

GAF's GOTTA GO: THE CASE FOR CITY AMORTIZATION



MAY 2022

Invisible No More

The creation of this report has been a very difficult experience for me. I have lived in West Dallas for most of my life. I grew up on Bedford Street practically next door to GAF. I am now raising my daughter across the street from my childhood home where my parents still live still on the same block. GAF was just part of the backdrop to my life, the soundtrack that I never thought much about until I volunteered to host an air pollution monitor on my home in 2020.

About one year later, after being informed about the levels of particulate matter pollution appearing on the Purple Air monitor, I started connecting the dots. The awful smell I would routinely experience when sitting on my porch or playing outside with my daughter, the harm to health that I read this type of pollution has on people, and recalling the myriad of illnesses people on my block have dealt with throughout the years. One question kept coming back to me: why has no one done anything about this? I figured that nobody at the City or State knew about the extent of the pollution, or its harms to public health. This is where I was wrong.

After forming my neighborhood association, Singleton United/Unidos in August 2021, and launching the "GAFs Gotta Go/GAF Vete Ya" Campaign in September 2021, it became clear that the powers that be knew about the harm and turned a blind eye. It wasn't inaction due to lack of knowledge, it was inaction due to a lack of political will. This is why we launched the campaign, and why we have done the city's job by producing this report. It is the City's duty to amortize GAF because the city has been complicit in allowing me and my neighbors to continue suffering in GAF's shadow.

Knowledge is power, and we are equipped with data, science, testimonials, and a clear record of all the ways that GAF has no other fate than amortization. We implore the City of Dallas to finally do the right thing, and stand with the residents of West Dallas to resolve this decades-long environmental injustice. We can't change history, but we have the power to shape the future. This is an opportunity for the City to be on the right side of history.

Sincerely,

Janie Cisneros
Leader
Singleton United/Unidos



Acknowledgements

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The background image shows an industrial plant with several large cylindrical storage tanks and tall distillation columns. The scene is overlaid with a semi-transparent reddish-orange filter. The text 'Amortization Factors' is centered in a large, white, bold font.

Amortization Factors

Overview

- Amortization is when a non-conforming land use is made to come into compliance by the Board of Adjustment by changing their land use or vacating the property.
- A non-conforming land use is a land use that no longer aligns with the current zoning on their property, but is allowed to stay there because it used to be in compliance.
- The Dallas City Council or a private citizen can initiate the amortization or 'compliance' proceedings for a non-conforming land use through the Board of Adjustment.
- Once the request for an amortization or 'compliance' proceeding is approved by the City Council, the Board of Adjustment schedules a hearing to determine whether the non-conforming use has an 'adverse impact' on the community.
- There are nine factors to prove adverse impact at the Board of Adjustment Hearing.
- If adverse impact based on the nine factors is found, the next Board of Adjustment hearing is to set a compliance date for the non-conforming use.
- The compliance date is determined by analyzing the investment and financial gains by the non-conforming use to ensure they recoup their initial investment.
- The City's policy is to eliminate non-conforming uses especially when they have an adverse impact on the surrounding community.

What is Amortization in City Planning?

In the context of zoning regulation, “amortization” is a term used to describe the process whereby a compliance date is set for the end of the nonconforming use. Upon a request to establish a compliance date, the Board of Adjustment holds a hearing to determine whether the continued operation of the nonconforming use will have an adverse effect on nearby properties. If it is determined to have an adverse effect, then the compliance date is set to allow for a plan where the owner’s actual investment in the use before the time that the use became nonconforming can be amortized within a definite time period. The nonconforming use ordinance sets forth the relevant factors used in setting the definite time period. Sec. 51A-4.704.

How it Works in Dallas

While the City Council can direct the Board of Adjustment (BOA) to consider amortizing a nonconforming use of property in the City, Section 51A-4.704(a)(1)(A) provides that besides the council requesting the board of adjustment **“to consider establishing a compliance date for a nonconforming use,”** it also provides that **“in addition, any person who resides or owns real property in the city may request that the board consider establishing a compliance date for a nonconforming use.”** That is, any person who lives in or owns property in the City of Dallas may request the Board of Adjustment to establish a compliance date through the amortization process outlined in the City’s development ordinances.

The subsection further provides that **“upon receiving such a request, the board shall hold a public hearing to determine whether continued operation of the nonconforming use will have an adverse effect on nearby properties.”** If it so determines based on the evidence, **“it shall proceed to establish a compliance date for the nonconforming use; otherwise, it shall not.”**

The factors the BOA considers are detailed in Section 51A-4.704(a)(1)(B) (there are 9 factors detailed on the next page), and include:

- character of the surrounding neighborhood
- the manner of use of the property
- the extent to which continued operation may threaten public health or safety
- the environmental impacts of the use’s operation, which include impacts of noise, glare, dust and odor and any other factors relevant to the issue of whether continued operation of the use will adversely affect nearby properties.

The ordinance further provides that if the BOA denies the request to establish a compliance date, that denial can be appealed to state district court. If it grants the request to establish a compliance date, that means that an entity like GAF cannot appeal that decision. GAF could not appeal the BOA’s decision to go forward with an amortization hearing until after the amortization date is set.

The BOA considers a variety of factors in coming up with a compliance date, which generally is a detailed accounting process to determine investment in structures, fixed equipment and other assets on the property before the time the use became nonconforming. The factors are spelled out in Section 51A-4.704(a)(1)(D). If the Board sets a compliance date for the nonconforming use, **“the use must cease operations on that date and it may not operate thereafter unless it becomes a conforming use.”** See Section 51A-4.704(a)(1)(E).

Specific Language in the City Code

City Code SEC. 51A-4.704. NONCONFORMING USES AND STRUCTURES.

(a) Compliance regulations for nonconforming uses. It is the declared purpose of this subsection that nonconforming uses be eliminated and be required to comply with the regulations of the Dallas Development Code, having due regard for the property rights of the persons affected, the public welfare, and the character of the surrounding area.

(1) Amortization of nonconforming uses.

(A) Request to establish compliance date. The city council may request that the board of adjustment consider establishing a compliance date for a nonconforming use. In addition, any person who resides or owns real property in the city may request that the board consider establishing a compliance date for a nonconforming use. Upon receiving such a request, the board shall hold a public hearing to determine whether continued operation of the nonconforming use will have an adverse effect on nearby properties. If, based on the evidence presented at the public hearing, the board determines that continued operation of the use will have an adverse effect on nearby properties, it shall proceed to establish a compliance date for the nonconforming use; otherwise it shall not.

(B) Factors to be considered. The board shall consider the following factors when determining whether continued operation of the nonconforming use will have an adverse effect on nearby properties:

- (i) The character of the surrounding neighborhood.**
- (ii) The degree of incompatibility of the use with the zoning district in which it is located.**
- (iii) The manner in which the use is being conducted.**
- (iv) The hours of operation of the use.**
- (v) The extent to which continued operation of the use may threaten public health or safety.**
- (vi) The environmental impacts of the use's operation, including but not limited to the impacts of noise, glare, dust, and odor.**
- (vii) The extent to which public disturbances may be created or perpetuated by continued operation of the use.**
- (viii) The extent to which traffic or parking problems may be created or perpetuated by continued operation of the use.**
- (ix) Any other factors relevant to the issue of whether continued operation of the use will adversely affect nearby properties.**

(C) Finality of decision.

A decision by the board to grant a request to establish a compliance date is not a final decision and cannot be immediately appealed. A decision by the board to deny a request to establish a compliance date is final unless appealed to state court within 10 days in accordance with Chapter 211 of the Local Government Code.

(D) Determination of amortization period.

(i) If the board determines that continued operation of the nonconforming use will have an adverse effect on nearby properties, it shall, in accordance with the law, provide a compliance date for the nonconforming use under a plan whereby the owner's actual investment in the use before the time that the use became nonconforming can be amortized within a definite time period.

(ii) The following factors must be considered by the board in determining a reasonable amortization period:

(aa) The owner's capital investment in structures, fixed equipment, and other assets (excluding inventory and other assets that may be feasibly transferred to another site) on the property before the time the use became nonconforming.

(bb) Any costs that are directly attributable to the establishment of a compliance date, including demolition expenses, relocation expenses, termination of leases, and discharge of mortgages.

(cc) Any return on investment since inception of the use, including net income and depreciation.

(dd) The anticipated annual recovery of investment, including net income and depreciation.

(E) Compliance requirement. If the board establishes a compliance date for a nonconforming use, the use must cease operations on that date and it may not operate thereafter unless it becomes a conforming use.

(F) For purposes of this paragraph, "owner" means the owner of the nonconforming use at the time of the board's determination of a compliance date for the nonconforming use.



Environmental Justice Demands GAF's Amortization

Overview

- The City of Dallas amended the zoning code in 1987 to stabilize neighborhoods and improve the quality of life in Dallas.
- At that time, the City had the opportunity to rezone the residential homes in and adjacent to the industrial zoning and industrial uses in a matter consistent with residential uses. They did not do this in Floral Farms, West Dallas or many other communities of color dealing with industrial adjacency issues today.
- In the City of Dallas Transition Policy, there were four transition policy areas for industrial uses including "Industrial Areas with Residential Adjacency".
- The area around GAF was miscategorized as an "Industrial Growth" area instead of the "Industrial Areas with Residential Adjacency".
- Residents in West Dallas have been complaining about industrial adjacency and air pollution issues since the 1980s.
- According to the Paul Quinn College study "Poisoned by Zip Code", West Dallas' 75212 Zip Code and City Council District 6 ranked as the most polluted in Dallas.
- Singleton Corridor's neighborhoods are ranked in the top 10% of the nation's most toxic communities in 8 out of 12 indicators.
- Parkland found the average life expectancy in West Dallas was 11 years shorter than the City of Dallas as a whole.
- Dallas asphalt shingle factories are a lot like the lead smelters that operated in West Dallas and East Oak Cliff for decades before they were amortized by the City of Dallas.

Citywide Rezoning in 1980s and West Dallas

Prior to 2006, past plans for this area highlighted the need for industrial and residential uses to be appropriately buffered, and when adjacent for the industrial districts to be removed. The City had the opportunity to rezone the residential homes in and adjacent to the industrial zoning and industrial uses in a manner consistent with residential uses during the 1980s. In July of 1984, the City of Dallas adopted a set of planning policies that called for writing a new zoning code for the entire City. The purposes for the change, among others, included the stabilization of neighborhoods and the improvement of the quality of life in Dallas. The 1984 planning policies required the protection of residential neighborhoods from intrusive and destabilizing effects of industrial and other non-residential uses. The City Council adopted the new zoning code and the program for the transition to the new zoning code on July 22, 1987.

These benefits however, were not extended to West Dallas or to other communities of color, such as Cadillac Heights. In a lawsuit on behalf of residents in Cadillac Heights, Judge Fitzwater, a federal district court judge, quoted the defendants evidence on the inequitable race of persons living in or near industrial zoning in that case against the City of Dallas in the opinion and of the City's 1980s zoning changes. (Miller v. City of Dallas, 2002 WL 230834 (N.D. Tex. 2002).)

Quotes from the opinion:

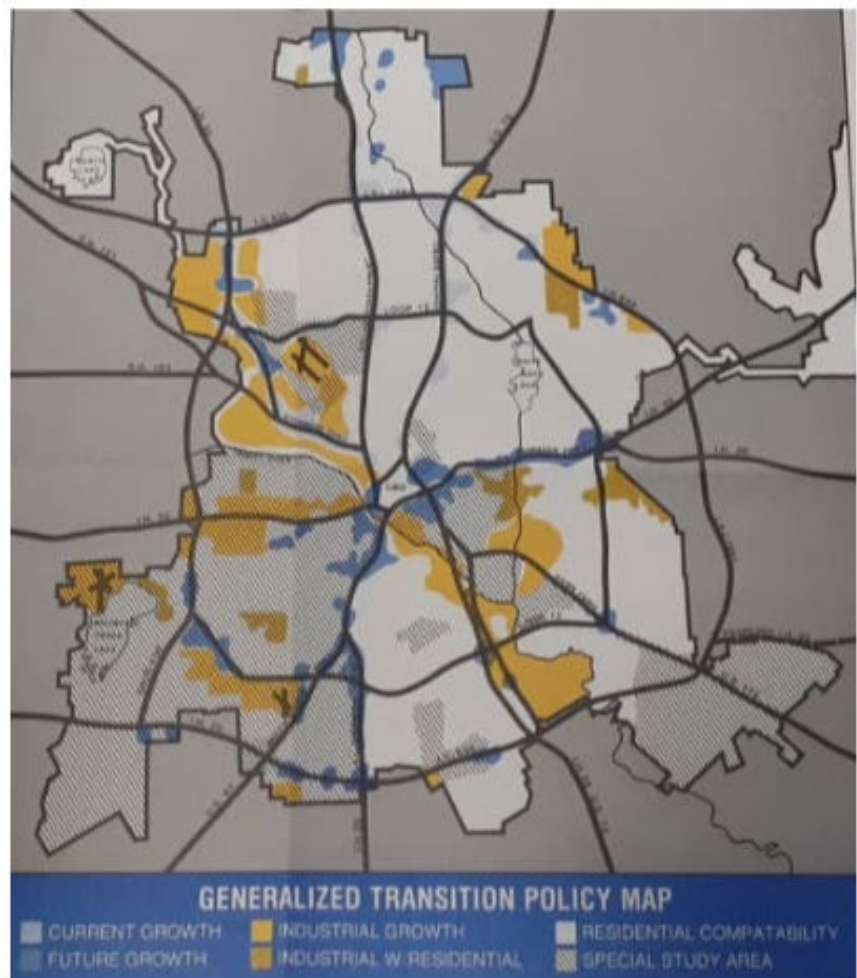
According to 1990 statistics, African-Americans constituted 47.25% of the Dallas population living in Census blocks that were either within an industrial-zoned district or within five hundred feet of one. Id. at 1901. Hispanics constituted 28.36% of the Dallas population living in such blocks. Id. But as of 1990, the overall population of Dallas was 28.89% African-American, 20.88% Hispanic, and 50.23% other. Id. at 1774.

In 1984 the City Council adopted the "City of Dallas Planning Policies," which include the goal that "[e]ach neighborhood of the City shall be protected and/or improved so as to be a desirable and attractive residential neighborhood." Id. at 13. The same document states the City's objective "[t]o reduce the uncertainty of each neighborhood's future in order to attract more private maintenance, reinvestment and new investment." Id. By deliberately denying flood protection to Cadillac Heights, allegedly because there is developable land that lies outside the flood plain and therefore does not need such protection, plaintiffs can make a reasonable argument that the City departed from its standards of protecting neighborhoods and reducing uncertainty in order to attract residential development, maintenance, and investment.

The City of Dallas Zoning Transition program and the map below show the general transition policies. For industrial uses, the transition process was made dependent on the type of “transition policy area” in which the industrial uses were located. The City defined the location of the “transition policy areas” on maps. There were four transition policy areas for industrial uses:

“Industrial Growth Areas”	not substantially bordered by residential areas
“Industrial Areas with Residential Adjacency”	majority of the area’s border abuts residential areas
“Current Growth Corridors” & the “Future Growth Corridors”	areas for commercial development
“Residential Compatibility Areas”	predominantly developed for residential purposes and within which uses were primarily residential in nature along with commercial uses to support residential uses

Figure 1. Shows the map of the Generalized Transition Policy for the City of Dallas indicating in West Dallas both Industrial Growth and Industrial w/ Residential areas (1987).



At that time, there were two types of industrial zoned districts in West Dallas. I-3 was the heaviest industrial use and I-2 was the next. The equivalent industrial zoning categories under the new zoning structure were IM (Industrial Manufacturing) and IR (Industrial Research). These are the categories in place today. The determining factor whether property zoned I-3 or I-2 could be changed under the transition program to the equivalent IM or IR zoning was the transitional policy area of the location.

Under the transition policy, I-3 could transition to IM as a matter of right in Current Growth Corridors, Future Growth Corridors, and Industrial Growth Areas. I-2 could transition to IR as a matter of right in Current Growth Corridors, Future Growth Corridors, and Industrial Growth Areas and to IM in Future Growth Corridors or Industrial Growth Areas. But, in Industrial Areas with Residential Adjacency, I-3 and I-2 zoned property could transition only to Light Industrial or Commercial Services. Property zoned I-3 or I-2 could transition only to Commercial Services zoning in Residential Compatibility Areas.

The Singleton area was considered an Industrial Growth Area according to the Zoning Transition Program of 1987, though it was also classified as a "Special Study Area". There is a land plan listed for West Dallas- "West Dallas Economic Development & Neighborhood Preservation Plan (1983)" that goes into depth about the zoning and land use of this specific area and indicates the mislabeling of the Singleton area as Industrial Growth due to its residential adjacency. **In essence, it was known in 1983 that the area surrounding GAF should not have been labeled 'Industrial Growth' and in 1987 that error was never rectified. Had it been, GAF would only have been able to operate as light industry or a commercial service. Not be operating as an Industrial Manufacturer as it is today.**

West Dallas Strategy Economic Development & Neighborhood Revitalization 1983

This plan was drafted to encourage economic development and neighborhood revitalization in West Dallas. The map below shows the various sub areas with different policy recommendations. The GAF area was designated as “Development Area 2”. The proposed land use for Development Area 2 is outlined below as taken from the plan.

“Backzoning” (also commonly called “downzoning”) is meant to reduce the intensity or heaviness of the zoning to be less industrial (i.e. from I-3 heaviest to I-1 least heavy). Based on the current zoning in the same area, this never happened.

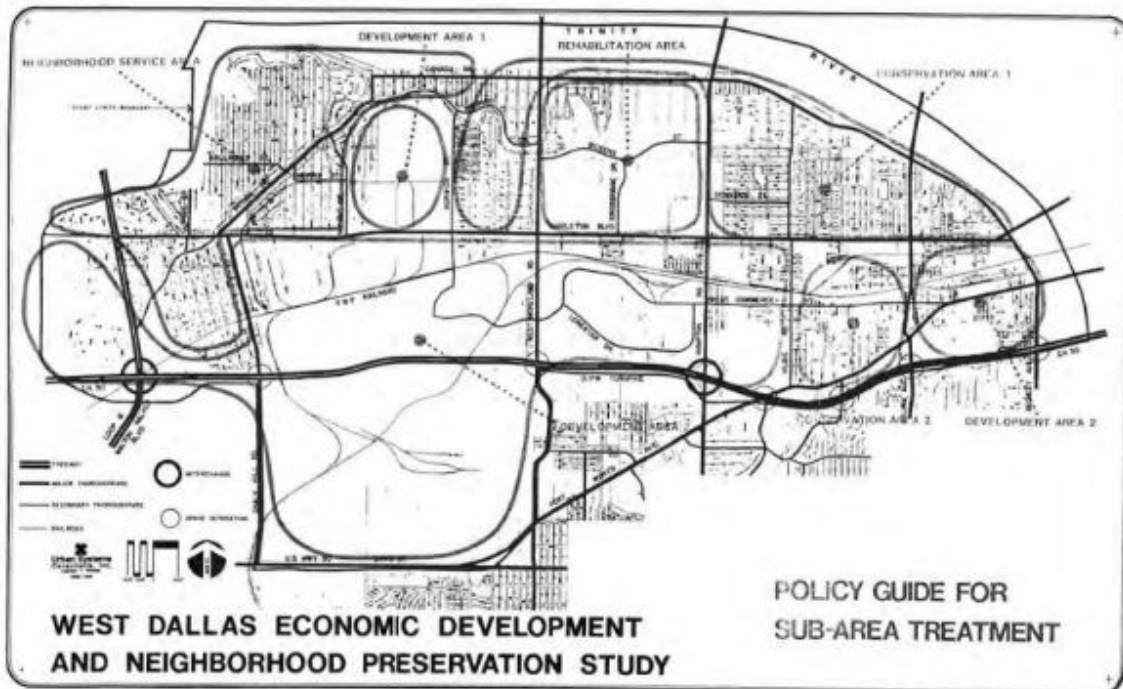


Figure 2. This map shows the different sub areas outlined in the West Dallas Economic Development and Neighborhood Preservation Study created by the City of Dallas in 1983.

Development Area 2 is described as:

“A relatively large amount of vacant land also exists here, although some of it has environmental and topographic problems. This area should be targeted for more intense industrial use and economic development”.

A more clear outline of Development Area 2 is outlined below in Figure 30.

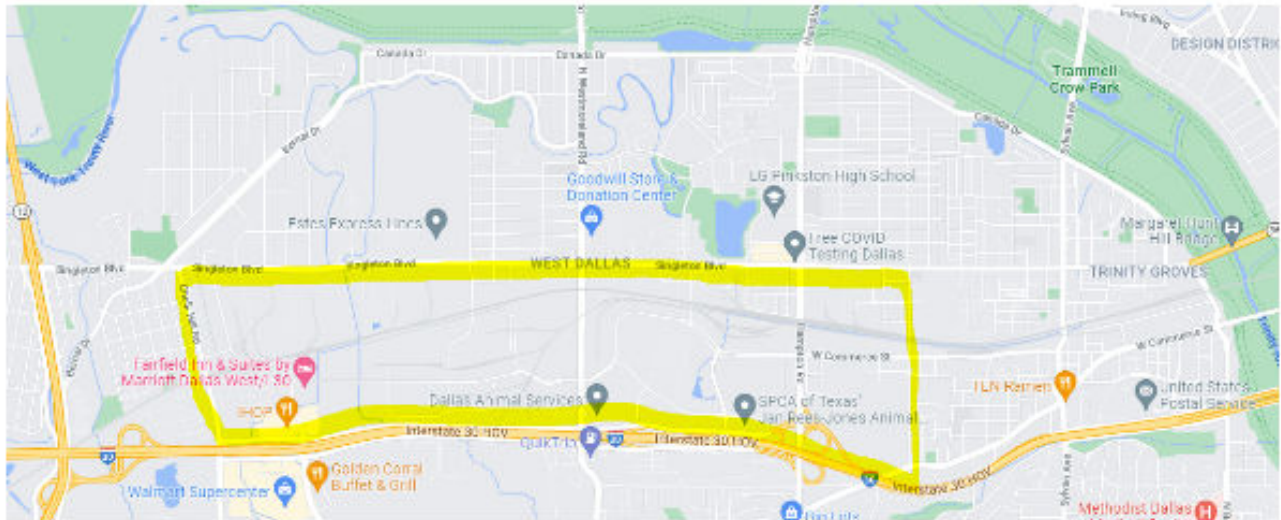


Figure 3. Shows the boundaries for Development Area 2.

The area where GAF was referenced is Development Area 2, where **“In the target area north of I-30 are well over 600 acres of vacant, industrially zoned land currently owned by a limited number of owners. This supply should meet market demand for at least 20 years. Industrial development should be directed to this vacant (infill) land, which should be appropriately buffered from housing”.** This did not occur. The homes north of I-30 by the previously vacant industrial land have not benefited from neighborhood preservation, and were actually further encroached on by industry over time, reducing the buffer between homes and heavy polluters. Air pollution and the need to create buffers between residential and industrial uses was included in the study, as well as the need to downzone areas in collaboration with residents and property owners.

In 1983, many priorities were identified by the participating neighborhood representatives and stakeholders. “Outside odors and air quality” was listed as one of the priority concerns.

- Four additional priorities were added to this list:
- Outside odors and air quality
 - Child care
 - Health care, particularly for adults
 - Streets and bridges

Figure 4. Excerpt from the 1983 plan that indicates the community priority concerns.

Figure 5. Excerpt from the 1983 plan that indicates the community priority concerns.

Air pollution problems exist in West Dallas and some governmental agency should address the issue and enforce the existing standards. City Council should support this, and efforts should continue to resolve the lead pollution problem. Historically, this has been a major neighborhood concern and needs timely action.

Currently, some industrially zoned areas are adjacent to residential neighborhoods. The City should encourage the establishment of a buffer or greenspace between the two land uses, and require some type of open space or linear park designation by any industry that receives city financial incentives. A final legal measure would be an evaluation of backzoning potentials involving residents and property owners:

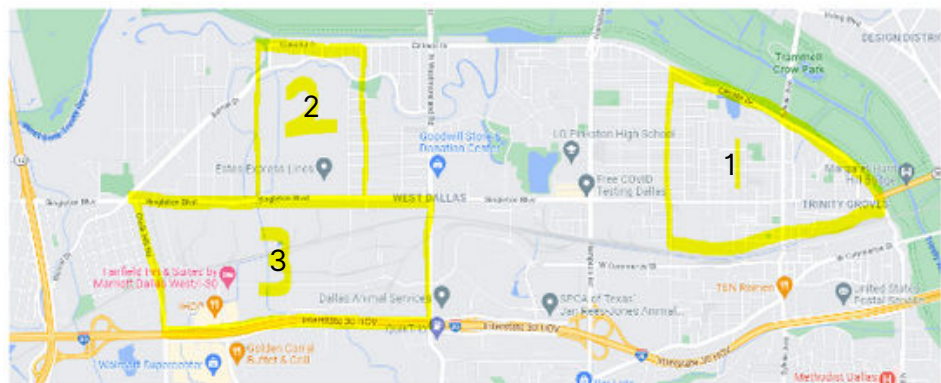
I-2 to I-1 on vacant land immediately adjacent to residences

MF-2 to less dense housing zoning in predominantly single-family neighborhoods

The Land Use Guidelines throughout West Dallas are described in the 1983 plan as, and is roughly interpreted, in the Figure below:

1	"In the area between Vilbig, Singleton and Canada, a backzoning of the multifamily-zoned property to a less dense residential use should be discussed with the property owners.
2	In the area between Norwich, Pluto (and its extension), Singleton, and the Old Trinity River, a backzoning of the vacant industrial land to I-1 [Light Industrial] should be discussed with the property owner. However, this backzoning should be done in conjunction with some development incentives for the property.
3	The vacant land south of Singleton between Westmoreland and Chalk Hill should be targeted for the more intense industrial activities that are proposed for the area"

Figure 6. Illustrates the boundaries described in the 1983 plan for future land use guidelines.



These land uses highlight the deindustrialization (back zoning) of the vacant industrial land north of Singleton, and further east close to Downtown Dallas. The mixed industrial and residential area between Westmoreland Drive and Vilbig does not have land use guidelines outlined in this section of the 1983 plan. The study includes information about the growth potential in West Dallas with the large vacant industrial areas, in addition to the need to provide jobs for low income residents. Specifically, it cites **“Some of the industries already located in West Dallas are "heavy" industries. Certain types of environmental concerns, such as air and noise pollution and traffic, are related to their presence. Future industrial development must focus on the more labor-intensive industries, particularly those that provide products and services needed in our evolving economy”**.

West Dallas Pollution Burdens

There are only two asphalt shingle factories operating in the City of Dallas. Both are located in communities of color: GAF in West Dallas and TAMKO in Joppa. These factories are two of the largest polluters in Dallas County and operate directly across the street from homes as a result of racist zoning.

GAF’s West Dallas factory is a source of air pollution not only for its own production lines - it also blends asphalt to send to other GAF factories. In other words, **West Dallas residents are asked to bear the burden of this pollution from their 76-year factory on behalf of other communities with newer, and less polluting facilities.**

West Dallas is Already Disproportionately Burdened by Air Pollution

In 2020, Paul Quinn College’s Urban Research Initiative published a landmark report that used EPA and State air pollution inventory data to rank the most polluted Zip Codes and Council Districts.

West Dallas’ 75212 Zip Code and City Council District 6 ranked as the most polluted in Dallas. It ranked 2nd in most PM pollution and 1st in releasing the most Volatile Organic Compounds.

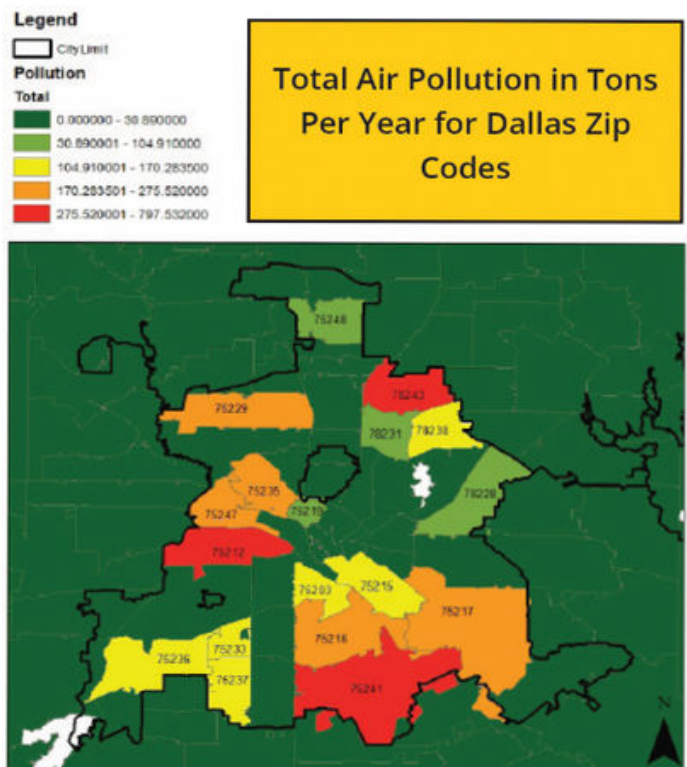


Figure 7. Air pollution burden by zip code in Dallas.

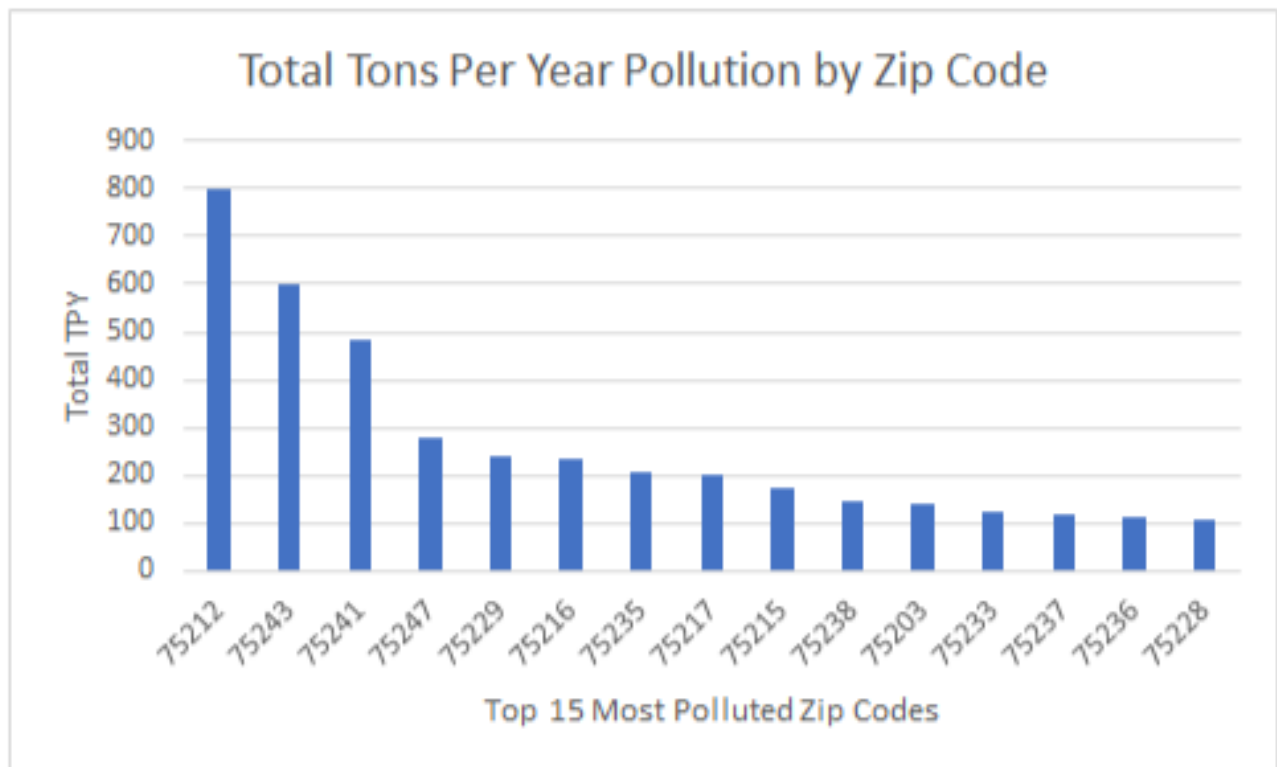


Figure 8. Shows the tons per year of air pollution by zip code in the City of Dallas.

This is exactly the kind of disproportionate burden described in the City of Dallas’ own **Comprehensive Housing Policy Racial Equity Assessment, released in October 2021:**

“...neighborhoods that (city leaders) then proceeded to neglect, relegating these families to areas prone to flooding and other hazards, passing zoning allowing for heavy industry alongside their dwellings, and shutting them out of the massive investments in infrastructure that helped bring prosperity to White areas of the City....Even today many residential areas of Southern Dallas remain disconnected from the city’s sewer system, lack adequate roads, are prone to flooding, and have zoning that has allowed heavy industrial development to flourish right up against long-time Black and Brown residential neighborhoods.”

EPA ECHO EJ Ranking Index Results

EPA uses its own national databases to construct Environmental Justice rankings for neighborhoods across the country in its ECHO online mapping service. The smallest unit EPA provides data for is a mile radius around any U.S. polluter or home.

Utilizing the EPA map, this is how the neighborhoods within a mile of GAF's West Dallas asphalt shingle factory compare to the rest of the nation.

Table 1. Environmental Justice index ranking for neighborhoods within 1 mile of GAF (2021).

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Index for Particulate Matter 2.5	91	94	97
EJ Index for Ozone	94	95	97
EJ Index for 2017 Diesel Particulate Matter*	96	97	96
EJ Index for 2017 Air Toxics Cancer Risk*	90	93	96
EJ Index for 2017 Air Toxics Respiratory HI*	93	95	97
EJ Index for Traffic Proximity	85	88	89
EJ Index for Lead Paint	88	90	88
EJ Index for Superfund Proximity	99	99	99
EJ Index for RMP Facility Proximity	98	98	99
EJ Index for Hazardous Waste Proximity	97	98	94
EJ Index for Underground Storage Tanks	79	83	85
EJ Index for Wastewater Discharge	88	89	89

Singleton Corridor's neighborhoods are ranked in the top 10% of the nation's most toxic communities in 8 out of 12 indicators, including:

- Exposure to Particulate Matter pollution
- Exposure to Diesel Particulate Matter pollution
- Air Toxics Cancer risk
- Air Toxics Respiratory risk

West Dallas Public Health

In 2019, Parkland Hospital published its Dallas County Needs Assessment report documenting the health disparities between Dallas Zip Codes. Not surprisingly, it found that West Dallas residents suffer a disproportionate number of health burdens, either in addition to, or caused by the community's proximity to so much hazardous air pollution.

West Dallas' 75212 Zip Code ranked among the worst for:

- Cancer mortality
- Heart Disease mortality
- Diabetes mortality

Parkland found the average life expectancy of Black people in West Dallas was 11 years shorter than the City of Dallas as a whole.

Figure 9. Shows Heart Disease Mortality Rate Adjusted by Age per 100,000 population, Dallas County, 2012 – 2016 . Source: Parkland Hospital Community Health Needs Assessment.

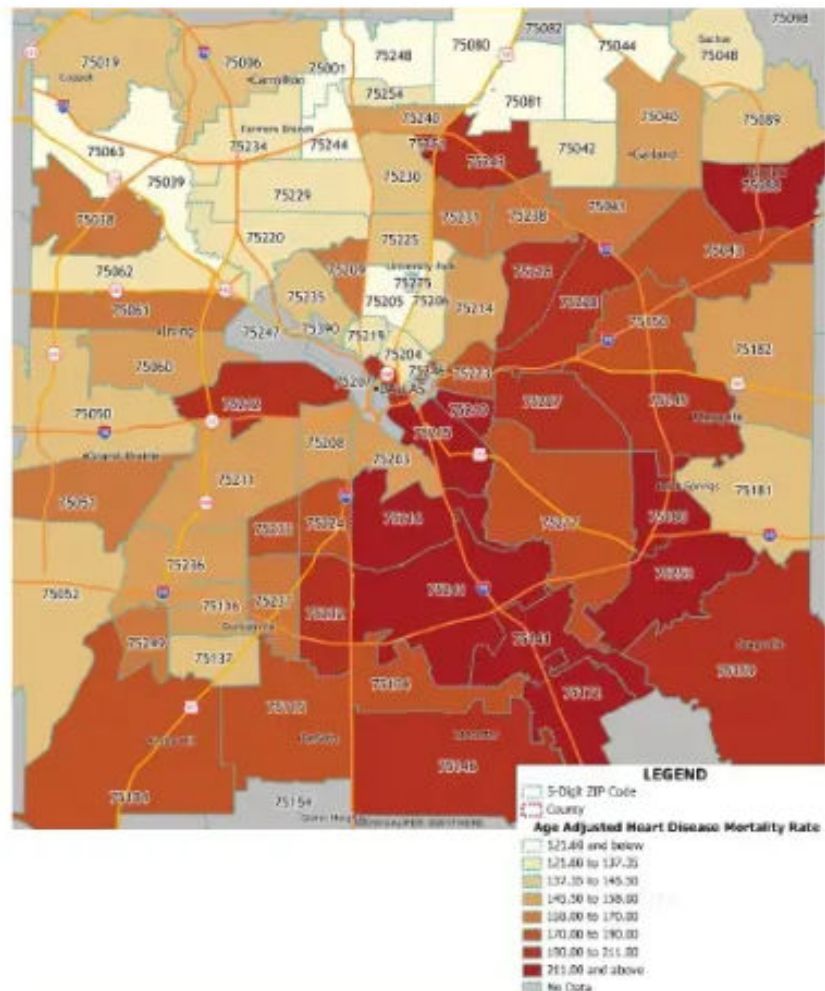


Figure 10. Cancer Mortality Rate Adjusted by Age per 100,000 population, Dallas County, 2012 – 2016. Source: Parkland Hospital Community Health Needs Assessment.

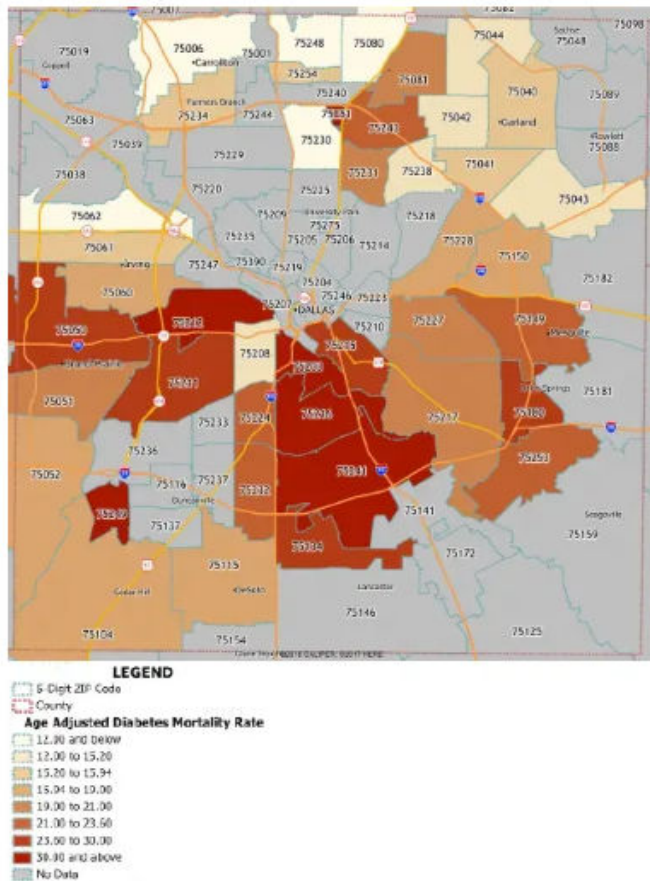
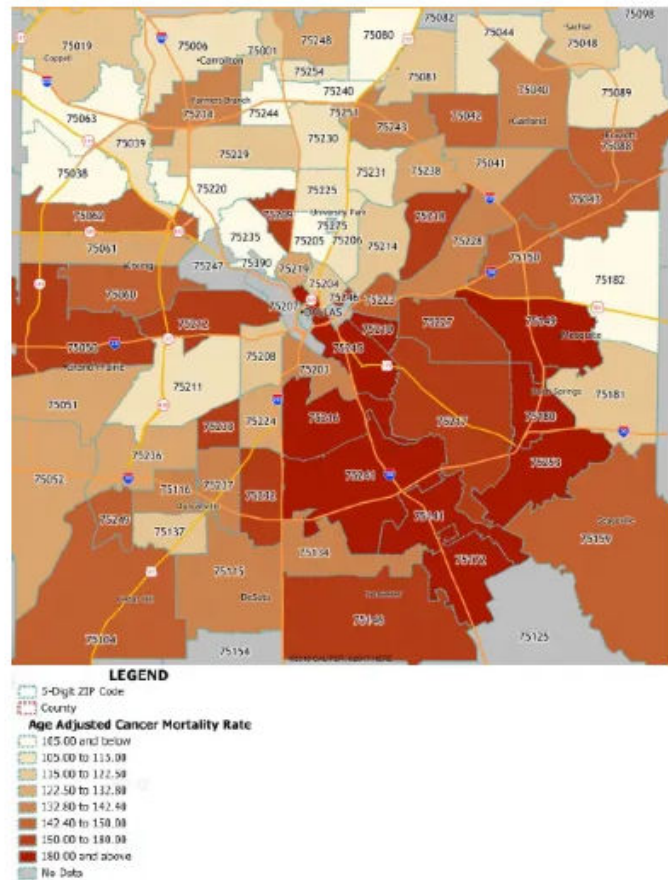


Figure 11. Diabetes Mortality Rate Adjusted by Age per 100,000 Population, Dallas County, 2012 – 2016. Source: Parkland Hospital Community Health Needs Assessment.

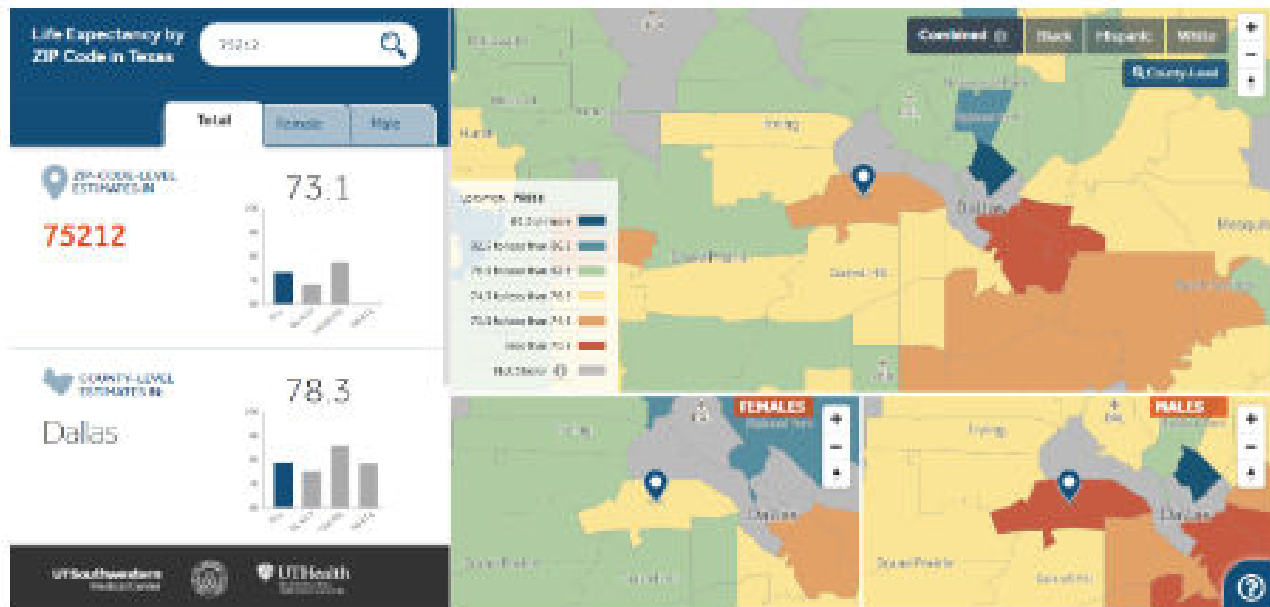


Figure 12. Shows the gap in life expectancy for the 75212 zip code compared to the average in Dallas (5 years less), with Black people in 75212 averaging 67.8 years (11 years less than the City average).

Shingle Factories are Dallas' New Lead Smelters

The kind of pollution GAF is emitting is capable of significant and permanent developmental harm. Not only can it cause breathing problems and heart problems, but can also increase the risk of developing Alzheimer's Disease and related dementias, and has the potential to affect every organ in the body. It can also rob the young of IQ. In this respect, Dallas asphalt shingle factories are a lot like the lead smelters that operated in West Dallas and East Oak Cliff for decades before they were amortized by the City of Dallas.

Today it seems quite incredible any municipality would willingly host a large lead smelter in its midst, much less three (GAF, TAMKO and Owens Corning). The forceable shuttering of those smelters by the City was a decision that instantly improved Dallas public health. It was the necessary, and right, thing to do. So is shuttering GAF in 2022.



Pollution Types, Standards & Public Health

Overview

- Particulate matter pollution is tiny pieces of soot from engines, boilers, and furnaces as well as small flecks of dust or sand.
- There is no safe level of particulate matter pollution exposure. That is, there appears to be no level of exposure to PM that can't result in a human health harm.
- These harms can occur in any organ in the body since microscopic particles of PM can pass through the lungs into the bloodstream.
- Since 2000, studies have linked exposure to PM pollution to Heart Attacks, Strokes, COPD, Adult on-set and pediatric Asthma, Diabetes, Blindness, Infertility, Low-birth weights, Birth Defects, Autism, Parkinson's Disease, Dementia, Loss of IQ, Anti-social behavior and early death.
- Research has shown that Black men are disproportionately exposed to high levels of particulate matter pollution.
- The toxicity of PM pollution can be significantly increased depending on what other chemicals are attached to the particles being inhaled.
- Polycyclic Aromatic Hydrocarbon (PAHS) are "a class of chemicals that occur naturally in coal, crude oil, and gasoline. They result from burning coal, oil, gas, wood, garbage, and tobacco"
- The combination of PAHS, Sulfur Dioxide and PM pollution coming out of GAF make their emissions even more toxic to public health.
- EPA's most recent review of the science concluded short term exposure to Sulfur Dioxide caused wheezing, shortness of breath and chest tightness and other problems, especially during exercise or physical activity.

Current Regulatory Standards and GAF Permits for PM Pollution Are Not Protective of Public Health in West Dallas

PM pollution is tiny pieces of soot from engines, boilers, and furnaces as well as small flecks of dust or sand.

PM particles are so tiny they can go deep into your lungs and even into your blood stream and affect every organ in your body. We often can't see PM pollution. That's why we need air monitors to tell us what we're breathing.

Research over the last 25 years has failed to establish a "safe level" of exposure to Particulate Matter. That is, there appears to be no level of exposure to PM that can't result in a human health harm. These harms can occur in any organ in the body since microscopic particles of PM can pass through the lungs into the bloodstream.

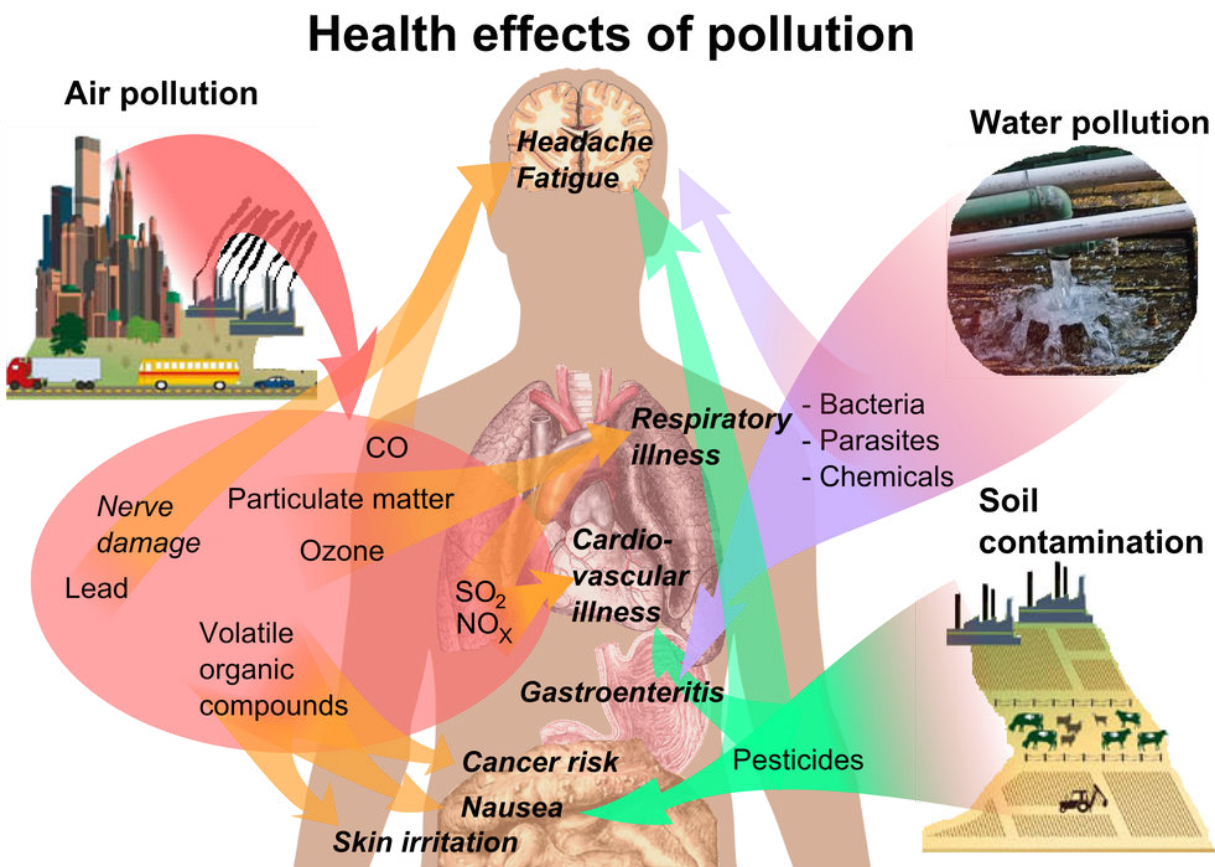


Figure 13. Some of the many ways that PM pollution can impact human health. Source: Michigan Technological University.

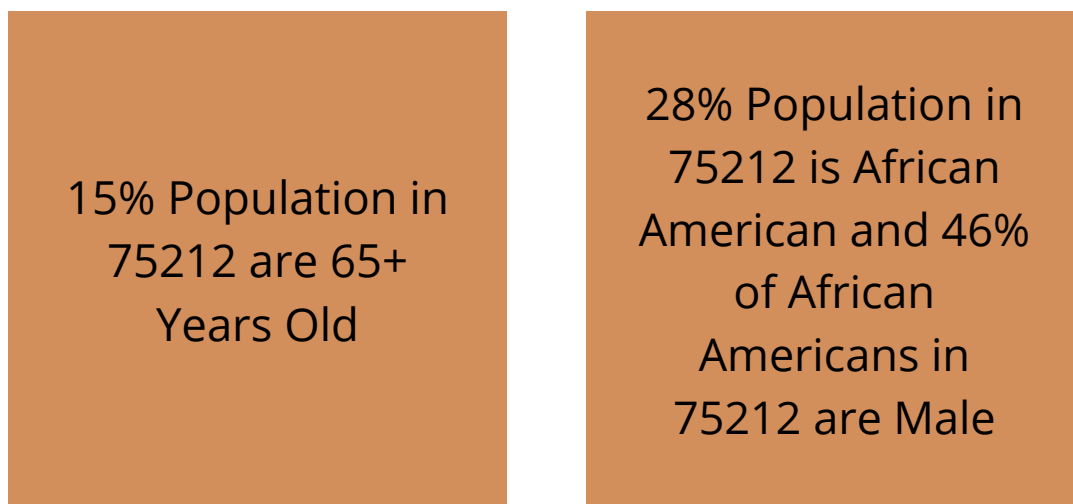
Even low-level and short periods of PM exposure, even at levels below-regulatory standards, PM is capable of causing some degree of permanent human health harm. Chronic exposure to higher levels can result in significant harm and early death.

Since 2000, studies have linked exposure to PM pollution to Heart Attacks, Strokes, COPD, Adult on-set and pediatric Asthma, Diabetes, Blindness, Infertility, Low-birth weights, Birth Defects, Autism, Parkinson's Disease, Dementia, Loss of IQ, Anti-social behavior and early death.

EPA regulations for PM pollution have yet to catch-up to the most recent science about the toxicity of the pollutant. The current annual limit of 12 µg/m³ was adopted in 2012, and it as well as the Agency's 24-hour standard have been proven to be insufficiently protective over the last decade.

A 2015 study by the Harvard T.H. Chan School of Public Health found higher death rates among the elderly associated with PM pollution despite the fact that, "the harmful effects from the particles were observed even in areas where concentrations were less than a third of the current standard set by the Environmental Protection Agency (EPA)."

Another Harvard School of Public Health report published in 2017 provided even more proof that current EPA standards were not protecting public health. It concluded that even **relatively small increases in PM and ozone pollution were enough to trigger increases in mortality by 7 to 14% among those 65 and older - even though these were under regulatory levels.** Black men were exposed to more, and higher, levels of PM than the rest of the population.



Source: American Community Survey 2020 5 Year Estimates.

“There was a significant association between PM_{2.5} exposure and mortality when the analysis was restricted to concentrations below 12 µg per cubic meter, with a steeper slope below that level. This association indicated that the health-benefit-per-unit decrease in the concentration of PM_{2.5} is larger for PM_{2.5} concentrations that are below the current annual NAAQS than the health benefit of decreases in PM_{2.5} concentrations that are above that level...**Moreover, we found no evidence of a threshold value — the concentration at which PM_{2.5} exposure does not affect mortality — at concentrations as low as approximately 5 µg per cubic meter; this finding is similar to those of other studies.**”(Qian Di et al. 2017).

A 2019 study links the deaths of 200,000 military veterans to long-term exposure to ultra-fine particle pollution at levels below current Environmental Protection Agency standards. **“In this study, 99.0% of the burden of death due to non-accidental causes were associated with PM 2.5 levels below the current EPA guidelines.... The burden of death associated with PM_{2.5} was disproportionately borne by Black individuals and socioeconomically disadvantaged communities.”**(Bowe et al. 2019).

A 2020 Australian study found that even exposures to PM_{2.5} that fell below global standards were hazardous, **“Our study supports recent evidence that there is no safe level of air pollution — finding an increased risk of cardiac arrest despite air quality generally meeting the standards”.** (Zhao 2020).

In 2021 the World Health Organization (WHO) revised its standards for PM exposure downward, adopting a 24-hour standard of 15 ug/m³ and an annual standard of 5 ug/m³. According to WHO scientists, the reviews of the scientific literature leading to the organization’s new standards **“provide clear evidence of the damage air pollution inflicts on human health, at even lower concentrations than previously understood”** (WHO 2020).

WHO scientists also concluded **“PM_{2.5}, fine particulate matter of 2.5 micrometres or less in diameter, is the most dangerous pollutant because it can penetrate the lung barrier and enter the blood system, causing cardiovascular and respiratory disease and cancers. It affects more people than other pollutants and has health impacts even at very low concentrations.”**

"...recent studies and large research programmes consistently show that the adverse effects of air pollution are not only limited to high exposures; harmful health effects can be observed all the way down to very low concentration levels, with no observable thresholds below which exposure can be considered safe" (Hoffman et al 2021).

In June 2021, the EPA announced that it would review its own PM standards, but has not done so yet. A previous and controversial review in 2020 found evidence **"supporting revising the level of the annual standard for the PM NAAQS to below the current level of 12 micrograms per cubic meter"**(EPA 2021).

In doing so, the agency said that scientific evidence, air quality analyses, and the risk assessment for particulate matter can **"reasonably be viewed as calling into question the adequacy of the public health protection afforded by the ... standards."** (The Hill 2021).

It's very likely that this new round of reviews will prompt EPA to lower its PM exposure standard to below levels GAF currently claims are "safe."

Because it's made up of heavier than air particles, PM pollution often doesn't travel as far and is concentrated much closer to its source than gaseous air pollution like smog. The 30.1 tons of PM pollution GAF reported in 2020 represents approximately 8 pounds of PM for the 7,500 residents living within a mile radius of GAF. Every pound of PM contains millions of microscopic particles. Every particle has slightly different chemical compositions.

Documented levels of PM pollution around GAF have exceeded all of the revised WHO standards as well as the proposed EPA standards, much less the current EPA standard. West Dallas has a chronic PM pollution problem. GAF is West Dallas' largest PM polluter - by far. Removing it as a source would decrease ambient PM levels significantly in the neighborhood surrounding the factory.

Science has concluded it is impossible for GAF to do business in West Dallas without harming the surrounding population with its substantial PM pollution. The Dallas Board of Adjustment should come to the same conclusion.

Polycyclic Aromatic Hydrocarbons Make GAF's PM More Toxic

PM pollution alone is toxic to human health. However the toxicity of PM pollution can be significantly increased depending on what other chemicals are attached to the particles being inhaled.

According to the Center for Disease Control, Polycyclic Aromatic Hydrocarbon (PAHs) are "a class of chemicals that occur naturally in coal, crude oil, and gasoline. They result from burning coal, oil, gas, wood, garbage, and tobacco. PAHs can bind to or form small particles in the air" (CDC 2009).

Industrial activity that can produce and distribute PAHs includes aluminum, iron, and steel manufacturing; coal gasification, tar distillation, shale oil extraction; production of coke, creosote, carbon black, and calcium carbide; road paving and asphalt manufacturing; rubber tire production; manufacturing or use of metal working fluids; and activity of coal or natural gas power stations.

GAF reports sending 500 to over 1,000 pounds of "Polycyclic Aromatic Hydrocarbons" to landfills and releasing less than a pound into the atmosphere, although there's no real time monitoring or independent verification of those numbers. At least 16 PAHs are classified by EPA as carcinogenic, including one GAF lists separately to regulators: Benzo[g,h,i]perylene.

GAF has recorded sending approximately 100-200 pounds of Benzo[g,h,i]perylene a year to DFW solid waste landfills over the last decade, and releasing less than a pound into the atmosphere (GAF Form R Toxic Release inventory estimates submitted to EPA 2012-2019).

There is no real time air monitoring for PAHs at GAF. Actual amounts being released into the atmosphere might be much larger. Carcinogenic PAHs can induce mutations that initiate cancer or affect cancer promotion or progression (Baird et al., 2015).

Multiple epidemiological studies of people living in Europe, the United States, and China have linked in utero exposure to PAHs, through air pollution or parental occupational exposure, with poor fetal growth, reduced immune function, and poorer neurological development, including lower IQ (Sram et al., 2005). Adult exposure to PAHs has also been linked to cardiovascular disease. (Korashy 2006).

PAHs are just one of the many chemical toxins that can attach themselves to GAF's PM pollution but it's one of the most toxic.

GAF is Dallas' Largest Sulfur Dioxide (SOx) Polluter

GAF is permitted to release up to approximately 129 tons of Sulfur Dioxide a year.

GAF became a Major Source for Sulfur Dioxide (SOx) the same way it became a Major Source for PM - by accident. In 2005 State regulators uncovered unreported emissions that had probably been occurring since at least the factory's second line began operating in 1982.

From the early 1980's all the way up to 2009, GAF had been permitted, and was reporting, SOx emissions from 3 to 9 tons per year. Only the stack testing of actual sources at the factory in the first decade of the 21st Century revealed that pollution levels were 14 times higher - 129 tons. **That's 34 pounds of Sulfur Dioxide air pollution for every person living within a mile radius of GAF.**

That amount has made GAF the largest Sulfur Dioxide polluter in Dallas County for 10 of the last 11 years, according to its own self-reported pollution estimates.

Throughout the 76-year history of GAF's West Dallas factory, the company has never attempted to control its SOx pollution. It has claimed, and continues to claim, that the absence of controls meets EPA's definition of "Best Available Control Technology" for factories of its age.

This means GAF lacks control of its Sulfur Dioxide pollution in two fundamental ways. Its main ingredient is an oil refinery waste enriched with sulfur by-products that the company buys on the open market. GAF says it has no control over how much Sulfur is in this waste.

Secondly it has no controls in place to remove that sulfur while it's being used to make GAF shingles.

Given this passivity in pollution control, it is not unusual that GAF's Sulfur Dioxide pollution is creating problems for the residents who live around it. As long as GAF is operating in West Dallas it will continue to be Dallas' largest SOx polluter.

Sulfur Dioxide is Harmful to Human Health

Sulfur Dioxide is a highly reactive gas that mainly results from the burning of compounds containing sulfur. All fuels commonly used by people (oil, coal, natural gas, wood, etc.) contain some sulfur, and during combustion sulfur reacts with oxygen to form SO_x. Sulfur dioxide is colorless, has a pungent odor similar to rotten eggs or burnt matches, and dissolves very easily in water.

When released into the atmosphere, sulfur dioxide can react with Particulate Matter pollution to form sulfate compounds. Sulfur Dioxide emissions are a precursor to acid rain. Concentrations of sulfur dioxide in the atmosphere can influence the habitat suitability for plant communities as well as animal life.

Human exposure to SO₂, even at low levels, is linked to increased bronchoconstriction in people with asthma, and reduction in lung function has been observed at higher concentrations.

EPA's most recent review of the science concluded short term exposure to Sulfur Dioxide caused wheezing, shortness of breath and chest tightness and other problems, especially during exercise or physical activity.

Continued exposure to high levels of SO_x increases respiratory symptoms and reduces the ability of the lungs to function. Rapid breathing during exercise helps SO₂ reach the lower respiratory tract, as does breathing through the mouth. Continual exposure to SO_x increases risk of hospital admissions or emergency room visits, especially among children, older adults and people with asthma. (EPA 2008).

Sulfur Dioxide's Toxicity is Increased by Particulate Matter

SO_x can react with other compounds in the atmosphere to form small particles. These particles contribute to particulate matter (PM) pollution.

When combined, particulate matter and Sulfur Dioxide have an inflammatory impact on the respiratory system that is more severe than either alone (Li 2016).

Co-exposure to PM_{2.5} and SO₂ also led to neurodegeneration at low doses that did not induce obvious effects after individual exposures. Neurodegeneration refers to the progressive atrophy and loss of function of neurons, which is present in neurodegenerative diseases such as Alzheimer's disease and Parkinson's disease (Kua et al., 2019).

GAF's Sulfur Pollution Increases Its PM Pollution

Lack of control over the amount of Sulfur in its Flux means that GAF also has less control over the amount of PM pollution it produces since it claims sulfur content drives PM pollution levels. In a 2004 email to state inspectors GAF states:

“...we believe the high PM₁₀ values may result from sulfur in the asphalt fumes that are being burned. The sulfur produces SO₂ when burned and then apparently condense in the condensable particulate cooling step of the PM 10 sampling apparatus. We have found one specific research report that tested PM 10 emissions levels as a function of sulfur in the burning of fuel oil. The report indicated that the PM₁₀ emissions levels increased in direct proportion to the sulfur content.” (July 15, 2004, GAF email to TCEQ)

Past GAF Sulfur Dioxide Air Modeling is Suspect

Despite being Dallas County's largest Sulfur Dioxide polluter, there are no regulatory Sulfur Dioxide monitors anywhere near GAF.

Air monitoring for Sulfur Dioxide is much more expensive than monitoring for PM pollution. **As a result there are no affordable monitors available for residents to deploy themselves to measure Sulfur Dioxide the way there are for PM pollution.**

In the absence of any Sulfur Dioxide monitoring, residents and regulators both have to rely on GAF's own computer modeling to estimate Sulfur Dioxide pollution levels in West Dallas, which was generated in 2009 and unvisited since then.

That air modeling found that GAF's Sulfur and PM emissions were both just barely under their National Ambient Air Quality Standards:

	National Ambient Air Quality Standard		GAF Modeled Total
SO2	365 ug/m3	24-hour std	342.00 ug/m3
PM	50 ug/m3	Annual std	47.94 ug/m3

Figure 14. NAAQS and GAF modeled PM and SO2 levels

There's reason to believe that 2009 air modeling underestimated the severity of both GAF's PM and Sulfur Dioxide pollution.

In 2009 GAF's modeling only considered additional pollution being sought in a new permit amendment - not ALL of GAF's pollution was included in the model, not even all of its SOx pollution, making it incomplete by design. Nevertheless it was accepted by the State of Texas.

Instead of monitoring what actual background concentrations of PM pollution were in West Dallas, GAF used monitoring data from the EPA's Hinton Street monitor five miles away near I-35 and Mockingbird. **This is critical because the higher the existing background levels of pollution, the lower the pollution from GAF must be to avoid triggering violations of federal air standards.**

GAF did not take into account the atmospheric formation of new PM from its large amounts of Sulfur Dioxide pollution, so estimates of both pollutants could have been wildly underestimated.

Even with these favorable circumstances, GAF’s own consultant’s found that the West Dallas factory would still just barely comply with Particulate Matter and Sulfur Dioxide federal air standards. There is high probability that actual real time monitoring would reveal higher Sulfur Dioxide levels just as such monitoring has revealed higher PM levels.

Other Air Pollutants of Concern

Volatil Organic Compounds

Volatil organic compounds, or VOCs, are gases that are emitted into the air from products or processes. Benzene in Gasoline is an often cited example. Some are harmful by themselves, including some carcinogens. In addition, they can react with other gases and form other air pollutants after they’re released into the atmosphere. VOCs are a major contributor to smog pollution.

Breathing VOCs can irritate the eyes, nose and throat, can cause difficulty breathing and nausea, and can damage the central nervous system as well as other organs (ALA 2021).

Over the last 20 years GAF has had a problem identifying and inventorying all of its Volatil Organic Compounds. Like its computer air modeling for Sulfur Dioxide, GAF’s air modeling supporting VOC permit compliance only used new releases identified by the company as a result of stack testing, not total releases. It has self-reported releasing 15 to 20 tons per year of VOCs since 2009.

Hazardous Air Pollutants Emissions (HAPs)

Table 2. Toxic Release Inventory total releases and transfers in pounds by chemical and year.

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year ⓘ

Chemical Name	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Benzof[g,h,i]perylene	57	74	65	28	38	35	110	86	161	151
Copper compounds	1,317	1,949	1,772	2,995	384	612	2,074	1,436	2,776	3,061
Lead	--	--	--	--	--	--	--	--	--	--
Lead compounds	6	8	7	3	4	3	12	10	18	17
Polycyclic aromatic compounds	415	538	470	206	274	256	802	623	1,169	1,101

According to GAF's annual submissions to the EPA, it releases at least four chemicals it classifies as Hazardous Air Pollutants:

Polycyclic Aromatic Compounds, including carcinogens

Benzo[g,h,i]perylene: A specific Polycyclic Aromatic Compound
The hazards of these pollutants are reviewed above in the section on Particulate Matter. PACs often attach themselves to PM pollution, as do all chemical by-products of combustion, to produce more toxic PM.

Copper Compounds

According to its Material Safety Data Sheet, inhalation of Copper dust may result in irritation of the nasal mucous membranes. Inhalation of copper oxide fumes may cause irritation of the upper respiratory tract and may result in a form of metal fume fever, characterized by flu-like symptoms such as chills, fever, nausea, and vomiting. Ingestion of copper metal may cause metallic taste and gastrointestinal irritation. Copper particles embedded in the eye may cause redness, pain and discoloration of ocular tissue. Direct skin contact may result in irritation in some workers.

Lead and Lead Compounds

West Dallas needs no introduction to the dangers of lead pollution. GAF sits in the middle of the nation's largest Superfund Site caused by the haphazard disposal of lead waste from the RSR lead smelter.

Like PM, science can find no "safe" level of exposure to Lead. It's a highly toxic neurotoxin, robbing individuals of IQ, and personality.

Prolonged exposure has also been linked to high blood pressure, heart disease, kidney disease, and reduced fertility. (National Institute for Occupational Safety and Health, December 8, 2021)

Compared to the volumes of other pollutants GAF releases, the amounts of these Hazardous Air Pollutants are small. But because the numbers in these reports are based on GAF's own estimates, rather than monitoring, the actual releases of hazardous air pollutants from GAF could be more.

GAF's Operation is a Documented Nuisance and Hazard Risk

Since it began operating its second production line in the early 1980s, GAF has generated a series of complaints from citizens, city inspectors, and state regulators stretching over decades.

City of Dallas Air Quality Inspector Reports

Besides their own complaint investigations, City of Dallas air quality inspectors have often been requested by the State of Texas to evaluate GAF's hazard and nuisance potential. Driving this ranking is the proximity of schools, daycare centers, and homes to the factory.

April 6th, 2006: GAF ranked as a "High" Nuisance and Hazard Potential, citing homes as close as 400 feet and schools within 3000 feet.

July 9th, 2009: "Because of the close proximity of schools and residences the nuisance, odor and hazard potential for this facility are all high."

September 30, 2009: "Yes: Nuisance/Odor Potential - High; Hazard Potential - High. The distance to the nearest property line is 200 feet"

August 8th, 2010: "Is this a sensitive location with respect to nuisance? Yes" " Is the site within 3000 feet of any school? Yes"

Air Pollution & Adverse Impact



Overview

- GAF Operations Are Creating “air pollution,” “nuisance conditions,” and “adverse impacts” as defined by the City and State.
- Both of GAF’s two production lines at their West Dallas shingle factory are permitted to run 24 hours a day, 365 days a year.
- GAF became an EPA Major Source for Particulate Matter pollution in 2004, when the State of Texas’ own review of the company’s computer air pollution modeling revealed that the factory was violating the National Ambient Air Quality for PM pollution.
- GAF is the largest polluter in West Dallas by a large margin.
- The diesel engines from the locomotives and trucks used to transport GAF materials are not included in the estimates for particulate matter pollution but are dangerous and likely a large source of pollution.
- Low-cost particulate matter pollution monitors have been collecting data around GAF for several years.
- Based on the monitoring data, the levels of particulate matter pollution regularly exceeded World Health Organization and EPA standards for exposure.
- GAF uses the monitoring data from the City of Dallas Hinton Street monitor, which is 5 miles away, to indicate it is not polluting high levels of particulate matter. This is accepted by the TCEQ.
- The monitoring results show that GAF could be contributing to West Dallas once again being a non-attainment area for pollution.

GAF Operations Are Creating “air pollution,” “nuisance conditions,” and “adverse impacts” as defined by the City and State

City of Dallas Definitions

CHAPTER 5A AIR POLLUTION

SEC. 5A-1. SHORT TITLE.

This chapter may be cited as the **Dallas Clean Air Ordinance**. (Ord. 15079)

SEC. 5A-2. DECLARATION OF POLICY.

It is the policy of the city of Dallas to safeguard the air resources of the city from air pollution and to promote the protection of the health, safety, general welfare, and physical property of the people within the city by regulating emission of air contaminants and by controlling or abating air pollution. The provisions of this chapter are to be construed, according to the fair import of their terms, to effect this policy. (Ord. 15079)

SEC. 5A-3. CHAPTER DEFINITIONS.

The definition of a term in this section applies to each grammatical variation of the term. In this chapter, unless the context requires a different definition:

(1) AIR CONTAMINANT means dust, fumes, gas, mist, odor, particulate matter, toxic materials, smoke, or vapor, individually or in combination, that is produced by a process other than natural.

2) AIR POLLUTION means the presence in the atmosphere of one or more air contaminants in such concentration and of such duration:

(A) as to have or tend to have an injurious or adverse effect on human health or safety, animal or vegetable life, or property; or

(B) as to interfere with the normal use or enjoyment of animals, vegetation, or other property.

SEC. 5A-7. CITY AIR POLLUTION STANDARDS.

c) Odors (emission standard). A stationary source may not emit beyond its property line an odor, the strength of which equals or exceeds two odor units, as measured by the director on a Barnaby-Cheney Scentometer or equivalent odor-testing.

State of Texas Definitions

HEALTH AND SAFETY CODE

TITLE 5. SANITATION AND ENVIRONMENTAL QUALITY

SUBTITLE C. **AIR QUALITY**

CHAPTER 382. **CLEAN AIR ACT**

SUBCHAPTER A. GENERAL PROVISIONS

(2) "Air contaminant" means particulate matter, radioactive material, dust, fumes, gas, mist, smoke, vapor, or odor, including any combination of those items, produced by processes other than natural.

(3) "Air pollution" means the presence in the atmosphere of one or more air contaminants or combination of air contaminants in such concentration and of such duration that:

(A) are or may tend to be injurious to or to adversely affect human health or welfare, animal life, vegetation, or property; or

(B) interfere with the normal use or enjoyment of animal life, vegetation, or property.

By City & State Definitions GAF PM Pollution is Harmful

GAF's *Particulate Matter* pollution is causing "air pollution," "nuisance conditions," and "adverse impacts" as defined by the City and State

Both of GAF's two production lines at their West Dallas shingle factory are permitted to run 24 hours a day, 365 days a year.

The Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency classifies a polluter as a Major Source if it is capable of releasing 100 tons or more of a single pollutant annually. Being listed as a Major Source by the EPA means a polluter is capable of releasing 100 tons a year or more of one of EPA's six "Priority Pollutants," including Particulate Matter.

GAF became an EPA Major Source for Particulate Matter in 2004, when the State of Texas' own review of the company's computer air pollution modeling revealed that the factory was violating the National Ambient Air Quality for PM pollution.

However, it is likely GAF had been violating the standard ever since its second line began operation in 1982. GAF's pollution control devices had never been stack tested for their effectiveness in removing PM pollution during that entire 22-year period. Instead, GAF used computer modeling and its own inaccurate estimates of pollution to keep from being classified as a Major PM polluter.

PM was not the only pollutant to be chronically underestimated by GAF. Over the last 40 years the company has been proven wrong about its estimates of the volume of Sulfur Dioxide, Nitrogen Oxide, Volatile Organic Compounds and Carbon Monoxide its West Dallas factory was releasing into the air.

Despite the track record, in 2022 daily GAF compliance with the National Ambient Air Quality Standard for PM pollution is still determined by the State using GAF's own computer air modeling, not real time monitoring.

Stack Pollution

From 2014 to 2020 GAF has self-reported releasing 30 to 40 tons of PM pollution per year. This has made it either the second or third largest industrial polluter in Dallas for six of those seven years.

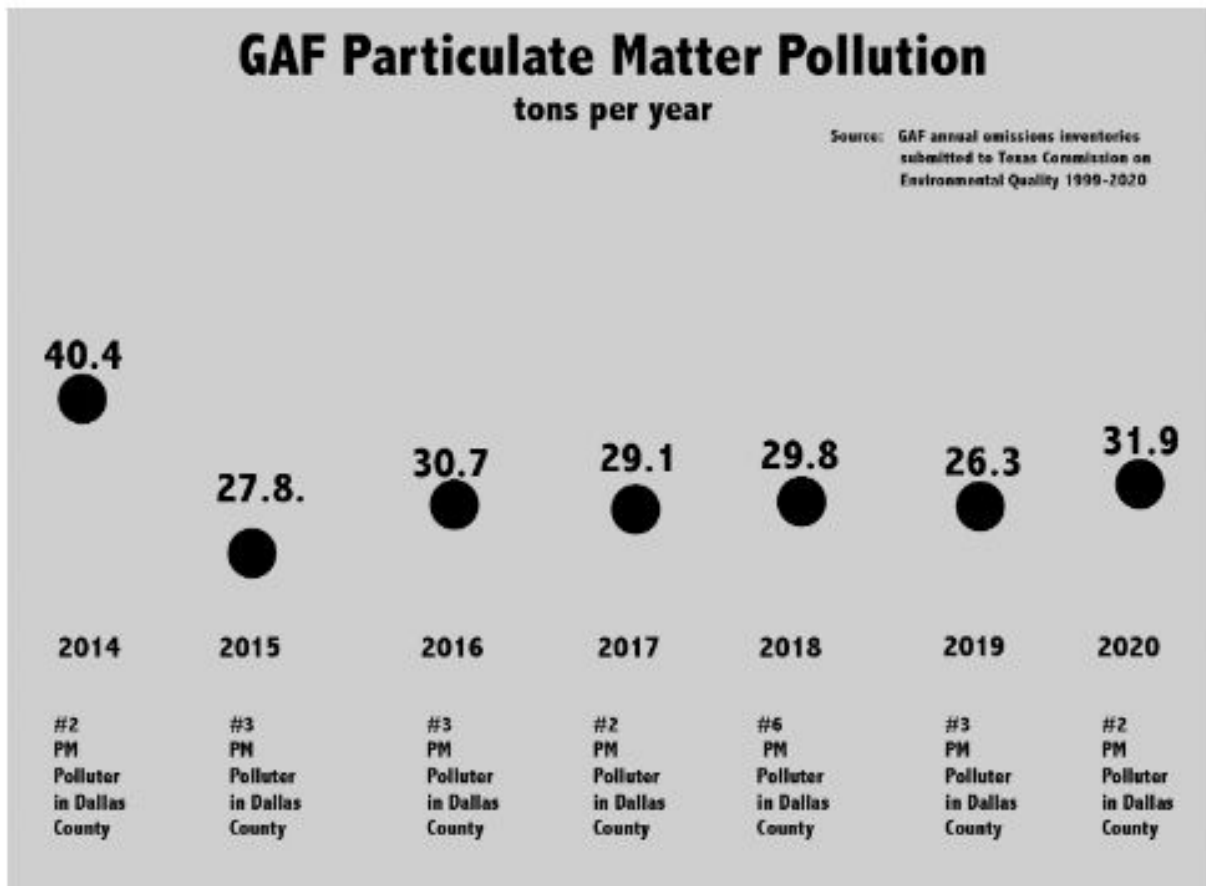


Figure 15. GAF particulate matter pollution tons pre year 2014 - 2020.

These numbers make GAF the largest PM polluter in West Dallas by a large margin. There is not another Major Source for PM pollution in West Dallas, or even any stationary source that officially registers double digit annual tonnage of PM pollution with regulators.

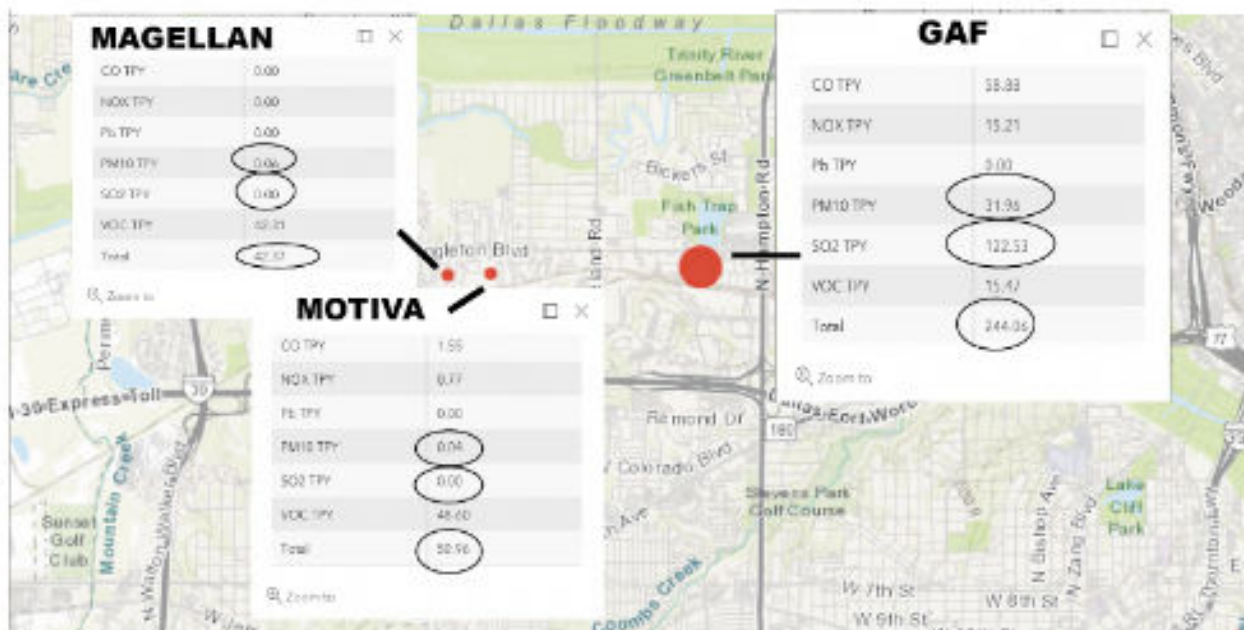


Figure 16. Shows a map of major permitted West Dallas polluters using 2020 emissions inventory data from the Texas Commission on Environmental Quality

Diesel Truck and Railroad Pollution

PM from truck and railroad traffic into and out from GAF is not included in any emissions reporting submitted to government regulators.

GAF operates its own diesel locomotive on a spur inside the factory. There's a multi-track Union Pacific switchyard adjacent to GAF providing a steady stream of Flux-filled railcar tankers and serving other heavy industry along the Singleton and Commerce industrial corridor.

Union Pacific and other railroads retire their long haul locomotives to spend their last years for short haul switchyard duty. These switchyard diesel locomotives are often the oldest, and therefore the most polluting, in a railroad's fleet. Locomotive engines are incredibly large - up to 20 times larger than the V-8 engines in pickup trucks and SUVs. Many locomotives are two-cycle engines which have greater power density and are less costly to manufacture, but have considerably higher emissions than their 4-cycle counterparts. (*"Smokestacks on Rails," Janea Scott, Hilary Sinnamon, Environmental Defense Fund, 2006*)

Diesel trucks hauling Flux and other raw materials to the factory, and finished product from it, enter on the north side from Singleton. Neighbors have complained of long lines of idling trucks parked along Singleton.

Exposure to diesel exhaust has been associated with a wide range of health effects including cancer, neurological damage, a weakened immune system, respiratory disease and cardiovascular disease. (Source: U.S. Department of Health and Human Services).

Diesel engines produce a particularly deadly kind of PM pollution called "Carbon Black." Because of their size, locomotive diesel engines are among the largest Carbon Black polluters. Carbon Black is considered possibly carcinogenic to humans and classified as a Group 2B carcinogen. It's also been associated with cardiovascular damage. (Source: Kuempel, Eileen D.; Sorahan, Tom (2010).

These two significant sources of PM pollution, although always present as a matter of routine operations, are not included in any estimates of total PM pollution GAF submits to government regulators. This is important to note because more than once in its regulatory history GAF officials have submitted computer air modeling showing the factory barely skirting below federal air standards with just its smokestacks and vents sources included. Adding the PM pollution from rail and truck traffic might have resulted in violating those standards. **Regulators and GAF chose to exclude these sources in their estimates of harm. The lungs of West Dallas residents don't have that choice.**

Purple Air Monitor Results

Measuring PM 2.5

Concentrations of air pollution are measured in $\mu\text{g}/\text{m}^3$, or micrograms (one-millionth of a gram) per cubic meter of air. All regulatory standards for PM pollution use $\mu\text{g}/\text{m}^3$ measurements.

Most PM sensors today, including Purple Air sensor, use lasers to determine their $\mu\text{g}/\text{m}^3$ measurements. In Purple Air monitors PM levels are measured based on the Plantower PMS sensor (Beijing Plantower Co., Ltd, Beijing, China). The PMS sensor is a laser-based optical sensor operating at around 650 nm wavelength. This sensor illuminates particles crossing the sensing target volume and the scattered light is collected over a 90-degree sector. The mass concentrations associated with individual size categories are summed to provide estimates of PM1, PM2.5, and PM10. Purple Air monitors used by residents around GAF have two PM sensors (Channels A and B), providing two sets of readings of particle number density and mass concentrations of PM1, PM2.5, and PM10. Purple Air provides its own calibration formula by applying a proprietary algorithm, "atmospheric" correction factor developed by Plantower Ltd. According to the PMS5003 manual, ATM values should be used for atmospheric monitoring and those corrected numbers are the ones used in this report.

Standards for PM Exposure:

U.S. E.P.A. Current (adopted 2012)

PM 2.5 annual std **12 $\mu\text{g}/\text{m}^3$**

24-hour std **35 $\mu\text{g}/\text{m}^3$**

World Health Organization Current (adopted 2022)

PM 2.5 annual std **5 $\mu\text{g}/\text{m}^3$**

24-hour std **15 $\mu\text{g}/\text{m}^3$**

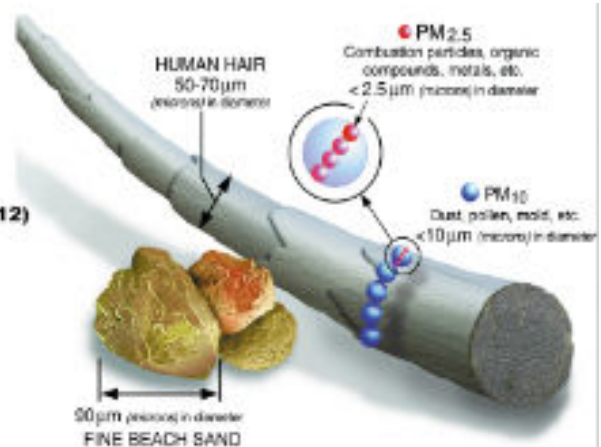


Figure 17. Particulate matter pollution standards for exposure from the WHO and EPA.

Reliability of Purple Air Data

There are no regulatory air monitors in the vicinity of the GAF factory. The nearest EPA monitor that measures PM pollution is located on Hinton Street by I-35 and Mockingbird, five miles away. Despite its considerable distance from GAF, the company is allowed to use this EPA monitor to determine baseline background levels for West Dallas in its permitting and computer air modeling.

Lacking any government monitors, the only way residents can determine what levels of air pollution they're being exposed to is to take up the task of monitoring the air themselves. This is the service Purple Air, and similar networks, provide.

Although not as finely-tuned and calibrated as regulatory monitors or even more expensive off-the-shelf monitors, Purple Air monitors have gained a reputation for being able to "effectively monitor PM2.5," especially in the 0-250 ug/m³ range. (Connolly, R. E., Yu, Q., Wang, Z., Chen, Y. H., Liu, J. Z., Collier-Oxandale, A., & Zhu, Y. (2022))

First Wave of Data: May 2020-May 2021

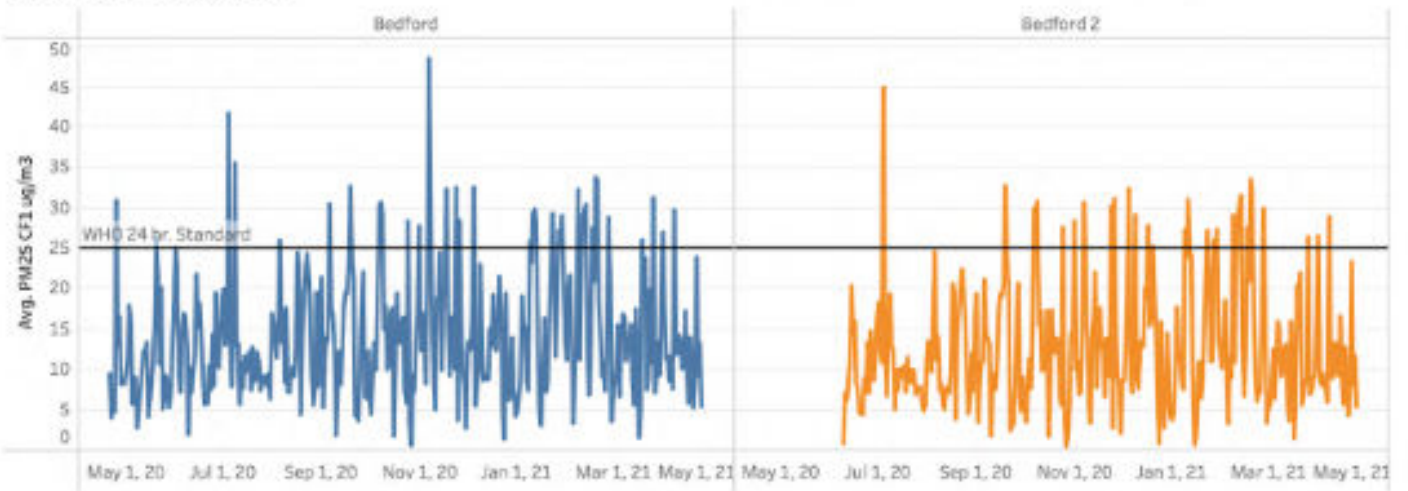
Beginning in April 2020, Legal Aid of NorthWest Texas placed Purple Air monitors on two homes on Bedford Street, directly across the street from GAF to the East/Northeast. After a year's time, the organization released a summary of the data collected.

It found at least four instances when the US EPA's 24-hour standard for PM 2.5 of 35 ug/m³ was exceeded. It found at least 31 days when PM 2.5 levels exceeded the then-World Health Organization's 24-hour standard of 25 ug/m³, since reduced to 15ug/m³.

Annual averages for the entire year at one monitor exceeded the EPA standard, the former WHO annual standard, as well as the newly-adopted one.

Average Daily PM 2.5

From 4/22/2020 To 4/26/2021



Monitor Bedford
Data Level Day

Monitor: Bedford
Average PM 2.5 by Day

Bedford Monitor:
Average Annual PM 2.5

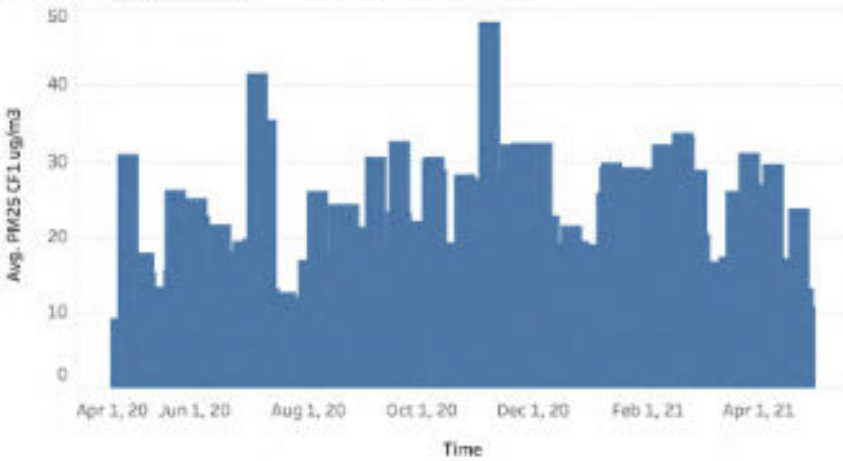


Figure 18. Particulate matter pollution levels captured from the Legal Aid of NorthWest Texas air monitors

Second Wave of Data: July 2021 to Now

Beginning in July of 2021 Downwinders at Risk deployed up to four Purple Air monitors on the East and North sides of GAF. While one monitor has since been moved, the others remain where they were originally located and provide additional data about the prevalence and severity of PM pollution in the neighborhood.

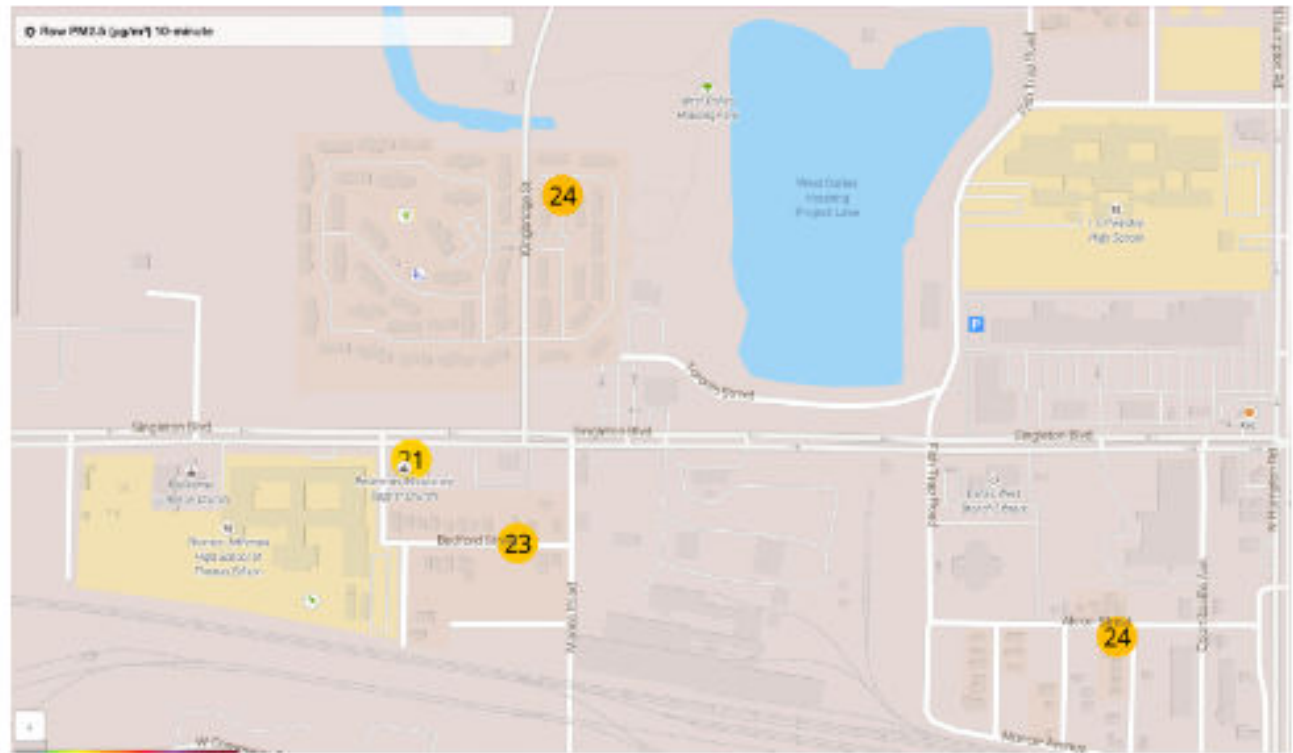


Figure 19. Location of Purple Air monitors deployed by Downwinder at Risk, July 2021 to now.

Since going live in July and August of 2021, **the averages for all of these monitors have exceeded both the EPA and World Health Organization annual PM pollution standard.** Fully 12 out of 18 monthly averages at the Akron Street site exceeded the EPA annual standard of 12 ug/m³. 12 out of 12 monthly averages at the Kingbridge Apartments monitor exceeded the EPA annual standard.

Third Wave of Data: May 2021 to Now

Finally, Legal Aid of North Texas kept their Bedford Street monitors recording until earlier this year. Their data from May 2021 to now provide more evidence of PM’s prevalence in the community. 32 of 44 monthly averages exceeded the EPA annual PM pollution standard.

Table 3. PM pollution levels captured by the purple air monitors around GAF.

ANNUAL AVG	PM2.5_ATM_ug/m3	Dates																
Akron A	15.02	8/22/21-4/22/21	~9 months															
Akron B	14.25	8/22/21-4/22/21	~9 months															
Akron	14.64																	
Kingbridge 1.5 A	14.2	7/17/21-10/3/21; 1/26/22-4/22/21	Note: offline Oct, Nov, Dec, most of Jan															
Kingbridge 1.5 B	15.21	7/17/21-10/3/21; 1/26/22-4/22/21	Note: offline Oct, Nov, Dec, most of Jan															
Kingbridge 1.5	14.71																	
Bedford A	13.26	4/23/22-5/31/21; 8/14/21-11/11/21; 3/24/22-4/22/22	Note: offline June, some July, some Nov, Dec, Jan, Feb, most Mar															
Bedford B	13.13	4/23/22-5/31/21; 8/14/21-11/11/21; 3/24/22-4/22/22	Note: offline June, some July, some Nov, Dec, Jan, Feb, most Mar															
Bedford	13.19																	
Bedford 2 A	12.88	4/23/21-4/22/22																
Bedford 2 B	13.25	4/23/21-4/22/22																
Bedford 2	13.07																	
MONTHLY	PM2.5_ATM_ug/m3					2021					2022							
		Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr				
Akron A DAR	NA	NA	NA	NA	NA	11.19	13.81	11.09	11.77	20.96	15.30	15.31	15.38	13.37				
Akron B DAR	NA	NA	NA	NA	NA	10.90	13.05	10.58	11.33	19.86	14.33	14.49	14.45	12.67				
Both Akron monitors Avg						11.04	13.43	10.83	11.55	20.41	14.71	14.90	14.92	13.02				
Kingbridge 1.5 A DAR	NA	NA	NA	NA	20.03	17.57	13.47	NA	NA	NA	NA	13.22	13.48	12.42				
Kingbridge 1.5 B DAR	NA	NA	NA	NA	20.31	17.26	15.19	NA	NA	NA	NA	14.30	14.12	13.71				
Both Kingbridge monitors Avg					20.17	17.42	14.33					13.76	13.80	13.06				
Bedford A	16.95	12.98	NA	14.39	14.71	12.45	10.92	16.47	NA	NA	NA	10.25	13.04					
Bedford B	16.31	12.68	NA	14.88	14.78	11.98	10.53	16.82	NA	NA	NA	9.53	12.94					
Both Bedford monitors Avg	16.63	12.83		14.64	14.75	12.22	10.73	16.65				10.11	12.99					
Bedford 2 A	15.21	10.07	13.50	13.94	14.45	12.04	9.82	6.96	18.68	12.60	12.33	12.01	11.72					
Bedford 2 B	15.07	10.15	13.79	14.21	14.97	13.13	10.25	10.26	18.66	12.96	12.82	12.62	12.23					
Both Bedford 2 monitors Avg	15.14	10.10	13.65	14.07	14.71	12.58	10.02	10.11	18.67	12.78	12.57	12.33	11.97					

(Monthly averages were calculated for specific months in this range, and in a few instances, there are months with incomplete coverage of all days in that month. Daily variation is noted, leading to variation in monthly averages. Note: It is incorrect to take an average of the monthly averages to calculate the annual average. This incorrect approach would not include all of the real-time PM2.5 data points, thus falsely yielding an overall average.)

In total, of 74 monthly PM pollution averages recorded at all GAF Purple Air sites since April 2021, 56 exceeded the EPA’ annual PM standard, or 75.6% of the time. For the equivalent of three quarters of every year, residents living adjacent to GAF are being exposed to levels of PM that exceed the EPA standard, much less the stricter World Health Organization standard.

ANNUAL AVERGAGES OF PURPLE AIR MONITORS SURROUNDING GAF

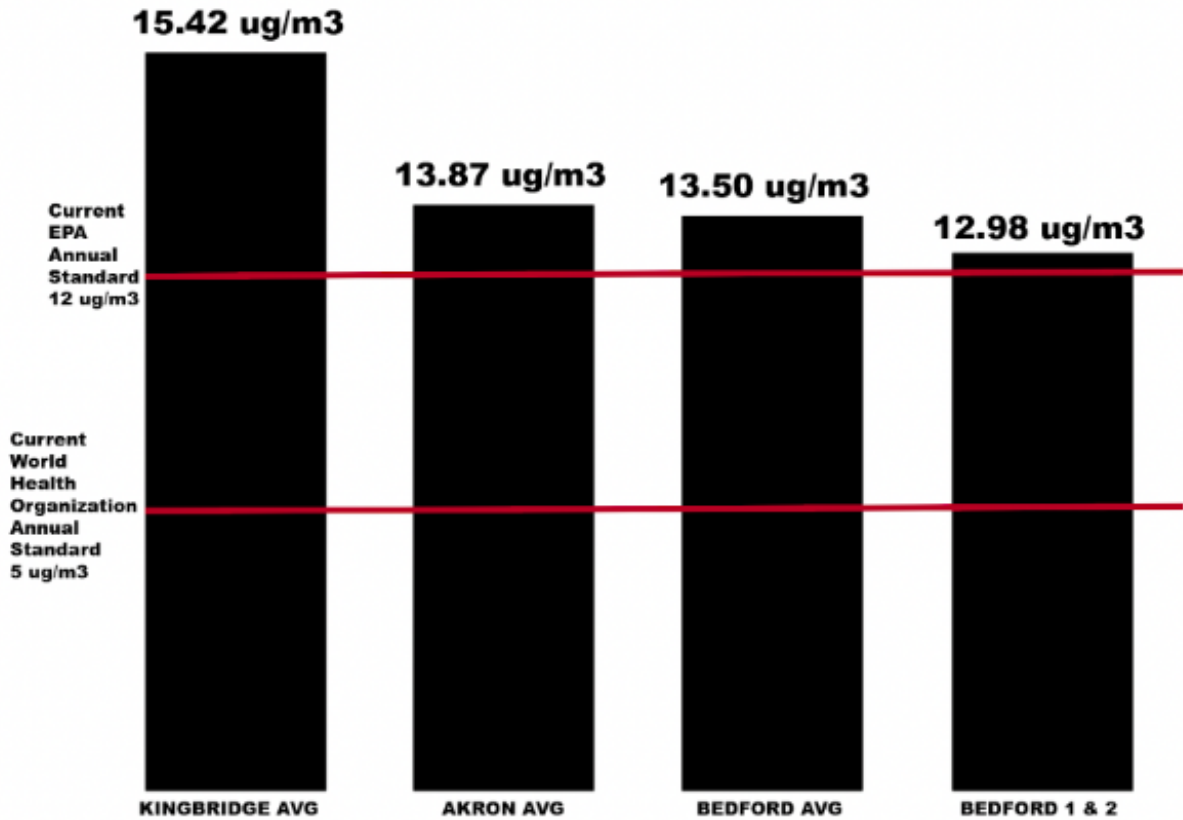


Figure 20. Annual averages of PM pollution levels by monitor in relation to WHO and EPA standards.

In contrast, Dallas County’s only EPA PM 2.5 monitor, located on Hinton Street near I-35 and Mockingbird recorded an annual average of only 9 ug/m³ of PM 2.5 in 2021. It’s four miles to the Northeast from GAF and West Dallas and is not located near any specific PM polluter.

Table 4. Results from the Hinton Street EPA monitor.

Yearly Max	Yearly SH	Yearly Min	Yearly Avg	Yearly STD	Yearly Cap
87.1	75.1	-9.9	8.0	6.1	95.4 %

This EPA monitor is the one GAF uses in all of its computer modeling to establish “a background level” in predicting the impacts of PM pollution from its West Dallas factory. Using this Hinton Street monitor’s information in 2004, GAF estimated its annual PM emissions came within less than a single ug/m³ of violating the EPA’s standard. **The Texas Commission on Environmental Quality accepted the results.** GAF used the Hinton Street monitor data again in 2009 for its computer modeling to prove no adverse health impacts from its PM pollution, coming in at only 2 ug/m³ under the EPA standard. Again, this result was accepted by TCEQ.

There’s a five to seven ug/m³ difference between the Hinton Street annual averages and the ones recorded around GAF in West Dallas. Using Hinton Street monitor results instead of ambient PM levels around GAF itself skewed these modeling results away from what’s actually happening in the air in West Dallas, as well as violations of the EPA’s federal standard for PM pollution.

The Hinton Street monitor is also the only one used to assess Dallas County’s compliance with all EPA PM standards, and is the sole basis for the American Lung Association's State of the Air grading of Dallas County’s PM pollution levels.

Monitoring data collected by residents beginning in 2020 and continuing into the present provides a very consistent and compelling case that this single EPA monitor is vastly underestimating PM exposure in West Dallas.

The annual average of 13.9 ug/m³ from all West Dallas Purple Air monitors data would make West Dallas the sixth most PM polluted city in the US according to the American Lung Association’s 2022 State of the Air annual report.

25 Cities Most Polluted by Annual PM

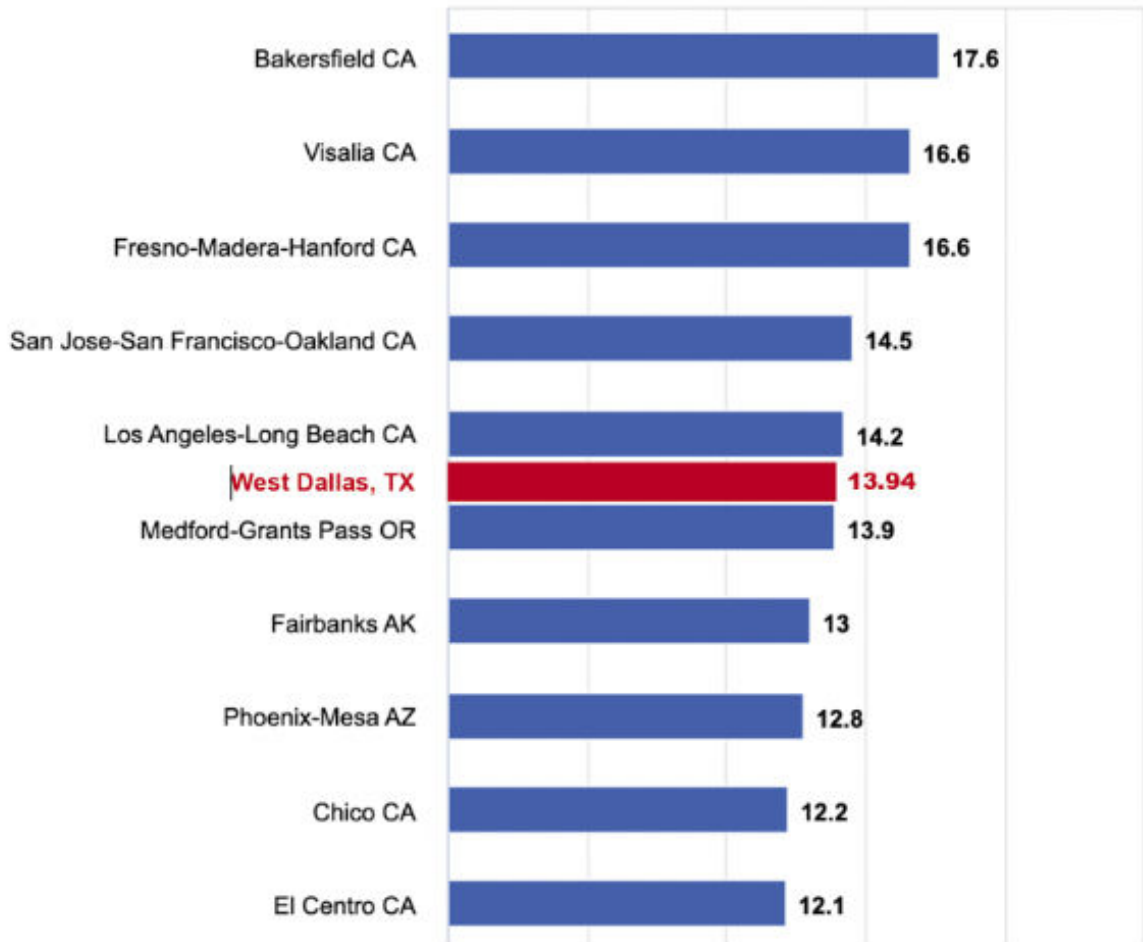


Figure 21. Comparison of West Dallas PM levels in relation to other highest PM polluted cities in the U.S.

West Dallas was in official EPA “non-attainment” for PM pollution during the 1970’s and 80’s when the notorious RSR lead smelter was belching hundreds of tons of lead into the air. Were EPA to get the same PM pollution numbers with their regulatory monitors as residents are getting from their Purple Air monitors, the neighborhood would once again be in nonattainment.

GAF Has No Control over the Chemical Characteristics of that Waste

In its communications with state environmental regulators over the years GAF has repeatedly stated it has little to no control over the chemical content of the Flux it receives in bulk.

As early as 1984 GAF tells state officials it is using “different asphalts” depending on the marketplace (Source: GAF letter to Texas Air Control Board, August 29th 1984). In a 2008 correspondence accompanying a request for a new permit amendment, the company explains:

“Asphalt roofing manufacturers utilize an asphalt waste stream, called Flux, from refineries as a raw input. Emission increases associated with SO₂ emission increases are the result of variances in the refinery waste stream. Due to the 1997 Low Sulfur Diesel Fuel requirements, refineries are required to reduce sulfur in fuel. As a result, the extra sulfur is removed from the fuel and moved to the by-product stream. This asphalt by-product stream (called Flux) is a raw material in the asphalt roofing process. The suppliers of this asphalt by-product stream vary based on economics. Since each refinery has a different by-product stream, the constituents of the waste stream vary...”.
(Source: December 18th 2008 Letter from GAF to TCEQ)

In the past, GAF has used this lack of control over the quality of its Flux to lobby for more lenient emission limits for specific pollutants from regulators. In May of 1983, the company used it to delay enforcement of new limits for Volatile Organic Compounds (VOCs):

“Problems exist however in demonstrating compliance with the (VOC) emission limitations in the permit....Emission ranges from 4 to 50 pounds per hour of hydrocarbons have been found, and the rate can vary with the source of the crude oil, the method of refining, and the temperature and agitation of the asphalt....We suggest that the application of any VOC limitations to our operation be held in abeyance, and that the need for them be given further consideration after the results of the stack tests are known.”
(Source: May 20, 1983 Letter from GAF to the Texas Air Control Board.)

GAF now uses this lack of control to explain the high percentage of sulfur in its flux and, as a result, the voluminous amounts of Sulfur Dioxide it releases. According to GAF this is an inherent problem that the company can't fix.

GAF is Unwilling to Reduce its Sulfur Dioxide Pollution Emissions

Even though GAF is Dallas County's single largest Sulfur Dioxide polluter according to its own reporting to the TCEQ, GAF has told state regulators that the company is using "Best Available Control Technology" in dealing with their Sulfur Dioxide pollution releases - an assertion not challenged by the state (Paul Quinn 2021).

In 2008 GAF stated to regulators that **"GAF is unaware of any asphalt roofing manufacturing sources that include controls for SO2 emissions...GAF believes that Best Available Control Technology for the sources impacted by this permit amendment application is met. (ibid.)"**

GAF has consistently rejected any attempt to install more effective controls for its Sulfur Dioxide pollution. Its West Dallas factory is so outdated it predates new requirements and neither the EPA nor the State of Texas can legally force GAF to comply with them.

If the company can't reduce the amount of Sulfur in its asphalt Flux waste before it reaches West Dallas, and can't be forced to add controls to reduce that sulfur in West Dallas, the City of Dallas should assume that GAF will remain its largest Sulfur Dioxide polluter, releasing between 120 and 130 tons every year it remains in operation.

GAF Poses a Constant Risk of Catastrophic Accidents

In a 2001 City of Dallas Inspection report, GAF's on-site handling and storage of chemicals is described:

"The asphalt is received in bulk by truck or train. The material is initially received and stored in two upright tanks, transferred into a holding tank, then conveyed into smaller tanks. All tanks or stills are jacketed and heated with steam coils to keep the asphalt hot. A total of nine tanks are used for storage."

(Source: June 12, 2001, City of Dallas inspection report)

In its 2019 Tier Two Emergency and Hazardous Chemical Inventory submitted to EPA, GAF listed 11 chemicals or substances it stored on site at its West Dallas asphalt shingle factory at any one time totaling just under 20 million pounds. **Over 11 million pounds of that inventory was listed as a carcinogenic hazard and over 19 million pounds was listed as a respiratory or skin irritant.**

GAF 2019 Tier Two Emergency and Hazardous Chemical Inventory

	Amount on site	Carcinogenicity	Serious Eye Damage	Skin Corrosion or Irritation	Respiratory or skin sensitization	Target Organ	Flammable
Algae Redardant Granules	1,328,000 pds	X	X	X	X		
Asphaltic Materials	9,200,000 pds	X	X	X	X		
Calcium Carbonate	714,000 pds		X		X		
Crystalline Silica	624,000 pds	X	X		X	X	
No. 2 Diesel Fule	80,000 pds	X	X	X	X	X	X
Petroleum Oils	30,459 pds	X					X
Silica Roofing Granules	7,136,000 pds		X	X	X		
Lubsoil Heat Transfer 250	5,000 pds			X	X		X
Therminol 66 Heat Transfer Fluid	9,174 pds			X	X		
Headlap	244,800 pds		X	X			
USP 3000 Series Adhesive	20,000 pds	X					
TOTAL ON SITE	19,391,523 pds	11,282,459 pds	19,326,800 pds	17,993,800 pds	19,096,174 pds	704,000 pds	115,459 pds

Figure 22. Hazardouz chemical inventory GAF 2019.

An accident involving GAF storage tanks, or the railcars or tanker trucks that carry the same hazardous material could be catastrophic to the surrounding neighborhoods. Some residents' homes are only a street-width across from GAF property and there are approximately 7,500 residents within a one-mile radius of the factory.

As an example of catastrophic severity, in December of 2017 a fire at the "Sunshine Recycling" scrap yard on the other side of Loop 12 from GAF lasted for 2 days and produced plumes of smoke so thick that the residents were advised by the City to stay in and shelter. TCEQ recorded PM readings of 113 ug/m³ (parts per billion) near the intersection of Singleton and Westmoreland, over three miles away, and 180 ug/m³ near the intersection of Chalk Hill Road and Singleton between one and two miles from the fire. These are extremely high levels of pollution that are dangerous to public health.

Complaints & Testimonials



Overview

- There were 75 "311" air pollution complaints filed in 75212 between 2010 and 2022.
- 21 of those complaints have notes that specifically mention GAF, visible emissions, health concerns or other comments related to how inappropriate and hazardous GAF is to the neighborhood.
- GAF has a four-decade long history of complaints about “burning match” “rotten egg” or just “asphalt” odors that reflect the prevalence of its Sulfur Dioxide pollution along the Singleton Corridor.
- There is a record of complaints about "dust" and "smoke" or other visible emissions, and evidence of emissions on personal property being sent to labs for analysis.

Resident Complaints and Testimonials

Summary of 311 Complaints

The following open records request was filed to the City of Dallas:

I hereby request all air pollution related 311 complaints made in 75212 from 2010 to date. I would like the information to include the address/location of the complaint, if the complaint involved health related impacts, if the complaint was due to odor/smells, if the complaint mentions dust, smoke or other visible emissions, and the time of day the complaint was made. If the complaint did include any of the information above, I would like the original copy of the complaint to see the original language submitted to 311.

There were 75 air pollution complaints filed in 75212 between 2010 and 2022. Of those complaints, 21 have notes that specifically mention GAF, visible emissions, health concerns or other comments related to how inappropriate and hazardous GAF is to the neighborhood.

Table 7. Summary of notes on the nature of Air Pollution complaints in 75212. Source: 311 City of Dallas Open Records Request

Number of Air Pollution Complaints in 75212 2010-2022	75
Number of Air Pollution Complaints in 75212 specific to GAF 2010-2022	21
Number Specifically Mentioning Visible Emissions	2
Number specifically mentioning air quality standards being violated	4
Number mentioning physical health impacts	11
Mentioning nuisance conditions impacting use of property	7

Complaints Reflect SOx Nuisance Conditions

Lacking monitoring and reliable modeling, one must solely rely on the years of complaints from residents and regulators to confirm GAF's Sulfur Dioxide is indeed causing nuisance conditions with its pollution.

GAF has a four-decade long history of complaints about "burning match" "rotten egg" or just "asphalt" odors that reflect the prevalence of its Sulfur Dioxide pollution along the Singleton Corridor.

Here are some quotes related to the odor and nuisance conditions caused by GAF:

"We are at the **West Dallas Multi Purpose Center** having an outdoor meeting and **our senses are assaulted by a strong smell of asphalt** coming by from the GAF asphalt shingle factory across the street."

February 2, 2022 1:37 pm

"The **burning smell is strong** and wind makes it carry throughout the neighborhood."

October 8, 2021 12:30 pm

"Complainant is having **difficulty breathing clean air**. Has **concern about odor and health**. Complainant has **cancer which could spread to lungs and a history of bronchial spasms.**"

December 28, 2018 9:11 am

"I **can't just sit on my porch** to play with my daughter. The **smell is strong** as soon as I open my house door. The Purple Air Monitors are also showing **extremely high levels of PM.**"

March 16, 2022 9:03 am

"**Levels of 140-168 of PM 2.5 over the past 2 hours**. Completely **unacceptable in a residential neighborhood**. This is **unsafe for our children**. Please go over to the company and **check their emissions**. I have concerns that when levels were this high last year they were having an adverse event and it **must be remedied immediately.**"

December 17, 2021 12:05 pm

"I submitted a complaint earlier. This is a follow up. **There is an irritant in the air. My body can feel it**. Checked the air quality monitors and the **PM readings are now in the 180s, a rise** from when I submitted my earlier complaint. **This is pretty severe.**"

December 16, 2021 9:32 pm

"I am severely concerned. The **smell has actually being going on since around 4:30pm. It is now stronger.** I checked the air quality monitors and the **PM 2.5 reading is minimum 170** among the monitors in the area. That min was 150 earlier this evening. I've attached screenshots of the monitor data. **This is extremely concerning.**"

December 16, 2021 7:50 pm

"Residents surrounding the GAF asphalt shingle factory in West Dallas **are routinely experiencing violations of the 24 Hour National Ambient Air Quality Standard for PM 2.5. pollution** (35 ug/m3)."

August 20, 2021 8:53 am

"Obnoxious odor coming from the listed location. The odor **smells like a mix of asphalt, burning rubber and a rotten egg sulfuric smells.** This location also had a **very loud noise of machinery,** so loud she could not hear herself talking."

July 19, 2021 8:48 am

"I can smell a **foul odor coming from the facility from my home with the doors and windows shut.**"

March 7, 2022 12:28 pm

"On Wednesday July 7 at 7am I was driving west on Singleton. As I drove past GAF I smelled a **terrible acrid smoke.** It smelled like **burning rubber.** I turned around and with my **cars windows down,** I drove past GAF again to make certain that's where the smell may have been coming from. Again, the stench came in my windows. **I breathed in the odor deeply and my nasal passages began to burn.**"

July 15, 2021 9:08 am

"Release of sulfur dioxide into the air dye to the **putrid gas** produced by the company. The **smell is unbearable** and the sir is **suffocating.** The air is filled with **noxious odors. My family and I have had symptoms of choking, coughing, and irritated eyes when waking outside.**"

March 7, 2022 4:35 pm

Continuation of quotes related to the odor and nuisance conditions caused by GAF:

“Tip or Complaint: **Horrible smell coming from the facility. Difficult to breath** outside my home, and is **causing me to have a headache.**”

March 7, 2022 12:26 pm

“**Worried that prolonged exposure would result in a headache or nasal & bronchial irritation.**”

February 11, 2022 6:53 pm

Dust and Smoke

The following are quotes that relate to visible emissions and dust:

“I often see **visible emissions** from this site when driving by.”

May 10, 2019 1:16 pm

“**Emissions** from facility **are visible.**”

January 26, 2022 10:10 am



Black soot-like spots regularly appear on residents cars, porches, and outdoor furniture. A sample test of the soot has been sent to labs at Texas A&M University for examination.



Residents Complaints Are On the Rise

GAF has caused and is causing a condition of nuisance, air pollution and adverse impacts as defined by municipal and state law. **There have been 80 air pollution complaints in District 6 since October 2020 and at least 50 of those complaints are on Singleton Boulevard or streets adjacent to GAF.**

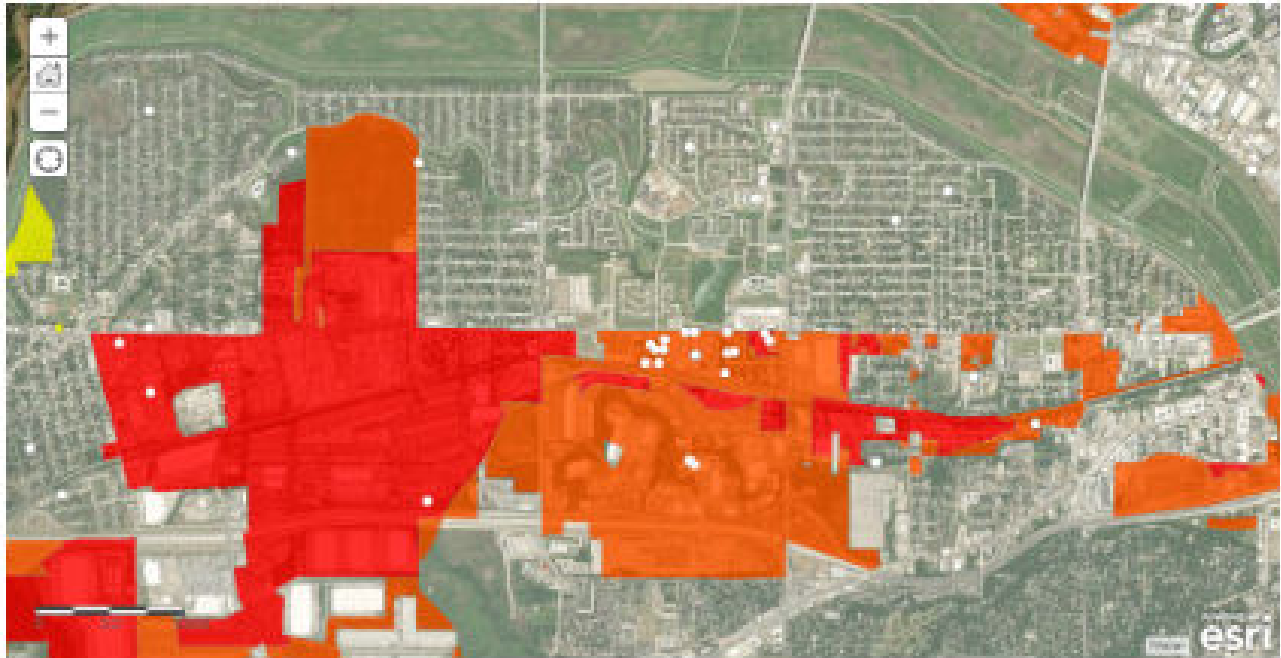


Figure 23. Map of 311 Air Pollution Complaints filed in District 6 since October 2020 and location of industrially zoned areas in West Dallas

Frequency of Complaint October 2020 - March 2022

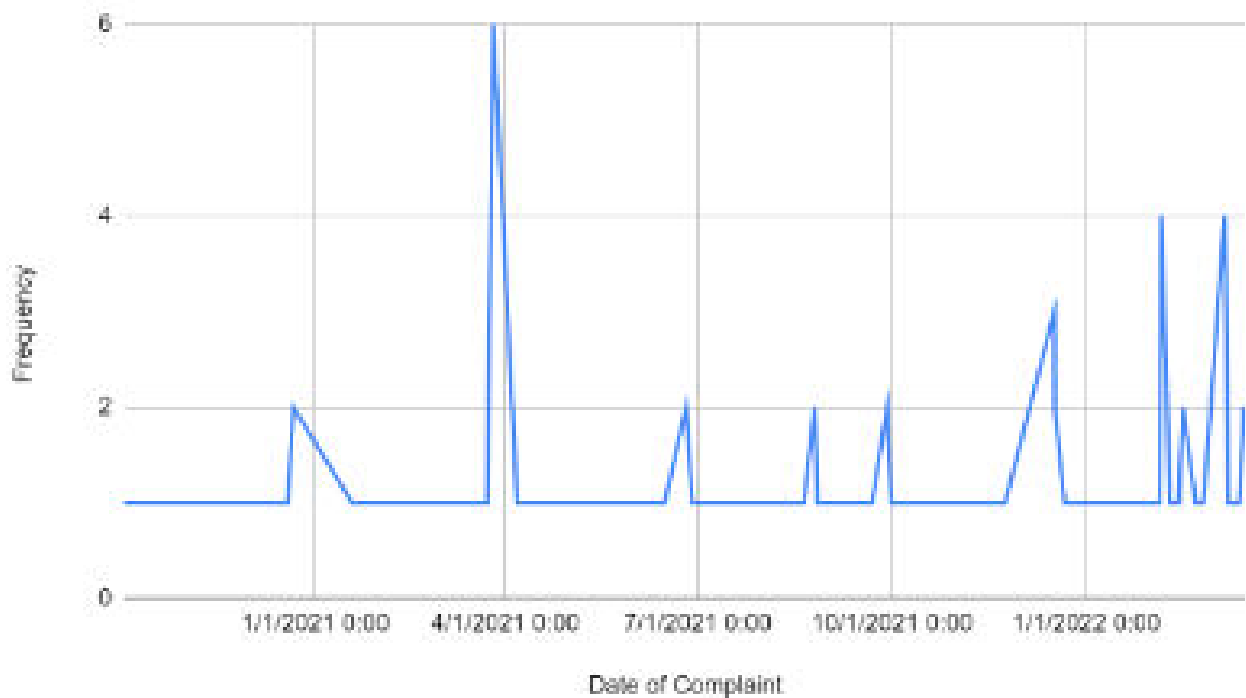


Figure 24. Chart of the complaints filed in District 6 for Air Pollution issues from October 2020 - March 2022. Source: City of Dallas Open Data Portal.

Resident Testimonials Reveal Adverse Impacts Living Close to GAF

Over the past year, door-to-door volunteers for Singleton United/Unidos solicited testimonials about GAF's operations from residents in the three neighborhoods directly adjacent to the factory. Resident comments about their own harmful health effects and nuisance conditions reflect the impact of both PM and Sulfur Dioxide pollution from GAF:

"I have **respiratory issues**, and there is **traffic because of the factory**. I can **smell and hear them let gas/dust out at night**. The kids grew here, the family has had **health and lung issues**. Have come to reason that it may be because of the factory. Things haven't changed. No signs of leaving. **I came here for the schools in the area, not knowing the risks. I don't want family near here.**

Daughter lives far and prefers being in that area."

- Clementina Cortez

"I have a **breathing problem**. I am congested at night, **eyes itching all the time, nose running** sometimes. That **smell makes you sick in the stomach.**"

- Ruby Ross

"**Breathing is bad**. I have had to **go to the doctors for an inhaler**. September I went to the doctor because I had breathing problems".

- Sabrina Cox

"Why wasn't it closed last time we pushed to close it? There is a **stinky odor, they don't hire any community members. I want the EPA and the code department to do better**. The **neighborhood already has diabetes and heart failure. Asthma, dizziness**".

- Kenneth Hogg

"I drove DART buses and **smelled smoke stack**. The **smell bothers me, my son has asthma**. I want more resources for children."

- James Odie

"I have breathing problems, **wheezing and congestion. All these years, living in the area, I have throat cancer and thyroid problem.**"

- Evelyn Ramos

A West Dallas resident complained to an elected official that the smoke from that fire **“caused my throat to become scratchy, coughing The smoke was so thick it hovered over all of West Dallas. The smell was horrific, very strong & lingering. You could smell it from loop 12 & all over West Dallas & I’m sure the lingering included other local surrounding areas in our city. The fire department said by it being cold outside, it causes the materials burning & the smoke in the air to continue to stay low where it affects us when breathing.”** (Source: email to Sen. Royce West, 2017)

An explosion and fire at GAF could be much worse. GAF is much closer to residential neighborhoods than is the Sunshine metal yard.

For GAF to do business in West Dallas, it must have those on-site storage tanks, and because of that, it must impose a 24/7/365 threat of catastrophic accidents on the surrounding residents.

LG Pinkston High School

GAF is a Nonconforming Use

Our Lady of San Juan de los Lagos - Santa Teresita

Katie's Little Angels Daycare

Overview

- The City of Dallas amended the zoning code in 1987 to stabilize neighborhoods and improve the quality of life in Dallas.
- At that time, the City had the opportunity to rezone the residential homes in and adjacent to the industrial zoning and industrial uses in a matter consistent with residential uses. They did not do this in Floral Farms, West Dallas or many other communities of color dealing with industrial adjacency issues today.
- Since the zoning change in 1987, GAF has been a non-conforming use.
- The zoning for GAF pre-1987 allowed for manufacturing of asphalt products, but post-1987 requires a zoning change or a Specific Use Permit (SUP).
- As of April 29, 2022 GAF does not have a granted Certificate of Occupancy from the City of Dallas for their land use "Industrial (INSIDE)".
- It is the City's job to amortize non-conforming land uses that have an adverse impact.
- Within 0.5 a mile of GAF there are homes, childcare facilities, schools, parks and medical centers.
- Amortization is the only appropriate remedy to this public health hazard.

GAF is a Nonconforming Use

To be amortized, the property first has to be determined a non-conforming use. As an asphalt shingle manufacturer, GAF, is not compatible with the current zoning district in which it is located and is incompatible with the adjacent land uses. The City of Dallas ordinance definition of nonconforming uses or structures states:

(89) NONCONFORMING STRUCTURE means a structure which does not conform to the regulations (other than the use regulations) of this chapter, but which was lawfully constructed under the regulations in force at the time of construction.

(90) NONCONFORMING USE means a use that does not conform to the use regulations of this chapter but was lawfully established under the regulations in force at the beginning of operation and has been in regular use since that time.

SEC. 51A-2.102. DEFINITIONS.

The last Certificate of Occupancy ("CO") that was issued on May 15, 1992, stated that the zoning was IR (Industrial Research) and the Land Use Description was INDUSTRIAL (INSIDE). The October 12, 2020 CO application for "INDUSTRIAL (INSIDE)" was "completed" on August 16, 2021 but was listed as "Cancelled" on the Develop Dallas website. The August 6, 2021 application for "INDUSTRIAL (INSIDE)" is listed as issued on December 2, 2021, but is listed as "pending inspection" on Develop Dallas. Therefore, neither of these applications have been granted as of 4/29/2022.

5/15/1992	10/12/2020	8/6/2021
CO stating zoning was IR and Land Use Industrial Inside	CO application Industrial Inside completed on 8/16/21 but cancelled	CO application Industrial Inside issued on 12/2/21 but also 'pending inspection'

The 51A-4.123(c) Industrial/research (IR) district requirements are:

(1) Purpose. To provide for research and development, light industrial, office, and supporting commercial uses in an industrial research park setting. This district is not intended to be located in areas of low and medium density residential development.

The uses allowed include "Industrial (inside). [See Section 51A-4.203(b)(1).]". (c)(1) (C).

But 51A-4.203(a), the first section of the Industrial Uses provision, defines "Potentially incompatible industrial uses" that are permitted by SUP only in the IM district.

(a) Potentially incompatible industrial uses.

(1) A “potentially incompatible industrial use” listed in this subsection is permitted by SUP only in the IM district.

The section goes on to state:

(3) Main uses that manufacture the following products are hereby declared to be potentially incompatible industrial uses:

- Asphalt or asphalt products.

This provision goes on to define Industrial (inside) but makes it clear that if the use is “potentially incompatible” it is permitted by SUP only in the IM district.

(b)(1) Industrial (inside).

(A) Definition: An industrial facility where all processing, fabricating, assembly, or disassembly takes place wholly within an enclosed building.

(B) Districts permitted: If this use is "potentially incompatible" [See Subsection (a)], it is permitted by SUP only in the IM district; otherwise, it is permitted by right in industrial districts with RAR required.

GAF manufactures Asphalt products. The TCEQ description from the GAF Statement of basis of the Federal operating permit assigns the NAICS code for “Asphalt Shingle and Coating Materials Manufacturing.” The text states:

“The Dallas facility manufactures asphalt shingles for the roofing industry. In the manufacture of asphalt roofing products, a dry non-woven fiberglass mat is fed into the roofing machine from an unwind stand. . . The fiberglass mat is next carried through the coating section, where coating asphalt mixed with stabilizer (limestone) is applied to both surfaces of the mat.”

Summary

Only non-conforming uses that are causing an adverse impact on the public are considered eligible for amortization. As summarized above, GAF is a non-conforming use, and so qualifies as eligible for amortization if adverse impact is found. The following sections will detail the City's policy to eliminate non-conforming uses and how the factory is causing an adverse impact.

City of Dallas Policy is to Eliminate Non-Conforming Uses

Section 51A-4.704 Nonconforming Uses and Structures states that “nonconforming uses be eliminated and be required to comply with the regulations of the Dallas Development Code”.

(a) Compliance regulations for nonconforming uses. It is the declared purpose of this subsection that nonconforming uses be eliminated and be required to comply with the regulations of the Dallas Development Code, having due regard for the property rights of the persons affected, the public welfare, and the character of the surrounding area.

Figure 25. In an internal 2021 email acquired through an Open Records Act request, City of Dallas staff confirmed that GAF is a “potentially incompatible use” and a “nonconforming use”.

----- Original message -----
From: "Wimer, Megan" <megan.wimer@dallascityhall.com> hoop kbmbnmmmmkl;yby. Ol
jb ovum p ibi bob lnmbob
Datokkb pyt bbv
Pe: 7/29/21 9:49 AM (GMT-06:00)
To: "Castillo, William" <william.castillo@dallascityhall.com>, "Hamilton, Ann"
<ann.hamilton@dallascityhall.com>, "Trammell, Charles"
<charles.trammell@dlrallascityhall.com>
Cc: "Rakestraw, Kashopra" <kashopra.rakestraw@dallascityhalynpl.com>, "Olivares, Janet"
<janet.olivares@dallascityhall.com>, "Alvarez, Susan" <susan.alvarez@dallascityhall.com>
Subject: RE: 2600 Singleton Blvd - GAF Factory

Our records for this address, which ok

lbsdatokjpe back to the 1950s, indicate that the production of asphalt shingles is a nonconforming use. Under the current code it would be classified as a potentially incompatible use which is allowed only in the IM District by SUP. However, the use was established long before that requirement. -Mega

Cool lb look on book

C y. Tlpvi rkttopoc



Megan Wimer, AICP, CBO
Assistant Building Official
City of Dallas | DallasCityNews.net
Sustainable Development and
Construction

On October 24, 2018 City Attorney Chris Caso addressed the Dallas Mayor and City Council regarding a request to establish a compliance date for the now amortized Jim’s Car Wash in South Dallas. Mr. Caso stated the responsibility of the City is “that nonconforming uses be eliminated and be required to comply with the regulations of the Dallas Development Code, having due regard for the property rights of the persons affected, the public welfare, and the character of the surrounding area.”

Action via Amortization is Needed

Because GAF is a Non Conforming Use, and a Potentially Incompatible Use, per the City's code it is required for the City to take action via amortization to eliminate this Non Conforming Use. The use having been established long before the zoning code change in 1987 does not change anything. At the point at which the zoning code was changed in 1987, GAF became non-conforming. It is the City's responsibility to eliminate non-conforming uses **"be required to comply with the regulations of the Dallas Development Code, having due regard for the property rights of the persons affected, the public welfare, and the character of the surrounding area."**

In less than a 0.5 mile radius of GAF, there are childcare facilities, homes, churches, public schools, parks, community gardens, a public library, and commercial uses. GAF stands out like a sore thumb in what could be a thriving healthier neighborhood, and further perpetuates the health and wealth gap between West Dallas and other parts of our city.

When the City had the opportunity to correct the zoning that inappropriately concentrated families next to heavy industry in 1986 with the transition of the zoning code, the City miscategorized the neighborhood as Industrial Growth instead of Industrial with Residential Adjacency, which further misaligned with the character of the neighborhood. The City acknowledged the air pollution issue in West Dallas, the issues around adjacency of residents and industry, but failed to act. The City did, however *align the zoning code to position GAF as a non-conforming land use in 1986* when it codified that Asphalt production cannot happen within an IR district.

From 1986 onwards, GAF has been a non-conforming use. Proactive action is required to eliminate GAF and allow for the growth and development of neighborhoods in Dallas. West Dallas today is very different from West Dallas in 1946 when GAF began operations. Everything has changed to increase the quality of life of residents in the neighborhood, except for GAF. It must go.



**GAF
Vete
Ya**

GAF Harms Use of Property

Overview

- The homes next to GAF have industrial zoning.
- Homes with industrial zoning are often unable to obtain repair grants, loans, or acquire permits to improve their homes.
- Because of this, homes are more vulnerable to disrepair and demolition.
- There are roughly 108 parcels east and west of GAF, 46 which are residential today and 82 of which are commercial or vacant today.
- Of those 82 vacant or commercial parcels, 19 had residential structures that were demolished and have permits for those demolitions.
- 30% of the neighborhood has been destroyed since 1971 (which is the first demolition permit available on Develop Dallas for this area), with zero ability to build back residential due to the zoning.
- The proximity to GAF has made it difficult for borrowers to access financing for home improvements and for new home purchases through conventional mortgage loans.
- This rapid land price escalation in West Dallas exposes a risk of massive displacement. GAF is in a position to retain their facility, due to effective capitalization. But neighbors are not.
- Based on our analysis and using 2019 US Census data, no one from 75212 currently works at GAF. GAF is not an employer of West Dallas residents.

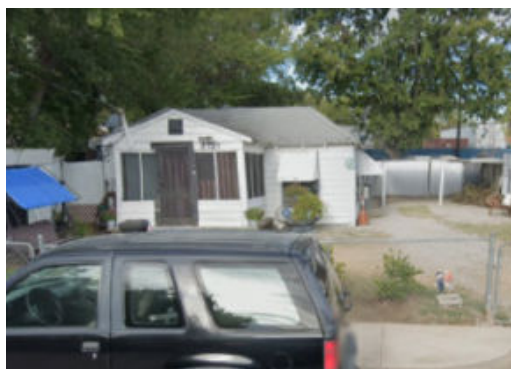
Demolition of Homes and Shrinkage of a Residential Community

Because the City of Dallas has not corrected the zoning of the homes adjacent to GAF and has not eliminated GAF as a nonconforming use, the neighborhood has suffered from demolitions of single family homes. The homes next to GAF are zoned industrial, and consequently are unable to acquire home repair grants, acquire loans and prevented from making improvements to their property. Because of this, homes often lack repairs and become at risk of demolition. Based on the parcel information, there are a total of roughly 108 parcels east and west of GAF, 46 which are residential today and 82 of which are commercial or vacant today. Of those 82 vacant or commercial parcels, 19 had residential structures that were demolished and have permits for those demolitions. Assuming that the remaining 58 of the 82 parcels did not have homes on them from the get-go and were either vacant or commercially developed, that means **the neighborhood had 65 homes initially.**

This means that 30% of the neighborhood has been destroyed since 1971 (which is the first demolition permit available on Develop Dallas for this area), with zero ability to build back residential due to the zoning. Without a correction to the zoning of the homes and enforcement of the City’s duty to eliminate nonconforming uses, the demolitions and destruction of this neighborhood will be perpetuated, in a neighborhood desperately in need of preserving and expanding affordable housing opportunities. Families have been forced to uproot and relocate. Many homeowners have had no path to rebuild their homes. The current zoning plays a huge role in the diminishing of community, chipping away at the characteristic and culture of the neighborhood.

Table 8. Summary of demolition information.

Total Permitted Demolitions	Total Residential Demolitions	Total Commercial Demolitions	Total Non-Residential Parcels (2021)
24	19	4	82



Before and after the demolition of a home in the Singleton United/Unidos neighborhood. This demolition occurred in September 2021.

Declining Home Values

There are multiple compounding effects of the pollution and industrial nuisance caused by GAF on surrounding homeowners. Many of these effects appear as lost wealth over time. Particularly, the proximity to GAF has made it difficult for borrowers to access financing for home improvements and for new home purchases through conventional mortgage loans. Access to loans is how homeowners can maintain the quality of their homes, and the stability of their neighborhoods. While borrowers in the area proximate to GAF have dealt with the consequences of limited access to capital, the same has not been true for GAF. By relying on alternative sources of capital, including revenue from business operations and commercial loans, GAF has been able to continually invest in their business at the West Dallas property. The disparate access to financing over time appears as lost wealth for homeowners, relative to overall appreciation of value in the City as a whole neighborhood.

The combined sum of improvement values for homes in the neighborhood surrounding the GAF factory started in 1999 at \$644,290. By 2021, they had declined to \$496,860. Looking at the 5 year average provides additional context: from 2017-2021, the value of all improvements on property in the neighborhood was \$806,884. This increase of 125% from 1999 to 2021 is actually lower than inflation over the same period. Simply put, the built improvements in the neighborhood lost value. The total value, which includes land, tells a different story. From 2017 to 2021, the value averaged to \$2,054,662, compared to \$819,540 in 1999. The total value of the properties in the neighborhood nearly tripled. How, in spite of declining improvement values, did the total value rise?

The property around the GAF factory has been experiencing exorbitant escalation in land price. In 1999, the land was valued at \$175,250. By 2021, the land was valued at \$3,055,230. In other words, the land in this neighborhood increased in value by 1,700% from 1999 to 2021. Even looking at the 5 year average, the land was valued at \$1,247,778, a still insane 700% increase from 1999. The value of land as a portion of the total value rose from 21% in 1999, to the low 30% in the mid 2000s, to nearly 80% by 2021.

Yet while neighbors faced difficulty accessing loans, paying taxes, and investing in their neighborhood due to both overall economic conditions and proximity to GAF, the plant did not suffer the same fate. The full GAF operation, which includes numerous buildings, machinery, equipment, inventory, and land, is valued by Dallas County tax appraisers at \$29,384,180 in 2021. Not included in this total is the warehouse owned as a joint venture by GAF parent company Elk at 2020 Singleton. The 5-year average valuation is \$31,034,000. Excluding inventory, raw materials, and supplies, which are all moveable assets that can be used in other GAF facilities, that five year average value is \$23,177,997. This total of non-moveable capital at the site represents an increase in value of around 160% since 2000.

Land comprises only a small portion of the total value of the GAF account. Over the period from 2017-2021, the average value of the land was \$2,782,518. Since the year 2000, the value of the land under the plant has increased by over 400%. Yet the ratio of the value of the facility to the value of the land only tripled, rising from a low of 3% to around 10%. While the rapid land escalation matches the rapid increase seen in other parts of West Dallas, GAF has been able to keep the land-value ratio low by continuing to pour capital into the facility. Building permits from the City of Dallas show a total of 23 permits issued at the site going back to 2002, including, notably, a permitted expansion in 2003 that added a new building and 16,000 square feet of additional space to the facility. The combined value of these recent new investments in the facility is \$1.2 million.

These figures reveal disparities in investment. **This rapid land price escalation exposes a risk of massive displacement. GAF is in a position to retain their facility, due to effective capitalization. But neighbors are not.** Notably, GAF once leased warehouse space in various other parts of West Dallas, including the area now occupied by the Trinity Green Apartments. History shows that GAF can easily reconfigure operations while residents cannot.

Between 2008 and 2009, the appraisal district reclassified 22 properties from the residential division in the neighborhood to the commercial division. It is unclear why the appraisal district took this action. All of this land is SPTD Code C12- meaning it is vacant. Most of these properties are owned by individuals, rather than commercial interests. Their land, when included in the neighborhood analysis, keeps the total parcel numbers at around 70.

Inability of Neighborhood to Access Improvements

In the Census Tract where GAF is located, 75.4% of home improvement loan applications going back to 1990 were denied. Residents could not leverage existing wealth to reinvest in the community, which has contributed to rates of demolitions.

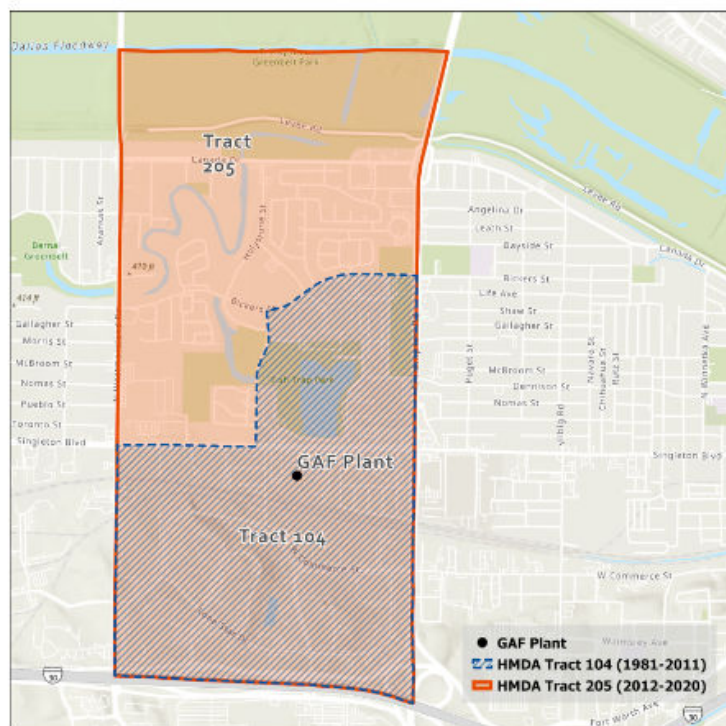


Figure 26. Census tract where GAF is located and HMDA tract boundaries.

GAF Produces Negative Economic Impacts on West Dallas

Although GAF may want to promote itself as an important local jobs provider and taxpayer, the economic impact of GAF on the City of Dallas through the payment of wages is minimal.

From 2002 to 2019, employment at the GAF West Dallas plant averaged 258 workers per year. On average over those years, only 32.7% of the GAF West Dallas workforce lived in the City of Dallas, and only 4.4% lived within two miles of the GAF plant.

Based on our analysis and using 2019 US Census data, no one from 75212 currently works at GAF. GAF is not an employer of West Dallas residents.

Additionally over the last 17 years GAF has paid an estimated total of \$441,743,000 in wages to its West Dallas plant workers. While this may initially seem like a large sum, the bulk of those wages- 68.4%- were paid to workers who do not live in the City of Dallas. Only 31.6% of wages (\$139,695,228) were paid to workers who live in the City of Dallas over 17 years. An even smaller sum (\$19,281,924), or 4.4% of the total wages paid, were paid to workers living within 2 miles of the plant. This wage estimate uses an industry wide wage estimate of \$85,000 per worker and likely dramatically overstates the amount actually paid to GAF workers.

In an average year, GAF paid only \$7,760,846 in wages to workers living in Dallas, and less than \$1,071,218 in wages to workers living within 2 miles of the plant, out a total estimated labor cost of \$24,521,303. **Nearly 100% of the detrimental impacts of the plant's activities were felt by residents proximate to the plant, but only 4.4% of the plant's potential benefit through wages was received by local residents.**

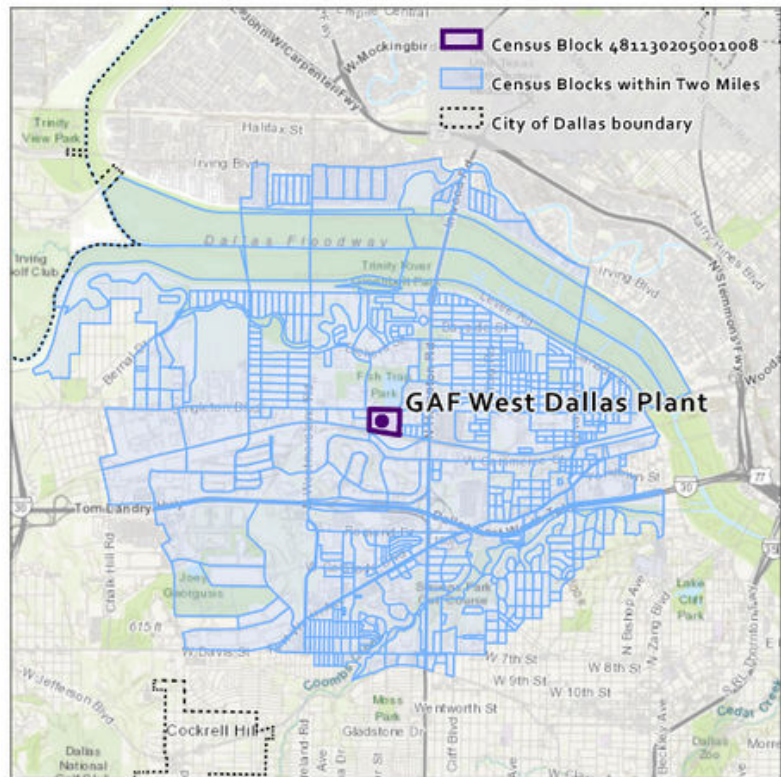


Figure 27. GAF and 2-mile radius. .

A Fundamentally Altered GAF



Overview

- Since the 1980s, GAF's air pollution emissions are four times greater.
- GAF is the largest source of Sulfur Dioxide pollution in Dallas County and the second largest source of Particulate Matter (PM) pollution in Dallas County.
- GAF's shingles are made in part by 'flux' which is a hazardous waste from the oil refinery process, which is known to have health harm when people are exposed to it.
- Because flux is a biproduct of other industrial processes, most of the time GAF doesn't know what the composition of the flux is, and therefore how to regulate for it.
- GAF's position is that it is using the best pollution reduction standards available to reduce Sulfur Dioxide pollution, even though they are the largest source of SO₂ in the county.
- Because of the quantity of hazardous materials and the processes it undergoes on site (heating, transporting etc.), there is a constant risk of catastrophic explosion at the site.

GAF is Not the Same Factory it was in 1987

GAF's self-reported emissions when it became a non-conforming use in the mid-1980's are qualitatively and quantitatively different from GAF emissions in 2022. Its total air pollution releases are almost four times larger and include more toxins.

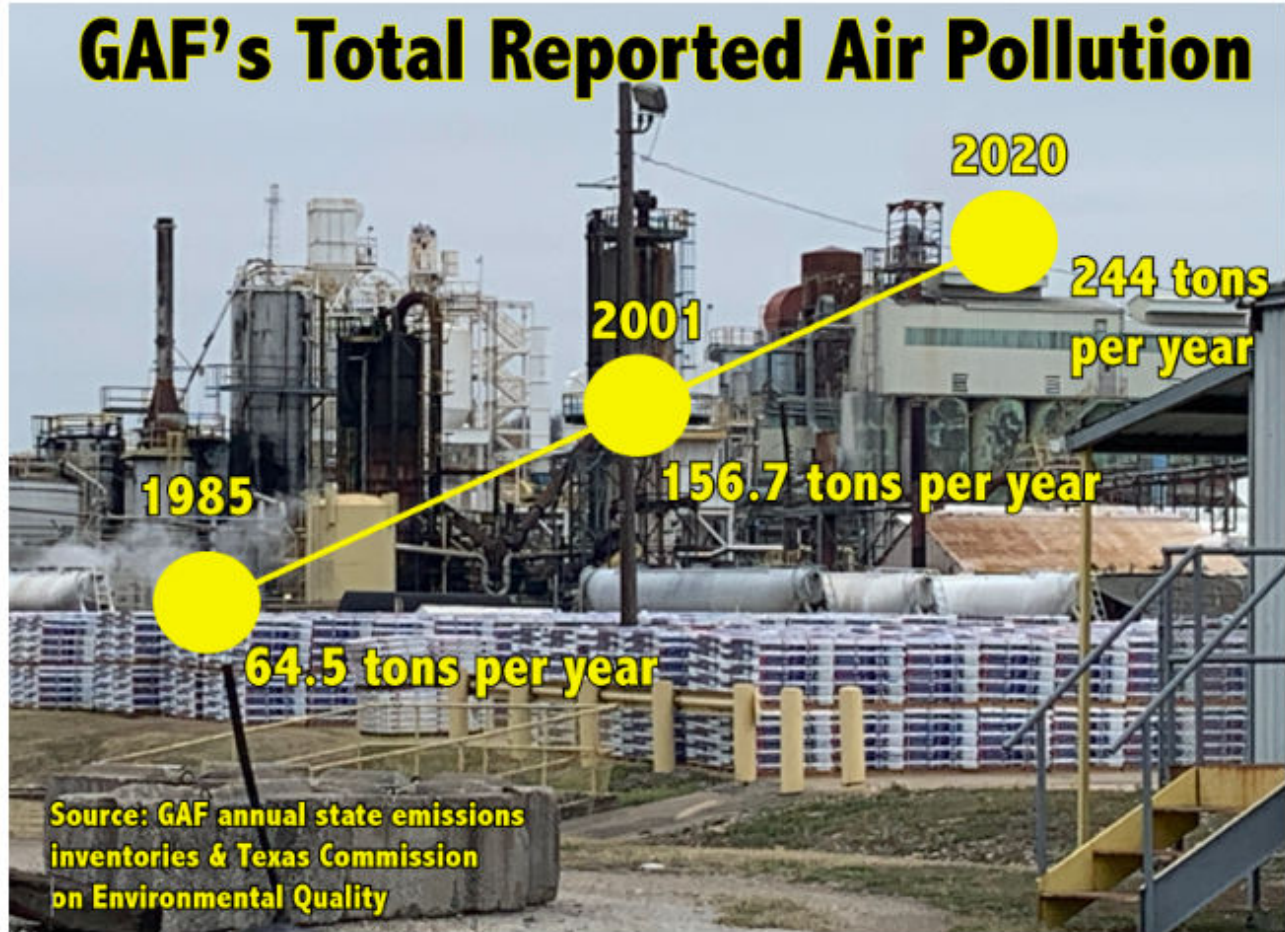


Figure 28. Air pollution tons per year emitted based on self reported numbers to the TCEQ.

GAF has gone from being a minor source of Sulfur Dioxide air pollution in Dallas County to becoming the largest Sulfur Dioxide polluter in Dallas County (Source: Texas Commission on Environmental Quality 2020 Emission Inventory). It has also become a Major Source for Particulate Matter (PM), ranking as the 2nd largest industrial PM polluter in Dallas County (Ibid.). During this same period, GAF began reporting the releases of specific Hazardous Air Pollutants, including Polycyclic Aromatic Compounds, Benzo(g,h,i)perylene, and Lead (Source: Environmental Protection Agency, Form Rs - 2010-2020).

Going hand-in-hand with this enormous increase in emissions is an associated increase in public health risks and environmental hazards. **In 2022 GAF poses a far greater risk to far more West Dallas residents than it did in 1987.**

In making substantial changes to both the volume and chemical composition of its air pollution releases over the years, GAF has increased by nearly 4 times the adverse pollution effect on nearby properties today from the adverse effect that already existed in 1985.

GAF's Normal Operations are Inherently Incompatible with the Surrounding Neighborhood

The Main Ingredient for GAF's Shingle Product is Oil Refinery Waste

All asphalt shingle factories use the same basic ingredients to produce their products. The main ingredient of the asphalt itself is the hazardous waste from oil refineries called "Flux." Every asphalt shingle GAF produces in West Dallas contains a coating of Flux.

Material Safety Data Sheets for Asphalt Flux submitted by GAF to the State of Texas note that the waste is "*listed in the Toxic Substances Control Act (TSCA) inventory of Chemicals in Commerce.*" They list Flux as an "*Acute Health Hazard, Chronic Health Hazard, Known Animal Carcinogen, Known Animal Mutagen, Known Animal Tumorigen, Known Human Irritant,*" and "*Known Human Target Organ Toxin (eyes, respiratory tract irritation).*" Some of the public health concerns include in the safety sheet are detailed below.

"Fumes from hot asphalt may cause nausea, headache, dizziness, and irritation to the respiratory tract."

"During storage or transit of hot asphalt, hydrogen sulfide may accumulate in enclosed spaces such as tank cars and tank trucks. Open tank car and tank truck hatches with caution. Avoid inhalation."

Because it is oil refinery waste, Flux contains a long list of petrochemical compounds in various concentrations. Flux must be constantly heated or it will become a sludge. But when it is heated, it releases more petrochemical compounds and produces more pollution.

GAF's West Dallas factory is solely in business to receive this Flux waste in heated railcars, store and process it in heated tanks, use heated pipelines to coat its own shingles, and export it off-site in heated railcars to other GAF factories so they can coat their shingles with it. Everything GAF does at its factory in West Dallas depends on the constantly heated transportation, handling, and processing of dangerous oil refinery waste.

Character of the Neighborhood



Overview

- GAF is located within the heart of a residential community in West Dallas.
- The land uses around GAF are mostly residential, community retail, recreation and educational facilities.
- West Dallas has experienced significant growth in population.
- West Dallas remains a majority Non-White Hispanic community and has seen an increase in White non-Hispanic residents.
- The area that GAF is located in, the Singleton United/Unidos community, has the highest poverty rates in West Dallas.
- The Singleton Corridor Neighborhood-Led Plan created in 2021 outlines future land use goals for the community, which align with the recommendations in the adopted Trinity River Corridor Plan which designates GAF as multi-family and community commercial.

Character of the Neighborhood

Despite the City of Dallas' best efforts, the Singleton Corridor neighborhood continues to host many residential homes, multiple public schools and day care centers, as well as community recreation centers. The aerial view below shows the homes and public spaces immediately surrounding GAF and illustrates the size of the facility that is embedded within the heart of a residential community.



Figure 29. Aerial map of Singleton corridor neighborhood and GAF's incompatibility.

The map below illustrates the current land uses in the neighborhood and the deeply incompatible nature of the GAF facility in the context of the rapidly growing residential and commercial neighborhood.

Character of the Neighborhood: Land Uses Surrounding GAF

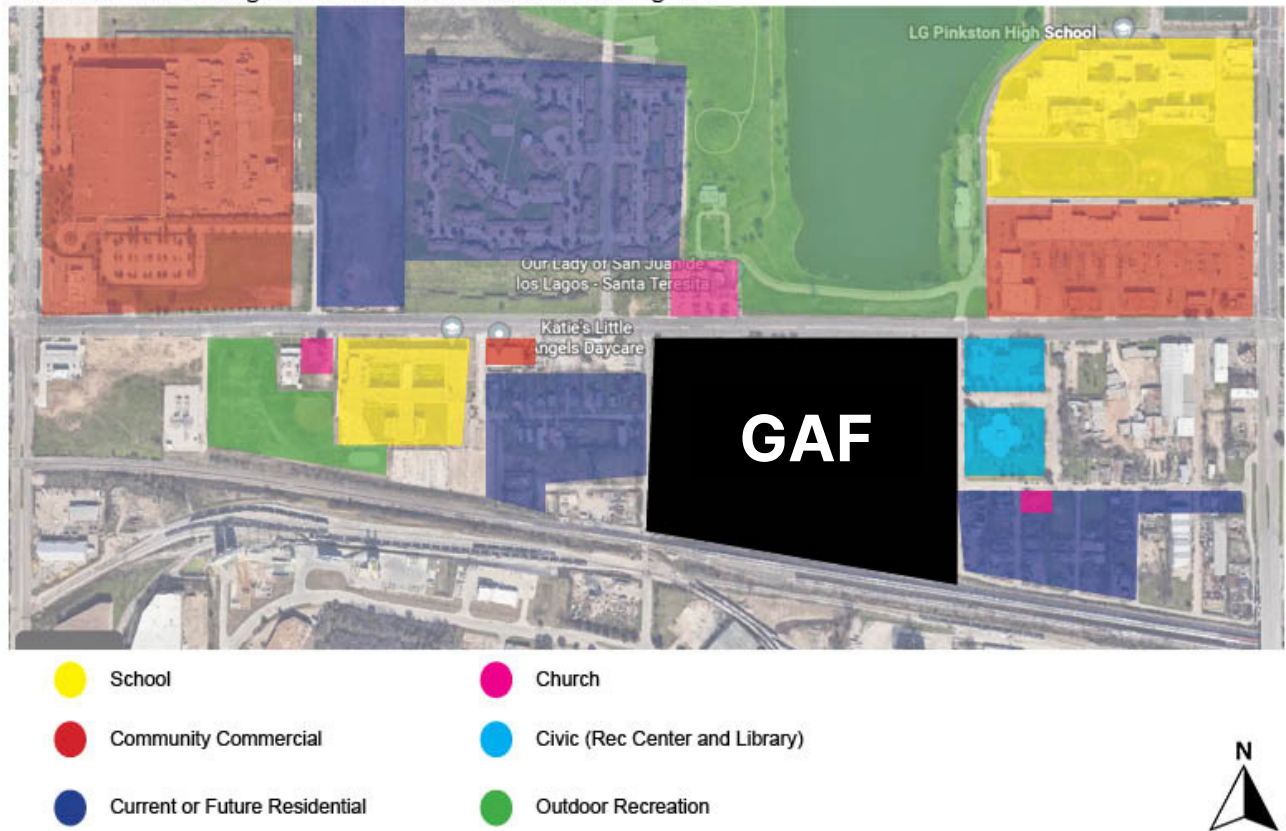


Figure 30. Aerial map of Singleton corridor neighborhood and GAF's land use incompatibility.

Demographic Characteristics and Changes

GAF is located in the heart of West Dallas, a majority residential area that was annexed into the City of Dallas in 1954 and consists of several unique neighborhoods. Prior to annexation in 1954, many residents lived in West Dallas without basic city services and amenities such as flood control, sidewalks and streets. Since then, West Dallas' population has grown exponentially and city services, commercial development, educational institutions and access to park and green space has dramatically increased. According to the U.S. Census Bureau ACS 5-Year Estimates from 2019, West Dallas (75212) has an estimated population of 26,720.

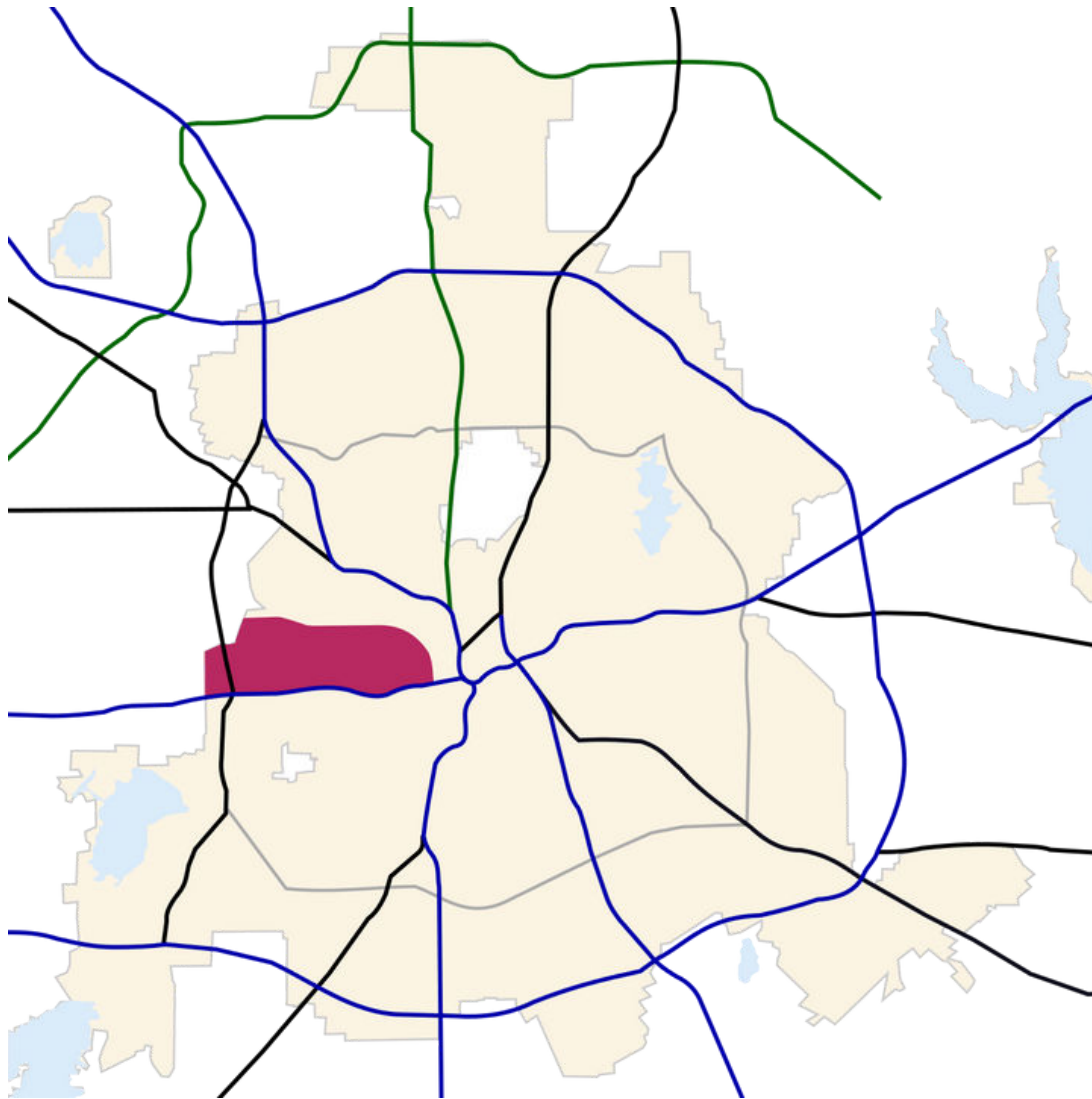


Figure 31. Shows West Dallas (75212) in relation to the City of Dallas boundaries.

Table 8. Shows the population changes over time in West Dallas

Year	1980	1990	2000	2010	2015	2019
Population Estimate	13,161	unknown	22,239	24,884	26,043	26,720

Population Estimate vs. Year

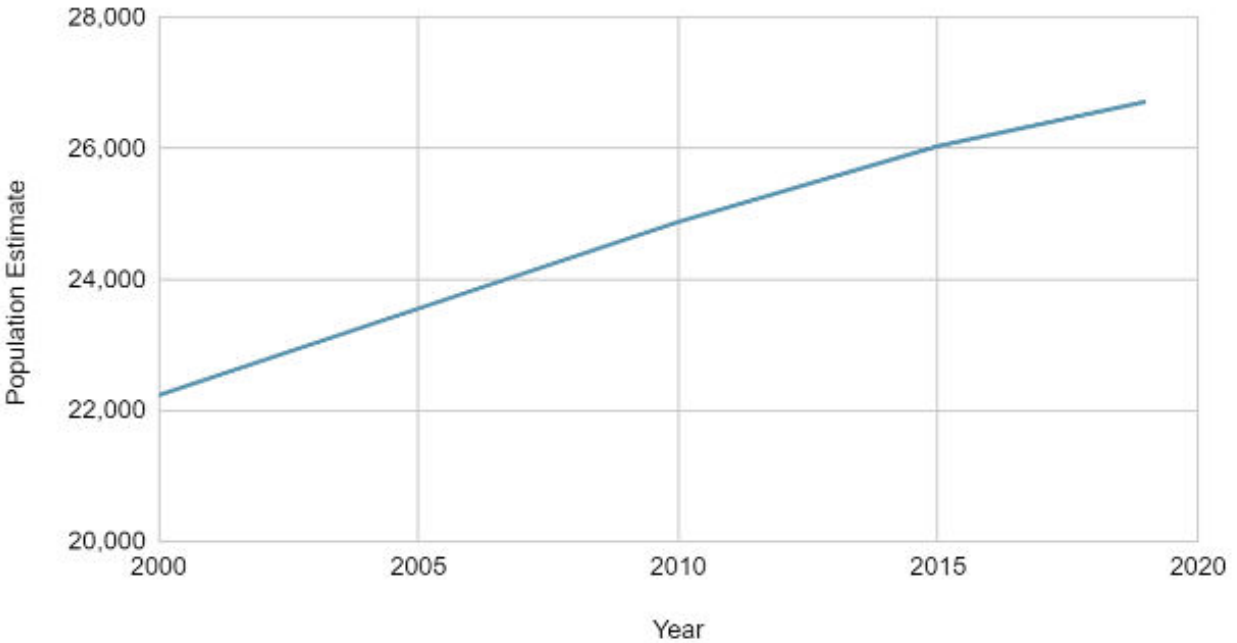


Figure 32. Shows the population growth in West Dallas.

These changes in population growth that we are seeing are in contrast to the predictions for this community outlined in the "Encouraging Economic Development in Southern Dallas Study" conducted by the City of Dallas in 1981. Specifically, the study determined that the number of residents would decrease due to industrial growth in West Dallas. Other studies also conducted in the 1980s describes future land use for the "Neighborhood West of Bernal Drive and West Dallas north of Singleton Boulevard" as: "when allowance is made for the removal of scattered housing by industrial and commercial expansion, very little population increase is anticipated in the Community. One entire residential area just to the west of the intersection of Westmoreland and Irving Boulevard is proposed to be converted to industrial use".

The demographic characteristics of West Dallas have also changed over time, but has consistently been a majority non-White neighborhood, with the majority of residents identifying as Hispanic or Latino.

Table 9. Shows the racial demographic changes over time in West Dallas.
Source: U.S. Census Bureau.

Race & Ethnicity	Black or African American	White Non-Hispanic	Hispanic or Latino (any race)
2000	35.1%	2.7%	60.7%
2010	30.1%	2.3%	65.6%
2015	27.2%	12.7%	58.8%
2019	28.8%	10.3%	59.8%

Demographic Changes in West Dallas (2000-2019)

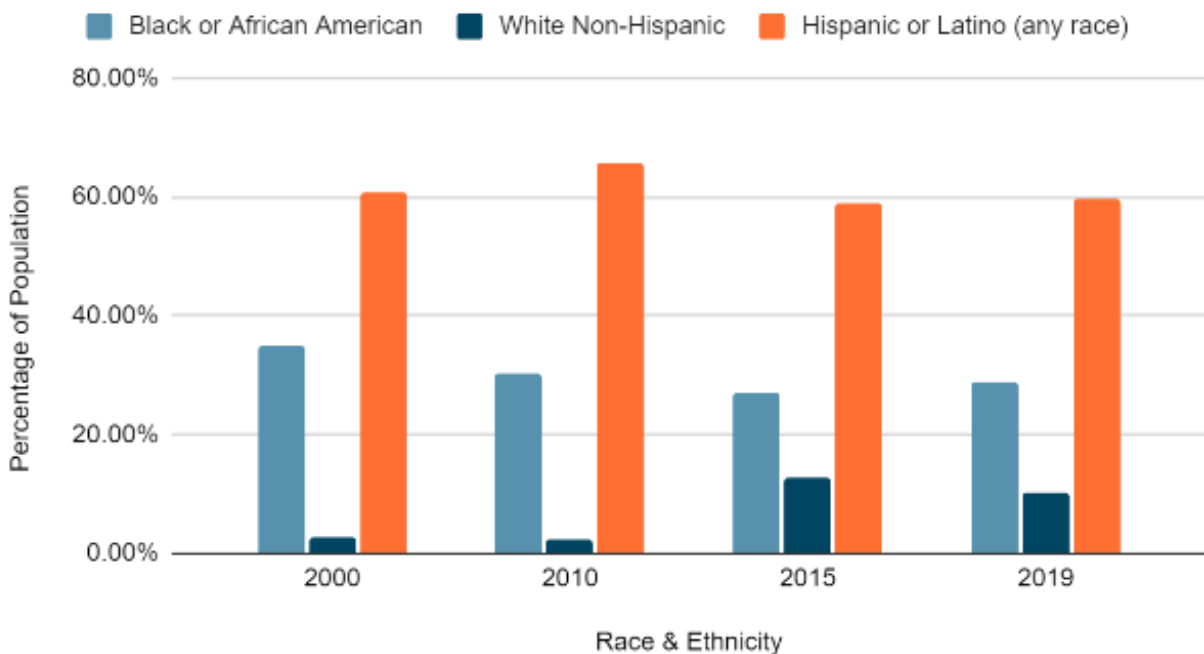


Figure 33. Shows the racial demographic changes over time in West Dallas.
Source: U.S. Census Bureau.

There are three residential areas that comprise the neighborhood where GAF is located: Bedford to the west, the Multipurpose Center area to the east, and Kingbridge Crossing Dallas Housing Authority homes to the north. These three areas in addition to a residential neighborhood (Muncie) further east, make up the Singleton United/Unidos neighborhood. There are several other neighborhoods in West Dallas that are within 1 mile of GAF including Ledbetter/Eagleford, Westmoreland Heights, Greenleaf Village and Victory Gardens.

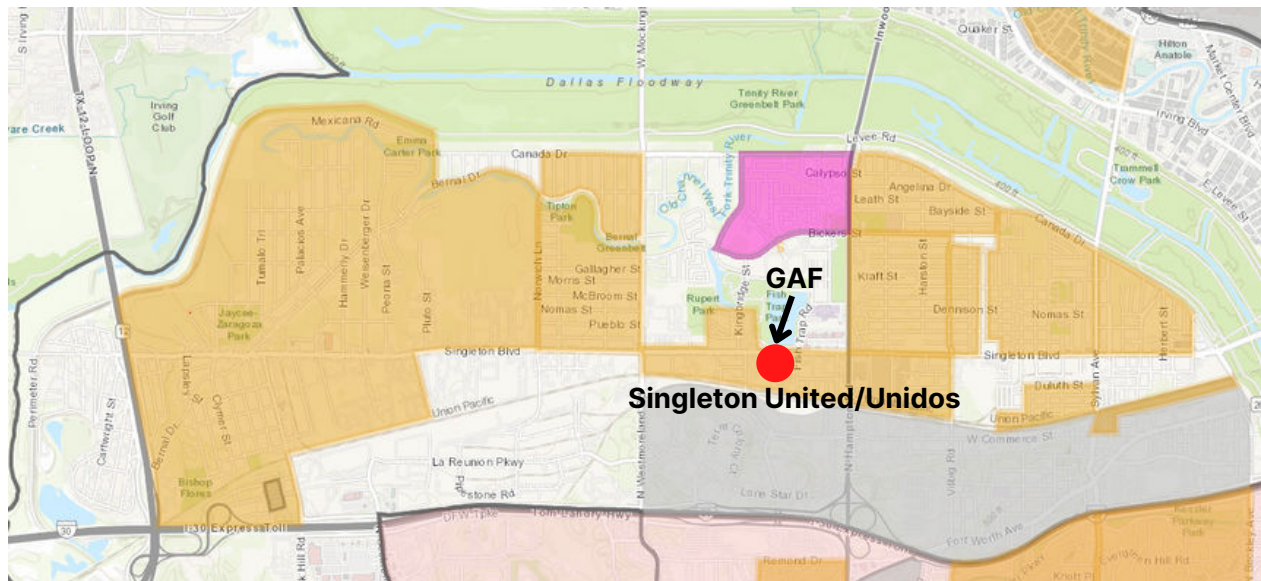


Figure 34. Map of the Singleton United/Unidos neighborhood association along with other adjacent neighborhoods in West Dallas.

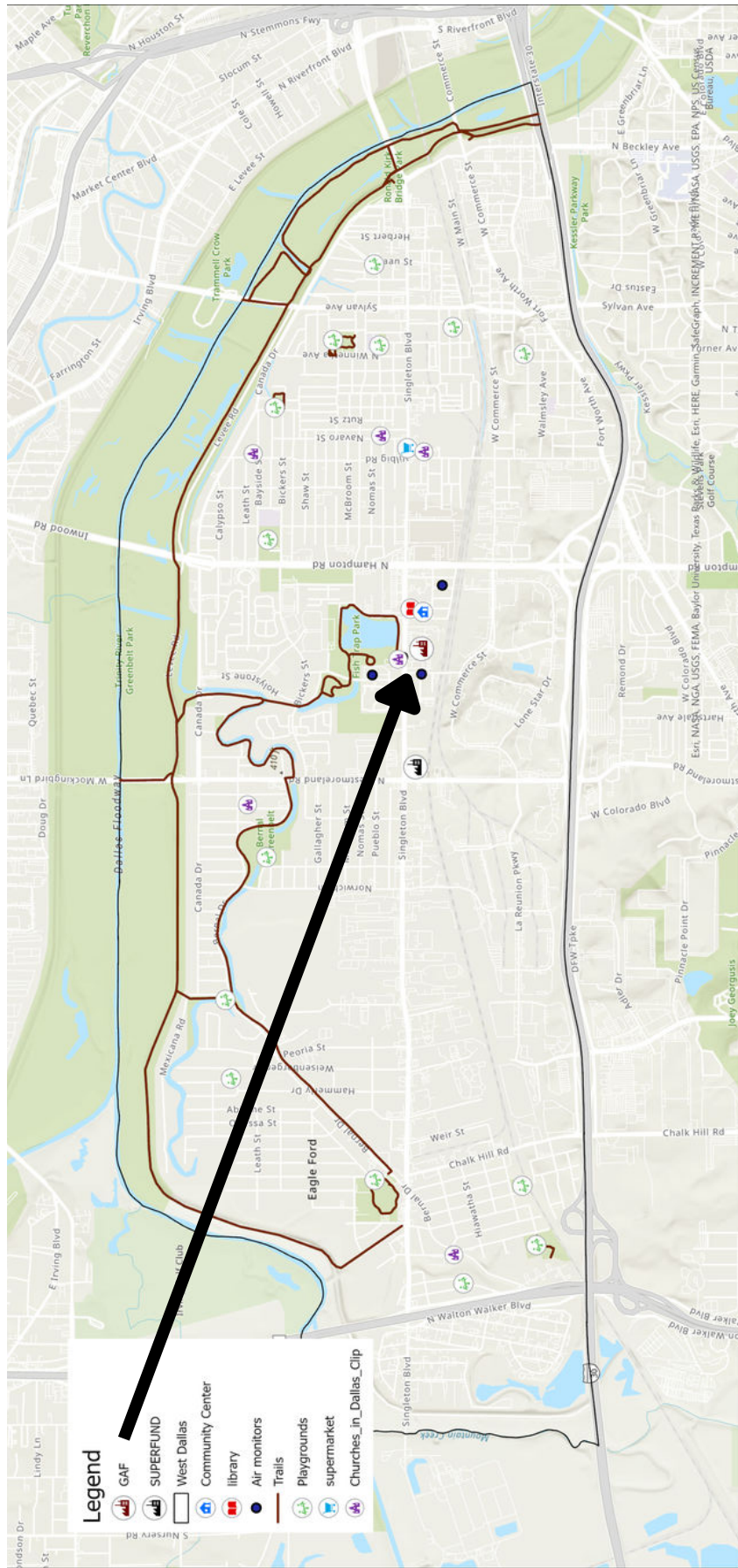


Figure 35. Shows the presence of GAF intertwined with the current sensitive land uses which include the West Dallas Multipurpose Center, Dallas West Branch Public Library, Fish Trap Lake, homes, and park space.
 Source: Alejandra Hinojosa, research project at Southern Methodist University.

There are several census tracts within West Dallas that have varying poverty rates ranging from 35.4%-58.7% of the population in the tract where GAF is located (205) experiencing poverty, to the lowest rate in West Dallas being 6.2%-12.5% of the population in the Eagleford Ledbetter neighborhood experiencing poverty. This is considered a lower income area in the context of the City of Dallas, and the census tract where GAF is located is the lowest income area of West Dallas.

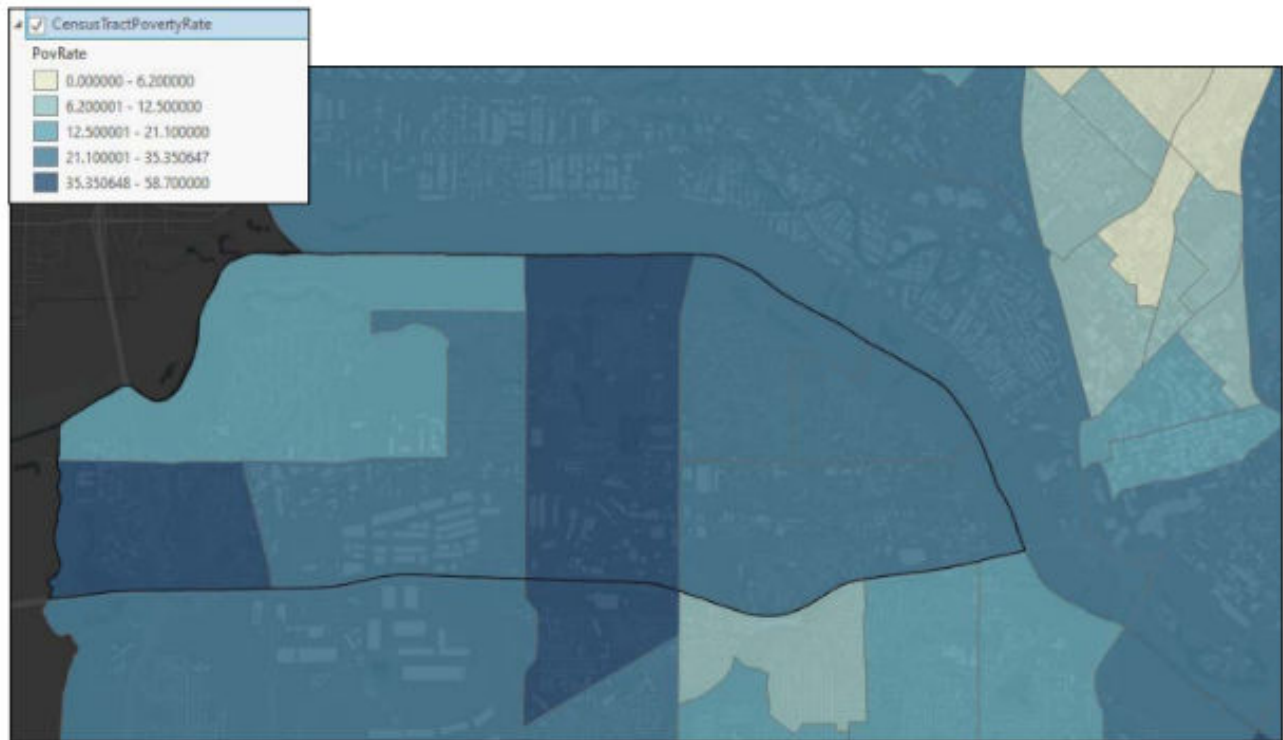


Figure 36. Shows the poverty rate by census tract in West Dallas. Source: Alejandra Hinojosa, research project at Southern Methodist University.

Singleton Corridor Neighborhood-Led Land Use Plan

The Singleton United/Unidos neighborhood area along with other participating neighborhood associations in West Dallas drafted a land use plan specifically focused on protecting the character of the neighborhood and promoting positive development in their community. The plan specifically calls for preserving and enhancing the single family homes adjacent to GAF, increasing community recreational programming at the Multipurpose Center and Library, improving the quality and access to Fish Trap Lake, all which emphasize the incompatibility of GAF in the center of their neighborhood (Figure 10). The City of Dallas also highlighted the incompatibility of GAF in the neighborhood in the adopted Trinity River Corridor Plan (2006) by proposing the future land use of the site be dedicated as “Community Retail” and “Multifamily Residential” (Figure 12).

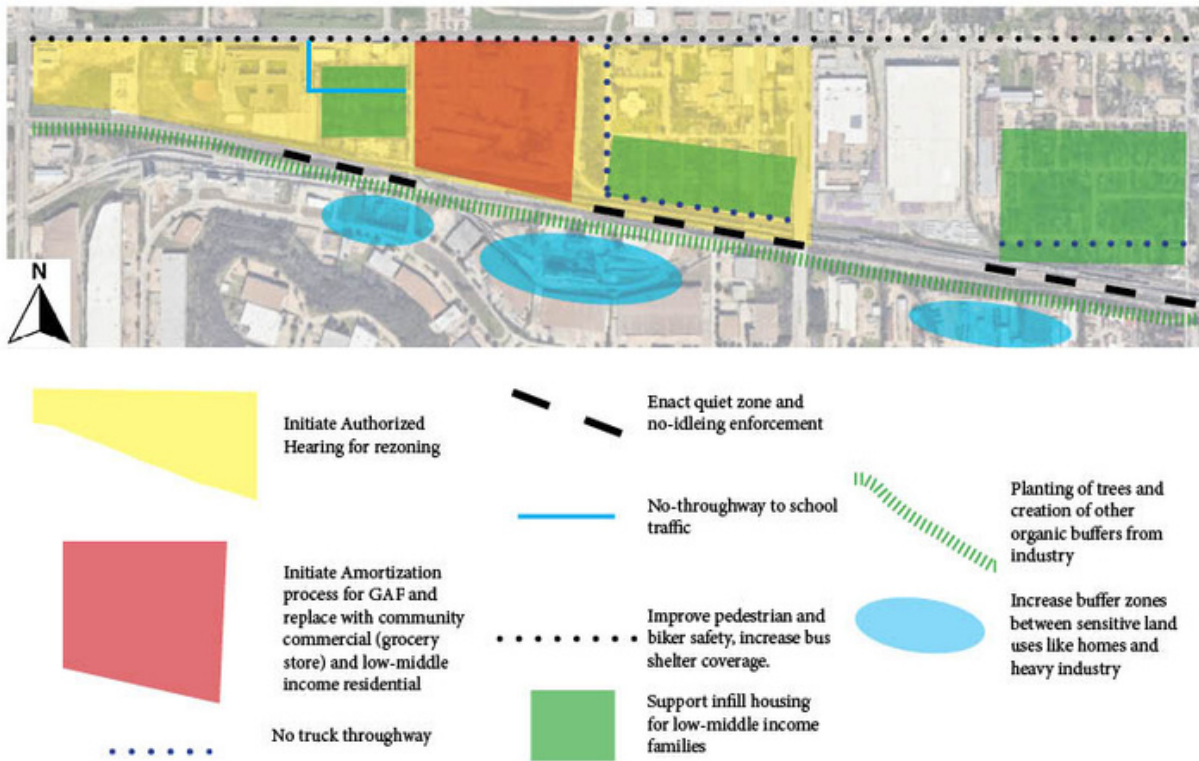


Figure 37. Shows the desired future land use recommendations outlined in the Singleton Corridor Neighborhood-Led Land Use Plan.

Based on our above-stated evidence, GAF is responsible for adverse effects on the residents of West Dallas, including effects on public health and economic vitality. GAF is also a non-conforming use as outlined previously; therefore, the City of Dallas must request a Board of Adjustment hearing to make GAF come into compliance.

The only way that GAF will be able to be compliant with its current zoning and cease having an adverse impact on the health, safety and general welfare of the residents is through amortization. The continuation of this use goes against the goals of the City's Comprehensive Environmental Climate Action Plan, its Racial Equity resolution, and ForwardDallas.

To align with the vision of a more vibrant West Dallas, GAF must be amortized.
To drastically improve the public health of West Dallas, GAF must be amortized.
To close the health and wealth gap in the City of Dallas, GAF must be amortized.
To undo environmental racism and obtain environmental justice for West Dallas...

GAF's Gotta Go. GAF Vete Ya.



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Newer versions even stack up well against EPA monitors and “show excellent accuracy compared to reference PM_{2.5} measurements” (Mousavi, A., Yuan, Y., Masri, S., Barta, G., & Wu, J. (2021)

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“Effects of air pollution on health: A mapping review of systematic reviews and meta-analyses” Fábio Hech Dominski ¹, Joaquim Henrique Lorenzetti Branco ¹, Giorgio Buonanno ², Luca Stabile ², Manuel Gameiro da Silva ³, Alexandro Andrade ⁴
Affiliations expand PMID: 34116013 DOI: 10.1016/j.envres.2021.111487

“Air Pollution and Noncommunicable Diseases. A review by the International Respiratory Societies’ Environmental Committee, Part 1: The Damaging Effects of Air Pollution” Nov. 8 2018, Chest Journal, Dean Schraufnagel MD, John Barnes MD, Clayton Cowl MD et al

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