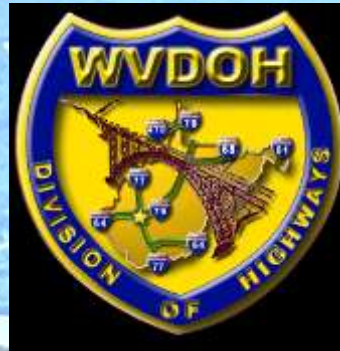


Importance of Drainage for Highways



2025 Asphalt Preconstruction and Paving Conference

February 20, 2025

Charleston, WV

Doug Kirk, P.E., C.F.M.

Chief Engineer of Environmental Compliance

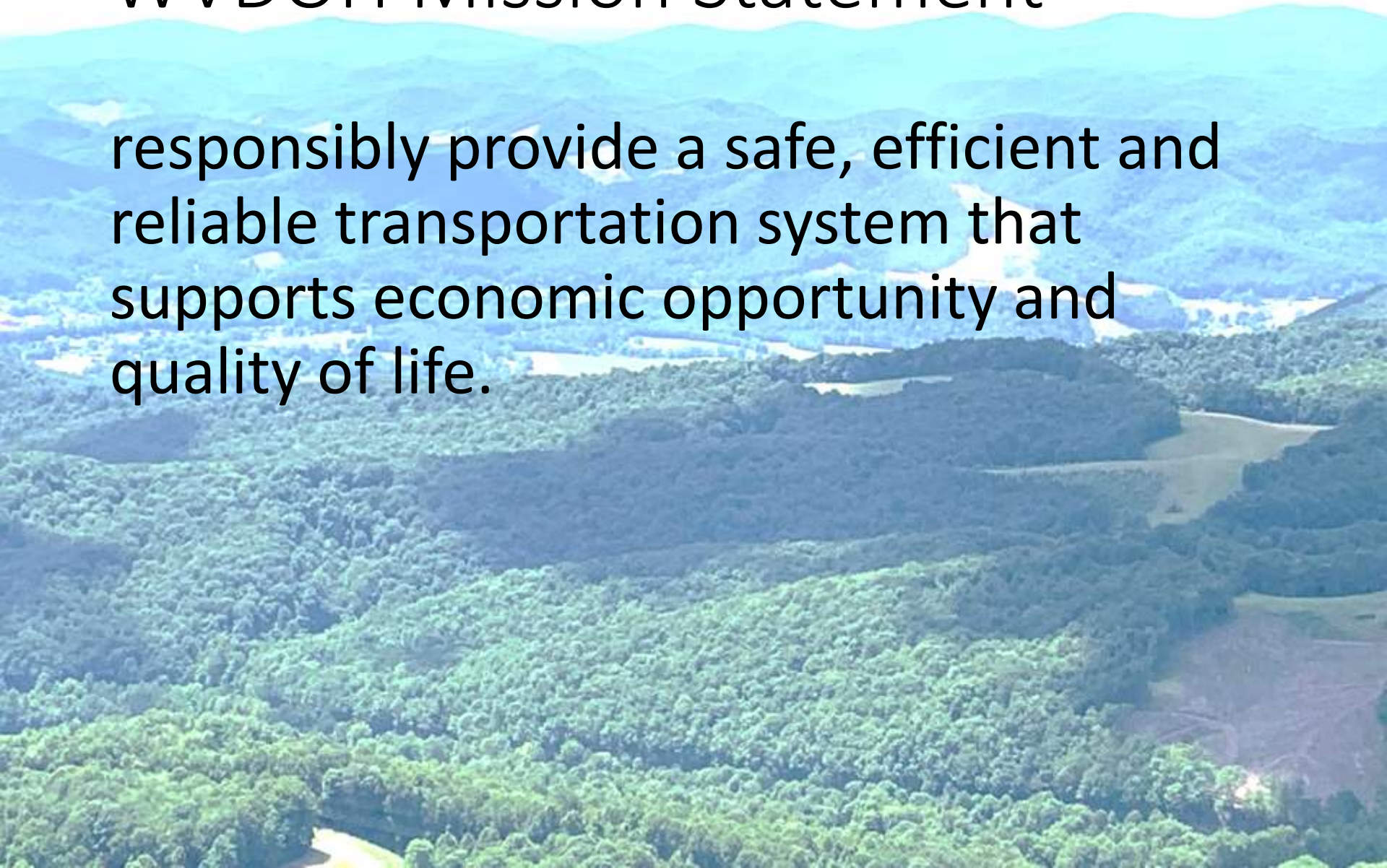


29 years with the WVDOH have convinced Doug that Drainage is the most important factor in planning, designing, building and maintaining safe, efficient and reliable highways. He races home-made kayaks and helps clean up flood damage as needed.



WVDOH Mission Statement

responsibly provide a safe, efficient and reliable transportation system that supports economic opportunity and quality of life.



We spend Million\$ every year, why are we not making progress?



Maybe Material choice\$?

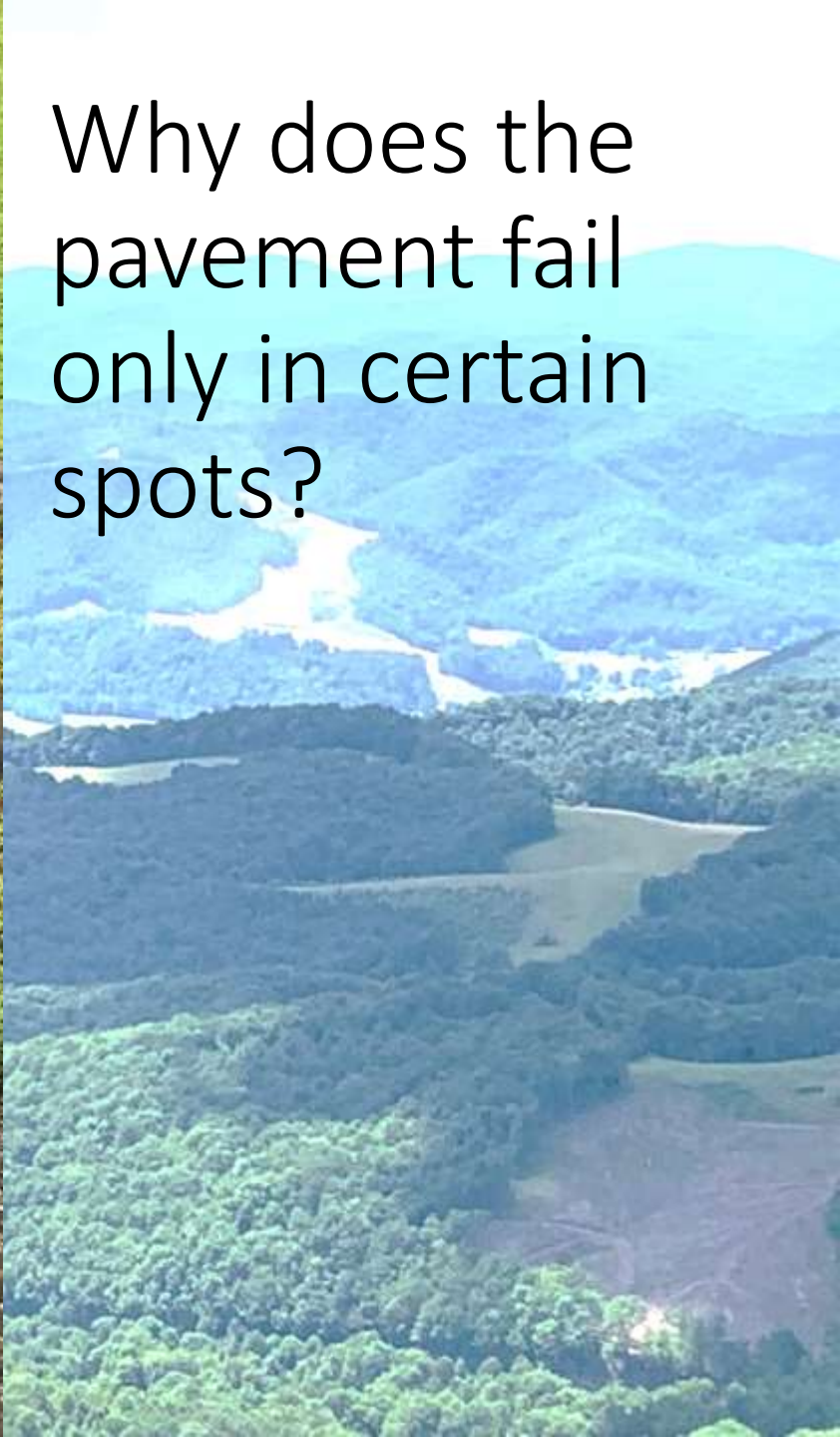


?

CONCRETE VS ASPHALT



Why does the pavement fail only in certain spots?



Improper Driveway



October '23



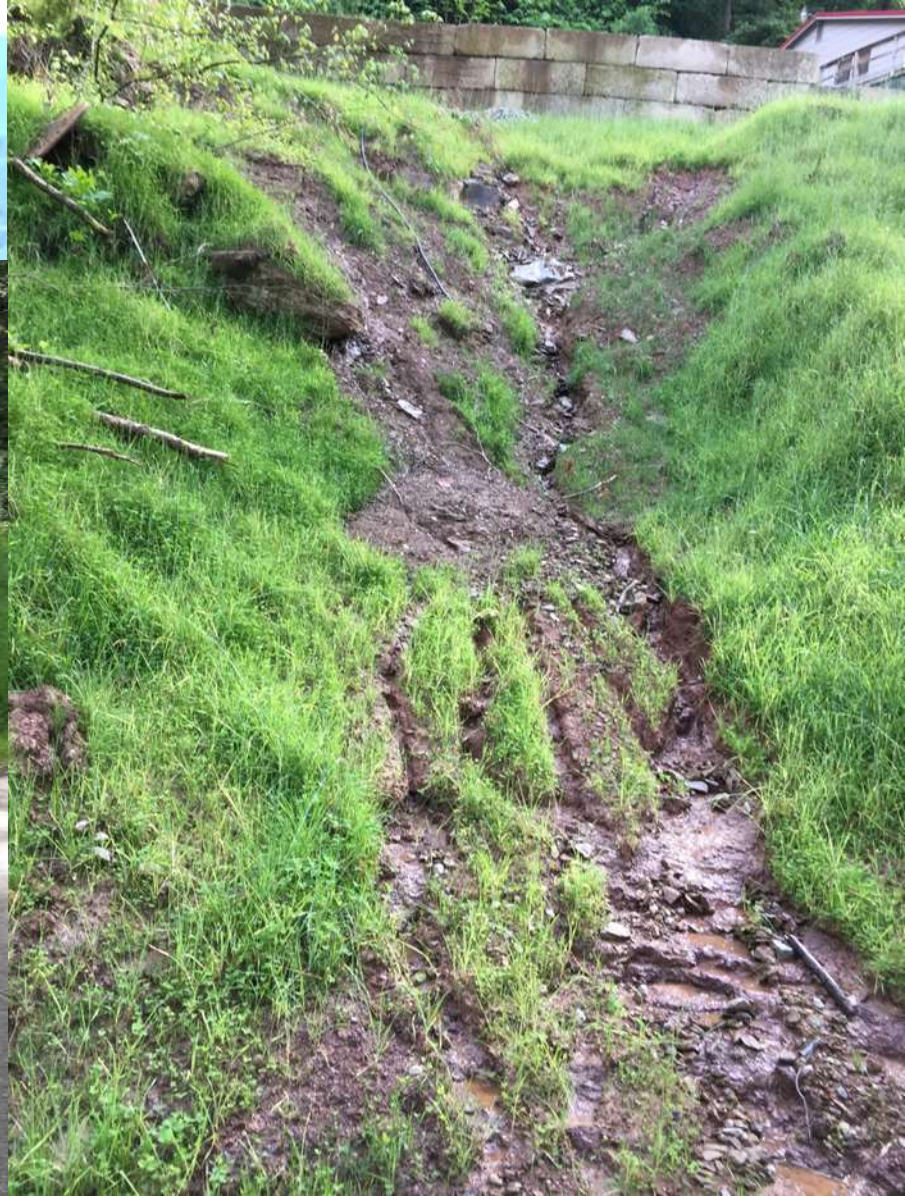
Slide caused by logs in ditch



Ditch blocked
by sediment
from
crumbling
steep bank



Failed attempt at new driveway





Why does the pavement fail only in certain spots?

Drainage!



We are beginning to add Culverts to Asset Management

Starting with “5’ and greater” is a good first step

Also, pending research project

CULVERT ASSESSMENT AND DECISION- MAKING PROCEDURES MANUAL

For Federal Lands Highway

Publication No. FHWA-CFL/TD-10-005

September 2010

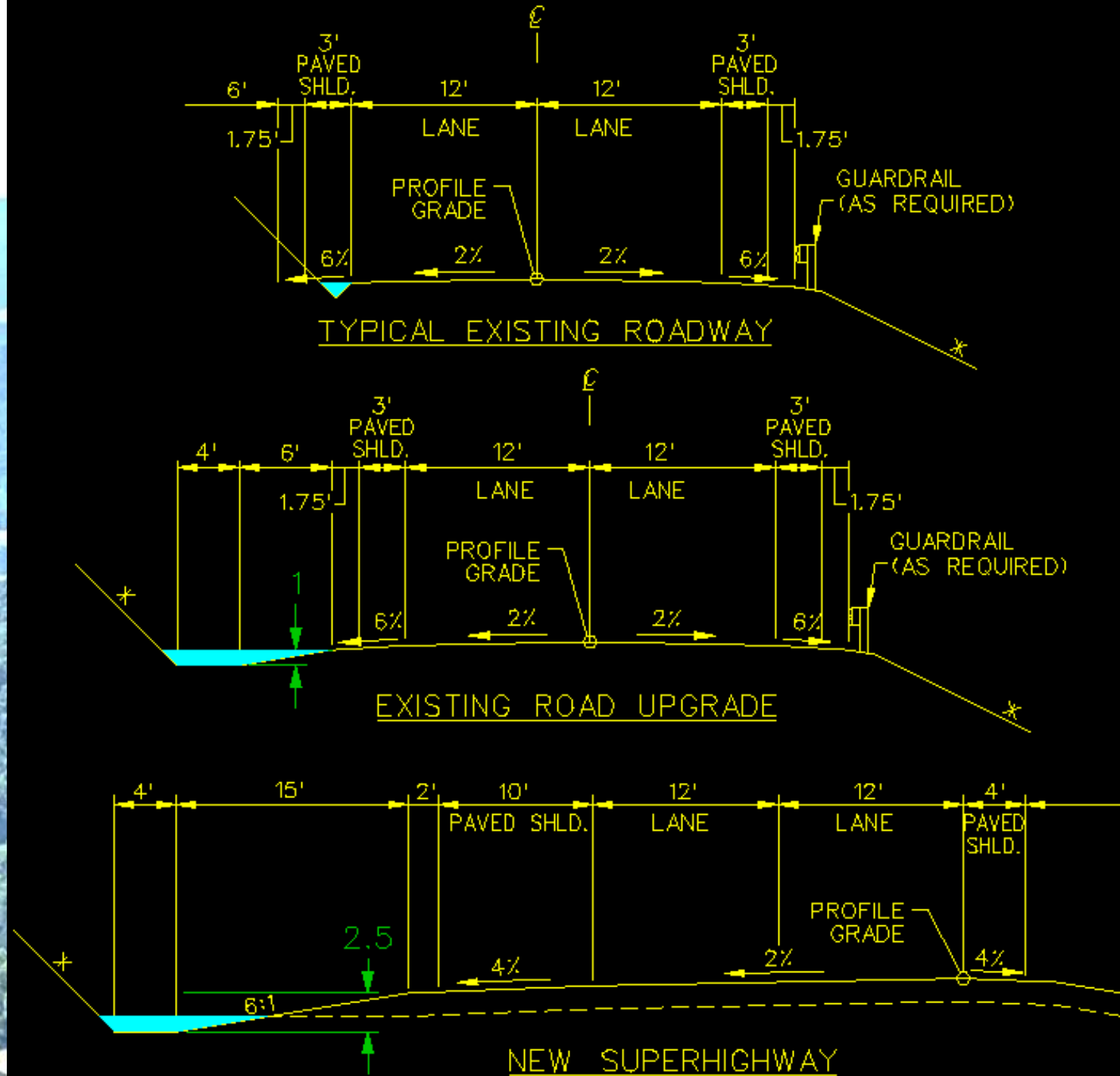


Cross slope!!!

Not-so-good

Better

Best



Would it help if we had buckets that were designed to cut the proper ditch shape?



An aerial photograph of a lush green valley. A winding river flows through the center of the valley, surrounded by dense forests and rolling hills. The scene is bright and clear, with a mix of green and brown tones.

In a perfect world,
buy more R/W to make room for
sustainable slopes & ditches

When you have to *“just do the best you can...”*

1. Longitudinal slope – the ditch drains eventually
2. Cross slope – safe and stable
3. Depth – flow capacity and drains the subgrade

Protect our Investment!



Drainage is a priority for our Leadership

"So we'd like to push into the area of drainage and drainage systems ... our drainage systems are out-of-date. We need to update them, replace the pipes in order to help prevent some of this flooding we're seeing. It's part of the cause ... the pipes have reached the end of their life. They are collapsing and in some instances, it's part of the flooding issues we've seen."

Secretary Rumbaugh
speaking at the Joint Committee on Government and
Finance Tuesday February 11, 2025



An aerial photograph of a lush, green forested valley. In the foreground, a dense canopy of trees covers the hillsides. A winding road or path is visible through the trees. In the middle ground, there are patches of cleared land, possibly fields or pastures, interspersed with more forest. The background features rolling hills and mountains under a clear sky, with some areas appearing hazy or misty. The overall scene is a scenic view of a natural landscape.

Thank you!

Doug Kirk, P.E., C.F.M.

Chief Engineer of Environmental Compliance

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