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April 18, 2019

Mr. Kevin Torell
Vulcan Materials – Western Region
4101 Dublin Boulevard, PMB#144, Suite F
Dublin, CA 94568

Re: Carli Mine Expansion Project – Traffic Analysis Memo

Dear Mr. Torell,

This memo presents a discussion of the potential traffic impacts resulting from implementation of Vulcan Materials Company's ("Vulcan") proposed Carli Mine Expansion Project, located in Sacramento County. Vulcan is proposing to expand its current mining operations into the 153-acre property, referred to as the Carli Property ("Project"), adjacent to Vulcan's existing Sacramento Aggregates processing plant. In addition to mining within the Carli Property, Vulcan is also proposing to install a portable asphalt and concrete crushing plant ("Recycle Plant") and a Ready-Mix Concrete (RMC) plant adjacent to the existing Sacramento Aggregates processing facility. The proposed Project would be completed within the time limits of the currently approved Use Permit (01-ZGB-UPB-0107), which sunsets 2033. As we have discussed, Vulcan has agreed to limit offsite truck activity associated with the Project to existing levels and as such offsite truck trip activity would be unchanged. In order to demonstrate that the Project will not result in increased truck traffic, this memo describes how the traffic patterns will be adjusted with the addition of the Recycle and RMC plants.

DISCUSSION

Baseline: As presented in the July 2018 CUP application package submitted to the County, the existing operations have an estimated average annual aggregate sales rate of 1.5 million tons per year. Assuming 312 operating days per year, the existing operations are estimated to produce/export 4,808 tons of aggregate daily. These existing rates will remain unchanged as a result of the Project. Assuming 25 tons per aggregate haul truck, this equates to an existing average daily rate of 385 one-way haul truck trips associated with the existing Sacramento Aggregates processing facility.

Project: As described in the July 2018 CUP application package, installation of the Recycle Plant would allow Vulcan to import 150,000 tons/year of recyclable material. The RMC plant would produce and export an average of 200,000 cubic yards of finished concrete annually. To achieve this desired annual throughput for the RMC plant, 56,400 tons of supplements (i.e., cement and flyash) would also need to be imported to the Project site annually. Additionally, approximately 331,540 tons of aggregate produced at Vulcan's extraction sites would need to be diverted to the RMC plant to achieve the desired annual throughput of 200,000 cubic yards.

TRAFFIC ANALYSIS

Utilizing the data described above, Table 1 shows the estimated average daily haul truck trips for both the existing operations and proposed Project, which assumes the Recycle Plant and RMC plant are operating at full capacity. Also see Attachment 1 for more details regarding the traffic calculations and underlying assumptions.

Table 1 – Traffic: Existing Operations vs. Project

Commodity	Annual Throughput	Average One-Way Truck Trips/Day	Total Aggregates Sold	Reference
Existing Operations				
Aggregate Export (tons)	1,500,000	385	1,500,000	Historical production/sales data
Proposed Project				
RMC Plant Export (cubic yards)	200,000	128	331,540	Project design feature
Supplements (cement/flyash) Import (tons)	56,400	14	---	Project design feature
Recycle Plant Import (tons)	150,000	48	---	Project design feature
Aggregate Export (tons)	756,100	194	756,100	Remaining aggregate
Total Truck Trips & Aggregates Sold (assuming Recycle & RMC Plants operating)		385	1,087,640	

Truck Capacities = 25 tons/truck (aggregate and supplements), 10 cubic yards/truck (RMC). Recycle trucks assumed 20 tons/truck, as incoming deliveries are not uniformly 25 tons/truck.

Annual throughput of 200,000 cubic yards/year for the RMC plant provided by Vulcan.

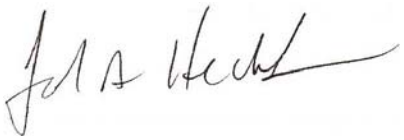
Annual throughputs of supplements (cement/flyash) imported and aggregates diverted to the RMC plant based on EPA AP-42 ratios for concrete batching. Specifically, for every unit of finished concrete produced, approximately 81% of the raw materials input are sand and gravel (i.e. aggregate) and 14% are supplements (cement/flyash). See Attachment 1 for more details.

As shown in Table 1 above, the proposed Project would not exceed the existing average of 385 one-way truck trips per day. While traffic may fluctuate within a given day depending on market demand and operating constraints, the Project has been designed so as not to exceed this existing annual average limit. This is achieved by reducing the number of aggregate exports once the Recycle and RMC plants begin ramping up production.

In addition, because roadway impacts are proportional to vehicle weight, the replacement of aggregate haul trucks with a total weight of 40 tons (truck weight 15 tons, material weight 25 tons) with lighter recycle haul trucks with a total weight of 35 tons (truck weight 15 tons, material weight 20 tons), as well as Ready Mix trucks with a total weight of 33 tons (truck weight 13 tons, material weight 20 tons), will reduce roadway impacts in the region. Also note that trucks delivering the supplements (cement and flyash) typically have a total weight of 40 tons and will have the same impact on roadways as the existing aggregate trucks.

It is also important to consider that under existing operating conditions at the Sacramento Aggregates facility, aggregate materials are transported to other sites throughout the County to be processed into concrete. By co-locating the RMC plant adjacent to the existing aggregates processing facility, this will eliminate the need to transport materials to other facilities for processing, further reducing cumulative truck traffic on County roadways. By creating a centralized location for processing and loading of aggregate, concrete, and recyclable debris, the Project will eliminate indirect truck trips on County roadways that would otherwise exist if the Project were not implemented.

Thank you for your assistance with this project. Please call me or Graham Stephens at (805) 275-1515 if you have any questions or if you require additional information.



John Hecht, P.E.
President
Sespe Consulting, Inc.

Attachments:

1. Existing Operations vs. Proposed project – Production & Traffic Calculations

Production and Traffic Analysis

Production Data (Existing & Project)	
Parameter	**Quantity**
Annual Aggregate Production (tons)	1,500,000
Operating Days per Year	312
Daily Aggregate Production (tons)	4,808

Note: The average annual aggregate sales data (1.5 million tons/year) and operating days (312 days/year) shown above represents historical/existing rates.
The aggregate production rate of 1.5 million tons annually, as well as the associated average daily traffic, will not change as a result of the Carli Project.

Existing/Baseline - Production & Traffic

Commodity	Annual Throughput	Tons per Haul Truck [B]	Loads per Year	Avg. Loads per Day	Avg. Trips per Day	Total Aggregates Sold (tons)	Notes
Aggregate Export (tons)	1,500,000	25	60,000	192	385	1,500,000	Historical production/sales data

Project - Production & Traffic

Commodity	Annual Throughput	Tons/CY per Haul Truck [C]	Loads per Year	Avg. Loads per Day	Avg. Trips per Day	Total Aggregates Sold (tons)	Notes
RMC Plant Export (cubic yards) [A]	200,000	10	20,000	64	128	331,540	Project design feature
Supplements (cement/flyash) Import (tons) [B]	56,400	25	2,256	7	14	---	Project design feature
Recycle Plant Import/Export (tons)	150,000	20	7,500	24	48	---	Project design feature
Aggregate Export (tons)	756,100	25	30,244	97	194	756,100	Remaining aggregate
Total Trips & Aggregates Sold (assuming Recycle & RMC Plants operating at full capacity)				192	385	1,087,640	

Note: "Truck loads" are considered 1 inbound and 1 outbound truck, whereas "truck trips" are one-way "truck trips"; therefore, one truck load is equivalent to two truck trips.

A - Estimated annual throughput of 200,000 cubic yards/year for the RMC plant provided by Vulcan.

B - Annual throughput of supplements (cement/flyash) based on EPA AP-42 ratios for concrete batching. For each unit of RMC produced, supplements (cement/flyash) represent 14% of the raw materials input and aggregate (sand & gravel) represents 81% of the raw materials input. Aggregate would be produced onsite and would not need to be imported.

C - Haul truck capacity for aggregate/recycle/supplement trucks (25 ton) and cement trucks (10 cubic yards) based on online references. Recycle trucks assumed 20 tons/truck, as incoming deliveries would not be uniformly 25 tons/truck.