

Report to the NM 14 Citizens Advisory Committee (pro bono)

March 12, 2012

Re: Site Inspection concerning *Record of Agreement* and current Maintenance Issues

From: Kim Sorvig
Licensed NM Landscape Architect
Research Assoc. Professor, UNM School of Architecture & Planning
Member, NM 14 CAC

Summary:

At the request of CAC members, I drove the Madrid to Lone Butte NM 14 project with Ann Murray, and inspected locations where asphalt and/or red clay had recently been spread onto the road edges. We also photographed a number of locations where revegetation and traffic calming have been very successfully accomplished, per the Record of Agreement and the roadway design.

The good news is that overall, the original construction project very successfully re-established native grasses and other vegetation on R.O.W. beyond the paved shoulders, and in doing so, visually narrowed the road, as intended, to produce driver alertness and traffic calming.

The success of the design and construction work by NMDOT, its consultants, and the CAC has led to several awards, including Best 2007 Transportation Project, Southwest Contractors Magazine. The project is used as a case study in the UNM Engineering Department, and by Context Sensitive Solutions.org, including as an example in a study quantifying the benefits of CSD.

Recent disposal of waste asphalt at the edges of the pavement threatens the success of the project. It may be this was done under the assumption that it saved costs or was a normal procedure, but it appears that the standards set for this project by the design and construction team and the CAC have not been communicated to the maintenance division. Disposal damages the publicly-funded revegetation that was in place, and does not meet the requirements established in the Record of Agreement.

Since this disposal was reported to NMDOT by CAC, some areas have had the asphalt properly removed and replaced with base course (crushed stone), but others have apparently just been covered in bark chips or base course.

Context-sensitive design requires context-sensitive maintenance. The CAC understands that the division of State agencies into capital and operational divisions can complicate maintaining the standards set during design. Nonetheless, disposal of waste asphalt is completely out of keeping with visual narrowing for traffic safety, and with the revegetation that was accomplished.

This report includes photos illustrating successful sections of roadside development, as examples of appropriate maintenance; and showing the problem areas, with suggestions for what needs to be corrected in order to meet the Record of Agreement requirements.

The CAC's hope is for the maintenance on this section to be equally worthy of awards as the construction.

Successful Revegetation to be maintained

At the scenic pullout in the S-curves north of Madrid (and many other locations), revegetation has been very successful on the re-graded roadside. Reclamation Seed Mix was specified by Sites Southwest and applied to the R.O.W. The species from this mix that are evident at this dormant time of year are native grasses (wheatgrass, blue grama, galleta, ricegrass, dropseed, needlegrass) and *Penstemon palmeri*. Shrubs such as Rabbitbrush, Apache Plume, Winterfat, and Saltbush also appear to have been successfully re-established. Other species are likely to be observed in season. (The right-hand photo shows experimental coloration of the shoulder, requested by CAC but eventually dropped from the contract; it has proved quite durable.)



The Reclamation Seed Mix with ‘duffing’ was carefully chosen and appears to have been successful. It meets the soil-stabilization requirements of NEPA, and does so at a lower cost than any other soil-stabilizing method. It should therefore be maintained to ensure continued stabilization. This includes duffing and re-seeding damaged areas, mowing AFTER the majority of species have set seed, and mowing AROUND shrubs unless they become so large as to pose a traffic hazard.

No maintenance activity should cover or uproot any of the revegetation plantings. Existing ground cover should only be covered by placement of soil or paving IF there is a deliberate need to create a pull-off for a specific reason (such as mailboxes). Unplanned pullouts should not be created by NMDOT, and if the public pulls off in unplanned locations, NMDOT should discourage this by berming and planting, rather than encourage it by spreading base course or soil.

Successful Traffic Calming (Visual Narrowing) to be maintained

At the deliberate pullout south of Garden of the Gods, the pullout is visually distinct from the roadway pavement, is no wider than a single vehicle, and is bounded by a berm.



These were deliberate design and construction choices. They achieve their intent: to keep the roadway visually as narrow as possible. This has been shown to cause voluntary reduction of speed by drivers who perceive the road as narrow, thus reducing severity and likelihood of crashes. No new *descansos* (marking fatalities) have appeared between Madrid-Lone Butte since project completion.

(Invasive Salt-cedar was imported with soil at this location. It should be removed before it spreads further.)

By contrast, at the crest of the hill just south of CR 42, placement of base course over disposed asphalt has visually widened the road, so that it appears four lanes wide. The base course is visually very similar to the pavement, appearing as a single surface. This destroys all traffic-calming benefits.



All maintenance must keep the pavement visually distinct from the rest of the R.O.W. in material & color.

R.O.W. not to be used for disposal of spoil or waste except clean fill dirt

After CAC members reported the disposal of waste asphalt at a half-dozen locations along the project length, NMDOT has taken various actions.



At NM 42 (LEFT), small pits dug at random locations into the new base course appear to show that the waste asphalt was removed (except for trace amounts) before base course was placed.

This represents a good-faith effort to remove the disposed waste material as fully as practicable.

In this area, the base course is ready to be mixed with 'duff' or topsoil and re-seeded. This should reproduce the successful vegetation that was seeded during construction.



However, south of CR 42 (West side, near crest of hill) similar pits showed that a couple inches of base course were covering four inches of remaining asphalt, over what appears to be red clay from excavation at General Goodwin culverts. (This could be local soil.)

Similarly, bark over asphalt was found south of Lone Butte (west side).

Cosmetic cover-up is not acceptable.

Waste asphalt usually contains contaminants from vehicles, and causes persistent damage.

Near the NMDOT yard at Cerrillos (BELOW), there is an area that has been used for stockpiling. Unlike the R.O.W. areas that have been properly maintained along NM 14, this section shows no revegetation, despite many years of exposure.

Disposal of waste asphalt at the edges of pavement or elsewhere in the R.O.W. would have similar long-term



effects: soil that grows no vegetation, and that therefore creates runoff and sedimentation. In addition, spills of gas, diesel, antifreeze, and other vehicle fluids, as well as cargo spills, may add contaminants. Like all petroleum products, asphalt is itself a serious soil contaminant any time it is spread beyond areas of deliberate pavement.

The asphalt disposed of at and south of CR 42 is on a slope that drains directly into the San Marcos Arroyo, which is the water supply for the Village of Cerrillos. Both the asphalt itself, and the likely contaminants picked up with it, are particularly hazardous here.

Reclaimed asphalt is valuable if re-used properly, and should not be disposed of on rights of way.

To summarize, the CAC requests that the following **Do's and Don'ts**, derived from the Record of Agreement, be made specific and consistent **policy for maintenance on NM 14**. We would strongly suggest that they apply to *all* NMDOT projects, and especially those involving Context Sensitive Design.

- **No disposal, dumping, or placement of anything other than clean fill dirt within the R.O.W.**
- **Placement of clean fill, if any, must not cover or harm existing vegetation except for specific design purposes such as mailbox pull-outs.**
- **Areas where vegetation is damaged by public traffic or by maintenance accidents must be 'duffed' or mixed with topsoil, and reseeded with Reclamation Seed Mix or similar species.**
- **Any fill or material placed beyond the pavement edge must be visually distinct from the pavement.**
- **Pullouts should be no longer or wider than necessary to accommodate actual traffic – about one parking-space (10x20 max) for a mailbox pullout; about one bus-length for a school bus drop-off, plus space for parent vehicles if actually used that way; similarly, not longer than the total length of the number of vehicles realistically expected to use the pullout at any one time.**
- **Unplanned pullouts should be discouraged by appropriate re-grading or planting of the R.O.W.**