Questions for MIG, Inc.
Re. the NM502 Corridor Transportation Study

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In the following, we refer to information provided by MIG, Inc. in the presentation file "NM502PresentationFinal4-6-11.pdf" downloaded from the Los Alamos Public Works website on April 13, 2011. The technical questions below are submitted to MIG in order to help us understand and evaluate their work. We are interested in discussing traffic conditions primarily during peak times, though we will refer to average daily volume where MIG has done so. In the following, "you" refers to MIG, Inc. and project workers.

1) How does "average daily traffic" (ADT) volume relate to "hourly peak traffic" (HPT) volume? It appears that you use ADT to assess and design roadways and roundabouts instead of HPT? How do you ensure that the roadway or roundabout can provide good service at peak flow times?

2) Do you agree that the 110' curb-to-curb roundabouts currently proposed would have an average circulating speed of approximately 20 mph under optimum conditions? If not, what speed do you expect and why? At what circulating traffic volume (veh/hr) would you expect the speed to decrease to 15 mph?

3) The slide on p.13, showing existing volume and capacity at the two ends of the corridor, indicates that the current average volume-to-capacity ratio is 61% at the west end. Cutting the number of thru-traffic lanes at the west end of the corridor from 4 to 2 would cut capacity by a factor of 2 or more. We find that the current average signalization delays for thru traffic are quite low (~4 sec/signal/trip). What physical data do you have that shows a 2-lane road with roundabouts can handle the current traffic volumes with the same or better performance?

4) Page 13 also indicates a current volume-to-capacity ratio of 76% at the east end of the corridor, where the speed limit is 50 mph. Queues are already seen during the morning commute where the speed limit decrease from 50 to 35 mph on this 2-lane segment of the corridor. What physical evidence do you have that inserting one or more roundabout(s) in this section of corridor with circulating speeds of 20 mph or so would not lead to inadequate capacity and larger queues?

5) Our experience with the NM502 corridor in Los Alamos suggests a higher fraction of through traffic than indicated on your plot on p.14. What definitions, data, and analysis led to the results shown?

6) It appears that the Accident/Crash analysis you present on p.15 is not representative of the corridor. The number of accidents between Oppenheimer and the junction of Trinity and Central 2007-2009 on Trinity (33) is comparable with that on Central Ave (28). Our estimate of the number of accidents per 100 million miles over the whole NM502 corridor is lower than you show by a factor

of about 4. How did you arrive at 528 accidents per 100 million vehicle-miles for the Knecht-Tewa segment?

7) Can you present us with an example of an existing roundabout that has configuration parameters and peak traffic conditions close to those expected for the proposed roundabouts on the corridor? What physical data exists to indicate how well it performs? What are peak traffic queues and delays for that example?

8) We are familiar with the performance of the 90' roundabout at the intersection of Diamond Drive and San Ildefonso. We have observed the behavior of the circle, ignoring traffic on the bypasses (which are irrelevant to the proposed installations on NM502). Queues with wait times up to 40 seconds develop during the morning commute, at a peak entry volume of about 1100 vehicles per hour (peak entry volume for S. San Ildefonso Rd. only is ~700 veh/hr). We have traffic counts that show about 1350 vehicles per hour near the west end of Trinity Drive. What delays do you expect at each of the proposed roundabouts under peak flow conditions? What evidence do you have that the delays encountered would be as predicted? What do you predict for corridor travel times under typical weekday and maximum flow volumes?

9) Two-lane roads and single-lane roundabouts are easily clogged. What evidence do you have to show that the effects of hesitant drivers, large trucks and buses, bicycle traffic, day-to-day fluctuations, accidents, adverse driving conditions, and construction would not lead to slow traffic movement and large delays on the proposed roadway?

10) Reserve capacity must handle the short-term loads above, and also longer-term effects due to changing usage patterns and growth. In particular, LANL has indicated that Pajarito Rd. might be closed, which would significantly increase the load on NM501 and NM502. What reserve capacity have you designed into the proposed roadway?

11) We have performed SIDRA vers. 5.1 calculations using the HCM2010 Standard Model, with results that indicate your calculations are quite optimistic. What SIDRA version have you used in the study? What are the inscribed (curb-to-curb) diameters, island sizes, and entry radii/angles you currently use? What are your traffic data sources? Please specify any non-standard parameters and assumptions you have made, and provide us with the input and output from your calculations. Can you provide analogous calculations and data for existing roundabout(s) that would serve to validate your modeling?

12) Could you please discuss the adequacy of the traffic volume data used as a basis for the NM502 Corridor Study? How do you account for possible data collection errors and for real traffic variations in evaluating design requirements for the proposed scheme? What assurance can you offer that the design you are advancing can adequately meet current and future needs for the corridor?