

# Overview

**ISSUE:** Devil's Gate Sediment Removal Project has begun. Approximately 1.7 MCY of sediment and debris will be removed from the Devil's Gate Reservoir in Hahamongna beginning April 2019. Los Angeles County Public Works MUST do the work to prevent potential catastrophic flooding in Pasadena. The current removal plan does not adequately address the health and safety of our children.

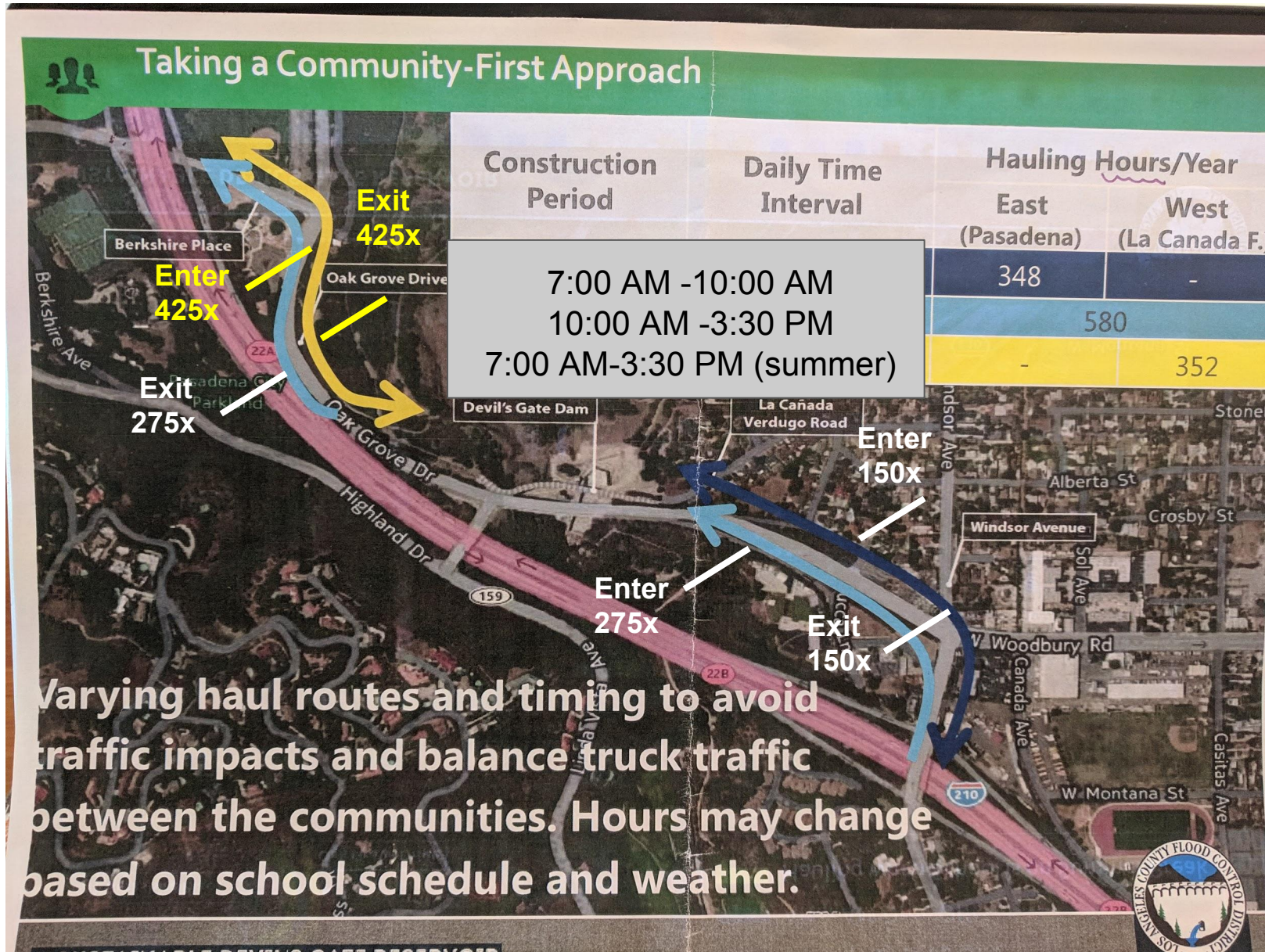
**CONCERNS:** In order to remove the sediment, hundreds of diesel trucks will drive past our school zone spewing dangerous emissions. The projected levels of those emissions does not take into account NEW data on how these trucks actually perform or the current equations for Health Risk Assessments (think: cancer potential). The project does not define how emissions will be monitored and held to legal limits. As parents, we are concerned with the impact this project will have on air quality and how that in turn impacts our children.

**County Air Quality Report: "IMPACT 4: Would the Project expose the public (especially schools, day care centers, hospitals, retirement homes convalescence facilities, and residences) to substantial pollutant concentrations?"**

An impact is potentially significant if emissions levels exceed the State or federal Ambient Air Quality Standards."

# County's Hauling Schedule

Announced in this form to the public in early October '18 at Outreach events



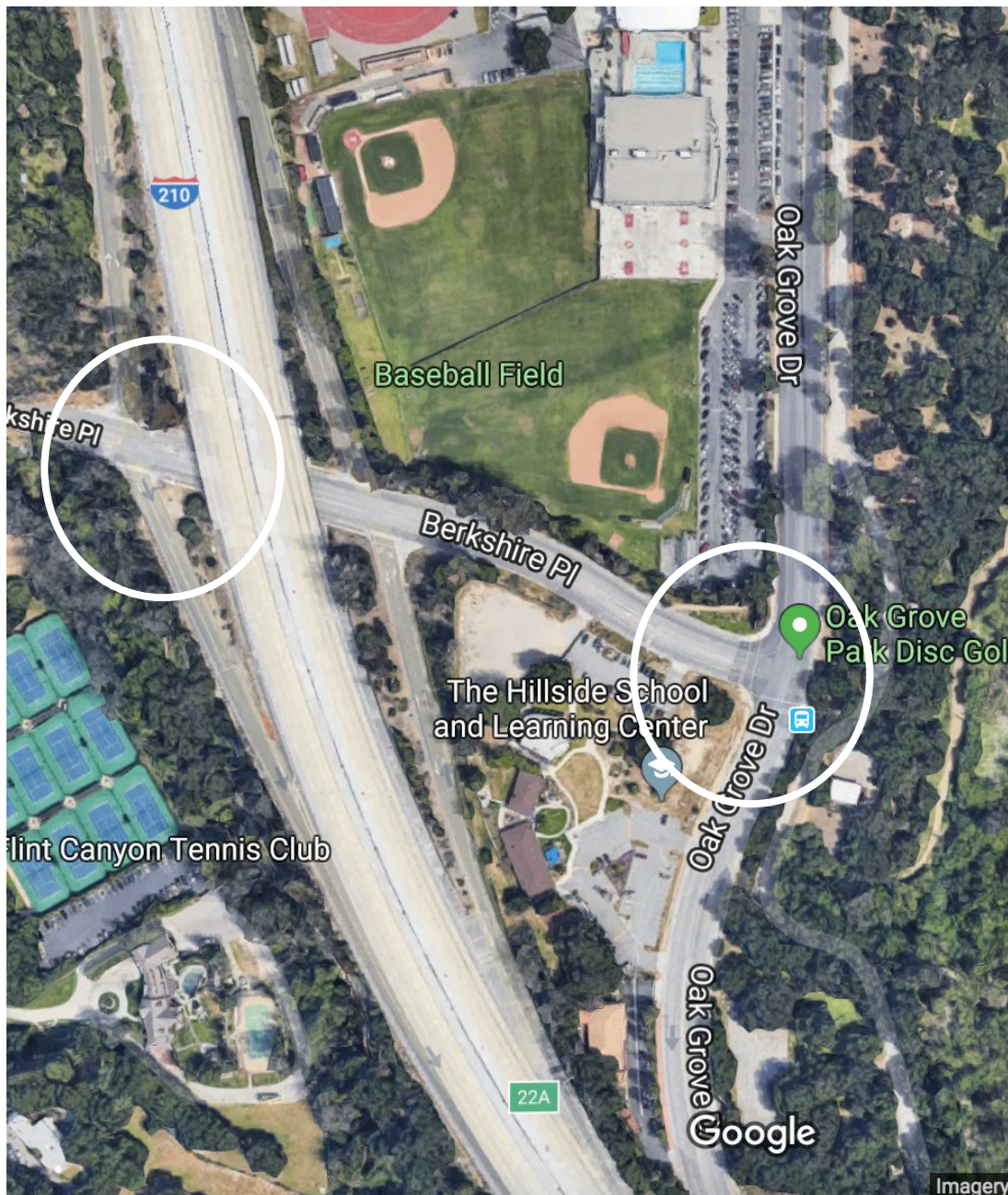
Daily # round trips taken by trucks

150  
275  
425



# Heavy-duty Vehicular Traffic

More idling and slow-transit up freeway ramps will increase local concentration of pollutants.



Traffic Impact Analysis (2013) did not call for changes in the signals nor installation of traffic signal in place of 4-way stop.

Left-hand turns at 50 trucks per hour will increase idling at the intersections.

Traffic “counts” for these segments are outdated (2013).

The significant increase in heavy-duty diesel truck traffic will make this area more hazardous to pedestrians, student drivers, and typical traffic.

# What comes out of a diesel dump truck?

NO<sub>x</sub>

Carbon monoxide (CO)

Particulate Matter (PM)

(90% is smaller than 1 micron)



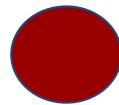
PM<sub>10</sub> “Black Carbon”

PM<sub>2.5</sub> “Fine”

PM<sub>0.1</sub> “ultrafine”



2.5



<0.1



“What people may not appreciate is that childhood exposure to diesel emissions affects them forever.” – Professor Ed Avol, USC

Barath et al. *Particle and Fibre Toxicology* 2010, 7:19  
<http://www.particleandfibretoxicology.com/content/7/1/19>



RESEARCH

Open Access

## Impaired vascular function after exposure to diesel exhaust generated at urban transient running conditions

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*Int. J. Environ. Res. Public Health* 2013, 10(9), 3886-3907;  
<https://doi.org/10.3390/ijerph10093886>

Open Access Review

## Pulmonary Oxidative Stress, Inflammation and Cancer: Respirable Particulate Matter, Fibrous Dusts and Ozone as Major Causes of Lung Carcinogenesis through Reactive Oxygen Species Mechanisms

Athanasios Valavanidis \*✉, Thomais Vlachogianni ✉, Konstantinos Fiotakis ✉ and Spyridon Loridas ✉

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Research | Children's Health

## Childhood Incident Asthma and Traffic-Related Air Pollution at Home and School

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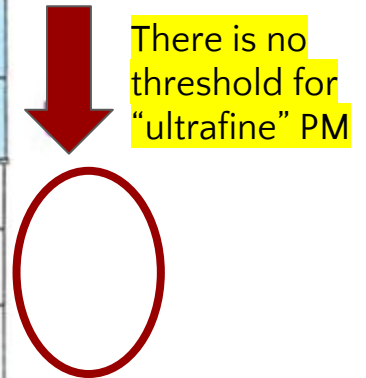
<sup>1</sup>University of Southern California, Los Angeles, California, USA; <sup>2</sup>St. Michael's Hospital, Toronto, Ontario, Canada; <sup>3</sup>University of California, Berkeley, California, USA; <sup>4</sup>Sonoma Technology, Inc, Petaluma, California, USA; <sup>5</sup>Swiss Tropical and Public Health Institute, Basel and University of Basel, Switzerland; <sup>6</sup>United Health Group, City of Hope Hospital Medical Center, Los Angeles, California, USA

# What is planned for The Project?

Devil's Gate Sediment Removal FEIR: only trucks complying with the 2010 EPA Stds will be used.

Table 8 – Mitigated Sediment Removal Emissions

Category	Maximum Daily Emissions (lbs/d)				
	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Off-Road	4.71	33.99	22.05	2.60	2.15
On-Road Trucks	7.15	34.87	56.90	2.40	2.20
Onsite Idling	0.44	1.89	2.48	0.01	0.01
Employees	0.07	2.44	0.24	0.00	0.00
Fugitive	0.00	0.00	0.00	5.46	0.89
<b>Project Maximum Daily</b>	<b>12.4</b>	<b>73.2</b>	<b>81.7</b>	<b>10.5</b>	<b>5.2</b>
SCAQMD Daily Threshold	75	550	100	150	55
Exceeds Threshold?	No	No	No	No	No



Air Quality Analysis, p. 32. Prepared by OB-1 Air Analyses, 10/14



# Diesel Emissions Control Systems

Filters for particulate matter + on-board “digestion” technology reduce emissions

Heavy duty Diesel Engines must have . . .

If 2007 = Diesel Particulate Matter filters (DPF)

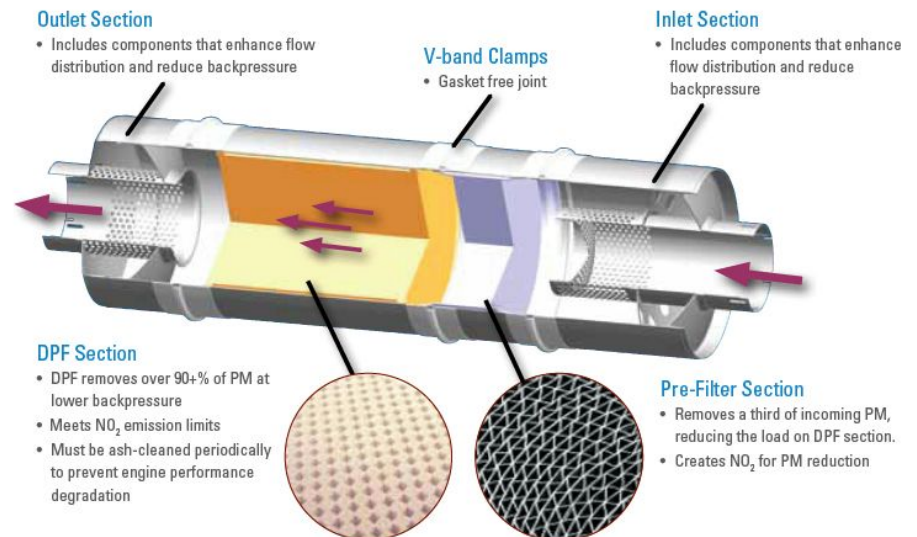
If 2010 = DPF + “digestion” system

If Pre-2007 = engines must be *retrofitted* with DPF



[https://en.wikipedia.org/wiki/Diesel\\_particulate\\_filter#/media/File:Hino\\_Standardized\\_SCR\\_Unit.jpg](https://en.wikipedia.org/wiki/Diesel_particulate_filter#/media/File:Hino_Standardized_SCR_Unit.jpg)

## Selective Catalytic Reduction



<http://www.ironmanparts.com>

# Certified vs. Real-World Emissions

Higher output of some pollutants while operating at low-speed. Some filters fail after a few years.

Science of the Total Environment 634 (2018) 909–921



Contents lists available at ScienceDirect

Science of the Total Environment

journal homepage: [www.elsevier.com/locate/scitotenv](http://www.elsevier.com/locate/scitotenv)



Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

Atmospheric Environment 41 (2007) 4535–4547

ATMOSPHERIC  
ENVIRONMENT

[www.elsevier.com/locate/atmosenv](http://www.elsevier.com/locate/atmosenv)

Real-world exhaust temperature profiles of on-road heavy-duty diesel vehicles equipped with selective catalytic reduction

Kanok Boriboonsomsin <sup>a,\*</sup>, Thomas Durbin <sup>a</sup>, George Scora <sup>a</sup>, Kent Johnson <sup>a</sup>, Daniel Sandez <sup>a</sup>, Alexander Vu <sup>a</sup>, Yu Jiang <sup>a</sup>, Andrew Burnette <sup>b</sup>, Seungju Yoon <sup>c</sup>, John Collins <sup>c</sup>, Zhen Dai <sup>c</sup>, Carl Fulper <sup>d</sup>, Sandeep Kishan <sup>e</sup>, Michael Sabisch <sup>e</sup>, Doug Jackson <sup>e</sup>

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<sup>e</sup> Eastern Research Group, Inc., 3508 Far West Blvd, Suite 210, Austin, TX 78731, USA



Real-world emissions of carbonyl compounds from in-use heavy-duty diesel trucks and diesel Back-Up Generators (BUGs)

Aniket A. Sawant <sup>a,b,1</sup>, Sandip D. Shah <sup>a,b,2</sup>, Xiaona Zhu <sup>a,b</sup>, J. Wayne Miller <sup>a,b</sup>, David R. Cocker <sup>a,b,\*</sup>

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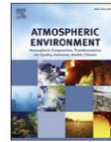
Atmospheric Environment 166 (2017) 276–285



Contents lists available at ScienceDirect

Atmospheric Environment

journal homepage: [www.elsevier.com/locate/atmosenv](http://www.elsevier.com/locate/atmosenv)



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Article

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[pubs.acs.org/est](http://pubs.acs.org/est)

Differences between emissions measured in urban driving and certification testing of heavy-duty diesel engines

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<sup>c</sup> South Coast Air Quality Management District, 21865 Copley Drive, Diamond Bar, CA 91765, United States



Most studies report a **significant difference** in the “sticker” emissions and the “in-use” performance emissions.

Heavy duty diesel trucks are not required to be smog-checked. Only the age of the engine and the presence of emissions control system qualifies a fleet to be “certified.”

In-Use Performance and Durability of Particle Filters on Heavy-Duty Diesel Trucks

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<sup>‡</sup> Environmental Technologies Area, Lawrence Berkeley National Laboratory, Berkeley, California 94720, United States



# Slow Speeds = More Pollutants

Output of diesel pollutants are higher when trucks are idling and in stop-&-go (“creep”) modes.

Science of the Total Environment 619–620 (2018) 765–771



Contents lists available at ScienceDirect

Science of the Total Environment

journal homepage: [www.elsevier.com/locate/scitotenv](http://www.elsevier.com/locate/scitotenv)



## Characterizing emission rates of regulated pollutants from model year 2012 + heavy-duty diesel vehicles equipped with DPF and SCR systems

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Emissions were recorded from new 2012–2015 low-mileage, heavy-duty Class 8 diesel trucks equipped with diesel particulate matter filters and SCR emissions control systems.

NO<sub>x</sub> varied depending on the engine.

Carbon monoxide and Particulate Matter were very low in 5 vehicles tested as a result of the DPF + “digestion” emissions control systems functioning properly.

# Voluntary Recall of 500,000 trucks

Recall announced by the EPA on July 31, 2018 about Cummins's NOx emissions control systems

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*“The U.S. Environmental Protection Agency (EPA) announced that Cummins Inc. will voluntarily recall roughly 500,000 model year 2010–2015 medium- and heavy-duty trucks. The recall will replace a faulty emissions control systems component that causes excess emissions of nitrogen oxides (NOx). This recall is the largest voluntary truck emissions recall to date. The problem Cummins is acting to correct is the result of a defective part and does not involve a defeat device.”*

<https://www.epa.gov/newsreleases/epa-announces-largest-voluntary-recall-medium-and-heavy-duty-trucks>

# Health Risk Assessment: 2 stories

Old Equation + “sticker” 2010 EPA emissions goals VS. New Equation + “in-use” emissions data

The threshold relative risk for cancer for projects is 10 in 1 million.

FEIR (10/2014) yields relative risk for **cancer of 1.9 in 1 million** for the Devil’s Gate Project.

Independent analysis using in-use emissions data and New Equation yields **14-23 in 1 million**.

## LEAD AGENCY:

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

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PROJECT NO. 11057

SEPTEMBER 27, 2013

**SWAPE**

Technical Consultation, Data Analysis and  
Litigation Support for the Environment

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September 7, 2017

Mitchell Tsai  
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**Subject: Comments on the Devil’s Gate Reservoir Sediment Removal and Management Project**

**Table A – Diesel PM10 Levels and Cancer Risk from Routes 1A and 1E**

Sensitive Receptor	Receptor Type	Receptor Location		Annual Concentration (µg/m <sup>3</sup> )		Cancer Risk Per Million People <sup>1</sup>	
		X	Y	Sediment Removal	Operational Maintenance	Preferred Alternative <sup>2</sup>	Alternative 2 Config. C
1	Church	391,316	3,783,682	0.0534	0.00144	0.5	0.6
2	High School	391,392	3,783,989	0.0749	0.00192	0.8	0.9
3	Residential	391,405	3,784,381	0.0481	0.00117	1.4	1.7
4	Office	391,964	3,784,620	0.1121	0.00244	1.1	1.3
5	School	392,559	3,784,546	0.0275	0.00015	0.2	0.3
6	Residential	392,453	3,784,419	0.0340	0.00016	0.8	1.0
7	Residential	392,197	3,784,046	0.0561	0.00027	1.4	1.6
8	Residential	392,034	3,783,741	0.0800	0.00034	1.9	2.3
9	Residential	391,925	3,783,416	0.0583	0.00012	1.4	1.6
10	Residential	391,955	3,783,299	0.0301	0.00003	0.7	0.8
11	Residential	392,291	3,783,005	0.0116	0.00001	0.3	0.3
PMI <sup>4</sup>	Park	391,594	3,784,008	0.2356	0.00537	1.2	1.3
<b>Threshold of Significance</b>						<b>10</b>	<b>10</b>

Notes:

<sup>1</sup> Cancer risk based on a residential receptor cancer risk = 318.5 x Cair; off-site worker and school cancer risk = 106.2 x Cair; or park cancer risk = 53.1 x Cair.

<sup>2</sup> Preferred Alternative cancer risk calculated by averaging 5 years of sediment removal and 65 years of operational maintenance by 70 years.

<sup>3</sup> Alternative 2 Configuration C cancer risk calculated by averaging 6 years of sediment removal and 64 years of operational maintenance by 70 years.

<sup>4</sup> Point of Maximum Impact.

Source: Calculated from ISC-AERMOD View Version 8.2.0.

The excess cancer risk at sensitive receptor location eight, during both phases of the proposed Project, would result in an estimated excess cancer risk of 23.4 in one million, which far exceeds SCAQMD's significance threshold of 10 in one million.<sup>36</sup> Using the same methods and input parameters as above, we calculated estimated excess cancer risks at the various residential sensitive receptors identified by the FEIR's Health Risk Assessment technical report (Appendix C). The results of these calculations are summarized in the table below.

Residential Sensitive Receptor	Haul Route	Annual Concentration ( $\mu\text{g}/\text{m}^3$ )		Excess Cancer Risk	Excess Cancer Risk in One Million	SCAQMD Threshold	Exceed?
		Sediment Removal	Operational Maintenance				
1	2A	0.0089	0.00043	2.63E-06	2.63	10	No
2	2A	0.0089	0.00040	2.63E-06	2.63	10	No
3	2A	0.0075	0.00019	2.20E-06	2.20	10	No
4	2A	0.0077	0.00016	2.26E-06	2.26	10	No
5	2A	0.0050	0.00028	1.48E-06	1.48	10	No
6	2A	0.0007	0.00005	2.08E-07	0.21	10	No
3	1A/1E	0.0481	0.00117	1.41E-05	<b>14.14</b>	10	<b>Yes</b>
6	1A/1E	0.0340	0.00016	9.94E-06	9.94	10	No
7	1A/1E	0.0561	0.00027	1.64E-05	<b>16.40</b>	10	<b>Yes</b>
8	1A/1E	0.0800	0.00034	2.34E-05	<b>23.38</b>	10	<b>Yes</b>
9	1A/1E	0.0583	0.00012	1.70E-05	<b>17.03</b>	10	<b>Yes</b>
10	1A/1E	0.0301	0.00003	8.79E-06	8.79	10	No
11	1A/1E	0.0116	0.00001	3.39E-06	3.39	10	No
3	1B/1F	0.0481	0.00117	1.41E-05	<b>14.14</b>	10	<b>Yes</b>
6	1B/1F	0.0340	0.00016	9.94E-06	9.94	10	No
7	1B/1F	0.0561	0.00027	1.64E-05	<b>16.40</b>	10	<b>Yes</b>
8	1B/1F	0.0800	0.00034	2.34E-05	<b>23.38</b>	10	<b>Yes</b>
9	1B/1F	0.0583	0.00012	1.70E-05	<b>17.03</b>	10	<b>Yes</b>

# SUMMARY

Diesel emissions are toxic and can affect our children for a lifetime

Compliance oversight will need to be provided to make sure that the diesel trucks being used in this project are regularly smog checked so they DO NOT exceed the promised limits given the multiple ways that the emissions controls can fail or be gamed.

The Health Risk Assessment of this project should be re-calculated with real-world current data and the updated equation to protect our children.