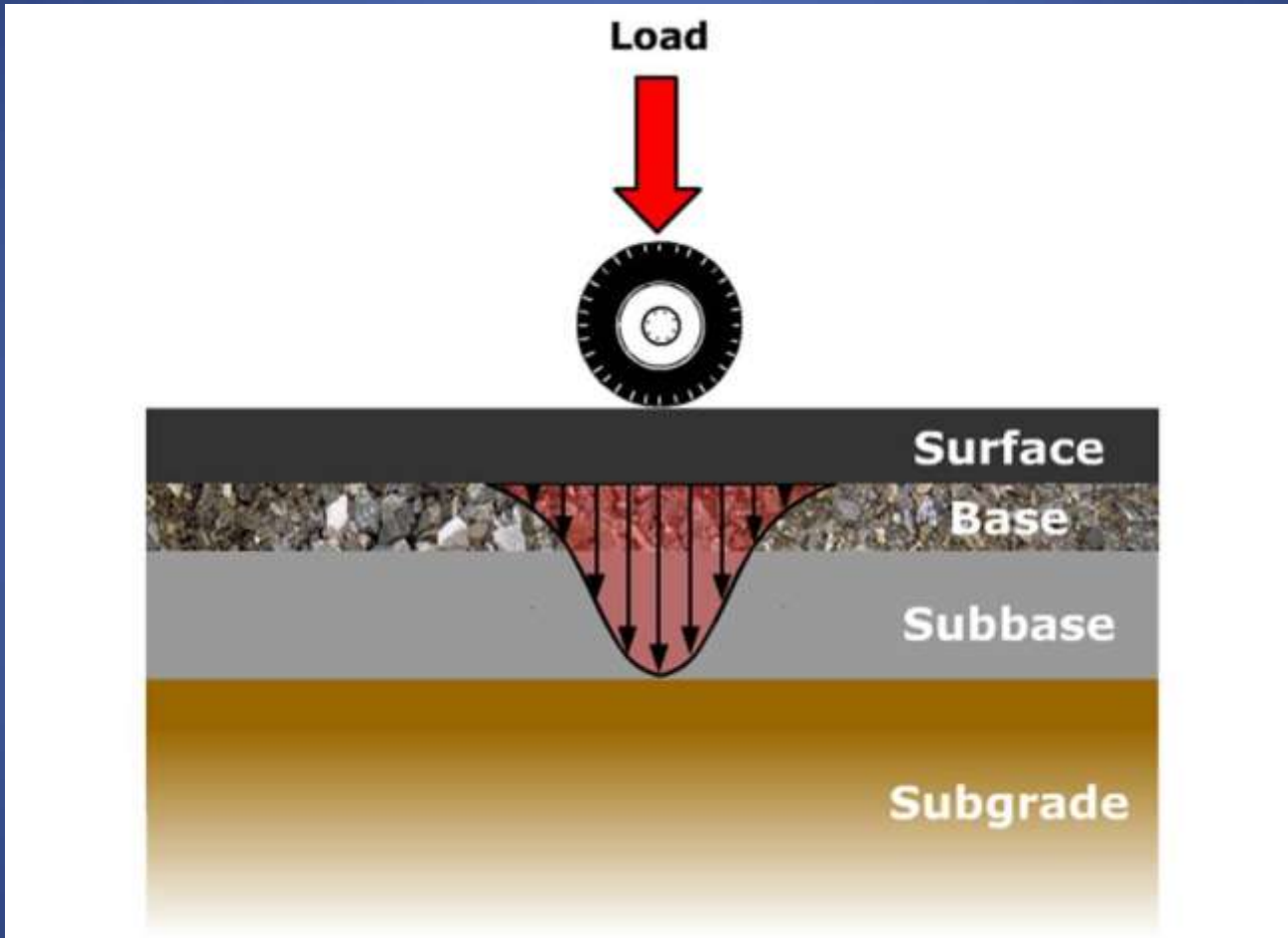


Introduction to Asphalt Pavement Design

Goals of Flexible Pavement Design and Construction:

- **Structure** - Provide a structure that has adequate strength to distribute the wheel loads to the soil without undue deflection, compaction or consolidation.
- **Surface** - Provide a surface that is adequately stable so as to not deform under traffic load, is weather resistant, has adequate skid resistance, is adequately smooth and is sufficiently wear resistant.

Function of the Pavement Structure



Goals of Flexible Pavement Design and Construction:

Are accomplished through

- Proper structural (thickness) design for the existing soil and anticipated loads.
- Optimum number of layers to facilitate stability, smoothness and economy
- Selection of the appropriate mix types for each of the layers to achieve stability, smoothness and economy
- Construction that complies with or exceeds the specifications for uniformity, smoothness and compaction(QC/QA and FQCS)

Designer's Role

Adequate Structural Design: Asphalt/aggregate thickness adequate for:

- Soil type and drainage
- expected loads, construction and long term
- Climate conditions

Appropriate combination of mix types, number of layers and layer thicknesses for:

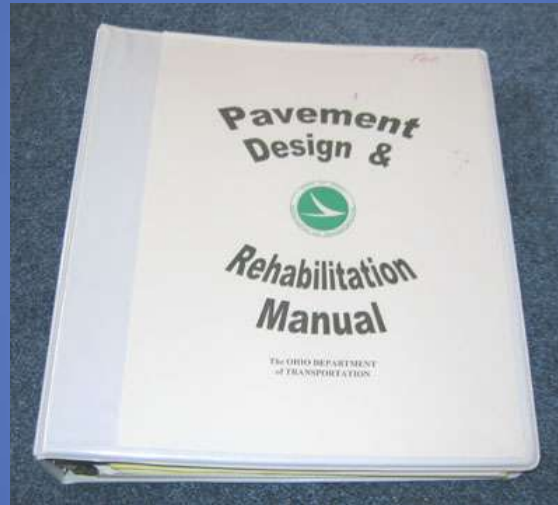
- loads and speeds
- to provide smoothness and
- economy

Various Structural Design Methods

- AASHTO 93/ODOT method (empirical)
- Asphalt Institute methods, SW-1 software (mechanistic/empirical)
- PerRoad software (mechanistic for perpetual pavement design)
- AASHTO MEPDG
- Design catalogs

Pavement Design and Rehabilitation Manual

<http://www.dot.state.oh.us/Divisions/HighwayOps/Pavement/Pages/Publications.aspx>



Section 400 contains instructions on thickness design, proper mix applications and layer build-ups.

ODOT Flexible Pavement Build-up

The usual layers from the bottom up are:

- Prepared subgrade, Item 204 and stabilized by item 206
- Aggregate base, Item 304
- Asphalt concrete base, Item 301, 302 or 880
- Intermediate (leveling) course, 442, 446, 448 or 880 (warranty asphalt pavement)
- Surface course, 424, 442, 446, 448 or 880

Typical Pavement Build-up



Asphalt Concrete
Surface Course

441, Type 1, 442 etc.



Asphalt Concrete
Intermediate Course

441 Type 2, 442 etc.



Asphalt Concrete
Base Course

301, 302



Aggregate
Base

304

on Prepared Subgrade,
item 204 and 206

Questions?



www.flexiblepavements.org