



DRAFT

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Dear Duchesne County Commissioners,

We are grateful for the opportunity to work on behalf of Duchesne County to evaluate the effects of heavy haul traffic generated by energy production on the transportation infrastructure of the county. The analysis that we have conducted was based on the AASHTO 1993 Road Test Method for Pavement Design. The cost to replace the average mile of county road was estimated and found to be approximately \$1,767,000. A mile of average county gravel road was estimated to cost approximately 8% of what the average paved road costs. Data was collected from the current transportation master plan update, energy producers, AI analysis of roadway conditions, FHWA and UDOT cost indexes, and roadway cores that gave information on depth of pavements and base materials.

Following analysis of existing roadway conditions and data received from industry partners, Jones and DeMille Engineering found that each well can be expected to reduce the service life of the average impacted county road by approximately 2.3%. The formula to calculate the cost from industry traffic on paved roads is shown below. It is based on 2.3% of the cost to replace 1 mile of average county road, or \$41,400 per mile based on 2024 costs. The formula to calculate the cost from industry traffic on gravel roads is 8% of the cost of a paved road per mile per well, or \$3,500 per mile based on 2024 costs.

Formulas for the roadway cost from industry traffic:

For paved roads:

$$C_P = L_P * N * \$41,400 * 1.041^{(Y-2024)}$$

- C_P = Roadway cost from industry traffic on paved roads (dollars)
- L_P = Sum of length of all paved county roads utilized as haul routes to access location (miles)
- N = Number of wells at production location
- Y = Year in which the condition use permit for a location is issued.

For gravel roads:

$$C_G = L_G * N * \$3,500 * 1.041^{(Y-2024)}$$

- C_G = Roadway cost from industry traffic on gravel roads (dollars)
- L_G = Sum total of length of gravel county road utilized as haul routes to access location (miles)
- N = Number of wells at production location
- Y = Year in which the conditional use permit for a location is issued.

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