

**APPENDIX D: DETAILED TRIP GENERATION ASSUMPTIONS**



New Vehicle Trip Generation for the Central Maui Landfill Operations Expansion Project

New Traffic Generating Uses at Central Maui Landfill Site (Project)	Daily	Daily PCEs	AM Peak Hour															PM Peak Hour															Notes & Assumptions
			Autos			Trucks			Trucks w/ PCEs*			Auto & Trucks			Total PCEs*			Autos			Trucks			Auto & Trucks			Total PCEs*						
			In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total				
<b>Abandoned Vehicle Yard</b>																																	
Customers	110	110	4	7	11	1	2	3	2	4	6	5	9	14	6	13	17	1	6	7	2	4	6	4	8	12	3	20	23	3	14	18	<ul style="list-style-type: none"> <li>Weekday AM and PM peak trip generation were derived using driveway counts collected in May 2016 at the existing abandoned vehicle yard located on the northeast quadrant of the Pulehu Road and Hansen Road intersection</li> </ul>
Employees	6	6	3	0	3	0	0	0	0	0	0	3	0	3	3	0	3	0	3	1	0	0	0	0	0	0	0	3	3	0	3	3	<ul style="list-style-type: none"> <li>3 employees would staff the office at ABV yard (Source: County of Maui)</li> <li>Assuming that the employees arrive and depart during the peak period</li> </ul>
<b>Relocation of Upcountry Base Yard Refuse Operations</b>																																	
Refuse Truck Drivers	32	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<ul style="list-style-type: none"> <li>18 employees from Upcountry Base Yard (Source: County of Maui)</li> <li>Employees usually arrive at the base yards at 5:30 AM. No AM peak hour trips were assumed</li> <li>Employees do not necessarily have a standard 8 hour work day and start their shift early. Thus, no traffic related to refuse trucks and refuse drivers were assumed in the PM peak hour (Source: County of Maui)</li> <li>Of the 18 employees, all but 3 live upcountry (Source: County of Maui)</li> </ul>
New Refuse Truck Trips	16	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<ul style="list-style-type: none"> <li>Refuse trucks will be moved from the Upcountry base yard to the expanded Central Maui landfill, where they will be stored</li> <li>Trucks deploy before the AM peak (i.e. 5:30 AM)</li> <li>Conservatively assuming that all trucks return to the Central Maui landfill for storage in the PM peak hour</li> <li>Upcountry has 5 automated trucks &amp; 3 manual trucks (Source: County of Maui)</li> </ul>
<b>Relocation of Central/Wailuku Base Yard Refuse Operations</b>																																	
Refuse Truck Drivers	42	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<ul style="list-style-type: none"> <li>21 employees from Wailuku Base Yard (Source: County of Maui)</li> <li>Employees usually arrive at the base yards at 5:30 AM. No AM peak hour trips were assumed</li> <li>Although employees do not necessarily have a standard 8 hour work day, we are conservatively assuming that all employee vehicles leave in the PM peak hour</li> <li>General employee location: 6 - Upcountry, 1 Kula, &amp; 14 - Central (Source: County of Maui)</li> </ul>
New Refuse Truck Trips	24	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<ul style="list-style-type: none"> <li>Refuse trucks will be moved from the Central/Wailuku base yard to the expanded Central Maui landfill, where they will be stored</li> <li>Trucks deploy before the AM peak (i.e. 5:30 AM)</li> <li>Employees do not necessarily have a standard 8 hour work day and start their shift early. Thus, no traffic related to refuse trucks and refuse drivers were assumed in the PM peak hour (Source: County of Maui)</li> <li>Wailuku has 10 automated trucks &amp; 2 manual trucks (Source: County of Maui)</li> </ul>
<b>Relocation of West Side Base Yard Refuse Operations</b>																																	
Refuse Truck Drivers	16	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<ul style="list-style-type: none"> <li>8 employees from West Side Base Yard (Source: County of Maui)</li> <li>Employees usually arrive at the base yards at 5:30 AM. No AM peak hour trips were assumed</li> <li>Employees do not necessarily have a standard 8 hour work day and start their shift early. Thus, no traffic related to refuse trucks and refuse drivers were assumed in the PM peak hour (Source: County of Maui)</li> <li>General employee location: All but 2 live on the west side/Lahaina Area (Source: County of Maui)</li> </ul>
New Refuse Truck Trips	8	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<ul style="list-style-type: none"> <li>Refuse trucks will be moved from the West Side base yard to the expanded Central Maui landfill, where they will be stored</li> <li>Trucks deploy before the AM peak (i.e. 5:30 AM)</li> <li>Employees do not necessarily have a standard 8 hour work day and start their shift early. Thus, no traffic related to refuse trucks and refuse drivers were assumed in the PM peak hour (Source: County of Maui)</li> <li>West Side has 2 automated trucks &amp; 2 manual trucks (Source: County of Maui)</li> </ul>
<b>Construction &amp; Demolition Materials Recovery Facility</b>																																	
Customers	50	100	0	0	0	8	8	16	16	16	22	8	8	16	16	16	22	0	0	0	8	8	16	16	16	22	8	8	16	16	16	22	<ul style="list-style-type: none"> <li>Per discussion with Cheryl Andrafi from Maui Construction &amp; Demolition Facility, recent averages related to truck activity equated to about 50 loads per day. Thus, we have assumed that 50 daily trucks (i.e. 1 load per truck) would visit the proposed Construction &amp; Demolition Materials Recovery Facility</li> <li>Cheryl had also noted that rush hour at their facility occurs from 7:30 AM, 11AM-12 PM, and right before their 4PM close. Based on this information we think it is reasonable to assume that 15% of the truck trips would occur in the peak hour</li> </ul>
Employees	6	6	3	0	3	0	0	0	0	0	0	3	0	3	3	0	3	0	3	3	0	0	0	0	0	0	3	3	0	3	3	<ul style="list-style-type: none"> <li>3 people at C&amp;D MRF (Source: County of Maui)</li> <li>Assuming that the employees arrive and depart during the peak period</li> </ul>	
<b>Metals Processing Facility<sup>1</sup></b>																																	
Processed Metal Truck Drivers	4	8	0	0	0	2	2	4	4	4	0	2	2	4	4	4	0	0	0	0	0	0	2	2	4	4	0	2	2	4	4	<ul style="list-style-type: none"> <li>Unsold abandoned vehicles are processed in the metals processing facility and sent off-site via outgoing trucks. Although this truck traffic is not a daily occurrence, we are conservatively assuming that 2 outgoing trucks leave the metals processing facility in the AM and PM peak hour to relocate the processed metal (Source: County of Maui)</li> </ul>	
White Goods Refuse Truck Drivers	2	4	0	0	0	1	1	2	2	2	4	1	1	2	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	<ul style="list-style-type: none"> <li>White goods are brought in by 1 refuse truck once a week in the morning. Although this truck traffic is not a daily occurrence, we are conservatively assuming it in the trip generation and that the refuse truck drops off the white goods in the AM peak hour (Source: County of Maui)</li> </ul>
Employees	6	6	3	0	3	0	0	0	0	0	0	3	0	3	3	0	3	0	3	3	0	0	0	0	0	0	3	3	0	3	3	<ul style="list-style-type: none"> <li>3 metals processing facility staff (Source: County of Maui)</li> <li>Assuming that staff arrive and depart during the peak period</li> </ul>	
<b>Other Ancillary Uses<sup>2</sup></b>																																	
Administrative Office (Landfill Staff)	4	4	2	0	2	0	0	0	0	0	0	2	0	2	2	0	2	0	2	2	0	0	0	0	0	0	2	2	0	2	2	<ul style="list-style-type: none"> <li>2 new staff (Source: County of Maui)</li> <li>The existing employees just move from the existing landfill to the new maintenance facility</li> <li>Assuming that staff arrive and depart during the peak period</li> </ul>	
Refuse Office Staff	6	6	3	0	3	0	0	0	0	0	0	3	0	3	3	0	3	0	3	3	0	0	0	0	0	0	3	3	0	3	3	<ul style="list-style-type: none"> <li>3 refuse-related office staff (Source: County of Maui)</li> <li>Assuming that staff arrive and depart during the peak period</li> </ul>	
Maintenance Facility (Mechanics)	4	4	2	0	2	0	0	0	0	0	0	2	0	2	2	0	2	0	2	2	0	0	0	0	0	0	2	2	0	2	2	<ul style="list-style-type: none"> <li>2 new mechanics (Source: County of Maui)</li> <li>The existing employees just move from existing landfill to the new administrative offices</li> <li>Assuming that mechanics arrive and depart during the peak period</li> </ul>	
<b>Total Net New Traffic</b>	<b>356</b>	<b>520</b>	<b>20</b>	<b>7</b>	<b>27</b>	<b>30</b>	<b>13</b>	<b>23</b>	<b>20</b>	<b>26</b>	<b>46</b>	<b>20</b>	<b>20</b>	<b>50</b>	<b>40</b>	<b>32</b>	<b>73</b>	<b>1</b>	<b>22</b>	<b>23</b>	<b>10</b>	<b>14</b>	<b>24</b>	<b>20</b>	<b>28</b>	<b>48</b>	<b>31</b>	<b>36</b>	<b>47</b>	<b>21</b>	<b>59</b>	<ul style="list-style-type: none"> <li>For analyses purposes, we will convert the truck trips into passenger-car equivalents (PCEs) by a factor of 2.0.</li> </ul>	

Source: Fehr & Peers, June 28, 2016

Notes:  
<sup>1</sup> Per discussion with County of Maui staff, truck traffic related to the metals processing facility does not occur daily, however, some truck traffic have been included in the trip generation to provide a conservative analysis. For example, vehicles that are not sold at the abandoned vehicle yard's auction are sent to the metals process facility (an internal trip). Once the vehicles are processed they would leave the landfill on a truck, but similar to the auction the processing and outboard trip would occur every two months. Depending on the volume of unsold cars this outgoing truck trip might be ongoing for a month or so, and so we have conservatively assumed in the project's trip generation that there would be a total of 4 outgoing trucks leaving the metals processing facility a day and that half of these trucks would leave in the AM peak hour and the other half in the PM peak hour. Another conservative assumption included in the trip generation is the inclusion of white goods refuse traffic in the AM peak hour despite it occurring only once a week.  
<sup>2</sup> Traffic related to electronic waste and hazardous waste activities do not occur every weekday. Due to the infrequent/irregular occurrence of these activities, they were excluded from the trip generation.  
<sup>3</sup> Truck trips were converted to passenger-car equivalents (PCEs) by a factor of 2.0.



