When should I Pave a Gravel Road?

Municipal officials often ask this question. Citizens occasionally ask as well. There are several considerations:

- Traffic weights and volumes
- Safety
- Design
- Relative costs

The worst thing to do is simply pave a gravel road to eliminate Spring mud or Summer dust!

Pros & Cons

Paved and unpaved roads each have advantages. The following summary applies to properly constructed and maintained roads.

Paved Roads

- Carry all water off the surface and into ditches
- Eliminate dust and Spring mud
- Accommodate heavy trucks and many vehicles
- Provide a smoother and safer ride

Unpaved Roads

- Have low construction and maintenance costs for very low volume roads
- Keep vehicles at lower speeds
- Can usually be maintained and repaired within a municipal highway department's capabilities

Traffic Weights and Volumes

Traffic volume and weight directly affect road longevity. Several agencies recommend that roads with less that 50 average daily traffic (ADT) be unpaved. For ADT from 50 to several hundred, it is recommend to apply some type of asphalt-paved surface be used.

For unpaved roads over 50 ADT, road managers should consider vehicle weights and past performance. If the unpaved road is performing well (especially during the Spring thaw), with reasonable maintenance costs, paving is rarely justified. They should, however, consider applying a dust suppressant, which will also stabilize the road surface.

Safety and Design

Safety is a primary consideration in road design. Whether paved or unpaved, a safe road must have sight distances, alignments, and lane widths adequate for the expected speeds. The adequacy of present geometric features should be considered in the paved vs. unpaved decision. If inadequate, the cost and other impacts of reconstruction are factors. Although adequate for an unpaved road, geometric features might be inadequate for a paved road, which is often subject to higher speeds.

It is likely the base and drainage of an unpaved road will need improvement before paving. Gravel road bases are usually thinner than paved. Gravel surfaces and bases usually have too many fines to meet paved road design standards. Also, more water will run off a paved road, so drainage must be examined and perhaps modified.

Relative Costs

Gravel roads require grading, shaping, and regular addition of gravel. Dust control is often necessary. These costs increase significantly as traffic volume and weights increase. These increasing costs are factors in the above noted recommendations based on ADT.

Municipalities should still calculate relative costs for each specific situation. Estimates should be based on future traffic demands. The geometric features described above will affect cost comparisons. Drainage needs for both unpaved and paved alternatives should be included. Maintenance as well as construction costs must be considered. Cost studies should also consider whether the current maintenance efforts, and their costs, are adequate.

Although politics will invariably influence decision, focusing on traffic weights and volumes, safety design and relative costs will provide an informed decision. For more detail, contact the Center for a copy of a publication with the same title.

Adapted from the NH T2 Center newsletter, "Road Business" Spring 2002.

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