DEPARTMENT OF CITY PLANNING
REPORT AS REQUESTED

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SUMMARY: This report was requested by the City Planning Commission as an update on freeway adjacent development considerations. The report provides an overview of the air quality challenges facing Los Angeles, and the greater Southern California Basin, the various strategies that are currently being explored to reduce mobile source emissions, and potential additional strategies to limit exposure to pollutant matter and noxious gases.

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Background

On December 21, 2017, the Department provided the City Planning Commission (CPC) with an overview of the City's policies and regulations pertaining to the review and consideration of new residential uses located adjacent and proximate to freeways. This overview included the 2012 Zoning Information Bulletin, ZI 2427, which is an advisory to applicants of CPC cases, provides design and siting guidelines for discretionary residential projects, and sensitive uses and schools located within 1,000 feet of a freeway. The overview also included information about the specific freeway related regulations included in the 2016 *Clean Up Green Up* ordinance that mandates high efficiency air intake filters for freeway-adjacent residential buildings and requires informational signage, regarding air quality hazards, in freeway adjacent civic buildings.

While the Department's efforts on this issue have largely focused on reducing the exposure of future residents to the negative pollutant levels emitting from freeways, it is also important to prioritize the reduction of mobile source emissions overall. Tail pipe emissions are the leading contributor of health-related impacts such as asthma, lung problems, heart disease, and stroke. As a result, health experts from such institutions as USC and UCLA continue to advocate for a combination of strategies that seek to reduce the extent of tail pipe emissions throughout the region and lessen the impact of mobile source emissions on our most vulnerable populations. These experts emphasize the value of encouraging and facilitating mobility choices such as walking, biking and transit while also strongly supporting strategies that promote increased prevalence of electric and/or clean fuel vehicles on our roadways.

At the December 2017 CPC meeting on this matter, the Department was directed to develop an inventory of additional actions to reduce and limit health impacts attributed to residing within close proximity to freeways. Additionally, concerns were raised regarding the maintenance and replacement of mandated high-efficiency air intake filters. Tasked with providing such recommendations, the Department reviewed several State and Federal studies that have provided insight on the complexity of this issue.

This report will also focus on ways to lessen the exposure to air pollution throughout the City and the important role the City and Department can play in reducing mobile source emissions in the first place.

Discussion

In 2005, the California Air Resources Board (CARB) released an advisory recommendation to avoid siting sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles per day, and rural roads with 50,000 vehicles per day.

While there is conclusive evidence that the air quality immediately adjacent to freeways has a higher concentration of toxic particles and gases, there is no single solution or definitive set of solutions proven to be completely effective in mitigating the negative health impacts of these toxic elements. To compound the situation, the gases and particles behave in different ways and are responsive to shifts in wind, ambient air temperature, and sunlight. This means that throughout the year the extent (distance either horizontally or vertically from the freeway) to which the pollutants are causing the most harm is difficult to predict. For example, on a cold, cloudy, windless day the particles are heavier and therefore fall to the ground closer to the freeway whereas on a hot, sunny, windy day concentrated groups of particles may travel further away and negatively impact locations even blocks away.

Currently in the City there are approximately 500,000 people living (and 300,000 working) within 1,000 feet of a freeway. Only a marginal number of recently constructed buildings have any design features or equipment to counter freeway pollution. It is well established that people living near highways and major roadways are more likely to experience a range of adverse cardiovascular and respiratory health problems. However, given the overall regional air quality and Air Basin unattainment levels for both ozone and PM 2.5 there is much rationale in continuing to explore regionwide solutions while also identifying strategies to reduce exposure to ultra-fine particulates and NO_2 that are known to me more heavily concentrated near freeways.

Strategies to Reduce Exposure

After literature review, research and discussions with air quality, health, and environmental experts, three effective strategies were identified to reduce exposure to harmful air pollutants as it pertains to development projects. These include:

1. installation and regular maintenance of high efficiency filters;
2. limitations on the siting of sensitive uses immediately adjacent to the freeway; and
3. design, building location and installation of landscaping screens.

Filters. From discussions with leading experts, staff learned that there are high levels of mobile source emissions throughout the region. While some particles and gases have been shown to be in higher concentrations near freeways, especially those with a heavy preponderance of diesel trucks, and are directly related to mobile source emissions, many air pollutants are also appearing on regional monitors and are described as not source based.

Proper maintenance of high-efficiency filters is essential to their effectiveness. In most instances, mandated filters are located within individual units, and may not be easily visible during city inspections. For those freeway-adjacent buildings under the auspices of City departments, preliminary discussions with HCID indicate that periodic inspections would be possible when the filtration equipment is centrally located. Similarly, providing information and guidance to private developers on the importance of filter maintenance could lead to improved effectiveness.

Sensitive Uses. Despite the limited options that air quality and health experts have identified as being demonstrably productive in addressing the negative health impacts of living within close proximity to a freeway, there is consensus that our most sensitive users, primarily children and seniors, would benefit from living at least 1,000 feet from a freeway. Daycares and schools may best be sited outside this 1,000 foot buffer area. Given that there are already large numbers of people living within proximity of a freeway, and these areas are often already zoned to allow for residential uses, it is not feasible to limit residential uses in these areas. Instead, policy makers could take this information into consideration when approving land use/zoning changes within the freeway abutment area, and balance the need for more housing with the health impacts of living near a freeway when approving an increase in residential intensity in these areas.

It is important to point out that the CPC and the Department have previously responded to this particular concern by requiring that certain projects conduct a Health Risk Assessment (HRA). There have been limitations to this approach. To date, the HRA's typically recommend that high-efficiency filters be installed, occasionally even at a lower level than the standard MERV level.

Given that the cost of an HRA can be upwards of $20,000, this is costly for an outcome that the City's Building and Code already requires.

Design and Setbacks. Experts recommend that balconies and/or outdoor amenity spaces not be located immediately facing the freeway, and that occupied portions of buildings be located as far from the freeway as a particular site may allow. The ZI currently includes language that directs balconies and outdoor spaces to be located as far from the freeway as possible. But given the many varying freeway-adjacent site conditions throughout the City, any additional site and building design guidelines to mitigate the impact of freeway pollutants will require additional research and discussions with health and design experts.

The inclusion of a landscape screen has been discussed as a potential response to reduce the impacts of airborne pollutants on freeway adjacent properties and the ZI recommends planting vegetation in freeway adjacent areas. While trees and landscaping provide extensive benefits, staff is learning that the value of landscape screening in absorbing airborne pollutants is still being investigated. Some early research indicates that, in some instances, the landscaping may create air current eddys and therefore further trap the pollutants in an area. Further study on this topic is warranted and the Department will look for opportunities to monitor a variety of built-out conditions to measure the effectiveness of landscaping on the negative impacts of airborne pollutants.

Strategies to Reduce Mobile Source Emissions

Based upon numerous conversations with green building, air quality, and health experts in the region, the opportunities available to cities to reduce mobile source emissions fall into two categories: reduce overall vehicle miles traveled; and promote clean technology vehicle infrastructure. This two-pronged approach was initially promoted by the Center for Disease Control (CDC) in a report they published in 2010. In that report, the CDC highlighted the value of alternative transportation options (transit, rideshare programs, walking and cycling) to reduce overall vehicle miles traveled along with efforts to retrofit diesel vehicles and promote electric and low emission vehicles as the primary prevention strategies that municipalities should pursue. The CDC's focus was on reducing the level of particles emitted in the first place and only secondarily do they discuss prevention strategies to reduce exposure to traffic emissions.

Taking the lead from the CDC report that "prevention is the best policy" there are clear benefits for the City, the Department, and the CPC to continue implementing the mixed-use, and transportation strategies laid out by SCAG's Sustainable Communities Strategy, the Department's own Mobility Plan 2035, the Land Use Element of the General Plan (Framework Element/Community Plans) as well as Metro's Long Range Transportation Strategy.

For the Department this means continuing to leverage Metro's transportation investments by facilitating increased intensity of development around transit stations, reducing parking requirements in these areas and ensuring that the surrounding public realm is designed to provide a safe and comfortable environment such that users are encouraged to walk, bike, and take transit. The Department recognizes that there are a number of locations where transit investments are in close proximity to the freeway and in these instances it will be up to decision makers to consider the particular features of an area and determine the variety of land uses and setbacks that would be most appropriate.

Finally, the use of clean fuel and electric vehicles is key to reducing tail pipe emissions and helping the region comply with national clean air quality standards. The City has already been working to convert much of its own fleet to clean fuel and electric vehicles and the Port of Los Angeles continues to work closely with SCAG and other goods movement leaders in the region to implement funding and other incentive programs to retrofit and/or replace diesel vehicles.

One of the impediments to broader public use of electric/clean fuel vehicles is the limited access to charging stations. The CPC has been promoting the installation of electric vehicle charging stations over and above code compliance in the projects it approves. The Department looks forward to convening field experts to explore the feasibility of increasing the standard electric vehicle charging requirement so that this important infrastructure component becomes more widespread. In addition, staff recently learned of the need for more centralized publicly accessible quick-charging (less than 60 minutes) stations. Requiring these stations would be cost prohibitive in most private, smaller scale developments but opportunities should be considered in larger scale projects.

The Mayor's Office of Sustainability is also working with numerous City departments to incorporate EV chargers in municipal facilities, such as libraries, constituent service centers, recreation centers, police and fire stations. Additionally, the Bureau of Street Lighting has been installing on-street EV chargers attached to streetlights and is looking into air-quality monitoring equipment to include in the design of smartpole streetlights.

Recommendations

In summary, staff recommends:

1. DCP to work with HCID to leverage field inspections to inform/educate managers and property owners of the importance of regularly replacing the filters.
2. DCP to establish a freeway adjacent use package through the re:code LA effort that recognizes the need to limit the extent to which residential and other sensitive uses are located in proximity to the freeway.
3. DCP to further modify the existing ZI 2427 to expand the notice to include any discretionary applications within 1,000 feet of a freeway and eliminate the requirement for a Health Risk Assessment.
4. DCP to modify the existing ZI 2427 to include policies from the *Plan for a Healthy Los Angeles* and add reference to L.A.M.C subsection 99. 04.504.6 regarding the Merv 13 filter requirement.
5. DCP to develop Healthy Building Design Guidelines as a means of promoting building and site design solutions that lead to improved health outcomes. Guidelines could include guidance on a range of topics including: healthy building products, air quality, active living and site planning that collectively can lead to improved overall health outcomes.
6. DCP to work with DBS and field experts to evaluate the feasibility of establishing an electric vehicle charging station requirement that aligns with the CPC's current proactive efforts of requiring that parking areas include the installation of electric vehicle charging stations for 5% of the total parking stalls and that 20% of the parking stalls be readily adaptable for the future installation of a charging station.

Conclusion

The Department recognizes the importance of the quality of air throughout Los Angeles and its impacts on residents and visitors alike. Although residential uses abutting freeways (and other busy roadways) is not a new land use pattern, recent studies have confirmed that severe long-term health impacts can result. Planning must sometimes balance competing objectives, including housing production, with much of the available land for development in such locations.

No single policy tool is likely to be sufficient to achieve marked reductions in air pollution. A long-term, integrated set of policies to rebuild communities to reduce dependency on fossil fuels for transportation would yield benefits that go far beyond improved health. Such a strategy would improve respiratory health and mitigate the long-term threats posed by greenhouse gas emissions from mobile sources.