PAVEMENT DETERIORATION

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AGENCY OF TRANSPORTATION

PAVEMENT DATA COLLECTION

- Data Collected
  - Ride
  - Rut
  - Cracking
    - Structural
    - Environmental

- Network Level Data
- 64,000 0.05 mile sections
- 2 Year collection cycle
- NHS every year

COMPOSITE INDEX

Pavement Composite Index

- Used for reporting network conditions
  - Combines the four distress indices
    - Ride (functional)
    - Rut (functional, safety, structural)
    - Structural Cracks (structural)
    - Transverse Cracks (environmental)

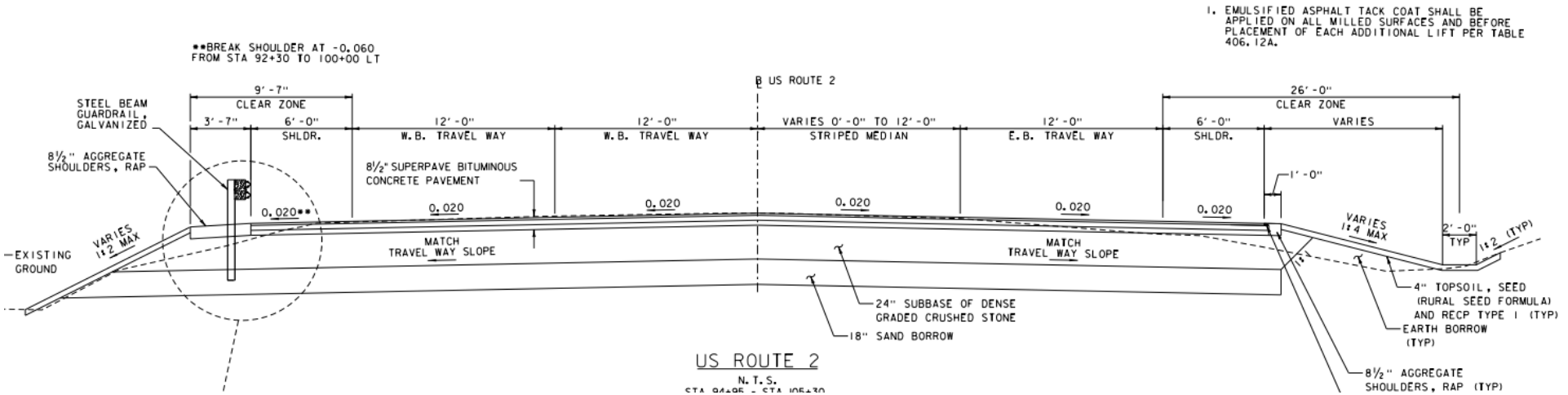
- Composite Index = Average(Ride, Rut, STRC Cracks, TRAN Cracks) –
  1.25 x Standard Deviation(Ride, Rut, STRC Cracks, TRAN Cracks)

PAVEMENT CONDITION

Good	Fair	Poor	Very Poor
Like new pavement with few defects perceived by drivers.	Slight rutting, and/or cracking, and/or ride becoming noticeable to drivers.	Multiple cracks are apparent, and/or rutting may pull at the wheel, and/or ride causes drivers to make minor corrections.	Significant cracks may cause potholes, and/or rutting pulls at the vehicle, and/or ride is uncomfortable to occupants. Drivers may need to correct to avoid road defects.
(PCI 80 to 100)	**(PCI 65 to <80)**	**(PCI 40 to <65)**	**(PCI <40)**


GOOD
FAIR
100 GOOD 80 FAIR 65 POOR 40 VERY POOR 0
PCI
POOR
VERY POOR

TYPICAL SECTION



WEIGHT IMPACTS

- https://www.trucking.org/sites/default/files/2022-01/Analysis%20of%20car%20and%20truck%20pavement%20impacts-FINAL.pdf

- AASHTO (1993) estimates that an 80,000 lb 5-axle tractor/ semi-trailer generates 2.45 ESALs per pass. For this pavement, therefore, it could be said that every pass of a loaded 5-axle tractor/ semi-trailer theoretically causes as much pavement deterioration as 6123 cars.

FAILURE MODES

- Structural loading
  - Cracking
  - Rutting
  - Raveling
- Abrasion
- Freeze Thaw
- Expansion
- Contraction
- Oxidative stress