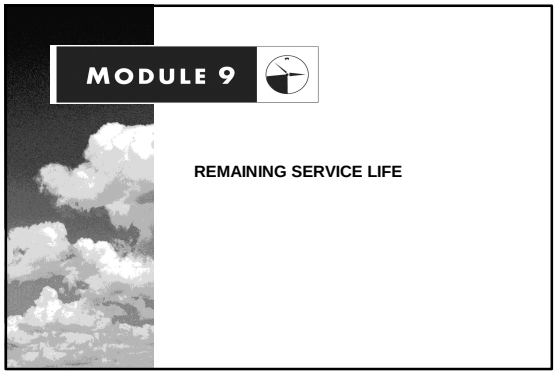

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Instructional Objectives

- **Concept of remaining service life**
- **How remaining service life is used and its importance**
- **How remaining life is calculated**

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Introduction

- **RSL: definition**
- **Analysis**
  - **Step 1: determine RSL for each pavement section**
  - **Step 2: examine how RSL distribution in network can be changed**

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Developing an RSL Analysis

- **Define threshold values**
- **Develop condition indices**
- **Develop performance curves**
- **Define RSL categories**
- **Define RSL cost matrix**
- **Define RSL construction effort matrix**

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Defining RSL Categories

- Category **I**: RSL = 0
- Category **II**: 0 < RSL ≤ 5
- Category **III**: 5 < RSL ≤ 10
- Category **IV**: 10 < RSL ≤ 15
- Category **V**: 15 < RSL

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Example RSL Cost Matrix

FROM\TO	Category I	Category II	Category III	Category IV	Category V
Category I	MI$	CI-II$	CI-III$	CI-IV$	CI-V$
Category II	n/a	MII$	CII-III$	CII-IV$	CII-V$
Category III	n/a	n/a	MIII$	CIII-IV$	CIII-V$
Category IV	n/a	n/a	n/a	MIV$	CIV-V$
Category V	n/a	n/a	n/a	n/a	MV$

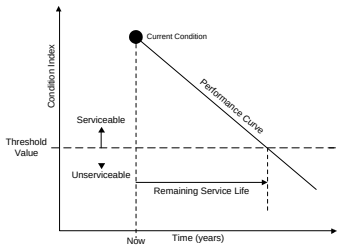
Example Construction Effort Matrix

FROM\TO	Category I	Category II	Category III	Category IV	Category V
Category I	n/a	EI-II	EI-III	EI-IV	EI-V
Category II	n/a	n/a	EII-III	EII-IV	EII-V
Category III	n/a	n/a	n/a	EIII-IV	EIII-V
Category IV	n/a	n/a	n/a	n/a	EIV-V
Category V	n/a	n/a	n/a	n/a	n/a

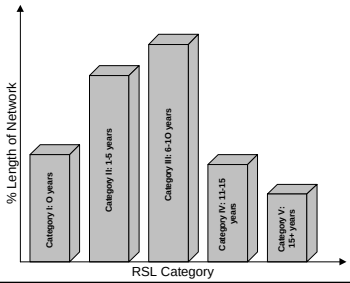
The RSL Analysis

- **Calculate RSL for each section**
- **Show RSL distribution on network**
- **Predict future RSL distribution**
- **Apply different levels of effort and examine effects on future RSL distribution**

Calculating the RSL for a Pavement Section



RSL Distribution



Calculating the Future RSL

	% of lane-miles in each RSL Category			
	Now	Next Year	After 5 years	After 10 years
Category I	**10**	**15** (= 10 + 25/5)	**35**	**65**
Category II	**25**	**26** (= 25 - 25/5 + 30/5)	**30**	**25**
Category III	**30**	**29** (= 30 - 30/5 + 25/5)	**25**	**10**
Category IV	**25**	**22** (= 25 - 25/5 + 10/5)	**10**	**0**
Category V	**10**	**8** (= 10 - 10/5)	**0**	**0**

Example Future RSL Distribution

- **Assume the cell 'EII-V' equals 10 in the Construction Effort Matrix**

	% of lane-miles in each RSL Category	
	Now	Next Year
Category I	**10**	**13** (= 10 + **15/5**)
Category II	**25**	**18** (= 25 - **15/5** + 30/5 - **10**)
Category III	**30**	29 (= 30 - 30/5 + 25/5)
Category IV	**25**	22 (= 25 - 25/5 + 10/5)
Category V	**10**	**18** (= 10 - 10/5 + **10**)

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Practical Considerations

- RSL reliability is function of reliability of condition survey and performance curves
- Future RSL distributions are network level not project level

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Future Trends

- Sophisticated PMS "carries along" RSL calculations with life-cycle cost
- RSL distribution a result of PMS analysis

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5-Year Analysis

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Summary

- Definition - RSL
- RSL Analysis Requirements

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Instructional Objectives

- Concept of remaining service life
- How remaining service life is used and its importance
- How remaining life is calculated