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July 8, 2015

Maria Orozco
Mayor

Lew Bauman, County Administrative Officer
County of Monterey
168 West Alisal Street, 3rd Floor
Salinas, CA 93901

Liz Silva
Mayor Pro Tem

RE: Final Draft Report, Evaluation and Analysis of Monterey County's Solid Waste Management System

Scott Funk
Councilmember

Dear Lew:

Jose G. Lopez
Councilmember

On behalf of the Monterey Bay Area Managers Group (MBAMG) Solid Waste Subcommittee, it is my pleasure to forward you the Final Draft Report, "Evaluation and Analysis of Monterey County's Solid Waste Management System". While the report took longer than anticipated to complete, it is our hope that the report stimulates the policy discussion necessary to improve the Solid Waste System for all our residents.

Robert Bonincontri
Councilmember

Let me also thank you in advance for scheduling the necessary meetings to receive the public input on the report. We look forward to receiving the input from the public meetings, as well as from each one of your respective agencies.

René L. Mendez
City Manager

Once the feedback is received from the public, your policy bodies, and/or your agencies, the MBAMG Solid Waste Subcommittee will consider the feedback before finalizing the report and recommendation(s).

Please do not hesitate to give me a call at (831) 675-5000, or send me an email at rmendez@ci.gonzales.ca.us if you have any questions.

Sincerely,

René L. Mendez
City Manager, City of Gonzales
Chair, MBAMG Solid Waste Subcommittee

cc: MBAMG Solid Waste Subcommittee

Gonzales will continue to be a safe, clean, family-friendly community, diverse in heritage, and committed to working collaboratively to preserve and retain its small town charm

FINAL DRAFT REPORT

**Evaluation and Analysis of Monterey
County's Solid Waste Management System**



SUBMITTED TO:

City of Gonzales

July 7, 2015

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Introduction

R3 Consulting Group, Inc. (R3) was retained to evaluate and analyze the solid waste management system of Monterey County on behalf of the County, the Salinas Valley Solid Waste Authority (SVSWA), the Monterey Regional Waste Management District (MRWMD), the cities of Carmel-by-the-Sea, Del Rey Oaks, Gonzales, Greenfield, King City, Marina, Monterey, Pacific Grove, Salinas, Sand City, Seaside, and Soledad, and the Pebble Beach Community Services District.

We would like to thank the representatives from each jurisdiction that have made themselves available to provide feedback and guidance to our project team throughout the process of developing this report. Based on our discussions with those representatives, we determined that the primary goal of this evaluation is to develop findings and recommendations that advise the jurisdictions regarding potential improvements to the countywide solid waste system in order to best benefit rate-payers from all the involved parties.

Our evaluation of the countywide waste management system focused on developing solid waste system “scenarios” that incorporated reviewing solid waste facility needs, assessing facility routing and transportation of waste, reviewing current waste disposal fees, providing an overview of solid waste-related legislation and policy issues, and evaluating commercial customer rates in the unincorporated County area. As such, our summary findings and recommendations (contained in Section 1 of this report) are numerous and varied. In an effort to distill those findings and recommendations, we have prepared the following “Executive Summary” section that presents the key findings and recommendations.

A complete listing of our findings and recommendations is provided in Section 1 of this report, with details and analysis provided in the remaining sections. Specifically, our report is organized into the following sections:

- Section 1: Summary Findings and Recommendations
- Section 2: Background and Limitations
- Section 3: Facility and Needs and Collection/Transport Use Assessment
- Section 4: Tipping Fee Analysis
- Section 5: Policy and Sustainability Review
- Section 6: Review of Monterey County Programs and Rates

Executive Summary

FINDINGS

- Both MRWMD and SVSWA appear to operate their landfills cost efficiently, consistent with privately owned/operated landfills (absent the higher costs in SVSWA region resulting from legacy costs for maintenance of closed landfills).
- MRWMD receives 69% of its total disposal tonnage from out-of-county sources, which allows MRWMD to lower costs for providing services to MRWMD Member Agency users.
- The new franchise agreements in the MRWMD service area support the MRWMD's upcoming expansion of materials recovery facility (MRF) processing activities.

- All jurisdictions are in compliance with current State diversion requirements (AB 939 requirement is minimum 50% diversion as recognized CalRecycle).
- The State's mandatory commercial recycling law (AB 341) set forward a 75% diversion goal at the State level. Most jurisdictions are already close to achieving this goal, and three cities have already met the goal. Specifically, according to CalRecycle:
 - The SVSWA as a whole achieved 72% diversion in 2013, and needs an annual disposal reduction of 15,655 tons to achieve 75% diversion;
 - The City of Del Rey Oaks achieved 66% diversion in 2013, and needs an annual disposal reduction of 292 tons to achieve 75% diversion;
 - The City of Monterey achieved 74% diversion in 2013, and needs an annual disposal reduction of 1,330 tons to achieve 75% diversion;
 - The City of Pacific Grove achieved 73% diversion in 2013, and needs an annual disposal reduction of 685 tons to achieve 75% diversion;
 - The City of Seaside achieved 63% diversion in 2013, and needs an annual disposal reduction of 7,479 tons to achieve 75% diversion;
 - The cities of Carmel-by-the-Sea, Marina and Sand City have already met the 75% diversion goal; and
 - The unincorporated County area achieved 56% diversion in 2013, and needs an annual disposal reduction of 51,612 tons to achieve 75% diversion.
- State mandate AB 1826 will require jurisdictions to arrange for "organics" (i.e., yard trimmings and food scraps) recycling programs for multi-family dwelling (MFD) and commercial sectors.
- The upcoming MRWMD MRF expansion is projected to be able to divert 68% of mixed waste and 75% of C&D (currently ~57% of C&D is diverted). This additional diversion is not necessary to comply with current State requirements.
- The upcoming MRWMD facility expansion will add a processing line for clean recyclables. This will be in direct competition with existing private processing facilities (e.g., Waste Management's Castroville MRF).
- The SVSWA Autoclave facility is projected to be able to divert 70% of mixed waste received. The Autoclave units are modular and could be expanded to accept additional capacity as needed. Green waste and C&D materials would not be processed at the facility. Additional diversion is not necessary to comply with current State requirements. An Autoclave operation of the size and scale proposed by SVSWA has, to our knowledge, never been attempted.
- Both MRWMD and SVSWA appear to be looking to shift the cost of tipping fees onto "AB 939 fees" or similar fees charged to the Member Agencies to cover the cost of recycling programs and public education (rather than funding these activities through landfill tipping fees). The SVSWA currently charges an annual "AB 939 Surcharge" to its Member Agencies based on the total tons disposed by each Member Agency.

CONCLUSIONS

- Early closure of Johnson Canyon Landfill would require the SVSWA to expend an estimated \$7,000,000 to \$9,000,000 in unfunded closure and post-closure costs and would increase costs to the rate-payers.
- Post-closure legacy costs for the SVSWA's closed landfills will continue to be borne by SVSWA region rate-payers, regardless of any potential changes to the solid waste system. These legacy costs do not prevent the SVSWA region from changing/modifying their solid waste system.
- The potential implementation of additional large-scale diversion has associated cost increases, and is not required to comply with State law. Specifically:
 - 2% estimated increase in MRWMD region's annual transport, processing and disposal costs to implement the new MRF enhancements. We estimate that the associated household customer rate increase would be ~0.6%, or ~\$0.11 per month; and
 - 21% estimated increase in SVSWA region's annual transport, transfer, processing and disposal costs to implement the new proposed Autoclave facility (includes \$14 million estimated total for purchase of Madison Lane Transfer Station, sale of Sun Street Transfer Station, and associated road improvements). We estimate that the associated household customer rate increase would be ~5.2%, or ~\$1.03 per month.
- The potential large-scale diversion enhancements in both regions have different levels of associated risk to the jurisdictions' rate-payers. Specifically:
 - The MRWMD's new MRF enhancements represent a relatively low level of risk due to the fact that the new MRF technologies (e.g., mixed waste and single stream processing lines) have been thoroughly tested and are currently used successfully in other locations outside of Monterey County.
 - The SVSWA's proposed Autoclave facility is costly, and represents a significantly higher level of risk than the MRWMD's new MRF enhancements. This is due to the fact that the Autoclave mixed waste processing technology, to our knowledge, has never been implemented on this large of a scale anywhere. Additionally, the Autoclave equipment would be owned by a private contractor (Global Organics Energy), and would require a long-term "flow control" agreement that would put Member Agencies and rate-payers at risk by requiring the SVSWA region to deliver materials to the facility.
- There is no need for the SVSWA to purchase Madison Lane Transfer Station, as it would cost less to direct haul Salinas and north County SVSWA's waste to the MRWMD's landfill in Marina than it would to purchase Madison Lane Transfer Station and complete the associated road improvements.
- In addition to higher annual system costs, the Autoclave facility's implementation requires SVSWA's purchase and rehabilitation of Madison Lane Transfer Station, and City of Salinas's improvements to Rossi Road. Because of these costs, it may be cheaper to gain additional Salinas and northern SVSWA-region diversion by direct-hauling solid waste to MRWMD's enhanced MRF. The MRWMD facility could increase economies of scale by accepting the additional mixed waste from the Salinas area, which would only require labor costs for one additional shift.

- In the event that Salinas and northern SVSWA region direct-hauled to Marina for disposal, the southern SVSWA region tipping fees should not be adversely affected, because Salinas and the northern SVSWA region would still be required to bear their share of SVSWA's fixed costs (e.g., legacy closed landfill debt, AB 939 programs such as public education). This assumes that SVSWA would be able to scale down Johnson Canyon Landfill operations (and operational costs) in proportion to the decrease in tonnage resulting from the redirection of Salinas and northern SVSWA tons to Marina.
- The unincorporated County's commercial bin and compactor rates are 53% higher on average in the SVSWA region than in the MRWMD region. Based on an SVSWA rate analysis, this difference does not appear to reflect the actual differences in cost of service.

RECOMMENDATIONS

- All jurisdictions should require their franchised haulers to be responsible for arranging for diversion of materials in accordance with current and future State laws. Most notably, this includes the recent AB 1826 (mandatory multi-family and commercial organics recycling law).
- MRWMD Member Agencies should support the expansion of the MRWMD MRF, as it appears to be a cost-effective option for achieving increased diversion, with the caveat that additional organics diversion for commercial waste generators may need to be added in the future to comply with AB 1826.
- If SVSWA Members Agencies require or elect to increase diversion above State requirements, then they should put increased diversion requirements on the franchised haulers and not pursue publically owned or flow-controlled additional diversion facilities. The SVSWA could increase diversion by directing its franchise haulers to deliver materials to MRWMD's expanded MRF as a lower cost/lower risk option than building the Autoclave facility.
- The County should reenter discussions with USA Waste to rebalance the unincorporated County's MRWMD-region and SVSWA-region customer rates.
- The table on page viii (**Table 1 – Policy Issue Matrix**) provides a summary of each solid waste system scenario that is analyzed in the body of this report, in order to provide policy makers with a means of balancing the key policy issues related to solid waste system planning in Monterey County. Based on the Table 1 summary, Scenario 7 appears to result in a favorable combination of system-wide cost, diversion, greenhouse gas (GHG) emissions, risk, and avoided costs. Specifically, Scenario 7 includes:
 - MRWMD Region: Direct regional material to the Monterey Landfill, MRF and Composting Facility located in Marina, with the MRF enhancements that are currently being implemented.
 - SVSWA Region: Direct-haul Salinas and north County SVSWA waste to MRWMD's landfill in Marina for disposal. No purchase of Madison Lane Transfer Station, and no implementation of SVSWA Autoclave facility. Continue to utilize the Jolon Road Transfer Station to transfer south County waste to Johnson Canyon Landfill (and direct haul for cities in close proximity to the landfill).
 - This option provides the SVSWA region with annual cost savings of \$4.8 million as compared to purchasing Madison Lane Transfer Station and implementing an Autoclave facility (estimated difference of \$1.50 in

monthly household customer rates); Annual cost savings of \$1.5 million as compared to the current status quo (estimated difference of \$0.47 in monthly household customer rates); and

- Southern County SVSWA region tipping fees should not be adversely affected by this change, because Salinas and the northern SVSWA region would still be required to bear their share of SVSWA's fixed costs (e.g., legacy closed landfill debt, AB 939 programs such as public education).
- A map of the "Scenario 7" solid waste system is provided below. Additional details regarding solid waste system scenarios 1 through 7 may be found in the body of this report.

Scenario 7

Increased Diversion at MRWMD, Salinas and North County Disposal at MRWMD, Remainder of SVSWA to Johnson Canyon Landfill, No Additional SVSWA Diversion

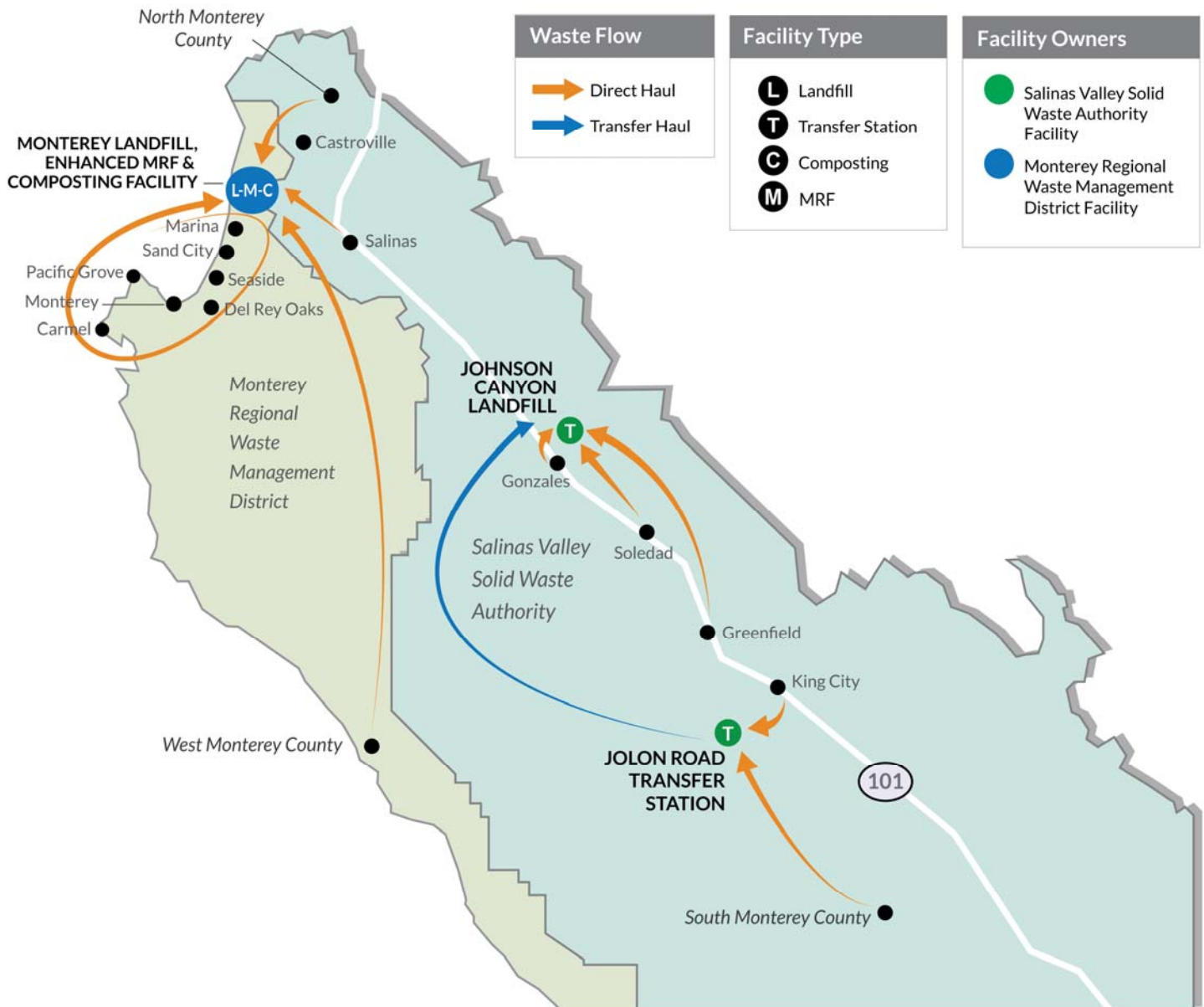


TABLE 1 – Policy Issue Matrix

SYSTEM SCENARIO	POLICY ISSUES					Avoided Costs <i>High</i> avoided costs are preferred
	Cost <i>Low</i> cost is preferred	Diversion <i>High</i> diversion is preferred	GHG Emissions <i>Low</i> emissions are preferred	Risk <i>Low</i> risk is preferred		
Scenario 1 Status Quo	Medium \$31.9M annual system-wide costs (~\$15.7M MRWMD region and ~\$16.2M SVSWA region).	Medium All Member Agencies exceed the 50% diversion mandate (AB939).	Low Lowest GHG emissions from material transportation of all scenarios.	Low Existing diversion technologies are proven to work. Minor risks incurred through public ownership of facilities.	Medium-Low No additional efforts to decrease future landfill needs, above existing diversion activities.	
Scenario 2 Increased Diversion at MRWMD; No Additional Diversion at SVSWA	Medium \$32.2M annual system-wide costs (~\$16.1M MRWMD region and ~\$16.2M SVSWA region).	Medium-High Greater additional diversion above Status Quo. Puts Member Agencies on route to surpassing the 75% State goal in the near future.	Low Lowest GHG emissions from material transportation of all scenarios (same transportation routing as Status Quo).	Medium-Low Existing and new MRWMD diversion technologies are proven to work. Some additional risk incurred through public investment in MRWMD facility enhancements.	Medium Somewhat decreases future landfill needs by increasing diversion of materials.	
Scenario 3 Increased Diversion at MRWMD and SVSWA; Consolidated Disposal at MRWMD	High \$35.5M annual system-wide costs (~\$16.1M MRWMD region and ~\$19.5M SVSWA region).	High Very significant additional diversion above Status Quo. Puts Member Agencies on route to surpassing the 75% State goal in the near future.	Medium-Low 3rd lowest GHG emissions from material transportation of all scenarios (3% higher than Status Quo).	Medium-High SVSWA autoclave technology is unproven. Additional risk incurred through public investment in facilities.	Medium-High Decreases future landfill needs by increasing diversion of materials.	
Scenario 4 Increased Diversion at MRWMD and SVSWA; Reduced Flow to Johnson Canyon Landfill	High \$35.6M annual system-wide costs (~\$16.1M MRWMD region and ~\$19.5M SVSWA region).	High Very significant additional diversion above Status Quo. Puts Member Agencies on route to surpassing the 75% State goal in the near future.	Medium-Low 4th lowest GHG emissions from material transportation of all scenarios (5% higher than Status Quo).	Medium-High SVSWA autoclave technology is unproven. Additional risk incurred through public investment in facilities.	Medium-High Decreases future landfill needs by increasing diversion of materials.	
Scenario 5 Consolidated Increased Diversion at MRWMD; Consolidated Disposal at MRWMD	Medium-High \$32.6M annual system-wide costs (~\$16.1M MRWMD region and ~\$16.5M SVSWA region).	Medium-High Greater additional diversion above Status Quo. Puts Member Agencies on route to surpassing the 75% State goal in the near future.	High Highest GHG emissions from material transportation of all scenarios (19% higher than Status Quo).	Medium-Low Existing and new MRWMD diversion technologies are proven to work. Some additional risk incurred through public investment in MRWMD facility enhancements.	Medium Somewhat decreases future landfill needs by increasing diversion of materials.	
Scenario 6 Consolidated Increased Diversion at MRWMD; Reduced Flow to Johnson Canyon Landfill	Medium-Low \$31.2M annual system-wide costs (~\$16.1M MRWMD region and ~\$15.1M SVSWA region).	Medium-High Greater additional diversion above Status Quo. Puts Member Agencies on route to surpassing the 75% State goal in the near future.	Medium 5th/6th lowest GHG emissions from material transportation of all scenarios (5% higher than Status Quo).	Medium-Low Existing and new MRWMD diversion technologies are proven to work. Some additional risk incurred through public investment in MRWMD facility enhancements.	Medium Somewhat decreases future landfill needs by increasing diversion of materials.	
Scenario 7 Increased Diversion at MRWMD, Salinas and North County Disposal at MRWMD, Remainder of SVSWA to JCLF, No Additional SVSWA Diversion	Low \$30.7M annual system-wide costs (~\$16.1M MRWMD region and ~\$14.7M SVSWA region).	Medium-High Greater additional diversion above Status Quo. Puts Member Agencies on route to surpassing the 75% State goal in the near future.	Medium 5th/6th lowest GHG emissions from material transportation of all scenarios (5% higher than Status Quo).	Medium-Low Existing and new MRWMD diversion technologies are proven to work. Some additional risk incurred through public investment in MRWMD facility enhancements.	Medium Somewhat decreases future landfill needs by increasing diversion of materials.	

Section 1. Summary Findings and Recommendations

Facility and Needs and Collection/Transport Use Assessment

Findings – Facility and Needs Assessment

- Solid Waste System Structure – All cities in the County, as well as the unincorporated County area, contract with private haulers for the collection of residential and commercial solid waste. The County of Monterey's solid waste processing and disposal facility system for mixed waste and green waste is divided into two agencies. The MRWMD and SVSWA each operate one landfill. The MRWMD operates a construction and demolition (C&D) materials recovery facility (MRF). The SVSWA operates two transfer stations. Both agencies contract with private operators for composting services. Both agencies operate landfills (or contract for operations) with somewhat similar operating costs on a per ton basis.
- Capacity of Facilities – The Marina Landfill and Johnson Canyon Landfill have more than adequate capacity to support the disposal of all generated in-County tonnages.
- Landfill Cost Efficiency – Both MRWMD and SVSWA appear to operate their landfills cost efficiently, consistent with privately owned/operated landfills (absent the higher costs in SVSWA region resulting from legacy costs for maintenance of closed landfills).
- Importation of Out-of-County Tons – The Marina Landfill and Johnson Canyon Landfill also have adequate capacity to support the importation of out-of-County disposal tonnages. The MRWMD currently imports a significant amount of out-of-County waste at its Marina Landfill (69% of its total disposal tonnage) which results in financial benefit to the MRWMD Member Agencies. No out-of-County waste is currently imported at the SVSWA's Johnson Canyon Landfill, although the SVSWA does have a prior history of importation.
- Future Expansions for Waste Diversion – Both MRWMD and the SVSWA are planning to implement future infrastructure to provide added waste diversion capabilities in their respective agencies. The MRWMD is in the process of renovating the existing Materials Recovery Facility to provide additional mixed waste, single stream and C&D processing capacities employing mechanical and manual sorting capabilities to provide future diversion infrastructure. The new franchise agreements in the MRWMD service area support the MRWMD's expansion of MRF processing activities by directing the MRWMD's Member Agency waste streams to the expanded MRF. The SVSWA intends to perform two infrastructure changes: (1) relocate the self-haul waste venue by selling the Sun Street facility and purchasing the Madison Lane facility, and (2) contract with a private company for Autoclave processing services which would process all of the residential and commercial wastes within the SVSWA using a pressure/temperature device followed by mechanical screening to provide future diversion capabilities.

Findings – Collection/Transport Use Assessment

- Facility Routing and Use Efficiency – Based on our analysis of various possible routing scenarios using the County's existing transfer stations and landfills, the current system (i.e., status quo) in which the SVSWA region directs material to the Johnson Canyon

Landfill through transfer stations and the MRWMD region directs material to the Marina Landfill does not appear to be the most cost efficient routing/use option. By modelling the costs of transfer, disposal and processing at the existing facilities, we identified that a scenario in which the north County communities (Salinas and the unincorporated north County) direct hauled their waste for disposal (without the added cost/benefit of a Salinas area Transfer Station) at the MRWMD landfill could provide a lower system-wide cost, yielding a savings of approximately 4% (Scenario 7 in the body of this report). Currently north County waste in the SVSWA region is directed to Johnson Canyon Landfill through the Sun Street and Madison Lane transfer stations. In this lowest cost option, the two Salinas area transfer stations (Sun Street and Madison Lane) would not be used. It should also be noted that this scenario results in slightly more greenhouse gas (GHG) emissions from transportation than the current status quo (5% more). However, we do not believe this represents a significant increase, given that one of the scenarios that we considered resulted in more than a 19% increase in GHG emissions over the status quo.

Recommendations

- Scenario 7 results in the lowest system-wide cost of all scenarios analyzed in this report. Specifically, Scenario 7 includes:
 - MRWMD Region: Direct regional material to the Monterey Landfill, MRF and Composting Facility located in Marina, with the MRF enhancements that are currently being implemented.
 - SVSWA Region: Direct-haul Salinas and north County SVSWA waste to MRWMD's landfill in Marina for disposal. No purchase of Madison Lane Transfer Station, and no implementation of SVSWA Autoclave facility. Continue to utilize the Jolon Road Transfer Station to transfer south County waste to Johnson Canyon Landfill (and direct haul for cities in close proximity to the landfill).
 - This option provides the SVSWA region with annual cost savings of \$4.8 million as compared to purchasing Madison Lane Transfer Station and implementing an Autoclave facility (estimated difference of \$1.50 in monthly household customer rates); Annual cost savings of \$1.5 million as compared to the current status quo (estimated difference of \$0.47 in monthly household customer rates); and
 - Southern County SVSWA region tipping fees should not be adversely affected by this change, because Salinas and the northern SVSWA region would still be required to bear their share of SVSWA's fixed costs (e.g., legacy closed landfill debt, AB 939 programs such as public education).
- Direct Haul versus a Salinas Public Convenience Facility – The convenience of a Salinas area transfer station could be an unnecessary cost to the SVSWA customers if the Marina landfill were used as the north County disposal facility. Although the need for a Salinas area transfer station is more evident under the current status-quo condition of hauling Salinas wastes to the Johnson Canyon Landfill, the need for this facility becomes questionable for scenarios in which north County wastes are delivered to Marina Landfill. The Marina Landfill is closer to the Salinas and northern County residents than the Johnson Canyon Landfill. The cost of waste receipt, reloading and transfer could be avoided with a slight increase in the direct hauling of waste to the

Marina Landfill. We did not address the convenience of the Sun Street or Madison Lane Transfer Station facilities to the self-haul users of the Salinas area.

Tipping Fee Analysis

Findings

- AB 939 Fees – The SVSWA currently charges an “AB 939 Surcharge.” However, both the MRWMD and SVSWA appear to be looking to shift the cost of tipping fees onto “AB 939 fees” or similar fees charges to the Member Agencies to cover the cost of recycling programs and public education (rather than funding these activities through landfill tipping fees).
- Importation of Out-of-County Tons – The MRWMD currently imports a significant amount of out-of-County waste at its Marina Landfill. This practice grants significant economies of scale to the MRWMD landfill operation in Marina, and allows the MRWMD to charge lower tipping fees to the in-County Member Agencies than it otherwise be able to. No out-of-County waste is currently imported at the SVSWA’s Johnson Canyon Landfill, although the SVSWA does have a prior history of importation.
- Legacy Costs – Post-closure legacy costs for the SVSWA’s closed landfills will continue to be borne by SVSWA region rate-payers, regardless of any potential changes to the solid waste system. These legacy costs do not prevent the SVSWA region from changing/modifying their solid waste system.
- Cost of Proposed New Diversion – The potential implementation of additional large-scale diversion in both regions has associated costs. Specifically:
 - 2% estimated increase in MRWMD region’s annual transport, processing and disposal costs to implement the new MRF enhancements. We estimate that the associated household customer rate increase would be ~0.6%, or ~\$0.11 per month; and
 - 21% estimated increase in SVSWA region’s annual transport, transfer, processing and disposal costs to implement the new proposed Autoclave facility (includes \$14 million estimated total for purchase of Madison Lane Transfer Station, sale of Sun Street Transfer Station, and associated road improvements). We estimate that the associated household customer rate increase would be ~5.2%, or ~\$1.03 per month.
- Risks of Proposed New Diversion – The potential large-scale diversion enhancements in both regions have different levels of associated risk to the Jurisdictions’ rate-payers. Specifically:
 - The MRWMD’s new MRF enhancements represent a relatively low level of risk due to the fact that the new MRF technologies (e.g., mixed waste and single stream processing lines) have been thoroughly tested and are currently used successfully in other locations outside of Monterey County.
 - The SVSWA’s proposed Autoclave facility is costly, and represents a significantly higher level of risk than the MRWMD’s new MRF enhancements. This is due to the fact that the Autoclave mixed waste processing technology, to our knowledge, has never been implemented on this large of a scale anywhere. Additionally, the Autoclave equipment would be owned by a private contractor (Global Organics Energy), and would require a long-term “flow control”

agreement that would put Member Agencies and rate-payers at risk by requiring the SVSWA region to deliver materials to the facility.

Recommendations

- Johnson Canyon Landfill – Do not prematurely close Johnson Canyon Landfill, as a cost savings effort. Doing so would result in the need for the SVSWA to expend an estimated \$7,000,000 to \$9,000,000 in unfunded closure and post-closure costs, thereby causing unnecessary burden on SVSWA region rate-payers. The continued use of Johnson Canyon Landfill for its intended purpose to fulfill its permitted capacity is preferable to a premature closure.
- Importation of Out-of-County Tons – Large existing landfill capacity represents a significant asset to both the SVSWA and MRWMD. Continuing the practice of importing out-of-County tons at MRWMD, and/or restarting out-of-County importation practices at SVSWA, represent significant policy decisions that have large impacts on the tipping fees in each region. It is also worth noting that for SVSWA, any potential aggressive changes such as selling the Johnson Canyon Landfill to a private company would require the marketing of availability of existing landfill capacity to out-of-County tons.
- Public vs. Private Diversion – In general, we recommend that the individual jurisdictions in the County put the burden of recycling on their private collection contractors, rather than having the public sector invest in new technologies/facilities to increase diversion. Going forward, we recommend requiring the franchise haulers in each individual jurisdiction to provide for a level of diversion that is in line with the goals of each jurisdiction, or with the goals of the agency with which they hold membership.

Policy and Sustainability Review

Findings

- Diversion Policies – The CalRecycle goal was established as part of AB 341, which requires commercial waste generators implement recycling programs to facilitate a statewide goal of 75% diversion. The CalRecycle goal of 75% is not a requirement of the jurisdictions that the former AB 939 imposed. The jurisdiction requirement for AB 341 is to impose policies and programs and then monitor the generation of commercial diversion. The MRWMD has set a diversion goal of 75% by 2020, identical to the State-wide goal set by CalRecycle. The SVSWA has set a goal of 75% diversion from landfill by 2015, which represents a more urgent goal than that put in place by CalRecycle.
- Compliance with AB 939 – Large-scale diversion projects such as those currently planned by MRWMD and SVSWA are not required for compliance with current State law (50% AB 939 diversion requirement), and do not appear to be necessary to assist the State in meeting CalRecycle's "goal" of 75% diversion by 2020 (AB 341). In the interest of keeping tipping fees and customer rates as low as possible, these projects are not necessary from a regulatory standpoint. All jurisdictions in the County are in compliance with CalRecycle's current requirement of 50% diversion, set forth by State mandate AB 939, and therefore no additional diversion is needed to comply with the current actual requirements set forward by the State of California.
- CalRecycle Diversion Levels
 - All jurisdictions in the County are in compliance with CalRecycle's current requirement of 50% diversion, set forth by State mandate AB 939.

- The State's mandatory commercial recycling law (AB 341) set forward a 75% diversion goal at the State level. Most jurisdictions are already close to achieving this goal, and three cities have already met the goal. Specifically, according to CalRecycle:
 - The SVSWA as a whole achieved 72% diversion in 2013, and needs an annual disposal reduction of 15,655 tons to achieve 75% diversion;
 - The City of Del Rey Oaks achieved 66% diversion in 2013, and needs an annual disposal reduction of 292 tons to achieve 75% diversion;
 - The City of Monterey achieved 74% diversion in 2013, and needs an annual disposal reduction of 1,330 tons to achieve 75% diversion;
 - The City of Pacific Grove achieved 73% diversion in 2013, and needs an annual disposal reduction of 685 tons to achieve 75% diversion;
 - The City of Seaside achieved 63% diversion in 2013, and needs an annual disposal reduction of 7,479 tons to achieve 75% diversion;
 - The cities of Carmel-by-the-Sea, Marina and Sand City have already met the 75% diversion goal; and
 - The unincorporated County area achieved 56% diversion in 2013, and needs an annual disposal reduction of 51,612 tons to achieve 75% diversion.
- Current Diversion Plans
 - MRWMD – As stated above, MRWMD is currently in the process of implementing publically owned enhancements to the Marina MRF. Enhancements will include:
 - **Commercial Mixed Materials Processing** – A mixed materials processing line to accept 80,000 tons of MRWMD region commercial and multi-family dwelling (MFD) mixed waste that are currently landfilled (estimated 68% diversion of accepted materials). Note the MRWMD could have stipulated these services be provided by the private franchised haulers but elected to construct the facility as a public investment instead;
 - **Single-Stream Processing** – A single-stream recyclables (i.e., “clean” recyclables) processing line to accept 10,000 to 15,000 tons not currently received by MRWMD (estimated 90% diversion of accepted materials). This service is currently performed by private waste service companies; and
 - **C&D Processing** – Enhanced processing of construction and demolition (C&D) materials currently received by MRWMD (estimated 75% diversion of this material – currently approximately 57% is diverted).
 - SVSWA – As stated above, the SVSWA is currently planning the implementation of an “Autoclave” mixed materials processing facility at the Madison Lane Transfer Station. This plan involves selling the current Sun Street Transfer Station facility and purchasing and relocating to the Madison Lane Transfer Station, which is currently owned and operated by Waste Management. The SVSWA estimates that the proposed Autoclave facility would divert approximately 70% of the accepted materials, which include all residential and commercial mixed waste in the SVSWA region. The Autoclave units are modular and could be expanded to accept additional capacity as needed. C&D materials,

debris boxes and green waste/organics would not be processed through the Autoclave. The Autoclave technology has been tested as a small pilot program by the SVSWA, and has also been used on a small scale to process medical waste in other areas of the country. However, an Autoclave operation of the size and scale proposed by SVSWA has, to our knowledge, never been attempted.

Recommendations

- The SVSWA should revise its goal of 75% diversion by 2015, as this goal is unnecessary for compliance with State law and may result in higher tipping fees and customer rates for its member jurisdictions. We suggest a goal of 75% diversion by 2020 as recognized CalRecycle. As stated above, the SVSWA reporting agency as a whole achieved 72% diversion as recognized by CalRecycle in 2013.
- Any efforts to increase overall diversion should be focused on enhancing recycling programs in the Unincorporated County area, which has the lowest CalRecycle diversion rate of all jurisdictions in the County (i.e., 56% in 2013) and would require the most additional diversion to keep pace with the 75% CalRecycle diversion goal in 2020.
- All jurisdictions should require their franchised haulers to be responsible for arranging for diversion of materials in accordance with State law. Most notably, this includes the recent AB 1826, which will require jurisdictions to arrange for organics (i.e., yard trimmings and food scraps) recycling programs for multi-family dwelling (MFD) and commercial sectors with a phased-in approach starting in 2016.
- MRWMD Member Agencies should support the expansion of the MRWMD MRF, as it appears to be a cost-effective option for achieving increased diversion, with the caveat that additional organics diversion for commercial waste generators may need to be added in the future to comply with AB 1826.
- If SVSWA Members Agencies require or elect to increase diversion above State requirements, then they should put increased diversion requirements on the franchised haulers and not pursue publically owned or flow-controlled additional diversion facilities. The SVSWA could increase diversion by directing its franchise haulers to deliver materials to MRWMD's expanded MRF as a lower cost/lower risk option than building the Autoclave facility.

Review of Monterey County Programs and Rates

Findings

- The County of Monterey contracts with USA Waste of California (dba Carmel Marina Corporation) for garbage collection services in the Unincorporated County area. The company offers commercial customer rates which vary in amount based on the type of container, service volume, and service frequency. The commercial rates are higher in the SVSWA region of the Unincorporated County than in the MRWMD region. Specifically:
 - Commercial cart rates are 3% higher on average in the SVSWA region; and
 - Commercial bin and compactor rates are 53% higher on average in the SVSWA region.
- The SVSWA completed a commercial rate study and determined that the actual cost of providing commercial collection service in the SVSWA area is 2.8% higher than in the MRWMD area if disposal costs are included, and 7.3% less if disposal costs are not

included. This finding is not consistent with County staff's reasoning for the significantly higher customer rates in the SVSWA area. (County staff previously stated that the significantly higher customer rates in the SVSWA area are due to higher disposal costs and higher collection costs.)

Recommendations

- The County EHB and USA Waste should review and verify the findings of SVSWA's commercial rate analysis. Without performing an independent analysis, we find the SVSWA response to the commercial rate study performed by MSW consultants to be worthy of consideration. Namely, the SVSWA analysis concludes that the cost of commercial waste service in the SVSWA region, when based on expenses for collection services, is comparable with the cost of commercial waste service in the MRWMD region. The primary findings of the SVSWA's study conclude:
 - The cost to deliver services as shown in the most recent rate adjustment calculations reveal the SVSWA cost to be on-par with the MRWMD cost service.
 - When adjusted to exclude disposal cost, the cost of service for the SVSWA region is lower than for the MRWMD.
- We conclude the SVSWA commercial rate study is valid.
- The County should reenter discussions with USA Waste to rebalance the unincorporated County's MRWMD-region and SVSWA-region customer rates to better reflect the actual costs of both disposal and collection service in each area.

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Section 2. Background and Limitations

Background

Monterey County's solid waste residential, commercial and industrial collection services are provided by private haulers that operate under franchise agreements with their respective jurisdictions throughout the County. The County's solid waste transfer, processing and disposal system is operated in large part by public agencies: the Monterey Regional Waste Management District (MRWMD) and the Salinas Valley Solid Waste Authority (SVSWA).

- **Salinas Valley Solid Waste Authority (SVSWA)** – The SVSWA serves the eastern portion of the County and operates the Johnson Canyon Landfill. In addition, the SVSWA operates the Sun Street Transfer Station and the Jolon Road Transfer Station, and is also responsible for the maintenance and environmental monitoring of three closed landfills (i.e., Crazy Horse Canyon Landfill, Lewis Road Landfill, and Jolon Road Landfill). The SVSWA includes the following Member Agencies:
 - City of Gonzales;
 - City of Greenfield;
 - City of King City;
 - City of Salinas;
 - City of Soledad; and
 - County of Monterey.
- **Monterey Regional Waste Management District (MRWMD)** – The MRWMD serves the western portion of the County and operates the Monterey Peninsula Landfill near the City of Marina. The MRWMD was created in 1951 and was originally called the “Monterey Peninsula Garbage and Refuse Disposal District” until 1983 when the current name was adopted. The MRWMD's current Monterey Peninsula Landfill in Marina was opened in 1965. The MRWMD's materials recovery facility (MRF), located at the same site, was opened in 1996. The MRWMD includes the following Member Agencies:
 - City of Carmel-by-the-Sea;
 - City of Del Rey Oaks;
 - City of Marina;
 - City of Monterey;
 - City of Pacific Grove;
 - City of Sand City;
 - City of Seaside;
 - Pebble Beach Community Services District; and
 - County of Monterey.
- **Monterey County Environmental Health Bureau (EHB)** – The County EHB provides public education, some AB 939 services and franchise collection contract administration

for the entire unincorporated area of Monterey County, and holds membership in both the SVSWA and MRWMD.

Limitations

Our review was limited to mixed waste, green waste and C&D waste streams generated in Monterey County, and did not include an analysis of the collection, transportation, processing, or disposal of any additional source-separated recyclable material waste streams generated in the County which are currently directed to various privately owned and operated processing facilities. Our review also did not include a detailed analysis of waste streams originating from outside of Monterey County that are ultimately disposed at the Monterey Peninsula Landfill in Marina, and our review did not consider any potential changes to the throughput of the materials recovery facility (MRF) for clean recyclables located in the City of Monterey, or the potential for that facility to be included as part of the MRWMD's operations.

Our review was based on data and operating information provided by the MRWMD, SVSWA, and the County of Monterey. As such, the findings and recommendations provided in this report that are based on that data are only accurate to the extent that the information provided by those agencies is complete and accurate.

Our review did not include any analysis of operating efficiency, staffing, and management, nor were we hired to review the operations of individual franchise collection contractors.

Section 3. Facility and Needs and Collection/Transport Use Assessment

Methodology

Using tonnage data and financial data provided by the MRWMD and SVSWA for solid waste, green waste and C&D materials, we developed a quantitative model in Microsoft Excel that allowed us to analyze the cost of material transport, transfer, processing and disposal of those materials for several different facility routing scenarios. The first six scenarios were developed based on our understanding of current facility locations and potential future diversion plans. The seventh scenario was developed based on feedback received from MRWMD and SVSWA staff.

The following scenarios were established in order to analyze the cost of transport, transfer, processing and disposal in Monterey County. Each scenario is described in greater detail in the "Findings – Collection/Transport Use Assessment" subsection below:

Scenario 1 – Status Quo

Scenario 2 – Increased Diversion at MRWMD; No Additional Diversion at SVSWA

Scenario 3 – Increased Diversion at MRWMD and SVSWA; Consolidated Disposal at MRWMD

Scenario 4 – Increased Diversion at MRWMD and SVSWA; Reduced Flow to Johnson Canyon Landfill

Scenario 5 – Consolidated Increased Diversion at MRWMD; Consolidated Disposal at MRWMD

Scenario 6 – Consolidated Increased Diversion at MRWMD; Reduced Flow to Johnson Canyon Landfill

Scenario 7 – Increased Diversion at MRWMD, Salinas and North County Disposal at MRWMD, Remainder of SVSWA to Johnson Canyon Landfill, No Additional SVSWA Diversion

For each scenario, we determined the following information:

- **System Cost** – The annual estimated cost for the transport, transfer, processing and disposal of solid waste, green waste and C&D materials. The following assumptions and methodologies were used in developing the "system cost" model:
 - We divided the MRWMD's and SVSWA's annual costs (using data provided by the agencies) into "fixed costs" that would not change based on changes in tonnage throughputs (e.g., admin, debt, legacy costs, and AB 939 services including public education), and "variable costs" that would change based on the number of tons that transferred, processed or disposed. Fixed costs also include the combined cost for the purchase of Madison Lane Transfer Station, sale of Sun Street Transfer Station, and associated road improvements in Scenarios 3 and 4. Variable costs were adjusted in each scenario according to the number of tons routed through each facility.

- Projected direct haul costs of \$0.50 per ton-mile, based on based on \$90 cost per hour for truck and driver, average post-collection truck speed of 45 miles per hour, and average payload of 8 tons of waste;
 - Projected transfer haul costs of \$0.24 per ton-mile, based on \$120 cost per hour for truck and driver, average truck speed of 45 miles per hour, and average transfer trailer payload of 22 tons of waste;
 - Hauling distances for direct haul vehicles are assumed to be from the city centers to the destination facilities; and
 - The cost of disposing out-of-County tonnages at MRWMD's Monterey Landfill in Marina was included in all "system cost" estimates, as these tonnages provide economies of scale to the MRWMD system.
- **Greenhouse Gas (GHG) Emissions** – Each scenario was evaluated for greenhouse gas emission potential by estimating the total metric tons of carbon dioxide (MTCO₂) produced from the collection and transfer vehicles transporting the waste. The following assumptions were used:
- Direct haul vehicles (i.e., standard collection vehicles) have an average payload of 8 tons of waste, and transfer haul vehicles (i.e., transfer trailers) have an average payload of 22 tons of waste. Direct haul vehicles average 2.8 miles per gallon of diesel fuel, and transfer haul vehicles average 8 miles per gallon of diesel fuel;¹
 - The Mobile Combustion CO₂ Emission Factor for diesel fuel is 10.21 kilograms of CO₂ per gallon;²
 - Biodiesel transfer vehicles emit 15 percent less greenhouse gases than petroleum diesel vehicles, and compressed natural gas (CNG) vehicles emit 21 percent less greenhouse gases than petroleum diesel vehicles;³
 - Hauling distances for direct haul vehicles are assumed to be from the city centers to the destination facilities; and
 - Only transportation mileages for tonnages originating inside the County were considered – no emissions estimates for tons delivered to the MRWMD's landfill from out of County are included in this analysis.

The "Findings – Facility and Needs Assessment" subsection below provides a qualitative assessment of the current solid waste system and facilities in Monterey County.

The "Findings – Collection/Transport Use Assessment" subsection below provides a summary comparison of the "system cost" and GHG emissions analysis results for all scenarios, followed by a detailed description of the parameters and results for each scenario individually.

¹ Source: Iqbal, Samina and Talty, Alanna. Impacts of New York City Waste on the 125th Street BID. April 2007. <<http://www.urbandesignlab.columbia.edu/sitefiles/file/UDL%20Waste%20Report%20FINAL.pdf>>

² Source: US EPA, Emission Factors for Greenhouse Gas Inventories. Table 2: Mobile Combustion CO₂ Emission Factors. Last Modified April 4, 2014. <http://www.epa.gov/climateleadership/documents/emission-factors.pdf>

³ Source: "Clean Cities Niche Market Overview: Refuse Haulers" by Shannon Shea, U.S. Department of Energy, September 2011, pg. 3, 7).

Findings – Facility and Needs Assessment

All cities in the County, as well as the unincorporated County area, contract with private haulers for the collection of residential and commercial solid waste. The County of Monterey's solid waste processing and disposal facility system for mixed waste and green waste is divided into two agencies. The MRWMD and SVSWA each operate one landfill. The MRWMD operates a construction and demolition (C&D) materials recovery facility (MRF). The SVSWA operates two transfer stations. Both agencies contract with private operators for composting services.

The Monterey Peninsula Landfill in Marina and the Johnson Canyon Landfill have more than adequate capacity to support the disposal of all generated in-County tonnages. The MRWMD also currently imports a significant amount of out-of-County waste at its Marina Landfill (69% of its total disposal tonnage) which results in financial benefit to the MRWMD. No out-of-County waste is currently imported at the SVSWA's Johnson Canyon Landfill, although the SVSWA does have a prior history of importation. Both MRWMD and SVSWA appear to operate their landfills cost efficiently, consistent with privately owned/operated landfills (absent the higher costs in SVSWA region resulting from legacy costs for maintenance of closed landfills).

Both MRWMD and the SVSWA have plans to implement future infrastructure to provide added waste diversion capabilities in their respective agencies. The MRWMD is in the process of renovating the existing Materials Recovery Facility to provide additional mixed waste and single stream processing capacities employing mechanical and manual sorting capabilities to provide future diversion infrastructure. Specifically, the planned MRF enhancements include:

- **Commercial Mixed Materials Processing** – A mixed materials processing line to accept 80,000 tons of MRWMD region commercial and multi-family dwelling (MFD) mixed waste that are currently landfilled (estimated 68% diversion of accepted materials). The MRWMD could have stipulated these services be provided by the private franchised haulers but elected to construct the facility as a public investment instead;
- **Single-Stream Processing** – A single-stream recyclables (i.e., “clean” recyclables) processing line to accept 10,000 to 15,000 tons not currently received by MRWMD (estimated 90% diversion of accepted materials). This service is currently performed by private waste service companies; and
- **C&D Processing** – Enhanced processing of construction and demolition (C&D) materials currently received by MRWMD (estimated 75% diversion of this material – currently approximately 57% is diverted).

The MRWMD has undergone an RFP process and is currently in the process of implementing the new MRF enhancements. In addition, the new franchise agreements in the MRWMD service area support the MRWMD's planned expansion of MRF processing activities by directing the MRWMD's Member Agency waste streams to the expanded MRF. This expansion will compete with private waste haulers to provide similar services.

The SVSWA intends to: (1) relocate the self-haul waste venue by selling the Sun Street facility and purchasing the Madison Lane facility, and (2) contract with a private company for Autoclave processing services which would process all of the residential and commercial wastes within the SVSWA using a pressure/temperature device followed by mechanical screening to provide future diversion capabilities. The SVSWA move from Sun Street to Madison Lane location is reportedly to improve facility functionality but is also to comply with the desires of the City of Salinas regarding compatible land uses in Sun Street neighborhood. The specifics of the SVSWA Autoclave services were not available for review as the terms of the agreement are

currently under confidentially due to an on-going contract negotiation phase. While SVSWA is engaging the private sector for Autoclave services, the SVSWA negotiation of these services relies on a single proprietary technology provider. The SVSWA is currently in the planning phase of relocating the Sun Street facility and implementing the Autoclave processing services, with no part of those plans having been finalized at this point.

Findings – Collection/Transport Use Assessment

Summary Comparison of All Scenarios

System Costs

The annual estimated cost for the transport, transfer, processing and disposal of solid waste, green waste and C&D materials for each solid waste system scenario is provided in Table 3-1 on the following page. As shown, the highest ranking (i.e., lowest cost) scenario is Scenario 7, which we estimate would provide a 4% reduction in annual system costs. In general, the higher cost scenarios are characterized by systems which include facilities designed for large-scale diversion increases in both the SVSWA and MRWMD regions, while the lower cost scenarios are characteristic of systems which do not include such facilities in both regions.

**TABLE 3-1
All Scenarios – Annual System Cost Comparison**

Scenario	Annual System Costs					Rank
	SVSWA	MRWMD	Total	Change vs. Scenario 1		
				\$	%	
Scenario 1: Status Quo: No Additional Diversion at MRWMD or SVSWA	\$ 16,176,000	\$ 15,698,000	\$ 31,874,000	\$ -	-	3
Scenario 2: Increased Diversion at MRWMD; No Additional Diversion at SVSWA	\$ 16,176,000	\$ 16,054,000	\$ 32,230,000	\$ 356,000	+1%	4
Scenario 3: Increased Diversion at MRWMD and SVSWA; Consolidated Disposal at MRWMD	\$ 19,482,000	\$ 16,054,000	\$ 35,536,000	\$ 3,662,000	+11%	6
Scenario 4: Increased Diversion at MRWMD and SVSWA; Reduced Flow to Johnson Canyon Landfill	\$ 19,511,000	\$ 16,054,000	\$ 35,565,000	\$ 3,691,000	+12%	7
Scenario 5: Consolidated Increased Diversion at MRWMD; Consolidated Disposal at MRWMD	\$ 16,508,000	\$ 16,054,000	\$ 32,562,000	\$ 688,000	+2%	5
Scenario 6: Consolidated Increased Diversion at MRWMD; Reduced Flow to Johnson Canyon Landfill	\$ 15,144,000	\$ 16,054,000	\$ 31,198,000	\$ (676,000)	-2%	2
Scenario 7: Increased Diversion at MRWMD, Salinas and North County Disposal at MRWMD, Remainder of SVSWA to JCLF, No Additional SVSWA Diversion	\$ 14,665,000	\$ 16,054,000	\$ 30,719,000	\$ (1,155,000)	-4%	1

Greenhouse Gas (GHG) Emissions

Table 3-2 below shows the total miles and subsequent emissions estimated for each system scenario, as well as how much of each can be attributed to each type of vehicle. Because transfer haul vehicles are more fuel efficient than direct haul vehicles, scenarios that reduce the amount of hauling done by direct haul vehicles will produce lower greenhouse gas emissions.

TABLE 3-2
All Scenarios – Annual GHG Emissions Comparison

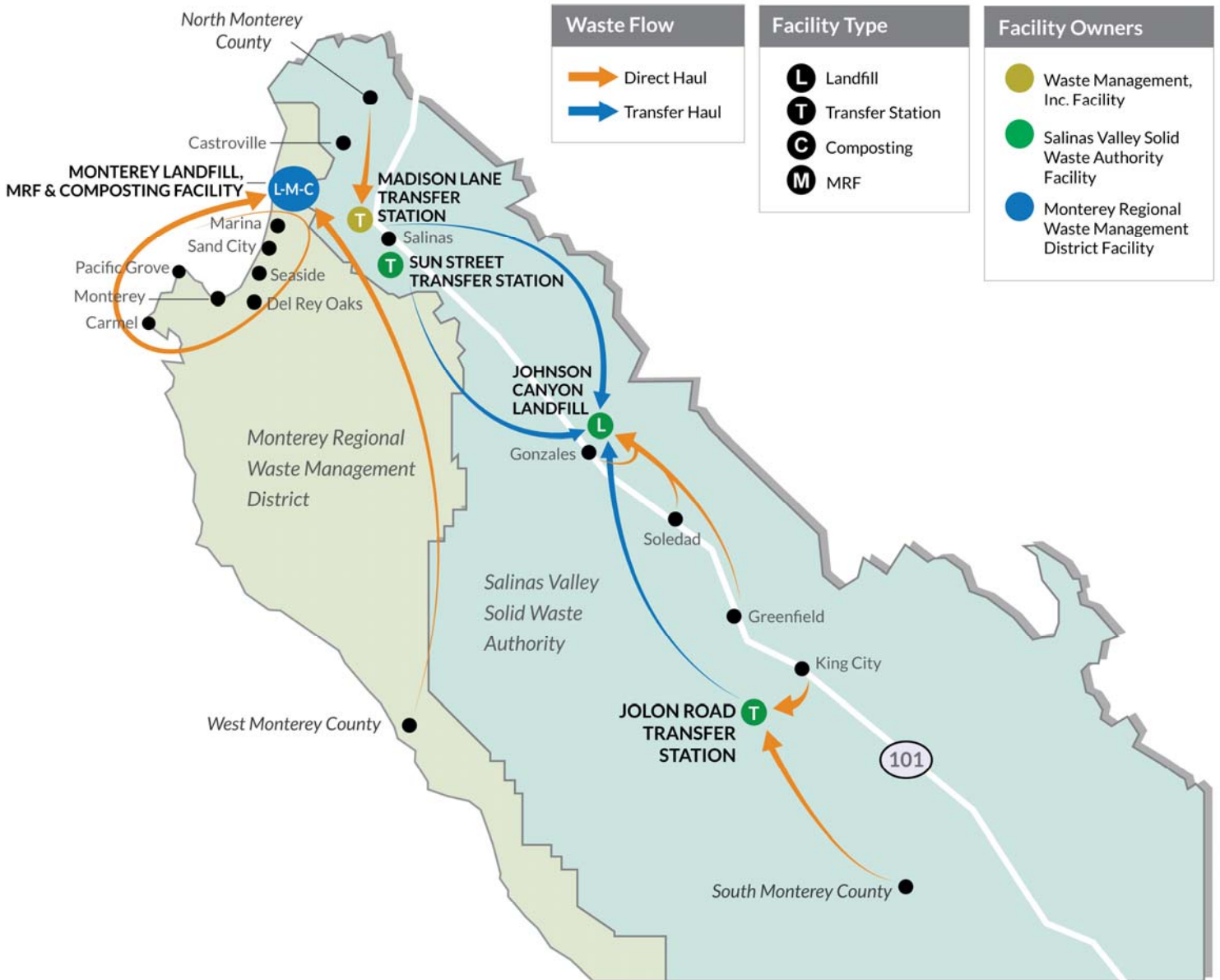
Scenario	Direct Haul		Transfer Haul		Total MTCO ₂ Emissions	Change in MTCO ₂ Emissions vs. Status Quo	Rank
	Miles	MTCO ₂ Emissions	Miles	MTCO ₂ Emissions			
1	1,148,584	3,309	296,026	856	4,165	–	1 / 2
2	1,148,654	3,309	296,026	856	4,165	+0%	1 / 2
3	1,215,712	3,502	272,444	788	4,290	+3%	3
4	1,215,712	3,502	304,378	881	4,383	+5%	4
5	1,454,878	4,191	270,536	783	4,974	+19%	7
6	1,454,878	4,191	68,772	199	4,390	+5%	5 / 6
7	1,454,848	4,191	68,706	199	4,390	+5%	5 / 6

The highest ranking scenarios (Scenarios 1 and 2) have the lowest estimated emissions from transportation. These scenarios use collection trucks most efficiently by transporting collected waste to decentralized facilities for consolidation or processing. Even though Scenarios 1 and 2 do not have the lowest amount of transfer haul miles, they do have the lowest amount of miles travelled using direct haul vehicles, which cause more carbon emissions per mile than transfer haul vehicles. Lower emissions are characteristic of the scenarios that keep a waste facility in the City of Salinas and thereby reduce the distance that direct haul vehicles need to travel.

The lowest ranking scenario (Scenario 5) is estimated to generate the most emissions from transportation. Scenario 5 (Consolidated Increased Diversion at MRWMD; Consolidated Disposal at MRWMD), has high estimated mileages for both direct haul and transfer haul vehicles. Higher emissions are characteristic of the scenarios that consolidate waste going directly to the MRWMD facility in Marina, thereby increasing the distance that direct haul vehicles need to travel.

Scenario 1

Status Quo



Scenario 1 represents the County's current solid waste routing structure. In the MRWMD region, all solid waste is direct hauled to the Monterey Landfill, MRF and Composting Facility located in Marina, and all planned enhancements to the MRF have not yet been implemented. In the SVSWA region, waste is direct hauled to transfer stations and taken to the Johnson Canyon Landfill for disposal. SVSWA-region green waste is composted at private facilities adjacent to Johnson Canyon Landfill.

Specifically, Scenario 1 includes the following facility routing:

- **SVSWA Region**
 - Salinas and northern unincorporated County area direct haul to Sun Street Transfer Station and Madison Lane Transfer Station, then transfer haul to Johnson Canyon Landfill;
 - Gonzales, Soledad and Greenfield direct haul to Johnson Canyon Landfill; and
 - King City and southern unincorporated County area direct haul to Jolon Road Transfer Station, then transfer haul to Johnson Canyon Landfill.
- **MRWMD Region**
 - All Member Agencies direct haul to Monterey Landfill, MRF and Composting Facility located in Marina, and all planned enhancements to the MRF have not yet been implemented.

Based on these parameters, we projected the following annual system costs for transport, transfer, processing and disposal of solid waste, green waste and C&D materials, shown in Table 3-3 below. As shown, the total projected annual system costs for the transport, transfer, processing and disposal of solid waste, green waste and C&D materials are projected to be approximately \$31.9 million.

**TABLE 3-3
Scenario 1 – Annual System Cost Projections**

Material Type	Annual System Costs		
	SVSWA	MRWMD	Total
Variable Costs			
Solid Waste	\$ 6,567,000	\$ 7,212,000	\$ 13,779,000
Green Waste	\$ 1,653,000	\$ 1,247,000	\$ 2,900,000
C&D	\$ 120,000	\$ 3,225,000	\$ 3,345,000
Fixed Costs			
All Materials	\$ 7,836,000	\$ 4,014,000	\$ 11,850,000
Total	\$ 16,176,000	\$ 15,698,000	\$ 31,874,000

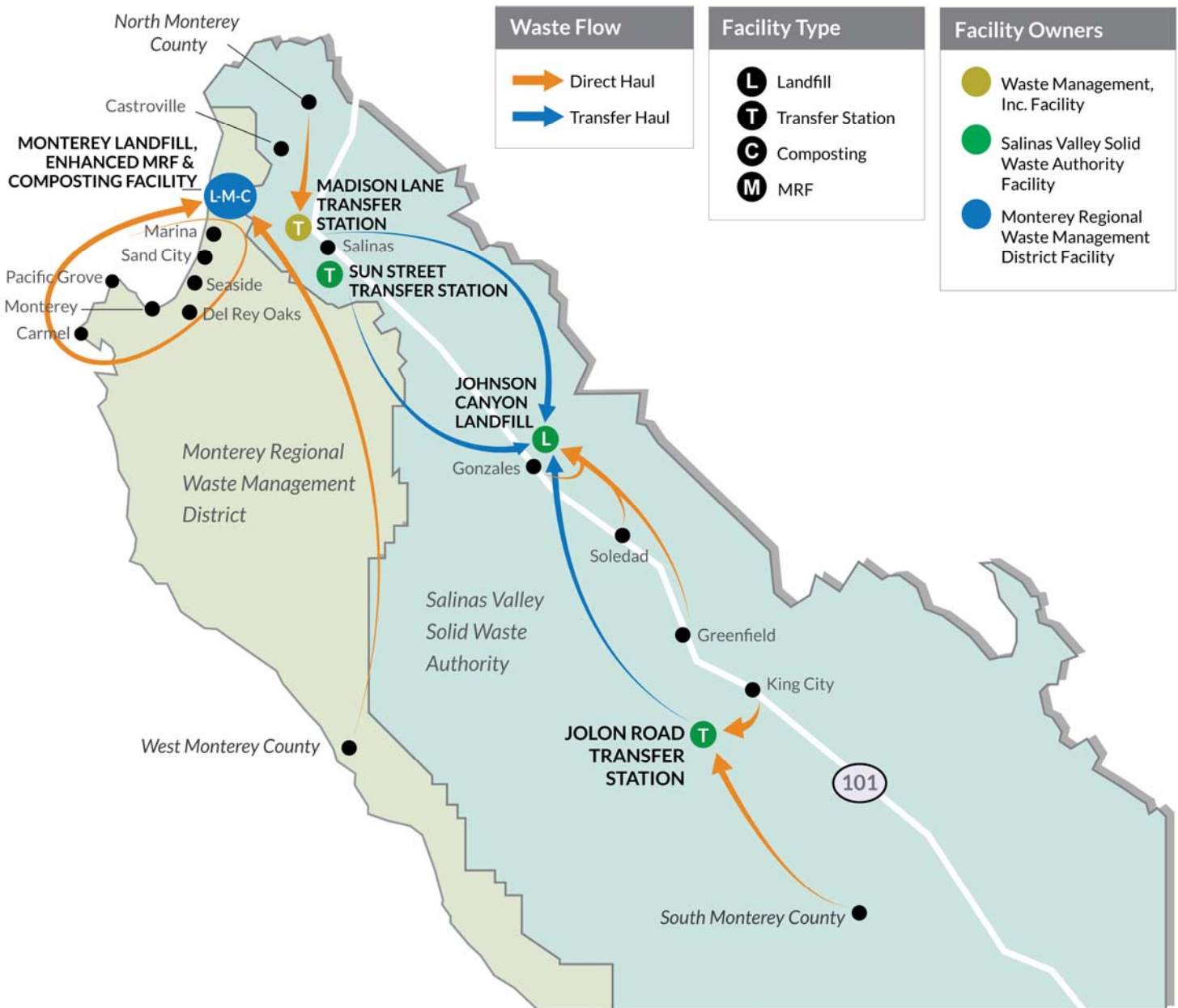
Table 3-4 below provides the projected annual GHG emissions resulting from the direct hauling and transfer hauling of tons generated in the County. As shown, a total of 5,196 metric tons of carbon dioxide (MTCO₂) are estimated to be produced annually.

**TABLE 3-4
Scenario 1 – Annual GHG Emission Projections**

Direct Haul		Transfer Haul		Total MTCO ₂ Emissions
Miles	MTCO ₂ Emissions	Miles	MTCO ₂ Emissions	
1,148,584	3,309	296,026	856	4,165

Scenario 2

Increased Diversion at MRWMD; No Additional Diversion at SVSWA



Scenario 2 provides for new large scale diversion in the MRWMD, with no changes to the current solid waste system in the SVSWA region.

Under this scenario, all MRWMD-region solid waste would continue to be direct hauled to the Marina facility in the same manner as Scenario 1 – Status Quo. Once arriving at the facility, approximately 80,000 tons of MRWMD-region commercial and multi-family waste would be subject to sorting and recovery in accordance with the MRWMD’s planned MRF enhancements at the Marina site.

In the SVSWA region, waste would continue to be direct hauled to transfer stations and taken to the Johnson Canyon Landfill for disposal.

Specifically, Scenario 2 includes the following facility routing:

- **SVSWA Region**
 - Salinas and northern unincorporated County area direct haul to Sun Street Transfer Station and Madison Lane Transfer Station, then transfer haul to Johnson Canyon Landfill;
 - Gonzales, Soledad and Greenfield direct haul to Johnson Canyon Landfill; and
 - King City and southern unincorporated County area direct haul to Jolon Road Transfer Station, then transfer haul to Johnson Canyon Landfill.
- **MRWMD Region**
 - All Member Agencies direct haul to Monterey Landfill, MRF and Composting Facility located in Marina, with MRF enhancements to recover material from mixed commercial and multi-family waste, and additional recovery of C&D material.

Based on these parameters, we projected the following annual system costs for transport, transfer, processing and disposal of solid waste, green waste and C&D materials, shown in Table 3-5 below. As shown, the total projected annual system costs are projected to be approximately 1% higher than Scenario 1 – Status Quo, as a result of minor cost increases necessary for the planned enhancements to the MRWMD MRF in Marina.

**TABLE 3-5
Scenario 2 – Annual System Cost Projections**

Material Type	Annual System Costs				
	SVSWA	MRWMD	Total	Change vs. Status Quo	
				\$	%
Variable Costs					
Solid Waste	\$ 6,567,000	\$ 7,909,000	\$ 14,476,000	\$ 697,000	+5%
Green Waste	\$ 1,653,000	\$ 1,247,000	\$ 2,900,000	\$ -	-
C&D	\$ 120,000	\$ 2,884,000	\$ 3,004,000	\$ (341,000)	-10%
Fixed Costs					
Admin, Legacy Costs, etc.	\$ 7,836,000	\$ 4,014,000	\$ 11,850,000	\$ -	-
Total	\$ 16,176,000	\$ 16,054,000	\$ 32,230,000	\$ 356,000	+1%

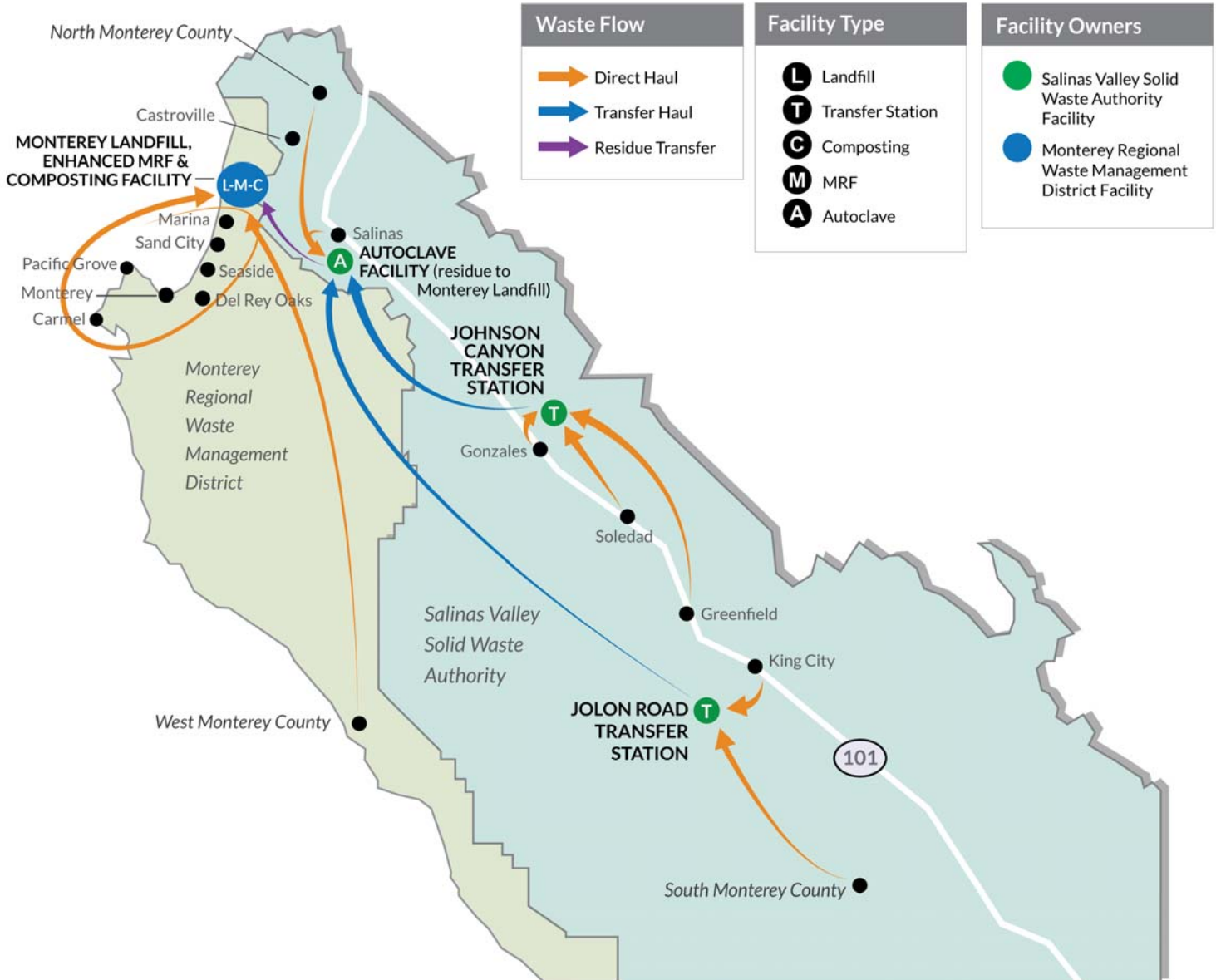
Table 3-6 below provides the projected annual GHG emissions resulting from the direct hauling and transfer hauling of tons generated in the County. As shown, the total metric tons of carbon dioxide (MTCO₂) emissions from transportation are projected to be equal to the status quo (Scenario 1). This is due to the fact that all Scenario 2 collection and transfer routing will remain essentially identical to the status quo.

**TABLE 3-6
Scenario 2 – Annual GHG Emission Projections**

Direct Haul		Transfer Haul		Total MTCO ₂ Emissions	Change in MTCO ₂ Emissions vs. Status Quo
Miles	MTCO ₂ Emissions	Miles	MTCO ₂ Emissions		
1,148,654	3,309	296,026	856	4,165	+0%

Scenario 3

Increased Diversion at MRWMD and SVSWA; Consolidated Disposal at MRWMD



Scenario 3 provides for new large scale diversion processes in both the MRWMD and SVSWA regions, with all of the County's (both regions) residual waste disposed at the MRWMD's Monterey Landfill in Marina.

Under this scenario, all MRWMD-region solid waste would continue to be direct hauled to the Marina facility in the same manner as Scenario 1 – Status Quo. Once arriving at the facility, approximately 80,000 tons of MRWMD-region commercial and multi-family waste would be subject to sorting and recovery in accordance with the MRWMD's planned MRF enhancements.

In the SVSWA region, disposal operations at the Johnson Canyon Landfill would be discontinued. Waste generated in the City of Salinas and the northern portion of the unincorporated County would be direct hauled to a new "Autoclave" processing facility located at the current Madison Lane Transfer Station, and waste in the remainder of the SVSWA area would be transferred to the Autoclave facility via the current Jolon Road Transfer Station and a transfer site located at the current Johnson Canyon Landfill. Residue (i.e., unrecoverable waste) from the Autoclave facility would then be transferred to the Monterey Landfill in Marina for disposal.

Specifically, Scenario 3 includes the following facility routing:

- **SVSWA Region**

- Salinas and northern unincorporated County area direct haul to Autoclave facility located at Madison Lane Transfer Station, then transfer haul the residual waste to Monterey Landfill in Marina;
- Gonzales, Soledad and Greenfield direct haul to transfer site located at current Johnson Canyon Landfill, then transfer haul to Autoclave facility located at Madison Lane Transfer Station, then transfer haul residual waste to Monterey Landfill in Marina; and
- King City and southern unincorporated County area direct haul to Jolon Road Transfer Station, then transfer haul to Autoclave facility located at Madison Lane Transfer Station, then transfer haul residual waste to Monterey Landfill in Marina.

- **MRWMD Region**

- All Member Agencies direct haul to Monterey Landfill, MRF and Composting Facility located in Marina, with MRF enhancements to recover material from mixed commercial and multi-family waste, and additional recovery of C&D material.

Based on these parameters, we projected the following annual system costs for transport, transfer, processing and disposal of solid waste, green waste and C&D materials, shown in Table 3-7 below. As shown, the total projected annual system costs are projected to be approximately 11% higher than Scenario 1 – Status Quo. This is primarily due to the higher cost incurred by processing mixed waste at the SVSWA's Autoclave facility, and to a lesser extent due to the increased transfer haul needs in the SVSWA region and the increased costs for the Marina MRF enhancements. This scenario includes an additional estimated \$932,000 in annual costs to the SVSWA region to account for the purchase of Madison Lane Transfer Station and sale of Sun Street Transfer Station (estimated \$6 million net), and associated road improvements (estimated \$8 million), paid in full over a 20 year period at an annual interest rate of 3.0%.

TABLE 3-7
Scenario 3 – Annual System Cost Projections

Material Type	Annual System Costs				
	SVSWA	MRWMD	Total	Change vs. Status Quo	
				\$	%
Variable Costs					
Solid Waste	\$ 9,267,000	\$ 7,909,000	\$ 17,176,000	\$ 3,397,000	+25%
Green Waste	\$ 1,344,000	\$ 1,247,000	\$ 2,591,000	\$ (309,000)	-11%
C&D	\$ 103,000	\$ 2,884,000	\$ 2,987,000	\$ (358,000)	-11%
Fixed Costs					
Admin, Legacy Costs, etc.	\$ 7,836,000	\$ 4,014,000	\$ 11,850,000	\$ -	-
Madison Lane TS Purchase, Sun Street TS Sale, and Road Improvements*	\$ 932,000	\$ -	\$ 932,000	\$ 932,000	N/A
Total	\$ 19,482,000	\$ 16,054,000	\$ 35,536,000	\$ 3,662,000	+11%

*Annual cost of \$932,000 to SVSWA region is based on an estimated \$14 million total cost (\$6 million net cost for Madison Lane purchase and Sun Street sale, plus \$8 million cost for road improvements), paid in full over a 20 year period at an annual interest rate of 3.0%.

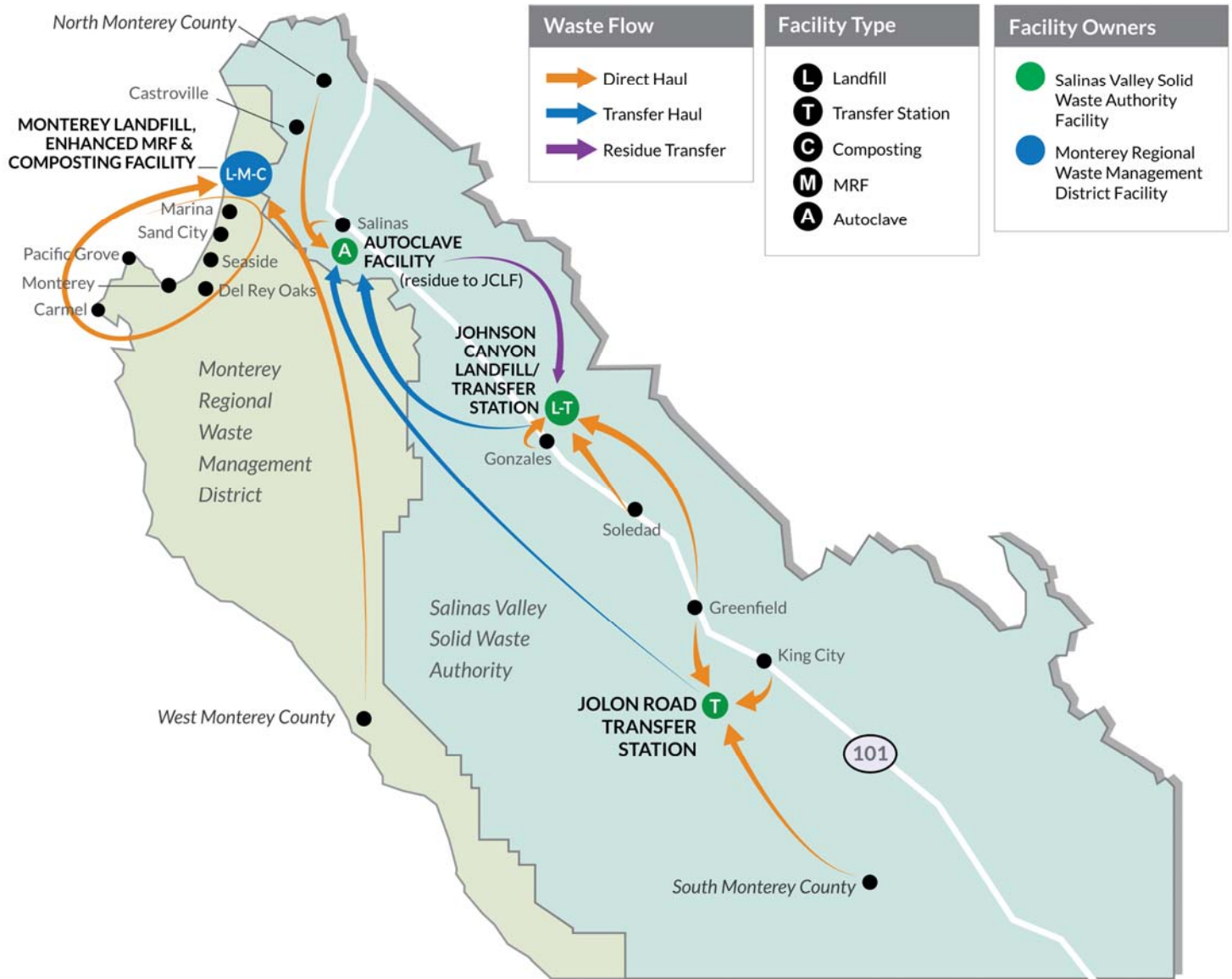
Table 3-8 below provides the projected annual GHG emissions resulting from the direct hauling and transfer hauling of tons generated in the County. As shown, the total metric tons of carbon dioxide (MTCO₂) emissions are projected to be approximately 3% higher than the status quo (Scenario 1).

TABLE 3-8
Scenario 3 – Annual GHG Emission Projections

Direct Haul		Transfer Haul		Total MTCO ₂ Emissions	Change in MTCO ₂ Emissions vs. Status Quo
Miles	MTCO ₂ Emissions	Miles	MTCO ₂ Emissions		
1,215,712	3,502	272,444	788	4,290	+3%

Scenario 4

Increased Diversion at MRWMD and SVSWA; Reduced Flow to Johnson Canyon Landfill



Scenario 4 provides for new large scale diversion processes in both the MRWMD and SVSWA regions, with each region's residual waste disposed at their respective landfills.

Under this scenario, all MRWMD-region solid waste would continue to be direct hauled to the Marina facility in the same manner as Scenario 1 – Status Quo. Once arriving at the facility, approximately 80,000 tons of MRWMD-region commercial and multi-family waste would be subject to sorting and recovery in accordance with the MRWMD's planned MRF enhancements at the Marina site.

In the SVSWA region, waste generated in the City of Salinas and the northern portion of the unincorporated County would be direct hauled to a new "Autoclave" processing facility located at the current Madison Lane Transfer Station, and waste in the remainder of the SVSWA area would be transferred to the Autoclave facility via the current Jolon Road Transfer Station and a transfer site located at the current Johnson Canyon Landfill. Residue (i.e., unrecoverable waste) from the Autoclave facility would then be transferred to the Johnson Canyon Landfill for disposal. The Johnson Canyon Landfill would experience a significant reduction in disposal throughput due to the high projected level of recovery at the Autoclave facility.

Specifically, Scenario 4 includes the following facility routing:

- **SVSWA Region**

- Salinas and northern unincorporated County area direct haul to Autoclave facility located at Madison Lane Transfer Station, then transfer haul the residual waste to Johnson Canyon Landfill;
- Gonzales, Soledad and Greenfield direct haul to transfer site located at current Johnson Canyon Landfill, then transfer haul to Autoclave facility located at Madison Lane Transfer Station, then transfer haul residual waste to Johnson Canyon Landfill; and
- King City and southern unincorporated County area direct haul to Jolon Road Transfer Station, then transfer haul to Autoclave facility located at Madison Lane Transfer Station, then transfer haul residual waste to Johnson Canyon Landfill.

- **MRWMD Region**

- All Member Agencies direct haul to Monterey Landfill, MRF and Composting Facility located in Marina, with MRF enhancements to recover material from mixed commercial and multi-family waste, and additional recovery of C&D material.

Based on these parameters, we projected the following annual system costs for transport, transfer, processing and disposal of solid waste, green waste and C&D materials, shown in Table 3-9 below. As shown, the total projected annual system costs are projected to be approximately 12% higher than Scenario 1 – Status Quo. This is primarily due to the higher cost incurred by processing mixed waste at the SVSWA's Autoclave facility, and to a lesser extent due to the increased transfer haul needs in the SVSWA region and the increased costs for the Marina MRF enhancements. This scenario includes an additional estimated \$932,000 in annual costs to the SVSWA region to account for the purchase of Madison Lane Transfer Station and sale of Sun Street Transfer Station (estimated \$6 million net), and associated road improvements (estimated \$8 million), paid in full over a 20 year period at an annual interest rate of 3.0%.

TABLE 3-9
Scenario 4 – Annual System Cost Projections

Material Type	Annual System Costs				
	SVSWA	MRWMD	Total	Change vs. Status Quo	
				\$	%
Variable Costs					
Solid Waste	\$ 9,296,000	\$ 7,909,000	\$ 17,205,000	\$ 3,426,000	+25%
Green Waste	\$ 1,344,000	\$ 1,247,000	\$ 2,591,000	\$ (309,000)	-11%
C&D	\$ 103,000	\$ 2,884,000	\$ 2,987,000	\$ (358,000)	-11%
Fixed Costs					
Admin, Legacy Costs, etc.	\$ 7,836,000	\$ 4,014,000	\$ 11,850,000	\$ -	-
Madison Lane TS Purchase, Sun Street TS Sale, and Road Improvements*	\$ 932,000	\$ -	\$ 932,000	\$ 932,000	N/A
Total	\$ 19,511,000	\$ 16,054,000	\$ 35,565,000	\$ 3,691,000	+12%

*Annual cost of \$932,000 to SVSWA region is based on an estimated \$14 million total cost (\$6 million net cost for Madison Lane purchase and Sun Street sale, plus \$8 million cost for road improvements), paid in full over a 20 year period at an annual interest rate of 3.0%.

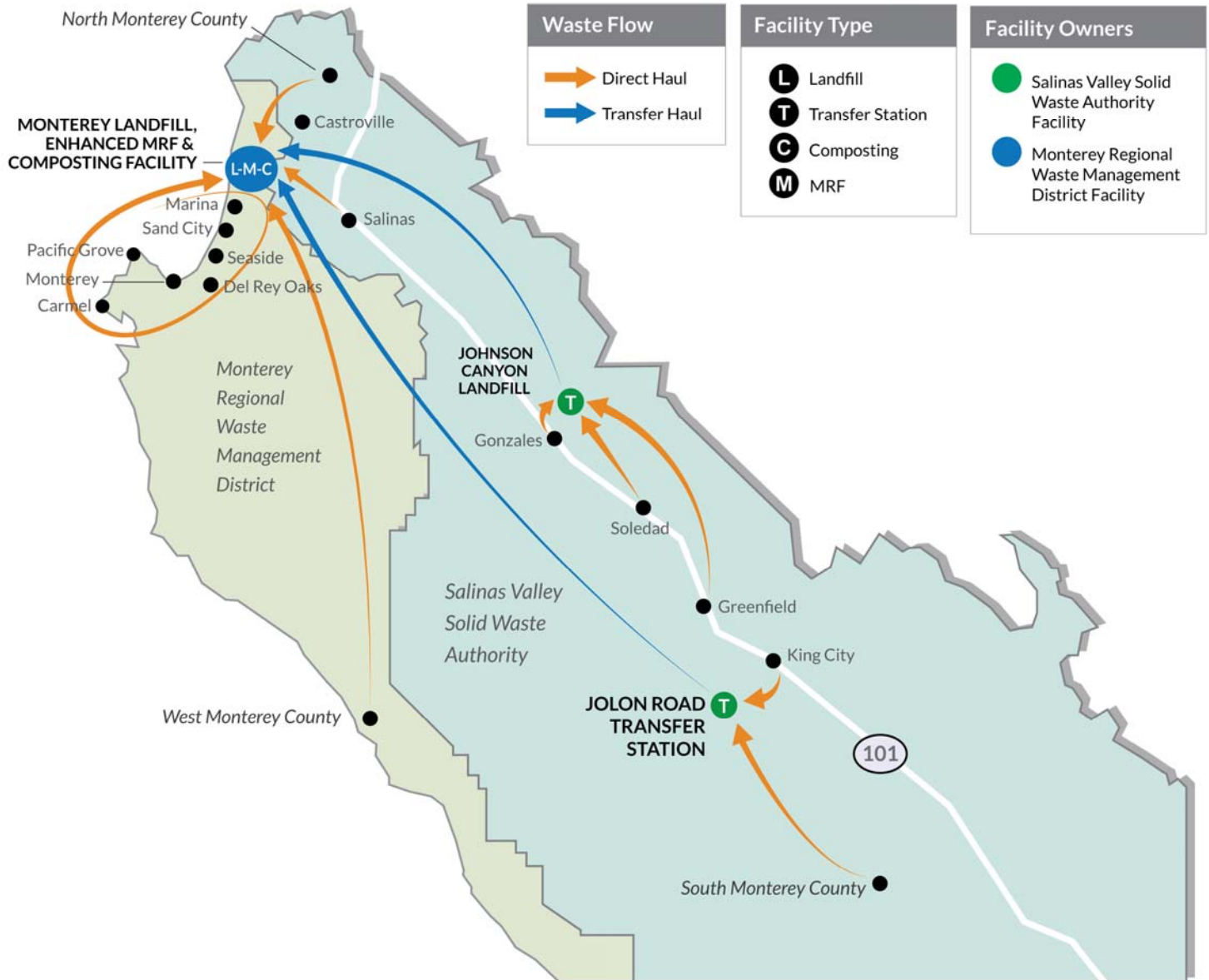
Table 3-10 below provides the projected annual GHG emissions resulting from the direct hauling and transfer hauling of tons generated in the County. As shown, the total metric tons of carbon dioxide (MTCO₂) emissions are projected to be approximately 5% higher than the status quo (Scenario 1).

TABLE 3-10
Scenario 4 – Annual GHG Emission Projections

Direct Haul		Transfer Haul		Total MTCO ₂ Emissions	Change in MTCO ₂ Emissions vs. Status Quo
Miles	MTCO ₂ Emissions	Miles	MTCO ₂ Emissions		
1,215,712	3,502	304,378	881	4,383	+5%

Scenario 5

Consolidated Increased Diversion at MRWMD; Consolidated Disposal at MRWMD



Scenario 5 provides for new large scale diversion in the MRWMD region only, with all of the County's residual waste (both regions) disposed at the Monterey Landfill in Marina.

Under this scenario, all MRWMD-region solid waste would continue to be direct hauled to the Marina facility in the same manner as Scenario 1 – Status Quo. Once arriving at the facility, approximately 80,000 tons of MRWMD-region commercial and multi-family waste would be subject to sorting and recovery in accordance with the MRWMD's planned MRF enhancements at the Marina site.

In the SVSWA region, waste generated in the City of Salinas and the northern portion of the unincorporated County would be direct hauled to the Monterey Landfill in Marina, while waste in the remainder of the SVSWA area would be transferred to the Monterey Landfill via the current Jolon Road Transfer Station and a transfer site located at the current Johnson Canyon Landfill. A total of 80,000 tons of mixed waste from the SVSWA region would be subject to sorting and recovery in accordance with the MRWMD's planned MRF enhancements at the Marina site.

Specifically, Scenario 5 includes the following facility routing:

- **SVSWA Region**
 - Salinas and northern unincorporated County area direct haul to Monterey Landfill, MRF and Composting Facility located in Marina. No Salinas-area transfer station would be required.
 - Gonzales, Soledad and Greenfield direct haul to transfer site located at Johnson Canyon Landfill, then transfer to Monterey Landfill, MRF and Composting Facility located in Marina; and
 - King City and southern unincorporated County area direct haul to Jolon Road Transfer Station, then transfer haul to Monterey Landfill, MRF and Composting Facility located in Marina.
- **MRWMD Region**
 - All Member Agencies direct haul to Monterey Landfill, MRF and Composting Facility located in Marina, with MRF enhancements to recover material from mixed commercial and multi-family waste, and additional recovery of C&D material.

Based on these parameters, we projected the following annual system costs for transport, transfer, processing and disposal of solid waste, green waste and C&D materials, shown in Table 3-11 below. As shown, the total projected annual system costs are projected to be approximately 2% higher than Scenario 1 – Status Quo. This small increase is due to the slightly higher cost incurred by implementing enhancements at MRWMD's MRF in Marina, and to the requirement for longer transfer haul distances in the southern SVSWA region.

TABLE 3-11
Scenario 5 – Annual System Cost Projections

Material Type	Annual System Costs				
	SVSWA	MRWMD	Total	Change vs. Status Quo	
				\$	%
Variable Costs					
Solid Waste	\$ 7,225,000	\$ 7,909,000	\$ 15,134,000	\$ 1,355,000	+10%
Green Waste	\$ 1,344,000	\$ 1,247,000	\$ 2,591,000	\$ (309,000)	-11%
C&D	\$ 103,000	\$ 2,884,000	\$ 2,987,000	\$ (358,000)	-11%
Fixed Costs					
Admin, Legacy Costs, etc.	\$ 7,836,000	\$ 4,014,000	\$ 11,850,000	\$ -	-
Total	\$ 16,508,000	\$ 16,054,000	\$ 32,562,000	\$ 688,000	+2%

An additional cost consideration under this scenario that is not reflected in Table 3-13 above is the potential revenue gained from the sale of SVSWA's current Sun Street Transfer Station. No Salinas-area transfer station would be required in this scenario.

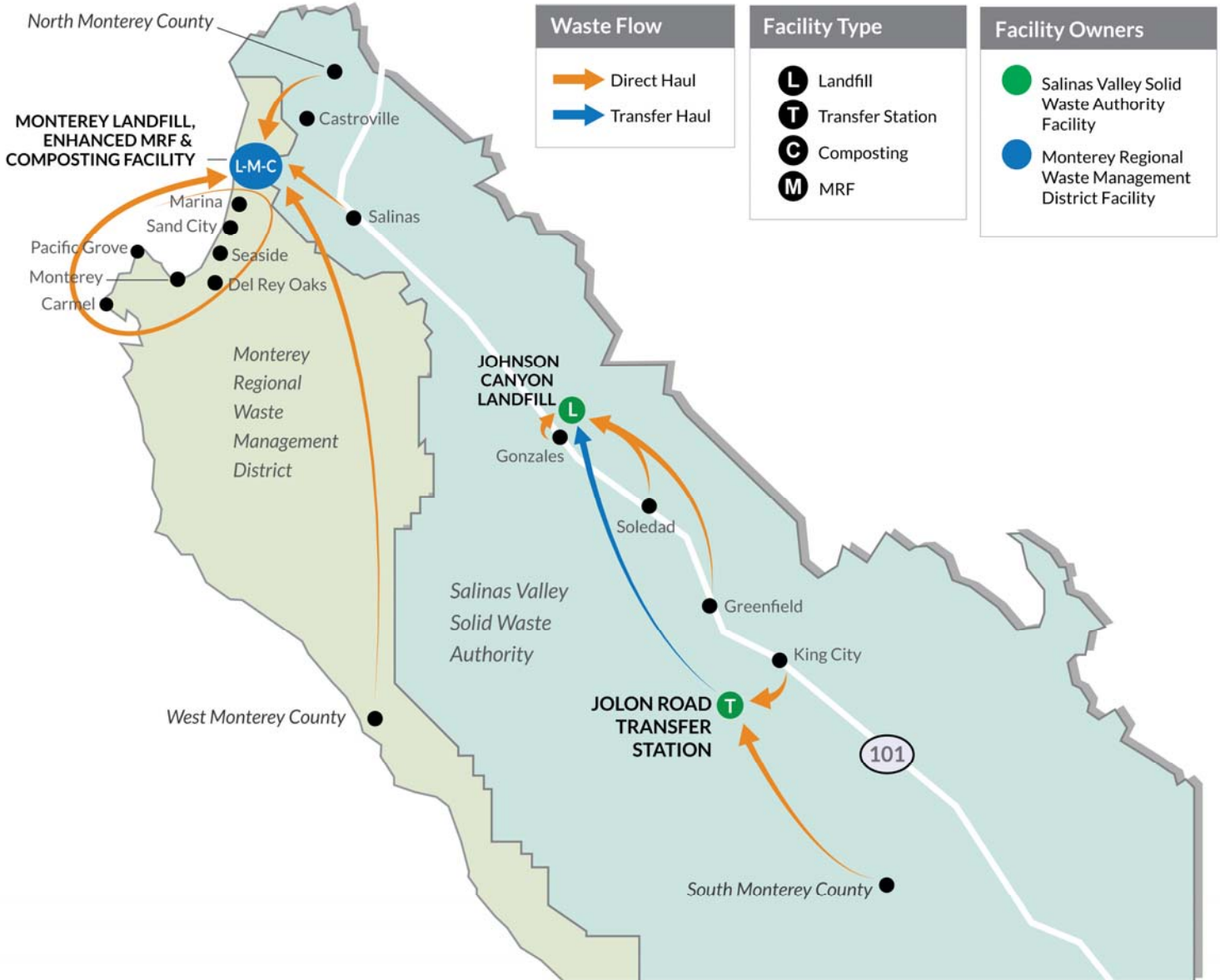
Table 3-12 below provides the projected annual GHG emissions resulting from the direct hauling and transfer hauling of tons generated in the County. As shown, the total metric tons of carbon dioxide (MTCO₂) emissions are projected to be approximately 19% higher than the status quo (Scenario 1). This significant increase in projected emissions is due to the increase in direct haul mileage for collection trucks delivering Salinas and northern unincorporated County tons to the Monterey Landfill site in Marina.

TABLE 3-12
Scenario 5 – Annual GHG Emission Projections

Direct Haul		Transfer Haul		Total MTCO ₂ Emissions	Change in MTCO ₂ Emissions vs. Status Quo
Miles	MTCO ₂ Emissions	Miles	MTCO ₂ Emissions		
1,454,878	4,191	270,536	783	4,974	+19%

Scenario 6

Consolidated Increased Diversion at MRWMD; Reduced Flow to Johnson Canyon Landfill



Scenario 6 provides for new large scale diversion in the MRWMD region and northern SVSWA region only, with MRWMD-region waste and northern SVSWA-region waste delivered to the Marina site, and the remainder of the SVSWA region's waste delivered to the Johnson Canyon Landfill.

Under this scenario, all MRWMD-region solid waste would continue to be direct hauled to the Marina facility in the same manner as Scenario 1 – Status Quo. Once arriving at the facility, approximately 80,000 tons of MRWMD-region commercial and multi-family waste would be

subject to sorting and recovery in accordance with the MRWMD's planned MRF enhancements at the Marina site.

In the SVSWA region, waste generated in the City of Salinas and the northern portion of the unincorporated County would be direct hauled to the Monterey Landfill in Marina. In the remainder of the SVSWA region, waste would be delivered to the Johnson Canyon Landfill via direct haul and transfer. Commercial and multi-family waste from Salinas and the northern SVSWA region would be subject to sorting and recovery in accordance with the MRWMD's planned MRF enhancements at the Marina site. The Johnson Canyon Landfill would experience a significant reduction in disposal throughput due to the redirection of Salinas and northern County waste streams.

Specifically, Scenario 6 includes the following facility routing:

- **SVSWA Region**
 - Salinas and northern unincorporated County area direct haul to Monterey Landfill, MRF and Composting Facility located in Marina. No Salinas-area transfer station would be required;
 - Gonzales, Soledad and Greenfield direct haul to Johnson Canyon Landfill; and
 - King City and southern unincorporated County area direct haul to Jolon Road Transfer Station, then transfer haul to Johnson Canyon Landfill.
- **MRWMD Region**
 - All Member Agencies direct haul to Monterey Landfill, MRF and Composting Facility located in Marina, with MRF enhancements to recover material from mixed commercial and multi-family waste, and additional recovery of C&D material.

Based on these parameters, we projected the following annual system costs for transport, transfer, processing and disposal of solid waste, green waste and C&D materials, shown in Table 3-13 below. As shown, the total projected annual system costs are projected to be approximately 2% lower than Scenario 1 – Status Quo. This decrease in cost is due to efficiencies gained through bypassing the Sun Street and Madison Lane Transfer Stations, and instead direct hauling all Salinas and northern unincorporated County tons to the Monterey Landfill site in Marina.

**TABLE 3-13
Scenario 6 – Annual System Cost Projections**

Material Type	Annual System Costs				
	SVSWA	MRWMD	Total	Change vs. Status Quo	
				\$	%
Variable Costs					
Solid Waste	\$ 5,983,000	\$ 7,909,000	\$ 13,892,000	\$ 113,000	+1%
Green Waste	\$ 1,234,000	\$ 1,247,000	\$ 2,481,000	\$ (419,000)	-14%
C&D	\$ 91,000	\$ 2,884,000	\$ 2,975,000	\$ (370,000)	-11%
Fixed Costs					
Admin, Legacy Costs, etc.	\$ 7,836,000	\$ 4,014,000	\$ 11,850,000	\$ -	-
Total	\$ 15,144,000	\$ 16,054,000	\$ 31,198,000	\$ (676,000)	-2%

An additional cost consideration under this scenario that is not reflected in Table 3-13 above is the potential revenue gained from the sale of SVSWA's current Sun Street Transfer Station. No Salinas-area transfer station would be required in this scenario.

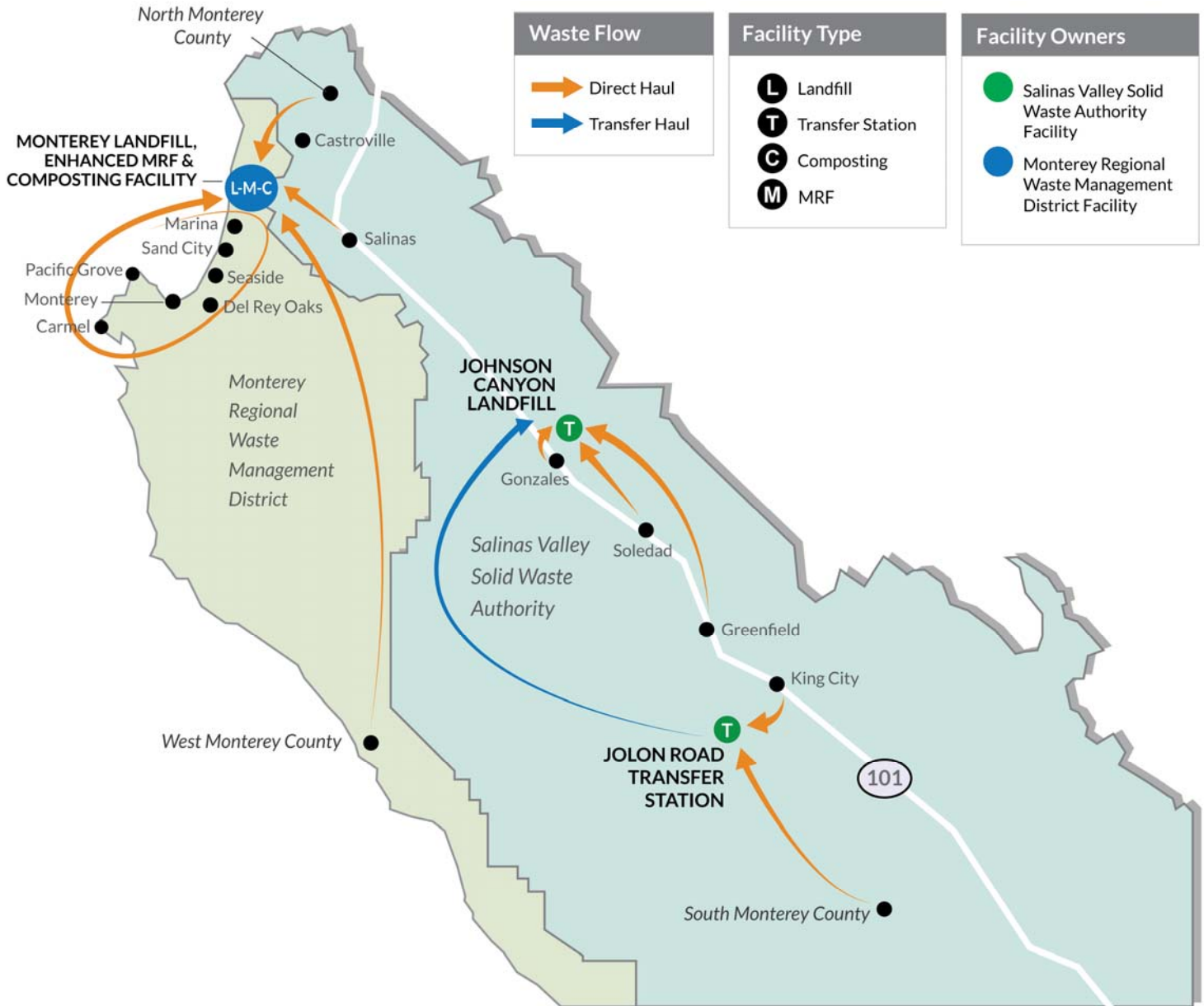
Table 3-14 below provides the projected annual GHG emissions resulting from the direct hauling and transfer hauling of tons generated in the County. As shown, the total metric tons of carbon dioxide (MTCO₂) emissions are projected to be approximately 5% higher than the status quo (Scenario 1).

TABLE 3-14
Scenario 6 – Annual GHG Emission Projections

Direct Haul		Transfer Haul		Total MTCO ₂ Emissions	Change in MTCO ₂ Emissions vs. Status Quo
Miles	MTCO ₂ Emissions	Miles	MTCO ₂ Emissions		
1,454,878	4,191	68,772	199	4,390	+5%

Scenario 7

Increased Diversion at MRWMD, Salinas and North County Disposal at MRWMD, Remainder of SVSWA to Johnson Canyon Landfill, No Additional SVSWA Diversion



Scenario 7 provides for additional diversion in the MRWMD region only, and is designed to realize potential cost efficiencies by routing Salinas and northern SVSWA-region waste to the Monterey Landfill site for disposal. The remainder of the SVSWA region's waste would be delivered to the Johnson Canyon Landfill, as per the status quo.

Under this scenario, all MRWMD-region solid waste would continue to be direct hauled to the Marina facility in the same manner as Scenario 1 – Status Quo. Once arriving at the facility,

approximately 80,000 tons of MRWMD-region commercial and multi-family waste would be subject to sorting and recovery in accordance with the MRWMD's planned MRF enhancements at the Marina site.

In the SVSWA region, waste generated in the City of Salinas and the northern portion of the unincorporated County would be direct hauled to the Monterey Landfill in Marina for disposal. In the remainder of the SVSWA region, waste would be delivered to the Johnson Canyon Landfill via direct haul and transfer. The Johnson Canyon Landfill would experience a significant reduction in disposal throughput due to the redirection of Salinas and northern County waste streams.

Specifically, Scenario 7 includes the following facility routing:

- **SVSWA Region**
 - Salinas and northern unincorporated County area direct haul to Monterey Landfill, MRF and Composting Facility located in Marina for disposal (no additional diversion of mixed waste). No Salinas-area transfer station would be required;
 - Gonzales, Soledad and Greenfield direct haul to Johnson Canyon Landfill; and
 - King City and southern unincorporated County area direct haul to Jolon Road Transfer Station, then transfer haul to Johnson Canyon Landfill.
- **MRWMD Region**
 - All Member Agencies direct haul to Monterey Landfill, MRF and Composting Facility located in Marina, with MRF enhancements to recover material from mixed commercial and multi-family waste, and additional recovery of C&D material.

Based on these parameters, we projected the following annual system costs for transport, transfer, processing and disposal of solid waste, green waste and C&D materials, shown in Table 3-15 below. As shown, the total projected annual system costs are projected to be approximately 4% lower than Scenario 1 – Status Quo. This decrease in cost is due to efficiencies gained through bypassing the Sun Street and Madison Lane Transfer Stations, and instead direct hauling all Salinas and northern unincorporated County tons to the Monterey Landfill site in Marina.

**TABLE 3-15
Scenario 7 – Annual System Cost Projections**

Material Type	Annual System Costs				
	SVSWA	MRWMD	Total	Change vs. Status Quo	
				\$	%
Variable Costs					
Solid Waste	\$ 5,504,000	\$ 7,909,000	\$ 13,413,000	\$ (366,000)	-3%
Green Waste	\$ 1,234,000	\$ 1,247,000	\$ 2,481,000	\$ (419,000)	-14%
C&D	\$ 91,000	\$ 2,884,000	\$ 2,975,000	\$ (370,000)	-11%
Fixed Costs					
Admin, Legacy Costs, etc.	\$ 7,836,000	\$ 4,014,000	\$ 11,850,000	\$ -	-
Total	\$ 14,665,000	\$ 16,054,000	\$ 30,719,000	\$ (1,155,000)	-4%

An additional cost consideration under this scenario that is not reflected in Table 3-15 above is the potential revenue gained from the sale of SVSWA's current Sun Street Transfer Station. No Salinas-area transfer station would be required in this scenario.

Table 3-16 below provides the projected annual GHG emissions resulting from the direct hauling and transfer hauling of tons generated in the County. As shown, the total metric tons of carbon dioxide (MTCO₂) emissions are projected to be approximately 5% higher than the status quo (Scenario 1).

TABLE 3-16
Scenario 7 – Annual GHG Emission Projections

Direct Haul		Transfer Haul		Total MTCO ₂ Emissions	Change in MTCO ₂ Emissions vs. Status Quo
Miles	MTCO ₂ Emissions	Miles	MTCO ₂ Emissions		
1,454,848	4,191	68,706	199	4,390	+5%

Recommendations

- Scenario 7 results in the lowest system-wide cost of all scenarios analyzed in this report. Specifically, Scenario 7 includes:
 - MRWMD Region: Direct regional material to the Monterey Landfill, MRF and Composting Facility located in Marina, with the MRF enhancements that are currently being implemented.
 - SVSWA Region: Direct-haul Salinas and north County SVSWA waste to MRWMD's landfill in Marina for disposal. No purchase of Madison Lane Transfer Station, and no implementation of SVSWA Autoclave facility. Continue to utilize the Jolon Road Transfer Station to transfer south County waste to Johnson Canyon Landfill (and direct haul for cities in close proximity to the landfill).
 - This option provides the SVSWA region with annual cost savings of \$4.8 million as compared to purchasing Madison Lane Transfer Station and implementing an Autoclave facility (estimated difference of \$1.50 in monthly household customer rates); Annual cost savings of \$1.5 million as compared to the current status quo (estimated difference of \$0.47 in monthly household customer rates); and
 - Southern County SVSWA region tipping fees should not be adversely affected by this change, because Salinas and the northern SVSWA region would still be required to bear their share of SVSWA's fixed costs (e.g., legacy closed landfill debt, AB 939 programs such as public education).
- Direct Haul versus a Salinas Public Convenience Facility – The convenience of a Salinas area transfer station could be an unnecessary cost to the SVSWA customers if the Marina landfill were used as the north County disposal facility. Although the need for a Salinas area transfer station is more evident under the current status-quo condition of hauling Salinas wastes to the Johnson Canyon Landfill, the need for this facility becomes questionable for scenarios in which north County wastes are delivered to

Marina Landfill. The Marina Landfill is closer to the Salinas and northern County residents than the Johnson Canyon Landfill. The cost of waste receipt, reloading and transfer could be avoided with a slight increase in the direct hauling of waste to the Marina Landfill. We did not address the convenience of the Sun Street or Madison Lane Transfer Station facilities to the self-haul users of the Salinas area.

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Section 4. Tipping Fee Analysis

Methodology

We reviewed the following documents in order to assess the current tipping fees in the MRWMD and SVSWA:

- MRWMD disposal fees effective January 1, 2014 and SVSWA disposal fees effective July 1, 2013;
- MRWMD and SVSWA annual reports and financial information for the past three years; and
- Relevant MRWMD and SVSWA facility/diversion planning documents.

Using this information, we reviewed MRWMD and SVSWA tipping fees and assessed major factors that affect those tipping fees. This included assessing the impact of potential new diversion facilities (MRWMD MRF enhancements and SVSWA Autoclave) on the tipping fees and associated household customer rates in both MRWMD and SVSWA regions.

Findings

Current Tipping Fees

A summary of the current tipping fees charged by the MRWMD and SVSWA is provided in Table 4-1 below.

**TABLE 4-1
Summary of Current Per-Ton Landfill Tipping Fees**

MRWMD – Current Disposal Fees (Effective 1/1/2014)	
Monterey Peninsula Landfill	
Solid Waste	\$ 51.75
Clean Green Yard Waste and Wood Waste	\$ 30.00
Construction and Demolition (C&D) Materials	Various*
Food Scraps	\$ 42.00

* Rate varies from \$1 to \$30 per ton depending on material type.

SVSWA – Current Disposal Fees (Effective 7/1/2013)	
Johnson Canyon Landfill, Jolon Road Transfer Station, and Sun Street Transfer Station	
Solid Waste	\$ 67.00
Greenwaste and Wood	\$ 36.00
Construction and Demolition (C&D) Materials	\$ 58.00

As shown, the MRWMD has current per-ton tipping fees of \$51.75 for solid waste, \$30.00 for green/yard/wood waste, various rates for C&D materials (between \$1.00 and \$30.00 per ton), and \$42.00 for food scraps.

The SVSWA, on the other hand, has slightly higher tipping fees which include \$67.00 per ton for solid waste, \$36.00 for green/wood waste, and \$58.00 for C&D materials. The SVSWA does not have a per-ton rate for food scraps, as there are currently no food scraps programs in the SVSWA service area. Also, it is important to note that the SVSWA also charges per-ton fees in addition to the amounts listed above, which include:

- **Salinas Transportation Surcharge** – An \$11.00 per ton surcharge assessed only on City of Salinas franchise tons. Pays for the handling and transporting of Republic waste to Johnson Canyon Landfill from the Madison Lane and Sun Street transfer stations; and
- **AB 939 Surcharge** – Approximately \$8.57 per ton surcharge to help fund the SVSWA's AB 939 programs (the surcharge is levied on all member agency franchise haulers once annually based on total tons).

It should be noted that although only the SVSWA currently charges an "AB 939 Surcharge," both the MRWMD and SVSWA appear to be looking to shift the cost of tipping fees onto "AB 939 fees" or similar fees charges to the Member Agencies to cover the cost of recycling programs and public education (rather than funding these activities through landfill tipping fees).

Major factors that influence the current MRWMD and SVSWA tipping fees include the following:

- **MRWMD** – The MRWMD currently imports a significant amount of out-of-County waste at its Marina Landfill. This practice grants significant economies of scale to the MRWMD landfill operation in Marina, which allows the MRWMD to charge lower tipping fees to the in-County Member Agencies than it otherwise be able to due to a significant increase in economies of scale. In fiscal year 2012-13, MRWMD received 69% of its total disposal tonnage from out-of-county sources.
- **SVSWA** – No out-of-County waste is currently imported at the SVSWA's Johnson Canyon Landfill, although the SVSWA does have a prior history of importation. However, in the SVSWA region, post-closure maintenance costs for closed Crazy Horse, Lewis Road, and Jolon Road landfills and legacy debt for closure of these landfills have a significant impact on the tipping fees charged at SVSWA facilities (approx. \$850,000 annually). These costs are borne by the rate-payers in the SVSWA service area, and will continue to be borne by SVSWA region rate-payers, regardless of any potential changes to the solid waste system. These legacy costs do not prevent the SVSWA region from changing/modifying their solid waste system and in the event that Salinas and northern SVSWA region direct-hauled to Marina for disposal, the southern SVSWA region tipping fees should not be adversely affected, because Salinas and the northern SVSWA region would still be required to bear their share of SVSWA's fixed costs. There are no such similar post-closure costs for the MRWMD. It should also be noted that early closure of the Johnson Canyon Landfill would require the SVSWA to expend an estimated \$7,000,000 to \$9,000,000 in unfunded closure and post-closure costs and would increase costs to the rate-payers.

Effect of New Proposed Diversion Options on Tipping Fees and Customer Rates

MRWMD

The MRWMD is currently in the process of implementing enhancements to the Marina MRF. Enhancements will include commercial mixed waste processing, single-stream processing, and enhanced processing of C&D materials.

The MRWMD's new MRF enhancements represent a relatively low level of risk due to the fact that the new MRF technologies (e.g., mixed waste and single stream processing lines) have

been thoroughly tested and are currently used successfully in other locations outside of Monterey County.

SVSWA

The SVSWA is currently planning the implementation of an "Autoclave" mixed materials processing facility at the Madison Lane Transfer Station. This plan involves selling the current Sun Street Transfer Station facility and purchasing and relocating to the Madison Lane Transfer Station, which is currently owned and operated by Waste Management. The SVSWA was unable to provide specific details regarding the cost to purchase Madison Lane, but did state that they expect the net cost to SVSWA for purchase of Madison Lane Transfer Station, sale of Sun Street Transfer Station, and rehabilitation costs at Madison Lane Transfer Station to be less than \$6 million. The planned Autoclave operations would be provided by Global Organics Energy (GOE) at a cost to SVSWA of approximately \$36 per ton of mixed solid waste (\$39 per ton cost, less credit for material sales).

It should be noted that in addition to the SVSWA's proposed Autoclave facility being somewhat costly (as discussed in Section 3), this technology represents a significantly higher level of risk than the MRWMD's planned MRF enhancements. This is due to the fact that the Autoclave mixed waste processing technology, to our knowledge, has never been implemented on this large of a scale anywhere. Additionally, the Autoclave equipment would be owned by a private contractor (Global Organics Energy), and would require a long-term "flow control" agreement that would put Member Agencies and rate-payers at risk by requiring the SVSWA region to deliver materials to the facility.

Estimated Changes in Household Customer Rates

In terms of quantifying the impact of the MRWMD and SVSWA's proposed new diversion systems on tipping fees and customer rates, we would expect that the overall changes in total tipping fees passed through to customers in each region would be roughly in line with the estimated changes in system costs (i.e., transport, transfer, processing and disposal costs) which were determined as part of our Collection/Transport Use Assessment in Section 3 above. Table 4-2 below shows the overall change in system costs as previously determined for each solid waste system scenario in Section 3. Using that information, we estimated changes in monthly household customer rates based on an estimated average household customer rate of \$20.00 per month. The following conclusions may be drawn based on the findings of Table 4-2 below:

- The MRWMD's planned MRF enhancements would increase overall MRWMD tipping fees by approximately 2%, and equate to an impact of approximately \$0.11 per household per month for MRWMD region residential rate-payers (demonstrated by Scenarios 2, 3, 4, 5, 6 and 7);
- The SVSWA's proposed Autoclave services would increase overall SVSWA tipping fees by approximately 21%, and equate to an impact of approximately \$1.03 per household per month for SVSWA region residential rate-payers (demonstrated by Scenario 4); and
- Scenario 7 would provide an estimated \$0.47 savings in SVSWA region monthly household customer rates as compared to the current status quo (Scenario 1), or an estimated \$1.50 savings in monthly household customer rates as compared to purchasing Madison Lane Transfer Station and implementing an Autoclave facility (Scenario 4).

**TABLE 4-2
Estimated Changes in Household Customer Rates**

System Scenario	SVSWA			MRWMD		
	Change in System Costs vs. Status Quo	Approximate Change in Household Rates*		Change in System Costs vs. Status Quo	Approximate Change in Household Rates*	
		%	\$		%	\$
Scenario 1: Status Quo	-	-	-	-	-	-
Scenario 2: Increased Diversion at MRWMD; No Additional Diversion at SVSWA	-	-	-	+2%	+0.6%	+\$0.11
Scenario 3: Increased Diversion at MRWMD and SVSWA; Consolidated Disposal at MRWMD	+20%	+5.1%	+\$1.02	+2%	+0.6%	+\$0.11
Scenario 4: Increased Diversion at MRWMD and SVSWA; Reduced Flow to Johnson Canyon Landfill	+21%	+5.2%	+\$1.03	+2%	+0.6%	+\$0.11
Scenario 5: Consolidated Increased Diversion at MRWMD; Consolidated Disposal at MRWMD	+2%	+0.5%	+\$0.10	+2%	+0.6%	+\$0.11
Scenario 6: Consolidated Increased Diversion at MRWMD; Reduced Flow to Johnson Canyon Landfill	-6%	-1.6%	(\$0.32)	+2%	+0.6%	+\$0.11
Scenario 7: Increased Diversion at MRWMD, Salinas and North County Disposal at MRWMD, Remainder of SVSWA to JCLF, No Additional SVSWA Diversion	-9%	-2.3%	(\$0.47)	+2%	+0.6%	+\$0.11

* Assumes \$20/month household rate and that MRWMD/SVSWA system costs account for 25% of total customer rate.

Recommendations

- **Johnson Canyon Landfill** – Do not prematurely close Johnson Canyon Landfill, as a cost savings effort. Doing so would result in the need for the SVSWA to expend an estimated \$7,000,000 to \$9,000,000 in unfunded closure and post-closure costs, thereby causing unnecessary burden on SVSWA region rate-payers. The continued use of Johnson Canyon Landfill for its intended purpose to fulfill its permitted capacity is preferable to a premature closure.

- Importation of Out-of-County Tons – Large existing landfill capacity represents a significant asset to both the SVSWA and MRWMD. Continuing the practice of importing out-of-County tons at MRWMD, and/or restarting out-of-County importation practices at SVSWA, represent significant policy decisions that have large impacts on the tipping fees in each region. It is also worth noting that for SVSWA, any potential aggressive changes such as selling the Johnson Canyon Landfill to a private company would require the marketing of availability of existing landfill capacity to out-of-County tons.
- Public vs. Private Diversion – In general, we recommend that the individual jurisdictions in the County put the burden of recycling on their private collection contractors, rather than having the public sector invest in new technologies/facilities to increase diversion. Going forward, we recommend requiring the franchise haulers in each individual jurisdiction to provide for a level of diversion that is in line with the goals of each jurisdiction, or with the goals of the agency with which they hold membership.

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Section 5. Policy and Sustainability Review

Methodology

We reviewed the following documents in order to assess sustainability policies and programs in the County, MRWMD and SVSWA:

- MRWMD and SVSWA annual reports for the past three years;
- Relevant MRWMD and SVSWA facility/diversion planning documents;
- County franchise agreement with USA Waste (dba Carmel Marina Corporation);
- Relevant State legislation, including AB 939, AB 341, and AB 1826; and
- CalRecycle annual report data submitted for all County jurisdictions, including the most recently reported per-capita disposal figures for calendar year 2013.

Using this information, we reviewed Countywide sustainability policy and relevant State legislation with an emphasis on diversion of materials from landfill. This included assessing the County's current level of compliance with State diversion legislation, current diversion plans, and the consistency of MRWMD and SVSWA diversion policies with State law.

Findings

Diversion Policies

Policies related to the diversion of materials of landfill are the most significant sustainability issue with regards to this review of Monterey County's Solid Waste Management System.

Statewide Diversion Policy

State-wide policy regulating diversion of materials from landfill effectively began in 1989 with the implementation of State mandate AB 939. Specifically, AB 939 set forward diversion requirements of 25% by 1995 and 50% by 2000, and also established the California Integrated Waste Management Board, which is now part of the "CalRecycle" entity in conjunction with the State of California's Department of Conservation, Recycling Division.

In 2013, CalRecycle established a new goal of 75% diversion by year 2020 as part of AB 341, the State mandate which requires commercial waste generators to subscribe to recycling programs. It should be noted, however, that 75% diversion in 2020 is currently only a "goal" as opposed to a "requirement." While it is very possible that the State/CalRecycle will pursue an increased diversion requirement for local jurisdictions in the future, the current actual diversion requirement remains at 50% as of this date.

Additionally, the recent State mandate AB 1826 will require jurisdictions to arrange for organics (i.e., yard trimmings and food scraps) recycling programs for multi-family dwelling (MFD) and commercial sectors with a phased-in approach starting in 2016.

Monterey County Diversion Policy

In terms of diversion policy within Monterey County, the MRWMD has set a diversion goal of 75% by 2020, identical to the State-wide goal set by CalRecycle. The SVSWA has set a goal of 75% diversion from landfill by 2015, which represents a more urgent goal than that put in place by CalRecycle. Funding for the existing diversion programs operated by the MRWMD and SVSWA is obtained through the disposal/processing fees charged by each agency.

Current Diversion Levels

Table 5-1 below shows the actual jurisdiction diversion rates (as recognized by CalRecycle) in the most recent available reporting year (calendar year 2013). It should be noted that SVSWA data is only available for all SVSWA Member Agencies as a whole, due to the fact that the SVSWA is recognized as a "reporting agency" which reports to CalRecycle annually on behalf of all its member jurisdictions. The MRWMD is not a recognized "reporting agency" and therefore the CalRecycle data is required to be reported annually by each individual member jurisdiction. The Unincorporated County reports to CalRecycle as its own entity, and is not included in the SVSWA aggregate data.

**TABLE 5-1
2013 CalRecycle Diversion Rates**

Jurisdiction / Reporting Agency	2013 CalRecycle Diversion Rate	Reduction in 2013 Disposal Tons Needed to Reach 75% Diversion
SVSWA (1)		
All SVSWA Members (not incl. Unincorporated County)	72%	15,655
MRWMD		
Carmel-by-the-Sea	76%	-
Del Rey Oaks	66%	292
Marina	75%	-
Monterey	74%	1,330
Pacific Grove	73%	685
Sand City	80%	-
Seaside	63%	7,479
Pebble Beach CSD	<i>(included in Unincorporated County below)</i>	
Unincorporated County of Monterey (2)		
All Unincorporated County Area	56%	51,612
Hypothetical – MRWMD as "Reporting Agency" (3)	72%	9,176
Hypothetical – All Jurisdictions Combined	68%	76,444

(1) The SVSWA as a "reporting agency" does not include any of the Unincorporated County area.

(2) The Unincorporated County of Monterey data shown here includes all unincorporated areas, including those areas within the SVSWA or MRWMD service areas.

(3) These estimates for MRWMD as a "reporting agency" include Carmel-by-the-Sea, Del Rey Oaks, Marina, Monterey, Pacific Grove, Sand City and Seaside. These estimates do not include any Unincorporated County area, and hence do not include Pebble Beach CSD.

As shown in Table 5-1 above, **all of the County's jurisdictions and reporting agencies are in compliance with CalRecycle's current diversion requirement of 50%**, and three cities have even already met the goal of 75% diversion by 2020 (Carmel-by-the-Sea, Marina, and

Sand City). The remaining jurisdictions range between 63% and 74% diversion, with the exception of the Unincorporated County area, which has the lowest diversion rate at 56%.

Also shown in the table above, if the MRWMD hypothetically reported to CalRecycle as a single unified "reporting agency" on behalf of all its member jurisdictions in 2013, it would have achieved a diversion rate of 72%. Similarly, if all County jurisdictions reported to CalRecycle as a single unified "reporting agency" in 2013 (including all MRWMD members, SVSWA members, and the Unincorporated County), the County as a whole would have achieved a diversion rate of 68%.

Large-scale diversion projects are not required for compliance with current State law (50% AB 939 diversion requirement), and do not appear to be necessary to assist the State in meeting CalRecycle's "goal" of 75% diversion by 2020 (AB 341). All jurisdictions in the County are in compliance with CalRecycle's current requirement of 50% diversion, set forth by State mandate AB 939, and therefore no additional diversion is needed to comply with the current actual requirements set forward by the State of California.

Current Diversion Plans

MRWMD

As discussed above, the MRWMD is currently in the process of implementing enhancements to the Marina MRF. Enhancements will include:

- **Commercial Mixed Materials Processing** – A mixed materials processing line to accept 80,000 tons of MRWMD region commercial and multi-family dwelling (MFD) mixed waste that are currently landfilled (estimated 68% diversion of accepted materials). Note the MRWMD could have stipulated these services be provided by the private franchised haulers but elected to construct the facility as a public investment instead;
- **Single-Stream Processing** – A single-stream recyclables (i.e., "clean" recyclables) processing line to accept 10,000 to 15,000 tons not currently received by MRWMD (estimated 90% diversion of accepted materials); and
- **C&D Processing** – Enhanced processing of construction and demolition (C&D) materials currently received by MRWMD (estimated 75% diversion of this material – currently approximately 57% is diverted).

SVSWA

The SVSWA is currently planning the implementation of an "Autoclave" mixed materials processing facility at the Madison Lane Transfer Station. This plan involves selling the current Sun Street Transfer Station facility and purchasing and relocating to the Madison Lane Transfer Station, which is currently owned and operated by Waste Management. The SVSWA estimates that the proposed Autoclave facility would divert approximately 70% of the accepted materials, which would include all residential and commercial mixed waste in the SVSWA region. The Autoclave units are modular and could be expanded to accept additional capacity as needed. C&D materials, debris boxes and green waste/organics would not be processed through the Autoclave. The Autoclave has been tested as a small pilot program by the SVSWA, and Autoclave technology has also been used on a small scale to process medical waste in other areas of the country. However, an Autoclave operation of the size and scale proposed by SVSWA has, to our knowledge, never been attempted.

Recommendations

- The SVSWA should revise its goal of 75% diversion by 2015, as this goal is unnecessary for compliance with State law and may result in higher tipping fees and customer rates for its member jurisdictions. We suggest a goal of 75% diversion by 2020 as recognized CalRecycle. As stated above, the SVSWA reporting agency as a whole achieved 72% diversion as recognized by CalRecycle in 2013.
- Any efforts to increase overall diversion should be focused on enhancing recycling programs in the Unincorporated County area, which has the lowest CalRecycle diversion rate of all jurisdictions in the County (i.e., 56% in 2013) and would require the most additional diversion to keep pace with the 75% CalRecycle diversion goal in 2020.
- All jurisdictions should require their franchised haulers to be responsible for arranging for diversion of materials in accordance with State law. Most notably, this includes the recent AB 1826, which will require jurisdictions to arrange for organics (i.e., yard trimmings and food scraps) recycling programs for multi-family dwelling (MFD) and commercial sectors with a phased-in approach starting in 2016.
- MRWMD Member Agencies should support the expansion of the MRWMD MRF, as it appears to be a cost-effective option for achieving increased diversion, with the caveat that additional organics diversion for commercial waste generators may need to be added in the future to comply with AB 1826.
- If SVSWA Members Agencies require or elect to increase diversion above State requirements, then they should put increased diversion requirements on the franchised haulers and not pursue publically owned or flow-controlled additional diversion facilities. The SVSWA could increase diversion by directing its franchise haulers to deliver materials to MRWMD's expanded MRF as a lower cost/lower risk option than building the Autoclave facility.

Section 6. Review of County Programs and Rates

Methodology

To complete our review, we requested and reviewed information from the County and the SVSWA which included:

- Unified franchise agreement between the County and USA Waste (dba Carmel Marina Corporation) for collection services in the unincorporated County area, and amendments to that agreement;
- Most recent customer rate adjustment and current USA Waste customer rates; and
- SVSWA County Commercial Rate Analysis 2015.

We reviewed this information in order to assess the County's current commercial rate structure and identify potential areas for improvement.

Findings

Unincorporated County solid waste programs include solid waste, green waste and recyclables collection services, as well as temporary roll-off bin service. USA Waste submits to the County franchise fees equal to 10% of their gross revenues, as well as an annual "diversion programs and administration fee" of \$520,000 per year. In addition to managing the franchise agreement, the County EHB provides public education, and administers the County's used motor oil and filter recycling program. A summary of sample unincorporated County commercial customer rates is provided in Table 6-1 below.

**Table 6-1
Sample Unincorporated County Commercial Rates (Effective January 1, 2015)**

Container Size	MRWMD Service Area			SVSWA Service Area		
	Collection Frequency			Collection Frequency		
	1x/week	2x/week	3x/week	1x/week	2x/week	3x/week
Commercial Carts						
35 gallon cart	\$ 29.65	\$ 59.30	\$ 88.95	\$ 30.60	\$ 61.20	\$ 91.80
64 gallon cart	\$ 46.14	\$ 92.28	\$ 138.42	\$ 47.62	\$ 95.24	\$ 142.86
96 gallon cart	\$ 57.13	\$ 114.26	\$ 171.39	\$ 58.96	\$ 117.92	\$ 176.88
Commercial Bins						
2 CY bin	\$ 166.72	\$ 333.44	\$ 500.16	\$ 263.18	\$ 526.36	\$ 789.54
4 CY bin	\$ 320.48	\$ 640.96	\$ 961.44	\$ 486.88	\$ 973.76	\$ 1,460.64
6 CY bin	\$ 461.22	\$ 922.44	\$ 1,383.66	\$ 700.74	\$ 1,401.48	\$ 2,102.22
Commercial Compactors						
2 CY compactor	\$ 333.46	\$ 666.92	\$ 1,000.38	\$ 526.34	\$ 1,052.68	\$ 1,579.02
4 CY compactor	\$ 640.92	\$ 1,281.84	\$ 1,922.76	\$ 973.76	\$ 1,947.52	\$ 2,921.28
6 CY compactor	\$ 922.44	\$ 1,844.88	\$ 2,767.32	\$ 1,401.42	\$ 2,802.84	\$ 4,204.26

The County's rate structure incentivizes customers that choose lower collection frequency and higher service volume, as opposed to higher collection frequency and lower service volume. For example, a customer in the MRWMD service area would pay \$461.22 for a 6 cubic yard (6 CY) bin collected once per week, but would pay more (\$500.16) for a 2 CY bin collected three times per week (i.e., the same overall weekly service volume of 6 CY). In our experience, this incentive is designed to help lower the amount of garbage truck visits to each commercial account. Less garbage truck trips results in less vehicle emissions and less road wear-and-tear, and is also more time- and cost-efficient for the collection contractor.

Commercial and MFD cart customers are eligible for one recycling cart up to 96 gallons in size for recyclables at no charge for each solid waste cart. Commercial and MFD bin customers are eligible for half of the solid waste capacity in recycling bin or cart service at no charge. Additional recycling carts or bins beyond those amounts cost extra, and green waste collection service is not included in the base commercial and MFD service rates.

Compactor bins are charged double the rate at which regular non-compacting bins of the same service volume are charged. In our experience, this is a standard practice which assumes that a compacting bin has roughly double the capacity of a non-compacting bin with the same cubic-yard volume.

As shown in Table 6-1 above, the Unincorporated County has commercial customer rates which vary in amount based on the type of container, service volume, and service frequency. In general, bin rates are higher than cart rates, and customers pay higher rates for increased collection volume and/or collection frequency. The commercial rates are higher in the SVSWA region of the Unincorporated County than in the MRWMD region, specifically:

- Commercial cart rates are on average **3% higher** in the SVSWA region than in the MRWMD region; and
- Commercial bin and compactor rates are both on average **53% higher** in the SVSWA region than in the MRWMD region.

This significant difference in customer rates between the two regions continues to be a matter of discussion between SVSWA and County staff. According to a recent study completed by the SVSWA ("County Commercial Rate Analysis 2015"), County EHB staff stated in the most recent rate approval hearing (December 9, 2014) that the higher rates in the SVSWA region were due to higher disposal costs (i.e. tipping fees) in the SVSWA area, as well as the SVSWA service area being larger, more rural and more difficult to service.

In response, the SVSWA undertook a study to assess the validity of the claim that collection costs are greater in the SVSWA service area, independent of the cost of disposal. Using customer service level data provided by the County EHB, and USA Waste operating cost data as provided in the most recent rate adjustment calculation sheet approved on December 9, 2014. SVSWA staff determined that the actual cost of providing commercial collection service in the SVSWA area is 2.8% higher than in the MRWMD area if disposal costs are included, and 7.3% less if disposal costs are not included. This finding is not consistent with County staff's reasoning for the significantly higher customer rates (53% higher for bins and compactors) in the SVSWA area. The methods used by SVSWA staff to determine these results appear to be correct, however, the operating cost data and customer service level data used in SVSWA's analysis should be reviewed by USA Waste and County staff to confirm.

The current rate structure was originally established as part of the approval of the County's current unified franchise agreement in 2010, and rates have since been adjusted using the agreement's prescribed annual Refuse Rate Index (RRI) adjustment methodology. It should be

noted that USA Waste is not required to base their customer rates on the actual costs to provide service in each region; the County's franchise agreement with USA Waste only stipulates the method for determining the annual rate adjustment (Section 13.13 – "Refuse Rate Index (RRI) Adjustment").

Recommendations

- The County EHB and USA Waste should review and verify the findings of SVSWA's commercial rate analysis. Without performing an independent analysis, we find the SVSWA response to the commercial rate study performed by MSW consultants to be worthy of consideration. Namely, the SVSWA analysis concludes the cost of commercial waste service in the SVSWA region, when based on expenses for collection services, is comparable with the cost of commercial waste service in the MRWMD region. The primary findings of the SVSWA's study conclude:
 - The cost to deliver services as shown in the most recent rate adjustment calculations reveal the SVSWA cost to be on-par with the MRWMD cost service.
 - When adjusted to exclude disposal cost, the cost of service for the SVSWA region is lower than for the MRWMD.
- We conclude the SVSWA commercial rate study is valid.
- The County should reenter discussions with USA Waste to rebalance the unincorporated County's MRWMD-region and SVSWA-region customer rates to better reflect the actual costs of both disposal and collection service in each area.

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