



# Arapahoe County

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## Board Summary Report

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**File #:** 21-546

**Agenda Date:** 9/20/2021

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**To:** Board of County Commissioners

**Through:** Bryan Weimer, Director of Public Works and Development

**Prepared By:** Allen Peterson, Road and Bridge Division Manager

**Presenter:** Allen Peterson, Road and Bridge Division Manager

**Subject:**

2:00 PM \*Box Elder Creek Ranch Road Maintenance

**Purpose and Request:**

Road and Bridge seeks a decision from the Board of County Commissioners (BOCC) regarding the appropriate means to provide road maintenance on approximately 3.5 miles of rural roadways in the Box Elder Creek Ranch Subdivision.

**Background and Discussion:**

In October of 2020 Road and Bridge personnel met with the BOCC during a Study Session to highlight not only the poor road conditions in the Box Elder Creek Ranch Subdivision, but the conditions in several other subdivisions as well. The roads discussed were constructed over 20 years ago using a common roto-paving process. Roto-paving was a process whereby recycled asphalt millings were placed over the existing roadway surface; compacted; and then a chip seal treatment was applied. Most of the roads discussed received very little maintenance over the years and have now deteriorated to the point where more invasive and costly maintenance is required.

The focus of the 2020 Study Session was primarily on Box Elder where several potential maintenance solutions were presented. Unfortunately, the ultimate decline of projected revenue as a direct result of the pandemic forced Road and Bridge to defer scheduled maintenance projects, including work planned in Box Elder.

The alternatives discussed during the Study Session included:

- Maintain Status Quo Patching. The cost was approximately \$22,000 between 2018 and 2020.
- Reclaim existing surface and apply Arapa-Blend material. Estimated cost was \$370,000 using 2018 construction costs.
- Reclaim existing surface and apply 5" of hot mix asphalt. Cost estimate was approximately \$1.5M
- Full depth reconstruction with soil stabilization and 5" of new hot mix asphalt. Estimated cost of \$4.5 to \$5M.
- Consider offering the creation of a Local Improvement District. Estimated cost to property owner was between \$13,000 and \$43,000 depending on the option over the course of a 10 year period.

After discussing all alternatives and funding challenges within the Road and Bridge Fund, the BOCC agreed that applying our Arapa-Blend material (a mixture of asphalt millings with gravel) seemed to be the most cost effective solution and one that would provide a surface that would be more easily maintained by the County crews. After acknowledging that Arapa-Blend appears to look more like a gravel road; although performs much differently and requires less maintenance than a traditional gravel road, the BOCC directed staff to approach the residents of Box Elder in an effort to gather feedback regarding this surface.

Coordinated by the County's Communications Office, a virtual public meeting was held on the evening of July 6, 2021. Leading up to this meeting, a coordinated media and social media campaign was orchestrated among residents to adamantly oppose the Arapa-Blend proposal. A number of questions and concerns were raised and also addressed by various County staff. A summary of these concerns and respective responses have since been circulated, as well as posted on the County's website. This document is included at the end of this report.

During the community meeting another option not previously presented to the BOCC was considered and presented, as we heard from many residents requesting a similar roadway surface that currently exists on the roadways. The new option presented is a Modified Roto-Pave process (Paving) in which the existing Roto-Pave/millings surface materials would be reclaimed (ground up) and relayed with additional millings. These additional recycled and screened asphalt millings would be added to the existing reclaimed material if and when required. The objective to adding these millings would be to keep the existing gravel subgrade from contaminating the original Paving materials. Since the depth of the existing Roto-Pave material is somewhat inconsistent, the application of additional millings is likely for a more uniformed depth of materials. Furthermore, a proprietary chemical additive would be introduced to the existing and new millings during construction. This liquid material is recommended by other industry professionals and is specifically designed to bind asphalt milling together and help to prevent moisture penetration.

This Paving procedure is also somewhat more expensive than the straight Arapa-Blend option and may also require more frequent liquid binder applications over time. Although we do not have an exact quote for reclaiming these 3.5 miles, initial estimates for just the additive is approximately \$50,000, plus ongoing periodic treatments every couple of years at an addition \$24,000. Reapplication treatments may vary widely based on heavy traffic conditions, weather, and the risk of surface rutting. As this would be a new procedure for Road and Bridge, ongoing maintenance expenses are therefore a bit difficult to predict and estimate.

A possible advantage of this Paving process of reclaiming the existing surface; grading; adding millings when/where necessary; chemically stabilizing; and compacting is that a more solid surface will likely be the end result. The roadway surface would resemble that of the original Roto-Paved surface placed years ago. While it is not a hot asphalt paved surface, it would appear to be a darker color and more closely resemble an asphalt surface than an Arap-Blend surface. This Paving option is probably the most palatable of options. As with any roadway surface periodic maintenance will be necessary, which will compete with other underfunded maintenance needs throughout the County.

**Fiscal Impact:**

The fiscal impact of the Arapa-Blend or the Modified Roto-Pave options can be absorbed within the 2022 Budget, assuming that the funding within the Road and Bridge is what historically has been provided. If funding is less, it is possible that we would have to defer maintenance again.

**Alternatives:**

It is abundantly clear that some residents would prefer that the County provide a hot mix asphalt overlay on the roadways within Box Elder Subdivision funded entirely by the County. As mentioned previously, that option is not affordable given current Road and Bridge funding as it would use roughly a third of the historic paving budget. Also continuing to patch the existing surface is not a sustainable solution.

Therefore, the most feasible options would be to either use the Arapa-Blend or Modified Roto-Pave Paving process. While the Arapa-Blend process would be the most cost effective alternative with the least maintenance cost, it is viewed as a regression in the surface that exists currently (viewed as gravel vs asphalt). The Modified Roto-Pave Paving process would be a surface that is similar to the existing surface; however, it will still require periodic maintenance that would be necessary from the underfunded Road and Bridge Fund that faces challenges of meeting other critical maintenance needs throughout the County.

**Alignment with Strategic Plan:**

- ☐ Be fiscally sustainable
- ☐ Provide essential and mandated service
- ☒ Be community focused

**Staff Recommendation:**

Road and Bridge Staff has evaluated the various options and acknowledge that the Arapa-Blend alternative is

the most cost effective and minimizes the long term maintenance costs. However, given the condition of the existing subgrade (good and stable), the County standard of not accepting gravel roadways for maintenance, and citizen feedback supporting an alternative that would be similar to what already exists, Public Works and Development staff would recommend the Modified Roto-Paved Paving alternative. In addition, this Paving process will only apply to the Roto-Paved segments of roadways within the subdivision. Roadway segments that have been overlaid with hot-mix asphalt over the years will not be altered by this paving process and will remain as they currently exist.

It should be noted that there are other subdivisions within the County in which a Roto-Paved surface has been placed and is in need of maintenance. Many of these locations have much more severe subgrade deficiencies than those observed in Box Elder and require expensive reconstruction efforts, but ultimately will be evaluated on a case-by-case basis to determine the best and most cost effect approach for maintenance, which may or may not include the options included in this report.

All Road and Bridge staff wish to provide nothing less than 5-star service and would prefer to pave all of our roadway infrastructure with hot mix asphalt. However, resurfacing and maintaining the roads in Box Elder, as well as in other critical neighborhoods throughout the County, with extremely limited funds is a difficult proposition and one that cannot be taken lightly. Providing a higher level of service in one neighborhood without offering the same or similar service in an adjacent neighborhood is a recipe for dire controversy and would surely lead to even more difficult challenges. Therefore, concurrence among all stakeholders may be very difficult and perhaps unlikely.

#### **Concurrence:**

Road and Bridge and PWD Staff have reviewed this report and concur with the recommendations presented.