



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-1000

This Worksheet was designed to be used by those “Partners” (including Public Housing Authorities, consultants, contractors, and nonprofits) who assist Responsible Entities and HUD in preparing environmental reviews, but legally cannot take full responsibilities for these reviews themselves. Responsible Entities and HUD should use the RE/HUD version of the Worksheet.

Air Quality (CEST and EA) – PARTNER

<https://www.hudexchange.info/environmental-review/air-quality>

- 1. Does your project include new construction or conversion of land use facilitating the development of public, commercial, or industrial facilities OR five or more dwelling units?**

Yes → *Continue to Question 2.*

No → *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Provide any documents used to make your determination.*

- 2. Is your project’s air quality management district or county in non-attainment or maintenance status for any criteria pollutants?**

Follow the link below to determine compliance status of project county or air quality management district:

<http://www.epa.gov/oaqps001/greenbk/>

No, project’s county or air quality management district is in attainment status for all criteria pollutants

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Continue to the Worksheet Summary below. Provide any documents used to make your determination.*

Yes, project’s management district or county is in non-attainment or maintenance status for one or more criteria pollutants. → *Continue to Question 3.*

- 3. Determine the estimated emissions levels of your project for each of those criteria pollutants that are in non-attainment or maintenance status on your project area. Will your project exceed any of the *de minimis* or *threshold* emissions levels of non-attainment and maintenance level pollutants or exceed the screening levels established by the state or air quality management district?**

No, the project will not exceed *de minimis* or threshold emissions levels or screening levels

→ *If the RE/HUD agrees with this recommendation, the review is in compliance with this section. Explain how you determined that the project would not exceed *de minimis* or *threshold* emissions.*

Yes, the project exceeds *de minimis* emissions levels or screening levels.

→ Continue to Question 4. Explain how you determined that the project would not exceed *de minimis* or threshold emissions in the Worksheet Summary.

4. For the project to be brought into compliance with this section, all adverse impacts must be mitigated. Explain in detail the exact measures that must be implemented to mitigate for the impact or effect, including the timeline for implementation.

Please see section below and model output PDF.

Worksheet Summary

Provide a full description of your determination and a synopsis of the information that it was based on, such as:

- Map panel numbers and dates
- Names of all consulted parties and relevant consultation dates
- Names of plans or reports and relevant page numbers
- Any additional requirements specific to your program or region

Include all documentation supporting your findings in your submission to HUD.

The Yolo-Solano Air Pollution Control District area does not attain the federal air pollution standards for ozone (1-hour and 8-hour). The area is also non-attainment for the 24-hour PM_{2.5} standard. For PM₁₀, the area is designated “unclassified”. See attached sheet for more information.

CalEEMod is a model developed for evaluating air quality impacts from new developments. It is used by all air districts in California and provides estimates of both construction and operation emissions. Emissions from this project were modeled with CalEEMod and a summary output is provided below. Viable mitigations for this project were included in the modeling, and they show about a 30% reduction below business as usual. The following avoidance measures will be implemented to reduce air quality impacts for construction and operations:

1. Limit Heavy-Duty Diesel Vehicle Idling (this is also required by state rules).
2. Use Tier 3 or 4f engines for all diesel equipment.
3. The project integrates Affordable and Below Market Rate Housing.
4. The project provides Electric Vehicle Charging Infrastructure.
5. The project location is oriented toward transit, bicycle, and pedestrian travel.
6. The project provides permanent bike parking.

Davis is part of the Yolo-Solano Air Pollution Control District. The air district regulates stationary sources and, while it does not have direct permitting authority, it recommends emission control strategies for residential projects. The air district has adopted so-called “Thresholds of Significance” for three classes of air pollution: Reactive Organic Gases (ROG), Oxides of Nitrogen (NO_x), and Respirable Particulate 10 microns or smaller (PM₁₀). The first two compounds react in the presence of sunlight to create ozone, commonly called ‘smog’. PM₁₀ is harmful to breath and can damage agricultural production. The air districts thresholds of significance, which can be considered **de minimis levels**, are shown below, along with modeled construction and operation emissions. Note that ROG and NO_x thresholds are expressed in tons-per-year, while PM₁₀ is expressed in pounds-per-day.

Compound	Significance Threshold	Project construction	Project. operation
ROG	10 tpy	0.1 tpy with mitigation	1 tpy with mitigation
NOx	10 tpy	0.6 tpy with mitigation	0.8 tpy with mitigation
PM10	80 lbs/day	71.2 lbs/day with mitigation	5.2 lbs/day with mitigation

The project, with implementing the avoidance measures stays below the Yolo-Solano APCD significance thresholds and is in conformity with the Clean Air Act.

Ambient Air Quality Standards				
Pollutant	Averaging Time	California Standards	National Standards	
		Concentration	Primary	Secondary
Ozone (O3)	1 hour	0.09 ppm (180 µg/m3)	1979 standard - 0.12 ppm	
	8 hour	0.070 ppm (137 µg/m3)	1997 standard - 0.08 ppm	
			2008 standard - 0.075 ppm	
			2015 standard - 0.070 ppm	
Respirable Particulate Matter (PM10)	24 hour	50 µg/m3	150 µg/m3	
	Annual Arithmetic Mean	20 µg/m3	---	
Fine Particulate Matter (PM2.5)	24 hour	---	2006 standard - 35 µg/m3	
	Annual Arithmetic Mean	12 µg/m3	1997 standard - 15.0 µg/m3	
			2012 standard - 12.0 µg/m3	15.0 µg/m3
Carbon Monoxide (CO)	1 hour	20 ppm (23 mg/m3)	35 ppm (40 mg/m3)	
	8 hour	9.0 ppm (10 mg/m3)	9.0 ppm (10 mg/m3)	
	8 hour (Lake Tahoe)	6 ppm (7 mg/m3)	---	
Nitrogen Dioxide (NO2)	1 hour	0.18 ppm (339 µg/m3)	100 ppm (188 µg/m3)	
	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	0.053 ppm (100 µg/m3)	
Sulfur Dioxide (SO2)	1 hour	0.25 ppm (655 µg/m3)	75 ppm (196 µg/m3)	
	3 hour	---	---	0.5 ppm (1300 µg/m3)
	24 hour	0.04 ppm (105 µg/m3)	0.14 ppm (for certain areas)	
	Annual Arithmetic Mean	---	0.030 ppm (for certain areas)	
Lead	30 day average	1.5 µg/m3	---	
	Calendar quarter	---	1.5 µg/m3 (for certain areas)	
	Rolling 3-month average	---	0.15 µg/m3	
Visibility Reducing Particles	8 hour	Extinction of 0.23 per kilometer	No National Standards	
Sulfates	24 hour	25 µg/m3		
Hydrogen Sulfide	1 hour	0.03 ppm (42 µg/m3)		
Vinyl Chloride	24 hour	0.01 ppm (26 µg/m3)		
		Attainment		
		Unclassified		
		Non-attainment		

Bretton Woods Davis Summary Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Bretton Woods Davis
Construction Start Date	8/15/2023
Operational Year	2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	4.80
Location	39960 W Covell Blvd, Davis, CA 95616, USA
County	Yolo
City	Davis
Air District	Yolo/Solano AQMD
Air Basin	Sacramento Valley
TAZ	316
EDFZ	4
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.14

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
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Apartments Mid Rise	150	Dwelling Unit	3.95	144,000	3,000	—	415	low income senior
User Defined Educational	1.00	User Defined Unit	0.00	2,746	500	—	—	Community Bldg

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-2*	Limit Heavy-Duty Diesel Vehicle Idling
Construction	C-5	Use Advanced Engine Tiers
Transportation	T-4	Integrate Affordable and Below Market Rate Housing
Transportation	T-14*	Provide Electric Vehicle Charging Infrastructure
Transportation	T-32*	Orient Project Toward Transit, Bicycle, or Pedestrian Facility
Transportation	T-34*	Provide Bike Parking

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	PM10E	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—
Unmit.	63.7	39.8	1.81	150	15.6	5,522
Mit.	63.7	39.8	1.81	150	15.6	5,522
% Reduced	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—
Unmit.	63.7	20.1	0.94	150	15.6	4,051
Mit.	63.7	20.1	0.94	150	15.6	4,051
% Reduced	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—
Unmit.	3.94	5.97	0.25	71.2	7.38	1,945
Mit.	3.94	5.97	0.25	71.2	7.38	1,945
% Reduced	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—
Unmit.	0.72	1.09	0.05	13.0	1.35	322
Mit.	0.72	1.09	0.05	13.0	1.35	322
% Reduced	—	—	—	—	—	—

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	PM10E	PM10T	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—
Unmit.	8.70	5.51	0.13	7.63	2.03	11,329
Mit.	7.44	4.11	0.11	5.46	1.47	8,470
% Reduced	15%	25%	19%	28%	28%	25%
Daily, Winter (Max)	—	—	—	—	—	—
Unmit.	7.53	6.30	0.13	7.62	2.03	10,515
Mit.	6.37	4.65	0.10	5.45	1.46	7,882
% Reduced	15%	26%	19%	28%	28%	25%
Average Daily (Max)	—	—	—	—	—	—
Unmit.	7.70	5.70	0.12	7.25	1.93	10,233
Mit.	6.61	4.23	0.10	5.19	1.39	7,684
% Reduced	14%	26%	19%	28%	28%	25%
Annual (Max)	—	—	—	—	—	—
Unmit.	1.41	1.04	0.02	1.32	0.35	1,694
Mit.	1.21	0.77	0.02	0.95	0.25	1,272

% Reduced	14%	26%	19%	28%	28%	25%
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6. Climate Risk Detailed Report

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	0	0	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	5	1	1	4
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

7. Health and Equity Details

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	35.0
Healthy Places Index Score for Project Location (b)	86.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.