ABSTRACT

The purpose of this research is to determine the feasibility of establishing and operating a Material Recovery Facility (MRF) in Genesee County, MI. A clean, single-stream MRF takes in mixed recyclables, then separates and processes them for end-use distribution. We will explain residential recycling as well as what are the existing socioeconomic conditions in Genesee County. Our investigation includes site criteria and case studies of different MRF’s in Michigan and what parameters would be needed to successfully maintain a MRF operation.

METHODOLOGY

- Recycling Research
- Literature Review
- Socioeconomic Profile
- Current Situation
- Case Studies
- Location Site Criteria

DEMOGRAPHICS

<table>
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<tr>
<th>Population</th>
<th>2000</th>
<th>2010</th>
<th>2014</th>
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<tbody>
<tr>
<td>Michigan</td>
<td>9,938,444</td>
<td>9,952,687</td>
<td>9,889,024</td>
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<td>Genesee County</td>
<td>436,141</td>
<td>433,054</td>
<td>418,654</td>
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MRF OPERATION

1. Unload Materials
2. Manual Sorting
3. Cardboard Separation
4. Optical Separation
5. Contaminants Removed
6. Magnetic Separation
7. Aluminum Separation
8. Glass Processing
9. Plastic Separation
10. Materials Baled

RECOMMENDATIONS

Facility
- Clean, single stream
- Medium-sized MRF
- Public-private partnership
- 35,000 sq ft
- 40-70 employees

Site Location Characteristics
- Accessibility to roads and highways
- Heavy-industrial or local public use zoning
- Proximity to communities that produce large material volumes

Cost
- Building Cost: $10 million
- Equipment Cost: $4-$10 million

Business Model
- Merchant model
- Acquire materials from private waste haulers

Material Market
- Paper, glass, aluminum, plastic, steel, and cardboard

Demand
- Depends on current market
- Demand for recyclables is enhanced through government mandated demands

Education Strategy
- Programs that combine educational and promotional activities
- Encourage different age groups, income classes, and education levels to be involved

CASE STUDIES

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<tbody>
<tr>
<td>Michigan State University</td>
<td>2009</td>
<td>18,000</td>
<td>$13.3 Million (Recycling Center &amp; Surplus Store)</td>
<td>N/A</td>
<td>Clean, Single Stream</td>
<td>Public</td>
<td>50,543</td>
<td>5 Miles</td>
<td>800</td>
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<td>ReCommunity (Huron Charter Township)</td>
<td>2006</td>
<td>54,000</td>
<td>$11 Million</td>
<td>$9 Million</td>
<td>Clean, Single Stream</td>
<td>Private</td>
<td>1,790,078</td>
<td>10 Miles</td>
<td>80,300</td>
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<td>ReCommunity (City of Ann Arbor)</td>
<td>1995</td>
<td>35,000</td>
<td>$10 Million</td>
<td>$4 Million</td>
<td>Clean, Single Stream</td>
<td>Public</td>
<td>351,454</td>
<td>&gt;22 Miles</td>
<td>14,250</td>
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Source: Advanced Disposal