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Achieving Greater Waste Diversion in California: Fundamental Strategies and Essential Tools

California has led the nation in creating integrated solid waste management programs that place a priority on diverting waste materials away from landfills. Indeed, California is now diverting more than half of the solid waste generated in the state. This is possible, in large part, because local governments and solid waste management companies across the state have made enormous financial investments over the years to develop and implement waste diversion programs as well as constructing and operating recycling facilities.

The members of the California Chapters of the Solid Waste Association of North America (SWANA) are proud of these achievements and will continue to be part of the solution as the state moves forward in achieving even greater diversion milestones. However, tomorrow's milestones can only be reached by thoughtful consideration today of the tools needed for success.

Tool 1: Reduction of Solid Waste Generation through Product Stewardship

Preventing waste from ending up in a landfill should start with the initial product itself and continue with those involved in the life cycle of that product. Local government's public outreach can facilitate reducing, reusing and recycling to a certain extent, but ultimately products need to be recyclable to have a complete reuse cycle. Producers should be responsible for designing, manufacturing, and packaging a sustainable recyclable product. Distributors and retailers should also be involved in establishing and managing end-of-life systems for difficult-to-recycle products as an integral part of their marketing and customer service. Product stewardship can be achieved in California but it requires a new approach, such as legislation that incentivizes manufacturers to make an investment in redesigning products that promotes environmental sustainability while establishing a convenient way for consumers to return used or unwanted products to the manufacturer. Without legislative incentives to drive this shift in responsibility, many products will continue to become a waste at the end of their useful life placing the task of their final handling, diversion or disposal on local government, which is not always the most practical and cost effective approach.

Tool 2: Analysis of the True Lifecycle Environmental and Economic Costs of Recycling

With the AB 32 Scoping Plan requiring for California businesses to participate in commercial waste recycling, a greater percentage of the recyclable goods will be removed from the municipal solid waste stream and less virgin materials will be extracted from the earth. While recycling offers environmental benefits, it also can have environmental impacts, particularly greenhouse gas (GHG) emissions, within California and across the planet. Accurate assessment of global environmental effects and the costs associated with recycling choices is important in planning overall environmentally sound and sustainable waste management and diversion systems. Recyclable goods are often shipped overseas and processed under

significantly less stringent or non-existent air pollution control, health, and safety standards. Only when accounting for all environmental impacts in a life cycle analysis can we determine the true environmental and economic benefits of California's recycling choices.

Tool 3: Infrastructure and End Market Development in California

Recycling is sustainable only when there are sufficient markets for the goods recovered. The State needs to help develop robust markets by providing economic incentives and assistance to innovative businesses. Facilitation of new processing infrastructure and markets in California for recyclable goods would not only lessen the global environmental impacts associated with recycling noted above, but it would also give the state more control over the recycling markets while creating "green" jobs in the process. In many instances, the infrastructure exists but markets do not. For example, many processing facilities could easily recover additional materials from the waste stream, such as low-value or no-value plastics and fibers, but do not solely because markets are not available. Just as California strives to be the largest producer of recyclable materials, it should equally strive to put them to use in California. To achieve this, regulatory and permitting requirements need to be streamlined to facilitate the development of end markets and processing infrastructure and not impede them.

Tool 4: Ushering in New Technologies for Solid Waste

Once recyclable materials are optimally removed from the solid waste stream, the waste materials that are left behind have little to no beneficial reuse value in today's infrastructure. Business as usual is to landfill these materials. While today's landfills can safely and cost-effectively contain these materials, many of these waste materials can be beneficially used to produce energy or fuel using new types of technologies – conversion technologies. For example, renewable power can be produced from organics placed in biological tanks – anaerobic digesters. These digesters produce methane, which can be captured and used as a fuel in electric generators. Commercially available conversion technologies, such as gasification, can also produce clean power and advanced transportation fuels by utilizing the gas that is created under a thermal process. By removing the existing regulatory and legislative barriers and granting diversion credits, conversion technologies can provide substantial new sources of energy or clean fuel and provide new markets for materials otherwise disposed of in landfills. It should also be recognized that landfills across California currently recover and use landfill gas as a fuel source to produce power, contributing to state's renewable energy portfolio. Governor Schwarzenegger has directed that by 2020 renewable energy comprise a third of the electricity produced in the state. All of these technologies help in achieving this goal.

Tool 5: Clear Definition of Organic Waste Diversion Policies

Policies at the state level call for increased diversion of "organics" from landfills. Strictly speaking, organic material is anything containing carbon. "Organics" are the largest fraction of the MSW stream and include "compostable organics," such as food wastes, yard trimmings, and wood waste, and non-compostable or other "organic waste." Without differentiating the organics, an uncalled for level of uncertainty is introduced and new diversion programs to address specific waste streams cannot be appropriately considered or developed. Achieving greater diversion of organics from landfills requires new processing infrastructure and new markets for the end products. However, siting new compostable organics processing facilities in many parts of California, particularly urban areas and areas where air quality requirements are stringent, is very

difficult, if not impossible. Consequently, regulatory and permitting requirements need to be streamlined and consistent among various agencies to facilitate the development of end markets and processing infrastructure. In addition all alternative technologies that divert organics while complying with environmental standards need to be fully considered in future waste diversion milestones.

Tool 6: Retention of Local Government Discretion by Allowing a Range of Alternative Programs for Achieving Increased Diversion

Given the wide diversity of California's communities, any increase in diversion mandates must allow for consideration of locally specific factors such as economics and environmental impacts, with the goal of facilitating the choices best suited to the community. This will ensure the greatest chance of success in going beyond the existing diversion mandate while maintaining a sound and stable solid waste management system.

Tool 7: Funding to Implement New Programs

The current recession is placing an extraordinary burden on local government. Cities and counties are grappling with how to close their budget shortfalls. This is made even more challenging with cutbacks from the drop in waste revenues that fund solid waste programs. Mandating increased diversion during this economic downturn is untenable without new funding by the state. Increased diversion requires new or augmented public outreach programs as well as new infrastructure. Capital for maintaining existing programs is already severely limited and financing new projects may not be possible in today's financial climate. Local government cannot afford to implement any new diversion programs or mandates without new types of funding resources.

Tool 8: Recognition of the Value of Adequate, Safe Landfill Capacity

As noted above, the state's priority for waste management is diversion of wastes from landfills. Because of this, at times, landfills have been characterized as being unsafe and even unnecessary. However, until all of the infrastructure, the markets, the funds, and public and political support are in place to divert all wastes, assuming that is even possible, landfills will continue to serve a critical role in managing solid waste in California. Today's landfills are integrated facilities and not just long-term repositories for solid waste that cannot be recycled; they are designed to protect the environment and public health, serve as a recycling outlet for beneficial reuse of waste materials, and allow production of significant renewable energy from very effective methane capture. Adequate landfill capacity must be a key component of any integrated waste management program.

Types of Successful Diversion Programs Implemented by Member Jurisdictions of the California Chapters of SWANA:

- Volumetric service rate structure that encourages waste reduction and recycling.
- Widespread use of separate container curbside collection programs in conjunction with comprehensive materials recovery and composting facilities.

- Non-recycled solid waste taken to waste-to-energy facility rather than disposed in landfills.
- Using financial incentives under a Recycling Market Development Zone to encourage recycling and requiring private haulers to provide recycling services to their multi-family and commercial accounts.
- Creative education and public outreach tools to communicate effectively the benefits of waste reduction, reuse and recycling.
- Diverting certain compostable organics to composting facilities.
- Conducting mobile household hazardous waste (HHW) and e-waste collection programs.
- Significant financial investments to develop and operate materials recovery facilities, permanent HHW and e-waste collection facilities, and other solid waste management infrastructure.
- Invested significant amounts of time and capital to study and evaluate conversion technologies, and analyze data from operating facilities overseas.

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