

Appendix 3.4.3
**Supplemental Memorandum to the
Health Risk Assessment**

MEMORANDUM

Date March 4, 2022

To Eric Harrison, Signature Development Group

From Michael Keinath
Sarah Manzano

**Subject Air Quality and Greenhouse Gas Impacts of Re-location of
Dialysis Center at Willow Village in Menlo Park, California**

We understand that the Dialysis Center currently in Willow Campus Building 43 may need to stay on-site for six to nine months after demolition and construction is scheduled to begin for Willow Village Mixed Use Development Project (the Project). We understand the Dialysis Center temporarily may remain at Building 43 or relocate to trailers on the southwest side of the site. Regardless of whether the Dialysis Center remains at Building 43 for several months, relocates to the southern portion of the site for several months, or moves off-site, the conclusions in the Air Quality, Greenhouse Gas, and Health Risk Assessment Technical Report¹ (herein referred to as the “Technical Report”) do not need to be updated, as discussed in detail below.

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Construction Emissions

The Air Quality, Greenhouse Gas, and Health Risk Assessment Technical Report analyzed demolition within the first two calendar years of construction, as shown in Figure 9 of the Technical Report. The location of the existing Dialysis Center at Building 43 and the potential Dialysis Center temporary relocation site in the trailers along with construction areas is shown in **Figure 1**.

If the Dialysis Center remains in Building 43 for several months after the beginning of demolition, Building 43 may need to be demolished later than anticipated. However, this demolition would still require the same extent of construction activity and thus would result in the same quantity of emissions. Furthermore, it is likely that the overall demolition duration evaluated in the Technical Report would accommodate the delayed demolition of Building 43 within the same year, so they delay would not affect emissions estimation. However, even if the demolition was pushed into a later year, the emissions change would be minor (and would likely decrease due to fleets becoming less polluting) and therefore would not affect significance conclusions.

¹ Ramboll. 2022. CEQA Air Quality, Greenhouse Gas and Health Risk Assessment Technical Report Willow Village. February.

If the Dialysis Center temporarily moves to trailers in the southern portion of the site, demolition and construction would occur on the schedule evaluated in the Technical Report. The delivery of the trailers would involve seven truck trips to drop off the trailers themselves. These trips would be single occurrences and these trips would be within the bounds of the truck trip estimates already evaluated for the Project. Furthermore, the installation would not involve heavy duty construction equipment that was not already incorporated into equipment use assumptions. Therefore, the installation of the trailers would not change construction emissions from what was estimated in the Technical Report.

Operational Emissions

The Dialysis Center would be off-site by the time the Project became operational, so the Dialysis Center would not affect or be affected by operational emissions.

However, the Dialysis Center remaining on-site for several months would adjust the reduction associated with existing emissions in the calculation of net construction and operational emissions. If the Dialysis Center does not move off-site at the beginning of construction, emissions from the building, trips to the Center and emergency generator may still occur. However, these emissions would be minor since it is only one building out of the whole campus. Further, these emissions would occur in early years when net emissions of construction emissions would be negative (i.e., when construction emissions would be less than existing emissions). This minor delay in the reduction of existing emissions would not change this conclusion.

The temporary re-location of the Dialysis Center on-site is not expected to change the existing emissions. The existing Dialysis Center uses a 324-horsepower emergency generator, and the re-located Center would use four 50 horsepower natural gas emergency generators, which would reduce emissions compared to the existing operations.

Health Risk Assessment on Off-site Receptors and On-site Residents

As discussed above, the Dialysis Center temporarily remaining in its current location might change the schedule for demolition for this single building but would not change the overall emissions estimates. The demolition would still likely occur in the first two years of construction, when exposure assumptions are highest, so would not change health impacts to off-site receptors and on-site residents.

If the Dialysis Center is temporarily relocated on-site, the demolition would still likely occur as analyzed explicitly in the Technical Report. As mentioned above the addition of the trailers would not substantively increase construction emissions, so would not impact the health risk assessment.

The Dialysis Center currently has an emergency generator. If the Dialysis Center remains at Building 43, the emergency generator may be tested a few more times after the start of demolition. However, in the Technical Report, the benefit of the removal of the emergency generator was not recognized until operations commence. Therefore, this additional testing would not affect the analysis in the Technical Report.

If the Dialysis Center temporarily moves to the trailers, four new 50-horsepower natural gas emergency generators may be installed. The total capacity of the new emergency generators is smaller than the existing emergency generator at Building 43, so would have lower emissions. Furthermore, the new emergency generators are expected to be natural gas powered. Health impacts from natural gas combustion are much lower than diesel combustion due to lower toxicity of the natural gas combustion

emissions. As such, any health impacts associated with the generators are expected to be much lower than existing conditions. The relocation would temporarily move the emergency generators closer to the high school, but further from the residents and maximally exposed individual identified in the Technical Report. However, moving closer to the high school is not expected to change the maximally exposed individual because of the reduction in health impacts due to the use of natural gas emergency generators and their extremely low emissions profile.

Health Risk Assessment on Dialysis Center Patients

A health risk assessment of construction emissions was performed on the patients of the Dialysis Center for both the possible temporary locations: remaining at Building 43 and re-locating to the southwest portion of the site.

As discussed, construction emissions would not change from what was analyzed in the Technical Report with the Dialysis Center remaining in its current location or re-locating on-site. To perform a conservative assessment, the air dispersion modeling of the emissions was also not updated. This is conservative because it does not remove emissions from the demolition and grading associated with the respective locations (Building 43 or trailer location). Therefore, Dialysis Center receptors are co-located with emissions, which would overestimate results. Receptor locations are shown in **Figure 1**.

Exposure parameters were developed for an adult dialysis patient who requires treatment three times per week for three to four hours per treatment,² as shown in **Table 1**. This was implemented by using exposure parameters for an individual in the 16-70 age bin. The 95th percentile eight hour breathing rate for passive activities was used.³ This assumes a person is exposed for 8 hours when patients would only be at the center for 3-4 hours a day. Additionally, exposure was assumed for the first 13 months of construction. This is conservative because the Dialysis Center is not expected to remain on-site for 13 months. The Modeling Adjustment Factor (MAF) of 2.55 used in the Technical Report was also used here.

Results of the health risk assessment, using the same methodologies as used in the Technical Report, are shown in **Table A** below. **Table A** shows the maximum impact at the existing location and at the relocated position, as shown in **Figure 1**. The mitigation is the same as was implemented in the technical report.

As shown in the table, the maximum impacts are the same or lower than the maximum off-site and on-site residential health impacts discussed in the Technical Report. The maximum PM_{2.5} concentration at the existing location for the Dialysis Center is the same as the maximum PM_{2.5} concentration reported in the Technical Report while all other health impacts are much lower than reported in the Technical Report. Therefore, further updates to the Technical Report are not necessary.

² Satellite Health Care. 2022. Treatment Options. Dialysis at Satellite. Available at <https://www.satellitehealthcare.com/treatment-options/dialysis-at-satellite>. Accessed March 2, 2022.

³ Cal/EPA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.

Table A. Summary of Health Risk Assessment Results at the Temporary Dialysis Center Location^A

	Existing Location (Building 43)		Relocated Location (Trailers)	
	Unmitigated ^B	Mitigated	Unmitigated ^B	Mitigated
Excess Lifetime Cancer Risk (in a million)	0.22	0.050	0.13	0.029
Chronic Hazard Index (HI)	0.031	0.0072	0.018	0.0041
PM _{2.5} Concentration (µg/m ³)	0.46	0.18 ^C	0.29	0.11 ^C

Notes:

- A. For the existing location (Building 43), the location of the maximum Excess Lifetime Cancer Risk and Chronic HI is UTMx 575,255, UTM_y 4,148,275. Location of the maximum PM_{2.5} Concentration is UTMx 575,345, UTM_y 4,148,235.
For the relocated location (Trailers), the location of the maximum Excess Lifetime Cancer Risk, Chronic HI, and PM_{2.5} Concentration is UTMx 575,105, UTM_y 4,148,085.
- B. The Unmitigated risks reflect default construction off-road equipment fleet. The Mitigated risks reflect use of 95 percent Tier 4 construction off-road equipment; the other 5 percent are assumed to have Tier 2 engines.
- C. This concentration is an outdoor concentration that assumes someone is exposed to construction emissions for a full year. However, in reality, the patient will not be at the center for more than a few days a week for a few hours per day and the Dialysis Center is only expected to be onsite for six to nine months. Furthermore, the patient will be indoors where windows likely would not be open in the middle of a construction site. This concentration also assumes the construction is co-located with the receptor, which drastically over-estimates impact. The maximum PM_{2.5} concentration reported in the Technical Report was 0.18 µg/m³, which is the same as the maximum concentration for the overly conservative analysis for the Dialysis Center. An additional note, the maximum PM_{2.5} concentration reported in the Technical Report was driven by operational traffic. The maximum construction only mitigated PM_{2.5} concentration for non-dialysis center receptors is 0.12 µg/m³. This was not reported in the Technical Report because this location was not the overall maximum concentration for all sources (construction + operational generators and traffic). If the PM_{2.5} concentration for the Dialysis Center at the existing location was reduced to only consider six to nine months of actual exposure, the concentration would be 0.09 µg/m³ to 0.12 µg/m³. Therefore, this overly conservative assessment of PM_{2.5} concentration for the Dialysis Center results in similar concentration to the maximum PM_{2.5} concentration from construction for non-dialysis receptors.

FIGURE 1



Service Layer Credits: World Imagery, Maxar

- Dialysis Receptors
 - Relocated Location
 - Existing Location (Building 43)
- Construction Areas
 - Area 1
 - Area 2
 - Area 3

DIALYSIS RECEPTORS

FIGURE 01



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TABLE 1

Table 1
Exposure Parameters
Willow Village
Menlo Park, California

Receptor Type	Receptor Age Group ¹	Exposure Parameters					
		Breathing Rate (DBR) ²	Exposure Duration (ED) ³	Exposure Frequency (EF) ⁴	Averaging Time (AT)	Intake Factor, Inhalation (I _{f,inh})	Age Sensitivity Factor (ASF) ⁵
		(L/kg-per 8hrs)	(years)	(days/year)	(days)	(m ³ /kg-day)	(unitless)
Dialysis	Age 16-30 Years	40	2	156	25,550	0.00049	1

Notes:

- ¹ Receptor age group 16-30 is used for the Dialysis Center patients. The breathing rate is the same as the 16-70 age group.
- ² Daily breathing rates for residents reflect default breathing rates from Cal/EPA 2015 as follows:
95th percentile 8-hour breathing rate for age 16-30 years for passive and sedentary activities.
- ³ Exposure was assumed for the first 13 months of construction. The first month was a fraction of a month. However, in the calculation of cancer risk, an exposure duration of 2 was used since the concentration is averaged over the entire year and exposure is over two modeled years.
- ⁴ Exposure frequency was determined assuming visits 3 days a week reflective of the typical treatment schedule, which is Monday, Wednesday, Friday or Tuesday, Thursday, Saturday (Satellite 2022).
- ⁵ Age sensitivity factors account for an "anticipated special sensitivity to carcinogens" of infants and children as recommended in the OEHHA Technical Support Document (Cal/EPA 2009) and current OEHHA guidance (Cal/EPA 2015). An age sensitivity factor of 1 was used to account for adult patients.

Abbreviations:

- AT - averaging time
- Cal/EPA - California Environmental Protection Agency
- DBR - daily breathing rate
- EF - exposure frequency

Reference:

- Cal/EPA. 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines. Guidance Manual for Preparation of Health Risk Assessments. February.
- Satellite Health Care. 2022. Treatment Options. Dialysis at Satellite. Available at <https://www.satellitehealthcare.com/treatment-options/dialysis-at-satellite>. Accessed March 2, 2022.