

NEWS

Bay Area Regulators Approve Rules to Phase Out Gas Furnaces and Water Heaters

By Matthew Green  Mar 16

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Gas-powered water heaters are displayed at a Home Depot store on March 15, 2023, in San Rafael. The Bay Area Air Quality Management District voted today to ban sales of new natural gas water heaters and furnaces in the nine-county Bay Area by 2027 and 2029, respectively, to help lower pollution from smog-forming nitrogen oxide emissions. (Justin Sullivan/Getty Images)

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county region as part of a concerted effort to reduce air pollution.

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Under [the ambitious timeline \(PDF\)](#) established by the Bay Area Air Quality Management District, only zero-emission, electric water heaters can be sold or installed in Bay Area homes or businesses starting in 2027. The same goes for furnaces starting in 2029, and large commercial water heaters in 2031.

"The 1.8 million water heaters and furnaces in the Bay Area significantly impact our air quality, resulting in dozens of early deaths and a wide range of health impacts, particularly in communities of color," [Philip Fine, executive officer of the Bay Area Air Quality Management District, said in a statement \(PDF\)](#).

Officials emphasized the rules only apply to new water heaters and furnace purchases, and won't require the immediate replacement of existing appliances. People can also still repair

their broken-down gas appliances, but won't be able to purchase new ones after the rules go into effect.

The rules also have no bearing on gas stoves, **an issue that has become a national political flashpoint.**

Still, the air board's move has sweeping implications for the roughly **two-thirds of households in the Bay Area that still rely on natural gas appliances (PDF).**

Gas appliances in residential and commercial buildings in the region account for a similar amount of harmful nitrogen oxide — or NOx — emissions as passenger vehicles, officials said.



NOx emissions contribute to the formation of ozone and smog, and exposure has been linked to asthma and other respiratory conditions, along with increased risk of heart attack, stroke, lung cancer and premature death, officials said.

'This groundbreaking regulation will phase out the most polluting appliances in homes and businesses to protect Bay Area residents from the harmful air pollution they cause.'


—Philip Fine, executive officer, Bay Area Air Quality Management District

"While we're talking about two basic appliances that many of us take for granted in our homes, they have tremendous implications not only from an emissions perspective, but also from a public health perspective," said Fernando Gaytan, attorney with environmental group Earthjustice, which advocated for the new rules.




The move comes less than a year after **California regulators voted to ban the sale of new gas furnaces and water heaters** beginning in 2030.

Bay Area Air Quality  
@AirDistrict · [Follow](#)

The Air District Board voted today to strengthen building appliance rules to reduce harmful NOx and PM2.5 emissions, protecting public health and air quality. New regulations will phase out NOx-emitting natural gas furnaces and water heaters. Learn more: baaqmd.gov/news-and-event...

3:19 PM · Mar 15, 2023 from Vine Hill, CA 

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The agency said the new rules will dramatically improve regional air quality, estimating it will avoid roughly \$890 million in health impacts per year, and about 85 premature deaths, from poor air pollution.

"This groundbreaking regulation will phase out the most polluting appliances in homes and businesses to protect Bay Area residents from the harmful air pollution they cause," Fine said in the statement.

More than 100 public commenters, many voicing support for the new rules, spoke in rapid succession at Wednesday's hearing, including public health experts, renters and a group of eighth-grade students.

"I'm here because I have an 18-month-old grandson who's already using an inhaler," East Bay resident Bill Olson told the air board. "These rules are future looking. ... I urge the board to help my grandson and all young people."

The agency said it hopes to implement the rules equitably and cost-efficiently, noting residents' concerns about the steep cost of buying and installing new electric appliances.

A new, zero-NOx electric heater will cost roughly \$8,030 (PDF), according to air district estimates released Wednesday. An electrical panel upgrade, if necessary, adds another \$2,630 to the total price tag.

Meanwhile, a zero-NOx electric water heater costs about \$2,820, plus roughly \$960 for any needed panel upgrade, the agency estimates.

But some **rebates for home energy-efficiency and electrification projects are currently available** through the Inflation Reduction Act passed by Congress last summer, and will increase significantly in 2024, according to the California Energy Commission. They include an **\$8,000 rebate for heat pumps that can warm and cool homes, \$1,750 for heat pump water heaters and \$4,000 for electrical system upgrades.**

KQED's Anna Marie Yanny and Laura Klivans contributed reporting to this story.

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BUSINESS

California moves to ban natural gas furnaces and heaters by 2030



California is moving to become the first U.S. state to phase out gas-fueled furnaces and water heaters in homes. Los Angeles and several other California cities have passed bans on a wider range of natural gas appliances in new construction, including stoves. (Joerg Sarbach / Associated Press)

BY ANGEL ADEGBESAN | BLOOMBERG

SEPT. 23, 2022 1:08 PM PT

California is [committing to a plan](#) that will make it the first U.S. state to phase out gas-fueled furnaces and water heaters in homes, a move environmentalists are betting will provide a template for other states.

The Golden State will ban the sale of all new natural gas-fired space heaters and water-heating appliances by 2030, under a proposal unanimously approved by the California Air Resources Board on Thursday.

“We need to take every action we can to deliver on our commitments to protect public health from the adverse impacts of air pollution, and this strategy identifies how we can do just that,” board Chair [Liane Randolph](#) said. “While this strategy will clean the air for all Californians, it will also lead to reduced emissions in the many low-income and disadvantaged communities that experience greater levels of persistent air pollution.

“But to truly meet the ozone standard, California needs more federal action to clean up harmful diesel pollution from primarily federally controlled sources, from locomotives and ocean-going vessels to aircraft, which are all concentrated in communities that continue to bear the brunt of poor air quality. We simply cannot provide clean air to Californians without the federal government doing its part,” Randolph said.

The vote Thursday wasn’t the final say on the matter. Rather, it directed state agencies to draft a rule for phasing out gas-fueled appliances that will be up for a final vote in 2025.

“We’re really hopeful that this is the beginning of a domino effect and other states will follow California’s lead,” said [Leah Louis-Prescott](#), a senior associate at RMI , a nonprofit focused on the transition to clean energy.

The proposal is part of a [road map of commitments](#) that the state is pursuing to shrink its carbon footprint and comply with federal air-quality standards. That far-reaching plan contains measures that would allow the state to transition away from burning gas and reduce emissions that cause air pollution and contribute to smog.



BUSINESS

L.A. is banning most gas appliances in new homes. Get ready for electric stoves

May 27, 2022

Because California still gets about 40% of its power from fossil fuels, the transition won't eliminate carbon emissions. The state is targeting a carbon-free grid by 2045.

The proposal does not include gas stoves, but about 50 cities and towns in California, including Los Angeles and San Francisco, have adopted regulations that ban or discourage the use of gas-fueled stoves in new buildings.

The [Los Angeles City Council voted in May](#) to ban most gas appliances in new construction, a policy that's expected to result in new homes and businesses coming equipped with electric stoves, clothes dryers, water heaters and furnaces. The motion left the details to city agencies, directing them to draft a regulation and bring it back to the council for approval by the end of 2022.

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Comments from Greg Ahrens in opposition to The Grant at Mission Trails

1. I am concerned about the 10 ft wide sidewalk zoned for development in this area being waived. If individuals are expected to walk and make the street pedestrian friendly I believe that at least two wheel chairs should be able to easily pass each other. At the narrowest point the sidewalk is 9' wide but the access ramp to the building takes up 5' plus another 1 ft for the ramp wall leaving only 3 ft of sidewalk for pedestrians and wheel chairs to move past ramp/stairs. The scale and/or dimensions do not match up.

To make this area viable for walking individuals and/or wheel chairs there needs to be at least 8 ft of clearance at the sidewalk. The area is zoned for 10 ft sidewalks and owner is requesting a variance. I am against any variance less than 8' clear width.

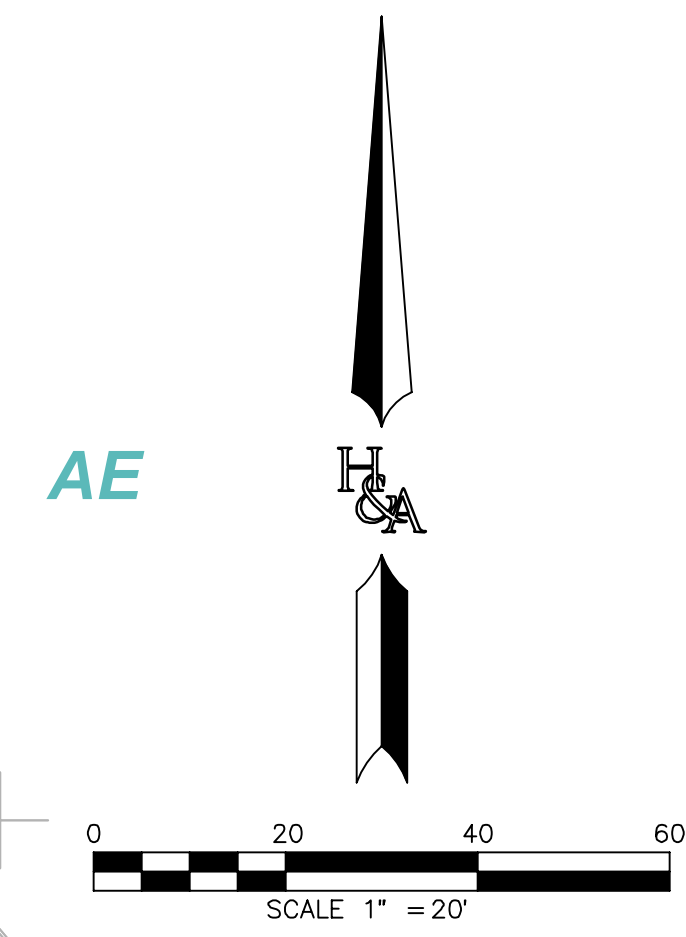
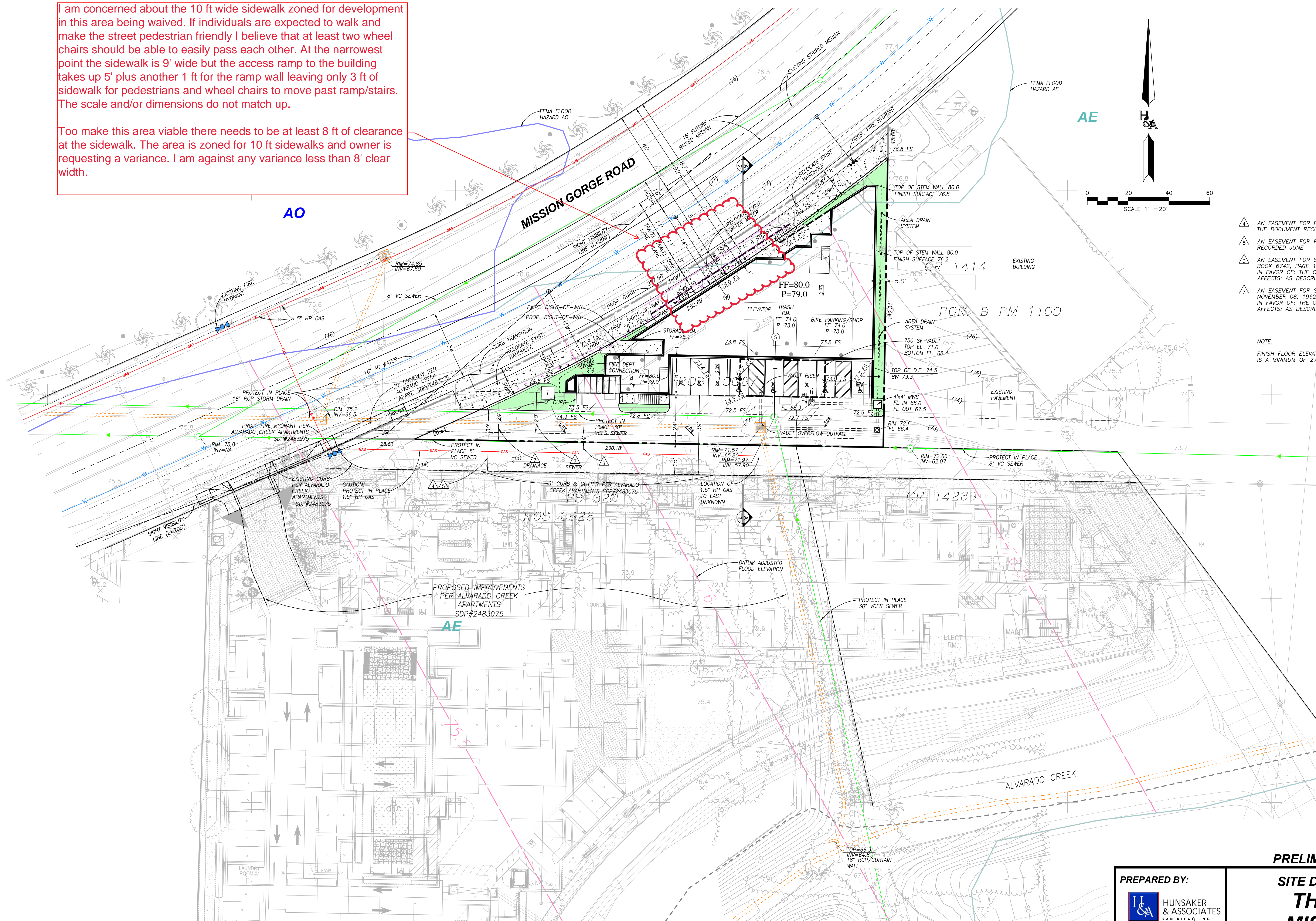
2. Similar to above, this project has 48 units and only eight (8) parking spaces. In order for the individuals living in this facility to move freely around the community and to public transportation the side walk needs to be 10 ft wide. However, the projects access ramp reduces the width to only 3 ft.

3. Handicap parking stalls are within the flood plan. As the owner of a suite in building 5959 Mission Gorge Rd, next door to 5945, I can attest that flood water typical reach 75 ft elevation each year. The elevation of Handicap Parking is 73 ft elevation which will results in 2 ft of flooding damaging vehicles in the parking spaces and making it impossible for handicap individuals to access and move their vehicles.

4. Currently there is a shared driveway between 5945 and 5959 Mission Gorge Rd. This access is used approximately one a month by the Police Department and Fire Department to access land locked property. The site development plan removes this Life Safety access.

I am concerned about the 10 ft wide sidewalk zoned for development in this area being waived. If individuals are expected to walk and make the street pedestrian friendly I believe that at least two wheel chairs should be able to easily pass each other. At the narrowest point the sidewalk is 9' wide but the access ramp to the building takes up 5' plus another 1 ft for the ramp wall leaving only 3 ft of sidewalk for pedestrians and wheel chairs to move past ramp/stairs. The scale and/or dimensions do not match up.

Too make this area viable there needs to be at least 8 ft of clearance at the sidewalk. The area is zoned for 10 ft sidewalks and owner is requesting a variance. I am against any variance less than 8' clear width.



- △ AN EASEMENT FOR RIGHT OF WAY FOR PUBLIC UTILITIES, ROAD AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED JUNE 05, 1950 AS BOOK 3646, PAGE 81 OF OFFICIAL RECORDS.
- △ AN EASEMENT FOR ROAD AND UTILITY AND INCIDENTAL PURPOSES IN THE DOCUMENT RECORDED JUNE 05, 1950 AS BOOK 3646, PAGE 107 OF OFFICIAL RECORDS.
- △ AN EASEMENT FOR SEWERS AND INCIDENTAL PURPOSES, RECORDED SEPTEMBER 11, 1957 AS BOOK 6742, PAGE 191 OF OFFICIAL RECORDS. IN FAVOR OF THE CITY OF SAN DIEGO AFFECTS: AS DESCRIBED THEREIN
- △ AN EASEMENT FOR SEWERS, STORM DRAINS AND INCIDENTAL PURPOSES, RECORDED NOVEMBER 08, 1962 AS INSTRUMENT NO. 1962-191899 OF OFFICIAL RECORDS. IN FAVOR OF THE CITY OF SAN DIEGO AFFECTS: AS DESCRIBED THEREIN

NOTE:
FINISH FLOOR ELEVATION OF ALL HABITABLE SPACE SHOWN HEREON IS A MINIMUM OF 2.0' ABOVE THE BASE FLOOD ELEVATION.

PRELIMINARY GRADING PLAN

PREPARED BY:
H&A
HUNSAKER & ASSOCIATES
SAN DIEGO, INC.
PLANNING 9707 Waples Street
ENGINEERING San Diego, CA 92121
SURVEYING PH080808-0500- PH080808-1144

SITE DEVELOPMENT PERMIT
THE GRANT AT
MISSION TRAILS
CITY OF SAN DIEGO, CALIFORNIA

SHEET
C3
OF
C5



FAX (619) 263-2995
PHONE (619)234-7966
LICENSE 169-983

Atomic Investments, Inc.

FOUNDED 1956

3200 HIGHLAND AVENUE
NATIONAL CITY, CALIFORNIA 91950
www.atomic-inc.com

&
Muirlands Investments, LLC

December 5, 2023

Via Certified Mail, RRR 7022 3330 0002 2699 5173

**City of San Diego
Development Service Department
Hearing Officer**

c/o Stacie Maxwell
1222 First Avenue - MS 501
San Diego, CA 92101

Tel. 619-446-5332
email: smaxwell@sandiego.gov

**RE: City of San Diego Project Number: PRJ-1097856
Project Name: The Grant at Mission Trails; 5945 Mission Gorge Road
Public input for the December 13, 2023 hearing for the subject project.**

Also referenced is the Alvarado Creek Apartments, City's Project Number 671912

Dear Ms. Maxwell:


Please enter this letter and its exhibits into the record for the City's public hearing scheduled to be on December 13, 2023 for The Grant at Mission Trails project. The information which the City has recently provided states that there will not be any increase in the water surface elevation ("WSE") on our property at 4525 Mission Gorge Place due to either The Grant at Mission Trails or the Alvarado Creek Apartment projects. Because of this, we are not objecting to the projects.

As background information, my family owns and manages the upstream property at 4525 Mission Gorge Place. Our primary concern with any development in the area is the potential for an increase in the floodplain. Currently, the structure on our property is outside the floodplain risk area as discussed in the FEMA letter received by us on March 8, 1984, attached hereto as Exhibit A. Any increase to the floodplain that impacts our property could have a significant economic impact. For example, certain tenants, such as the Veterans Administration which had leased this property for many years, have requirements regarding any structures be above the floodplain.

The specific information mentioned above was an email received on November 13, 2023 from Emir Williams with the City's Stormwater Department, attached hereto as Exhibit B. That email included an attachment titled "The Grant at Mission Gorge - 100 Year Storm Event - Water Surface Elevations Summary - 4525 Mission Gorge Place Property" prepared by Hunsaker & Associates and dated September 21, 2023. That graphic demonstrated that the 100 year WSE will actually be reduced, although slightly, as a result of the proposed subject projects.

Please contact me if you have any questions.

Sincerely,
Atomic Investments, Inc.



Philip Teyssier
President

Encl: Exhibits A & B as noted

Copies via email to:

Emir Williams: ewilliams@san Diego.gov
Benjamin Hafertepe: bhafertepe@san Diego.gov
City Attorney: cityattorney@san Diego.gov



RECEIVED MAR 1 2 1984

EXHIBIT A

Federal Emergency Management Agency

Washington, D.C. 20472

MAR 8 1984

IN REPLY REFER TO:
IA-RA-TO (218)

Mr. Leonard E. Teyssier
Teyssier & Teyssier, Inc.
3200 Highland Avenue
National City, California 92050

Dear Mr. Teyssier:

This is in response to your letter of February 3, 1984, requesting that the Federal Emergency Management Agency (FEMA) determine whether Lot 6 of Golden Grantville Industrial Tract, in the City of San Diego, as recorded on Assessors Map No. 3738, in Book 461, Page 21, in the Office of the County Recorder, San Diego County, California, is located within the Special Flood Hazard Area.

On February 15, 1984, we received the technical data necessary to process your request. A review of the Flood Insurance Rate Map (FIRM), with respect to these data, indicates that portions of the above-mentioned property would be inundated by a base flood having a 1-percent chance of occurrence in any given year and, therefore, would be within Zone A. However, we have determined that the existing structure located on the property is not within the Zone A area and, therefore, flood insurance is not required for that structure. The structure is located outside the Special Flood Hazard Area and although flood insurance is not required, it is available at low cost. Any new construction or substantial improvement on the above-mentioned property remains subject to Federal, State, and local regulations for flood plain management, because portions of the property are within Zone A.

If flood insurance was purchased as a requirement of direct Federal or federally related financial assistance for the above-mentioned property, a full refund of the premium paid for the current policy year, less the expense constant, may be obtained from the servicing agent of the National Flood Insurance Program (NFIP) through the particular insurance agent or broker who sold the policy, provided that no claim is pending or has been paid on the policy in question during the same policy year.

In order to facilitate the procedure by which eligible property owners may obtain a refund of premium, a written waiver or certificate must be obtained from the lender that imposed the requirement. The certification will be required by your insurance agent if he or she is to process the premium refund request through the NFIP.

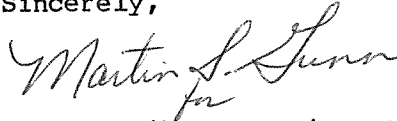
This determination is based on the best flood data available at the present time. The detailed Flood Insurance Study for the City of San Diego is currently being revised and data could be generated that may tend to modify the data used in making this determination. When the revised Flood Insurance Study becomes effective, it will supersede this Letter of Map Amendment. The Federal requirement for the purchase of flood insurance will be based on the then effective FIRM.

The above-stated results of your request for exemption from the Federal requirement for the purchase of flood insurance are based on minimum criteria established by FEMA for flood plain management regulations and are intended only to reflect your status in relation to the Federal requirement for the purchase of insurance. Community officials, based on knowledge of local conditions and in the interest of human safety, may set higher standards for construction in the flood plain than the minimum criteria established by FEMA. If the State of California or the City of San Diego has adopted more restrictive and comprehensive flood plain management criteria, these criteria take precedence over the minimum Federal criteria for the purpose of regulating development in the flood plain. This policy is set forth in Section 60.1(d) of the NFIP.

This determination has the effect of amending FEMA Map Number 060295, Panel 0136B, dated August 15, 1983, for the City of San Diego, California. The City of San Diego and the State Coordinating Agency are being provided with copies of this letter of determination.

If you have any questions, or if we can be of further assistance, please contact our Technical Operations Division at (202) 287-0230.

Sincerely,



John M. Gibson, Assistant Administrator
Office of Risk Assessment
Federal Insurance Administration

Philip Teyssier

From: Williams, Emir <EWilliams@sandiego.gov>
Sent: Monday, November 13, 2023 10:05 AM
To: Philip Teyssier; scott.harry@karnengineering.com
Cc: SDAT City Attorney
Subject: Follow-up information regarding WSE at 4525 Mission Gorge Place
Attachments: Mission Gorge WSE 100YR.pdf

Hello, Philip, and Scott –

Thanks again for expressing your concerns regarding the two projects that neighbor **4525 Mission Gorge Place**.

In July, we provided you with modeling results from the **Alvarado Creek Apartment** project to show that the proposed development will not negatively impact the area's water surface elevations. The data tables showing the differences between the existing and proposed conditions can be found at the bottom of this email, and your property sits between cross sections 3675 and 3445.

The recently proposed **The Grant at Mission Trails** project neighbors **4525 Mission Gorge Place** as well, and due to its proximity to the **Alvarado Creek Apartment** project, the developers were willing to share their modeling data to ensure that the final proposed map accurately reflects the water surface elevations with both projects present.

The attached **Mission Gorge WSE 100YR Exhibit** shows the proposed water surface elevations along **4525 Mission Gorge Place** with both the **Alvarado Creek Apartment** and **The Grant at Mission Trails** projects in place.

Due to the certified data not showing a negative impact on the water surface elevations, **The Grant at Mission Trails** project will now be allowed to proceed with their submittal to FEMA, whose approval is required before the grading permit can be issued.

If you have any questions regarding the previously provided **Alvarado Creek Apartment** project or the attached **The Grant at Mission Trails** project, please feel free to contact me directly.

Thank you and take care.

Emir Williams

Certified Floodplain Manager
Stormwater Department
City of San Diego

Cell: (619) 209-0629
ewilliams@sandiego.gov
www.thinkblue.org



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communication is strictly prohibited. If you received this e-mail message in error, please immediately notify the sender by replying to message or by telephone. Thank you.

From: Williams, Emir

Sent: Tuesday, July 18, 2023 1:04 PM

To: Philip Teyssier <philip@atomic-inc.com>

Cc: scott.harry@karnengineering.com; SDAT City Attorney <CityAttorney@sandiego.gov>; Salom, Mia <MSalom@sandiego.gov>

Subject: RE: EMAIL 1 of 2 Impact of the Alvarado Creek Apartments on 4525 Mission Gorge Place

Hello, Philip and Harry –

Thanks for expressing your concerns, and we appreciate your patience.

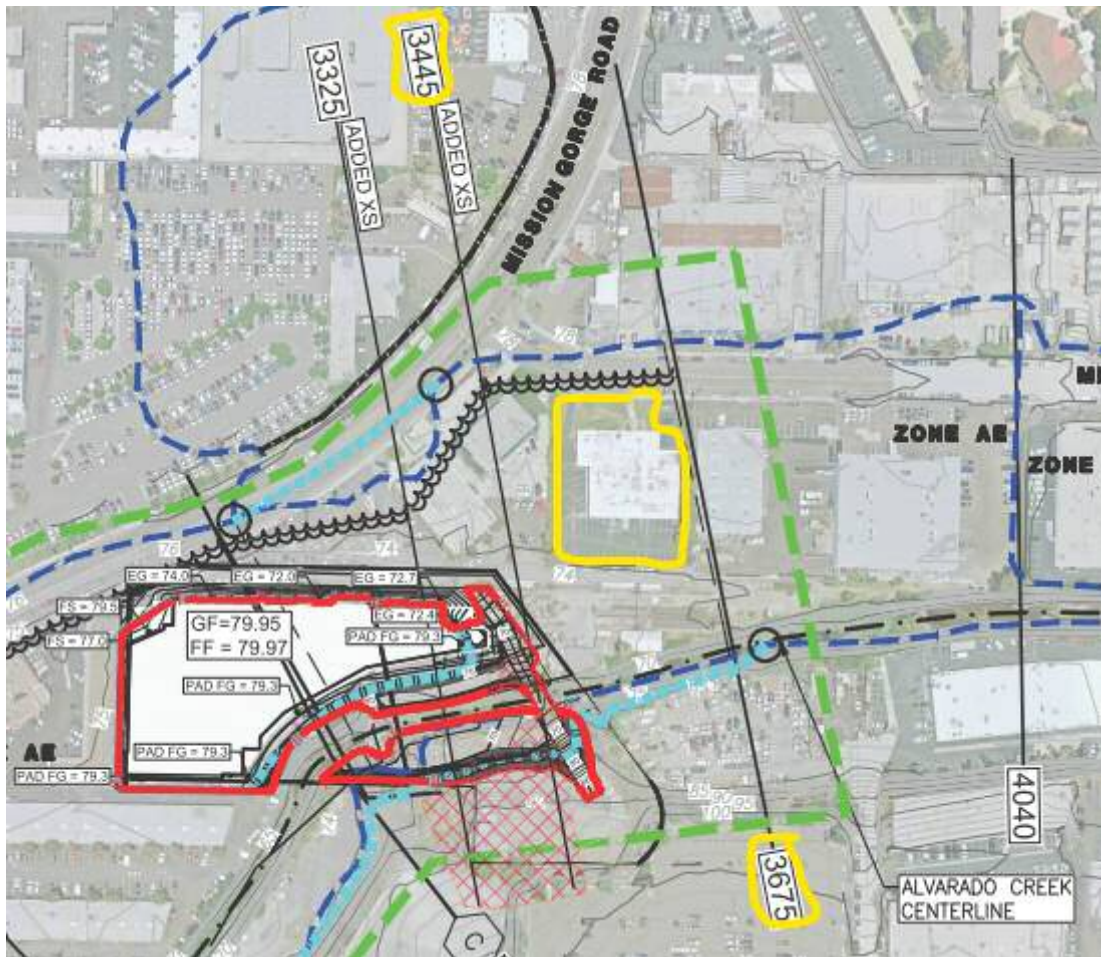
The information was shared with the developer, and they volunteered to re-evaluate the design.

As a result, the proposed conditions will no longer cause an increase to the 100-year water surface elevations between cross sections 3675 and 3445.

We have highlighted your property in yellow on the map below, and highlighted the Existing and Proposed condition results in the tables below.

Please confirm your receipt, and please let me know if you have any additional questions.

Thank you!



HEC-RAS Plan: ExistCondition River: AlvaradoCreek Reach: Lower

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	C
Lower	4396	10-year	2700.00	70.80	77.19	
Lower	4396	50-year	4500.00	70.80	78.80	
Lower	4396	100-year	4247.50	70.80	78.50	
Lower	4396	500-year	4400.00	70.80	78.69	
Lower	4300	10-year	2700.00	69.80	77.57	
Lower	4300	50-year	4500.00	69.80	78.63	
Lower	4300	100-year	4247.50	69.80	78.81	
Lower	4300	500-year	4400.00	69.80	79.25	
Lower	4040	10-year	2700.00	69.00	77.42	
Lower	4040	50-year	4500.00	69.00	78.32	
Lower	4040	100-year	4247.50	69.00	78.61	
Lower	4040	500-year	4400.00	69.00	79.10	
Lower	3675	10-year	2700.00	68.50	76.48	
Lower	3675	50-year	4500.00	68.50	77.34	
Lower	3675	100-year	5100.00	68.50	78.09	
Lower	3675	500-year	6500.00	68.50	78.68	
Lower	3670		Lat Struct			
Lower	3445	10-year	2700.00	66.63	74.99	
Lower	3445	50-year	4500.00	66.63	76.80	
Lower	3445	100-year	5100.00	66.63	77.22	
Lower	3445	500-year	6490.04	66.63	77.72	

HEC-RAS Plan: Prop Cond River: AlvaradoCreek Reach: Lower

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)
Lower	4396	10-year	2700.00	70.80	77.19
Lower	4396	50-year	4500.00	70.80	78.80
Lower	4396	100-year	4247.50	70.80	78.50
Lower	4396	500-year	4400.00	70.80	78.69
Lower	4300	10-year	2700.00	69.80	77.57
Lower	4300	50-year	4500.00	69.80	78.64
Lower	4300	100-year	4247.50	69.80	78.81
Lower	4300	500-year	4400.00	69.80	79.26
Lower	4040	10-year	2700.00	69.00	77.42
Lower	4040	50-year	4500.00	69.00	78.33
Lower	4040	100-year	4247.50	69.00	78.61
Lower	4040	500-year	4400.00	69.00	79.12
Lower	3675	10-year	2700.00	68.50	76.45
Lower	3675	50-year	4500.00	68.50	77.29
Lower	3675	100-year	5100.00	68.50	78.09
Lower	3675	500-year	6500.00	68.50	78.47
Lower	3670		Lat Struct		
Lower	3445	10-year	2700.00	66.66	74.66
Lower	3445	50-year	4500.00	66.66	76.78
Lower	3445	100-year	5100.00	66.66	77.20
Lower	3445	500-year	6471.43	66.66	77.89

From: Philip Teyssier <philip@atomic-inc.com>
Sent: Tuesday, June 6, 2023 9:28 AM
To: Williams, Emir <EWilliams@san Diego.gov>
Cc: scott.harry@karnengineering.com; SDAT City Attorney <CityAttorney@san Diego.gov>
Subject: [EXTERNAL] RE: EMAIL 1 of 2 Impact of the Alvarado Creek Apartments on 4525 Mission Gorge Place

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Hello Emir,
Thank you for letting me know.

PHIL

Philip Teyssier
President
Atomic Investments, Inc.
3200 Highland Avenue, B4-2
National City, CA 91950
T 619-234-7966 F 619-263-2995
philip@atomic-inc.com

From: Williams, Emir <EWilliams@san Diego.gov>
Sent: Tuesday, June 6, 2023 9:24 AM
To: Philip Teyssier <philip@atomic-inc.com>

Cc: scott.harry@karnengineering.com; SDAT City Attorney <CityAttorney@san Diego.gov>

Subject: RE: EMAIL 1 of 2 Impact of the Alvarado Creek Apartments on 4525 Mission Gorge Place

Good morning, Philip –

Thanks for meeting with us last Tuesday and thank you for providing the attached information in response to my request for the documents that were provided to FEMA.

I will look through the attached information, and I'll let you know if I have any questions.

Please allow me a week to go through them and to touch base with others as needed.

Thank you,

From: Philip Teyssier <philip@atomic-inc.com>

Sent: Tuesday, June 6, 2023 9:06 AM

To: Williams, Emir <EWilliams@san Diego.gov>

Cc: scott.harry@karnengineering.com; SDAT City Attorney <CityAttorney@san Diego.gov>

Subject: [EXTERNAL] RE: EMAIL 1 of 2 Impact of the Alvarado Creek Apartments on 4525 Mission Gorge Place

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Dear All,

Please email me a confirmation that you rec'd both emails.

Thanks, PHIL

Philip Teyssier

President

Atomic Investments, Inc.

3200 Highland Avenue, B4-2

National City, CA 91950

T 619-234-7966 F 619-263-2995

philip@atomic-inc.com

From: Philip Teyssier

Sent: Monday, June 5, 2023 2:58 PM

To: 'Williams, Emir' <EWilliams@san Diego.gov>

Cc: scott.harry@karnengineering.com; 'cityattorney@san Diego.gov' <cityattorney@san Diego.gov>

Subject: EMAIL 1 of 2 Impact of the Alvarado Creek Apartments on 4525 Mission Gorge Place

Dear All:

Please open the attached. Exh 3 is being sent under a second email due to its file size. Please email back with confirmation that you rec'd both emails.

Thanks, PHIL

Philip Teyssier

President

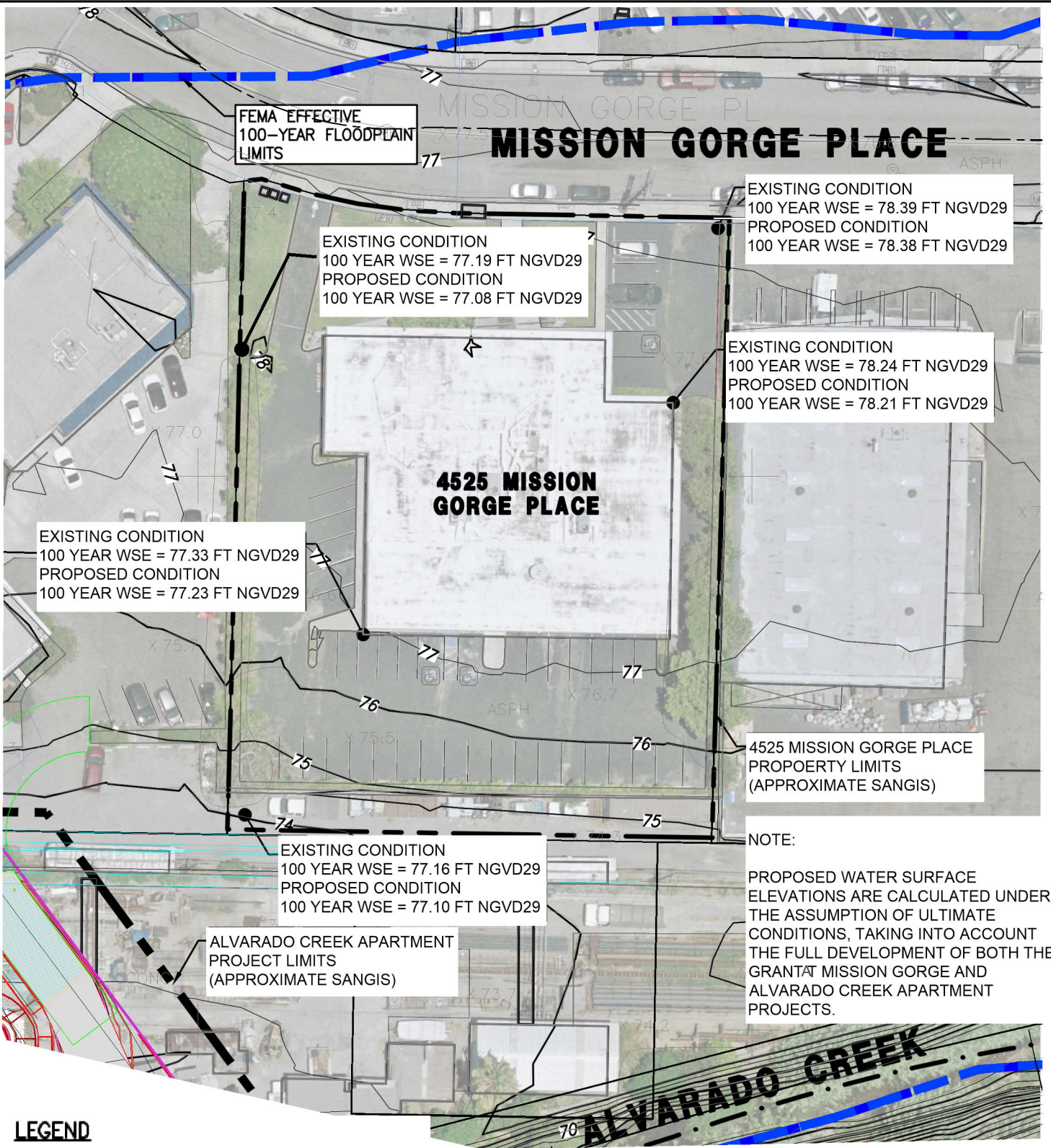
Atomic Investments, Inc.

3200 Highland Avenue, B4-2

National City, CA 91950

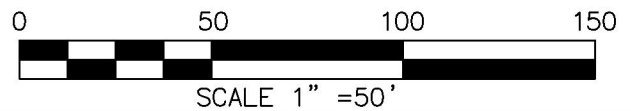
T 619-234-7966 F 619-263-2995

philip@atomic-inc.com



LEGEND

- 75 — EXIST. MAJOR ELEV. CONTOUR
 - 74 — EXIST. MINOR ELEV. CONTOUR
- ELEVATIONS REFERENCED TO NGVD 29.



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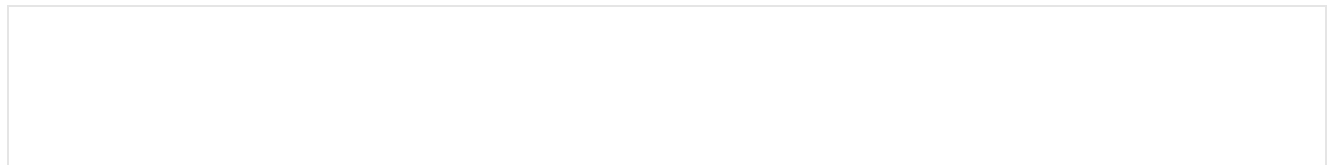
The Health Risks of Gas Stoves Explained

Gas stoves produce emissions that can harm human health and the environment. Experts answer questions about the dangers and how to limit them

By Tanya Lewis on January 19, 2023



Credit: Sean Gladwell/Getty Images



The Internet has been aflame in recent days over gas stoves—specifically, over whether they are harmful to human health and can or should be banned in the U.S. But this is not a new issue.

Scientists have long known that gas stoves emit pollutants that irritate human airways and can cause or exacerbate respiratory problems. The recent furor seems to have been set off by comments recently made by Richard Trumka, Jr., a commissioner of the Consumer Product Safety Commission (CPSC), a government agency that addresses the risk of illness and injury from various products. Speaking about the commission's plans to potentially regulate gas stoves, Trumka told Bloomberg News that "any option is on the table. Products that can't be made safe can be banned."

In response, conservative politicians (and Democratic Senator Joe Manchin) pushed back strongly against what they perceived as an attempt to ban gas stoves. House Republicans even introduced legislation to prohibit the CPSC from outlawing the popular cooking appliances. The chair of the CPSC recently clarified that the commission is not planning any kind of ban but is seeking public comment to make gas stoves safer.

Scientific American spoke with several experts about the health and environmental risks posed by gas stoves. The answers below are based on their responses.

Do gas stoves produce emissions that are harmful to human health?

Gas stoves burn natural gas, which generates a number of invisible by-products. The biggest concern for human health is nitrogen dioxide (NO₂). This gas is produced when natural gas is burned at high temperatures in the presence of nitrogen in the atmosphere, according to Josiah Kephart, an assistant professor in the department of environmental and occupational health at Drexel University. "We've known for a long time that [nitrogen dioxide] has many harmful effects on health," he says.

The Environmental Protection Agency regulates outdoor NO₂ emissions, setting standards for their safe exposure limit. But there are no similar standards for indoor exposure. Nevertheless, studies dating back decades have shown harmful effects from the NO₂ in gas cooking stoves.

"Our knowledge of the health impacts of outdoor NO₂ has grown dramatically in the last 10 years, and we have found that it is much more of a health risk than perhaps we previously thought," Kephart says. And the impacts of breathing NO₂ indoors are no different from those of doing so outdoors. "It has the same effect on your body," he says.

Studies have also found that unburned natural gas leaks from stoves—and this gas contains benzene, a known carcinogen. In addition, cooking in general creates fine particulates with a

diameter of 2.5 microns or less (PM_{2.5}), a known irritant that can cause or exacerbate respiratory problems.

What are the known health effects from NO₂ exposure?

In a 1992 meta-analysis of studies on this topic, scientists at the EPA and Duke University found that nitrogen dioxide exposure that is comparable to that from a gas stove increases the odds of children developing a respiratory illness by about 20 percent. Since then, numerous other studies have documented the effects of gas stove exposure on respiratory health. A 2013 meta-analysis of 41 studies found that gas cooking increases the risk of asthma in children and that NO₂ exposure is linked with currently having a wheeze. Most recently, a study published last December found that 12.7 percent of childhood asthma cases in the U.S. can be attributed to gas stove use. (This result was found by essentially multiplying a measure of the previously reported risk of developing asthma from gas stove exposure by the proportion of children who live in housing with gas stoves.)

The American Gas Association (AGA), a natural gas industry group, issued a statement pushing back against the December 2022 study that linked gas cooking with asthma. The statement claimed the study authors did not conduct measurements of real-life appliance use and ignored some of the scientific literature on this topic. The AGA cited a separate study that found no evidence of a link between cooking with gas and asthma symptoms of diagnosis.

Scientific American also reached out to the American Public Gas Association, a nonprofit trade association, for comment but has not received a response to questions at press time.

Most of the studies on the health effects of cooking gas have been observational because it would obviously be unethical to intentionally expose children to environmental risks, says Ulrike Gehring, an associate professor at the Institute for Risk Assessment Sciences at Utrecht University in the Netherlands and a co-author of the 2013 meta-analysis. Still, some past studies have measured NO₂ concentrations in various indoor settings and have shown that people with asthma have more severe symptoms when they're exposed to higher levels of the gas. Although observational studies cannot prove that cooking with gas causes asthma, Gehring says, accounting for other risk factors such as parental asthma and secondhand tobacco smoke "increases our confidence" that it does.

In addition to acute effects such as asthma symptoms, long-term nitrogen dioxide exposure has also been linked to chronic lung disease and increased mortality in general.

Are the effects seen in both children and adults?

Though most of the relevant research has focused on children, there have been some studies on adults. Some of these investigations have found a stronger association between gas stove use and respiratory symptoms in women, suggesting that they may be exposed to more nitrogen dioxide—possibly during cooking—Gehring says.

If I already have a gas stove, what steps can I take to reduce the risks?

If you have the means, you can replace your gas stove with an electric one. The Inflation Reduction Act provides rebates of up to \$840 for purchasing new electric appliances, including stoves and cooktops. (Eligibility varies by state and income level.)

But if you can't afford to buy a new stove or if you rent an apartment and can't change the appliances, experts note that there are still things you can do to reduce your exposure risk.

If your stove has an overhead vent, you should use it every time you cook—and ideally it should vent to the outside. “You should always turn that exhaust fan on anytime that you're using your stove, no matter if you're just boiling water,” says Eric Lebel, a senior scientist at PSE Healthy Energy, a nonprofit research and policy institute in Oakland, Calif. “Even if what you're cooking doesn't smell, if that flame is on, you should have the exhaust on to help reduce the concentrations of the off-gassing, or those [nitrogen oxide] by-products, in the kitchen.”

Unfortunately, many people don't use their vents. They work best when they're running at full blast, which can be pretty loud, and the filter should be changed about every three months, Kephart says. And some overhead vents merely recirculate the air back into a room. If you don't have a “ducted hood” that vents to the outside, you can open a window and run a fan to increase ventilation, Lebel says. Portable air purifiers may also help, Kephart says, although they don't completely remove the NO₂.

You can reduce the amount of time you run your stove by using electric kettles and pressure cookers. You can also buy an electric cooktop; some are available for around \$100 or less.

Do gas stoves produce emissions that are bad for the climate?

Yes. Burning natural gas produces carbon dioxide, the most prevalent greenhouse gas. And unburned natural gas contains another potent culprit: methane. A 2022 study by Lebel and his colleagues found that gas stoves leak this unburned methane, which is not directly harmful to human health but accumulates in the atmosphere, where it traps heat and contributes to climate change. Lebel and his team found that methane emissions from gas stoves in U.S. homes could have as much impact on the climate as half a million cars.

And the problem isn't just our stoves themselves. "We've known for years that there's methane leaks in the [natural gas] distribution system, especially in cities on the East Coast, where the infrastructure is a lot older," Lebel says. "And then, even further upstream than that, there are leaks from transmission and from production." All of those leaks add up and contribute to the climate impact of the natural gas supply chain, he adds.

What about other gas appliances?

Gas water heaters, furnaces and driers also produce emissions and could leak methane as well, Lebel says. People may not be exposed to these emissions as directly as they are when cooking on a stove, but these appliances still produce pollution. The only way to completely prevent that is to use electric appliances, Lebel says.

Should gas stoves be regulated? And if so, how?

It's unlikely that existing gas stoves will be banned outright, so if you have a gas stove and want to keep it, you can. But regulatory bodies could, for example, try to set requirements that all gas stoves be sold with a fume hood that vents to the outside or that pipes be better fitted to prevent leaks. And some cities, including New York and several cities in California, have already passed legislation requiring that gas stoves and other gas appliances be phased out in certain types of new construction.

But I like my gas stove. Doesn't it cook better?

This is a common response among people who like cooking with gas. But in some cases, this view may be influenced by paid promotions from the gas industry. Gas stoves do get hot faster than conventional electric ones. But induction stoves—a type of electric appliance that heats food by inducing an electromagnetic field—are also very fast and more energy efficient.

If you love your gas stove, you don't necessarily have to get rid of the appliance. But it's a good idea to take some precautions to reduce the risks to yourself and your household.

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