelopment zones, helping design specifications for recycled product or use of recycled product, and outreach to users to familiarize with recycled goods that can replace virgin materials.

**Design Considerations:** The best way to increase recycling is to draw the materials through the system long-term by improving demand. If a (recycled) commodity is in strong demand, demand increases price, and economics should start to favor its increased recovery and recycling. Strategies that have been attempted in the area of market development include: technical or financial assistance with Recycling Business Plans; assistance in R&D or development; subsidies or incentives for co-location of businesses (in which inputs from one are the discards of a neighboring business, or a town that actively seeks out or identifies potential co-locaters); or grant programs (one grant program provided discounts of 50% toward the purchase of recycled content supplies by schools and institutions). Another strategy that addresses market development can be minimum content standards. If a community (more commonly a state) directs, for instance, that all newspapers published in the state shall have no less than X% recycled content, or that all municipal road contracts must use some percent of glass for aggregate or (local) compost along roadsides, that can drive demand for recycling of the relevant products.

A less costly alternative may be working with an existing local or regional manufacturer to procure materials from local sources. This way programs could be developed that have an established market or the community could partner with the manufacturer to develop a program such as working with a glass manufacturer and developing programs targeting bars and restaurants.

However, generally, recyclables are commodities, and businesses make decisions based on millions of dollars. If a market development program is not designed well and monitored closely, no true impact will result. Recycling markets are international and hard to affect on a worldwide basis. The two markets that this is not quite true for are compost, and glass, both of which have high transportation costs.
relative to their values; their markets are more local in nature, and there is somewhat more realistic
potential of a program having an effect on tonnage generated or used / recycled (at an affordable cost).
Getting a recycling or recycling-using business to locate in a community is a very expensive undertaking.
Tax and other subsidies in the millions are used to influence business locations; it is rare that an
incentive from a recycling agency can have a strong effect (except in some cases where assets as
valuable as land or expedited permitting, etc. have been offered). As a community plans or designs a
market development program, one element that is strongly recommended is to assist businesses that
already have a viable product or some “skin in the game” get toward “economies of scale”, rather than
assisting a brand new business or concept without this investment. Money is tight; some programs that
assisted in business plans or other infant stages were left with many business plans, but no product; the
plans went no further. If assistance is provided (particularly R&D, etc.) and public funds are used, then
contracts should specify that inventions and processes funded through the grant cannot be held private
or patented, and this needs to be enforced. This was a problem for other programs.

Implementation: Understanding existing local market conditions, products, and available materials in
local waste streams is key to successful implementation of this type of program and will help distinguish
what materials will have the most impact on recycling as well as what type of material is underutilized in
manufacturing. If business development is not staff strength, consider hiring a consultant. Determine
what type of financial incentives or assistance is available. Grants may be available through state or
national sources. Understand legalities such as non competitive clauses that may influence decisions.
Assemble stakeholders such a local manufacturers, business associations, and even local educational
institutions to help provide insight, identify barriers, and discuss potential development solutions.
Community support will also help elected officials during the approval process. There are multiple
examples to follow for successful programs such as Clean Washington Center. CWC had a program to
help produce the specifications necessary for engineers / public works / builders to use recycle content
products, (see source information); California established Recycling Market Development Zones. The
Recycling Market Development Zone (RMDZ) program combines recycling with economic development
to fuel new businesses, expand existing ones, create jobs, and divert waste from landfills. This program
provides attractive loans, technical assistance, and free product marketing to businesses that use
materials from the waste stream to manufacture their products and are located in a zone.” (Sources
include Clean Washington Center, http://www.cwc.org/; California Recycling Market Development
Zones, http://www.calrecycle.ca.gov/RMDZ)

Sectors & Materials: All sectors and materials can benefit from this type of program; however, much will
depend on specifics of individual communities. Typically it targets materials that are local or regional to
work to leverage lower transportation costs to local businesses, and to capture the job creation effects
locally. Other beneficial materials include those that are mostly local markets (glass, organics). In one
area of the country steel/tin cans may not be marketable, but in another a local manufacturer may have
found a specific use, or local use creating demand.

Enforcement: Enforcement again will vary depending on the type of assistance provided. Clear and
specific contracts will help reduce enforcement issues.

Barriers: If a market development program is not designed well and monitored closely, no true impact
will result. Recycling markets are international and hard to affect on a worldwide basis. Getting a
recycling or recycling-using business to locate in a community is a very expensive undertaking.

Program Impacts: Low to varying:
Cost Impacts: Medium to High:

Community Examples / Population: Columbus, OH: 787,033; The State of California; Washington State

Considerations by Community Size (if any):

- Very Small <10K: Very small communities may have less financial resources as well as materials available for this type of program. If they are a rural community, they may have the space available for site development, such as a compost facility that may be difficult to establish in a larger or densely populated community.

Small Businesses

Program Number 27: Small Businesses Added to Residential Curbside Program

Description: In this program, cities and / or haulers agree (or are required or contracted) to pick up the recycling from small businesses that don’t produce a large volume of recycling and are located along already existing residential trash or recycling routes. This often allows the businesses to get a cheaper rate than they would from other commercial haulers, or there may be no additional charge for recycling service if residential recycling rates are already embedded in the cost of service. It addresses the barriers that small businesses nearly always encounter: commercial trash plus commercial recycling is more expensive than trash only.

Design Considerations: The businesses enroll and sign a contract that allows them to receive service that is similar to the residential service provided. There are usually restrictions on the frequency of collection and the type and amount of recyclable materials that can be collected to be the same as residential requirements. Commercial contracts would contain parameters similar to those of the residential service, and pricing would be similar as well. Since residential recycling services are included in either residential property taxes, or utility bills, the cities / haulers would have to determine how they will bill their commercial customers, or whether they will offer this service free of charge. Also, the community / hauler will have to decide whether to supply and deliver the appropriate containers to the businesses, or have the businesses supply their own. Either the cities or haulers could provide education and outreach about the program. This is a program that may work better if there are at least larger sections of residents that are serviced by one hauler / municipality rather than having multiple haulers. However if multiple haulers have customers spread throughout an area, this can potentially increase the chances that businesses are already on an existing residential route for some hauler, and thus may give businesses more choice in their service.

Implementation: Existing community / hauler contracts could be amended, or new Request for Proposals (RFPs) for recycling service issued that would offer service for small businesses that are located on existing residential routes that only produce small amounts of recyclable materials. Commercial contracts would contain parameters similar to those of the residential service, and pricing would be similar as well. Businesses could then enroll in the program or sign a contract for service. Cities / haulers would have to determine how they will bill their commercial customers, or whether they will offer this service free of charge. The community / hauler will have to decide whether to supply and deliver the appropriate containers to the businesses, or have the businesses supply their own (this is usually treated the same as residential, with containers provided by the hauler). The community will also need to designate whether the community or hauler (or both) will provide education and outreach to
businesses about the program. These programs are easy for the community / hauler to implement. In most cases the containers are 96 gallon carts (or wheeled containers) that easily fit into existing trash shelters; this addresses another constraint experienced by small businesses wishing to recycle.

Sectors & Materials: Small businesses that are eligible for this program will satisfy the following conditions: they don’t produce too many recyclable materials, they are located along existing routes where residents have contracted or municipal curbside recycling pick-up, and their recyclable materials are the same type as those that are already collected from the residents. These will usually include the standard recyclables and sometimes food waste / compostable collections.

Enforcement: Enforcement of types of recyclable materials accepted for collection, volume of recyclables allowed for each collection, as well as landfill bans could be done by either the cities or the haulers. This would need to be done at the curb before the materials from the businesses are mixed in with the residential materials. Violations could result in cessation of service and potentially increase collections rates.

Program Impacts: Medium to High: The program impacts will vary based on the number of small businesses there are in a community that are close to residential routes, that also recycle amounts that are similar to the parameters of residential collection. This program will make it quite easy and cost-effective for small businesses to add recycling to their waste collection and therefore one would expect participation to be quite high. This will significantly increase diversion. There haven’t yet been increases in the diversion rates that can be attributed to implementation of these programs. Many businesses fail to take advantage of the programs and outreach and education are necessary to promote them.

Cost Impacts: Low: The cost impacts of this program are quite low, since businesses won’t have to pay much more than is paid by households. The haulers won’t have to significantly change their routes. They may have to increase their trips to the waste facilities, but in most cases the additional costs should be covered by the additional fees from the businesses.

Community Examples / Population: Fayetteville, AR: 73,580; Newport, RI: 24,034; Waltham, MA: 61,918; Greater Sudbury, Ontario: 157,860

Sector:

- Office or similar: Target residually collected recyclables, but focus on office paper and cardboard.
- Restaurants, Bars, Cafeterias: Target residually collected recyclables, but focus on food waste, bottles and cans and cardboard.
- Grocery and similar: Target residually collected recyclables, but focus on food waste, cardboard, plastic film and wooden pallets.

Materials:

- Food Waste/ Food Scraps: Will be available only where there is residential food scrap / composting collection; Target restaurants, bars, cafeterias, and grocery or similar.
- Yard Waste: This material often doesn’t make up a very large part of the commercial waste stream.
- Bottles & Cans: Target restaurants, bars and cafeterias.
- Paper: Target office or similar.
- Cardboard: Target office, restaurants, bars, cafeterias and grocery or similar.
Considerations by Community Size (if any):

- **Very Small <10K**: This program could be very useful in a very small community, and would be quite easy to implement for several reasons. Usually there is only a single hauler, municipal collection, or a few haulers that will offer service in a very small community, and they may not have the ability or desire to have a separate commercial collection program. Because there are often only a small number of businesses in a small community, it may not be economically feasible to offer separate commercial recycling collection. Finally, since often the physical areas covered by very small communities are small; it is quite likely that businesses are already on or near an existing residential route. For all of the aforementioned reasons, including the businesses on the residential route allows recycling to be both affordable and practical for the businesses as well as the haulers.

- **Small**: This program could be very useful in a small community, and would be quite easy to implement for several reasons. Usually there is only a single hauler, municipal collection, or a few haulers that will offer service in a small community, and they may not have the ability or desire to have a separate commercial collection program. Because there are often only a smaller number of businesses in a small community, it may not be economically feasible to offer separate commercial recycling collection. Finally, since often the physical areas covered by small communities are smaller; it is quite likely that businesses are already on or near an existing residential route. For all of the aforementioned reasons, including the businesses on the residential route allows recycling to be both affordable and practical for the businesses as well as the haulers.

- **Medium**: This is a program that may work better if there are at least larger sections of residents that are serviced by one hauler / municipality rather than having multiple haulers. However if multiple haulers have customers spread throughout an area, this can potentially increase the chances that businesses are already on an existing residential route for some hauler, and thus may give businesses more choice in their service.

- **Large**: This is a program that may work better if there are at least larger sections of residents that are serviced by one hauler / municipality rather than having multiple haulers. However if multiple haulers have customers spread throughout an area, this can potentially increase the chances that businesses are already on an existing residential route for some hauler, and thus may give businesses more choice in their service.

**Small Businesses**

**Program Number 28: Small Businesses Get 96 Gallons Recycling Embedded in Trash Rate**

**Description**: In this program, cities and / or haulers providing service in the community are required to embed the costs of collecting a weekly 96 gallon recycling cart into the commercial trash fees for small (or all) commercial generators. By doing this, small businesses will be given the chance to divert recyclables and those that choose to do so may potentially see a lower monthly trash bill. Whether or not they choose to do so is entirely up to the generator, however they will be paying for the service and those that choose to use it will have the potential of a lower trash bill than those that do not. It helps to alleviate issues of low route density and allows haulers to spread the costs of service among small generators. This program addresses two key barriers for small businesses: the lack of space for traditional commercial recycling containers, and the ability to add recycling at a low-enough cost to
make it feasible. For medium and large businesses that are not currently recycling, the program may encourage at least 96 gallon’s worth. Some businesses may need more service (small, medium, or large). They can contract for more service directly with the hauler, but the economics can make sense for medium and large businesses. If they are recycling larger amounts, they may possibly be able to reduce the trash volumes enough to save money overall.

**Design Considerations:** Small generators will have the opportunity to divert more and possibly reduce their level of trash service (lowered collection frequency or smaller sized containers). The amended small commercial contracts would probably contain parameters similar to those of the residential service, and pricing would be similar as well. Adjustments to service and / or rates could be made for small businesses that produce more than 96 gallons of recyclables on a weekly basis as well, or they – as well as medium or larger firms that need more space – could be required to contract for higher service levels at additional fees. Lack of space to store containers is an issue for a number of businesses. The hauler and business must identify suitable locations to store trash containers, look at existing community codes covering enclosures to ensure they are not too restrictive (if applicable), and enforce existing codes requiring equal space for trash and recycling in new construction and significant remodels.

**Implementation:** The implementation of this program involves passing an ordinance requiring all haulers serving small commercial accounts to embed the costs of collecting a weekly 96 gallon recycling cart into the commercial trash rates. Adjustments to service and / or rates could be made for small businesses that produce more than 96 gallons of recyclables on a weekly basis, or any business that exceeds that service need may be required to pay an additional fee for additional service. Unlike ordinances that target generators, this ordinance targets the licensed haulers.

**Sectors & Materials:** This program would be for small businesses that don't produce a large amount of recyclable materials. The materials collected would be the normal recyclables that are collected by the municipality / haulers.

**Enforcement:** Without enforcement the program does not work. Included in the ordinance should be a mechanism that allows the regulatory authority to audit hauler records to ascertain compliance.

**Barriers:** Businesses that may not be close enough to current routes or that need more volume of service than the 96 gallon containers.

**Program Impact:** Medium: Since businesses would already be paying for recycling, this would give some the incentive to recycle and thus potentially decrease the amount of trash that they would have collected. This would increase diversion.

**Cost Impacts:** Medium: Since businesses would already be paying for recycling, they would have an incentive to recycle and thus potentially decrease the amount that they would have to pay for trash collection. Costs to the community are minimized by using the existing residential route. There may be the additional cost either to the community or the business for the purchase of carts.

**Community Examples / Population:** Austin, TX: 790,390

**Sectors:**

- Offices: Target office paper and cardboard.
- Restaurants & Bars: These generators would most likely produce more than 96 gallons of recyclable materials per week; however could target bottles and cans and cardboard;
- Grocery: These generators would most likely produce more than 96 gallons of recyclable materials per week; however could target cardboard, plastic film;

**Materials:**

- Food Waste/ Food Scraps: This material is not the target of this program. Setting up this type of program for food scraps has additional concerns of a different size container, or an additional container, more frequent service, and facilities for composting may not exist.
- Yard Waste: This material often doesn't make up a very large part of the commercial waste stream.
- Bottles & Cans: Many businesses that produce these materials will have more than 96 gallons weekly; could still target groceries and similar and offices and similar.
- Paper: Target office or similar; restaurants and groceries may produce too much to target.
- Cardboard: Many businesses may produce too much cardboard for a weekly 96 gallon recycling container; could target offices or similar.

**Consideration by Community Size (if any):** All community sizes could potentially benefit from this program.

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**Small Businesses**

**Program Number 29: Free Recycling Cart to Small Businesses**

**Description:** Many communities offer free commercial recycling carts or containers to small businesses; this is sometimes accompanied with free commercial recycling service with paid trash service for these businesses. Sometimes this is the result of commercial recycling mandates, hauler contracts with the municipalities that require embedded recycling rates, or stipulations that recyclable collection must be less costly than trash collection. The goal is to increase diversion. Small businesses face several challenges in recycling; they pay for the smallest commercial trash service, and may not fill the container even if they don’t recycle, they have limited storage space, and the cost of an additional recycling service can increase overall costs a great deal, making recycling uneconomical. By taking advantage of this "free cart and service", businesses will be given the chance to divert recyclables easily and may potentially see a lower monthly trash bill. Haulers may also profit from this program through collection of revenues from the increase of recyclable materials.

**Design Considerations:** Free recycling carts remove at least one small barrier to recycling for small businesses – the cost and hassle of obtaining an eligible cart. With the free commercial recycling carts augmented with free service, generators will have the opportunity to divert more waste and possibly reduce their level of trash service (lowered collection frequency or smaller sized containers). It is worth noting that many times the businesses on the lowest level of trash service are offered "free" recycling as an incentive for them to recycle since larger businesses often have an incentive built in with PAYT to save money on their trash bills if they recycle. Adjustments to service and / or rates could be made for small businesses that produce more than the supplied container size of recyclables on a weekly basis as well. The recyclable materials collected would most likely be the same as collected for residential programs or at least the major materials generated by the businesses. Lack of space to store recycling containers is a real issue for a number of businesses. The haulers and generators (possibly with community assistance) need to find the best place to store recycling containers, in compliance with existing community codes covering enclosures and other regulations, and enforce any existing codes.
requiring equal space for trash and recycling in new construction and significant remodels. Either the cities or haulers (or both) could provide education and outreach about the program.

**Implementation:** Free carts to small businesses will need to be funded, either through grants, hauler contract requirements, general fund, or other sources. The provision may be implemented using commercial recycling mandates on haulers, or hauler contracts; in other cases it is implemented indirectly as part of other initiatives like hauler contracts with the municipalities that require embedded recycling rates, or stipulations that recyclable collection must be less costly than trash collection. The municipality and / or hauler must be willing and able to handle commercial recycling collection. Cities or haulers have to determine the size of recycling carts to supply (no less than 96 gallon carts is the size recommendation). The community must also determine if the recycling service, in addition to the cart, will be offered free of charge. The recyclable materials collected would most likely be the same ones collected for residential programs or at least the major materials generated by the businesses. The community, the hauler, or both, may be made responsible for providing education and outreach about the program. These programs are relatively easy for the Community or hauler to implement.

**Sectors & Materials:** This program would be beneficial for any business, but would be especially useful for small businesses that don't produce a large amount of recyclable materials and would easily be accommodated by the containers supplied. The materials collected would usually be the normal list of recyclables that are collected by the municipality or haulers in the residential sector, or are at least the main materials generated by the businesses. This program is especially useful where container size and level of service for recyclables would be uniform throughout the business community. Food scrap or compostable material collections could be a part of this program, but most likely it would concentrate on non-organic recyclables.

**Enforcement:** Since the commercial recycling containers (and sometimes, service) is provided for free, participation is voluntary. Therefore, enforcement isn't really necessary unless material bans or commercial recycling mandates are in place. Then enforcement would need to be controlled by either the cities or haulers. However, since there are potential money-saving results from participation in this program, this may encourage recycling and thus lessen any necessary enforcement. Enforcement of types of recyclable materials accepted for collection, volume of recyclables allowed for each collection, as well as landfill bans could be done by either the cities or the haulers. This would need to be done at the curb before the materials from the businesses are mixed in with the residential materials or other business waste. Violations could result in cessation of services. If contamination occurs, enforcement is usually through reminders / tags on the recycling containers, followed by cessation of service for repeat offenders.

**Barriers:** Lack of space to store recycling containers is a real issue for a number of businesses. Other barriers to this type of program are the cost to the municipalities or haulers for the recycling containers as well as for the recycling collection itself. Many businesses may not take advantage of or understand the program and therefore outreach and education are necessary to promote them. Contamination can also be a barrier; businesses may use the container to get extra trash service, or the container may be placed in a location convenient to street passers-by, who may deposit trash. It is not clear if contamination will be significantly more problematic than with residential service.

**Program Impacts:** Medium: The impacts of the free commercial recycling cart and service program are medium. Since there aren't any costs to the businesses associated with the program, businesses that haven't been recycling will be more likely to participate and thus increase diversion. The impact is
influenced by the number of businesses in the community and by the number that participate in the program.

**Cost Impacts:** Medium to low: The costs of the free commercial recycling cart and service program to the municipalities / haulers are medium since they will have to pay for carts and recycling service for the businesses in the program. These costs will vary depending on how many businesses they supply and the level of service they procure. The costs to the businesses are low since they don't pay for either the cart or recycling service.

**Community Examples / Population:** Davis, CA: 65,993; Napa, CA: 78,340; Federal Way, WA: 91,933;

**Sectors:**
- Offices: Target office paper and cardboard.
- Restaurants & Bars: Target cardboard, cans, and bottles. Food scraps would not usually be a major target of this program.
- Grocery: Target cardboard. Food scraps would not usually be a major target of this program.

**Materials:**
- Food Waste/ Food Scraps: This material is not the target of this program. Setting up this type of program for food scraps has additional concerns of a different size container, or an additional container, more frequent service, and facilities for composting may not exist.
- Yard Waste: This material often doesn't make up a very large part of the commercial waste stream.
- Bottles & Cans: Target restaurants, bars, cafeterias, groceries, hospitals and institutions.
- Paper: Target office or similar, hospitals and institutions.
- Cardboard: Target office or similar, restaurants, bars, cafeterias, groceries, hospitals and institutions.

**Considerations by Community Size (if any):** The size of a community isn't a huge factor from the business' point of view since they won't have to pay for the commercial recycling cart or service to participate. From the municipality / hauler point of view however, the program would cost less in a very small community since there are less participants to pay for. However, these communities may also have fewer funds to spend on this type of program, so it could therefore be more difficult to get support for and to implement than in a larger community.

**Small Businesses**

**Program Number 30: PAYT Trash Bag Program for Small Commercial**

**Description:** In this program, cities or haulers agree to pick up the recycling from small businesses that don’t produce a large volume of recycling. The participating businesses are required to purchase special PAYT bags or tags at designated levels of fees from the community to use for disposal of their trash. The trash is then picked up curbside by the community or haulers at no additional charge beyond the logoed bag purchase price; the cost of the bag includes the collection cost. Recyclable materials are often picked up at no charge to the business, and sometimes organics as well. If the organics services are to be charged, they can be charged by bag (if that is the collection method) or cart-based service can be contracted. This PAYT Bag Program for trash for small commercial generators encourages commercial
customers to decrease their garbage and increase recycling and organics collection. Trash costs to the business can often be reduced through this program due to decreased volume and less frequent collection.

**Design Considerations:** Small commercial accounts are given the choice of contracting for trash and recycling individually, or using the existing community-wide PAYT trash collection where the businesses must buy special bags or tags for a certain amount of money to dispose of their waste. The corresponding bag / tag prices are designed to cover the cost of collection and disposal of the waste and could even pay for or help pay for recycling services. These bags / tags should be made available at a number of retail or local establishments. This portion of the program is easy to implement since there isn't any billing necessary for the trash service. Instead there is an inventory system for bags. While recycling service is often provided to the business by the community / hauler free of charge, sometimes there is a charge for organics collection. There are usually restrictions on the frequency of collection and the type and amount of recyclable materials that will be collected. Criteria need to be set for the size and / or type of business that will qualify for this type of program. Sometimes the size of service is determined by square footage of the building space that the business occupies, or by number of employees. Industrial businesses usually are not considered eligible since they have varying recycling needs. If food-scrap-producing establishments are determined to be eligible for this program, then there must be avenues to provide free or low-cost food scrap / compostable collection to the businesses. The community or hauler will have to decide whether to supply and deliver the appropriate recycling carts to the businesses, or have the businesses supply their own. Either the cities or haulers could provide education and outreach about the program. This type of program is currently being used in only a few towns. Help in setting up this type of program is available at www.PAYTnow.org and a good example can be found on Toronto’s website under the "Yellow Bag Program" at www1.toronto.ca/wps/portal/contentonly?vgnextoid=eebc433112b02410VgnVCM10000071d60f89RCRD.

**Implementation:** Criteria need to be determined for the size and / or type of business that will be eligible for this type of program. The small commercial generators are given the choice of contracting for trash and recycling individually, or using the existing community-wide PAYT trash collection where the businesses must buy special bags or tags for a certain amount of money to dispose of their waste. The cost of the bags or tags and frequency of collection of trash must be determined. Also the recyclable materials that will be collected, frequency of collection and any associated costs to the business must be established and billing systems for those processes set-up. Recycling carts need to be delivered or obtained. Finally, the participating businesses must be added to the community or hauler trash and recycling routes and collection commenced.

**Sectors & Materials:** Small businesses in all commercial sectors except for industrial establishments will benefit from this type of program. All types of recyclable materials also can be collected. For food-scrap-producing establishments, there must be avenues to provide free or low-cost food scrap / compostable collection to these businesses.

**Enforcement:** Enforcement of types of recyclable materials accepted for collection, volume of recyclables allowed for each collection, as well as material and landfill bans could be done by either the cities or the haulers. This would need to be done at the curb. Violations could result in cessation of trash service. Also, use of incorrect bags or tags would result in the trash being left on the curb or possibly fines.
Barriers: Barriers to the program are purchasing the bags / tags and having a large enough supply of them on the day of trash collection. Recyclable materials would still need to be gathered and perhaps sorted. The costs to the community or hauler for providing this (usually) free recycling and (no additional charge) trash collection should be covered by the revenues from the bag/tag purchases, so this should not be a barrier for this program. Lack of space for storage of the recycling containers could be an issue. The community must work closely with the haulers and generators to find the best place to store trash containers, look at existing city codes covering enclosures to ensure they are not too restrictive (if applicable), and enforce existing codes requiring equal space for trash and recycling in new construction and significant remodels. There can be some concerns with rodents and pests versus using a cart.

Program Impacts: The program impacts from this type of program are medium. Small businesses will be encouraged to recycle more to reduce their trash costs as well as because they will now have the opportunity at minimal to no cost. The amount of recyclables from all of the small businesses will add up to a significant amount and can contribute to overall waste diversion.

Cost Impacts: Low: The costs to the community or hauler with this program for providing this (usually) free recycling and (no additional charge) trash collection is low since they should be covered by the revenues from the bag / tag purchases. There are minimal costs to the businesses and they can be further reduced by increasing their amount of recycling and thus lowering their cost of trash disposal by decreasing volume and frequency of collection.

Community Examples / Population: Toronto, Ontario: 2,503,000;

Sectors:
- Offices: Target office paper and cardboard.
- Restaurants & Bars: Target food waste, bottles, cans and cardboard.
- Grocery: Target food waste, cardboard, plastic film and wooden pallets.

Materials:
- Food Waste/ Food Scraps: Will be available only where there is the possibility of food scrap / composting collection; Target restaurants, bars, cafeterias, and grocery or similar.
- Yard Waste: This material often doesn't make up a very large part of the commercial waste stream.
- Bottles & Cans: Target restaurants, bars and cafeterias.
- Paper: Target office or similar.
- Cardboard: Target office, restaurants, bars, cafeterias and grocery or similar.

Considerations by Community Size (if any): Community size isn't really an issue for this type of program, its more about the volume of trash per business and the hauling capabilities of the community.

Mandates and Bans

Program Number 31: Mandatory Recycling for Selected Generators

Description: Programs mandating recycling for certain business types (restaurants, offices, grocery, etc.), businesses that produce a defined amount of trash, and for certain recyclable materials (cardboard bottle and cans, etc.) have been implemented in a number of communities nationwide.
Design Considerations: Examples of ordinances for this type of program could include required recycling for specific business categories such as all holders of liquor licenses for alcohol consumed on-site, businesses with over 100-employees on-site, jurisdictions with more than a defined number of businesses, and businesses that have room to store recycling containers. It can require specified businesses to contract for recycling, to recycle specific materials or to simply have a recycling plan.

Implementation: The municipality would pass an ordinance targeting specific commercial generators operating in their jurisdiction or haulers to those businesses. Cities with franchised haulers could implement these types of programs through contracts; however, in an open competition marketplace an ordinance is the best way to implement the program. Key elements of the ordinance should include the business type, materials, and requirements for compliance, how it will be monitored, and how it will be enforced.

Sectors & Materials: Beverage containers, office paper or cardboard work well with this type of program, though typically it would be designed around either the largest generators, or the largest material type in the commercial waste stream.

Enforcement: This may vary according to the business type. Examples include the non-renewal of annual liquor or business licenses. Alternatively, the ordinance could require each business to submit a brief one page recycling plan to the community and/or county documenting what materials they generate and what materials they recycle and provide documentation (bills) showing they are contracting for at least a minimum level of recycling service. Businesses would be subject to fines if found to be not meeting the minimum.

Barriers: The program may increase costs for some of the targeted commercial generators and increase regulations on businesses. It does not address the entire commercial sector, only the targets. It will be important that the community work closely with the program stakeholders (haulers, specified business owners, property managers, and others) to explain the program and demonstrate how everyone can work together to increase diversion in the community. As with many of the mandated programs, if the program is not enforced it will not be successful.

Community Examples / Population: Portland Metro, OR: 2,226,009; South Plainfield, NJ: 23,385; Ottumwa, IA: 25,023

Sectors:

- Offices: Ordinances directed at office type buildings target paper and cardboard as well as a certain amount of containers and plastics. It is important to recognize that not only office buildings generate this type of waste as most businesses, even industrial will generate some office waste and should be considered when drafting an ordinance.
- Bars & Restaurants: Typically this sector is one of the largest generators of beverage containers. An example for targeting bars and restaurants would require all holders of liquor licenses to recycle all of the aluminum and glass, or other containers consumed on-site. The program could be enforced by the current liquor control staff and businesses not in compliance with the ordinance would be unable to renew their liquor licenses.
- Grocery: Cardboard and containers in the waste stream can be reduced by targeting this sector.

Materials:

- Food Waste/ Food Scraps: This material is not the target of this program; however, a similar program could be set up focusing on compostable materials.
- Yard Waste: The largest generators in this sector are landscape and lawn care. Many jurisdictions at the state or regional level have yard waste bans at landfills. If yours does not, it is important to determine local sites that would have capacity to begin accepting this waste stream. This material often doesn’t make up a very large part of the commercial waste stream.
- Bottles & Cans: Targeting bars and restaurants can be a very effective way to capture this portion of the waste stream.
- Paper: Ordinances targeting offices are a common way to capture this material.
- Cardboard: This is an easy target and affects multiple sectors such as retail and grocery stores. Collection services for this material are usually available in most markets; haulers usually find this service cost effective. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

**Considerations by Community Size (if any):**

- Very Small: In a very small community, one or two generators of one type of waste can have a significant impact on the total waste stream. This type of program could be very effective in capturing that particular type of generator. However, it is important not to appear to be targeting a "specific" business.
- Large: This can be a very effective program for large communities allowing them to target generators by sector or material in a specific manner. Enforcement is very important for this to be successful this type of program allow the community to focus its resources on one target at a time.

**Mandates and Bans**

**Program Number 32: All Beverage Container Laws (ABC laws) for Targeted Generators**

**Description:** This program mandates that all holders of a liquor license to separate, store, and recycle all beverage containers consumed on site.

**Design Considerations:** Considerations should include whether all businesses that have liquor licenses will be included regardless of size, if recycling can be at a drop off sites or if it must be through a service, and who will enforce and inspect the businesses for compliance. Cities with franchised haulers could implement these types of programs through contracts requiring each business to have service; however, in an open competition marketplace an ordinance is the best way to implement the program.

**Implementation:** The municipality would pass an ordinance targeting all liquor license holders operating in their jurisdiction or haulers to those businesses. Key elements of the ordinance should include the business size, materials (all containers or only glass and aluminum and/or plastic), and requirements for compliance, how it will be monitored, and how it will be enforced.

**Sectors & Materials:** Typically this targets all beverage containers -- bottles and cans.

**Enforcement:** Enforcement of this law can be through the strict, but highly motivating, non-renewal of the establishment’s liquor license or it can be set up with a set schedule of fines. The local liquor authority can be used for inspections or inspectors through the solid waste department or general code
enforcement inspectors can be utilized. Additionally, a more voluntary (though perhaps less effective) approach could be through requiring self-reporting.

**Barriers:** Some may feel this unfairly targets bars and restaurants, especially if alcohol is not a major portion of the sales. Many of these businesses may be very small and have a hard time financially adjusting to the additional cost of a recycling service.

**Program Impacts:** High as long as there is proper enforcement.

**Cost Impacts:** Low especially if it uses current tax system or liquor authority for enforcement.

**Community Examples / Population:** North Carolina: 9,535,483

**Sectors & Materials:**

- **Restaurants and Bars:** This program is typically implemented to target restaurants and bars and can be very successful in diverting bottles and cans, especially if these types of businesses make up a large percentage of the business sector.

**Considerations by Community Size (if any):**

- **Very Small:** For implementation, very small communities may have an easier time with enforcement due to fewer liquor license accounts; however, staff is usually smaller as well and may lack available staff for inspections. The impact on diversion may be less than with a larger community due to the smaller percentage of bars and restaurants, a fact which will need to be weighed against the cost of implementation and enforcement. However, if these types of generators make up the majority of the commercial sector, than this type a program may have a significant effect on the commercial diversion rate.

- **Very Large:** Very large communities may need to consider the potential increase in volume and whether there are adequate recycling facilities for this waste stream. Also, determine whether there will be adequate staff for monitoring compliance.

- **Small/medium/large communities:** Suitable for all sizes of communities.

**Mandates and Bans**

**Program Number 33: Mandatory Recycling for All Generators, enforced by haulers or community**

**Description:** This is the one of the most aggressive commercial programs. Jurisdictional mandates are as varied as the cities and towns that have adopted them. Some require generators to pay or subscribe to service, but not to necessarily use the service, while others require all generators to source separate and divert an extensive list of materials or face penalties.

**Design Considerations:** Typically this is created through an ordinance. It could require businesses to recycle a certain percentage of overall waste or to recycle a minimum number of types of materials they generate. Exemptions must be stated (i.e. under 15 employees, generating less than a threshold cubic yards of trash monthly, etc.). Some communities simply require all commercial entities to file a recycling plan with the jurisdiction. If there are franchised haulers this type of program could be written into a contract where all businesses must have recycling service. Some cities offer exceptions for very small generators or if recycling service cost more than trash service. If a very aggressive plan is desired then
Considerations must be made on how it will be enforced and how to deal with violations. Penalties could be anything from fines, non-renewal of licenses to having staff come and review your recycling program.

**Implementation:** A waste stream analysis or a general idea of the expected additional volume is important for consideration of available capacity for the increase in recycled material. The municipality would then pass an ordinance targeting all commercial generators operating in their jurisdiction. The ordinance would include a list of materials that must be recycled or recycling requirements and what is considered compliance. The ordinance must also set an enforcement mechanism for the mandatory program.

**Sectors & Materials:** This type of program can be applied to all commercial sectors and commercially generated materials, however, too large a program could have issues with enforcement or difficulty of certain sectors meeting the requirements.

**Enforcement:** Inspections could be at the curb through verification with either municipal staff or the hauler. Another option of the ordinance could require each business to be able to show an inspector proof that they are contracting for recycling services or otherwise diverting the chosen menu items. If a business is in violation they can be subject to increasing levels of fines. Some communities have required haulers to report any businesses that do not subscribe to recycling service. Others have included additional time for businesses to comply between the passing of the ordinance and the beginning of enforcement. (ex. Athens, GA)

**Barriers:** This is an aggressive program that may face opposition by the business sector. It is seen by some as an additional regulation that will increase the costs of doing business (if recycling is an added cost to trash service). Other barriers include a lack of space for recycling containers and a potential disconnect between the generator, the person or entity responsible for contracting for service, and the hauler (especially evident in strip mall or other managed properties). Specifically in these cases it is important to direct outreach to property managers as well.

**Program Impacts:** High with proper enforcement.

**Cost Impacts:** Low to medium depending on the level of enforcement.

**Community Examples / Population:** Athens, GA: 115,453; Hillsboro, OR: 92,105; Fayetteville, NC: 200,574; Madison, WI: 233,337; South Plainfield, NJ: 23,385; Salt Lake City, UT: 48,174

**Sectors:**

- **Offices:** If you have a large percentage of offices you may design the program where businesses can pick one or more groupings of materials to recycle such as 1) office paper, cardboard, paperboard, and magazines 2) Plastics #1-#7.
- **Restaurants & Bars:** If you have a large percentage of restaurants, bars, and cafeterias you may design the program where businesses can pick one or more groupings of materials to recycle such as 1) Plastic containers: Aluminum, tin, steel and 2) Glass
- **Grocery:** If you have a large percentage of Grocery type stores you may design the program where businesses can pick one or more groupings of materials to recycle such as 1) Containers: Aluminum, tin, steel and 2) Organics including food scraps.
- **Other:** Small businesses or home based businesses may see an increase in cost due to smaller volumes; you may want to exclude these types from the mandatory requirement or designate the costs of recycling to be embedded in the trash fees.
• Other 2: If you have a large percentage of industrial businesses you may design the program where businesses can pick one or more groupings of materials to recycle such as 1) Carpets and textiles or 2) Ferrous and scrap metals instead of just requiring them to recycle glass and aluminum.

Materials:

• Food Waste/ Food Scraps: This program is not designed for this material. A similar program could be set up for food scraps. Restaurants and grocery stores are typically the largest generators of food scraps and would be most affected by a program including this material. It is important to determine local sites that would have capacity to begin accepting and processing this waste stream.

• Yard Waste: This program does not target this material, but one could be established for yard waste. The largest generators for yard waste are landscape and lawn care businesses. This material often doesn't make up a very large part of the commercial waste stream. Many jurisdictions at the state or regional level have mandatory yard waste recycling programs and enforce them at the landfills. It is important to determine local sites that would have capacity to begin accepting this waste stream.

• Bottles & Cans: A mandatory program including the recycling of these materials would be targeting bars and restaurants and can be a very effective way to capture this portion of the waste stream.

• Paper: Mandatory programs including office paper not only affect the office only type buildings, but affect almost all businesses since most have at least a small office.

• Cardboard: This material is an easy target and affects multiple sectors such as retail and grocery stores. Collection services for this material are usually available in most markets; haulers usually find this service cost effective. Since cardboard takes up so much volume, showing businesses how they can reduce their cubic yards of necessary trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

Considerations by Community Size (if any):

• Very Small: For implementation, very small communities may have an easier time with enforcement due to fewer commercial accounts, however staff is usually smaller as well and may lack available staff for inspections. This is an important consideration when setting up the ordinance. The impact on diversion may be less than with a larger community due to the smaller percentage of commercial accounts, a fact which will need to be weighed against the cost of implementation and enforcement. Also, smaller businesses may be at a disadvantage due to the smaller volume of recyclable materials which may not reduce trash service enough to offset the cost of the additional service.

• Small: For implementation, small communities may have an easier time with enforcement due to fewer commercial accounts. However, smaller businesses may be at a disadvantage due to the lack of volume of recyclable materials that may not reduce trash service enough to offset the cost of the additional service. Consideration of available capacity for additional materials is still important, though perhaps less of a concern than for very large communities due to the smaller number of businesses.

• Medium: This type of aggressive approach is ideal for medium size communities due to several factors. Typically there is enough staff to follow through with enforcement. There are usually enough commercial entities to see a significant increase in diversion, and there are not too many commercial accounts to make it unmanageable. Available capacity for new or additional materials is important.
Large: Large communities can see a great impact in diversion to do the potential number of impacted businesses. However, they also have unique challenges with enforcement due to the large number of businesses needing to be monitored as well as the variety. Small businesses may have a harder time meeting a specific target or maybe overlooked in favor of larger generators. Lack of space for recycling containers can also be a problem in dense communities. Special considerations or exceptions for these issues need to be included in the ordinance. Due to the potential increase in volume of recycled materials it is extremely important for facilities to have additional capacity available.

Mandates and Bans

Program Number 34: PAYT / Embedded Food Scraps Collection

**Description:** Requiring all haulers to embed the costs of food scraps in commercial trash fees gives all commercial generators the opportunity to divert food scraps without additional cost, and those that choose to do so may potentially see a lower monthly trash bill. The savings can occur because trash collection in the commercial sector is already akin to residential “Pay As You Throw” (PAYT); that is, it is volume-based (size and number of containers, times frequency of collection). Moving material from trash to the organics collection, with a variable fee rate should allow trash bill savings, as long as a threshold volume reduction is reached (reducing size, number, or frequency of collection). The key here in making PAYT on the commercial side parallel in effectiveness to PAYT on the residential side, is to have embedded diversion programs (no separate cost, or discounted cost). Embedded service, or service available to all, increases participation significantly, and embedding the cost of food scraps across the entire sector, whether the service is used or not, makes it very feasible and affordable for those businesses that will actually need and use the service (ordinarily the service can be moderately expensive). This more attractive and universal service helps to alleviate issues of low route density, improves the economies of scale, and allows haulers to spread the costs of service among all generators (lowering costs per business). While haulers must offer the compost program, this type of program does not require businesses to put out compost for collection. Having embedded composting service significantly increases participation and the variable pricing provides a financial incentive if the recycling services are included in the rates. Embedded rates assure haulers are being reimbursed sector-wide for providing food scraps collection, but for many generators, the cost for these services are lower than if the service was offered as an option (because of economies of scale and dense, efficient routing).

**Design Considerations:** Outlining the exact requirements for food scraps service is vital if this is a standalone program. Embedded service fees also work well in conjunction with other material bans or mandates. Design options should consider what the price difference will be for the varying levels of trash service (that includes the recycling service). Will haulers be required to offer service covering a required list of compostables? How often must food scraps be collected? Who will pay for the containers, the community, hauler, or, business?

**Implementation:** Communities electing this option will need to pass an ordinance requiring all haulers serving commercial accounts to provide a designated level of composting service with the costs of the service embedded in the trash rates. Unlike ordinances that target generators, this ordinance targets the licensed haulers.
Sectors & Materials: For embedded food waste collection, different materials can be specified, which must be consistent with the mix that can be accommodated by the local composting facility. It is useful to be able to include food-soiled paper, as that is a significant constituent of the compostable stream and can simply separation by the generators. If left unspecified, haulers would probably only collect the most profitable recyclable materials in the local region. Compostable plastics will need a discussion; the local facility may find they are not well-accommodated in their processing.

Enforcement: Without enforcement the program does not work. Included in the ordinance should be a mechanism that allows the regulatory authority to audit hauler records to ascertain compliance.

Barriers: Commercial generators with the minimum level of trash service may not receive a price incentive to participate. Larger generators have the opportunity to divert more and reduce their level of trash service (lowered collection frequency or smaller sized containers), but the smallest generators may be already on the lowest level of trash service and may not be able to reduce their trash costs through increased diversion. Lack of space to store containers is a real issue for a number of businesses. The haulers and generators will need to find the best place to store trash and organics containers, look at existing community codes covering enclosures to ensure they are not too restrictive, and possibly working with the Community where problems arise. The community will also need to consider and/or enforce existing codes requiring equal space for trash and recycling / composting in new construction and significant remodels to make the program work to its greatest effectiveness.

Community Examples / Population: Cambridge, MA: 105,162; Pacific Grove, CA: 15,041

- Offices: Offices would benefit from this program if they have a large cafeteria.
- Restaurants, bars and cafeterias: These businesses are one of the largest generators of food scraps and would be positively affected (volume-wise) by a program including embedded food scraps. Appropriate processing facilities will, of course, be needed before the food scraps service can be offered or required.
- Grocery: Grocery stores are one of the largest generators of food scraps and would be most affected by a program including this material. Appropriate processing facilities will, of course, be needed before the food scraps can be offered or required.

Materials:

- Food Waste/ Food Scraps: Restaurants and grocery stores are typically the largest generators of food scraps and would be most affected by a program including this material. Due to the weight of this material, the compost container must be small (no larger than 64 gallons), or collection will require a small dumpster for service. Appropriate processing facilities will, of course, be needed before the food scraps service can be offered or required.
- Yard Waste: The community can decide if collection will be for food scraps only, or combined food and yard wastes. Appropriate processing facilities will, of course, be needed before either food scraps service can be offered or required.
- Bottles & Cans: Not applicable.
- Paper: Not applicable.
- Cardboard: Not applicable.

Considerations by Community Size (if any):

- Very Small: For implementation, very small communities may have an easier time with enforcement due to fewer accounts; however staff is usually smaller as well and may lack available staff for inspections. The impact on diversion may be less than with a larger
community due to the smaller number of bars, restaurants and grocery stores, a fact which will need to be weighed against the cost of implementation and enforcement. However, if these types of generators make up a significant share of the commercial sector, than this type of program may have a significant effect on the commercial diversion rate. More rural communities may have better access to compost facilities due to available space.

- Very large: Communities may need to consider the potential increase in volume and whether there are adequate processing facilities for this waste stream. Also the enforcement burden on staff will be proportionally larger.

Mandates and Bans

Program Number 35: PAYT with Embedded Recycling

Description: Requiring all haulers to embed the costs of recycling and/or food scraps in commercial trash fees gives all commercial generators the opportunity to divert recyclables without additional cost, and those that choose to do so may potentially see a lower monthly trash bill. The savings can occur because trash collection in the commercial sector is already akin to residential “Pay As You Throw” (PAYT); that is, it is volume-based (size and number of containers, times frequency of collection). Moving material from trash to recycling, with a variable fee rate should allow trash bill savings, as long as a threshold volume reduction is reached (reducing size, number, or frequency of collection). The key here in making PAYT on the commercial side parallel in effectiveness to PAYT on the residential side, is to have embedded recycling programs (no separate cost), and/or embedded food waste collection (no separate cost or minimal cost). Embedded service, or service available to all, increases participation from minimal to more than 80% generally. Studies examining participation under voluntary, with pay, programs, show perhaps 5-15% of households participate (see Skumatz, “Variable Rates for Municipal Solid Waste…” Reason Policy Study 160, 1993, and many publications thereafter); we are unaware of similar studies on the commercial side. This more universal service helps to alleviate issues of low route density, improves the economies of scale, and allows haulers to spread the costs of service among all generators (lowering costs per business). This type of program is quite popular along the west coast including California and Washington and a number of counties, cities, and even states around the country are rapidly adopting programs like this to address the commercial sector. While haulers must offer recycling, this type of program does not require businesses to recycle or put out compost for collection. Having embedded recycling (or composting) significantly increases participation and the variable pricing provides a financial incentive if the recycling services are included in the rates. Embedded rates assure haulers are being reimbursed sector-wide for providing recycling and/or food scraps, but for many generators, the cost for these services are lower than if the service was offered as an option (because of economies of scale and dense, efficient routing).

Design Considerations: Outlining the exact requirements for recycling (or food scraps) service is vital if this is a standalone program. Embedded service fees also work well in conjunction with other recycling bans or mandates. Design options should consider what the price difference will be for the varying levels of trash service (that includes the recycling service). Will haulers be required to offer recycling for materials of their choice or will there be a specific list that is designated? How often must recycling be collected? Who will pay for the recycling containers, the community, hauler, or, business?

Implementation: Communities electing this option will need to pass an ordinance requiring all haulers serving commercial accounts to provide a designated level of recycling service with the costs of the
service embedded in the trash rates. Unlike ordinances that target generators, this ordinance targets the licensed haulers.

**Sectors & Materials:** All sectors and any materials that the jurisdiction chooses to require can be included; generally the commercial recycling mix follows the same materials as the residential sectors (since that is usually consistent with MRF capabilities), with, perhaps, the addition of cardboard. For embedded food waste collection, again, different materials can be specified, which must be consistent with the mix that can be accommodated by the local composting facility. It is useful to be able to include food-soiled paper, as that is a significant constituent of the compostable stream and can simply separation by the generators. If left unspecified, haulers would probably only collect the most profitable recyclable materials in the local region.

**Enforcement:** Without enforcement the program does not work. Included in the ordinance should be a mechanism that allows the regulatory authority to audit hauler records to ascertain compliance.

**Barriers:** Commercial generators with the minimum level of trash service may not receive a price incentive to participate. Larger generators have the opportunity to divert more and reduce their level of trash service (lowered collection frequency or smaller sized containers), but the smallest generators may be already on the lowest level of trash service and may not be able to reduce their trash costs through increased diversion. Lack of space to store containers is a real issue for a number of businesses. The haulers and generators will need to find the best place to store trash and recycling / organics containers, look at existing community codes covering enclosures to ensure they are not too restrictive, and possibly working with the Community where problems arise. The community will also need to consider and/or enforce existing codes requiring equal space for trash and recycling in new construction and significant remodels to make the program work to its greatest effectiveness.

**Community Examples / Population:** Salt Lake City, UT: 186,443

- Offices: Offices would benefit from this program through recycling items as paper, cardboard, and small containers, as well as food scraps, especially if they have a large cafeteria.
- Restaurants, bars and cafeterias: These businesses are one of the largest generators of recyclables and food scraps and would be positively affected (volume-wise) by a program including embedded recyclables (beverage containers) and/or food scraps. Appropriate processing facilities will, of course, be needed before either service (recycling or food scraps) can be offered or required. Glass and containers also make up a large portion of waste from this sector and recycling these materials will cut down on overall waste expenses.
- Grocery: Grocery stores are one of the largest generators of food scraps and would be most affected by a program including this material. Appropriate processing facilities will, of course, be needed before either service (recycling or food scraps) can be offered or required.

**Materials:**

- **Food Waste/ Food Scraps:** Restaurants and grocery stores are typically the largest generators of food scraps and would be most affected by a program including this material. Due to the weight of this material, a PAYT system could greater lower their waste costs if they had compost collection available. Appropriate processing facilities will, of course, be needed before either service (recycling or food scraps) can be offered or required.
- **Yard Waste:** The largest generators in this sector are landscape and lawn care. Many jurisdictions at the state or regional level have mandatory yard waste recycling programs and
enforce them at the landfills. Appropriate processing facilities will, of course, be needed before either service (recycling or food scraps) can be offered or required.

- **Bottles & Cans:** If glass and cans are included on a list of items the hauler must accept in their recycling service, an effort targeting bars and restaurants can be a very effective way to capture large portions of the waste stream.
- **Paper:** Requiring haulers to include office paper in their services affects almost all businesses since most have at least a small office.
- **Cardboard:** This material is an easy target and affects multiple sectors such as retail and grocery stores. Services for this material are usually available in most markets; haulers usually find this service cost effective. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

**Considerations by Community Size (if any):**

- **Very Small:** For implementation, very small communities may have an easier time with enforcement due to fewer accounts; however staff is usually smaller as well and may lack available staff for inspections. The impact on diversion may be less than with a larger community due to the smaller number of retail bars, restaurants and grocery stores, a fact which will need to be weighed against the cost of implementation and enforcement. However, if these types of generators make up a significant share of the commercial sector, than this type of program may have a significant effect on the commercial diversion rate.
- **Very large:** Communities may need to consider the potential increase in volume and whether there are adequate recycling and processing facilities for this waste stream. Also the enforcement burden on staff will be proportionally larger.

**Mandates and Bans**

**Program Number 36: No Bin / No Barrel in Commercial**

**Description:** This is more common in residential recycling programs where residents must set out at least one bin of recycling each week in order to receive their trash collection. Very simply, if you don't put out a recycling bin or container, they don't collect your trash. This is an aggressive type of program can be used in conjunction with material bans or mandatory recycling ordinances or embedded recycling service. This is sometimes referred to as "Total Participation Recycling". Often it is implemented in communities with very high tip fees and is ideally suited for municipal collections. Another variation of this is refusal to pick up garbage if it contains recyclable materials or over a certain percentage of recycling (thresholds are usually around 10% by general eye or measured inspection). These types of programs are often used as an enforcement tool for mandatory recycling programs.

**Design Considerations:** One key design consideration is setting the threshold for recycling participation that will trigger the allowance or disallowance of trash collection. This may be set by a minimum percentage volume or simply any participation. Other design considerations include the following. Will there be exceptions for small generators or small businesses or those who self-haul? Who will be responsible for enforcement; the hauler, municipality, or property manager? What, if any, penalty there will be for haulers who continue to collect from offenders?
Implementation: The community will need to identify whether there may be clauses in contracts causing barriers to this program (some areas require collection of trash weekly, regardless, for health reason), and work to remedy through ordinances or other means. Assuming there are recycling facilities in the area, determine recycling options available (if in an open market) to insure businesses ability to comply, especially small businesses. Check with the local health department to see if there are any overlapping laws or barriers. Develop outreach and marketing materials, as well as a system for reporting noncompliance, in advance of passing the ordinance.

Sectors & Materials: All

Enforcement: The primary enforcement mechanism is the trash hauler, specifically the driver. However, oversight from the municipality is important if the community has a contracted hauler for the commercial sector. Open market situations may have more difficulty with enforcement (fines or other penalties may need to be incorporated into the enabling ordinance), and municipal collections will be easily enforced and managed. If haulers or the municipality are strict in their collection practices then the responsibility falls on the property manager or office manager to enforce recycling. The simplest level of enforcement is by “complaint”, and businesses in question could simply be required to show proof of recycling services.

Barriers: There may be opposition to government control. In open market situations, haulers may be reluctant to skip service fearing the loss of clients. There may be potential issues with the health department, but the enforcement should be specific and stringent enough to avoid lengthy pickup delays.

Program Impact: Medium: It will increase the overall participation rate for recycling, but unless there is a minimum diversion rate set; businesses may just put one or two items in the cart to fulfill the requirement.

Cost Impacts: Low: The cost would be the initial outreach and education and monitoring if there is an open hauler system.

Community Examples / Population: Providence, RI: 178,042

Considerations by Community Size (if any):

- Very small & small: This program becomes easier to monitor the smaller the community. It still relies on the hauler/ driver to enforce on a regular basis, but due to fewer accounts offers opportunity for staff to verify.
- Medium: This program becomes more difficult to monitor the larger the community and relies more on the hauler/ driver to enforce.
- Large: This program becomes more difficult to monitor the larger the community and relies more on the hauler/ driver to enforce.

Mandates and Bans

Program Number 37: Material Ban from Collection or Disposal
Description: A material ban designates a list of specific materials that will not be accepted for waste disposal either at a landfill or through collection (usually one or the other of collection or disposal, not both). Hazardous waste bans are common example of material bans, and are prevalent across the country. Bans have been implemented since the 1980s through actions by cities, states, and landfill districts. Bans and mandatory recycling ordinances have significant overlap in their impacts, and whichever alternative is chosen, enforcement strategies are similar.

Design Considerations: Some programs ban material from the landfill, and others ban the materials from collection. The program could require all businesses to recycle all items from a list. Alternatively, the program could require choice from list of groupings of materials such as office paper and cardboard or bottles and cans, or subsets of standard recyclables (which is where the overlap with mandatory recycling programs occurs). Some communities started with cardboard bans and later expanded the list. Design questions include the following: Will this be tied to a business license, inspected or self-reported, or refused at pick up or drop off if containing the specified materials? Who will be responsible for implementing key steps of enforcement (community or hauler)? How will compliance with the ban be measured? Should we keep the materials ban list out of the ordinance, and instead allow it to be updated periodically by the public works department or other entity through a more expedited process?

Implementation: A waste stream analysis or a general idea of the expected additional volume is important for consideration of available capacity for the increase in recycled material. The municipality would then pass an ordinance targeting all commercial generators operating in their jurisdiction, or all landfills and transfer stations or all haulers depending on the desired target for the ban. The ordinance would include a list of materials that must be recycled. A definition of “compliance” is needed and should be included (no more than 5%-10% of a load for a hauler or proof of recycling service for a business). The ordinance must also set an enforcement mechanism for the mandatory program and designate where inspections will take place, if any; and which entity is responsible for conducting the periodic inspections. Some communities have considered statistical sampling methods (days of week, trucks in line, etc.) in devising their inspection schemes at transfer stations and landfills.

Sectors & Materials: All sectors. Material bans have tended to include a single item (yard waste); others designate a list of specific materials. Examples of materials banned at various state or local levels include: “separated recyclables”, ; compostable materials; wood waste; “universal” waste; inerts; polystyrene / takeout containers; yard waste; pallets; tires; oils, etc. and so on.

Enforcement: Enforcement can be at the landfill, or at the time of collection. Oftentimes the haulers enforce bans at the curb regardless of where the official ban occurs. Some communities simply require self-reporting quarterly or annually from businesses. A schedule of fines or penalties is generally assessed; others enforce through non-renewal of a business license for multiple infractions.

Barriers: Processing facility or capacity considerations can be one barrier; yard waste should not be banned if there is not a local processing facility to take the material. Lack of space for recycling could be an issue depending on how many materials are included in the ban. For some businesses that only have very small amounts of a particular material, adding a recycling program may be expensive, and a drop off location may be a simple solution. Inadequate infrastructure in the community or surrounding areas could be a significant problem, especially with items such as food waste or electronics. Enforcement procedures often involve inspections of a statistically selected ample of loads or trucks. Procedures usually allow up to about 5-10% contamination before fines or other penalties are imposed. The penalties vary, in some cases involving fine or ultimate revocation of the hauler license; other facilities
force a floor-dumping and re-sorting of the material before it will be accepted. This kind of significant delay has a strong deterrent incentive.

**Sectors:**
- **Offices & Similar:** If there are a large percentage of offices consider designing the program to ban materials such as office paper, OCC, paperboard, and magazines and plastics #1-#7.
- **Restaurants & Bars:** If there are a large percentage of restaurants, bars, and cafeterias bans targeting the following materials may be most effective: 1) aluminum and glass or 2) organics including food scraps. Availability of adequate infrastructure to accommodate these materials must be considered.
- **Grocery:** If the community has a large percentage of Grocery type stores, design the program banning materials such as 1) Containers, Aluminum, tin, and steel or 2) Organics/ food scraps.
- **Other:** Small businesses or home based businesses may see an increase in costs due to smaller volumes; you may want to exclude these types from the mandatory requirement.
- **Other 2:** If there is a large percentage of industrial businesses you may choose to ban materials such as carpets and textiles or ferrous and scrap metals.
- **Other 3:** For communities with high levels of development currently or in the near future, you may choose to ban recoverable C&D materials.

**Materials:**
- **Food Waste/ Food Scraps:** Restaurants and grocery stores are typically the largest generators of food scraps and would be most affected by a ban on this material.
- **Yard Waste:** The largest generators in this sector are landscape and lawn care. Many jurisdictions at the state or regional level have yard waste bans at landfills. If yours does not, it is important to determine local sites that would have capacity to begin accepting this waste stream.
- **Bottles & Cans:** A ban on these materials would be targeting bars and restaurants and can be a very effective way to capture this portion of the waste stream.
- **Paper:** Bans targeting office paper affect almost all businesses since most have at least a small office.
- **Cardboard:** Retail and grocery stores generate much of the cardboard in the waste stream as well as offices. A ban on cardboard would affect those sectors.

**Considerations by Community Size (if any):**

Large communities: Large jurisdictions can see a great impact in diversion due to the potential number of impacted businesses if the ban targets the largest generated materials. However, they also have unique challenges with enforcement due to the large number of businesses needing to be monitored as well as the variety. Inspection at the landfill may be most effective. Lack of space for recycling can also be a problem in dense communities. Special considerations or exceptions for these issues need to be included in the ordinance. The availability of facilities with additional capacity is extremely important for large communities due to the potential increase in volume of recycled materials.

**Policy and Incentives**

*Program Number 38: Taxes or Surcharges to Increase Tipping Fee*
Description: In this program, taxes or surcharges are imposed on specific disposal streams or MSW to increase tipping fee relative to recycling or compost streams (tip fees).

Design Considerations: There are several main ways this economic incentive is structured. Taxes may be waived from recyclable streams (organics and recycling; or surcharges may be added to the trash tipping fees (either directly added, or added in order to fund a subsidy or allow discounts on recyclable and composting tipping fees). The purpose is to reduce the tipping fees of those streams relative to the cost of disposing of the materials as trash – in order to encourage the separation and diversion. Note that some communities have also allowed discounted tipping fees to qualified haulers or communities (entities reaching a specific recycling goal). One design consideration of note is that, if there are public and private facilities, the surcharge or tax incentives should be able to be imposed at all facilities, or the incentives will drive streams to the cheaper options, which may not suit the program goals.

Implementation: There are several possible funding source(s) available. One option is a combined rate study that would be conducted on all tipping streams at a facility, with a combination of subsidized and surcharged rates designed to cover all revenue requirements across the streams (rather than rates designed to cover each individual stream’s revenue requirements). Another funding source is subsidy from, for instance, a tire fund or other deposit or recycling-based source of revenues. State law allows imposition of surcharges directly in some cases.

Sectors & Materials: All sectors and any material, but typically MSW.

Enforcement: Enforcement can be at the landfill, or at the time of collection. A schedule of fines or penalties could be assessed. Clear billing requirements will be important for businesses to see the discounted cost (by comparison to MSW).

Barriers: Haulers may be resistant to adding more cost, though it is usually passed on the customer. Businesses may see it as just another tax especially if they are not educated in the discount it provides on the non-taxed streams.

Program Impact: Medium

Cost Impacts: Low

Community Examples / Population: The communities in the State of California are (or were) allowed to implement charges of this nature under AB939.

Policy and Incentives

Program Number 39: ADFs / Deposits on Some Products to Encourage (Fund) Proper Disposal

Description: This program establishes Advance Disposal Fees (ADFs) or additional costs applied to a product at the time of purchase (or at the point of manufacture) to help pay for the eventual recycling or disposal of the product, or invokes a deposit mechanism to encourage the product to be recycled in exchange for a refund. These are product-based programs and can be controversial. However, in many states these have been long established programs for products such as electronics, car batteries, and beverage containers. Incorporating the fees in advance as opposed to at the time of disposal help
diminish the potential for illegal dumping. One of the goals of these programs is to encourage the manufacturer to reduce the amount of packaging or non recyclable contents used in its products.

**Design Considerations:** The standard rationale for ADF or deposit types of programs is that the materials covered are: 1) hazardous (e.g. paint, pesticides, batteries); 2) create litter (plastic bags, packaging); or 3) are hard to recycle or compost (aseptic cartons). The community will need to decide which material(s) may be the target, and whether an advance fee or a deposit is best suited to the product, considering the mechanisms of manufacture, distribution chain, purchase, and disposal (see www.serainc.com for more detailed studies on ADFs). Pricing is important; if the deposit is not sufficient there will be little incentive to encourage recycling rather than disposal. However, legally, the fee setting often must be based on cause and cost, and requires what is called a “nexus” study (a study estimating the environmental, health, clean-up, administration, and other relatable costs directly due to the product).

For some programs, retailers who sell the product have to provide a recycling bin. The refund for the deposit could be paid through that outlet, or some programs require the item to be returned to a specified recycling center to receive the refund, otherwise the deposit is forfeited. Programs for ADFs are typically applied to hard to recycle items, quickly disposed, or hazardous materials such as take out containers, single-use bags, auto parts, fluorescents, and paint. Lost sales tax revenue can be an issue if the additional fees out-price an item, or cause a decrease in demand for the product; however, that decrease in demand (or purchase) is often exactly the reaction that the recycling department is after. The administration and management of the fee is often an important issue. Is there an existing state sales tax or local mechanism that can be leveraged? Will fees be charged at the manufacturing level or at point of sale? Will retailers receive reimbursement for administration? Who will perform audits and oversight? A growing area for ADFs is single use bags. To make these programs more palatable, revenue sharing with the retailers is introduced into the legislation. One community rebates retailers one penny of the five cent bag fee, and these figures vary widely (for more detail on bag fees, see bag fee article by Skumatz, Freeman, and Friend, “Single-Use Bag Policies: Bans, Fees, Both, or Neither?” Resource Recycling, March 2012). Some programs allow for exemptions on materials that reach a certain recycling level.

**Implementation:** The target material(s) for the ADF or deposit must be determined. The community will need to estimate and understand the costs of recycling and disposal to set appropriate fee, including ongoing administration costs to run the program. An administration system for revenue collection must be implemented, including all forms and reporting documentation, line items for retail receipts, and other details. The community will need to establish a monetary avenue for fees whether a dedicated fund, or through the general tax collection system and identify which agency will monitor the program. If the fees do not go for recycling or disposal of products, then it is not considered an ADF, but a tax for the general fund, and that can be a very different approval chain. Verify there is no conflict with regional or state laws, before seeking fee / deposit approval from council. Outreach and administrative assistance to retailers will be crucial in the initial stages.

**Sectors & Materials:** The generally-eligible materials list includes materials with specific types of characteristics (hazardous, create litter, hard to recycle). Particularly suitable include take out containers, single-use bags, auto parts, fluorescents, and paint. One very suitable material is latex paint; the material is delivered in large volumes to hazardous waste facilities where processing and disposal costs are high. This product costs millions in management, eating up budget that could be applied to more hazardous materials, if only 1) there was better education about alternative ways to manage / safely dispose of the material, or 2) payment for the high fees for management could be collected through an ADF to relieve pressure on hazardous waste sites.
**Enforcement:** Audits for point of sale as with other taxes.

**Barriers:** This can be seen as an additional tax and administrative headache for retailers, especially if there is a different ADF for different products. Lost tax revenue can be an issue if the additional fees out-price an item and decrease sales. With ADF programs, if there is no alternative product/ packaging offered it will not change consumer behavior. For deposit programs, there have been some issues with importing of materials from outside the jurisdiction to collect refunds. Accurately determining the cost of running these programs and disposal costs are common issues. It does not stop consumers from going outside the jurisdiction and purchasing products that may be disposed of in the jurisdiction.

**Program Impacts:** Medium: While this program does help pay for the cost of recycling a product, it does little to change consumer behavior unless the fee is substantial, and the basis for the fee must generally be determined through a nexus study, linking clearly-related costs to the fee—and nothing more. Some consumers may reduce the amount of product they purchase if there is no alternative, but many will substitute to another product without an ADF. It does help consumers directly associate the additional cost on with product with its eventual disposal. Program Impacts Deposits: For deposits, the refunds are incentives for companies to accept this product for recycling.

**Cost Impacts:** Varies from Low to High: Ideally this program has a low cost impact once established as the fees pay for the ultimate cost of disposal for the product. However, there are numerous examples of under estimating administrative and oversight costs as well as costs of disposal or recycling which can create a high cost for this program. Cost Impacts Deposits: For deposits, the program costs relate to oversight of the refund process. There can be significant proceeds due to failure to collect the refund.

**Community Examples / Population:** The State of California; Washington, DC: 601,723; San Francisco, CA: 805,235, Boulder, Colorado: 100,000; Seattle: 500,000, State of Washington

**Sectors:**

- **Restaurants & Bars:** A deposit on beverage containers could encourage restaurants and bars to begin a recycling program to receive the refund. However, they would have to have a sufficiently sized collection and holding area as well as a means to deliver the material to the recycling center. Revenue sharing with a hauler could be an option.
- **Grocery stores:** are commonly affected by ADFs and deposits due to the high volume of packaged materials. They will be required to implement, collect, and report fees to the proper authority.

**Materials:**

- **Food Waste/ Food Scraps:** This program does not specifically address this material since it would more likely affect the packaging on food products and not the contents.
- **Yard Waste:** Not typically addressed with this type of program.
- **Bottles & Cans:** Typically the fees or deposits are on containers such as bottle and cans since they have packaging and a specific size or quantity which makes it easier to label and collect the fee at the point of sale.
- **Paper:** An ADF could be placed on paper that does not contain a certain percentage of recycled content which would increase the price and encourage consumers to purchase the paper with the higher recycling content.
- **Cardboard:** Packaging is a main target for ADF, however, in most places cardboard has a high recycling rate.
• Other: Commonly these fees are applied to electronics or hard to recycle materials.

Considerations by Community Size (if any):

• Small Community: Establishing an ADF is more difficult in a smaller community due to smaller volume. The fees would have to be much higher per item in order to pay for the program. A deposit may be effective in a small community but would most likely need to be on a product that is produced or has high consumptions levels in that community.

• Larger Communities: ADF’s become more effective in larger communities due to the larger volume of products. That’s why you often see them implemented at a state or regional level. Well established oversight is especially important in large communities as is proper estimation of recycling and disposal costs.

Policy and Incentives

Program Number 40: Single-Use Bag Ban or Fee

Description: This establishes a fee on single-use bags (plastic and/ or paper) or an outright ban on any single-use bags. Many communities enact a bag ban or fee in response to the litter and environmental issues and cleanup costs from single use plastic bags. Other communities establish these programs as part of an overall effort to reduce packaging waste or to further their Zero Waste goals. Part of the rationale also relates to the short duty cycle of bags (used for an hour, and persist for many years), and the easy availability of substitutes (canvas and re-usable bags). The fee or ban is collected or enforced at the point of sale. These programs are currently found in all areas of the country at the local and regional levels as well as in other countries around the world. When fees are imposed, demand for the bags decreases dramatically; Washington DC saw more than 80% decline in use after the imposition of a modest fee.

Design Considerations: This is a commercial or retail program, but ultimately it affects the customer. To make the programs practical and politically palatable, exceptions are often made for bags without easy substitutes, including dry cleaning, yard waste, newspapers, or produce and meat bags. Exceptions can also be made for those customers on assistance such as food stamps. A set fee can be established, the fee can increase gradually, or it can be used as a transition to a total ban. Consider establishing a dedicated fund and uses for fees and clear oversight. Often funds are used to distribute free reusable bags prior to the program kickoff; as well helping fund related recycling programs and single-use bag clean-up efforts. The affected retail businesses typically retain a percentage of the fee for administration costs (generally in the range of 20% to 50%, with a few allowing retention of all fees). Most fees range from 5 cents to 25 cents; nexus studies, or studies designed to estimate the real attributable costs from the bags (environmental, cleanup and many other sources) tend to center in the 20 to 25 cent range. Political considerations are usually cause lower fees to be established. However, it may be that the demand or use impacts from low fees are not much different from the reduction in use caused by higher fees; the presence of any fee seems to have a strong effect. The community must decide if their program will be structured as a fee or a ban, and whether the fee or ban will include plastic and paper bags (all single-use bags) or only one. There are rationales for each option, as all single-use bags contribute to environmental and litter problems, and reusables are preferable to both kinds of bags. Most programs involve an ordinance and are mandatory, but a few communities have voluntary programs. Usually fees are required to be a separate line item on the receipt. More information on

**Implementation:** There are several key steps related to implementation. A nexus study will need to be conducted, or staff will have to identify the appropriate value for the fee, including the cost to initiate or oversee program. Staff should consider whether a fee or ban is preferable and work with local retailers, recycling committees and other stakeholders for input and design considerations. Community forums will be helpful in order to help gain public support; some communities show short documentaries on the pollution effects of plastic bags. Public outreach materials will also be useful in association with public rollout, and some communities have a small canvas bag distribution program to “seed” the change. An ordinance will be needed (there are many examples available on the web) and the ordinance may include a transition period with sufficient time for both customers and retailers to adjust. It is very important to include clear definitions of single use bags, any exceptions to the ordinance, and penalties for non compliance.

**Sectors & Materials:** Most commonly targets grocery and retail stores, but could also include restaurants, especially fast food. Targeted materials are single-use bags including paper bags. Often very large bags without easy substitutes (e.g. for pillows / comforters and other large items) are exempted.

**Enforcement:** The fee or ban is collected or enforced at the point of sale, with the retailer responsible for charging the correct fee or not providing single-use bags. Auditing for enforcement purposes will be necessary with a set of escalating fines, but education and outreach early on will help avoid issues, especially when businesses are able to retain a portion of the amount collected. The programming involved in integrating it into the cash register system is usually fairly easy, and then the program just becomes part of the store’s operations.

**Barriers:** A fee will not necessarily stop those from using single-use bags if they are willing to pay the additional fee. There may be initial resistance from customers who will now have to pay for what was previously free. Retailers can be reluctant to go through the administrative process of collecting a fee; however, in many regions, retailers have slightly higher profits due to reduced cost of providing bags and the percentage of the fee they retain.

**Program Impacts:** Medium: Plastic bags do not make up a larger percentage of the waste stream based on weight. However, they do cost the community in terms of pollution cleanup, contamination issues to recycling and composting programs, and maintenance issues in recycling facilities.

**Cost Impacts:** Low to Medium: The initial cost impacts will come from public outreach, distribution of reusable bags, and training for businesses. Oversight including audits will be an ongoing cost, however, assuming there will be some kind of fee on bags, once the program is established the community should see some revenue increase from the program.

**Community Examples / Population:** Washington, DC: 601,723; Boulder, CO: 100,000; Austin, TX: 790,637; Bisbee, AZ: 5,571; Kermit, TX: 5,708; Seattle: 500,000.

**Sectors:**

- Grocery and Food Service: This program will specifically affect grocery stores and other sectors as they are a significant source of single-use bags. Restaurants, bars, and cafeterias may be slightly affected too.

**Considerations by Community Size (if any):**
Communities of all sizes have enacted single-use bag programs. The impact varies according to the number of grocery and retail stores in the community.

Policy and Incentives

Program Number 41: Recycled Content Requirements for Some Products

**Description:** This program establishes recycled content requirements for some products (e.g. newspapers printed in town) to drive market demand for recycled product.

**Design Considerations:** The best way to increase recycling is to draw the materials through the system long-term by improving demand. If a (recycled) commodity is in strong demand, then economics should favor its increased (local) recovery and recycling. Strategies that address market development can be minimum content standards. If a community (more commonly a state) directs, for instance, that all newspapers published in the state shall have no less than X% recycled content, or that all municipal road contracts must use some percent of glass for aggregate or (local) compost along roadsides, that can drive demand for recycling of the relevant products. Another strategy that has been attempted includes grant programs (one grant program provided discounts of 50% toward the purchase of recycled content supplies by schools and institutions). Recycling markets are international and hard to affect on a worldwide basis. The two markets that this is not quite true for are compost, and glass, both of which have high transportation costs relative to their values; their markets are more local in nature, and there is somewhat more realistic potential of a program having an effect on tonnage generated or used / recycled (at an affordable cost).

**Implementation:** Understanding existing market conditions, products, and available materials in local waste streams is key to successful implementation of this type of program and will help distinguish what materials will have the most impact on recycling as well as what type of material is underutilized. Determine what type of financial incentives or assistance is available. Grants may be available through state or national sources. Understand legalities such as non competitive clauses that may influence decisions. Assemble stakeholders such as local manufacturers, business associations, and even local educational institutions to help provide insight and potential development solutions. Community support will also help elected officials during the approval process. There are multiple examples to follow for successful programs such as Clean Washington Center. CWC had a program to help produce the specifications necessary for engineers / public works / builders to use recycle content products; California established Recycling Market Development Zones “The Recycling Market Development Zone (RMDZ) program combines recycling with economic development to fuel new businesses, expand existing ones, create jobs, and divert waste from landfills. This program provides attractive loans, technical assistance, and free product marketing to businesses that use materials from the waste stream to manufacture their products and are located in a zone.” More information is available at Clean Washington Center, http://www.cwc.org/; and California Recycling Market Development Zones, http://www.calrecycle.ca.gov/RMDZ

**Sectors & Materials:** All sectors and materials can benefit from this type of program; however, much will depend on specifics of individual communities. Typically it targets materials that are local or regional and difficult to market on a national level. In one area of the country steel/tin cans may not be marketable, but in another a local manufacturer may have found a specific use, or local use creating demand.
**Enforcement:** Enforcement may be in the form of annual reports or inspections.

**Barriers:** If a market development program is not designed well and monitored closely, no true impact will result.

**Program Impacts:** Low to varying: This will depend on materials chosen.

**Cost Impacts:** Medium: This depends on the amount of education or assistance provided.

**Community Examples / Population:** The State of California; Washington State

**Considerations by Community Size (if any):** None

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**Collection and Contracting**

**Program Number 42: Establish Limited Targeted Commercial Food Scraps Program or Partner to Get Delivered**

**Description:** A food scraps diversion program is an effective way to target a material that takes up a large percentage of the waste stream. The program can be achieved by contracting with a hauler, providing municipal collection, or working with a business association (which contracts with a hauler) and helping negotiate a service. The program can target the largest food scraps generators, and encourage businesses to start service without mandates from the municipality. Food scraps pilot programs and partnerships can potentially offer the opportunity for businesses too small for service on their own to share service, and allow the municipality the opportunity to expand its goals. With community partnership or involvement, food scraps programs can provide an enhanced business opportunity to haulers who otherwise might not realize the market potential or client possibilities. The municipality can also help structure the program to favor donations to local food shelters as a first alternative. The program can help guarantee a steady, quality stream of food for composting sites that may need guarantees of more tons to finance the site or needed expansions.

**Design Considerations:** A full service restaurant can have as much as 60% of its waste made up of food scraps (food scraps are estimated to make up over one-fifth of the commercial waste collected in compactor routes in some cities). Before targeting this waste stream the community must assure that there is available compost facilities permitted to handle the amount of expected food scraps. Odor and pests are a common concern and need to be addressed by establishing collections or contracting with haulers for multiple pickups per week. Many haulers will not start a food scraps route unless there are enough businesses to generate a full collection route. This barrier should be considered as well for municipal collections, especially if it is a pilot with limited geographical coverage or only small generators. Typically restaurants and grocery stores are the largest food scraps generators, but schools could also be included, especially if they are located on the collection route. Depending on the type of food scraps, there may be a possibility to partner with a business or non-profit organization that collects food for donation. Another alternative might be working with on site composting or in-vessel composting with containers such as Earth Tubs from Green Mountain Technologies (www.compostingtechnology.com). These can be very successful, providing a business produces more...
than 50 pounds of food scraps per day. This might be especially suitable for small restaurants and schools. Many communities choose to help offset the initial cost to the business by providing inside containers or technical assistance on right sizing, training employees, and adjusting trash contracts if through a private hauler. If the community is establishing a compost facility or partnering with one, it is important that the location is thoroughly considered: some communities have had issues and complaints with food scrap composting when the facility is located too close to residential neighborhoods.

Implementation: Investigating whether facility processing capacity is available up front is key. If capacity is available, determine the budget available for the program, and determine the target businesses – by sector (restaurants, grocery, etc), size (largest food generators), geography (food generators in downtown), or a combination. The community can research and reach out to the groups associated with that sector to potentially help with coordination, communication, and planning. Determine if there is a hauler currently available in the area with capacity for the new collection, or if the municipal fleet has the capacity. Arrange a meeting with all stakeholders to discuss potential program and pricing and information about the pilot. Prepare all outreach materials, especially signage that can be used to train employees at businesses about what goes in the bins. Verify whether there are any municipal codes regarding storage enclosures or storage of food scraps. If the community is partnering with a hauler or composting facility, determine how the collection amounts will be monitored. If sufficient funding is available it could be used for purchasing containers initial service fees to get the program started.

Sectors & Materials: This could be applied to all sectors or just the highest generators such as restaurants, bars, cafeterias, and grocery stores. Depending on the composting facilities’ ability it could apply to food scraps of only vegetative matter or include meats, egg shells, and bones. Carefully review whether to allow compostable plastics into the program, as they are harder to process fully. Some facilities can accept diapers, pet waste, food-soiled paper, or compostable plastics, but that is rare.

Enforcement: Since this is only a pilot design there is no enforcement needed; only education. Insuring that food scraps are stored properly may be a challenge, but proper education should address that issue.

Barriers: The largest barrier with this program is finding a facility that has the ability to accept food scraps. Assuming that this barrier is overcome, other typical barriers in commercial food scrap programs include the perceived ‘yuck’ factor, contamination (particularly with post consumer waste), space for recycling bins, and costs. These barriers can be overcome through education (yuck factor), staff training and only targeting pre-consumer food (contamination), and a subsidy (cost).

Program Impact: Low to Medium: The impact will depend on the size of the pilot. If it is just for a group of small group of businesses and it is a very large community, there might not be a significant overall increase in diversion. The impact from this program could be high if all the largest generators are part of the program.

Cost Impacts: Low to Medium: Cost impact will depend on existing fleet and facilities and whether there will be new acquisitions or establishing of facilities to start the program. If the municipality has current trucks and facilities, the program may have a low cost impact. Often there are state grants available to start a pilot program. If there is a hauler or compost facility who is partnering for the program, the costs may be borne by the generator and the municipality will only have outreach costs.

Community Examples / Population: Columbus, OH: 787,033; Cambridge, MA: 105,162; Santa Cruz, CA: 59,946;
Sectors:

- **Offices:** Not typically a target of a food scraps pilot but could be included if they are on the most efficient route or have a large cafeteria.
- **Bars & Restaurants:** This program can work well for targeting these businesses. It works especially well if they are geographically near each other.
- **Grocery:** This program can work well for targeting these businesses. It works especially well if they are geographically near each other.

Materials:

- **Food Waste/ Food Scraps:** With careful targeting, the pilot program could have a large impact on this material.
- **Yard Waste:** While not the target of the pilot program, yard waste diversion may be indirectly increased. If in order to begin the program a new composting facility is established, it may begin to accept yard waste as well.
- **Bottles & Cans:** n/a
- **Paper:** This material will only be affected if the compost facility accepts food soiled paper.
- **Cardboard:** This material will only be affected if the compost facility accepts food soiled cardboard.

Considerations by Community Size (if any):

- **Very Small:** For implementation, very small communities may have an easier time with education and outreach due to fewer accounts, however staff is usually smaller as well and may lack available staff for training. The impact on diversion may be less than with a larger community due to the smaller percentage of bars, restaurants and grocery stores, a fact which will need to be weighed against the cost of implementation. However, if these types of generators make up the majority of the commercial sector, than this type a program may have a significant effect on the commercial diversion rate. More rural communities may have better access to compost facilities due to available space.
- **Medium:** This program can be successful in a medium size community as long as there are ample businesses near each other with the same type of materials that are accepted at the compost facility.
- **Very Large:** Very large communities may need to consider the potential increase in volume and whether there are adequate recycling facilities for this waste stream. Also whether there will be adequate staff for education and outreach to the targeted business sector.

Collection and Contracting

**Program Number 43: Starting / Subsidizing Food Collection**

*Description:* Commercial composting or food collection programs can be worthwhile and often save businesses money since the cost of collection of these items is often less than collection for trash. In many areas of the country, tipping fees are lower for composting than for trash and those savings can be passed on to the business. However, sometimes there aren't enough businesses interested in composting to make the establishment of a commercial program desirable for a municipality. This is when support and initiatives for haulers can really make an impact. Grants are sometimes available from states, counties, or cities to help with the costs of implementing or improving commercial composting,
and these greatly increase participation. These grants are especially sought after if there are mandatory composting ordinances in place in the community. Often it is the initial start-up of a program that is the most difficult for haulers and businesses due to routes, containers, and education on the benefits of composting. Overcoming these initial hurdles can help ensure a successful program.

**Design Considerations:** Often, it is helpful to secure some funding to assist in developing a pilot commercial composting or food collection program before recycling mandates or material bans go into effect, so the pilot programs can work out the kinks in collection and processing before attempting a full-scale program. The community may use funds from the general fund, grants, or other sources. As part of the design work, the community will need to decide if the funding is to be used to assist the haulers in program development or equipment, discount costs to participant businesses, work with the facility, and use the funds internally for participant recruitment, staff training, or other applications. Alternatively, the community may assist the hauler or others in securing grants to start the program. It is helpful to have haulers, public works departments, chambers of commerce, and states that are supportive of commercial programs. Ideally the generators would be located near enough to each other to limit transportation and the pilot should include enough generators to make up a full collection route. Collection frequency and bin size need to be customized for each business to cut down on odors and pests. Businesses also need to know what the cost of collection will be. What is possible depends on the budget and how the community can best complement the capabilities of the haulers and help make the program successful.

**Implementation:** Initially, the municipality will need to confirm the availability of processing capacity, find a hauler that is willing to start a commercial food scraps collection program, and confirm that these key players will be able to help deliver a program that will be successful. Generators (potential participants) are identified and educated about the program by either the hauler themselves, the municipality, or sometimes a contracted third party. The hauler and/or the community secure funding for their commercial composting / food collection program either through a grant, general fund, and/or business investment to underwrite the program. The community’s contributions can take several forms: a subsidy to the generator (or hauler) per cubic yard of food scraps collected so that food scraps collection is not more expensive than MSW collection, recruitment, equipment or other options. When the program is delivered, the hauler (or community, if municipally-delivered program) must identify correct sizing of containers and frequency of collection for the participants to keep pests and odors to a minimum. The community and partner hauler would also go to each business to conduct staff training and provide signs and indoor containers for the food scraps. The participant businesses must also determine how they will collect the food waste inside their establishment as well as how often it will be taken outside to a larger container.

**Sectors & Materials:** Many businesses can benefit from a food scrap collection and/or commercial composting program even if it is just food scraps from the lunch room. However, leading candidates are restaurants, bars, cafeterias, groceries or similar, hospitals, and institutions with food licenses.

**Enforcement:** NA

**Barriers:** The largest barrier for a commercial food waste collection program would be no available facility capable of accepting and processing food scraps. Other typical barriers in commercial food scrap programs include not having enough generators to participate to make the program feasible, the ‘yuck’ factor, contamination, and costs. It is necessary to consider the cost of the time it takes to plan and apply for a grant without any guarantees of funding. Grants are often for one-time expenditures, so municipalities must have the means to continue to fund the programs they establish, or clarify there will
be a phase toward pure privatization. Unanticipated problems and difficulties often can't be overcome with limited funds. For example, with composting it is often common to require more frequent collection during hot weather, and compostable bags can be expensive. If these two factors aren't taken into account when the grant funds are allotted, they can have major consequences and perhaps result in failure of the program. The program participants must be flexible and willing to react quickly to any problems encountered. A bad experience with odor that makes it into the newspaper can draw a great deal of attention and undermine a program for years.

**Program Impacts:** High: The potential program impacts of a commercial food scraps collection program are high, especially in areas that have many restaurants, cafeterias, and grocery stores. There would be a large amount of material diverted from the waste stream as a result of this program and this could potentially result in cost savings for the businesses.

**Cost Impacts:** Medium: The costs to set up a commercial food scraps collection program would be medium but would depend on whether the program was subsidized by the municipality, grants were used, or the businesses paid for the collection themselves.

**Community Examples / Population:** Cambridge, MA: 105,162; Olympia, WA: 46,476; Los Angeles County, CA (Athens Disposal Services): 9,818,605;

**Sectors:**
- Office: Target lunch rooms and cafeterias for collection of food scraps.
- Restaurants & Bars: Target food scraps and other compostable materials.
- Grocery: Target food scraps and other compostable materials.
- Other: Schools target food scraps and other compostable materials.

**Materials:**
- Food Waste/ Food Scraps: Target restaurants, bars, cafeterias, grocery or similar, hospitals and institutions with food licenses; for offices or similar, target lunch room and cafeteria collection of food scraps; with composting it is often common to require more frequent collection during hot weather; compostable bags can be more expensive than anticipated. Traditional wheeled carts are very common containers for these programs, but they usually must be kept to 64 gallons or smaller because of weight issues. Compostable plastics are usually a relatively smaller part of the stream, and can be more difficult to compost. These might be omitted from the program, or at least saved until later expansions, after the basic program is proven.
- Yard Waste often doesn't make up a very large part of the commercial waste stream.

**Considerations by Community Size (if any):**
- **Very Small:** It may be easier to establish a commercial food scraps collection program in a very small municipality or there may not be the infrastructure or facilities in place. Hauler support could be strong or absent; however the necessary financial support for business assistance may or may not be present. This can be greatly influenced by the support of community councils and chambers of commerce. There may not be enough generators of food scraps and compostable materials to make the program feasible.
- **Small:** The necessary financial support for commercial food scrap collection programs may or may not be present in a small community. Program support can be greatly influenced through the support of community councils and chambers of commerce. There may not be enough generators of food scraps and compostable materials to make the program feasible.
Medium & Large: The necessary financial support for composting programs may or may not be present in medium and large communities. There is usually enough food scrap or compostable generators to make the program feasible. There is often the desire to save money and meet diversion goals, so commercial composting programs can be a means to help with this. Often funds are available to provide assistance to both municipalities and businesses.

Collection and Contracting

Program Number 44: Starting / Subsidizing Recycling Collection

Description: In this program the community, itself or working with hauler partners, undertakes efforts to expand commercial recycling by offering subsidies and other strategies to make recycling more attractive in the sector. If the community does not have much commercial recycling, it may be worth considering helping move recycling forward by starting a subsidized pilot recycling program. For smaller firms, who may be at the lowest trash service levels already, recycling may lag because the cost of trash plus recycling is more expensive than the cost of trash only. For medium firms, recycling maybe able to save money, but they may not have taken the time to explore options to right-size their containers to achieve savings. In other communities, commercial recycling may be relatively expensive because routing is not yet efficient because there are few participants. If the region lacks processing capacity, there is no program to be offered, unless the community helps, by building a facility, undertaking public private partnerships or other means. Assuming the facility exists, the community may determine that recycling lags in small or medium businesses, and hopes to take actions to increase participation. The goal is to draw attention to recycling, encourage right-sizing, and work to make the economics attractive enough to encourage participation (recognizing many will not actually save money, which is a common result comparing two collections to one). However, increased participation can lead to some economies of scale, which may improve the collection routing and costs. Piloting these types of changes (and providing short term discounts in pricing or hauler equipment or other assistance) in an area can get a program started and help a program get past barriers and facilitate expansion more broadly in the community. Sometimes there aren't enough businesses interested in recycling to make a commercial program desirable for a municipality; this is when support and initiatives for haulers can make an impact economically to begin a program. Grants are sometimes available from states, counties or cities to help with the costs of implementing or improving commercial recycling, and these funds greatly increase participation. Often it is the initial start-up of a program that is the most difficult for haulers and businesses due to routes, containers, and education on the benefits of recycling. Overcoming these initial hurdles can help ensure a successful program.

Design Considerations: It can be helpful to secure funding for commercial recycling programs before recycling mandates or material bans go into effect, and a subsidized or assisted pilot can help identify potential programs prior to community-wide expansion. For the pilot, the generators should presumably be located near enough to allow efficient routing and there should be enough generators to make up a full, efficient collection route. Collection frequency and bin size – for both trash and recycling -- need to be determined by the business and hauler to reduce costs as much as possible (right-sizing). Grants can aid in the set-up of commercial recycling programs by providing funds to haulers for purchasing new containers, and sometimes even new or additional trucks, as well as for outreach about the newly implemented program. The money can also be used to improve existing programs through additional collections, outreach, and additional training of staff.
Implementation: The municipality needs to assure there is sufficient processing capacity to support expansion into the commercial sector. Haulers must be identified who are willing to start or expand / enhance commercial recycling services. Participating generators are identified and educated about the program by either the hauler themselves, the municipality, or sometimes a contracted third party. Then, the Community or hauler or the two together must secure funding for recycling collection services either through a grant, as a business expense, or through short term general fund infusion. The funding could help with equipment, training, staff, discounts to participating businesses (or hauler) per pound of recycling collected so that recycling collection is not more expensive than MSW collection, or other targeted funding assistance could be identified that would most effectively move the program forward. The business and hauler right-size the containers and identify a service schedule to get the most benefit from the collection. The community and partner hauler would also go to each business to conduct staff training and provide signs and indoor containers for recycling collection. The business must determine how often the recyclables will be taken outside to a larger container.

Sectors & Materials: Most businesses can benefit from a commercial recycling program. Offices and similar establishments would be able to recycle their office paper and cardboard. Restaurants, bars, cafeterias, groceries or similar, hospitals, and institutions with food licenses would be able to recycle their cardboard, bottles and cans.

Enforcement: No specific enforcement issues, except basic issues like enforcing payment and similar.

Barriers: The major barrier to most commercial recycling programs is the cost to businesses for the extra service. The cost of the extra collection stop (for recycling in addition to trash) is usually an addition to the bill, unless the business can reduce trash enough to make up the difference. However, since the cost of the stop (not the cost, for trash, or the revenue, for recycling) is a high percentage of the cost of service, trash reductions would need to be significant to make up this bill difference. Some businesses will save; small businesses in particular may need other programs (mentioned elsewhere in this model) to actually save from recycling. Some other barriers to commercial recycling programs include not having enough generators to participate to make the program feasible, and contamination of the recyclable materials. Some municipalities may subsidize the establishment of commercial recycling programs or the programs themselves, but often businesses must provide the entire costs for commercial recycling. Sometimes municipalities may apply for grants to fund their commercial recycling programs, and may not get them. This makes it necessary to take the time to plan without any guarantees. Grants are often for one-time expenditures, so municipalities must have the funds in place to continue to support the programs that they establish, or make it clear the program assistance will phase out as the program matures. Unanticipated problems and difficulties cannot always be overcome in situations with limited funds.

Program Impacts: High: The potential program impacts of a commercial recycling program are high, especially in areas that have many businesses. There would be a large amount of material diverted from the waste stream as a result of this program and this could result in cost savings for the businesses.

Cost Impacts: Medium: The costs to set up a commercial recycling program would be medium but would depend on whether the program was subsidized by the municipality, grants were used, or the businesses paid for the collection themselves. Some large generators can get revenue from recycled materials that can offset or even exceed the costs of collection.

Community Examples / Population: n/a
- Offices: Target paper and cardboard.
- Restaurants & Bars: Target cardboard, bottles and cans.
- Grocery: Target cardboard, bottles and cans.

**Materials:**

- Food Waste/ Food Scraps: These materials often aren't included in a traditional "recycling" program, but could be added with a food scrap or compostable collection program if desired.
- Yard Waste: This material often doesn't make up a very large part of the commercial waste stream and is not typically included when initializing a recycling program.
- Bottles & Cans: Target restaurants, bars, cafeterias, groceries, hospitals, and institutions.
- Paper: Target offices and similar establishments, hospitals and institutions.
- Cardboard: Target offices and similar, restaurants, bars, cafeterias, groceries, hospitals, and institutions.

**Considerations by Community Size (if any):**

- Small: The necessary financial support for commercial recycling programs may or may not be present in a small community. Program support can be greatly influenced through the support of community councils and chambers of commerce. There may not be enough generators of recyclable materials to make the program feasible.
- Medium: In a medium-sized community the necessary financial support for commercial recycling programs may or may not be present. There are usually enough recyclable material generators to make the program feasible. There is often the desire to save money and meet diversion goals, so commercial recycling programs can be a means to help with this; therefore funds are often available to provide assistance to both municipalities and businesses.
- Large: The necessary financial support for commercial recycling programs may or may not be present in a large community. There are usually enough recyclable material generators to make the program feasible. There is often the desire to save money and meet diversion goals, so commercial recycling programs can be a means to help with this; therefore funds are often available to provide assistance to both municipalities and businesses.

**Collection and Contracting**

Program Number 45: Contracting for Collection - Community or Business Association

**Description:** Large-scale commercial contracts for service can lead to businesses achieving savings in both trash and recycling (and possibly food scraps) collection (and more cost-effective diversion) through economies and efficient routing, and can achieve higher recycling participation levels. Some communities, using a widely-distributed and competitive “Request for Proposal” (RFP) or bidding process, have been able to enter into contracts with private haulers to have community-wide commercial collection. The usual preference in communities with strong recycling goals is to have the contract cover both trash and recycling collection, so the community can establish joint pricing that perhaps subsidizes recycling and leads to greater participation and diversion. In other communities, a
key barrier in getting commercial recycling expanded is that their role in the commercial sector is often limited by law. In many locations, communities cannot interfere in the delivery of services to, for example, the commercial sector and multifamily buildings of over 8 units (one example). However, contracting in the commercial sector is allowed by businesses themselves; it is just that in most cases, the contracts are one-on-one (one business at a time), which does not facilitate the economies of scale that lead to more affordable recycling. In addition, businesses work from a place of ignorance, not knowing how much or how little their neighbors and competitors pay for service; rates are negotiated, and after they service contracts are signed, businesses tend not to revisit trash / recycling collection issues until there is a problem. If a community wants to see commercial recycling expanded, it may need to find a suitable partner, or agent (a downtown business association, restaurant association, etc.), to lead the charge and agree to be lead in undertaking a contract for collection community-wide, or in other cases, for a downtown district, or other sub-areas. In situations in which the community cannot find workarounds the barriers against involvement, this seems to be a viable and legal way to achieve a similar recycling, and cost savings outcomes. This can be an effective way to encourage businesses to recycle without mandates from the municipality.

Design Considerations: The municipality would contract with a hauler to establish a particular type of service or they could help a community association (such as a downtown restaurant association), negotiate with haulers to establish a collection agreement. It offers collective bargaining to the municipality for businesses that might not be able to convince a hauler to provide service on their own or at a rate they could afford. At the same time it offers the municipality the chance to expand its goals in a program area it might not have funding to establish on its own. It may also open up markets to haulers who otherwise might not realize the market potential or client possibilities. The municipality could also facilitate cooperation with end users to provide collections such as a glass manufacturer for bottles or a composting facility for a food scraps program. Downtown restaurants could work collaboratively to find a hauler willing to start a food waste program if they know they have interested businesses. Staff involvement could be in the form of negotiation assistance with pricing or providing initial contact. Programs like this work best for haulers if there are similar type materials to collect and clients are located on the same route. Retail stores could set up a program for cardboard collection. As a group, these associations may have better bargaining strength. Start up grants or some level of initial assistance would be helpful to get the program started. If the municipality is contracting with the hauler, decide on who will be responsible for the billing. There are multiple examples for either approach. Municipalities commonly negotiate a percentage of the proceeds from recycling. This can vary greatly depending on how difficult it is for a hauler to set up a program. Contracts can be established with a single hauler or depending on how large the service area, specific areas can be contracted by different haulers.

Implementation: The municipality will need to confirm there is sufficient capacity at recycling (and potentially composting) facilities to manage the additional tonnage that will likely come from this program. Legal contracting for initiatives of this type typically require putting together a clear RFP (with scope of work, services to be delivered, response times and collection requirements, who will be responsible for billing and customer service, contract conditions, infractions and penalties, and other elements that may be required by the community (or agency’s) legal department. RFPs generally must be very widely advertised in order to be considered a competitive procurement. Proposals are evaluated and awarded and contracts negotiated, signed, and service implemented. Rates are often determined directly as an outcome of the RFP; in other cases, particularly if the community oversees the contract, the community establishes rates that will allow them to cover the cost of the contract, but may develop rates for different service levels that achieve their goals (that is, potentially charging more for trash to
subsidize recycling and/or composting). Under a contract arrangement, a community has a great deal of flexibility and authority of this type. Identify who will conduct billing; if the Community will bill, procedures will need to be designed and implemented. Rates are published. Consult with legal staff for contracting terms or any other laws such as flow control that may impact the contract. Generators are educated about the program by either the hauler themselves, the municipality, or sometimes a contracted third party. Before service begins advise each business on how to select the ideal size for their container and frequency of service to get the most benefit from the collection. Outreach could be in the form of staff training and signage or indoor containers for recycling collection. The business must determine how often the recyclables/food scraps will be taken outside to a larger container.

Sectors & Materials: All businesses and materials could potentially benefit from this program, limited only by the services that are contracted (trash, recycling, composting) and the materials included in the collection programs.

Enforcement: Little enforcement is needed under the condition in which the generator bills are paid to the hauler; if the community undertakes the billing, some bill payment enforcement may be needed. Risks can be reduced if the bills are combined with water billing, and the water bill is designated by ordinance as the last paid from any partial payments received. Service providing quality and other contract conditions will also require monitoring and enforcement of course, based on the stipulations of the contract between the community and hauler, or association and hauler.

Barriers: Ascertaining whether the community has the legal authority – or can obtain the legal authority – to undertake an RFP process for this option is a potential barrier. Getting approval from elected officials to undertake an effort (and market intervention) of this type can be a significant barrier. The RFP process is also a significant undertaking, and a barrier in terms of staff time. Going the other way, finding a business association or group interested and willing to assemble businesses into a contract situation will also be a barrier. Downtown associations work well or other geographically centered associations. If the group of clients is too small, there may not be financial incentive for the hauler to participate.

Program Impacts: Medium: This program provides beneficial economics that can lead to more recycling from businesses receiving service via the contract. If both recycling and composting are covered, the impact is greater than just recycling; the larger the contracted service territory, the larger the impact as well. This program sets up the tools and may create a beneficial atmosphere for commercial recycling but it does not require businesses to actually recycle. Unless there has been a lot of advocacy for this program from the business community or the municipality does an outstanding job with educating businesses on the cost savings, the impact may not be substantial.

Cost Impacts: Low: Ultimately it is the generating business or landlord that will pay for this program through user fees.

Community Examples / Population: Southlake, TX: 26,575; Santa Barbara, CA: 88,410; Hesperia, CA: 90,173; Seattle, WA: 500,000

Sectors:

- Offices: All businesses can benefit from the positive economics that are potentially available from this option. It can be set up for paper or cardboard and can help achieve savings through collective bargaining.
• Restaurants & Bars: All businesses can benefit from the positive economics that are potentially available from this option. It can be set up for glass or drink containers or for food scraps.

• Grocery: All businesses can benefit from the positive economics that are potentially available from this option. It can be set up for cardboard or for food waste.

Materials:

• Food Waste/ Food Scraps: If the contracting includes food scraps, the program can likely be implemented with favorable economics – limited by the requirement that there must be a nearby facility that has enough additional capacity to process the significant increases of additional material that may be expected.

• Bottles & Cans: This type of contract can be recovering additional bottles and cans from restaurants and bars and other businesses.

• Cardboard: The contracts would almost certainly include collection of cardboard, as it is an important constituent in the commercial sector. Many businesses will benefit; including strip malls, retail, and industrial areas may especially benefit.

Considerations by Community Size (if any):

• Very Small <10K: Any size community can undertake this option, but there are probably too few businesses in small communities to warrant the effort.

• Small: Any size community can undertake this option, but small communities will have to determine if there are enough businesses to warrant the staff effort. There may, however, be cooperative business associations to consider moving the concept forward.

• Medium: Any size community can undertake this option.

• Large: This program has been successful in large communities that have multiple businesses of a particular type located in close proximity.

Collection and Contracting

Program Number 46: Community Takes Over Collection for Commercial – Municipal Commercial Collection (All or Specific Areas)

Description: The municipality undertakes commercial collection for all businesses in their jurisdiction, a specific region within their jurisdiction, or begins service for specific materials (trash, recycling, and/or composting). This can help establish a program if no haulers offer this service, or if it is overpriced and underutilized. The community will need to investigate the authority it may or may not have to undertake this service. The revenues from recyclables rarely cover the cost of their collection, but additional costs would presumably be recovered by user fees to the businesses for which collection service is provided.

Design Considerations: This program works best if the municipality has a current fleet and publicly owned facilities or has access to adequate facilities. There are programs in which communities have doubled up on routes (all residential in the morning, commercial in the afternoon) or allow businesses to be combined on residential routes as long as they can use the same type of container. Communities can identify the most profitable recyclable materials and include them in the list of accepted items to maximize their revenue. If the municipality has suitable trucks, (and as long as there is a facility with sufficient capacity), it can set up a food scraps program in order to ensure service for this material or to create their own compost program. Communities sometimes provide downtown service to avoid
multiple trucks causing traffic congestion or they may take over collection of a rural area that has difficulty finding service providers. A jurisdiction that has a ban on certain materials may consider taking over trash services in order to more effectively monitor or enforce the ban.

**Implementation:** The most important first step is to identify whether the community has the authority to provide / expand service to this sector. The community must assess its capability to start a commercial recycling/ food scraps / yard waste program on the scale desired by the community, and must identify whether service will be all streams, all businesses, or subsets of materials or geographic sub-areas. Developing favorable rates for the service will be important to success; if recycling plus trash is more expensive than trash only, then participation will be limited. Generators are identified and educated about the program by the municipality, or sometimes a contracted third party. Grants may be available to help fund some costs, for instance purchase of containers, or other program elements. Before service begins advise each business on how to select the ideal size their container and frequency of service to get the most benefit from the collection. Outreach could be in the form of staff training and signage or indoor containers for recycling collection. Of course, the businesses will need to make changes to their janitorial services or identify procedures for getting the new materials to the external containers. Establish separate billing procedures; risks of non-payment are reduced if the community includes the bills for these new services in combination bills with water, and designates by ordinance that partial payments are assigned to water last (allowing water service turnoff).

**Sectors & Materials:** The program has the potential to advantage all businesses and sectors, and will just depend on services provided.

**Enforcement:** n/a

**Barriers:** Jumping through any legal hoops needed, and the start up costs may be the largest barriers if systems are not already in place.

**Program Impacts:** Medium: The potential, under favorable pricing, is very strong. This program may create a beneficial atmosphere for commercial recycling but it does not require businesses to actually recycle. Advocacy and publicity about the program can increase participation; poor outreach will decrease the impact.

**Cost Impacts:** Low to High: The community will have the ability to recover costs through service rates / fees. Cost impact will vary greatly depending on the existing infrastructure. Purchasing new trucks or setting up a new MRF can be very cost intensive. However, if adequate resources already exist, and program pricing is set appropriately (and there is a good market for recyclables), then the cost impact may be minimal.

**Community Examples / Population:** Orlando, FL: 238,300; Berkeley, CA: 112,580; Waco, TX: 124,805;

**Sectors:**

- Office: Programs targeting paper and cardboard as well as a certain amount of containers and plastics will want to ensure there are sufficient office buildings on their route. It is important to recognize that not only office buildings generate this type of waste as most businesses, even industrial will generate some office waste and should be considered when initiating the service.
- Bars & Restaurants: A program that takes over downtown services may consider implementing food scraps collections as downtown areas typically have more bars and restaurants.
• Grocery: If targeting food waste or cardboard in the waste stream, this sector would be one of the largest generators.

Materials:

• Food Waste/ Food Scraps: This is one of the waste streams that could potentially be included in this program. Routes that have restaurants and grocery stores are typically a good choice for maximizing food scraps collection services.

• Yard Waste: The largest generators in this sector are landscape and lawn care businesses. It is important to determine local sites that would have capacity to begin accepting this waste stream.

• Paper: Targeting office buildings is a common way to capture this material; however most buildings have at least a small office.

• Cardboard: This material is an easy target and affects multiple sectors such as retail and grocery stores. Since it takes up so much volume, showing businesses how they can reduce their cubic yards of trash service by beginning a recycling service can be an effective way to reduce this material in the waste stream.

Considerations by Community Size (if any):

• Very Small: For implementation, very small communities may have an easier time with education and outreach due to fewer accounts, however staff is usually smaller as well and may lack available staff for training. The impact on diversion may be less than with larger communities due to the smaller percentage of businesses in the program, a fact which will need to be weighed against the cost of implementation. However, if a specific type of generator makes up the majority of the commercial sector, than this type a program may have a significant effect on the commercial diversion rate. More rural communities may have better access to compost facilities if targeting food waste due to available space.

• Small: For implementation, smaller communities may have an easier time with education and outreach due to fewer accounts; however staff is usually smaller as well and may lack available staff for training. The impact on diversion may be less than with larger communities due to the smaller percentage of businesses in the program, a fact which will need to be weighed against the cost of implementation. However, if a specific type of generator makes up the majority of the commercial sector, or the commercial sector is very compact and service currently lags, than this type a program may have a significant effect on the commercial diversion rate. More rural communities may have better access to compost facilities if targeting food waste due to available space.

• Medium: This program can be successful in a medium size community as long as there are ample businesses near each other with the same type of materials that are accepted at the local facilities.

• Very Large: Very large communities may need to consider the potential increase in volume and whether there are adequate recycling (or composting) facilities for the waste stream. Also whether there will be adequate staff for education and outreach to the targeted business sector.

Partnerships and Facilities

Program Number 47: Cooperative Collections Arranged
**Description:** This program specifically addresses the recycling barriers encountered by small businesses. Small businesses commonly face three main barriers in successful recycling: 1) they have small volumes for recycling; 2) they have limited storage or set out space for the materials, and 3) they cannot interest a hauler in providing collection service, particularly at an affordable price. In this program, the community identifies sets of small businesses that might benefit; the typical situation is a set of small retail shops along a street or in a strip mall or similar that are each too small for service. The community staff coordinates with them to identify common materials and a coordinated time that they may be able to set out materials for collection by a hauler (e.g., set out cardboard on the curb at ten o’clock on Friday mornings). Another way the community may help set this up is to work with multiple businesses and identify a location for a shared recycling dumpster arrangement. A chamber of commerce or other organization could perform the same general function. Bills are presumably shared by the businesses, potentially under special arrangement with the hauler. This can increase and encourage businesses to recycle without mandates from the municipality. The community or association works with a hauler to negotiate a contract that best suits those businesses, pricing for the individual businesses becomes more reasonable, and the municipality gets the opportunity to get closer to its goals. The municipality could also facilitate cooperation with end users to provide collections such as a glass manufacturer for bottles or a composting facility for a food scraps program.

**Design Considerations:** There are several considerations for design. The program could look for groups with a similar material for collection (e.g. retail stores along a street for cardboard, containers for bars and restaurants, food for restaurants) and help them work with a hauler for routing for that particular commodity. Downtown restaurants could work collaboratively to find a hauler willing to start a food waste program if they know they have interested customers. Staff involvement could be in the form of negotiation assistance with pricing or providing initial contact. Programs like this work best for haulers if there are same material types to collect and clients are located on the same route. As a group, these associations may have better bargaining strength. Start up grants or some level of initial assistance would be helpful to get the program in place (if available).

**Implementation:** Determine where there are service gaps, and identify what materials or sector you want to target, or might be most needed by the businesses the community perceives to be underserved. Research whether there are partner groups associated with that sector that could help organize and negotiate this service. Determine if there is a hauler currently available in that area or for that material. Consider arranging a meeting with all stakeholders to discuss potential program and pricing. If additional funding is available, and there are simple barriers, funding could help by purchasing containers, helping reduce initial service fees, or outreach to identify underserved areas.

**Sectors & Materials:** All

**Enforcement:** There is no enforcement needed, only mediation.

**Barriers:** Finding a group that is on a suitable hauler route, or with service gaps that are agreeable to this shared arrangement (and for which a payment arrangement can be made) may be difficult, but important for financial viability of the program from the haulers perspective. Downtown associations or other geographically centered associations work well. If the group of clients is too small, there may not be financial incentive for the hauler to participate.

**Program Impacts:** Medium: Solid impacts can be realized from getting service to small businesses with service gaps. The impact from this program is larger, the more or larger “collectives” that are assembled, or the larger the association engaged in finding participants.
Cost Impacts: Low: Unless there is an initial investment for startup costs, there should be very little cost associated with this program other than staff research and mediation time.

Community Examples / Population: Columbus, OH: 787,033; Cambridge, MA: 105,162

Sectors:

- Office: This program can work well for targeting these businesses. It works especially well if they are geographically near each other. It can be set up for paper or cardboard and can help achieve savings through collective bargaining.
- Restaurants and Bars: This program can work well for targeting these businesses. It works especially well if they are geographically near each other. It can be set up for glass or drink containers or for food scraps.
- Grocery: This program can work well for targeting these businesses. It works especially well if they are geographically near each other. It can be set up for cardboard, containers, or for food scraps.

Materials:

- Food Waste/ Food Scraps: This is a great program for food scraps, but may take not only the association and a haulers involvement, but also perhaps a composter as well.
- Bottles & Cans: This program has been successful for targeting these items from restaurants and bars, which are often located in distinct, co-located areas of a community.
- Cardboard: Strip malls or other close proximity retail or industrial areas are very well-suited to this program, especially for collecting cardboard.

Considerations by Community Size (if any):

- Very Small: A very small community may not have a large enough association for collective bargaining or enough similar type businesses with the same type of materials; however, gaps are easily identified, and it may be very easy to negotiate for service improvements of this type.
- Medium: This program can be successful in a medium size community as long as there are ample businesses near each other with the same recycling needs.
- Large: This program has been successful in large communities that have multiple (small) businesses of a particular type located in close proximity.

Partnerships and Facilities

Program Number 48: Drop-off at Transfer Station or Drop-off Location

Description: This program sets up a recycling drop-off for use by commercial generators at a public or private transfer station or other location around the community. If the facility or site is private, the community will need to set up an arrangement, presumably involving payment; if the facility or site is public, the community may elect to (build and) operate the site itself or elect to engage the private sector to (build or) operate the site and/or manage the materials. The purpose of the program is to establish a drop-off location either at the facility or at other locations around town for commonly used business materials that are recyclable or compostable. It could also be set up for hard-to-recycle items such as used motor oil or electronics. This type of program works well for smaller businesses for materials that are easily stored such at office paper or aluminum cans, or if located in rural areas that
may not otherwise have access or distance would be a barrier. There are communities that have established food scrap drop-off locations, but those are less common. Yard waste drop-offs have also been established in some communities, diverting significant amounts of materials (at a cost, of course), benefitting from communities with lack of good disposal alternatives, yard waste bans, and practices from landscapers that collect materials for easy disposal.

**Design Considerations:** Setting a budget for this will help determine if this will be a staffed site or not and help establish the distance from the facility the collection container can be situated. Work with the facility owner (if not public) to assess site availability. Who will purchase the container and who will be responsible for emptying it or transporting materials to the recycling facility? If it is food scraps or compostables it will need to be emptied frequently and may have complaints from nearby businesses. Electronic materials tend to accumulate more slowly. If the material has a high market value, then a facility may be willing to establish a drop-off site and provide collection as well. Items with high market value also have the potential issue of "poaching", especially with materials like scrap metals. Some programs allow businesses to request drop-off containers as long as the site is publicly accessible. Smaller mobile units can be used and rotated to different drop-off sites.

**Implementation:** Determine materials to target for the drop-off site. Assess suitable facilities for capacity and location to the main generators. Work with facility to determine the recyclable materials to be collected, any required minimum levels of service, any financial arrangements, and length of the partnership should be included in the contract. If the community is applying for a grant to help with the implementation of the program, then the application needs to be completed and criteria followed.

**Sectors & Materials:** This program can target all sectors and all waste materials.

**Enforcement:** n/a

**Barriers:** The biggest problem with drop-off sites is illegal dumping and contamination. Clear signage and sites located near a facility or business open 24 hours can help avoid this. Some communities have sites with limited drop-off hours and are staffed. Overflowing collection containers have also been barriers to the continuation of programs. Make sure pick up policies are adequate and adjustable. Poaching of high value materials may be a concern at unstaffed sites.

**Program Impact:** Low: This program provides the tools to help businesses divert waste; however, it still relies on the internal culture and policies of each business and motivation to store and transport materials to the site.

**Cost Impacts:** Low: Unless the municipality has to transport or pay for the collection of materials, the cost impact should be minimal.

**Community Examples / Population:** Charlotte-Mecklenburg County, NC: 919,628; Waco, TX: 124,805

**Sector:**

- **Office or similar:** If setting up a drop-off site in a mostly office sector, make sure to accept office paper and small containers as well as cardboard.
- **Restaurants, Bars, Cafeterias:** If setting up a drop-off site in an area with mostly restaurants, include cardboard, bottles and cans; targeting food scrap and compostable materials may not be possible in all communities. Look for working with compost facilities that may provide this service.
- Grocery and similar: Target cardboard, bottles and cans; targeting food waste and compostable materials may not be possible in all communities. Look for working with compost facilities that may provide this service.

**Materials:**

- Food Waste/ Food Scraps: Targeting food scraps and compostable materials may not be possible in all communities. Look for working with compost facilities that may provide this service.
- Yard Waste: This material often doesn’t make up a very large part of the commercial waste stream, but may or may not be able to be targeted with this program.
- Bottles & Cans: Target restaurants, bars and cafeterias.
- Paper: Target office or similar.
- Cardboard: Look to establish a drop-off site that is near to retail centers and grocery stores.

**Considerations by Community Size (if any):**

- Very Small <10K: This program is ideal for very small communities. It promotes increased recycling opportunities especially within these communities that often don't generate enough recyclables, or have the funds to support recycling programs. The program can result in decreased costs for recycling services if partnering with a private facility.
- Small: This program is ideal for small communities. It promotes increased recycling opportunities especially within these communities that often don't generate enough recyclables, or have the funds to support recycling programs. The program can result in decreased costs for recycling services if partnering with a private facility.
- Medium: This program works well in medium-sized communities. It promotes increased recycling opportunities and the program can result in decreased costs for recycling services if partnering with a private facility. Medium size communities may have sufficient materials to have a regular flow of materials for a recycler.
- Large: This program can work in large communities. However, there could be capacity issues at the processing facility if several large communities or organizations are partners. It promotes increased recycling opportunities and the program can result in decreased costs for recycling services if partnering with a facility that collects the material.

**Partnerships and Facilities**

**Program Number 49: Hub and spoke incentives / grants / partnerships**

**Description:** Hub and spoke recycling models enable municipalities, counties, and solid waste planning regions to reduce or "share" their recycling facilities and infrastructure costs with other partners that are geographically near them. This is accomplished by having a centralized "hub" which consists of a processing center (sophisticated or more rudimentary) for the recyclable materials collected from the surrounding communities, which represent the "spokes". This type of system can result in significant financial savings in the costs from facility operations, processing, equipment use and acquisition, transportation to markets and facilities, personnel, and marketing. This type of program also promotes increased recycling opportunities especially for small and rural communities that don't generate enough recyclables, or don't have the funding to support recycling programs. In some regions, there are grants...
available to help with implementation of this type of program. The program is really a system of aggregating materials to more economic collection, processing, and marketing cooperatively.

**Design Considerations:** This hub and spoke program should include a centralized recycling processing facility that partners with several surrounding communities to collect, sort, bale and sell their recyclables. There are often legal contracts put in place to ensure that all of the recyclable materials collected from the participating communities are brought to the partnering central processing facility. The partners need to work together to receive all possible cost advantages through increased recycling volumes and revenues generated, as well as to minimize operational costs. By increasing the overall volume of recyclable materials by combining those collected from many small communities or several regions, greater numbers of large recyclers will be interested in the materials and are subsequently often willing to invest in these recycling programs. Considerations in the development of a hub and spoke program should include many of the following: definitions of partners and requirements about the number of necessary partners; both short-term and long-term program goals; increases in recycling opportunities and provision of a minimum level of recycling services; access for rural and small communities to recycling collection or drop-off; increases in resource conservation and transportation efficiency; decreases in greenhouse gas production, energy use, and environmental impacts; creation of new jobs in the solid waste sector; and finally community outreach and signage requirements that illustrate which recyclable materials are collected or allowed. This program should support regional solid waste plans as well as other environmental plans and requirements that exist in the area. Grants that support the development and implementation of hub and spoke programs are often available and often require many of the aforementioned criteria.

**Implementation:** To implement this hub and spoke program, there must either be a hub available that has the capacity to process the collected recyclables as well as several communities willing to participate in the program, or the means to construct the facility. Legal contracts should be drawn up and signed by the appropriate parties that outline the terms of the partnership and will ensure that all of the recyclable materials collected from the participating communities are brought to the partnering central processing facility and that the facility will process them. Solid, long term material sales contracts will help ensure the success of the program and avoid issues from falling markets, especially during the startup phase. The recyclable materials to be collected, any required minimum levels of service, any financial arrangements, and length of the partnership should be included in the contract. If your community is applying for a grant to help with the implementation of the program, then the application needs to be completed and criteria followed.

**Sectors & Materials:** All businesses, especially those in rural or smaller communities can benefit from hub and spoke programs. Offices, restaurants, bars, cafeterias, and grocery stores can all recycle their cardboard and paper through this program. Restaurants, bars, cafeterias, and grocery stores can easily also recycle their bottles and cans too. Yard waste may be more difficult to recycle through this program since some recycling facilities have areas to collect yard waste and some do not. This material then needs to be chipped on site or sent to another facility, and the central processing area may not have these capabilities; however, yard waste typically is not a large component of commercial waste. Food scraps is the one material that may not be able to be accommodated with this program, since it often needs to be taken to a composting facility and can't be stored in a safe manner for a long period of time due to pest and odor issues.

**Enforcement:** Since there is usually a legal contract associated with this program, enforcement and penalties for non-compliance can be written into the contract.
**Barriers:** Barriers to the hub and spoke program are the distance to the central recycling processing facility. Some mountain and rural areas are too far or not densely populated enough to make this program feasible. Also, the volume of recyclables from some larger communities could overwhelm the capacity of the central recycling processing facility. If there are large variations in the sizes of the partners, there could be trouble balancing the collections and services to satisfy all parties. The hub needs to be able to accept the materials generated by the commercial sector in the area. Material price fluctuations are a barrier and can be mitigated with long term sales contracts.

**Program Impacts:** High: This program could greatly increase recycling volumes and therefore revenues collected from the sale of recyclable materials. It would also offer access to recycling for businesses in small and rural communities that otherwise could not participate.

**Cost Impacts:** Low: The cost impacts associated with this program are low, since there is sharing of costs amongst partners for facility operations, processing, equipment use and acquisition, transportation to markets and facilities, personnel, and marketing. There is also the opportunity for increased revenue from the sale of the recyclable materials collected that could be distributed amongst the partners as well.

**Community Examples / Population:** Hillsboro, OR: 91,611; Gresham, OR: 105,594; Olympia, WA: 46,478; Cincinnati, OH: 296,943; Pratt, KS: 6,835; Shelby, MT: 3,376; Deming, NM: 14,855; Torrance County, NM: 165,383; Otero County, NM: 63,797; Newport News, VA: 180,719; Virginia Beach, VA: 437,994

**Sector:**
- Office or similar: Target office paper and cardboard.
- Restaurants, Bars, Cafeterias: Target cardboard, bottles and cans; targeting food scraps and compostable materials may not be possible.
- Grocery and similar: Target cardboard, bottles and cans; targeting food scraps and compostable materials may not be possible.

**Materials:**
- Food Waste/ Food Scraps: This may be difficult to target with this program due to more frequent pickups required for this material or difficulty finding a centrally located composting facility.
- Yard Waste: This material often doesn't make up a very large part of the commercial waste stream, but may or may not be able to be targeted with this program.
- Bottles & Cans: Target restaurants, bars and cafeterias
- Paper: Target office or similar
- Cardboard: Target office, restaurants, bars, cafeterias and grocery or similar

**Considerations by Community Size (if any):**
- Very Small <10K: This program is ideal for very small communities. It promotes increased recycling opportunities especially within these communities that often don't generate enough recyclables, or have the funds to support recycling programs. The program can result in decreased costs for recycling services.
- Small: This program is ideal for small communities. It promotes increased recycling opportunities especially within these communities that often don't generate enough
recyclables, or have the funds to support recycling programs. The program can result in decreased costs for recycling services.

- **Medium**: This program works well in medium-sized communities. It promotes increased recycling opportunities and the program can result in decreased costs for recycling services.
- **Large**: This program can work in large communities. However, there could be capacity issues at the processing facility if several large communities or organizations are partners. It promotes increased recycling opportunities and the program can result in decreased costs for recycling services.

**Partnerships and Facilities**

**Program Number 50: Partnerships to Develop Local Needed Facilities / Infrastructure**

**Description**: Partnering is an excellent way to combine resources to develop needed infrastructure to support diversion programs. This type of partnership can result in significant financial savings by pooling resources for facility operations, processing, equipment use and acquisition, transportation to markets and facilities, personnel, and marketing. This type of program also promotes increased recycling opportunities especially for small and rural communities that don't generate enough recyclables, or don't have the funds to support recycling programs.

**Design Considerations**: Partnerships can be between two neighboring jurisdictions or between a private company and a municipality. Examples range from a regional MRF for neighboring counties or a glass recycling center partnering with a bottling company and a county. A farmer’s co-op could be a partner for a composting facility. They may be able to provide the site and a ready market, while the municipality provides equipment or operational staff. Composting facilities are often located at or near landfills to take advantage of yard waste materials. A community and/or county could provide collection services in exchange for facility use or sharing in recycling revenue with a private MRF. Some regions pool their resources together, both public and private to establish a full range of services and facilities while avoiding duplication.

**Implementation**: Communities will need to identify service gaps or facility shortfalls. Communities will determine existing resources, what they you may have to offer, and reach out to partners that may be interested or have similar needs. Studies will be needed to estimate the expected flow of waste for the facility, and the anticipated cost for various alternatives. Negotiations and discussions between the partners will cover issues like location, contribution agreements for building or site development. The negotiations must also cover who will be responsible for equipment purchasing, maintenance and facility operations. If the arrangement includes working with other governments, it will be necessary to draft an intergovernmental agreement or set up a specific authority for this program. If working with the private sector, draft a contract. Determine the amount to be charged for facility use. Set up systems for financing operations should there be a material shortfall or a drop in markets.

**Sectors & Materials**: All sectors and materials

**Enforcement**: Only as would apply to contracts or agreements.

**Barriers**: If there are large variations in the sizes of the partners, there could be trouble balancing the collections, services and contributions to satisfy all parties. If contract or inter-municipal agreements are
not well written there could be legal issues. Flow control laws (directing where material goes) or long
term contracts for materials are important to ensure financial success and long term stability.

**Program Impacts:** Medium: This has the potential to have significant impacts on diversion. However, this
only sets up the infrastructure for program options; it does not establish programs or requirements to
recycle. Once the infrastructure is in place, it will be up to the individual partners to direct the materials
to the facilities.

**Cost Impacts:** Low to Medium: Costs can substantially be reduced through partnerships. If it is a
collaborative effort, each partner brings existing resources; the cost impact can be minimal compared to
the opportunities gained.

**Community Examples / Population:** Bucks County, PA: 625,249; Jackson County Recycling Partnership,
OR: 203,206 (approximately);

**Sectors:** All sectors could benefit from this effort depending on what facilities and infrastructure are
established.

**Materials:** Any material could be targeted through this effort depending on what facilities and
infrastructure are established.

**Considerations by Community Size (if any):**

- **Small:** Any size community can benefit from partnerships. Smaller communities may receive
greater benefits if they significantly lack facilities; however, they may also lack contributions to
the partnership. Partnering with other small communities may be the best course.
- **Large:** Large communities may have more resources to contribute and be able to develop better
partnerships, especially with private companies, but also may have more difficulty finding
appropriate sites if the community is densely populated.

**Partnerships and Facilities**

**Program Number 51: Dirty MRF (Post-collection separation)**

**Description:** Recognizing that many recyclables remain in trash, a sector’s waste is collected as trash,
and easy recyclables are sorted out at a mixed waste facility or "dirty MRF". This process could be at a
jurisdiction’s own facility, a program could be established for a public/private partnership at a facility, or
could be directed bring all waste to a mixed waste facility.

**Design Considerations:** A dirty MRF, or mixed waste facility, is a facility that takes in trash, and uses
equipment and staff to pull out recyclables, ranging from fairly simple extraction on a tipping floor, to
more sophisticated sorting methods. The goal is to sort recyclable materials out of the TRASH stream to
recover potentially valuable materials. This process is very effective for commercial (as well as
multifamily, which often has poor participation and capture), especially if the haulers refine the
commercial collection routes to try to keep streams clean. For example, re-routing to make a paper-rich
route (and specifically avoiding waste from messy restaurants) will simplify sorting at the dirty MRF and
increase the value of the materials. Collecting all restaurants and food stores, etc. in other routes will
help group compostables. There is some concern that going through the trash stream first decreases
market value, because the material is less clean. Having the materials sorted into recycling prior to disposal will tend to lead to cleaner materials, but in some sectors (commercial and multifamily), there may be so much materials, or such high value material (like metals from C&D), that it is worth the extra sorting to achieve revenues and significant new diversion tonnage toward goals. Options for setting up a program range from construction and operation of a mixed waste facility, partnering with other communities and facilities, contracting with an existing facility, or passing and ordinance requiring all haulers to use a particular facility.

Implementation: Determine if there is a suitable facility with appropriate capacity. Some communities such as San Jose set up a mixed waste facility in, or adjacent to, their single stream MRF. Consider whether compostables or wet waste will be targeted and if the facility has capabilities for that. Look for long term markets for the recovered material, recognizing that the product may be more contaminated or require additional processing. This is typically not an issue if the material is being recovered for Waste-to-Energy. If partnering for building or processing, make sure adequate contracts are in place regarding material tonnage, revenues, etc. If the program will be limited to requiring haulers to use a specific facility, first set up a stakeholder meeting to help clarify the process and determine if there will be routing or other issues. This will help make the ordinance more successful and easier to enforce.

Sectors & Materials: As this program covers waste already disposed as trash, any material could be targeted and recovered from any sector.

Enforcement: For building or partnering, contracts and, if necessary, auditing will be the main mechanism for enforcement. For requirements to use a particular facility, reports, receipts, or periodic audits may be tied to hauler license renewals or franchise fees.

Barriers: The largest barrier will be having a facility that can separate recyclables from trash. Many mixed waste recovery facilities have difficulty with wet materials and require additional equipment for that process. The second is ensuring the recovered materials are in a condition to be marketable and finding markets willing to take materials covered in this way.

Program Impacts: Medium: There is typically considerable recyclable material in the commercial waste stream, especially if there is little to no commercial recycling programs. If there is little existing recycling in the commercial sector, there may be a much larger potential for material recovery. As more communities reach for zero waste goals, targeting this residual stream is often an effective way to reach higher recycling levels.

Cost Impacts: Medium to High: The cost associated with this program will depend greatly on whether there is an existing facility or partnering options.

Community Examples / Population: San Jose, CA: 945,942; Lincoln, CA: 42,889 (Western Placer Waste Management Authority, WDWMA): 567,083; Medina County, OH: 172,332;

Considerations by Community Size (if any):

- Small: Small communities can implement rudimentary sorting procedures, if there is under recovery of higher-value materials from any particular sectors, or relatively clean streams that can benefit from post-sorting (C&D metals, office paper, etc.).
- Large and very large: Larger communities may find it worth considering developing a more sophisticated mixed waste facility. This facility can be very effective at recovering materials from lagging sectors – including commercial, C&D (and potentially multi-family). Routing for clean
(non-restaurant) streams can lead to significant recovery of paper from offices, containers from bars and restaurant and other valuable streams.

C&D

Program Number 52: C&D Differential Permit Fees to Encourage Recycling / Reuse

Description: Since C&D can often make up to 30% of a community’s waste stream, targeting this sector can have a large impact. Encouraging recycling can be achieved through incentive-based construction or demolition permit fees, in which a jurisdiction passes an ordinance offering lower permit fees (or rebates / refunds) for achieving a certain (verified) level of diversion on C&D waste generated during the project. This can be a simple threshold (meet or don’t meet the required recycling rate), or higher discounts can be allowed for higher levels of recycling rates achieved (and verified). One additional benefit of the program is that if a steady stream of C&D tonnage that builders want to recycle is encouraged by the program, it may become feasible for a private entity to construct (or enlarge) local C&D recycling infrastructure, to the benefit of the region.

Design Considerations: Several design questions arise: will the rebate or lower fees be two levels or more, and how will compliance be verified. Some communities rebate a certain percent of fees for compliance; others return graduating percentages of the permit fee based on number of material type recycled or overall percentage of diverted materials. To provide verification of meeting thresholds, contractors can fill out (and sign) simple or detailed forms that detail on-site reuse and recycling procedures, or verify they used a known, certified C&D recycler that the community identifies as recycling a high enough percent of material received to meet the community’s goals. Lists of C&D recyclers that must be used can be provided, or permit holders can show proof of using a certified recycler of their choice, or separating materials themselves. There may be specific considerations for communities with franchised haulers that cover C&D, either by excluding them when setting up this system so permit haulers can choose a provider, or by requiring their C&D rates to be less or comparable to recycling rates. If this is a monetary incentive only program, the rates set must be adequate to insure a clear financial gain for diversion. Verification of the amounts recycled is an important element of the program; that is why some communities require projects to use specifically approved recyclers, while others require only receipts or written reports.

Implementation: Start with a waste analysis to assess the amount of C&D waste in your community. Verify that there are sufficient alternatives and facilities for recycling the amount of waste you expect to divert. Certain materials are still struggling to find appropriate recycling markets. Discuss with stakeholders at what level differential fees will achieve a desire to participate and what level of diversion will be expected (i.e. all of this type of material or a percentage of overall). If the program doesn’t provide enough savings to make up for the extra site and materials management costs for developers to recycle, no tons will be achieved. Timely rebates and a clear verification system will also be important to the developer. If you have hauler franchises or a single hauler, review contracts regarding C&D hauling and adjust if necessary either by excluding C&D or reducing costs for hauling C&D. Create a standard form, or set up website to handle reporting and verifying, recycling, and for refunding permit fees.

Sectors & Materials: C&D
Enforcement: This program sets up automatic financial penalties for failure to comply by setting a higher permit fee or no rebate. The key enforcement issue is gaining proof of recycling in order to receive the refund or lower permit fee. Enforcement could also be through delaying certificates of occupancy or final inspections. Requiring use of specific recyclers or community-certified recovery facilities can help with validation.

Barriers: Areas of failure for this program will mostly depend on the price structure and whether there is sufficient financial incentive to motivate recycling behavior. Lack of availability of recycling facilities or options nearby will also affect the success of this program. There may be some resistance to this program from C&D companies. Any additional costs will typically be passed on to their customers. If there is no C&D recycling facility nearby, qualification thresholds (required recycling levels for the rebate) may have to be smaller as the builders will need to rely on on-site practices for reuse and recycling to comply.

Program Impacts: Medium: Program impacts greatly vary depending on the setup of this program. If this is in conjunction with a recycling ordinance that is enforced, the impacts will be higher. If this is a standalone program with a small differential in permit fees, then impacts will generally be lower. One additional benefit of the program is that if a steady stream of C&D tonnage that builders want to recycle is encouraged by the program, it may become feasible for a private entity to construct (or enlarge) local C&D recycling infrastructure, to the benefit of the region.

Cost Impacts: Medium: Loss of revenue from permits (presumably recovered as permit fees are adjusted to be revenue neutral and accommodate this new pricing structure) and staff time to advertise and enforce the program are the main costs. There may be unintentional revenues gained from this program from complying building projects that do not claim their rebates.

Community Examples / Population: Sacramento, CA: 466,488

Sectors and Materials: This program targets C&D waste

Considerations by Community Size (if any):

- Very Small <10K & Small: For implementation, very small and small communities may have an easier time with enforcement due to fewer projects; however staff is usually smaller as well and may lack available staff for validations. Most importantly, if the small communities also lack C&D recovery / processing sites in the region, the program will be more challenged and builders will have to rely on more basic on-site recycling and recovery strategies to comply. The recycling thresholds for compliance may have to be lower in these communities. The impact on diversion may be less than with larger communities due to the smaller percentage of C&D material, a fact which will need to be weighed against the cost of implementation and enforcement. However, if this type of material makes up the large part of the community’s waste stream, than this type a program may have a significant effect on the commercial diversion rate.
- Medium: Medium communities may need to consider the potential increase in volume and whether there are adequate recycling facilities for this waste stream. Also whether there will be adequate staff for monitoring compliance. If there is no C&D recycling facility nearby, qualification thresholds (required recycling levels for the rebate) may have to be smaller as the builders will need to rely on on-site practices for reuse and recycling to comply.
- Very Large: Very large communities may need to consider the potential increase in volume and whether there are adequate recycling facilities for this waste stream. Also whether there will be
adequate staff for monitoring compliance. If there is no C&D recycling facility nearby, qualification thresholds (required recycling levels for the rebate) may have to be smaller as the builders will need to rely on on-site practices for reuse and recycling to comply.

C&D

Program Number 53: C&D Deposit Program

Description: Deposit programs for C&D projects are becoming more prevalent as communities realize these materials often make up 30% of the waste stream. As part of the building permit process, a C&D recycling deposit is assessed, based on the project size, whether it is new construction or remodel, and the building type (commercial, residential, multifamily, etc.). Typically a deposit will be required at the time of the permit application and all (or a portion of which) will be returned with proof of diversion at conclusion of the project. This program can be set up in conjunction with an ordinance requiring C&D recycling or on its own through financial incentives.

Design Considerations: There are several options for designing this type of program, but most of them require an upfront fee or deposit with various refund levels. To be efficient, the smallest projects are often exempted; one community found that excluding the projects accounting for the lowest 10% of tons saved them 25% of the administrative costs of the program. If there is no C&D recycling facility nearby, qualification thresholds (required recycling levels for the rebate) may have to be smaller as the builders will need to rely on on-site practices for reuse and recycling to comply. Taking the time to “certify” C&D recyclers in terms of verifying that they recycle the community’s goal threshold (e.g. recovering 25% or 50%, etc. of the C&D material brought) can facilitate the verification process for the program. In that way, developers can verify compliance by showing they brought their material to an approved facility, or permit holders can show proof of using a certified recycler of their choice, or use weight slips or other means to show they separated or recycled or reused materials themselves. The community will want to consider the implications of the program on any franchised haulers that cover C&D, either by excluding them when setting up this system so permit haulers can choose a provider, or by requiring their C&D rates to be less or comparable to recycling rates. If this is a monetary incentive only program, the rates set must be adequate to insure a clear financial gain for diversion. A final consideration is requiring reporting or verification of amounts recycled; this issue is why some communities require projects to use specifically approved recyclers, others require only receipts or written reports.

Implementation: Many communities start with a waste analysis to assess the amount of C&D waste in the community, and conduct research to verify that there are sufficient alternatives and facilities for recycling the amount of waste you expect to divert. Interview some of the most progressive or green builders in the region to determine what feasible options are available for on-site reuse, recycling of materials that may help identify reasonable recovery goals for the program. Discuss with stakeholders at what level of deposit refund will achieve desire to participate and what level of diversion will be expected (i.e. all of this type of material or a percentage of overall). Set an achievable target first; it can be increased as time goes on and builders become savvier on recycling practices and more recycling opportunities evolve in the region. If there are hauler franchises or a single hauler, review contracts regarding C&D hauling and adjust if necessary either by excluding C&D or reducing costs for hauling C&D. Create a standard form, or set up website to handle reporting and verifying, recycling, and for refunding deposits. One additional benefit of the program is that if a steady stream of C&D tonnage that
builders want to recycle is encouraged by the program, it may become feasible for a private entity to construct (or enlarge) local C&D recycling infrastructure, to the benefit of the region.

**Sectors & Materials:** C&D

**Enforcement:** This program sets up automatic financial penalties for failure to comply by setting up a deposit system with no refund for non-compliance. If there is no ordinance requiring recycling in conjunction with this program, then the only enforcement issue will be proof of recycling in order to receive the refund. Enforcement could also be through delaying certificates of occupancy or final inspections. Requiring use of specific recyclers or community-certified recovery facilities can help with validation.

**Barriers:** Areas of failure for this program will mostly depend on the price structure and whether there is sufficient financial incentive to motivate recycling behavior. Lack of availability of recycling facilities or options nearby will also affect the success of this program. There may be some resistance to the program from contractors who see this as just another time consuming step and may forfeit the deposit and pass the cost onto the customer. If there is no C&D recycling facility nearby, qualification thresholds (required recycling levels for the rebate) may have to be smaller as the builders will need to rely on on-site practices for reuse and recycling to comply.

**Program Impacts:** Medium: Program impacts greatly vary depending on the set up of this program. If this is in conjunction with a recycling ordinance that is enforced, the impacts will be higher. If this is a standalone program with a small differential in permit fees than the impacts will be low. One additional benefit of the program is that if a steady stream of C&D tonnage that builders want to recycle is encouraged by the program, it may become feasible for a private entity to construct (or enlarge) local C&D recycling infrastructure, to the benefit of the region.

**Cost Impacts:** Low: Costs can be reduced by including the deposit in the C&D permit process (piggybacking on the administrative steps already in place) There will be some administrative costs for the processing of refunds. Staff time to advertise and enforce the program are the main costs. There may be unintentional revenues gained from this program from complying building projects that do not claim their rebates.

**Community Examples / Population:** Sacramento, CA: 466,488; San Jose, CA: 945,942

**Sectors:** The program could potentially affect any sector if they remodel, but it does not target one, specifically.

**Materials:** This program targets C&D waste.

**Considerations by Community Size (if any):**

- **Very Small <10K:** For implementation, very small communities may have an easier time with enforcement due to fewer projects; however staff is usually smaller as well and may lack available staff for validations. The impact on diversion may be less than with larger communities due to the smaller percentage of C&D material, a fact which will need to be weighed against the cost of implementation and enforcement. However, if this type of material makes up the large part of your waste stream, than this type a program may have a significant effect on the commercial diversion rate.
• Very Large: Very large communities may need to consider the potential increase in volume and whether there are adequate recycling facilities for this waste stream. Also whether there will be adequate staff for monitoring compliance.

C&D

Program Number 54: C&D – Require On-Site Sale or Contact Dismantler

Description: This project sets up a requirement that, before a building can be demolished, the developer must contact a dismantler or conduct an on-site sale of materials from the building about to be demolished. Deconstruction is the process of systematically dismantling a building for reuse and recycling. The onsite sale of materials such as doors or appliances has a well established market in many areas of the country. Some companies purchase entire buildings for salvage. Less common, but gaining ground is structural dismantling which involves the disassembly of "internal" materials in a manner so they can be reused versus the demolition process which often ruins materials for other uses. Job creation can be a benefit as dismantling is more labor intensive than demolishing. Also more dismantling companies are being created as contractors wish to speed up the deconstruction process more efficiently.

Design Considerations: In some communities with this program, they require using a dismantler, and others require use of specific municipal approved companies. Some programs require a specific amount of material generated on site to be recycled. If there is not an advertised dismantler in the community, there are numerous on-site deconstruction advocacy sites with information on how to encourage contractors to establish similar services. Design considerations will include decisions about enforcement methods, and whether the program will be applied to all remodeling or only of a certain size or dollar amount and all demolition projects or large ones.

Implementation: Implementation steps center around educating the specific C&D subsector about the program and its requirements, and enforcing the program’s requirements. The steps involved are to establish the means to qualify eligible sites – ones that have recyclable or reusable materials, and determine if there will be size thresholds established for eligibility. Identify the method that will be used for enforcement; examples include approval of the occupancy permit, inspector sign-off before permits are issued or receipts from dismantling companies showing the amount or material type recycled, or other options the community may develop. Develop and publish a reference list of materials targeted for deconstruction permit (if planning on having one) or for sign off procedures for occupancy or building permits. Educate community on new requirements and how to comply. Pass ordinance requiring on site deconstruction and recycling. Provide outreach on dismantling instructions or a list of approved companies in the area, and provide case studies or other education on the potential for cost savings from avoided landfill fees and high C&D fees and the market value for reusable materials.

Sectors & Materials: Any sector that may be remodeling and for all C&D materials.

Enforcement: Enforcement can be tied to the approval of the occupancy permit. Inspectors can be required to sign off before permits are issued or receipts can be shown from dismantling companies showing the amount or material type recycled. Photos may also be helpful.

Barriers: Deconstruction is more customary in areas where landfill fees are highest. Where landfill fees are low, deconstruction is seen as an added expense and time delay. Requiring on site sales or hiring a
dismantler can help avoid land filling of reusable materials. Lead containing materials create health issues and other material (asbestos) requires proper training and education regarding necessary procedures of disposal.

**Program Impact:** Medium to High: C&D material waste diverted can have a significant impact to the overall waste profile for most communities. However, if there is little construction activity in your region, the impact may not be realized.

**Cost Impacts:** Low: The process requires monitoring and verification for permitting purposes.

**Community Examples / Population:** Boulder, CO: 101,808; Metro Vancouver, BC: 2,476,145; Portland, OR: 603,106

**Sectors:** It could potentially affect any sector if they remodel, but it does not specifically target any sector, only C&D waste.

**Materials:**
- C&D: This program targets C&D waste.

**Considerations by Community Size (if any):**
- Small: Small communities may have an easier time with monitoring and oversight due to fewer construction projects. Program impact may be more sporadic and dependent upon the size of each construction project.
- Large: Large communities may see more of an impact from this program due to more construction possibilities. It may also be harder to monitor compliance if permitting or other program validations are not strictly enforced.

**C&D**

**Program Number 55: Discounted Tipping Fees for C&D**

**Description:** This program is designed to encourage separation and recycling of construction and demolition (C&D) debris through economic incentives. Loads that are brought to the landfill or other designated area with clean and separated C&D materials will receive a discounted disposal rate relative to the rate from MSW.

**Design Considerations:** If the municipality is the authority at the landfill they can set the rates sufficient to encourage a builder / developer / demolition firm to bring separated materials to the facility. The situation becomes more complicated if facilities are private; the community may or may not have authority to implement this program. It might be able to offer to pay the requested differential to the landfill operators for them to collect and manage the C&D materials separately. Examples of the levels of differential tip fees provided in some communities include: $15 per ton for clean separated materials, versus $55 per ton regular landfill fees, or $77 for clean C&D and $85 per ton for landfill disposal. The community will need to devise an outreach program to reach C&D-related businesses and builders / developers. A community could partner with a salvage company or negotiate with the landfill owner if municipality does not have authority to set rates. The program will not make sense if there is not local capacity to recover or recycle materials; separate collection is not recycling.
Implementation: Determine if there are facilities or markets to accept the separated C&D materials. Determine the appropriate discount that will change behavior, and establish resolution with council to set rates or negotiate with landfill authority. If the agreement is with a private landfill, identify a funding source (general fund or other) to cover the cost of per-ton subsidies the community may want to implement to encourage separation of materials. Set up a system for inspecting loads if it doesn't already exist (thresholds for “clean and separated” are usually 5-10% contamination). A new landfill rate study will be needed to re-establish rates to cover the costs for a subsidy for the tonnage that is brought as C&D. Provide information to building permit applicants and other affected stakeholders of the program and potential cost savings.

Sectors & Materials: C&D materials

Enforcement: This would take place at the landfill or C&D site. Inspectors would determine if the load has acceptable levels of clean material; if not they will be charged the higher fee.

Barriers: If there is no local market for recovered material, or any facility or firm to perform useful recovery, the program will not be highly effective. If the price differential is not sufficient compared to the cost of separating the load, then there will be little incentive to separate the materials. There will be staff time involved in setting up the program, and for enforcement.

Program Impacts: Low to Medium: Program impacts will be dependent on the price levels set and how much they incentivize contractors. It will also depend on how many construction projects take place.

Cost Impacts: Low: The cost impacts of setting up the program are very low; enforcement is also needed. The potential costs from lost landfill revenue would presumably be minimal because the community would recalculate landfill rates to assure they recovered the revenue requirement necessary to fund the C&D subsidy. Some material revenues might also help offset costs.

Community Examples / Population: Victorville, CA: 115,903; State of Delaware: 897,934

Sectors: It could potentially affect any sector if they remodel, but it does not specifically target any sector, only C&D waste.

Materials:

- C&D: This program targets C&D waste

Considerations by Community Size (if any):

- Small: Small communities may have an easier time with monitoring and oversight due to fewer construction projects. Program impact may be more sporadic and dependent upon the size of each construction project.
- Large: Large communities may see more of an impact from this program due to more construction possibilities. It may also be harder to monitor each load if sites are not sufficiently staffed.

C&D

Program Number 56: Developer Incentives to Build In Recycling/C&D
**Description:** This program uses various incentives to encourage builders to use recycled or recyclable materials in their construction process, and incorporate recycling on the job site. Developers care about several types of incentives; direct financial incentives, as well as more favorable allowances in their design (additional floors of the building, closer to lot lines, changes in parking requirements, etc.). Incentives could be financial or point towards achieving a green status such as LEEDs certified.

**Design Considerations:** Design considerations include how developers will receive their incentive (payments, tax credit, reduced permit or other fees, etc.), the level of recycling sufficient to qualify for the various benefits, and how to make sure that the incentives are well-defined enough to assure that activities beyond standard building practices are incentivized, and making sure that there are limits to the accumulative of incentives (with a builder taking advantage of multiple concessions that lead to an unacceptable building).

**Implementation:** Determine if there are any constraints in municipal building codes regarding use of recycled materials in construction. Work with a builders association to determine feasible goals and appropriate incentive amounts. Establish a system for incentives whether a refund or discount program, or whether other building-design-related concessions will be allowed. Have council pass a resolution adopting these goals. Work with the building department for enforcement and verification. Provide outreach to notify contractors and building designers of this program.

**Sectors & Materials:** C&D

**Enforcement:** Enforcement will center on the verification of products used, conformance with submitted plans, and retention of recycling programs in the buildings on an on-going basis.

**Barriers:** If incentives (financial or other) are not high or attractive enough, they may not lead to change (and the associated increase in recycling). If there are not enough recycled content materials available for use, there will be similarly small effects. Other barriers include: crafting building codes or ordinances that achieve objectives but do not lend themselves to abuse; and getting the ordinances / codes passed by elected officials.

**Program Impact:** Low

**Cost Impacts:** Low: If permit fee incentives are used, there will be some revenue loss from reduction in permit fees, but this can be offset by raising fees for permits on those not using recycled materials. If concessions are used, direct costs will not arise. Enforcement and compliance inspections will be needed.

**Community Examples / Population:** Seattle, WA: 3,439,809

**Sectors & materials:** It could potentially affect any sector if they remodel, but it does not specifically target sectors, only C&D waste.

**Considerations by Community Size (if any):**

- Small: Small communities may have an easier time with monitoring and oversight due to fewer construction projects. Program impact may be more sporadic and dependent upon the size of each construction project.
Large: Large communities may see more of an impact from this program due to more construction possibilities. It may also be harder to monitor or review each project if not sufficiently staffed.

C&D

Program Number 57: C&D Material Bans

Description: This program imposes a material ban designating a list of specific materials that will not be accepted for waste disposal either at a landfill or through collection (generally one or the other, not both). Hazardous waste or yard waste bans are a common example of this and are prevalent across the country; a C&D ban would just be another variation of those programs. Bans have been implemented since the 1980’s through various actions by cities, counties, states, and landfill districts. Bans and mandatory recycling ordinances have significant overlap in their impacts and enforcement strategies and often are implemented together.

Design Considerations: Some programs ban C&D from the landfill, and others ban the materials from collection. The ordinance could require all businesses to recycle all items from a list or a percentage of the waste generated from a construction site. Some communities exempt small loads. Communities will need to decide whether the ban includes mixed loads taken to recycling facilities or whether all loads be separated. Enforcement procedures will be needed; inspection procedures usually allow up to about 5-10% contamination before fines or other penalties are imposed. The penalties will also need to be determined, which in some cases involves fine or ultimate revocation of the hauler license; other facilities force a floor-dumping and re-sorting of the material before it will be accepted. This kind of significant delay has a strong deterrent incentive.

Implementation: A waste stream analysis or a general idea of the expected additional volume is important for consideration of available capacity for the increase in recycled material. The municipality would then pass an ordinance banning the acceptance of all non separated C&D from all applicable landfills and transfer stations. The ordinance would include a specific list of materials that will be banned. Compliance guidelines should be included (for example: no more than 5% contamination allowed). The ordinance must also set up an enforcement mechanism for the mandatory program that outlines inspection procedures. Education will be important to provide alternative disposal methods for construction sites.

Sectors & Materials: C&D

Enforcement: Most likely enforcement would take place at the landfill with inspections of loads. Successful programs that rely on the honor system do exist, but have the potential to be ineffective. Enforcement procedures often involve inspections of a statistically selected ample of loads or trucks. Procedures usually allow up to about 5-10% contamination before fines or other penalties are imposed. The penalties vary, in some cases involving fine or ultimate revocation of the hauler license; other facilities force a floor-dumping and re-sorting of the material before it will be accepted. This kind of significant delay has a strong deterrent incentive.

Barriers: Illegal dumping if alternative methods are not made clear or are seen as cost prohibitive. A ban is the least popular program with the construction community; however, it is also very effective. Careful consideration should be given to materials that may be hard to recycle or have no nearby facility.
Program Impacts: High: Bans can be very effective as long as they are properly enforced. If there is little or sporadic development in the community then the impact may not be as high.

Cost Impacts: Low: Associated cost would revolve around enforcement, which at many landfills inspection procedures already exist.

Community Examples / Population: San Jose, CA: 945,942; Metro Vancouver, BC: 2,476,145;

Sectors: It could potentially affect any sector if they remodel, but it does not specifically target particular sectors, only C&D materials.

Materials: This program targets C&D waste.

Considerations by Community Size (if any):

- Small: Small communities may have an easier time with monitoring and oversight due to fewer construction projects. Program impact may be more sporadic and dependent upon the size of each construction project.
- Large: Large communities may see more of an impact from this program due to more construction possibilities. It may be harder to monitor each load if sites are not sufficiently staffed.