SdeArmijo, Anita

From:	Elaine Cimino <ecimino10@gmail.com>
Sent:	Monday, November 6, 2023 8:12 AM
To:	SdeArmijo, Anita; Antoinette
Subject:	Proposal Comments for Integration of NO2 Data into the Health, Environmental, and Equity Impact Ordinance (HEEI)
Attachments:	Final Written Comments By E Cimino on HEEI .pdf

Follow Up Flag:	Follow up
Flag Status:	Completed

> **[EXTERNAL]** Forward to phishing@cabq.gov and delete if an email causes any concern.

Dear Members of the Albuquerque Bernalillo County Air Quality Control Board (AQCB),

I am writing to express our strong interest in the integration of nitrogen dioxide (NO2) data into the Health, Environmental, and Equity Impact Ordinance (HEEI), which plays a crucial role in framing environmental justice initiatives. Our primary focus is on aligning this integration within the framework of the Environmental Protection Agency's (EPA) Environmental Justice Geographic Information Systems (EJ GIS) Tool.

Our commitment to advancing environmental equity and addressing air quality disparities drives our belief that the inclusion of NO2 data is not only essential but also represents a significant step toward achieving these vital goals. Our primary concern is that without inclusion into the HEEI of the utilization of NO2 satellite data, the Environmental Health Department (EHD) may overlook the potential benefits and insights that such data could bring to the table.

This integration perfectly aligns with the commitment of the AQCB and the EPA to address environmental disparities and enhance air quality for all communities. Furthermore, it prepares EHD for the use of the EJ GIS Tool for future advancements in satellite technology, ensuring its continued relevance and utility.

In light of our shared commitment to environmental justice and improved air quality, we kindly request that you take a moment to review the proposals and the compelling reasons for the inclusion of NO2 data, as outlined in the subsequent sections with additional language insertions. Our proposal aims to enhance the efficacy of the HEEI, furthering its impact and ensuring it remains a valuable tool for the community. Our proposals include:

2.) Language insertion regarding the age limits of impacts of childhood illnesses from air pollution. Citations Attached in comments.

3.) Extending the radius of an area of concern from air pollution impacts.

We respectfully request that the AQCB and EHD adopt these proposals, ensuring that the HEEI remains a dynamic and powerful instrument for advancing environmental justice and improving air quality. Your support and commitment to these initiatives will undoubtedly contribute to a healthier, more equitable environment for all residents of Albuquerque and Bernalillo County.

Thank you for your time and consideration.
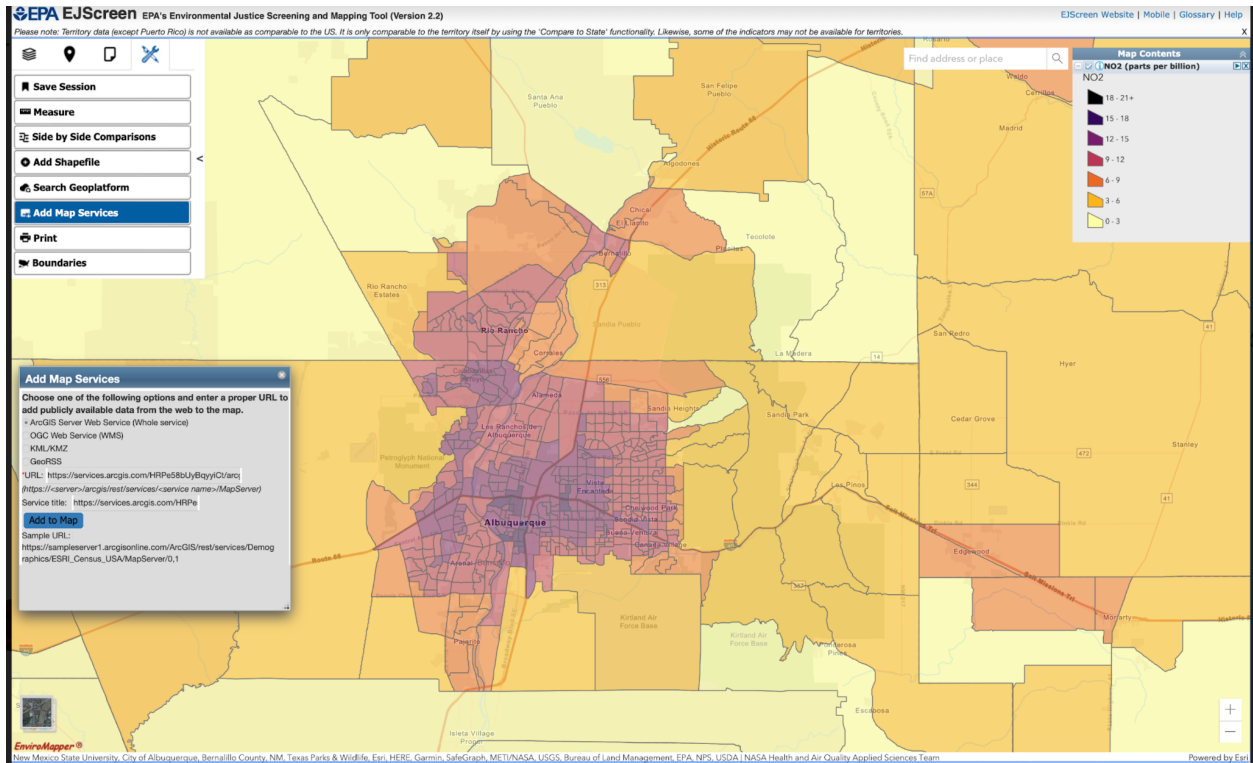
Sincerely,

Elaine Cimino

Written Comments by a Party In the HEEI Ordinance process

907 Nyasa RD SE Rio Rancho NM 87124

505- 604-9772

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Nothing is more perishable than our relationship with the Earth."

Caption: NO2 Satellite Data 2019 API REST Dataset Integration within the EPA EJ Tool on a ArcGIS platform to monitor and track emissions in real to near-real time.

Albuquerque Bernalillo County Air Quality Control Board (AQCB) Written Comments by a Party for the Record on the HEEI Ordinance

AQCB Petition No. 2022-03

Elaine Cimino, Pro Se

11/6/23

Please find this submission as a strong interest in the integration of nitrogen dioxide (NO2) data into the Health, Environmental, and Equity Impact Ordinance, (HEEI) which frames environmental justice initiatives, particularly within the framework of the Environmental Protection Agency (EPA) Environmental Justice Geographic Information Systems (EJ GIS) Tool. As a concerned group deeply committed to advancing environmental equity and addressing air quality disparities, we believe that the inclusion of NO2 data is not only essential but also represents a significant step towards achieving these goals. Our primary concern is that without the utilization of NO2 satellite data, the Environmental Health Department (EHD) may overlook the potential benefits and insights that such data could bring to the table.

In the following sections, you will find detailed proposals, explanations, and supporting information regarding the integration of NO2 data into the EJ GIS Tool. This proposal is aimed at enhancing the tool's capabilities and equipping regulators with a powerful resource to improve air quality management, feasibly target enforcement efforts, and address environmental justice disparities for considering new air permits.

This integration aligns with the commitment of the Albuquerque Bernalillo County Air Quality Control Board (AQCB) and the EPA to address environmental disparities and enhance air quality for all communities. Furthermore, it prepares EHD for the use of the EJ GIS Tool for future advancements in satellite technology, ensuring its continued relevance and utility.

Please take a moment to review the proposals and the compelling reasons for the inclusion of NO2 data, as outlined in the subsequent sections with additional language insertions.

Contacting Petitioners and Engaging with Stakeholders

Elaine Cimino reached out to attorneys representing the petitioners to explore the potential inclusion of the following proposals:

1.) Our primary concern is that if the ordinance language does not incorporate the use of NO2 satellite data, the Environmental Health Department (EHD) may not give it due consideration. The NO2 API data sets are sourced from the University of Wisconsin, NASA, and MIT, gathered from satellite observations on a daily basis. This specific dataset was developed using 2019 data to illustrate the impact of Census tract data on pollution in various neighborhoods. Citations below

2.) Language insertion regarding the child age limits of impacts of illnesses from air pollution.

3.) extending the radius of an area of concern from air pollution impacts

Proposed Additions to the HEEI

A.) Considering Future Satellite Data and API Data Sets in the EJ Tool Census Tract Data

We respectfully request that the AQCB and EHD adopt this Enhancement Proposal for the EPA Environmental Justice Geographic Information Systems (EJ GIS) Tool for integration of NO2 Satellite data for the HEEI analysis and report. This proposal enhances the tool, equipping communities and the EHD with a valuable resource for mitigation and enforcement when approving new air permits and allows it to be an open-source database that is accessible to the public and will help visualize point source pollution for all parties.

The integration of API NO2 REST Data Sets represents an enhancement to the EPA Environmental Justice Geographic Information Systems (EJ GIS) Tool by incorporating nitrogen dioxide (NO2) data sets derived from satellite observations, such as those currently provided by TOLNET and TROPOMI and other Current daily satellite reports. While the current tool offers valuable insights into environmental justice disparities, the inclusion of NO2 data can provide significant advantages in assessing air quality and environmental equity. The current EJ tool does not include NO2, missing out on the benefits such an inclusion would offer.

We kindly request the inclusion of language that mandates this integration, and the following explains why such inclusion is essential.

Advantages of Integrating NO2 Data Sets:

> **Enhanced Air Quality Assessment:** Incorporating NO2 data sets will enable a more comprehensive evaluation of air quality in underserved communities. NO2 is a key indicator of air pollution with well-documented health implications.
>
> **Identification of Pollution Sources:** By mapping NO2 concentrations, the tool can identify pollution sources, such as industrial facilities, traffic corridors, and other emission points, which may disproportionately affect vulnerable populations.
>
> **Temporal Analysis:** Integrating satellite-derived NO2 data allows for time-series analysis, helping regulators and policymakers track changes in air quality over time and assess the effectiveness of emissions reduction measures.
>
> **Hotspot Detection:** NO2 data can pinpoint pollution hotspots within environmental justice communities, aiding in prioritizing mitigation efforts and enforcement actions.
>
> **Cross-Border Analysis:** For regions with cross-border pollution concerns, NO2 data can provide valuable insights into the transboundary movement of pollutants, facilitating cooperation between regulatory agencies.
>
> **Public Awareness:** Making NO2 data available within the EJ GIS Tool can raise public awareness about air quality disparities, motivating community engagement and support for pollution reduction initiatives.
>
> **Data-Driven Decision-Making:** Integration of satellite NO2 data promotes data-driven decision-making, enabling regulators and environmental organizations to allocate resources more effectively and address environmental justice concerns with precision.

We strongly recommend that both EHD and the AQCB consider integrating NO2 data sets into the existing EPA EJ GIS Tool, leveraging satellite technology to enhance environmental

justice assessments. This enhancement addresses environmental disparities and improves air quality for all communities.

The inclusion of NO2 data in the EPA EJ GIS Tool takes a forward-looking approach to prepare the tool for future advancements in satellite technology. As satellite technology continues to evolve, integrating additional satellite data, such as other air pollutants or climate-related indicators, can further enhance the tool's utility for environmental justice evaluations.

Regarding the integration of NO2 data, we propose incorporating NASA's satellite-based NO2 concentration models. The NASA Health and Air Quality Applied Sciences Team (HAQAST) has developed a high-resolution dataset for surface-level NO2 concentrations worldwide for the year 2019, with a 1 km resolution. This dataset combines land use regression, OMI NO2 data (L2 and L4-surface), and chemical transport modeling. Detailed information about this dataset can be found in Anenberg, Mohegh et al.'s publication (https://doi.org/10.1016/S2542-5196(21)00255-2, see supplemental pages 1-3). The data is provided in units of parts per billion and is averaged within the 2010 decadal census block group levels, similar to Kerr et al.'s approach (https://doi.org/10.1073/pnas.2022409118).

Here is an example of the Satellite data set integration using the API REST links where NO2 can be visualized locally and nationally. This link allows monitoring 2019 data air pollution impacts
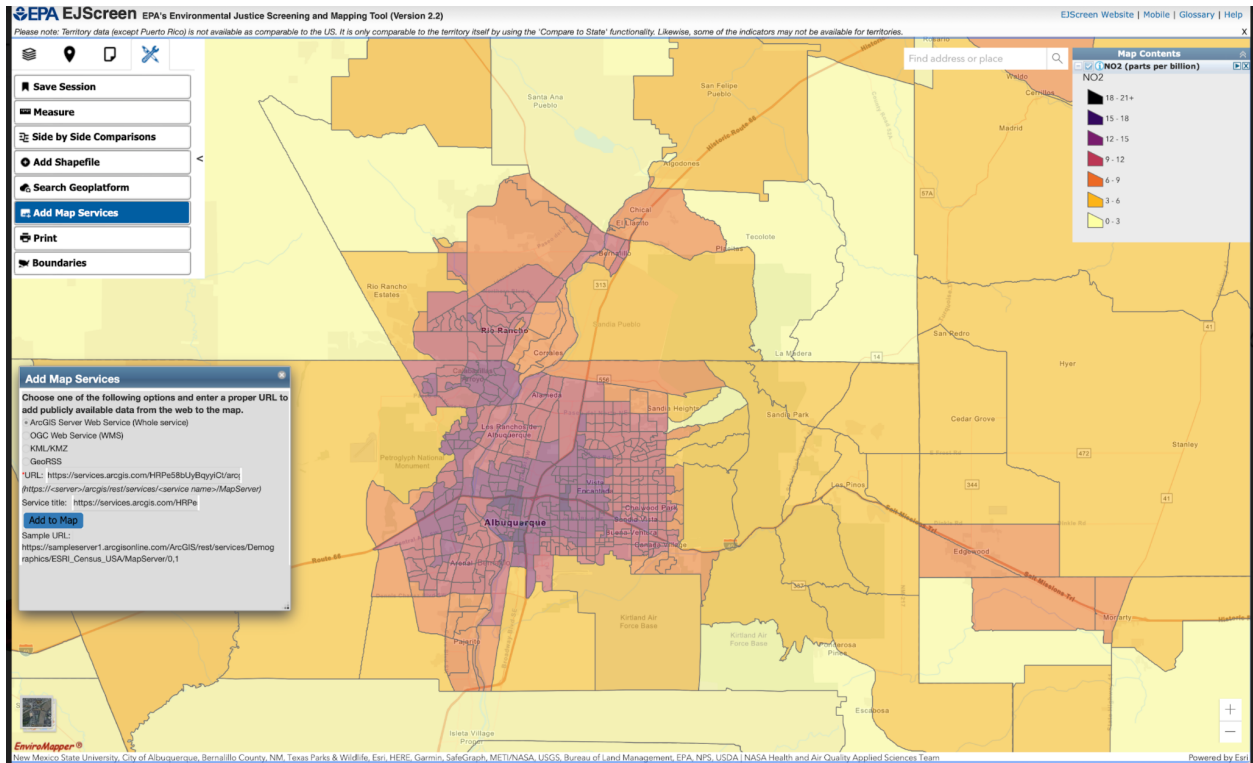
Caption: NO2 Satellite Data 2019 API REST Dataset Integration within the EPA EJ Tool on a ArcGIS platform to monitor and track
emissions in real to near-real time.

It is important to recognize that exposure to nitrogen dioxide (NO_2) can have various health impacts, particularly when individuals are exposed to elevated levels over an extended period. These health effects include:

- **Respiratory Problems:** NO_2 can irritate the respiratory system, resulting in symptoms such as coughing, wheezing, and shortness of breath. Individuals with pre-existing respiratory conditions like asthma or chronic obstructive pulmonary disease (COPD) may experience exacerbated symptoms.
- **Increased Susceptibility to Respiratory Infections:** Prolonged exposure to NO_2 can weaken the immune system's defenses in the respiratory tract, making individuals more vulnerable to respiratory infections like bronchitis and pneumonia.

- **Aggravation of Existing Health Conditions:** NO2 exposure can worsen the symptoms of individuals with pre-existing cardiovascular conditions, potentially leading to heart attacks or other cardiovascular problems.
- **Reduced Lung Function Growth in Children:** Children exposed to elevated NO2 levels may experience reduced lung function growth, which can have long-term consequences for their respiratory health.
- **Increased Risk for Hospitalization:** Short-term exposure to high NO2 levels has been associated with increased hospital admissions for respiratory and cardiovascular issues, particularly in vulnerable populations.
- **Exacerbation of Allergies:** NO2 can amplify the body's response to allergens, potentially worsening allergies and asthma symptoms.

We firmly believe that the integration of NO2 data into the EPA EJ GIS Tool would strengthen its capabilities and provide greater protection to all communities within the county and across boundaries. The Clean Air Act requires EPA to set national ambient air quality standards for nitrogen oxides as one of the six criteria pollutants. The NAAQS for nitrogen oxides are currently set using NO_2 as the indicator of the larger group of nitrogen oxides. These enhancements align with the latest research findings and contribute to a more comprehensive understanding of environmental justice concerns.

For further information and access to relevant papers and datasets, please refer to the following resources:

- [Link to NO2 Data Source](#)
- [Anenberg, Mohegh et al. (2021) - The Lancet Article](#)
- [Kerr et al. (2020) - PNAS Article](#)

Monitoring nitrogen dioxide (NO2) levels from satellites like TEMPO (Tropospheric Emissions: Monitoring of Pollution) and TROPOMI (Tropospheric Monitoring Instrument), as well as other current satellites providing daily data scans, can significantly aid regulators in enforcing source emissions regulations and improving air quality management and addressing the conditions for a new air permit. Here's how:

Source Identification: These satellites offer high-resolution data on NO2 concentrations over vast geographic areas, enabling regulators to pinpoint specific industrial facilities, power plants, or transportation hubs emitting significant levels of NO2. Identifying these sources is crucial for targeted enforcement efforts and for new air permits.

While RACT, which stands for Reasonably Available Control Technology (RACT) and satellite data do not directly interface, the information provided by satellite observations can play a valuable role in supporting RACT efforts. By improving the understanding of pollutant levels, identifying sources, and verifying emissions, satellite data indirectly contributes to the development and implementation of effective control measures in accordance with RACT requirements. RACT, is a mandatory requirement for pre-existing sources situated in regions that fail to meet the national ambient air quality standards, often referred to as non-attainment areas.

On the other hand, BACT, or Best Available Control Technology, is obligatory for significant new or modified sources located in clean areas, typically known as attainment areas.

This underscores our argument that integrating satellite data with the EPA Census tract tool is imperative for enhancing the effectiveness of RACT and BACT. Such an interface would empower regulators and the public with concrete data regarding pollution impacts, health-related concerns, and issues related to environmental equity.

B.) Language insertions under HEEI PERMIT IMPACTS SCREENING and the HEEI Analysis and Report

We are requesting the following considerations to the HEEI ordinance. Please see our motion that includes the change from one Mile to 5 miles by using the U.S. Census tract data.

1.) Expand the One Mile radius to 5 miles through interface areas between Metro, urban and rural areas.

In making this suggestive change we used the criteria set by the U.S. Census tract data on the way boundaries can be extended for consideration of pollution impacts. We were asked by petitioners to define Rural and Urban, as follows:

2.) Definitions on Rural and Urban

For the 2020 Census, an urban area will comprise a densely settled core census blocks that meet
minimum housing unit density requirements, along with adjacent territory containing
non-residential urban land uses as well as territory with low population density included to link
outlying densely settled territory with the densely settled core.

To qualify as an urban area, the territory identified according to criteria must encompass at least
2,000 housing units or at least 5,000 people. The designation of "rural" encompasses any
population, housing, and territory not included in an urban area.
https://www.federalregister.gov/documents/2022/12/29/2022-28286/2020-census-qualifying-urban-areas-and-final-criteria-clarifications

https://www.govinfo.gov/content/pkg/FR-2022-03-24/pdf/2022-06180.pdf

Changes to the 2020 Census includes an **increase** in the maximum "jump" distance for
including non-contiguous densely settled qualifying territory from 1.5 miles to 2.5 miles,
and introduction of the "hop" concept to link across short spaces (up to one-half mile) of
Low-density territory to qualify non-contiguous densely settled blocks. The rule set
requires that one can hop several times except after a jump.

The specific criteria used to define urban areas for the 2020 Census were published in the Federal

Register of March 24, 2022. Final criteria clarifications will be published in the 2020 Census Qualifying Urban Areas and Final Criteria Clarifications Federal Register notice on Thursday,

December 29, 2022 as well as separate tables on

https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html

This consideration is well defined and spelled out and would be another tool which to define what permits were acceptable under these proposed rules..

Bernalillo County References the Entire County as Urban

The Urban-rural interface is a transitional geographic space, bordering between urban and rural areas and experiencing intensive flows of material, energy and information, in terms of goods, money, people, data and ideas. **This interface can be viewed as a physical space exhibiting climatic, topographical, soil, hydrological and bioecological properties, and more importantly, as a humanistic space exhibiting social, cultural and economic properties.**

https://www.sciencedirect.com/science/article/abs/pii/S0743016718301402#:~:text=The%20Urban%2Drural%20interface%20is,%2C%20people%2C%20data%20and%20ideas.

There are three territorial classifications according to the U.S. Census Bureau and using census tract

data to define the areas:

> **Metro Area** -- Albuquerque, New Mexico, is part of the Albuquerque "metropolitan statistical area"
>
> (MSA), which includes Bernalillo, Sandoval, Torrance, and Valencia counties.

The U.S. Census Bureau defines these areas based on factors like population and commuting patterns. While there are housing requirements that can also be factored in. The Albuquerque MSA consists of both urban and rural areas and is used for statistical and demographic purposes. Census tracts are subdivisions of counties, and they are used for more detailed data collection and analysis. Albuquerque and the surrounding areas have census tracts within the MSA boundaries. The specific census tracts within the MSA can change over time due to changes in population and demographics, so please refer to the most recent census data or maps to get precise information on the current census tracts within the Albuquerque MSA.

Urban Area- To qualify as an urban area, the territory identified according to criteria must

encompass at least 2,000 housing units or at least 5,000 people.

Rural Area- The designation of "rural" encompasses any population, housing, and territory not

included in an urban area.

A description of differences between the 2020 Census Urban Area criteria and 2010 Census Urban Area criteria are available on our website. Changes include:

• Raising the minimum threshold for qualification as an urban area to 2,000 housing units or

5,000 people.

• Use of primarily housing unit density instead of population density when delineating

urban areas.

• No longer including low-density hop and jump corridor blocks in the urban area (resulting

in noncontiguous urban areas). 6 Changes to the 2020 Census includes an Increase in the

maximum "jump" distance for including non-contiguous densely settled qualifying territory

from 1.5 miles to 2.5 miles, and introduction of the "hop" concept to link across short spaces

(up to one-half mile) of low-density territory to qualify non-contiguous densely settled

blocks.

• Use of Longitudinal Employer-Household Dynamics Origin-Destination Employment

Statistics (LODES) commuting data to determine whether to split agglomerations of

continuous urban development and if so, where to draw the boundary.

Understanding and Using American Community Survey Data

What Users of Data for Rural Areas Need to Know U.S. Census Bureau Other federal agencies and

programs use different classification systems to define rural and urban areas (see Box 1.1).

For example, the U.S. The Department of Agriculture's Economic Research Service (ERS) uses Rural-Urban Commuting Area (RUCA) codes to classify census tracts based on measures of

Box 1.1. How Federal Agencies Define Rural and Urban Areas

Federal agencies do not have a standard definition of "rural." Definitions differ in terms of minimum population thresholds that are applied to distinguish urban areas from rural areas (for instance, fewer than 2,500 people, 5,000 people, or 10,000 people) and different geographic building blocks (census blocks, census tracts, ZIP Code Tabulation Areas, places, or counties).

In some classifications, "rural" represents one category among many—as in the U.S. Department of Agriculture's Rural-Urban Commuting Areas or the National Center for Education Statistics' School Locale Codes. In other classifications, rural is one of two categories, the other is "urban." In both multilevel and two-level ("dichotomous") classifications, rural may be simply a residual category—that is, whatever is left over after the other categories are defined.

Rural (and urban) definitions may also differ in terms of the kinds of areas or landscapes they represent. Some definitions are based on political or administrative units; for example, a city or town of fewer than 10,000 people may be defined as rural. Other definitions, like the Census Bureau's urban and rural classification, may refer to settlement patterns that are based on measures of population density.

Finally, definitions may refer to social and economic relationships, often defined based on a measure of interaction between an urban center and surrounding territory. The Office of Management and Budget's Metropolitan and Micropolitan Statistical Areas classification, described below, is an example of this type of classification.

The U.S. Department of Agriculture's Economic Research Service offers a variety of materials to help data users navigate these various definitions on its Rural Classifications Web page.*

* U.S. Department of Agriculture, Rural Classifications: Overview, <www.ers.usda.gov/topics/rural-economy-population/rural-classifications/>.

population density, urbanization, and commuting patterns.

The Census Bureau does not publish ACS estimates based on these RUCA codes, but data users could merge tract-level ACS estimates with the ERS codes to compare population and housing patterns across rural and urban communities.

https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/

Some of the problems associated with the Federal US Census changes that need to be considered when approving new air permits are:

● citing loss of statistical continuity for small communities

● citing issues related to the complex, multi-piece urban areas that would result.

● concern about the loss of distinction between Urban Clusters and Urbanized Areas (though

this is only a change in terminology—it still will be possible to distinguish between different

sizes of urban areas based on population).

● concern about using housing unit density instead of population density.

● concern that the minimum housing unit density threshold of 385 housing units per square

mile (HPSM) was too high.

● splitting large urban area agglomerations or the use of the Longitudinal

Employer-Household Dynamics (LEHD) data.

● Favored no change to the 2.5-mile maximum jump distance threshold. Reasons for retention

of the 2.5-mile maximum jump distance provided by these commenters included retaining

consistency with the 2010 Census urban area delineation, the ability to account for future

urbanization and extended suburbanization, and mitigation of the presence of

undevelopable land not identified by the Census Bureau.

● regarding the proposed use of the census block as the analysis unit (or geographic building

block) during the delineation of the initial urban area core. These commenters expressed

concern that the use of census blocks instead of census tracts would lead to the shrinking of

the population and geographic area of urban areas.

The specific criteria for setting interface zones can vary, but typically, the Census Bureau considers

factors such as population density, land use, and commuting patterns. Here are some common

criteria used to define these interface zones including undeveloped lands, whereas areas such as

forests, agricultural would fall under rural:

Population Density: Interface zones are often determined based on a threshold population

density. Areas with higher population density are more likely to be classified as urban, while

areas with lower population density are classified as rural.

Land Use: The types of land use in an area can also play a role in determining its

classification. Areas with commercial, industrial, or residential development may be

considered urban, while areas primarily used for agriculture, forestry, or open space may be

classified as rural.

Commuting Patterns: Commuting patterns can be used to define interface zones. For

example, areas where a significant portion of the population commutes to urban centers for

work or other activities may be considered part of the urban interface.

Infrastructure and Services: The availability of urban infrastructure and services like

water supply, sewage systems, and public transportation can also influence the classification

of an area.

Local Zoning and Planning: Local zoning regulations and planning documents may

influence how an area is classified. Some areas may be officially designated as urban or rural

by local governments.

Geographic Features: Natural geographic features such as mountains, rivers, and other

physical barriers can influence the boundaries of interface zones.

Links

https://www2.census.gov/geo/pdfs/reference/ua/Census_UA_2020FAQs.pdf

https://www.census.gov/programs-surveys/geography/guidance/geo-areas/urban-rural.html

USDA ERS - Rural Classifications

Here is a Link to a draft mapping project that will integrate the data we put forward in this document.

This will include updated satellite API REST datasets to track emissions throughout the region. There are several layers of data that must be toggled on and off to see the layer you want. We included the maps of interests in this document.

https://geotransparency.maps.arcgis.com/apps/mapviewer/index.html?webmap=83f68998faca4cb490ce55a90f5dc9f7

C.) Under **Health, Environment and Equity Impact Analysis and Report**
List on Page 9 of the 10-2-23 Petitioner's exhibit

Proposed language insertion is needed to Protect Children health from chronic illness

"An ADAF of 5 shall be applied for minors (under 18 years of age) experiencing asthma."

Citation Annenberg Link to NO2 Data Source

The NASA Health and Air Quality Applied Sciences Team created a high-resolution dataset of surface-level NO2 concentrations globally for 2019 at 1km resolution. The surface NO2 combines land use regression, OMI NO2 data (L2 and L4-surface), and chemical transport modeling (Anenberg, Mohegh et al. https://doi.org/10.1016/S2542-5196(21)00255-2, see supplement pg 1-3). This service provides the 2019 year's gridded data averaged within the 2010 decadal census block group levels (as in Kerr et al.

https://doi.org/10.1073/pnas.2022409118) in units of parts per billion.

- [Anenberg, Mohegh et al. (2021) - The Lancet Article](#)

[Kerr et al. (2020) - PNAS Article](#)

Request made on the submission regarding 10/2/2023 Page 9 and 10 of the draft petition ARCGIS of Interface at 2.5 Miles the 5 mile would double the area of concern. The five mile zone includes the Pueblo of Isleta, Sandia Pueblo and other trust lands. Changes to be made on several pages in the draft petition also submitted.