

TOP TEN CONSIDERATIONS LONG LIFE ASPHALT PAVEMENTS

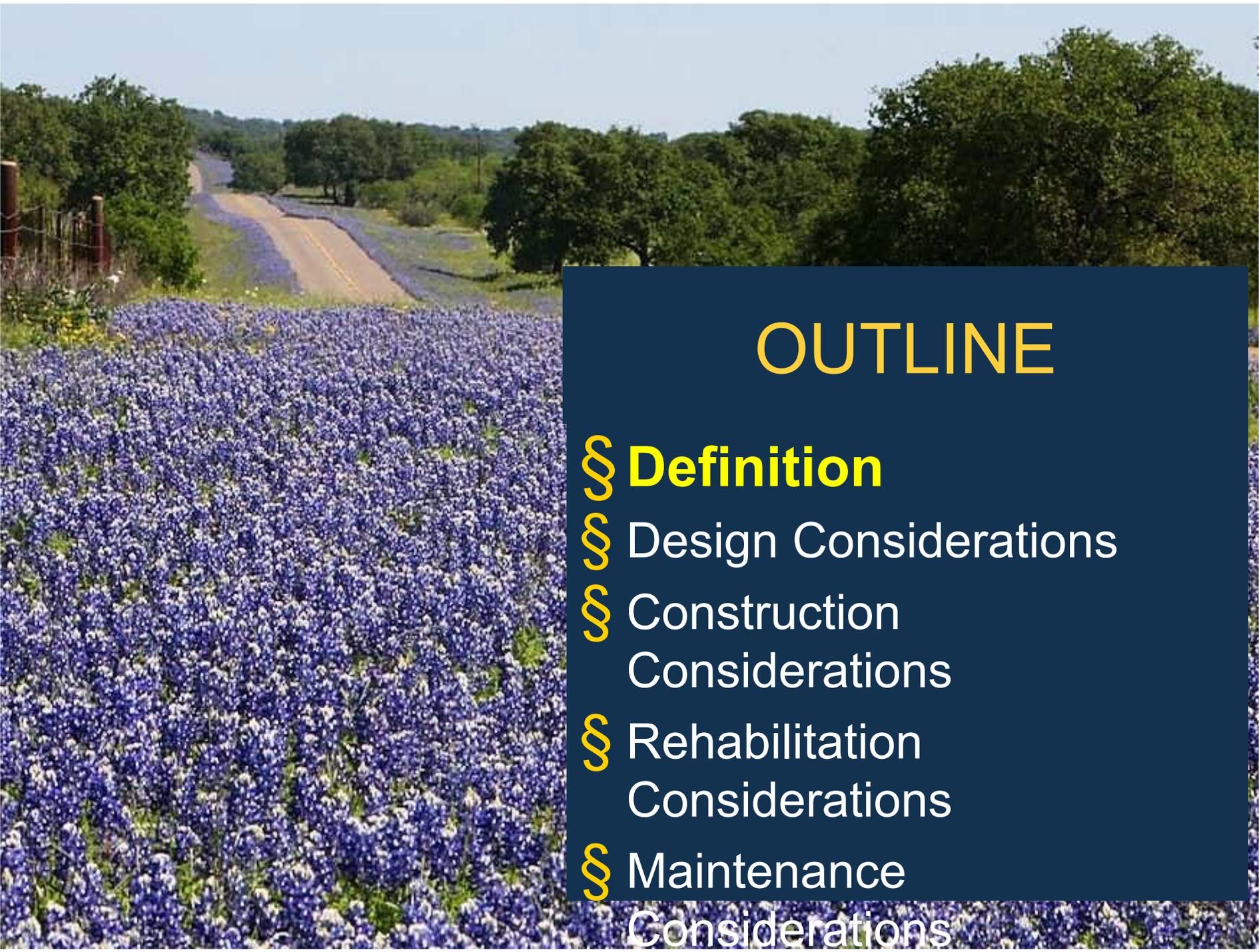
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OUTLINE

§ **Definition**

§ Design Considerations

§ Construction
Considerations

§ Rehabilitation
Considerations

§ Maintenance
Considerations

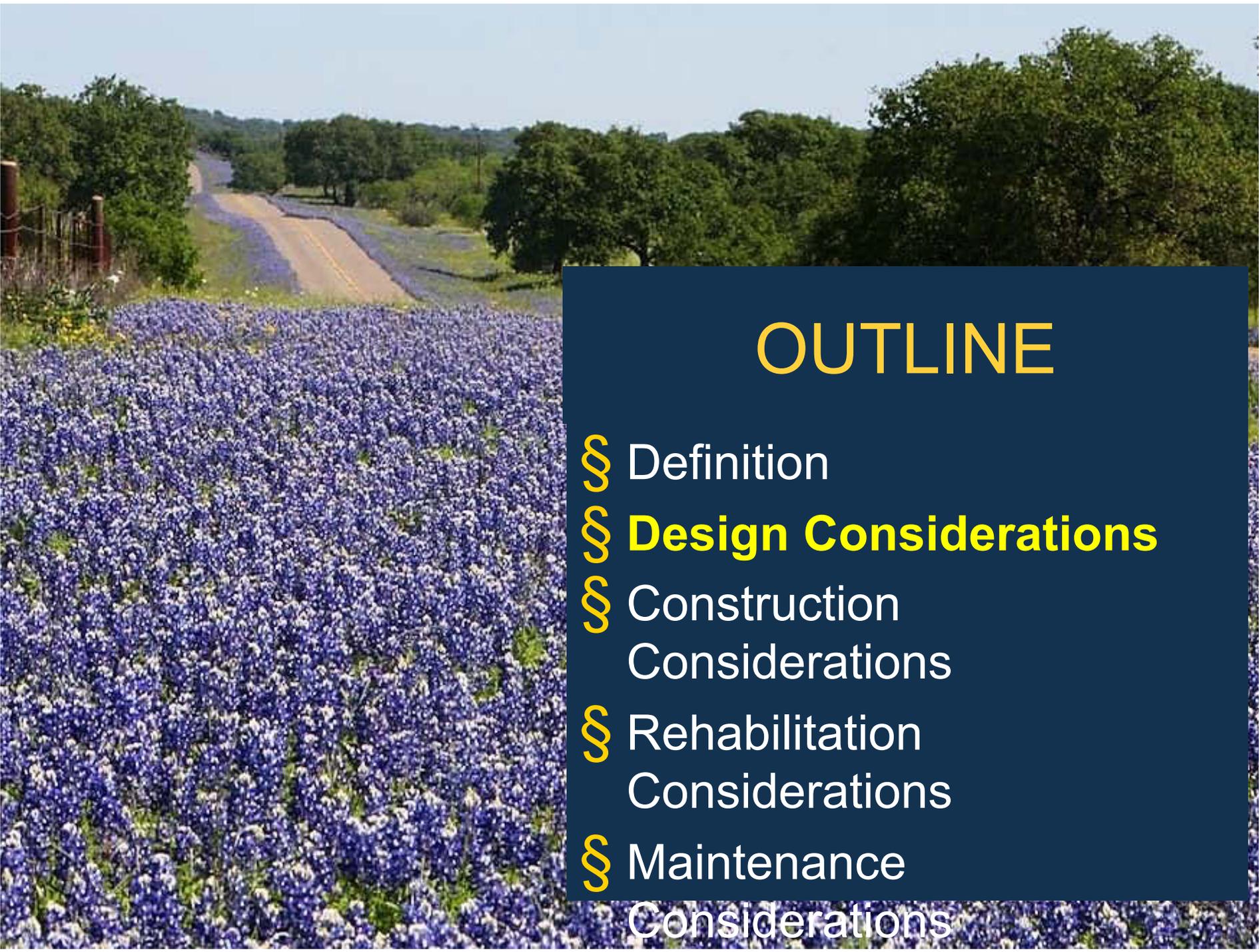
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LONG LIFE PAVEMENT (5 to 40 Years Increase in Life)

- § Minimize Premature Pavement Distress
- § Minimize Rehabilitation and Maintenance
- § Minimize User Inconvenience (Customer Focused Construction)
- § Today's Technology/Materials /Contractors
- § Safe Driving Surface





OUTLINE

- § Definition
- § **Design Considerations**
- § Construction Considerations
- § Rehabilitation Considerations
- § Maintenance Considerations





DESIGN CONSIDERATIONS

§ Safety

§ Thickness

§ Mixture





SAFETY

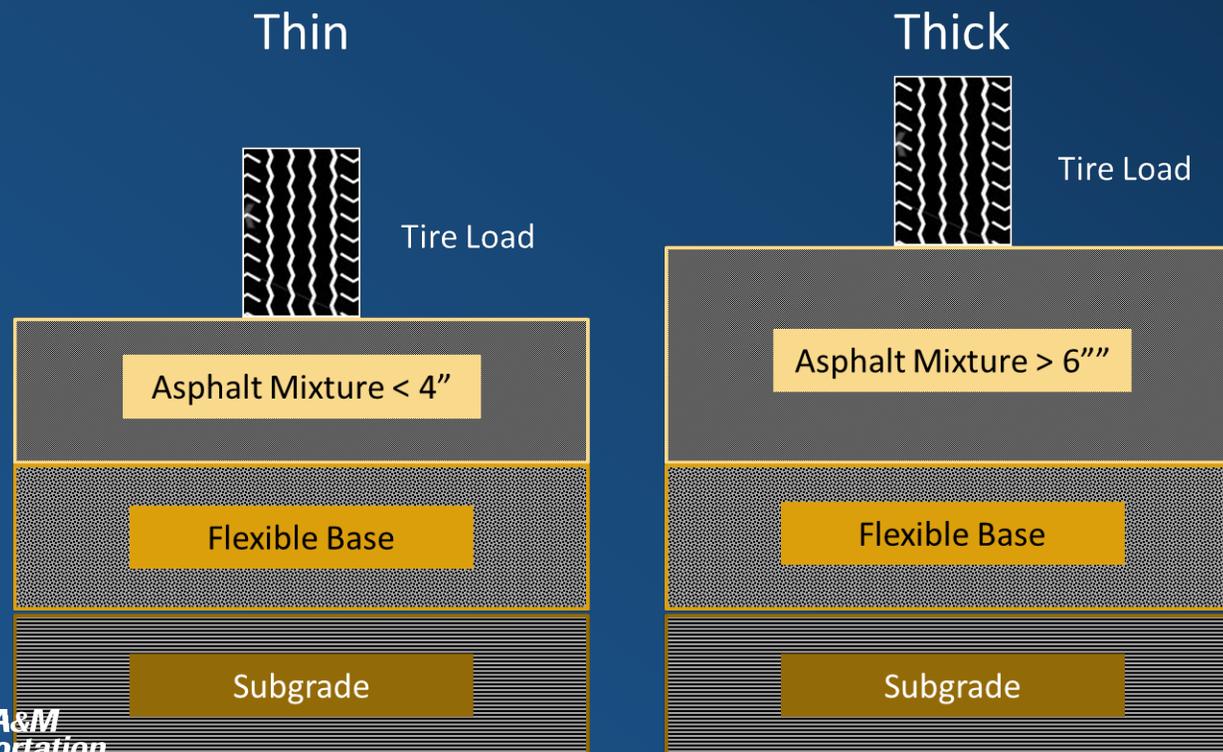
- § Work Zone
- § Surface Properties
 - Friction
 - Drainage
 - Splash and Spray
 - Noise



THICKNESS DESIGN

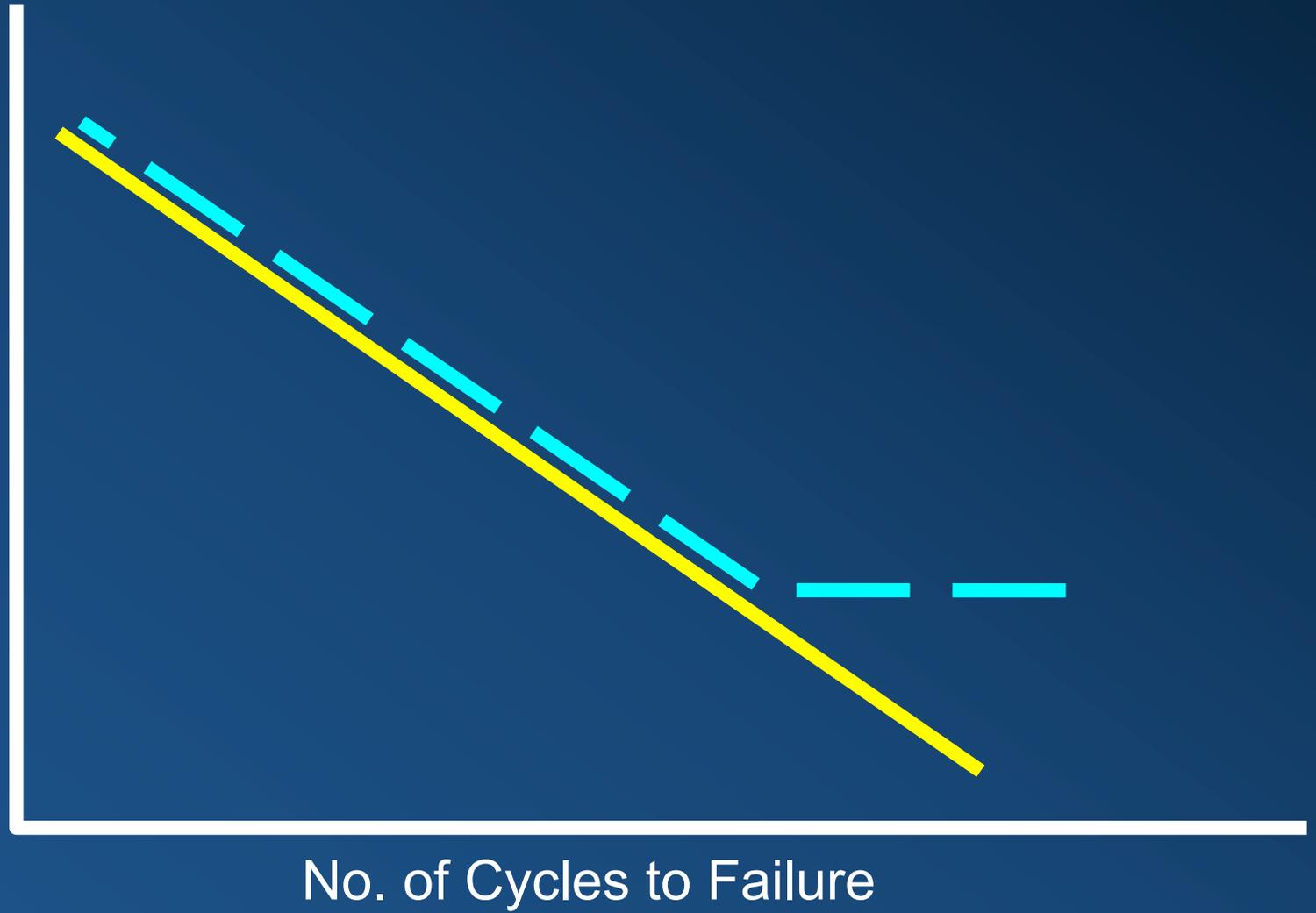
§ Fatigue Limit

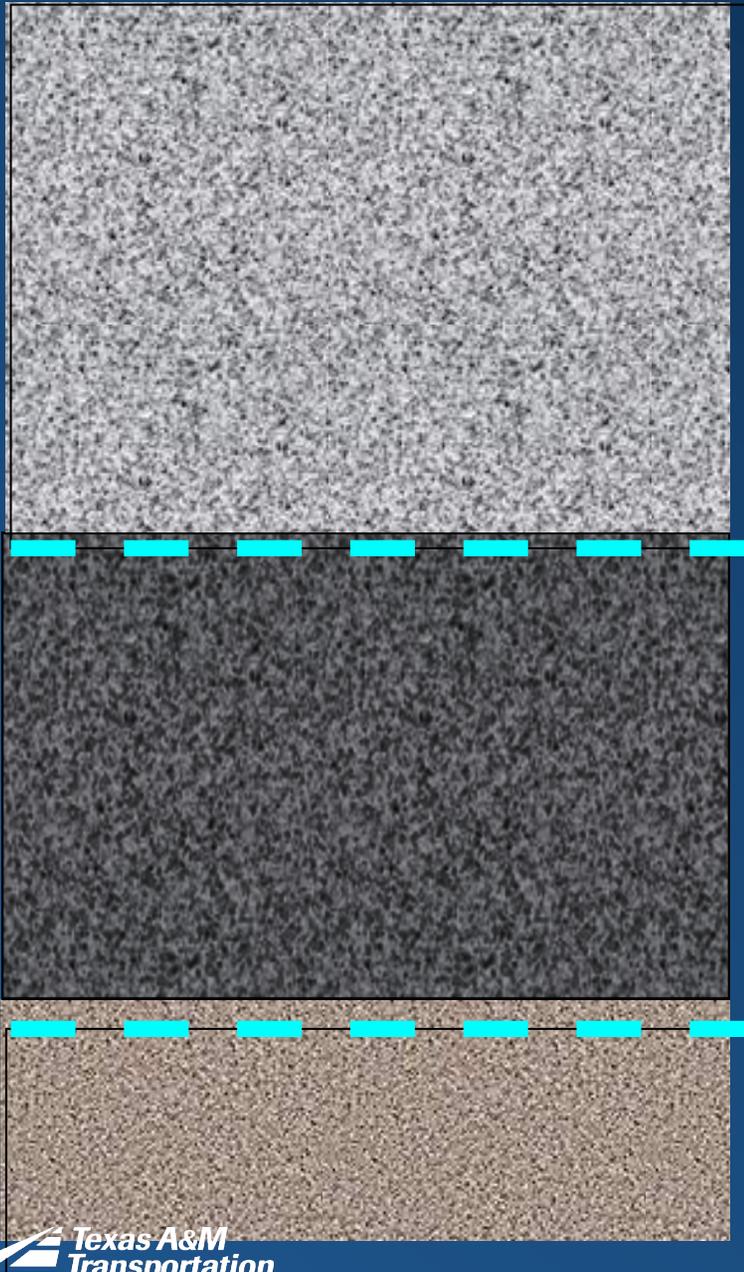
§ Select Mixture for Different Depth in Pavement Structure





Applied
Repeated
Strain





§ Friction/Splash/Spray
/Noise

§ Permanent deformation

§ Thermal cracking

§ Water Susceptibility

§ Stiffness

§ High RAP/RAS

§ Permanent deformation

§ Fatigue resistance

§ Water susceptibility



MIXTURE DESIGN

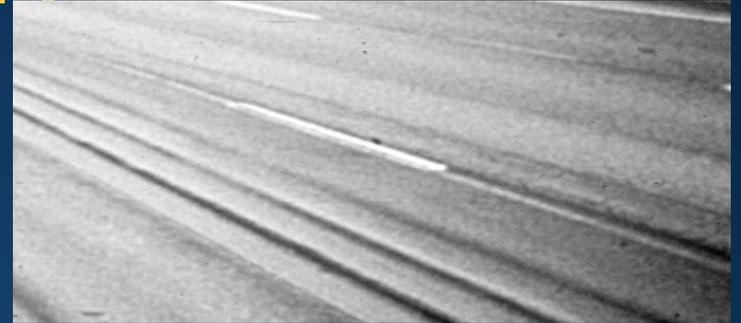


- § Mixture design test parameters use for structural design input
- § Designs for different traffic level and climates
- § Specific mixtures for different layers in pavement
- § Nominal maximum aggregate size
- § Proper use of recycled materials
- § Lab mix-lab compacted vs plant mix-field compacted

MIXTURE/STRUCTURAL DESIGN



- § Stiffness
- § Rutting
- § Fatigue
- § Thermal cracking
- § Water susceptibility
- § Aging
- § Lab mix-lab compacted vs plant mix-field compacted





TRAFFIC/CLIMATE

- § Laboratory compaction effort
- § Binder selection
- § Aggregate selection
- § High binder contents



DESIGNS FOR STRUCTURAL LAYERS



- § Stiffness
- § Rutting
- § Fatigue
- § Thermal cracking
- § Water susceptibility
- § Aging



NOMINAL MAX AGGREGATE SIZE



- § Lift thickness
- § Segregation
- § Asphalt binder content
- § Crack resistance
(fatigue/thermal
/reflection
/swelling clay soils)
- § Economics





RECYCLED MATERIALS

- § RAP/RAS binder stiffness
- § Uniformity of RAP/RAS
- § Cracking-fatigue, thermal, reflection
- § Aging





LAB vs FIELD SAMPLES

§ Different properties

- Compaction method
- Conditioning/aging

§ Control properties of mixture during construction





SUMMARY-DESIGN

- § Safe surfaces-friction, drainage, splash-spray, noise
- § Specific mixtures for different layers
- § Proper use of recycled materials

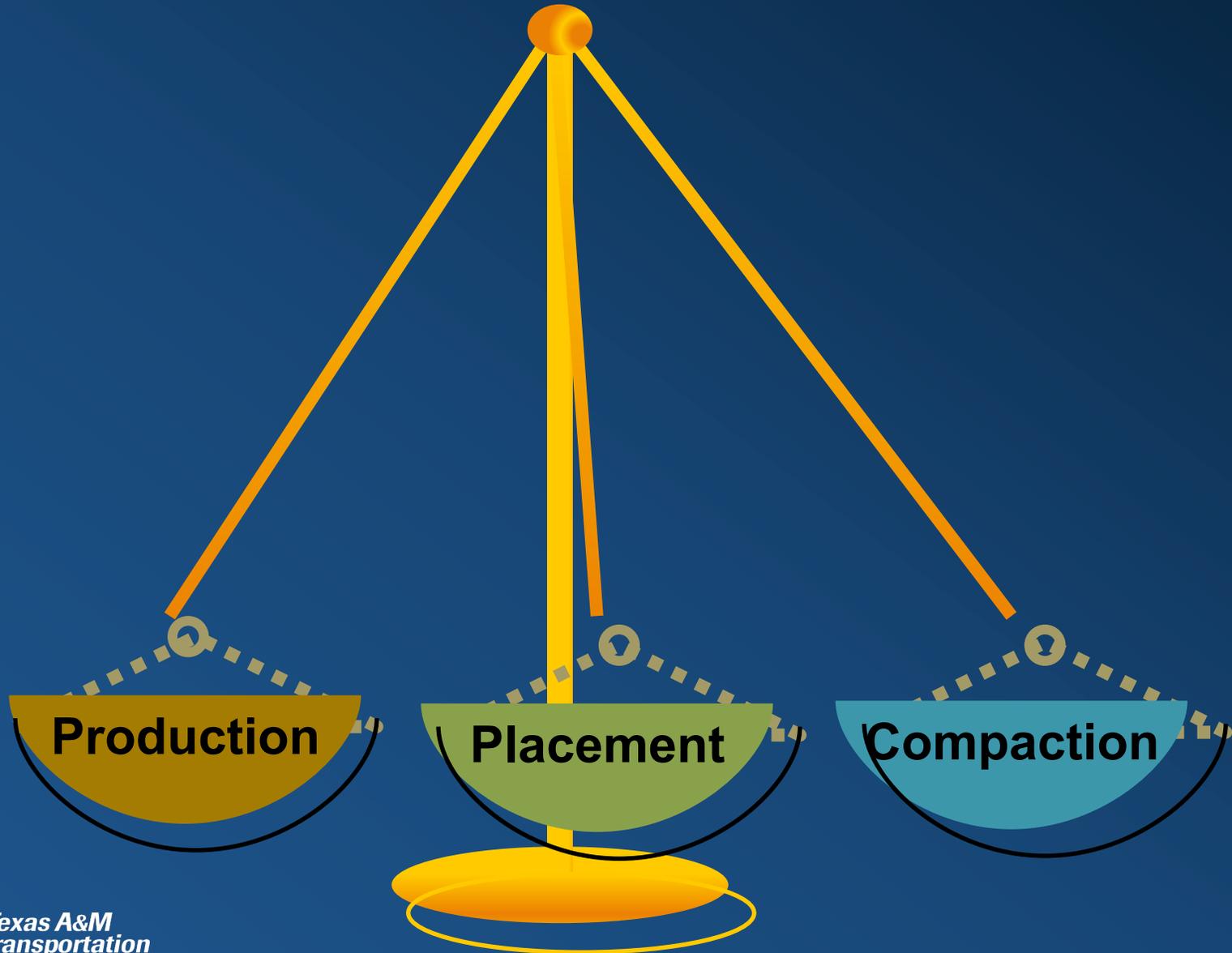


CONSTRUCTION CONSIDERATIONS

- § Balance
- § Equipment
- § QC/QA
- § Speed
- § Human Resources



BALANCE



EQUIPMENT



QC/QA

- § Agency/Contractor risk
- § No. of samples
- § Performance related tests
- § Use of QC/QA data to control process
- § Segregation, joints, in-place density (air voids)





SPEED OF CONSTRUCTION

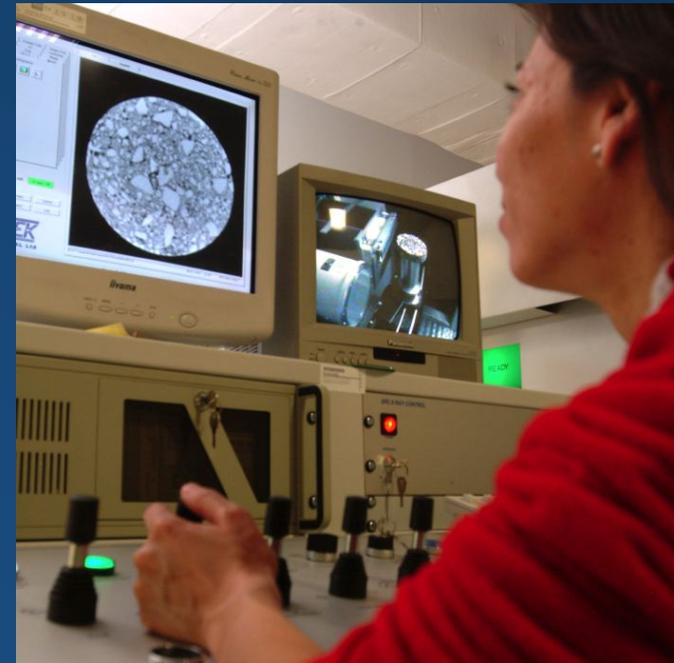
- § Quality
- § Safety
- § Human resources
- § User delay





HUMAN RESOURCES

- § Training
- § Certification of personnel
- § (Accreditation of laboratories)



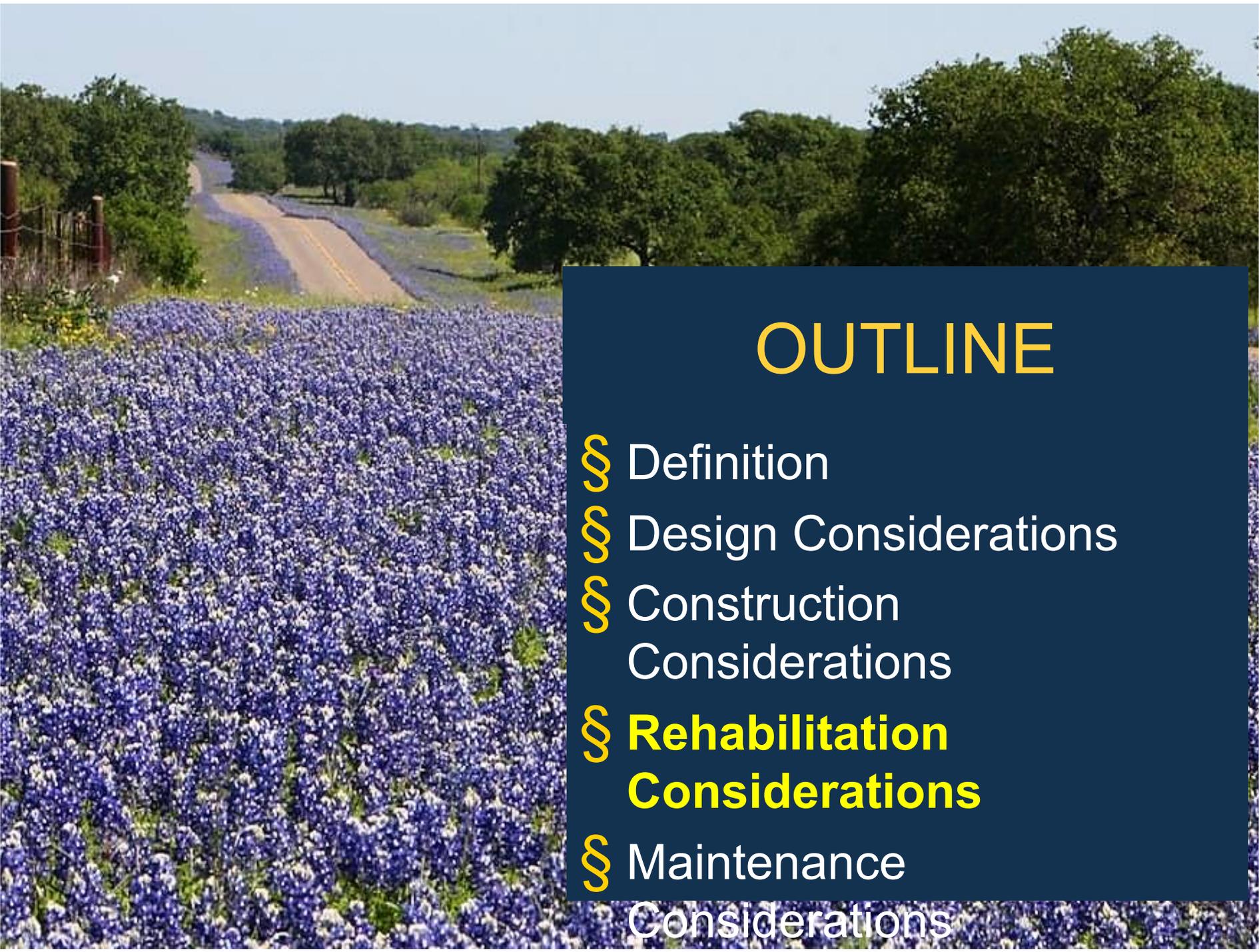


SUMMARY-CONSTRUCTION

§ Quality Control/
Quality Assurance

§ Human Resources





OUTLINE

- § Definition
- § Design Considerations
- § Construction Considerations
- § **Rehabilitation Considerations**
- § Maintenance Considerations



REHABILITATION CONSIDERATIONS

- § Lane occupancy time
- § Overlay thickness/
mixture design
- § Selection of
alternative

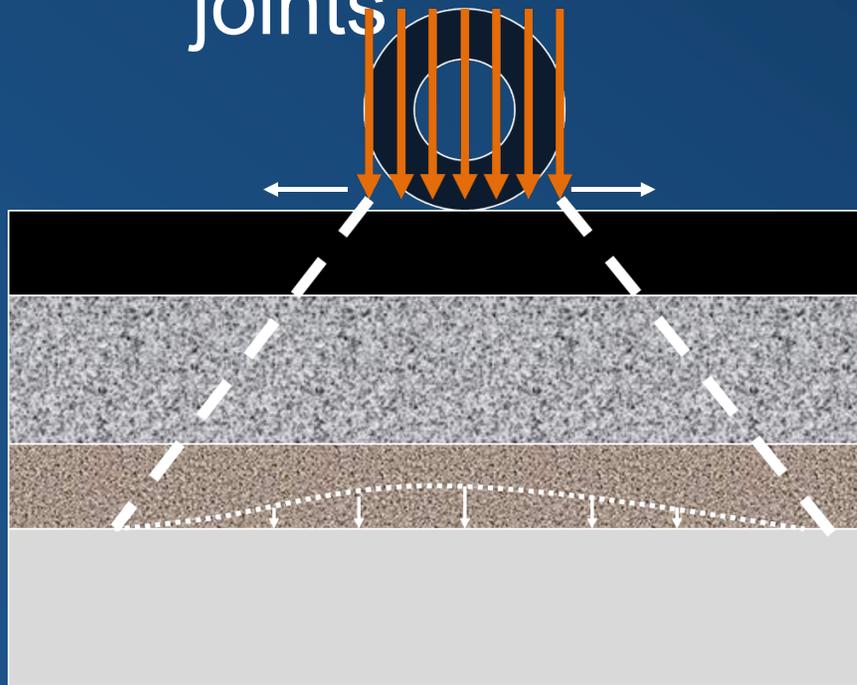


OVERLAY THICKNESS/MIXTURE DESIGN



§ Structural Considerations

§ Reflection cracking-thermal, fatigue, joints



SELECTION OF ALTERNATIVE

- § Evaluate condition of existing pavement
- § Determine remaining life
- § Select alternative based on
 - Initial and life cycle cost
 - Emissions including greenhouse gases
 - Energy utilization
 - Materials conservation

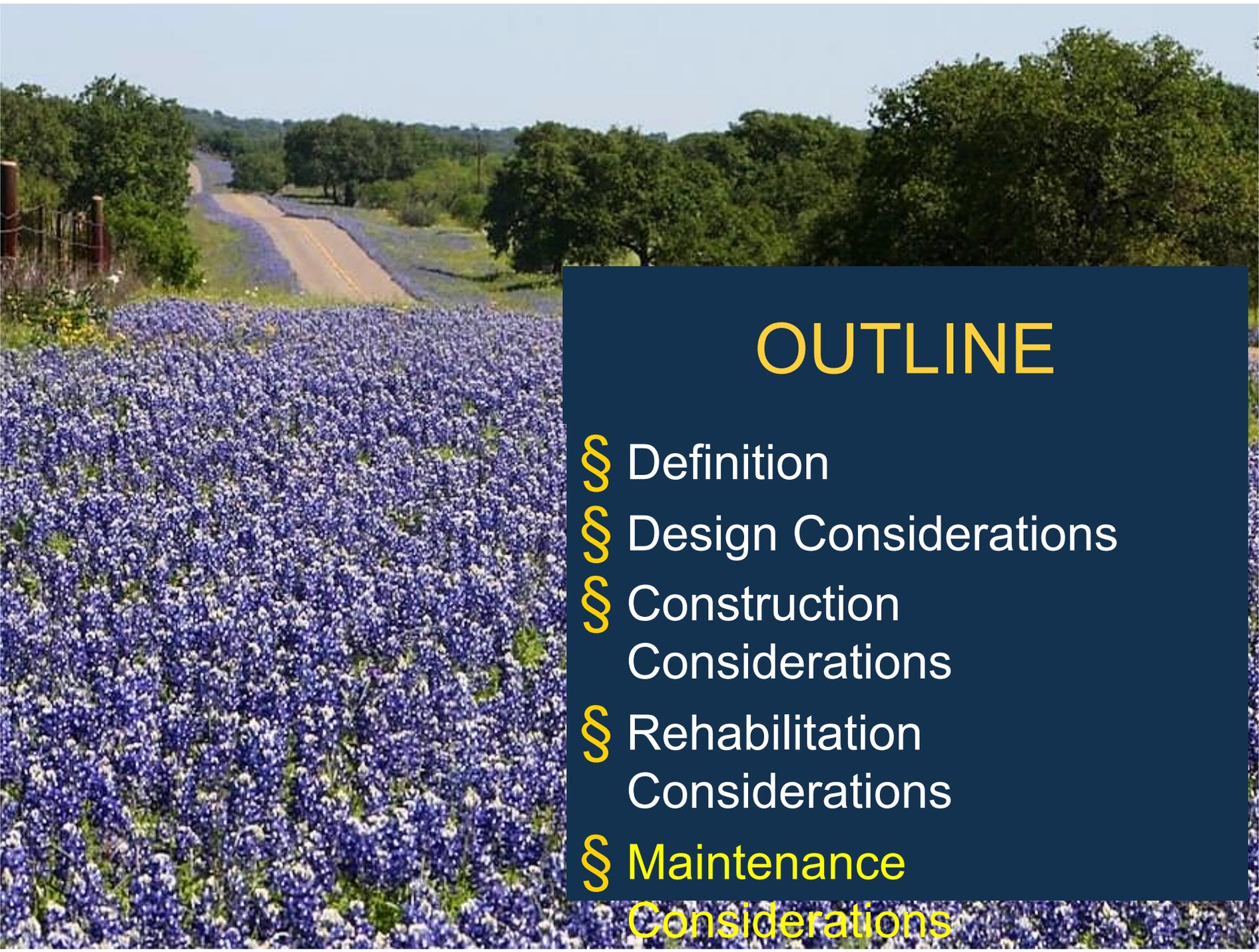




SUMMARY-REHABILITATION

§ Determine Condition of Existing Pavement



A photograph of a dirt road lined with bluebonnet flowers in a rural setting. The road is flanked by dense green trees and a clear blue sky. The foreground is filled with a vast field of bluebonnets.

OUTLINE

- § Definition
- § Design Considerations
- § Construction Considerations
- § Rehabilitation Considerations
- § Maintenance Considerations

§

MAINTENANCE CONSIDERATIONS

- § Lane occupancy time
- § Selection of alternative
- § Routine vs preventive maintenance
 - Patching
 - Fog seal
 - Slurry seal
 - Chip seal
 - Thin overlay

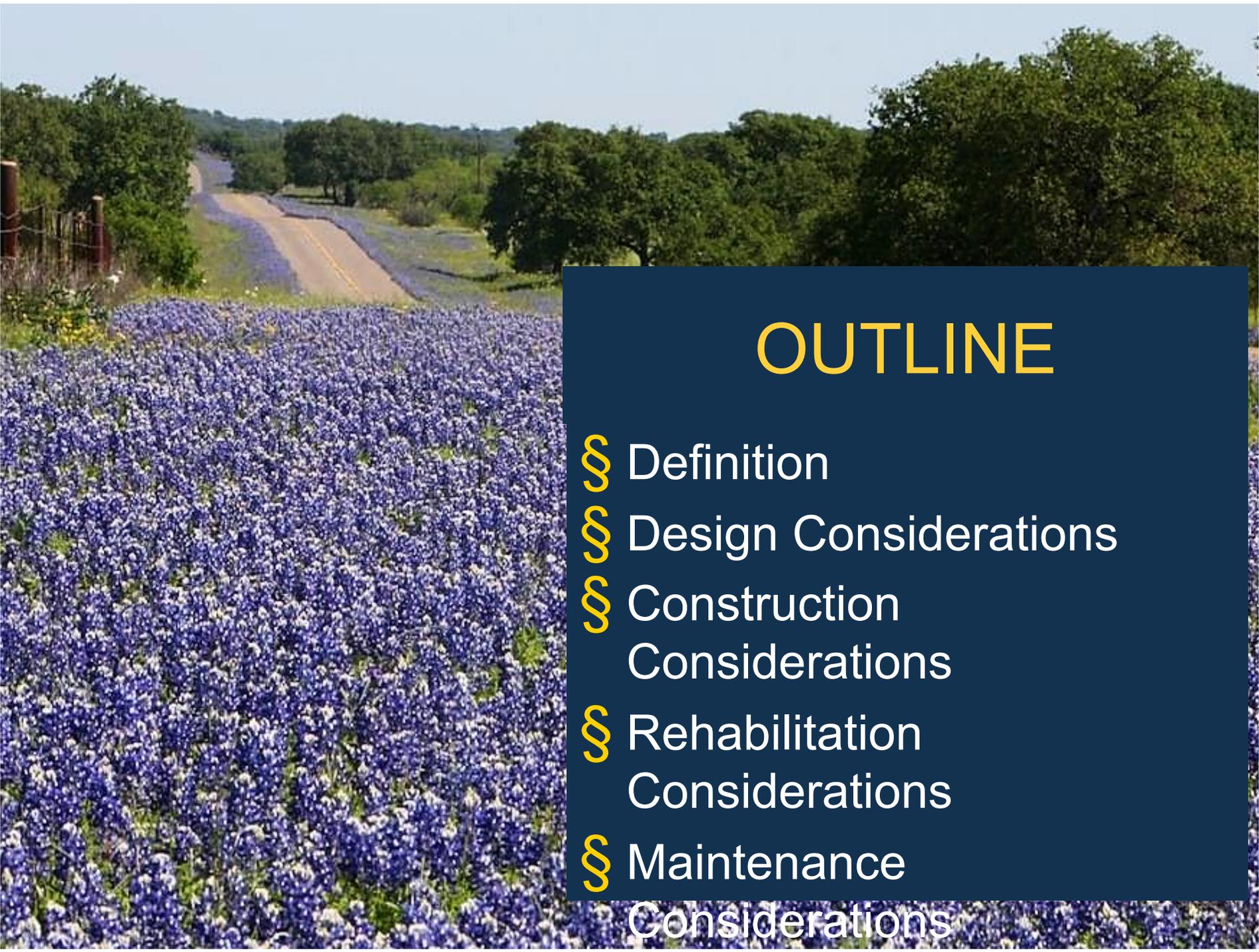




SUMMARY- MAINTENANCE

§ Selection of Alternative



A photograph of a dirt road lined with bluebonnet flowers in a rural setting. The road is flanked by dense green trees and a clear blue sky. The foreground is filled with a vast field of bluebonnets.

OUTLINE

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- § Rehabilitation Considerations
- § Maintenance Considerations

§ **Other Considerations**

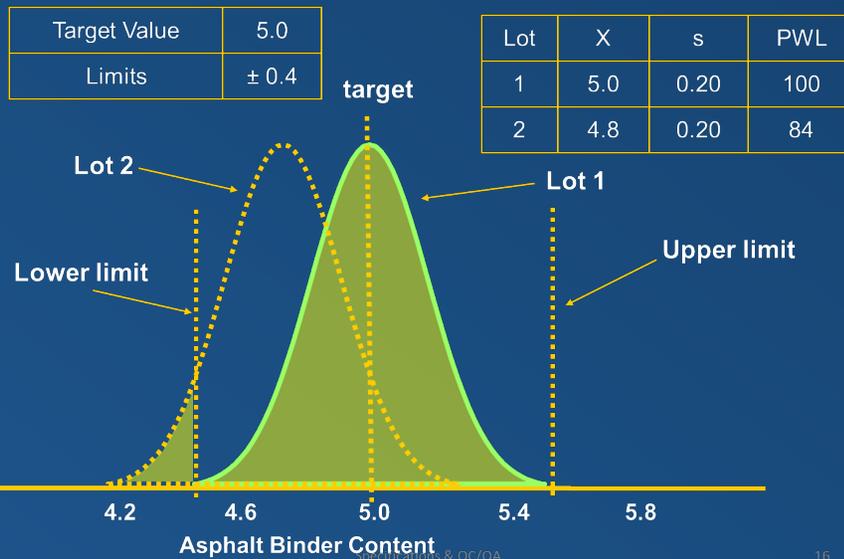


OTHER CONSIDERATIONS

§ Contracting method

§ Public information

§ Implementation



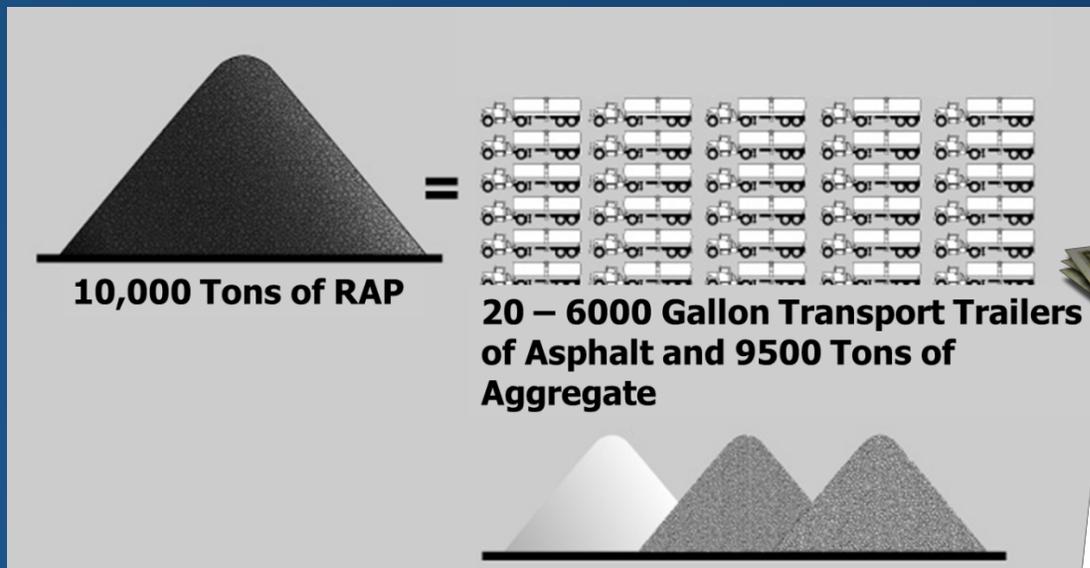
CONTRACTING METHOD





PUBLIC INFORMATION

- § Sustainability story
- § Customer focused construction story
- § Future funding



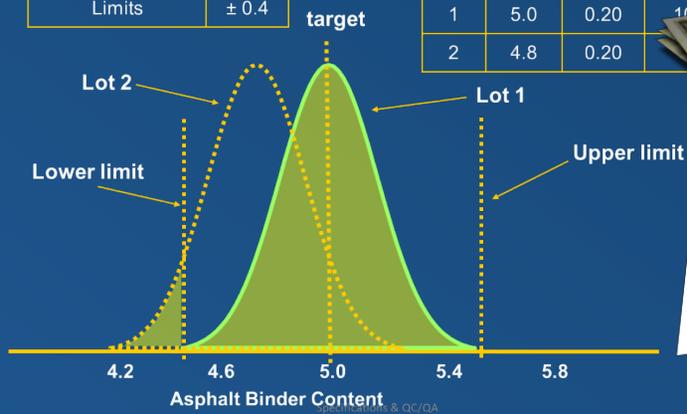


IMPLEMENTATION

- § Development of new technology
- § Speed of implementation
- § Reduce costs
- § Increase life
- § Sustainability

Target Value	5.0
Limits	± 0.4

Lot	X	s	PWL
1	5.0	0.20	100
2	4.8	0.20	



SUMMARY-OTHER CONSIDERATIONS



- § Warranty
- § Public information
- § Implementation



TOP 10

- § What can we do today?
- § What practices are commonly used today?
- § Consider today's capabilities
 - Technology
 - Materials
 - Contractors
 - Customer Focused Construction
 - Safety



TOP 10

§ Design

- Safe Surfaces
- Specific Mixtures for Different Layers
- Proper Use of Recycled Materials

§ Construction

- Quality Control/Quality Assurance
- Human Resources

§ Rehabilitation

- Determine Condition of Existing Pavement

§ Maintenance

- Selection of Alternative

§ Other

- Warranty
- Public Information
- Implementation

