all the tons of organic waste generated in the state are already being collected and transported, CalRecycle assumes potential shifts in transportation will not increase VMT. This assumption is based in part on CalRecycle's projection of potential infrastructure development in each air basin (see Section 3.1). Under this assumption, the number and frequency of heavy vehicle or truck trips to existing landfills, through neighboring communities, could even potentially be reduced as organic materials are directed to anaerobic digestion facilities and regional compost facilities. However, it also is possible this projection may not be correct and VMT may increase for some locations and thus affect (both positively and negatively) disadvantaged and low-income communities.

- Because of the 20 percent edible food recovery target in SB 1383, CalRecycle expects to see an increase in very localized food recovery. This will result in less organic material being collected and transported longer distances, which could significantly lessen VMT.
- As noted in section 4.4.3.6 below, the SLCP and other statutes and regulations require or encourage conversion of vehicles from diesel to RNG or EV, resulting in fewer criteria pollutants.

Another issue is whether the frequency of collection will increase given different requirements for different materials. CalRecycle does not expect a measurable increase in collection frequency because trash collection will likely decrease while organic waste/food waste collection increases.

In addition, there will be some change in VMT associated with the transport of secondary products from recycling facilities to end-use destination, such as compost going to landscaping and agricultural markets. Although CalRecycle has general information about the distribution of compost and mulch on a regional basis from previous studies, it does not have specific information on transport mileage of such products and how that compares with transport mileage if the feedstock for those materials had instead been transported to landfills for disposal. CalRecycle acknowledges that this type of transport could increase VMT and associated impacts or conversely it could decrease VMTs, but it cannot estimate those impacts at this time. More detailed information on the facility origin and end-use destination of products such as compost and mulch will be available when CalRecycle's new Recycling and Disposal Reporting System regulations (pursuant to AB 901, Chapter 746, Statutes of 2015) are finalized. CalRecycle expects reporting under these new regulations to begin in early 2019.

4.4.3.5. Impact of Providing Edible Food to Hungry Californians

In addition to avoiding landfill methane emissions, the recovery of edible food from landfills provides a new opportunity to positively affect the health of California citizens. Increasing edible food recovery—especially from large-scale food producers, processors, and users—and safely redirecting food to those in need could increase access to healthy fruits and vegetables and benefit millions of Californians who suffer from food insecurity. The USDA defines food insecurity as a household-level economic and social condition of limited or uncertain access to adequate food[22]. The overall food insecurity rate in California is 12.5 percent, meaning that approximately one out of every eight Californians does not know where their next meal will come from[23]. The rate for children is much higher resulting in approximately one in five children going to bed hungry each night. This places California at the nineteenth highest rate of child food insecurity in the nation.

[22] USDA ERS, "Definitions of Food Security", accessed October 27, 2017. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security/

[23] California Association of Food Banks, "Hunger Fact Sheet", accessed October 27, 2017. https://www.cafoodbanks.org/hunger-factsheet

4.4.3.6. Impact of Requiring Use of Renewable Fuel in Fleets

Capturing biogas and using it for production of energy and fuels, as when fuel is combusted in an engine, could affect the environment and public health. However, to the extent that biogas is produced and injected into the natural gas pipeline network, or used in low-NO_x engines to displace diesel combustion, air quality impacts can be reduced regionally and statewide. These emission reductions translate directly into health benefits, especially in disadvantaged communities near dairies and along transportation corridors, and in areas of non-attainment for ambient air quality standards. In addition, if electricity is generated onsite using biogas derived from organic waste, then using microturbines or fuel cells can minimize new emissions of NO_x and PM and thereby lessen potential local health impacts.

CalRecycle expects the proposed regulations will result in approximately 20 percent of the fuel consumed by heavy-duty solid waste and recycling vehicles in the state to be in-state waste-derived RNG, which is equivalent to roughly 21 million diesel gallon equivalents (DGEs). See Section 3.3.4.5 for more details.

Air Resources Board programs, such as the LCFS and Heavy Duty Truck Diesel regulations, will primarily drive the conversion of transportation fleets so they are able to use renewable fuels. The proposed regulation's requirements regarding procurement of renewable fuels will also help drive this conversion, but to a much smaller degree than the air board regulations.

4.4.4. Impacts on State Gross Domestic Product

The State Gross Domestic Product (GDP) is projected to increase by a very small percentage, with the increase peaking at 0.06 percent during the construction phase, and dropping to 0.04 percent by 2030. This increase reflects the increased construction and related economic activity during each year. The results are shown in Table 14 below:

Table 14: Estimated Impact on Gross Domestic Product

Category	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
GDP	% change	0.03%	0.04%	0.04%	0.05%	0.06%	0.06%	0.06%	0.05%	0.05%	0.05%	0.04%	0.04%
GDP	$Billons	0.852	0.948	1.184	1.409	1.610	1.801	1.767	1.663	1.570	1.484	1.404	1.333

4.5. Creation or Elimination of Businesses

CalRecycle anticipates that new businesses will be created as a result of the regulation. Potential new businesses may include new recycling manufacturing including anaerobic digestion, corrugated paper recycling manufacturers, equipment manufacturers, and so on. Furthermore, edible food recovery organizations will likely expand and some will probably transition from being volunteer organizations to businesses, as recovered edible food becomes a valuable commodity.

4.6. Incentives for Innovation

CalRecycle expects the regulations will drive innovation in collection, processing technology, edible food mapping technology, and so on. CalRecycle also anticipates innovations in sorting and processing systems. During the workshops CalRecycle has conducted to date for this regulatory process, stakeholders have provided information indicating new and innovative technologies are already coming into commercial use. These include alternatives to wax coated paper, technology that removes putrescible organic waste from the recycling stream, and improved systems for matching edible food donors with recovery organizations. New companies measure and collect data on food waste and provide this information back to the generators, other companies provide imaging and monitoring for contamination and container capacity, and others de-package edible food waste for recovery.

4.7. Competitive Advantage or Disadvantage

The proposed regulations would not create any competitive disadvantage to the recycling and edible food recovery industry located in California, as competitors would have to comply with the same requirements.

4.8. Inclusion of Monetized Health Benefits

Two variables were used in the REMI model analysis to address the monetized health benefits: Consumer Spending on Hospitals and Consumption Reallocation. CalRecycle anticipates the regulation will result in slightly higher consumer spending power, as consumers are expected to spend less on healthcare related costs due to improved healthy communities (e.g., reductions in methane that improve air quality and increased edible food that alleviates hunger).

4.9. Summary and Interpretation of the Results of the Economic Impact Assessment

The overall impact to the state economy as a result of the proposed regulation is net positive. State GDP is projected to initially increase an estimated 0.03 percent, peak at an increase of 0.06 percent, and settle at an increase of 0.04 percent. State employment is projected to increase initially at over 8,000 jobs, growing by nearly 17,000 jobs at peak construction phase in 2024, and settle at a permanent increase of over 11,000 new jobs.

The Total Wages and Salaries increase is projected to be more modest, increasing initially by about 0.02 percent, and declining to around 0.00 percent by 2030. The State Business Output is projected to track slightly above the forecast for the increase of state GDP, peaking at an increase of 0.08 percent, before settling at a long-range increase of 0.05 percent.

5. Sensitivity Analysis

CalRecycle conducted a sensitivity analysis on the baseline assumption, using an optimistic assumption for BAU. Instead of the baseline assumption of achieving 30 percent organic waste recycling by 2019, the sensitivity analysis uses an assumption of achieving 50 percent organic waste recycling by 2019. CalRecycle believes it is possible and likely that 50 percent can be achieved. The Legislature did not set the date for the implementation of the regulations to coincide with the 2020 goal. CalRecycle understands the later effective date for the regulations was set because it was expected that SB 1383's 2020 goal would be met due to early actions and other existing regulations and statutes. Some of these existing statutes and regulations include the 75 percent solid waste recycling goal set in AB 341 (note this is different than the 75 percent organic waste disposal reduction goal in SB 1383), and the Mandatory Commercial Recycling and Mandatory Commercial Organic Recycling laws (AB 341 and AB 1826 respectively). In addition to SB 1383 providing a clear early target for 2020, CalRecycle has conducted informal regulatory workshops on the proposed regulations since the beginning of 2017, which has provided stakeholders with early signals on the forthcoming regulatory requirements. In addition, there are some jurisdictions already implementing enhanced organic waste recycling programs with enforcement, with other jurisdictions following suit. The Bay Area and Southern California comprise most of the total statewide waste stream and jurisdictions in these areas are either already implementing programs or have plans in place, including some with zero waste goals.

Many cities and counties have or will have adopted their own 75 percent recycling goal or zero waste plans with timelines to coincide with 2020. This will also contribute to achieving the 75 percent solid waste recycling rate (AB 341) and the 50 percent organic waste goal (SB 1383).

Furthermore, many jurisdictions, nonprofits and businesses are already implementing extensive edible

food recovery programs. Some jurisdictions have already implemented edible food recovery programs that ensure the food is delivered to those most in need combined with organic waste recycling of the food that is not edible. Some of these jurisdictions include all of the Bay Area (such as San Francisco, Oakland, San Jose), Fresno, Orange County, City of Los Angeles, City of San Diego and County of San Diego.

5.1. Direct Costs for Assumption of 50 Percent Organic Waste Recycling in 2019

The sensitivity analysis with an assumption of 50 percent organic waste recycling by 2019 results in an overall lower cost impact for the proposed regulations. Most of the lower costs are a result of less infrastructure expansion being needed. The direct cost impact of edible food collection, as documented in Section 3.1, will not change for the sensitivity analysis. Similarly, the direct cost impact of requirements related to education, enforcement, contamination monitoring, reporting, capacity planning, and procurement, as documented in Section 3.3, will not change for the sensitivity analysis.

Tables 15 to 17 below document the estimated timeline and direct cost impact for collection/processing the organic materials and for building the new organic waste recycling infrastructure with an assumption of 50 percent organic waste recycling rate by 2019.

Table 15: Estimated New Facilities to be Built Each Year, 2019-2025 (Based on 50% by 2019)

Year	Existing Compost Facilities	New Build - Compost Facilities	Existing AD Facilities	New Build - AD Facilities
2019	68	5	41	2
2020	73	6	43	2
2021	79	5	45	2
2022	84	6	47	1
2023	90	5	48	2
2024	95	6	50	1
2025	101		51	
Total New Facilities		**33**		**10**

Table 16: Cumulative Costs and Revenues for Proposed Regulations Over 12-Year Accounting Period (Million Dollars)
(Based on 50% in 2019)

Facility Type	Number of Facilities	Capital Cost (new facilities)	O&M*	Revenue*
Compost	33	$451	$1,721	$3,234

12-Year Net Present Value (2019-2030)		$1,062		
Facility Type	**Number of Facilities**	**Capital Cost (new facilities)**	**O&M***	**Revenue***
AD	10	$499	$4,094	$9,251
12-Year Net Present Value (2019-2030)		**$4,658**		

***O&M and Revenue for all facilities**

Table 17: Statewide Cost Estimates for Organic Waste Collection/Processing of Increased Tonnage (Million Dollars) Under 50% Sensitivity Analysis

Annual Costs due to Increased Tonnage							
	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Collection	68	146	214	282	350	419	419
Processing	24	52	76	100	124	148	148
Disposal Avoided	(25)	(53)	(78)	(103)	(128)	(153)	(153)
Commodity	(31)	(66)	(97)	(128)	(159)	(190)	(190)
Total Costs	**36**	**79**	**115**	**151**	**187**	**224**	**224**

Note that in this table, disposal and commodity revenues are shown as negative costs.

5.2. Economic Impacts for Sensitivity Analysis

5.2.1. Inputs of the Assessment

The inputs for the REMI Model are the same variables that were used for the Economic Impact assessment using 30 percent recycling in 2019 for the baseline assumptions (see Section 4.2 for a list of the REMI input variables). However, the values for the variables for the sensitivity analysis changed due to the sensitivity assumption of 50 percent organic waste recycling by 2019. This assumption results in an overall lower direct cost for expansion of the organic waste management infrastructure. However, all other costs associated with the proposed regulations remain the same.

5.2.2. Result of the Assessment

5.2.2.1. California Employment Impacts

The sensitivity analysis(50 percent recycling by 2019) assumes, the Total Employment increases in comparison to BAU, to a peak of 12,500 Total Employment in 2025, and a gradual reduction to 8,400 Total Employment in 2030. Compared to the Baseline scenario of 30 percent recycling by 2019, these employment increases are lower due to the lower construction demand associated with the sensitivity assumptions of already achieving 50 percent recycling by 2019. The values are shown in Table 18 below.

Table 18: Impact on Total Employment in California

Category	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Waste Mgmt & Remid. Svcs.	% change	5.63%	5.81%	6.55%	7.38%	7.91%	8.45%	8.42%	7.79%	7.22%	6.69%	6.34%	6.01%
Waste Mgmt & Remid. Svcs	1000s	2.905	3.013	3.420	3.874	4.183	4.506	4.516	4.208	3.924	3.658	3.484	3.326
Total Employment		0.03%	0.03%	0.04%	0.04%	0.05%	0.05%	0.05%	0.05%	0.04%	0.04%	0.04%	0.03%
Total Employment	1000s	7.801	7.578	8.932	10.342	11.474	12.582	12.552	11.629	10.769	9.938	9.143	8.430

5.2.2.2. Impacts on California Business and Investments in California

The impact of the proposed regulation on California Business Output (Private non-Farm) is small but the overall economic impact is positive. However, compared to the Baseline Scenario, the Business Output numbers are roughly 22 percent lower. The values are shown in Table 19 below:

Table 19: Impact on California Businesses and Investments

Category	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Business Output (P N-F)	% change	0.04%	0.04%	0.04%	0.05%	0.05%	0.06%	0.06%	0.05%	0.05%	0.04%	0.04%	0.04%
Business Output (P N-F)	$Billons	1.417	1.386	1.642	1.927	2.156	2.389	2.413	2.257	2.115	1.978	1.855	1.744

5.2.2.3. Impacts on Individuals in California

Individuals will face an increase in the price of goods based on increased business costs related to organic waste recycling. This is evidenced in the increase in Total Wages and Salaries. The Total Wages and Salaries increase very modestly, a smaller increase than the increase in Total Employment. The Proprietors' Income shows a very small decrease as a result of the costs imposed upon these establishments due to the Regulation.

However, compared to the Baseline Scenario (30 percent recycling by 2019), the increases are distributed very differently, due to the lower levels of construction. In the initial years, the Total Wages and Salaries are positive but about 40 percent lower than the Baseline Scenario. In the final years, the Total Wages and Salaries increase remains positive, though smaller. The Proprietors' Income follows the same trends as the Baseline Scenario but at a greatly reduced level, due to the decreased need for new construction of facilities since the Sensitivity Analysis assumes 50 percent recycling in 2019.

These changes are shown in Table 20 below.

Table 20: Impact on Individuals in California

Category	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Wages and Salaries	% change	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%	0.02%	0.01%	0.01%	0.01%	0.01%	0.01%
Total Wages and Salaries	$Billons	0.159	0.062	0.102	0.144	0.173	0.205	0.215	0.183	0.155	0.125	0.100	0.077
Proprietors' Income	% change	0.00%	-0.01%	-0.01%	0.00%	0.00%	0.00%	0.00%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%
Proprietors' Income	$Billons	0.003	(0.018)	(0.014)	(0.011)	(0.008)	(0.006)	(0.007)	(0.013)	(0.018)	(0.023)	(0.029)	(0.034)

5.2.2.4. Impacts on California GDP

The California GDP is projected to increase by a very small percentage, with the increase peaking at 0.05 percent during the construction phase, and dropping to 0.03 percent by 2030. This increase reflects the increased construction and related economic activity during each year. Compared to the Baseline Scenario analysis , this increase in GDP under the Sensitivity Analysis is approximately 20 percent smaller in the early years of implementation, and reduces to approximately 24 percent smaller in the latter years of the regulation. The amounts for the Sensitivity Analysis are shown in Table 21 below:

Table 21: California GDP

Category	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
GDP	% change	0.03%	0.03%	0.03%	0.04%	0.04%	0.05%	0.05%	0.04%	0.04%	0.03%	0.03%	0.03%
GDP	$Billons	0.792	0.771	0.92	1.084	1.217	1.353	1.367	1.28	1.198	1.118	1.044	0.977

6. Alternatives

CalRecycle has addressed two alternatives, one with fewer benefits and less costs than the proposed regulations and one with greater benefits and greater costs than the proposed regulations. Alternative 1 poses less stringent regulatory requirements on jurisdictions by eliminating mandatory local jurisdiction enforcement. This would result in lower overall cost because of lower enforcement costs, and lower infrastructure expansion costs since the regulation would not be as effective in achieving the needed reduction in organic waste disposal. However, it also results in fewer benefits since more organic waste would be disposed in landfills, less methane would be reduced, and the statutory mandate of 75 percent reduction in organic disposal by 2025 would not be achieved. Alternative 2 poses greater benefits and greater costs than the proposed regulations by achieving an 80 percent reduction in organic disposal by 2025, exceeding the statutory requirement of 75 percent. This alternative would result in greater costs primarily because of additional infrastructure expansion needed to process the additional organic materials that would not be disposed in landfills. With a greater reduction in organic waste disposal in landfills, Alternative 2 results in greater methane emission reductions that translate to greater benefits.

Analyses for Alternative 1 and Alternative 2 are presented below.

6.1. Alternative 1: Less Stringent Regulatory Requirements on Jurisdictions by Eliminating Local Jurisdiction Enforcement

Alternative 1 would include most of the proposed draft regulatory requirements, except that it would not require jurisdictions to implement and conduct enforcement programs. Instead, CalRecycle assumes the compliance of all regulated entities with the provisions of the proposed regulations would be ensured through current permitting, licensing, and waste hauler franchise agreements and through enforcement mechanisms employed by CalRecycle. Under this alternative, only CalRecycle would conduct enforcement oversight of regulated entities, and this would primarily be limited to random audits and inspections of jurisdictions and other regulated entities. (Note: The draft proposed regulations do provide for CalRecycle conducting this type of enforcement, but it is in addition to local enforcement.)

6.1.1. Cost

Alternative 1 would result in decreased costs to jurisdictions relative to the proposed regulations. Jurisdictions would not be required to conduct inspections of the estimated 360,000 regulated businesses (including commercial, state agencies [state, federal, local, schools, colleges, universities]) statewide. CalRecycle estimates these inspections would require approximately 700,000 city/county staff hours to perform inspections and enforcement activities on those businesses in the first two years after the regulation is implemented and beyond. These costs are estimated to be approximately $90,000,000 in each of the first two years and approximately $30,000,000 for each year thereafter. These costs are discussed in section 3.3.4.4 and noted in Table 22 below.

Table 22: Reduced Enforcement Costs to Jurisdictions Under Alternative 1 (Million Dollars)

	2022	2023	Beyond

Total Jurisdiction Enforcement Costs (These cost reductions are for all 540 Jurisdictions)	**-$90**	**-$90**	**-$30**

In addition to lower enforcement costs for local jurisdictions, there would be lower infrastructure expansion costs as well since the regulations would not be as effective in achieving a reduction in organic waste disposal in landfills without local enforcement. As a result of not requiring mandatory enforcement by jurisdictions, collection efficiency would suffer in two ways. First, without any enforcement program, fewer entities will subscribe to collection services. Second, the quality of collected organic waste would likely decrease as there would be no penalties for contamination. As a result, CalRecycle estimates the state would only achieve a 35 percent reduction in organic waste disposal by 2025. This means fewer organic materials would be collected and processed and fewer recycling facilities would be built. Therefore, infrastructure expansion costs would be lower as shown in Tables 23 to 25 below.

Table 23: Estimated New Facilities to be Built Each Year, 2019-2025 (No Enforcement)

Year	Existing Compost Facilities	New Build - Compost Facilities	Existing AD Facilities	New Build - AD Facilities
2019	41	2	25	2
2020	43	1	27	1
2021	44	2	28	2
2022	46	1	30	1
2023	47	2	31	2
2024	49	1	33	1
2025	50		34	
Total New Facilities		**9**		**9**

Table 24: Cumulative Costs and Revenues for Proposed Regulations Over 12-Year Accounting Period (Million Dollars) (No Enforcement)

Facility Type	Number of Facilities	Capital Cost (new facilities)	O&M*	Revenue*
Compost	**9**	**$126**	**$905**	**$1,701**
12-Year Net Present Value (2019-2030)		**$669**		
Facility Type	**Number of Facilities**	**Capital Cost (new facilities)**	**O&M***	**Revenue***
AD	**9**	**$443**	**$2,656**	**$6,001**

12-Year Net Present Value (2019-2030)	**$2,903**

***O&M and Revenue for all facilities**

Table 25: Statewide Cost Estimates for Organic Waste Collection/Processing of Increased Tonnage (Million Dollars)

Annual Costs due to Increased Tonnage							
	2019	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
Collection	39	58	97	117	156	175	175
Processing	14	21	34	41	55	62	62
Disposal Avoided	(14)	(21)	(35)	(43)	(57)	(64)	(64)
Commodity	(18)	(26)	(44)	(53)	(71)	(79)	(79)
Total Costs	**21**	**32**	**52**	**62**	**83**	**94**	**94**

Note that in the table above, Disposal Avoided and Commodity revenues are shown as negative costs.

6.1.2. Benefits

Alternative 1 results in the elimination of requirements that each jurisdiction adopt an inspection and enforcement plan for all regulated entities within its authority. As a result, jurisdictions would not have to hire staff for enforcement or be able to redirect staff to other priorities. Under this alternative, CalRecycle assumes the reduction in organic waste disposal in landfills will be less than the 75 percent statutory requirement illustrated by the Baseline scenario. Therefore, while PM, methane, and GHG emissions would still be reduced, the reductions would be less than for the Baseline Scenario. Similarly, while there would still be reductions in premature mortalities, avoided hospitalizations, and avoided emergency room visits, they would be less than the estimates for the Baseline Scenario.

6.1.3. Inputs of the Assessment

The input variables for the REMI Model are the same variables that were used for the Economic Impact assessment using 30 percent recycling in 2019 for the baseline assumptions (see Section 4.2 for a list of the REMI input variables). However, the values for the variables in the Alternative 1 analysis changed due to the assumption of reduced enforcement, and the resulting reduced collection and processing amounts. The expenditures for local government would be reduced by the amount estimated for enforcement costs under the Baseline Scenario.[24] This assumption results in an overall lower direct cost for expansion of the organic waste management infrastructure, and related collection and transportation costs.

6.1.4. Result of the Assessment

6.1.4.1. California Employment Impacts

With the assumptions of the Alternative 1 analysis, the lack of enforcement results in only achieving roughly 20 percent of the tonnage increase that is projected to occur under the Baseline Scenario. The reduced tonnage results in a reduced infrastructure build in collection and processing expenditures. This also results in a commensurate reduction in the projected jobs expected under this alternative scenario. The increased jobs start at about 25 percent of the Baseline Scenario jobs increase, and

[24] Within the REMI model, the reductions in expenditures by local government were modeled through an increase in available local government revenue (revenue not spent on enforcement), offset by reduced consumer spending for services.

increases slightly to nearly 8,000, before settling to an increase of 5,000 jobs. The final number of jobs created represents roughly 55 percent of the jobs projected under the Baseline Scenario. The gradual decline in jobs is a result of the delayed phase-in of construction, and the associated delayed impacts of the secondary jobs impacts, and is shown in Table 26 below.

Table 26: Impact on Total Employment in California

Category	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Waste Mgmt & Remid. Svcs.	% change	4.24%	4.24%	5.28%	5.19%	5.02%	4.92%	4.61%	4.27%	3.96%	3.65%	3.45%	3.22%
Waste Mgmt & Remid. Svcs	1000s	2.191	2.202	2.757	2.724	2.656	2.624	2.473	2.306	2.150	1.996	1.895	1.781
Total Employment		0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.02%	0.02%	0.02%	0.02%
Total Employment	1000s	6.374	6.121	7.919	7.928	7.871	7.554	7.011	6.470	5.959	5.482	5.045	4.669

6.1.4.2. Impacts on California Business and Investments in California

The impact of the proposed regulations on California Business Output (Private non-Farm) is small but the overall economic impact is positive. However, in comparison to the Baseline Scenario, the absolute levels show a reduction very similar to the reduction in the Total Employment as enumerated above. The values are shown in Table 27 below:

Table 27: Impact on California Businesses and Investments

Category	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Business Output (P N-F)	% change	0.03%	0.03%	0.04%	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%	0.02%	0.02%	0.02%
Business Output (P N-F)	$Billons	1.147	1.106	1.441	1.39	1.391	1.394	1.309	1.221	1.138	1.06	0.993	0.933

6.1.4.3. Impacts on Individuals in California

Under the assumptions of Alternative 1, as in the prior analyses, individuals will face an increase in the price of goods based on increased business costs related to organic waste recycling. This is evidenced in the increase in Total Wages and Salaries. The Total Wages and Salaries increase very modestly at about 0.01 percent, a smaller increase than the increase in Total Employment. The Proprietors' Income shows a very small decrease as a result of the costs imposed upon these establishments due to the regulation.

However, in comparison to the Baseline Scenario, the increase in Total Wages and Salaries ranges from zero percent to 20 percent less through 2027. Proprietors' Income also is slightly reduced, in comparison to the baseline.

These changes are shown in Table 28 below.

Table 28: Impact on Individuals in California

Category	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Wages and Salaries	% change	0.02%	0.01%	0.02%	0.02%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.00%
Total Wages and Salaries	$Billons	0.214	0.158	0.206	0.206	0.188	0.159	0.140	0.121	0.103	0.085	0.072	0.059
Proprietors' Income	% change	0.01%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.01%	-0.01%	-0.01%	-0.01%
Proprietors' Income	$Billons	0.022	0.009	0.012	0.003	(0.001)	(0.003)	(0.008)	(0.011)	(0.014)	(0.017)	(0.020)	(0.021)

6.1.4.4. Impacts on California GDP

The California GDP under Alternative 1 is projected to increase by a very small amount, with the increase peaking at 0.03 percent during the construction phase, and dropping to 0.02 percent by 2030. This increase reflects the increased construction and related economic activity during each year. Compared to the baseline analysis, this increase in GDP under Alternative 1 is approximately one-third

smaller in the early years of implementation, and reduces to approximately half of the Baseline Scenario increase in the latter years of the regulation. The amounts for the Alternative 1 analysis are shown in Table 29 below:

Table 29: California GDP

Category	Units	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
GDP	% change	0.03%	0.02%	0.03%	0.03%	0.03%	0.03%	0.03%	0.02%	0.02%	0.02%	0.02%	0.02%
GDP	$Billons	0.647	0.625	0.819	0.845	0.846	0.815	0.765	0.713	0.664	0.617	0.577	0.541

6.1.5. Cost-Effectiveness

CalRecycle anticipates Alternative 1 would be less cost-effective for businesses. The per-ton cost for processing and collecting organic waste would increase because the omission of enforcement would result in fewer businesses participating in organic waste recycling programs (which is what would decrease the cost per business). Cost-effectiveness (measured in cost per recovered ton) is influenced primarily by the amount of material targeted for recovery. As more tons are recovered, the cost per recovered ton is reduced. Conversely, if fewer businesses subscribe to organic waste recycling collection, fewer organic tons are recovered and the cost per recovered ton increases. Another factor is that collection densities influence cost-effectiveness. As a result, if the number of businesses subscribing is not maximized (where there are fewer businesses and those businesses are distributed over a larger area) the cost for collection and transportation will be greater on a per-ton basis.

6.1.6. Reason for Rejecting Alternative 1

Alternative 1 will likely not result in meeting the SB 1383 goal of 75 percent reduction in organic waste disposal. If local jurisdictions do not take enforcement actions on regulated entities, i.e., businesses, these entities may not fully participate with local organic waste recycling programs. Historical precedent supports this conclusion., AB 341 and AB 1826 do not require that jurisdictions undertake enforcement. In those jurisdictions that are voluntarily enforcing these related programs, participation rates are substantially higher than those in jurisdictions that have neglected to take enforcement for non-compliance. . Based on the results from these jurisdictions, jurisdiction-level enforcement would be much more effective in ensuring the organic recycling goals and methane reductions are met, rather than relying solely on CalRecycle's limited enforcement role.

6.2. Alternative 2: Higher Target that Achieves an 80% Reduction in the Level of Statewide Disposal of Organic Waste from the 2014 Level by 2025

Alternative 2 would include all of the proposed draft regulatory requirements, except that it would exclude provisions that allow for exemptions and waivers from the organic waste collection requirements (i.e., for de minimis generation, physical space constraints, emergencies, low population areas, and rural jurisdictions). CalRecycle estimates these combined provisions currently allow approximately 5 percent of organic waste that is disposed to be waived from collection requirements (potentially resulting in the continued disposal of this material). The regulations are designed to reduce disposal of organic waste by 75 percent from the 2014 baseline. Including these additional entities would increase the scope of the regulations and result in a projected increased organic waste disposal reduction of 80 percent instead of 75 percent. This alternative may also be feasible due to voluntary

actions of jurisdictions already diverting organic wastes, and those that have adopted "Zero Waste[25] goals that will drive them to higher recycling rates for all materials, including organic waste.

6.2.1. Cost

Alternative 2 results in greater costs primarily because of additional organic materials collected and processed and additional infrastructure expansion needed to process the additional organic materials diverted from landfills to achieve 80 percent reduction in organic waste disposal by 2025. The costs associated with more organic materials collection and processing and more recycling facilities are shown in Tables 30-32 below.

Table 30: Estimated New Facilities to be Built Each Year, 2019-2025 (80% in 2025)

Year	Existing Compost Facilities	New Build - Compost Facilities	Existing AD Facilities	New Build - AD Facilities
2019	41	11	25	5
2020	52	12	30	5
2021	64	11	35	5
2022	75	12	40	5
2023	87	11	45	5
2024	98	10	50	3
2025	108		53	
Total New Facilities		**67**		**28**

Table 31: Cumulative Costs and Revenues for Proposed Regulations Over 12-Year Accounting Period (Million Dollars) (80% in 2025)

Facility Type	Number of Facilities	Capital Cost (new facilities)	O&M*	Revenue*
Compost	**67**	**$925**	**$1,637**	**$3,076**
12-Year Net Present Value (2019-2030)		**$514**		
Facility Type	**Number of Facilities**	**Capital Cost (new facilities)**	**O&M***	**Revenue***
AD	**28**	**$1,381**	**$3,744**	**$8,460**
12-Year Net Present Value (2019-2030)		**$3,335**		

***O&M and Revenue for all facilities**

[25] http://www.calrecycle.ca.gov/zerowaste/

practices, including providing training for state government staff. State agencies are not likely to generate revenues as a result of edible food collection programs.

Benefits to state government will include improved air quality resulting in avoided incidence in mortalities, hospitalizations, and emergency room visits due to health benefits from reducing methane. This leads to fewer lost workdays and increased productivity for state government employees. The primary reason for health benefits due to reducing methane at landfills is associated with the infrastructure expansion of alternative organic waste management facilities. Section 4.4.3.1 begins a discussion of statewide health impacts from the new anaerobic digestion, composting, and chip and grind facilities. Table 15 shows the cumulative statewide health impacts based on mortality, hospitalizations and emergency room visits. The cumulative health impacts for state agencies is a subset of this information based on the number of state employees relative to the statewide population. Roughly, 5.8 percent of the statewide population are employees of state agencies[26]. Table 45 below shows the estimated cumulative health impacts for state agencies based on mortalities, hospitalizations, and emergency room visits. While the regional distribution of state agency employees will likely be different from the statewide population distribution by air basin and proximity to organic waste management facilities, these estimates provide reasonable order of magnitude results for the state agency subset.

Table 39: Estimated Cumulative Avoided Incidence from 2019 to 2025 for State Agencies

	Health Outcomes	Valuation (2015 $USD)
Mortality	31	$280 M
Hospitalizations (all)	5	$130 K
ER visits	13	$4 K

[26] Number of State employees: 228,982 (https://www.sco.ca.gov/ppsd_empinfo_demo.html). Statewide population: 39,524,000 (http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-1/documents/E-1_2017PressRelease.pdf)