Polystyrene Packaging Council
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November 13, 2006

Lamont Ewell, City Manager
Craig Perkins, Director, Environmental and Public Works Management
City of Santa Monica
1685 Main Street, Room 209
Santa Monica, CA 90401

Re: Comments from the Polystyrene Packaging Council (PSPC) on the Proposed Ordinance Banning Non-recyclable Plastic Disposable Food Service Containers

Dear Mr. Ewell and Mr. Perkins:

On behalf of the Polystyrene Packaging Council ("PSPC"), a business unit of the American Chemistry Council, I am writing to express our concerns regarding the failure of the Santa Monica City Council ("Council") to comply with the California Environmental Quality Act ("CEQA") in connection with the proposed ordinance banning non-recyclable plastic disposable food containers, Agenda Item 7-A for the November 14, 2006 City Council meeting (the "Ordinance"). The PSPC is a trade association representing the nation's major resin suppliers of polystyrene and the fabricator and converter companies that use the resin to manufacture polystyrene products.

Comment 1: The Proposed Ordinance Is Subject to CEQA. The Staff Report for Agenda Item 7-A contains no mention of compliance with CEQA and we understand that the City Council has been advised that the Ordinance is not subject to CEQA. However, it is well-settled that a regulatory ordinance intended for environmental protection is a "project" subject to CEQA and that, where there is evidence that such an ordinance may have unintended adverse environmental impacts, those impacts must be analyzed and, if feasible, mitigated in accordance with CEQA before the ordinance may be adopted. Municipalities and agencies that have taken the position that CEQA review is unnecessary for their environmental protection ordinances and regulatory programs have consistently lost in the courts. See, e.g., Dunn Edwards Corp. v. Bay Area Air Quality Management District, 9 Cal. App. 4th 644 (1992); County Sanitation District v. County of Kern, 127 Cal. App. 4th 1544 (2005); City of Arcadia v. State Water Resources Control Board, 135 Cal. App. 4th 1392 (2006).

In County Sanitation District, the court held that the county violated CEQA when adopting an ordinance to prohibit application of treated sewage sludge to land as fertilizer. The claimed environmental benefits of the sludge ban ordinance did not override the CEQA requirement to prepare an Environmental Impact Report ("EIR") addressing significant adverse environmental impacts, including increased disposal of sewage sludge in landfills; air quality and transportation impacts from trucking sludge to the landfills; increased energy use to process substitute products that were allowable under the ordinance; and adverse impacts from the use of increased amounts

of manure as a substitute fertilizer. As discussed below, analogous impacts must be addressed in the case of this proposed Ordinance.

Given that adoption of environmental protection ordinances is subject to CEQA, the City could avoid proper CEQA compliance only if it is certain that this Ordinance could not cause reasonably foreseeable, potentially significant adverse environmental impacts. We assume that a belief that no such impacts exist must underlie the City's decision to forego CEQA review in this case. In other words, the City appears to believe the Ordinance to be exempt from CEQA, either because "it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment" (CEQA Guidelines section 15061(b)(3), the so-called "common sense" exemption) or under some other exemption.[1] To the contrary, as described below and in the attachments to this letter, there is in fact substantial evidence – that is, "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts" (CEQA Guidelines section 15064(f)(5)) – of such potentially significant impacts. Therefore, Council can adopt the Ordinance only in compliance with the mandatory review process under CEQA.

Comment 2: Trash TMDLs. A particularly pertinent case is the recent City of Arcadia decision, in which the court held that the Los Angeles Regional Water Quality Control Board ("Regional Board") had failed to comply with CEQA when adopting a Total Maximum Daily Load for trash discharges to the Los Angeles River watershed (the "LA River Trash TMDL"). In fact, after the court remanded the TMDL to the Regional Board to conduct the requisite CEQA compliance, some of the cities in the watershed that were subject to allocations under the LA River Trash TMDL proposed that the Regional Board should single out plastic packaging ban ordinances as a means of compliance with those allocations.

In response to PSPC's comments objecting to these proposals on CEQA grounds, the Regional Board expressly stated that: "Should any [polystyrene] ban be proposed as a [TMDL] compliance measure *or for other reasons*, the municipality would be the lead agency for CEQA compliance and evaluation of environmental impacts, if necessary."[2] Responsiveness Summary - CEQA Scoping Meeting for the Los Angeles River Trash TMDL held on June 28, 2006 (September 8, 2006), page 2 (emphasis added). Thus, while the Ordinance is not currently

[1] The Staff Report for Agenda Item 7-A is silent as to the basis for any claim of exemption from CEQA. None of the statutory or categorical exemptions applies on its face; moreover, the categorical exemptions cannot be applied if there is a "reasonable possibility" that, due to "unusual circumstances," the Ordinance will have a significant effect on the environment. CEQA Guidelines section 15300.2(c).

[2] The only reason that evaluation of environmental impacts might not be "necessary," as noted above, would be if "it can be seen *with certainty* that there is *no possibility* that the activity in question may have a significant effect on the environment" (CEQA Guidelines section 15061(b)(3), emphasis added) or if a categorical exemption applies and there is no "reasonable possibility" of impacts (CEQA Guidelines section 15300.2(c)). Based upon the evidence discussed in the remainder of this letter, that is not the case.

proposed as a TMDL compliance measure, the Regional Board's reasoning explicitly applies to such an ordinance adopted "for other reasons" as well.

Moreover, it is noteworthy that the City of Santa Monica will soon itself become subject to trash allocations under a TMDL for Pico Kenter Drain, an outfall which drains into Santa Monica's urban runoff filtering facility. The Regional Board recently commenced the CEQA scoping process for the Pico Kenter Drain TMDL and has announced that it intends to impose zero trash allocations on subject municipalities, just as it did in the LA River Trash TMDL.[3] As it did with the latter TMDL, for this and future TMDLs the LA Regional Board is certain to continue its practice of imposing CEQA review obligations on the affected cities which may consider polystyrene ban ordinances. It is also worth noting that the Ordinance will not go into effect for a year for food providers (six months as applied to city events and city property). By that time, the LA Regional Board will have completed its TMDL development process and the Ordinance clearly will function as a means of TMDL compliance.

Comment 3: Reasonably Foreseeable Increase in Use of Bio-plastics. Should the Council pass the proposed Ordinance and ban all polystyrene and non-recyclable plastic disposable food service containers in Santa Monica, including polystyrene food packaging, this action may be unlikely to affect the total amount of food service packaging used. However, of necessity, it will require the substitution of alternate food packaging materials. In fact, that is the intent of the Ordinance: to require food service providers to use recyclable or biodegradable food service packaging. A common alternative material for polystyrene food packaging is plastic made from biodegradable materials, such as corn-based polymers, polylactic acid ("PLA") and polyhydroxyalkanoate ("PHA").

Since the Ordinance will change the mix of materials used by food service providers in Santa Monica and during City of Santa Monica permitted events, without also requiring any actions that can be relied on to effectively reduce the volume of litter, the ban can be expected to increase the amount of PLA and other "bio-plastics" in the litter stream, on beaches and in the marine environment. As described below in Comments 4 -12, there is a significant body of scientific evidence indicating that increasing the amount of biodegradable food packaging in the litter stream could have foreseeable adverse environmental consequences. This evidence must be evaluated and considered by the Council pursuant to the CEQA process before it acts to approve the Ordinance.

Comment 4: Air Quality Impacts. Evidence suggests that bio-plastics such as PLA, when introduced into the litter stream in Santa Monica, would result in potentially significant adverse

[3] See Notice of California Environmental Quality Act (CEQA) Scoping Meeting for Proposed Amendments to the Water Quality Control Plan for the Los Angeles Region (Basin Plan) to Establish Total Maximum Daily Loads (TMDLs) for Trash for Waterbodies in Los Angeles County (November 1, 2006); Addendum to Notice of California Environmental Quality Act (CEQA) Scoping Meeting for Proposed Amendments to the Water Quality Control Plan for the Los Angeles Region (Basin Plan) to Establish Total Maximum Daily Loads (TMDLs) for Trash for Waterbodies in Los Angeles County (November 7, 2006) [attached as Exhibit 1].

air quality impacts (Krause 2006 [Exhibit 2]; Institute for Environmental Research and Education 2006 [Exhibit 3]). Biodegradable material is defined as that which is "capable of undergoing decomposition into carbon dioxide, methane, water, inorganic compounds, or biomass in which the predominant mechanism is the enzymatic action of microorganisms that can be measured by standardized tests, in a specified period of time, reflecting available disposal conditions" (American Society of Testing Materials 1994). As the definition implies, the biodegradation of materials is primarily though the enzymatic action of microorganisms.

Among the principal by-products of the microbial degradation of organic products, including biodegradable plastics, are the greenhouse gases ("GHG"), carbon dioxide and methane. While these are natural products of microbial degradation, the generation of significant quantities of GHG are expected from the loading of biodegradable plastics upon their degradation in landfills, waterways and as trash (Kurdikar et al. 2001 [Exhibit 4]; Nolan-ITU 2002 [Exhibit 5]; Patel et al. 2001 [Exhibit 6]). Estimates from these literature sources show that between 90 and 420 kilogram-equivalents of carbon dioxide are produced from each kilogram of material through the degradation process. This increase in carbon dioxide release can significantly affect the GHG production in sensitive areas such as southern California (Krause 2006).

A report by the Institute for Environmental Research and Education ("IERE") (2006) indicates that a substantial portion of bio-plastic litter in freshwater and marine locations can be expected to undergo anaerobic degradation. Two of the key conditions for degradation of organic materials are heat and moisture, both of which are readily available in various parts of Santa Monica, including the beaches. If bio-plastic litter is exposed to heat and moisture in low oxygen conditions, anaerobic degradation of the materials will occur. According to IERE, anaerobic degradation of organic material, such as bio-plastics, generates carbon dioxide, methane, nitrous oxide, hydrogen sulfide and volatile organic compounds. IERE's report states:

> Under anaerobic conditions, the climate change impacts can be quite substantial, since methane is about 20 times more potent than CO_2 as a greenhouse gas, and Nitrous oxide is about 300 times as potent as CO_2. The ammonia released is free in the atmosphere and can migrate to cause eutrophication in marine ecosystems. Although it is unlikely to reach concentrations high enough to cause toxic effects, the H_2S released has a most unpleasant rotten egg odor. Many of the VOCs are also odorants, with such evocative names as "putrescence."

In addition to impacts from biodegradation itself, life cycle analyses suggest that replacing polystyrene food packaging with bio-plastics will increase the amount of GHG emissions and other pollutants required to produce an equivalent amount of bio-plastic food packaging (Gerngross 1999 [Exhibit 7]; Gerngross and Slater 2000 [Exhibit 8]; Kurdikar et al. 2001; ExcelPlas Australia 2003 [Exhibit 9]; James and Grant 2005 [Exhibit 10]; Gonzalez 2006 [Exhibit 11]). For example, in the case of PLA and PHA, more fossil fuels must be burned to fertilize and harvest the corn and then to convert it into bio-plastic than is required to make an equivalent amount of petroleum-based plastics such as polyethylene ("PE") and polyethylene terephthalate ("PET"). Accordingly, the production of PLA results in greater greenhouse gas emissions. Further, corn farming and processing are generally powered by coal and natural gas,

which tend to emit higher levels of sulfur oxides, a precursor to acid rain, than the fuel used to produce petroleum-based plastics (Gerngross and Slater 2000).

As the IERE (2006) report concludes:

> To summarize, all organic materials, including plastics, can be biodegraded to a greater or lesser extent, but the rate of degradation is controlled by many factors, and we do not have numerical models to allow predictions of the environmental impact of biodegradation. The key issue is whether degradation is aerobic or anaerobic, for this single parameter has great impact on the greenhouse gas emissions, the emissions causing eutrophication, and the emissions of unpleasant odors. Studies examining the environmental impacts of composting have provided wide ranges of emissions estimates and mixed conclusions as to the desirability of this waste management method. Qualitatively, biodegradation processes are well understood. Quantitatively, they are not. Nevertheless, our qualitative knowledge is sufficient to state that there are real environmental issues related to biodegradation, and that composting may not always be the preferred method for organic material disposal.

Accordingly, these potential environmental impacts must be considered by the Council during its deliberations on the Ordinance.

Comment 5: Water Quality Impacts. Evidence suggests that bio-plastics such as PLA, when introduced into the litter stream in Santa Monica, will result in adverse water quality impacts due to the release of nutrients and nitrogenous compounds (Nolan-ITU 2002; ExcelPlas Australia 2003; IERE 2006; Stein 2006a [Exhibit 12]; Gonzalez, 2006). Because the breakdown of biodegradable plastics is through the action of microorganisms, a corresponding increase in the biological oxygen demand (BOD) would be observed during the breakdown process (Nolan-ITU 2002; ExcelPlas Australia 2003). When this process occurs in a water body such as a river, drainage canal, estuary or bay, large scale impacts to the aquatic resources such as fish are probable (Krause 2006).

For example, as discussed in Comment 4 above, IERE (2006) indicate that these adverse impacts could occur whether the bio-plastic litter undergoes aerobic or anaerobic degradation. Aerobic degradation would produce nitrate, whereas anaerobic degradation would produce ammonia. According to IERE, the nitrate migrates easily in groundwater and surface water. Ammonia, however, is released to the atmosphere, but can still disperse into surface water. Both nitrate and ammonia can contribute to eutrophication of surface waters.

In addition, bio-plastics contain manufacturing residues, such as dyes, inks, plasticizers, fillers and metallic catalysts added to help promote degradation could adversely impact water quality (Krause 2006). Available information suggests that these materials can pose potentially significant impacts to aquatic resources (Nolan-ITU 2002; ExcelPlas Australia 2003). For example, these residues tend to be released into the environment as small particles during degradation of bio-plastics, whereas they tend to remain inert in petroleum-based plastics.

Aerobic or anaerobic degradation could cause these residues to migrate into groundwater and surface water, posing a potential impact to the beneficial uses of those water bodies (Nolan-ITU 2002).

Life-cycle analysis also indicates that replacing polystyrene packaging with bio-plastics could increase the water quality impacts associated with producing an equivalent amount of food packaging (ExcelPlas Australia 2003; James and Grant 2005). For example, the production of corn for the raw material of PLA has substantial water quality impacts (Royte 2006 [Exhibit 13]). In particular, commercial corn agriculture requires the use of extremely high levels of nitrogen-based fertilizers, herbicides and insecticides. These chemicals enter surface waters during runoff. In addition, Royte (2006) notes that high levels of erosion are associated with commercial corn agriculture.

Comment 6: Plant Life Impacts. Scientific evidence indicates that there are a number of foreseeable adverse consequences to aquatic plant life that could result from an increased use of bio-plastic food packaging. As discussed in Comment 5 above, IERE (2006) reports that nitrogenous compounds released during the aerobic and anaerobic degradation of bio-plastics can cause eutrophication of surface waters. This can result in explosive increased growth of certain types of plants in the water body, typically algae, periphyton attached algae, and nuisance plants weeds. This increased plant growth, often called an "algal bloom," can crowd out other plant species and reduce their population. In addition, such an algal bloom will ultimately reduce the dissolved oxygen in the water as a result of an increase in the mass of decomposing dead plant material. The resulting oxygen depletion can further reduce the populations of aquatic plant species in the area. In addition, phototoxicity (i.e., toxicity to plants) due to the buildup of inorganic materials in the soil can lead to a reduction in soil productivity (Krause 2006, Nolan-ITU 2002). Similarly, soil organisms such as earthworms can be affected leading to a less productive soil environment.

Comment 7: Impacts to Fish and Wildlife from Bio-plastics. Scientific evidence indicates that there are a number of foreseeable adverse consequences to fish and wildlife that could result from an increased use of bio-plastic food packaging. First, as discussed in Comments 5 and 6 above, that nitrogenous compounds released during the aerobic and anaerobic degradation of bio-plastics can cause eutrophication of surface waters, leading to dangerous algal blooms. An algal bloom reduces dissolved oxygen in the water when dead plant material decomposes. Low dissolved oxygen content can kill fish (IERE 2006, Krause 2006).

Another foreseeable adverse consequence to animal life stems from the risk that increasing the amount of bio-plastics in the local environment could lead certain species to adopt these bio-plastics as a food source. The direct exposure from partially degraded material to both aquatic and terrestrial organisms is significantly damaging. Organisms may experience trauma or death from ingesting the partially degraded materials. For example, aquatic predatory birds such as herons, egrets, and gulls may ingest material that would be found in waterways and estuaries (Krause 2006). In addition, populations of those species that use bio-plastics as a food source could increase. An increase in predatory species in turn can negatively impact the population levels of their prey species.

Comment 8: Energy Impacts. Life cycle analyses suggest that replacing the polystyrene food packaging with bio-plastics will increase the amount of energy required to produce an equivalent amount of bio-plastic food packaging (Gerngross and Slater 2000; ExcelPlas Australia 2003; James and Grant 2005). For example, in the case of PLA, more fossil fuels must be burned to fertilize and harvest the corn and then to convert it into bio-plastic than is required to make an equivalent amount of petroleum-based plastics.

Comment 9: Impacts to Recycling Systems. It is also foreseeable that increasing the quantity of bio-plastics in the waste stream could impair the efficiency of existing recycling services. Royte (2006) notes that plastics recyclers consider PLA to be a contaminant that must be removed from recyclable plastics, at considerable cost. The mixing of biodegradable plastic into the plastic recycling stream could negatively impact the properties of the recycled plastic end product, potentially causing failure of the recycled plastic product, which is especially serious in the case of construction materials (ExcelPlas Australia 2003). If buyers of recycled plastic lose confidence in the quality of a particular source of recycled plastic, they will stop buying. A contraction in the market for recycled plastic would mean that less recyclable plastic would be purchased by recyclers. The unpurchased recyclable plastic would then have to be disposed of as solid waste. Aside from creating additional solid waste, the transport of the recyclable plastic to a disposal facility will also result in adverse air quality impacts as a result of increased fuel consumption. Therefore, unless end users of food service packaging are educated to ensure that PLA and other biodegradable plastics are not mixed with PET and other recyclable plastics, or unless the City intends to install very expensive sorting machinery to identify and separate PLA, the increased use of bio-plastic food service packaging could result in reasonably foreseeable adverse environmental impacts.

Comment 10: Impacts from Increased Composting. Another reasonably foreseeable consequence of increased use of bio-plastics is that cities would seek to compost as much bio-plastic food packaging as possible. In fact, the bio-based packaging industry recommends that its products be disposed of in a municipal or industrial composting facility in order to realize the packaging's maximum environmental efficiency (Royte 2006). While there may be adequate composting capacity available to receive biodegradable plastics collected by Santa Monica, the compositing facilities are distant, such as the facilities in Kern County or San Bernardino County. The need to transport material to more distant composting facilities would result in increased fuel consumption and air quality impacts from truck trips to these locations.

Comment 11: Impacts to Composting Services. The increased use of bio-plastic food service packaging could lead to contamination of "green" waste collected for composting in commercial and municipal composting facilities (Stevens 2002 [Exhibit 14]; ExcelPlas Australia 2003). As has been observed regarding the impact of plastic bags on commercial composting, "The quality of the end compost product is critical to market success, so any contamination with plastics is a potential problem." ExcelPlas Australia (2003). The same is true where the result is contamination of the compost end-product by non-biodegradable (although otherwise recyclable) plastics. This could cause batches of compost material to be unmarketable, and therefore, have to be disposed of as solid waste. Aside from creating additional solid waste, the transport of the

contaminated compost to a disposal facility will also result in adverse air quality impacts as a result of increased fuel consumption. Unless consumers properly segregate non-biodegradable plastics from the compost stream, the contamination of municipal and commercial composting processes is, therefore, a reasonably foreseeable adverse environmental impact.

Comment 12: Impacts to Human Health. To the extent that the Ordinance leads food service providers to use recyclable food service packaging, this may result in increased health concerns and potential contamination (Foodservice & Packaging Institute 2003 [Exhibit 15]). Single-use foodservice packaging products are an important part of our nation's food safety and sanitation system. These products are a vital, yet often overlooked, way to prevent food-borne disease. Nearly half of the outbreaks of food-borne disease occur in restaurants, cafeterias, schools, delicatessens and other foodservice operations, according to the Centers for Disease Control and Prevention. For good reason, foodservice managers rank overall sanitation as their number one issue of concern.

Contamination and health concerns associated with in-store separation of contaminated foodservice items is one of the primary reasons there is little recycling of any foodservice packaging regardless of the material type – coated bleached paperboard products, composite paper/plastic products, expanded polystyrene ("EPS"), or bio-based plastics. For the relatively small amount of post-consumer foodservice packaging that could be recycled, weighted against the risk of increase bacteria and unsanitary conditions in and around foodservice establishments to collect this relatively small amount of foodservice material, the risk of recycling does not often outweigh the sanitation and public health concerns for foodservice establishments.

Comment 13: Impacts of Increased Litter. A significant potential impact of biodegradable plastics is simply the physical increase in litter, resulting from the behavior of the public which perceives biodegradables to be products that "go away" quickly in the environment (Krause 2006). On the contrary, life-cycle assessment studies have shown that biodegradable plastics may take weeks or months to degrade completely depending on the environmental conditions in which they are found (ExcelPlas Australia 2003; James and Grant 2005). It is foreseeable that the public response to a switch to bio-plastics or other biodegradable materials following a ban on polystyrene food packaging could lead to increased litter. Experts indicate that, without proper education, consumers have a tendency to think that there are no adverse environmental impacts from throwing trash items labeled "biodegradable" or "compostable" onto the ground (Lingle 1990 [Exhibit 16]; Comstock et al. 2004 [Exhibit 17]; Stein 2006b [Exhibit 18]). Consequently, the use of such materials would likely increase the amount of trash on streets, in storm drains, on beaches and in Santa Monica Bay. Not only would this be an adverse environmental impact in itself, but increased levels of bio-plastics and other biodegradable materials in the litter stream would exacerbate other impacts described in the comments above.

Within the Santa Monica City limits, the Ordinance is unlikely to reduce litter. Since there is no evidence that the Ordinance will reduce the amount of prepared food sold and consumed within Santa Monica, a similar number of food packaging items—albeit made from recyclable or biodegradable plastic—will enter the waste stream. Unless measures directed at people's behavior towards littering is addressed concurrently with the implementation of the Ordinance,

the result will be that the same amount of litter exists, although it will be comprised of different materials. Polystyrene food packaging currently left on the beach by beachgoers will simply be replaced by recyclable or biodegradable food packaging. Further, the portion of the "new" litter stream that is made of biodegradable plastic will cause the potentially significant environmental impacts discussed in the comments above.

Moreover, the Ordinance will not reduce the amount of trash on Santa Monica beaches. An analysis by Stein (2006b) demonstrates that most of the trash on Santa Monica's beaches does not originate in Santa Monica. Rather, the source of most of the trash is storm drains that carry trash that enters the watershed from municipalities upstream of Santa Monica. Further, polystyrene food service packaging left on the beach by beachgoers is a relatively small percentage of the total amount of trash found on the beach. Accordingly, the Ordinance will not have any litter reduction benefit and the potentially significant adverse environmental impacts discussed above would be incurred with no offsetting benefit in terms of litter reduction.

Comment 14: Cumulative Impacts. Finally, we understand that Santa Monica staff intend for the Ordinance to serve as a model for other communities looking to establish sustainable packaging policies. In addition, the cities subject to the LA Trash TMDL and other forthcoming trash TMDLs, besides Santa Monica, will be seeking means of compliance with the Regional Board's zero trash allocations (see Exhibit 1). For these reasons, the Ordinance is not an action that can be viewed in isolation. Instead, it is likely to contribute to cumulative impacts in each of the impact areas discussed above, together with ordinances of other cities in southern California. Given the proximity of the cities in the same and adjacent watersheds, such impacts are likely to be cumulatively considerable and must be considered in accordance with CEQA.

Thank you for considering these comments. If you have any questions, please do not hesitate to contact me.

Sincerely yours,

Mike Levy, Director
Polystyrene Packaging Council (PSPC)

cc: Mayor Robert Holbrook
Mayor Pro Tempore Bobby Shriver
Council Member Richard Bloom
Council Member Ken Genser
Council Member Herb Katz
Council Member Kevin McKeown
Council Member Pam O'Connor
Marsha Jones Moutrie

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