

Recycled Asphalt Paving (RAP) Project Eldorado Project Information Sheet

Project Background: In March of 2017, Robert Martinez, Santa Fe County Deputy Public Works Director notified ECIA Road Committee Chair Felicia Probert that Santa Fe County had been approved by NMDOT to receive recycled asphalt pavement (RAP) material that had been reclaimed when the I-25/St. Francis Drive interchange was resurfaced several years ago. NMDOT donated the RAP to the County to be used to improve County owned and maintained roads. There is no cost to the County (including the taxpayers) for the material itself. Hauling and applying the material will be completed with County equipment and maintenance crews.

The County Road Dept. proposed using the RAP to improve as many roads as possible in Eldorado that have a history of significant rutting and poor drivability due to heavy mud during periods of prolonged rain or snow. Mr. Martinez provided a list of approximately 15 miles of Eldorado roads that the County Road Maintenance section was recommending be upgraded with the RAP. The ECIA Road Committee reviewed the list and recommended a few additional roads be added to the list based on the results of the Committee's bi-annual inspections.

The most common complaint that the Road Committee receives from Eldorado residents is about the muddy conditions, with the residents requesting that gravel or base course be applied to their road to improve the surface. Funding for actual improvements to these roads including significant amounts of gravel or base course is limited, so the donation of the RAP is a significant cost-effective opportunity to upgrade some of the more troublesome roads.

If the County were to purchase the amount of base course alone to equal the amount of the RAP that is coming at no cost for the material to the County, it would cost about 4 million dollars. The last time that there was any significant amount of funding to improved dirt roads in Eldorado with base course was in 2007 or 2008 when the State legislature approved a capital outlay fund grant of \$800,000. There is currently no plan or funding in place to do that again. It is difficult to get funding for base course because it is a short-term improvement that lasts for 5-7 years. General obligation bond funds cannot be used because of the 20-year repayment cycle.

The Road Committee advised the ECIA Board of Directors about the proposed RAP project and the Board concurred that it would be a cost-effective way to upgrade some of the more problematic roads in Eldorado.

The list of roads to be upgraded with the RAP was agreed upon in late April.

Selected Roads: The following roads (in alphabetical order) are scheduled to be resurfaced with the asphalt millings.

Alcalde Road	Dovela Road	Glorieta Road
Antigua Road	Dovela Place	Juego Road
Aventura Road	Duende Road	Juego Court
Camerada Loop	Encantado Circle	Juego Place
Camerada Road	Encantado Road	Mimosa Road
Carlito Road	Espira Road	Moya Lane
Cerrado Loop	Esquila Road	Moya Loop
Chusco Road	Estacada Road	Moya Road
Demora Road	Estambre Road	Puerto Court
Domingo Road	Fonda Road	Puerto Way
Dovela Court	Garbosa Road	Puerto Road

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Balsa Road was originally on the list to receive the RAP but funding to pave Balsa Road was approved by the voters in the November 2016 general obligation bond election. It would be a waste of the RAP to put it down for a couple of years and then remove it when the paving project begins late 2018 or 2019.

What is RAP: RAP consists of ground-up and re-claimed pavement that is mostly aggregate with fine material and some remaining asphalt that is mostly dried up but still helps hold the material together a little better than base course alone. New pavement is essentially base course with asphalt mixed in. Base course without asphalt is loose fill.

Advantages of RAP: Use of RAP has many other advantages including:

- Reduced cost in comparison to new materials.
- Sustainability in that material is reused and diverted from landfills.
- Less maintenance required. Asphalt RAP requires no refinishing, resurfacing, or replacing. It also hardens over time, strengthening as it goes instead of weakening.
- Recycled asphalt pavement gravel is also less susceptible to the elements. As a bonus, it produces less dust and mud.
- More adaptable to the effects of snow and rain
- The use of RAP in building projects may be eligible for Leadership in Energy and Environmental Design (LEED) credits.

Process for applying RAP: Prior to beginning any work, the Road Crew requests line locates to mark the location of utility and waterlines within the road right of way to reduce the chance cutting of utility lines or cable. The County will put a message board out about 3 days before work starts on a road to let residents know when work will begin. Residents will always have access to their homes while the RAP work is being completed.

The first step in the process is existing road surface and bar ditches are graded to re-crown the road surface and re-establish the bar ditches to the depth of the culverts. In some cases, culverts are cleaned out to direct the run-off to the drainage easements. Proper drainage is required to maintain a good road surface. If the bar ditches have filled in or culverts are plugged, water will back up or flow across the road surfaces causing erosion. The bar ditches must be cleaned out to the "flow line" of the culverts to ensure that there is a positive water flow within the ditch. If culverts are clogged, the County has a hydro-excavation truck that is used to clean out clogged culverts. Plats for Eldorado show drainage easements across some lots to provide a route for water from along the roadways to be routed to the greenbelts.

After the prep work is complete, the RAP is put down in layers with a road grader followed by water and rolling to pack them down. The RAP is applied to the center of the road first and then worked out to the edge of the road surface as additional layers are added. The road may appear to be narrower before the RAP is applied all the way to the edge of the driving surface. The standard width for the drivable road surface on residential roads is 20 feet.

Removal of Vegetation when applying RAP: The County has a 50-foot-wide right-of-way for the residential roads in Eldorado. It is not an easement from the adjacent property owners for the road, it is a County owned right-of-way. Anything within the right-of-way is subject to control by the County including mailboxes, signs, and vegetation. The County tries to take a conservative approach and not remove trees or bushes but will do so if it is blocking the drainage or visibility. Some trees and bushes may have to be trimmed or removed as the RAP is applied.

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Project Timeline: Work on the RAP project will continue throughout the summer and into the fall and winter weather permitting. Application of RAP isn't weather sensitive like paving and chip seal project.

Maintaining a RAP Surfaced Road: RAP is expected to get harder and more compacted in time with use. If a RAP surfaced road develops potholes, the County will repair it by scarifying, re-grading, and recompacting as necessary. The County doesn't plan to stockpile the RAP for small repairs. Potholes will be repaired by re-grading. The County expects that the roads with RAP surface will hold up better than either base course or dirt surfaces and require less grading to maintain. This will free up time for the road crews that will allow them to more properly address a pothole or washout. There is a full-time crew assigned to Eldorado doing a variety of road maintenance tasks including repairing potholes, mowing, and re-grading roads as necessary. Salary and equipment costs for the crew is budgeted on an annual basis. Any maintenance of the RAP surface roads in Eldorado will be done by the road crew as part of their normal duties at no added cost.

Use or RAP on parts of Roads/Multi-use Path: The RAP can only be used to resurface the entire road and only those that have been approved by NMDOT. They aren't appropriate for the multi-use path. Also, they aren't recommended for use on partial section of road at low water crossings or for the aprons because it is difficult to maintain a multi surface road, (e.g. dirt and RAP). After the RAP project is complete, the County may be able to spend more time on the aprons that tend to pothole and rut faster than the rest of a road because of a driver's tendency to accelerate/de-accelerate more in the transition zone.

Aesthetics Concerns: Some Eldorado residents have expressed concerns about the aesthetics of the RAP road surface not blending in with the native materials and the approved color palette for our homes. The RAP material will always be gray in color but as dust and gravel from driveways and intersecting dirt roads migrates onto the RAP the contrast will tone down some from when it is first laid. Because the RAP is recycled pavement, the color will be like the paved and chip sealed road surfaces in Eldorado.

Environmental Impacts of RAP: According to page 159 of a study completed by the Florida Department of Transportation in 2003; "The environmental evaluation indicated that RAP poses no environmental concerns when used as a highway material. The concentrations of heavy metals were well below the EPA standards. Samples were taken over a 12-month period and subjected to four different environmental testing procedures. All four yielded the same conclusions, indicating that the testing program was valid." A 2017 report from the National Asphalt Paving Association (NAPA) states: "Regarding runoff or leachate from RAP, it is well documented that leachate or runoff from RAP storage is not problematic due to asphalt pavement's inert quality. For example, Kriech et al. (2002) conducted a laboratory study to determine, according to EPA methods, the detectable levels of 29 PAHs in leachate water from six paving asphalt and four roofing asphalt samples. The study found that half of the paving samples leached no detectable level of the 29 PAHs; three samples had detectable levels of naphthalene and phenanthrene, but well below drinking water limits." Copies of these documents are available on request to the Road Committee Chair.

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Impacts to Drivability and Potential for Increased Speeding: It is not the type of road surface per se that encourages speeding, it is the smoothness of the surface. People will speed on a freshly graded dirt road until the washboard builds back up to slow them down. Because the RAP surface roads aren't likely to washboard, speeding may be a bigger problem. The County is required to follow the Manual of Uniform Traffic Control Devices when it comes to setting a speed limit. Speed limits cannot be arbitrarily set. For residential roads in Eldorado, the speed limit is 25 mph. Fifteen mph speed limits are allowed in school zones only. The speed limit is only as good as its enforceability. Twenty-five mph is a reasonable speed limit. The key is to enforce it. The Sheriff's office needs to be made aware of the trouble spots and issues so that they can increase patrols. No speed bumps will be installed on the RAP surface roads. The use of traffic calming measures like speed bumps is addressed in the County's traffic calming policy. Speed bumps are only used on paved residential roads. A copy of the County's traffic calming policy is available by contacting the Road Committee Chair.