Policy 2 – INDUSTRIAL-RESIDENTIAL INTERFACE ZONES (IRIZ) TO MINIMIZE AIR POLLUTION EXPOSURE

Policy Recommendation: Designate an air pollution buffer of 1,000 ft along the boundaries of identified general or heavy industrial zones that interface with residential or other zones with sensitive receptors. Complementing, this *external* industrial area buffer, consider designating a 500 ft *interior* transition buffer within identified general or heavy industrial zone interfacing with residential or other sensitive use areas.

Background

Industrial-Residential buffers are somewhat different than freeway buffers (Policy 1) in that the types of air pollution emissions from businesses/industries can be much more varied and compounded depending on local uses. Industrial zones are also often legacy industrial areas sometimes with a century of on-going uses and often proximate to the legacy of worker housing which have now become typically low-income/people of color (BIPOC) neighborhoods. In such conditions, there are many existent issues with "grandfathered" non-conforming land-uses as well as brownfield contaminations and a high prevalence of industrial transport infrastructure such as railroads and freeways.

Attempts to green up and clean up such areas via more stringent policies can also expose tensions between jobs and environmental regulations as well as issues of unintended residential displacement/gentrification that may accompany any concerted "greening" actions. All these issues must be carefully considered in developing IRIZ polices. Nevertheless, many jurisdictions have already developed various formations of "mixed housing/business" buffer zones to designate transitionary land-use conditions and increase attention to specific development conditions of concern that often manifest along these interface areas (see for example Oakland's HBX zone as an example of such a zone discussed in Policy Strategy B).

Industrial Lands Policy: Navigating Economics and Public Health

Policy approaches such as an IRIZ should be considered in concert with a localities overall industrial lands policy, the immediate concerns of public health, and the longer-term planning intentions. On a macro-scale, the nature and fabric of urban industrial lands are changing with many larger heavier industries moving offshore, the influx of expanding warehousing and distribution uses, and the increasing market pressure to develop housing and to revitalize declining industrial tax-bases. Many jurisdictions are facing crucial decisions on whether to re-focus declining industrial areas back to protected industrial uses, create areas for hybrid light industrial mixed with live-work, or change zones to accommodate full residential. Typically, when an industrial land-use changes to residential it is lost forever if there is a future need for accommodating zones amenable to such industrial impacts. Nevertheless, when it comes to the proximity of heavy industrial and residential, the health implications of historic land-use decisions cannot be ignored.

Method of Mapping

Through a GIS-assessment, identify general or heavy industrial land-use areas within the jurisdiction and identify any large sites of polluting use or operations (See the Air District's Planning Healthy Places map as a starting place).Identify residential zones and sensitive receptor uses that interface or directly abut with these industrial areas. Specific attention should be applied to identifying health vulnerable/ cumulative impacted communities or census tracts (e.g., through the California EnviroScreen mapping portal). Along these boundaries, propose a study overlay for the recommended IRIZ buffer between 500 ft. to 1,000 ft. The Air District's own guidance suggests an evaluative buffer of 1,000 feet around large stationary sources. In some cases, such as for large stationary source such as Ports and Airports the buffer might even be extended to ½-mile (2,600 ft.). For smaller individual toxic sources such as gas stations and PERC dry cleaners, the buffer could be scaled back to 300 ft. The below case study map shows an example from Detroit where a 500 ft buffer was applied. In this case, mapping showed that 19.2% of residents in the studied district were within 1,000 ft of an industrial zone.

For this policy, we recommend applying an overlay buffer zone of 1,000 feet from industrial boundary into residential-zoned areas which would then designate an area to apply pollution mitigating policy strategies and development conditions (as outlined policies A through E). In addition to air pollution impacts, there are also many other industrial-residential interfacing impacts that could be addressed such as noise/acoustic disturbances, vibrations, odors, ambient light, visual compatibility, traffic/truck movements and the resultant safety on streets.

In addition to the external boundary buffer described above, we recommend the consideration of a complementary 500 ft. buffer on the "internal" Industrial zone side. This policy would be intended to further buffer potential harmful emissions closest to residences/sensitive uses – especially for cumulative air pollution impacts to overburdened health vulnerable communities – by creating a gradient where the most intensive uses are further away from the boundary and lighter industrial uses are allowed closest (e.g., encourage through permitting light industrial craft, cottage industries while discouraging heavy industry or applying stronger pollution conditions such as enclosing of facilities). A secondary goal of this internal overlay is to identify target areas where the potential retrofit or conversion of heavy industrial areas into "green industrial parks" could be implemented. Overall, the proposed IRIZ zones could delineate areas for establishing special infrastructure assessment or bond districts to fund conversions, industrial retrofits, and environmental clean-ups.

CASE STUDY #1 – Oakland S-19 Industrial Buffer

The City of Oakland has created a specific industrial buffer overlay or "combining" zone (S-19) focused on safety regarding hazardous materials and waste that poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. This type of health and safety zone could equally apply to include air pollution.

Oakland's S-19 "H*ealth and Safety Protection Combining Zone"* was *adopted March 15, 2011* (Chapter 17.100A). The intent of the zone is to promote the public health, safety, and welfare by ensuring that activities which use hazardous material substances or store hazardous materials, hazardous waste, or explosives locate in appropriate locations and develop in such a manner as not to be a serious threat to the environment, or to public health, particularly to residents living adjacent to industrial areas

where these materials are commonly used, produced, or found. The S-19 Zone combines with various other zones that are within 300 feet from any residential, open space, or institutional zone boundary.

The regulations contained in this combining zone apply to all new nonresidential facilities or activities; any nonresidential facility which has lost its legal non-conforming status; any existing facility or activity where the usable floor area is expanded by more than twenty percent (20%); any alteration or expansion of a facility or activity, such that it requires a new Risk management Plan or other Hazardous Materials Business Plan. The following land use activities are prohibited within the S-19: electroplating; hazardous waste management, industrial/transfer storage; and residuals repositories; activities which involve manufacturing, storing, or use of explosives. This section could, for example, be expanded, to prohibit or limit sources of air pollution emitting industrial and toxic operations.

CASE STUDY #2 – Detroit, MI.

Detroit undertook a comprehensive industrial-residential interface analysis into account when updating their zoning and general plan in 2018. The city identified and utilized an industrial transition zone to designate areas where the existing residential uses would be protected but no new residential allowed. They also established a zone for restricted industrial uses that would incorporate policies to minimize undesirable effects and to provide a buffer between residential districts and intensive industrial districts. No new residential are allowed in these zones.

As part of the analysis, the city mapped industrial/residential interface areas with a 1,000-foot buffer. These were the initial intended designations for targeting green infrastructure such as vegetative screen and for the development of green industrial parks among other interventions. The residential uses that fall into this buffer constitute almost 20% of the city's residential parcels and thus the policy approach necessitated a carefully calibrated transition strategy (Source: Vegetative Buffers and Tree Canopy. Community Action to Promote Healthy Environments in Detroit, 2018: 42).

Sources

Tait, Jaydan. 2008: "Planning on the Edge: Policy Recommendations addressing Problematic Residential Industrial District Interfaces." (Focus on Calgary, Canada).

"Green-Switch: Reducing the Conflict Between the Industrial and the Residential Interface." WIT Transactions on Ecology and the Environment. Vol 93. 2006.

Vegetative Buffers and Tree Canopy. Community Action to Promote Healthy Environments in Detroit. University of Michigan. November 2018.

City of Oakland Housing and Business Mix Zone Ordinance, 2003 and S-19 Health and Safety Protection Combining Zone.