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Network Evaluation

Quick Assessment Method

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Example:

Highway Department Network

Network Size = 4,356 lane miles

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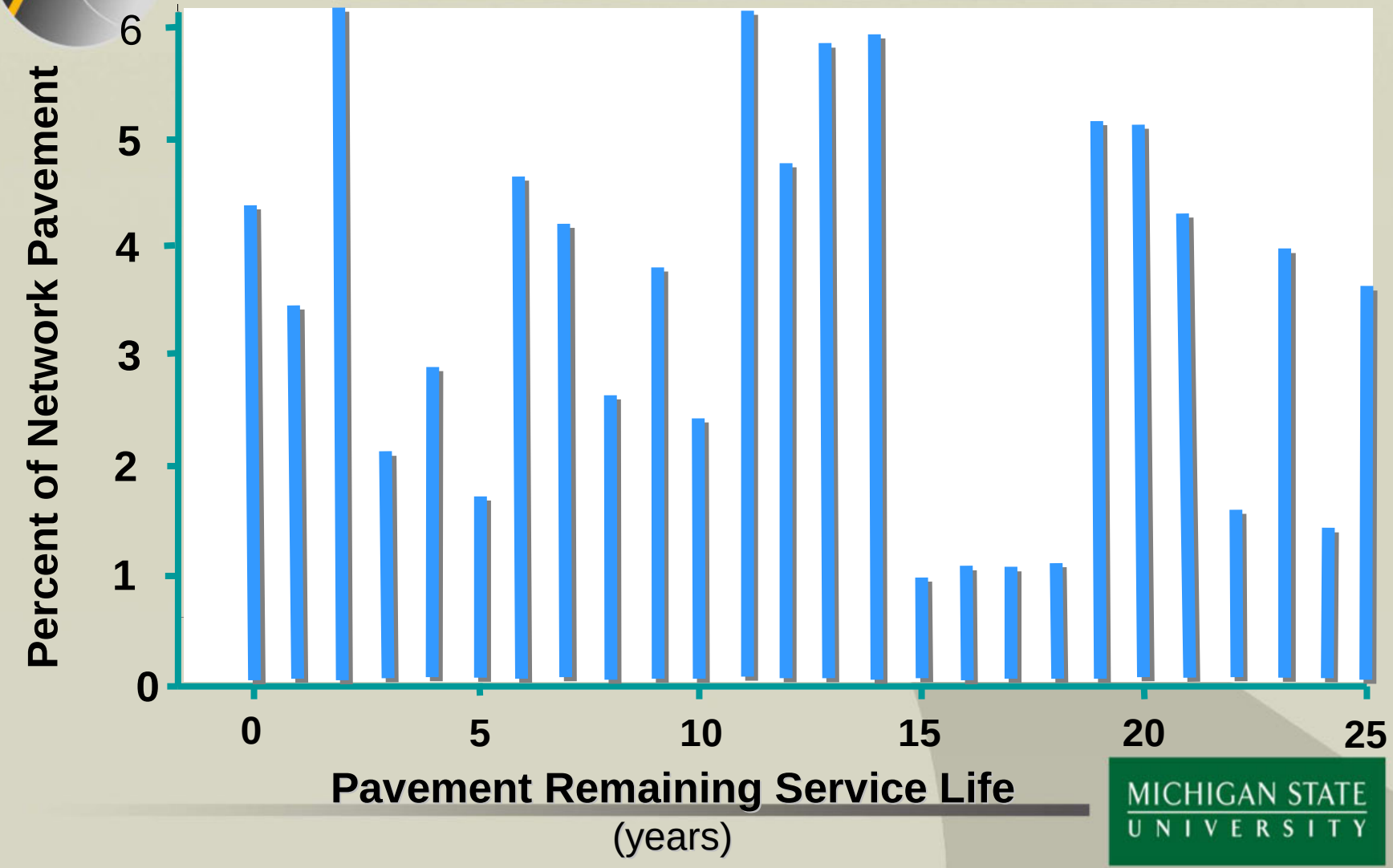
Current Condition



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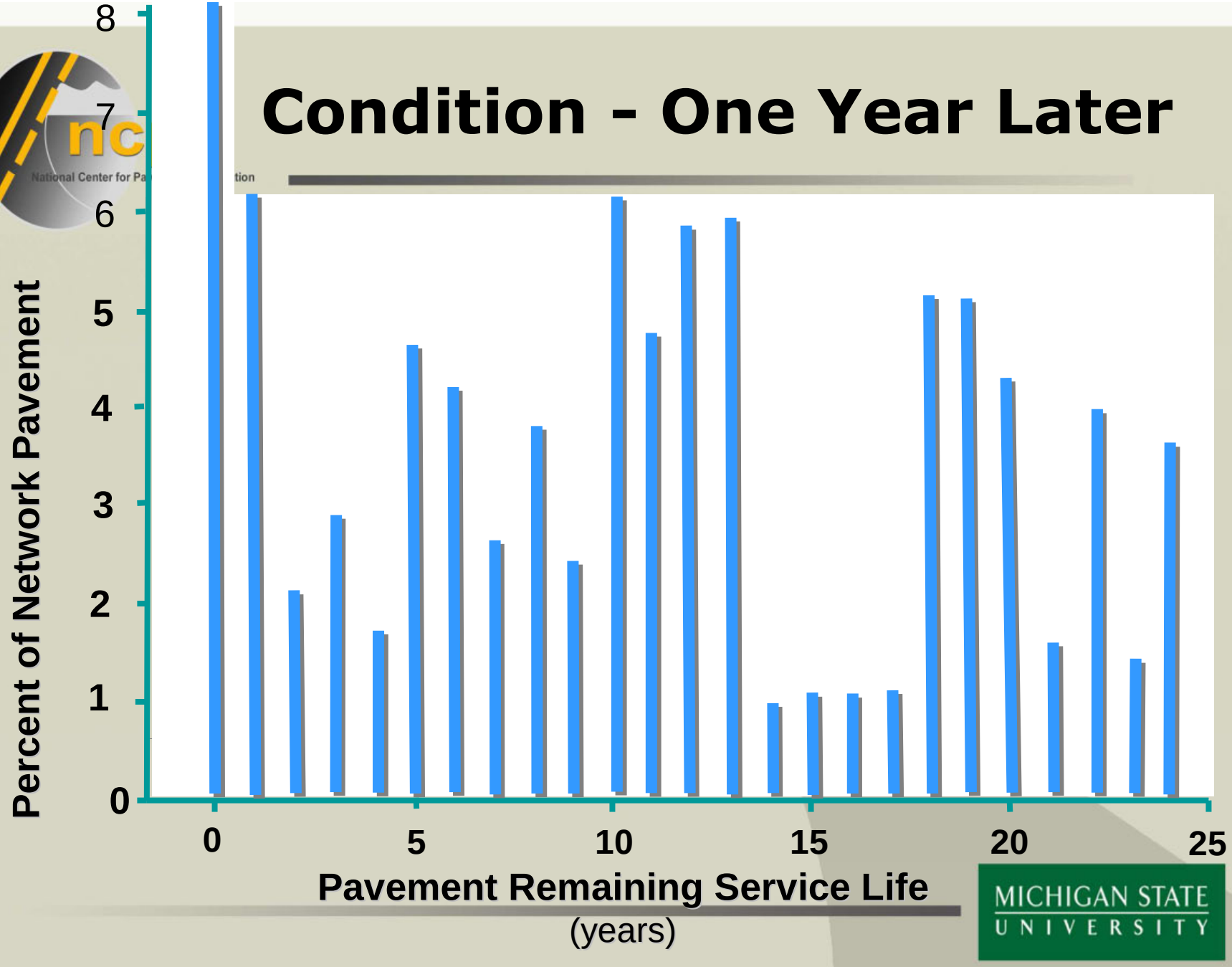
Condition - One Year Later



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Highway Department =
4,356 lane miles

Each year the network will lose

4,356 lane mile years

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Reconstruction Evaluation

Project	Lane Miles	Design Life	Lane Mile Years
#1	22	25 yrs	550
#2	18	30 yrs	540
Total		=	1,090

Step 2

Rehabilitation Evaluation

Project	Lane Miles	Design Life	Lane Mile Years
#3	22	18 yrs	396
#4	28	15 yrs	420
#5	32	12 yrs	384
Total		=	1,200

Preventive Preservation Evaluation

Step 3

Project	Lane Miles	Life Extension	Lane Mile Years
#6	12	2 yrs	24
#7	22	3 yrs	66
#8	26	5 yrs	130
#9	16	7 yrs	112
#10	8	10 yrs	80
Total		=	412

Step 4

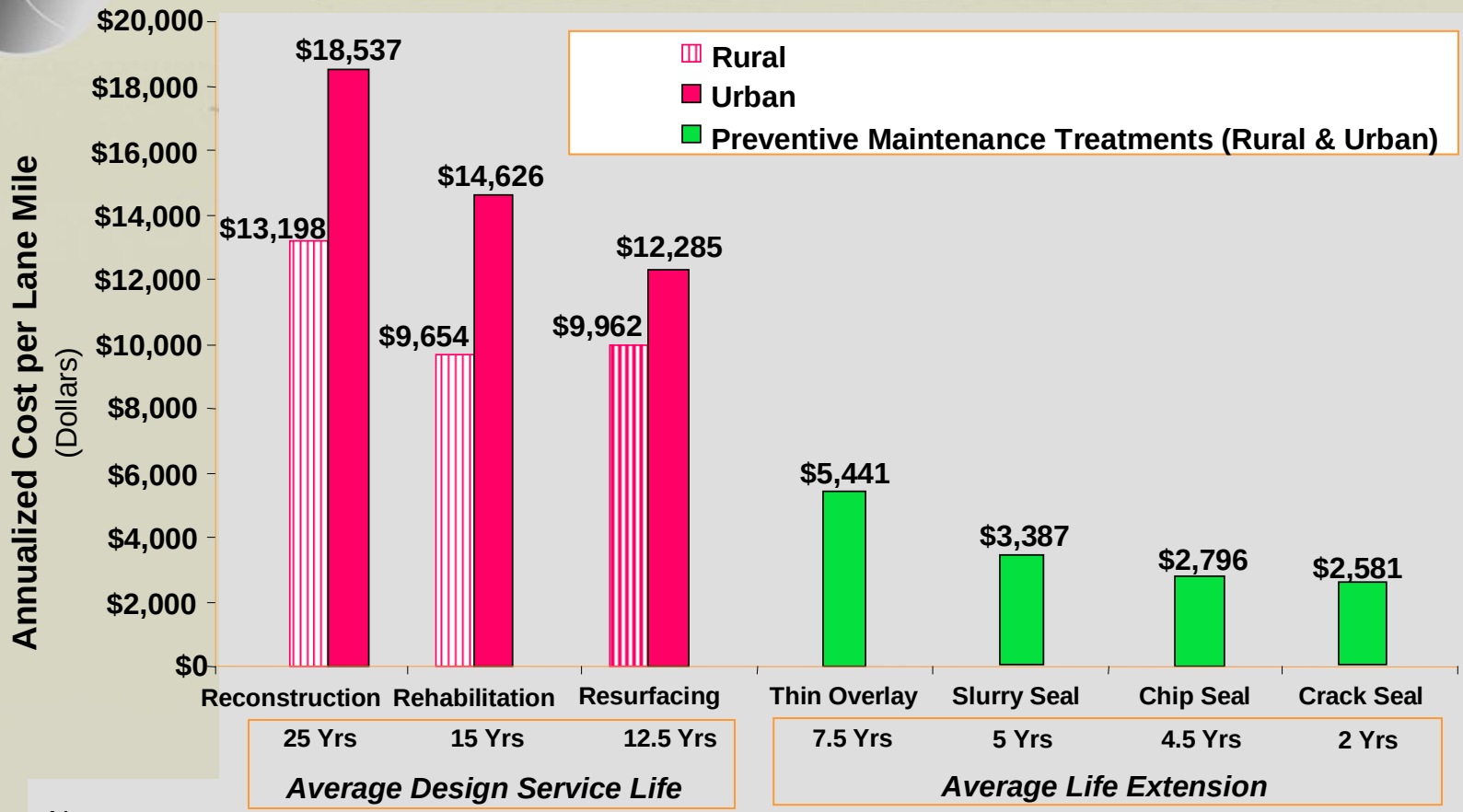
Network Needs Summary

Required: 4,356 lane mile years

Programmed Activity		Lane Mile Years
Reconstruction *(40 lane miles)*	$$$$	**1,090**
Rehabilitation *(82 lane miles)*	$$$	**1,200**
Pavement Preservation *(84 lane miles)*	$	**412**
Total =		**2,702**

Evaluation Conclusion

Network Size *(needs)*	**4,356 *(lane mile years)***
Programmed Activity	**2,703 *(lane mile years)***
Deficit =	**1,653 *(lane mile years)***



Note:

Reconstruction, Rehabilitation & Resurfacing costs from Highway Statistics -2001, FHWA

Preventive Maintenance treatment costs from 2001 data, Michigan DOT

Steps to Address Minimal Needs

Required: 4,356 lane mile years

Programmed Activity	Lane Mile Years
Reconstruction (31 lane mile~~s~~ (~~40 lane miles~~)	20 ~~90~~
Rehabilitation (~~8~~	1,125 ~~1,200~~
Paven ~~vation~~ (84 lane miles)	412
Total =	2,357 ~~2,702~~

Savings = $ 5.27 M

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Step 1

Steps to Address Minimal Needs

Savings = $ 5.27 Million Needs = 1,999 LMY

Preservation Treatment	*Life Extension*	*Cost per Lane Mile*	*New Lane Miles*
Chip Seal	4.5 years	$12,600	x
Crack Seal	2 years	$5,200	y

Solve for unknowns:

$$12{,}600x + 5{,}200y = 5.27 \times 10^6$$

$$4.5x + 2y = 1999$$

(Simultaneous Equations)

x = 78 y = 824

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Step 2

Steps to Address Minimal Needs

Required: 4,356 lane mile years

Programmed Activity	Lane Mile Years
Reconstruction *(31 lane miles)*	***820***
Rehabilitation *(77 lane miles)*	***1,125***
Pavement Preservation *(84 lane miles)*	**412**
*Chip Seal (4.5 yrs **X** 78 lane miles)*	***351***
*Crack Seal (2 yrs **X** 824 lane miles)*	***1,648***
Total =	**4,356**

Quick Assessment Method

- Establishes Network Need
- Evaluates
  - Reconstruction
  - Rehabilitation
  - Preventive Maintenance
- Incorporates
  - Design Life
  - Life Extensions

Questions ?

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Thank You !

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