

MEMO

Date: **August 12, 2026**

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Subject: **TECHNICAL MEMORANDUM ON AIR QUALITY, GREENHOUSE GAS, AND HEALTH RISK IMPLICATIONS OF PROPOSED BAYER LRDP PROJECT MODIFICATIONS**
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At the request of Bayer U.S., LLC, Ramboll Americas Engineering Solutions, Inc. (Ramboll) reviewed the potential impact of potential increased demolition associated with the proposed modifications to the Bayer Long-Range Development Program (LRDP) Project at 800 Dwight Way in Berkeley, California to air quality, health risk, and greenhouse gas conclusions in the California Environmental Quality Act (CEQA) Addendum. The scope of this review is only on the change in demolition and does not address any other project changes.

The proposed modification includes removing 2500 7th Street/ 2520 8th Street (APN 54-1777-1) from the boundary of the Bayer Campus, and incorporating 811 Carleton Street (APN 54-1770-4-2) and the portion of Carleton Street fronting 811 Carleton Street into the boundary of the Bayer Campus (the "modified project"). The additional parcel (APN 54-1770-4-2) contains the approximately 84,000-square-foot former foundry complex, which the Addendum contemplates might be demolished (though at this time, there is no foreseeable development on this additional parcel). Because the parcel removed from the Bayer Campus (APN 54-1777-1) contains surface parking rather than buildings, the modified project could increase the building area subject to demolition relative to the assumptions evaluated in the previously certified Subsequent Environmental Impact Report (SEIR) certified by the City of Berkeley in December 2021.¹ Ramboll prepared the air quality, health risks, and greenhouse gas analyses included in Appendix C and Appendix D of the SEIR. The modification would not increase the amount of new development authorized under the LRDP.

¹ Bayer HealthCare LLC, Development Agreement Amendment Project Subsequent Environmental Impact Report (State Clearinghouse No. 2020100559), certified May 2021.

Ramboll evaluated whether the additional demolition would affect the SEIR’s conclusions regarding construction criteria air pollutant (CAP) emissions, greenhouse gas (GHG) emissions, and health risks.

1. EVALUATION APPROACH

The SEIR analysis assumed demolition of approximately 269,000 square feet of existing structures across the A-North, C-North, and A-South blocks. The modified project adds the potential demolition of the approximately 84,000-square-foot foundry complex, which is located between the C-North, B-North and A-South blocks, and could increase the total demolition area to approximately 353,000 square feet. The inclusion of the foundry complex represents a 31.2 percent increase in total demolition area.

The SEIR assumed that all demolition would occur during the first modeled construction year, 2024. Although 2024 is not necessarily the actual first year of construction, using 2024 as the modeled year provides a conservative basis for evaluation because the SEIR concentrated all demolition-related emissions in a single construction year rather than spreading those emissions over a longer construction schedule. Furthermore, assuming construction would occur in earlier years tends to result in conservative emissions because fleetwide average emissions decrease with time as construction equipment is replaced with newer, lower emitting equipment to meet the more stringent state standards.

Ramboll evaluated the additional demolition by applying a factor of 1.312 to the demolition-related CAP emissions, GHG emissions, and health risks previously calculated for 2024. The incremental demolition emissions and risks were then added to the previously reported project totals and compared against the Bay Area Air District thresholds of significance assumed in the SEIR.

This screening-level approach conservatively assumes that demolition emissions would increase in direct proportion to demolition area. Actual emissions would depend on the eventual demolition methods, equipment, duration, materials, and hauling requirements. However, because no project-specific demolition plan is currently available, proportional scaling provides a reasonable method for evaluating whether the additional demolition could affect the prior significance conclusions.

2. FINDINGS

2.1 Construction Criteria Air Pollutant Emissions

As shown in **Table A**, scaling the demolition emissions in SEIR Appendix C Table CON-8 by 31.2 percent would increase the total Year 10 Project construction emissions in 2024 by approximately 0.11 to 3.4 percent, depending on the pollutant. Demolition activity does not occur during any year other than 2024, therefore, all other results shown in the SEIR Appendix C Table CON-8 and CON-9 would remain unchanged.

Table A: Annual Construction Criteria Air Pollutants with Additional Demolition Activity

Pollutant	SEIR 2024 Emissions (lb/day)			Modified Project 2024 Emissions (lb/day)		Increase	Bay Area Air District Threshold (lb/day)
	Demo	Non-Demo	Total	Updated Demo	Total		
ROG	0.047	13	13	0.061	13	0.11%	54
NOx	0.84	6.9	7.8	1.1	8.0	3.4%	54

PM₁₀	0.035	0.49	0.53	0.047	0.54	2.1%	82
PM_{2.5}	0.021	0.28	0.30	0.027	0.31	2.2%	54

Note: Values are rounded. Percentage changes were calculated using unrounded results. SEIR Emissions from Table CON-8 of SEIR Appendix C.

Table A indicates that the revised emissions would remain well below the applicable Bay Area Air District thresholds for criteria air pollutants from construction activity with the updated demolition activity. The modified project would also remain subject to Mitigation Measures AQ-1 and AQ-2, requiring implementation of construction dust-control measures and use of Tier 4 construction equipment. Accordingly, the additional demolition would not change the SEIR’s conclusion that construction criteria air pollutant impacts would be less than significant with mitigation incorporated.

2.2 Greenhouse Gas Emissions

The SEIR estimated approximately 65 metric tons of carbon dioxide equivalent (MT CO₂e) from demolition in 2024 as shown in SEIR Appendix C Table CON-8. Scaling the GHG emissions from demolition from by 31.2 percent results in approximately 20 additional MT CO₂e or an increase of approximately 2.6 percent as shown in **Table B**.

Table B: Annual Construction Greenhouse Gas Emissions with Additional Demolition Activity

Greenhouse Gas Emissions	SEIR 2024 Emissions (lb/day)	Modified Project 2024 Emissions (lb/day)	Increase
	785	806	2.6%

Note: Values are rounded. Percentage changes were calculated using unrounded results. SEIR Emissions from Table CON-8 of SEIR Appendix C.

The SEIR included demolition activities in the Year 10 construction greenhouse gas analysis and concluded that the project would not make a cumulatively considerable contribution to climate change. This conclusion was based on an evaluation of the overall project greenhouse gas inventory, including construction and operational emissions, and consistency with applicable greenhouse gas reduction measures and policies. The additional demolition would result in a small increase in demolition-related greenhouse gas emissions during a single year of construction but would not change project operations or long-term greenhouse gas emissions. The SEIR, in evaluating annual greenhouse gas emissions from the project’s land use development, compared non-stationary source project emissions, which included all non-stationary sources of operational emissions and amortized construction emissions, to the Bayer Campus development plan approved in 1991 (the “1991 Development Plan”), and concluded in the SEIR Appendix E Table GHG-17 the project would generate 5,573 MT CO₂e fewer emissions in Year 10 and 4,500 MT CO₂e fewer emissions in Year 30 than the 1991 Development Plan. The modified project would also be expected to generate fewer emissions than the 1991 Development Plan, though savings are slightly less. Specifically, the modified project would generate 5,572 MT CO₂e fewer emissions in Year 10 than the 1991 Development Plan. The Year 30 non-stationary source GHG emissions would not change since demolition activity was only accounted for in the Year 10 Project scenario. It is anticipated that, with the applicant’s commitment to use 100 percent carbon-free electricity by 2030 to comply with mitigation measure GHG-1, project GHG emissions associated with the Bayer Campus’ land use development plan would continue to be de minimis

The SEIR also evaluated emissions from stationary sources, and concluded in the SEIR Appendix E Table GHG-17 the Year 10 project would result in a net increase of approximately 7,586 MT of CO₂e

per year as compared to existing conditions, and the Year 30 project would result in a net increase of approximately 7,584 MT of CO₂e per year as compared to existing conditions. Both were less than the threshold of 10,000 MT of CO₂e per year. The project modification would not add any additional stationary sources, and impacts would remain unchanged.

Therefore, the additional demolition would not significantly affect the greenhouse gas analysis or alter the conclusions presented in the SEIR.

2.3 Health Risks

Ramboll applied the 31.2 percent scaling factor only to the demolition-related health risk impacts from the SEIR Appendix C Tables HRA-5 and HRA-9 and retained the contributions from all other construction and operational sources to develop modified total health outcomes. The results for the residential maximally exposed individual (MEI) and the daycare MEI as shown in **Table C** and **Table D**, respectively. The revised Year 10 Construction results indicate that the health risk outcome would increase from a range of 0.91 percent to 4.5 percent depending on the MEI and the health outcome.

Table C: Modified Project Construction HRA Results for Residential MEI

Resident MEI	SEIR Health Risk			Modified Project Health Risk		Increase	Bay Area Air District Threshold
	Demo	Non-Demo	Total	Updated Demo	Total		
Excess Cancer Risk (in a million)	0.039	0.93	1.0	0.051	1.0	1.2%	10
Chronic Hazard Index (unitless)	4.7E-05	0.0011	0.0012	6.2E-05	0.0012	1.3%	1
PM _{2.5} Concentration (µg/m ³)	3.8E-04	0.013	0.013	5.0E-04	0.013	0.91%	0.3

Note: Values are rounded. Percentage changes were calculated using unrounded results. SEIR Risks from Table HRA-5 of SEIR Appendix C.

Table D: Modified Project Construction HRA Results for Daycare MEI

Daycare MEI	SEIR Health Risk			Modified Project Health Risk		Increase	Bay Area Air District Threshold
	Demo	Non-Demo	Total	Updated Demo	Total		
Excess Cancer Risk (in a million)	0.44	3.3	3.7	0.58	3.9	3.7%	10
Chronic Hazard Index (unitless)	1.8E-04	0.0013	0.0015	2.4E-04	0.0015	3.8%	1
PM _{2.5} Concentration (µg/m ³)	0.0015	0.0090	0.011	0.0020	0.011	4.5%	0.3

Note: Values are rounded. Percentage changes were calculated using unrounded results. SEIR Risks from Table HRA-5 of SEIR Appendix C.

The 2021 SEIR also evaluated the combined Year 10 health risks from construction and operational sources, including demolition, other construction activities, emergency generators, boilers, traffic, and laboratory isopropyl alcohol usage. To evaluate the modified project, Ramboll applied the 31.2 percent

scaling factor only to the demolition-related contribution and retained the contributions from all other construction and operational sources without adjustment. The results for the Modified Project's combined construction and operation HRA are presented in **Table E** and **Table F** for the residential and daycare MEIs. The revised combined construction and operational results indicate that the health risk outcome would increase by less than two percent across all health outcomes for the residential and daycare MEIs. Construction does not contribute to acute health impacts.

Therefore, the acute hazard index shown in the SEIR Appendix C Table HRA-9 would remain unchanged.

Table E: Modified Project Construction and Operations HRA Results for Residential MEI

Resident MEI	SEIR Health Risk			Modified Project Health Risk		Increase	Bay Area Air District Threshold
	Demo	Non-Demo	Total	Updated Demo	Total		
Excess Cancer Risk (in a million)	0.031	1.3	1.3	0.041	1.3	0.73%	10
Chronic Hazard Index (unitless)	2.1E-04	0.0058	0.0060	2.7E-04	0.0061	1.1%	1
PM _{2.5} Concentration (µg/m ³)	0.0017	0.17	0.17	0.0022	0.17	0.32%	0.3

Note: Values are rounded. Percentage changes were calculated using unrounded results. SEIR Risks from Table HRA-9 of SEIR Appendix C.

Table F: Modified Project Construction and Operations HRA Results for Daycare MEI

Daycare MEI	SEIR Health Risk			Modified Project Health Risk		Increase	Bay Area Air District Threshold
	Demo	Non-Demo	Total	Updated Demo	Total		
Excess Cancer Risk (in a million)	0.19	3.4	3.6	0.25	3.7	1.7%	10
Chronic Hazard Index (unitless)	1.8E-4	0.0040	0.0042	2.4E-04	0.0043	1.3%	1
PM _{2.5} Concentration (µg/m ³)	0.0014	0.14	0.14	0.0018	0.14	0.31%	0.3

Note: Values are rounded. Percentage changes were calculated using unrounded results. SEIR Risks from Table HRA-9 of SEIR Appendix C.

All modified construction-only and combined construction and operational results remain below the applicable Bay Area Air District thresholds for health risks resulting from Project construction and operations. Therefore, the additional demolition would not cause the Year 10 health-risk results to exceed the applicable thresholds and would not change the SEIR's less-than-significant health risk conclusion.

Additionally, the health risk assessment in the SIER identified the maximally exposed residential receptor to be approximately 30 feet east of the Project site and a daycare receptor less than 15 feet east of the Project site. The modified project would remove the eastern parcel (Block D-North) from the LRDP area and incorporate the new parcel, which is located central to the Bayer Campus. Accordingly, the modified project would not place demolition activities closer to the residential and

daycare receptors evaluated in the original HRA. However, relocating potential construction activity farther from the eastern Project boundary would increase the distance between construction emissions and the residential and daycare receptors identified in the SEIR. Therefore, scaling the previously identified MEI risk values is conservative.

With respect to cumulative health risks, the increased contribution of individual emissions attributable to project demolition would not affect the SEIR's impact conclusions as shown in **Table G**. Acute risks and risks from Year 30 Project would remain unchanged.

Table G: Modified Project Cumulative HRA Results

Cumulative MEI	Receptor Type	SEIR Health Risk			Modified Project Health Risk		Increase	Bay Area Air District Threshold
		Project Impacts	Non-Project Sources	Total	Additional Demo	Total		
Excess Cancer Risk (in a million) Daycare	Daycare	6.8	31	38	0.25	38.8	1.5%	100
Chronic Hazard Index (unitless) Resident	Resident	0.015	0.0042	0.019	2.7E-04	0.020	1.4%	10
PM _{2.5} Concentration (µg/m ³) Resident	Resident	0.41	0.36	0.77	0.0022	0.77	0.28%	0.8

Note: Values are rounded. Percentage changes were calculated using unrounded results. SEIR Cumulative Risks from Table C-HRA-4 of SEIR Appendix C. Risks from additional demolition from Table E and Table F.

In summary, the project modification would not meaningfully affect cumulative impacts as determined for the project.

3. CONCLUSION

Based on Ramboll's review, the approximately 84,000 square feet of additional demolition would increase the total demolition area evaluated for the project by approximately 31.2 percent. Proportionally scaling the previously calculated demolition emissions and health-risk contributions results in:

- Construction criteria air pollutant increases of approximately 0.11 to 3.4 percent;
- A construction GHG emissions increase of approximately 2.6 percent; and
- Construction health risk increases of approximately 0.91 to 4.5 percent; and
- Combined construction and operational health risk increases of approximately 0.31 to 1.7 percent.

All revised CAP emissions and health-risk results remain well below the applicable Bay Area Air District thresholds. Therefore, the additional demolition would not result in a new significant air quality, GHG, or health-risk impact or a significant increase in the severity of a previously identified impact. The findings, significance determinations, mitigation measures, and conclusions of the previously certified SEIR remain applicable to the modified project.