Rosemont Mine Traffic Analysis Report for State Route 83

To: Greg Gentsch, ADOT District Engineer, Tucson District

From: James R. Kramp

Subject: Rosemont Mine Traffic Analysis report for State Route 83.

I have studied the Rosemont copper project Traffic analysis report completed by Tetra Tech in April 2009. I have several concerns regarding the reports accuracy.

1. The Report does not discuss locations for the carpool parking lots. This information must be provided and taken into consideration when calculating the LOS and ICU figures.
   1.1. For example: If the parking lots are south of I-10 off of SR83 the increased traffic should be considered for those road sections and intersections that will be used by all of the workers on a daily basis.
2. Schedules are not defined
   2.1. During the Construction phase start and end shift times are not defined in the traffic analysis report or the MPO. If everybody starts at the same time or leaves at the same time it will impact the LOS and ICU figures much more than if the start and end times are spread over a 1-2 hour window.
   2.2. During the Operational phase start and end shift times are not defined in the traffic analysis report or the MPO. Some workers will be on 5 weekday 8-hour shifts. Others will be on 12-hour shifts, 4 days on 4 days off. If everybody starts at the same time or leaves at the same time it will impact the LOS and ICU figures much more than if the start and end times are spread over a 1-2 hour window.
   2.3. Bus schedules for the construction phase have not been defined in the traffic analysis report or the MPO. How many buses will be needed to accommodate the construction workers. Where and when will they travel?
   2.4. Van schedules for the operational phase have not been defined in the traffic analysis report or the MPO. How many vans will be needed to accommodate the operations workers. Where and when will they travel?
3. Two scenarios for the operational phase project traffic pattern were used. Scenario one suggests that 100% of the mine employees would participate in carpools, 5 persons per vanload. Scenario two suggests that 75% of the mine employees would participate in carpools.
   3.1. If carpooling is not mandatory then these numbers do not reflect the US census bureau statistics for Arizona. The Census bureau reports closer to a 15% participation
   3.2. If carpooling is not mandatory then the report should be regenerated with the average reported by the U.S. census bureau.
   3.3. Neither the MPO nor the Traffic analysis report identifies which employees will carpool during the operational phase.
4. The report claims that 100% of the 900 construction workers will participate in carpooling during the construction phase.

4.1. If carpooling is not mandatory then these numbers do not reflect the US census bureau statistics for Arizona. The Census bureau reports closer to a 15% participation.
4.2. If carpooling is not mandatory then the report should be completed with the average reported by the U.S. census bureau, not random figures.

5. The traffic study report identifies additional carpooling and restricted trucking hours as mitigation efforts.
   5.1. Can restricted trucking hours legally be enforced on SR83?
      5.1.1. What is the proposed schedule for trucks carrying materials to the mine such as sulfuric Acid, Diesel Fuel, ammonium Nitrate, and the other materials that the mine will consume?
      5.1.2. If restricted trucking hours cannot be legally enforced then I suggest restricted trucking hours cannot be used as a mitigating effort.
   5.2. Can Rosemont mine and/or construction employees be forced to carpool? If not I suggest carpools cannot be used as a mitigating effort, nor considered for the traffic study reports.
6. It is assumed that 20-25% of all traffic to the mine will come from segment 2 (the section of road from Hidden valley road to Greaterville).
   6.1. How was this figure determined?
   6.2. What figure was used for determining the LOS and ICU results?
7. Base traffic volume calculations for the report are based on averages for Pima County population growth from 1990 to 2006.
   7.1. According to the Pima association of governments presentation to the urban land institute forum on December 3,2008, future growth in the greater Tucson area is projected to occur primarily in the southeastern portion of the city, an area largely served by highway 83 and Interstate-10
   7.2. The percentages used for Base traffic volume must take into account increased traffic due to business growth. Traffic growth must be based on more accurate growth estimates for the region served by SR83. For example:
      7.2.1. Additional truck traffic on SR83 for the proposed Cal-Portland mine.
      7.2.2. The Passages of Tucson shopping mall and resort development. When it is completed it will generate a great deal more use of the SR83/I10 interchange and the sections of highway shared by the mine traffic.
8. Tetra Tech did not consider holidays, hunting season, and festivals in the traffic analysis report. Traffic on SR83 can become quite heavy on these weekends.
   8.1. Memorial day weekend, July 4$^{th}$ week, and labor day weekend are busy travel periods for SR83. So are the Sonoita Rodeo and the Kentucky Derby festivals.
9. SR83 is used to detour traffic around accidents that close the eastbound I-10 between Houghton road and SR90. If SR83 cannot be used then the only alternate route is to detour traffic to I-19, south to SR82, east to SR90, and north back to I-10.
10. Oversize and overweight loads travel SR83 to avoid the Marsh station railroad overpass and the Davidson Canyon Bridge on I-10. These loads must be taken into consideration when determining the LOS and ICU figures.
11. Traffic volumes and flows for SR83 highway construction conditions were not considered in the traffic analysis report. The Highway 83 road surface will need resurfacing many times during the 25 to 30 year mine project. Guardrails are

damaged frequently and require repairs. While resurfacing is being completed and guardrails are being repaired SR83 will be reduced to one lane of traffic. Maintenance is unavoidable and should be considered in the Traffic Analysis report.

12. Section 1.1 of the report states the project will last from 25 to 30 years. The traffic analysis was only completed for 4 time segments, existing year (2008), construction year (2010), operations year 5 (2015), and operations year 20 (2030).
    12.1. Since the mine will be in operation for 25 to 30 years, additional time segments beyond year 20 need to be created
    12.2. It is doubtful construction of the mine will begin in 2010. Traffic growth factors should reflect a more realistic beginning date of the project. If it is more than a few years off it could make a substantial difference in projected traffic volumes.
13. Peak AM and PM travel hours are not clearly defined in the report. When were the samples for the base traffic estimates completed and how was it determined these are the peak hours of travel?
14. The software used to determine the LOS and ICU figures does not adjust for traffic such as bicycles. Bicycles are a frequent mode of transportation on SR83

Can employees be required to carpool? Can sub-contractors be required to carpool? When and where will the carpools travel? Should carpools be considered a mitigating effort? Should carpools be considered in LOS and ICU results and if so what percentages should be used? Do base traffic growth factors properly project the traffic growth on SR83? Are cumulative effects being incorporated into the report? What hours will trucks carrying hazardous materials be allowed to travel on SR83? Until accurate answers are provided for the parameters required to create the LOS and ICU results they cannot be accurately completed.

Safety is another concern. What happens when oversize/overweight loads use SR83? What happens when road maintenance takes place and what impact will it have on the LOS and ICU results? Will SR83 still be used as a detour when I-10 is closed? Will bicycles still be allowed to travel on SR83?

Until all of these questions and concerns are answered and taken into consideration for the LOS and ICU results the mine should not be allowed to consider using SR83 for its primary access route to the mine.

I have attached several reports on traffic volume:

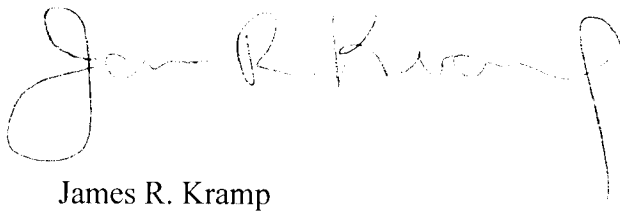
1. A Construction phase report with the assumptions defined in the Tetra Tech report. (100% employee busing, 35 to a bus).
2. A Construction phase report with assumptions that there will be a 15% carpool participation.
3. An operational phase report for year 5 with the assumptions defined in the Tetra Tech report. (100% employee busing, 5 to a van). This report only includes the 8-hour day 5 weekday workweek employees.
4. An operational phase report for year 5 with assumptions that there will be 15% carpool participation. This report only includes the 8-hour day 5 weekday workweek employees.

5. An operational phase report for year 5 with the assumptions defined in the Tetra Tech report. (100% employee busing, 5 to a van). This report only includes the 12-hour day 4 on/off employees.
6. An operational phase report for year 5 with assumptions that there will be 15% carpool participation. This report only includes the 12-hour day 4 on/off employees.

I am unable to provide the LOS and ICU figures in my reports. I am able to calculate the number of vehicles traveling to the Rosemont mine. I allow a 1-hour range for shift start times and shift end times. I can average how many seconds between vehicles entering section 1 or section 2, and how many seconds between each vehicle entering the Rosemont mine site. Since I do not know the actual shift start and end times for the construction phase or the operational phase I guessed.

If you have any questions or corrections please forward them to me

Sincerely,



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