

ADB Transport Forum
Asia on the Move: Energy Efficient and Inclusive Transport

9 – 12 September 2008 – Manila, Philippine

***WHOLE LIFE COSTS
A TOOL FOR
LOW VOLUME RURAL ROAD MANAGERS***

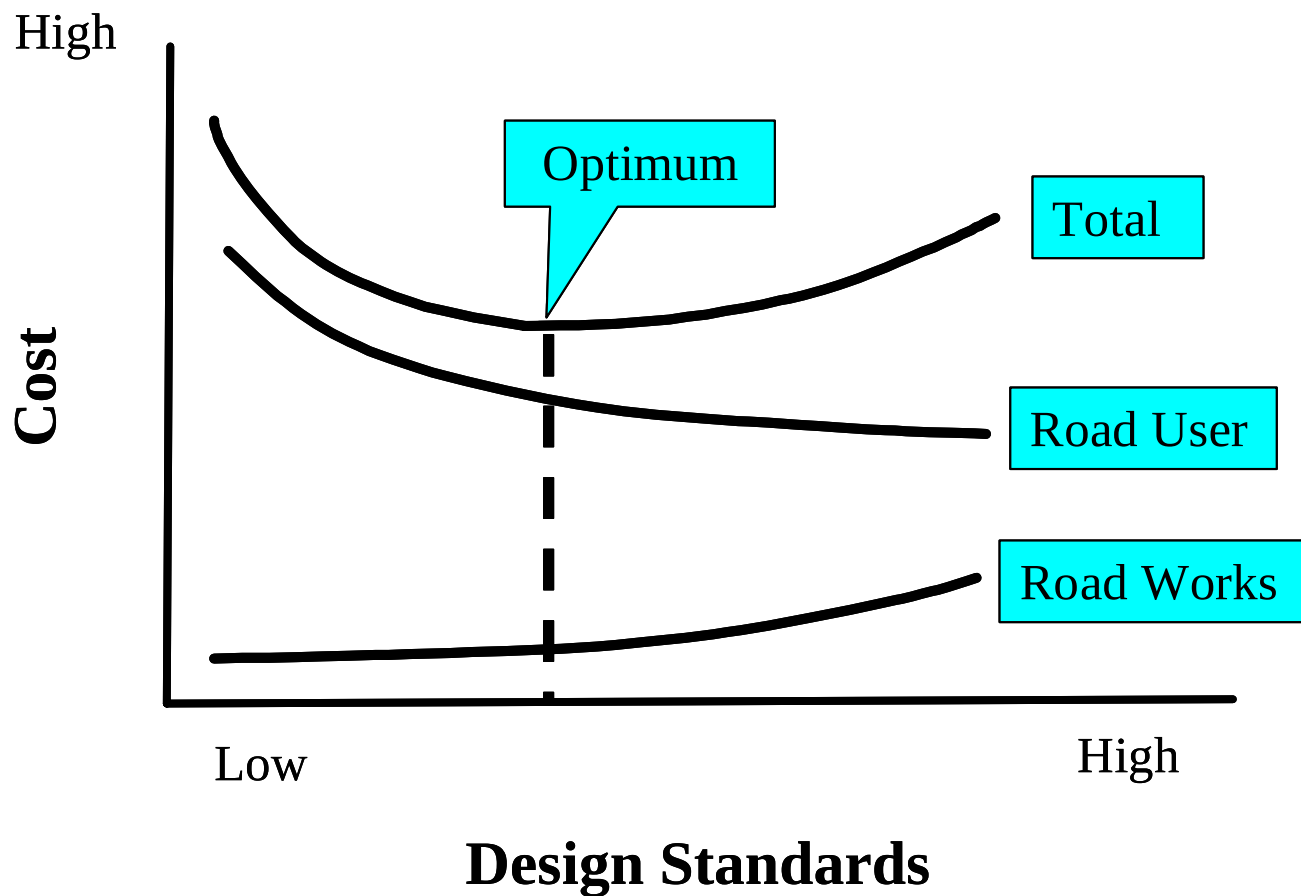
Heng Kackada (Executive Secretary)
Cambodian National Community of Transport Practitioners
www.cnctp.info

Presentation Outline

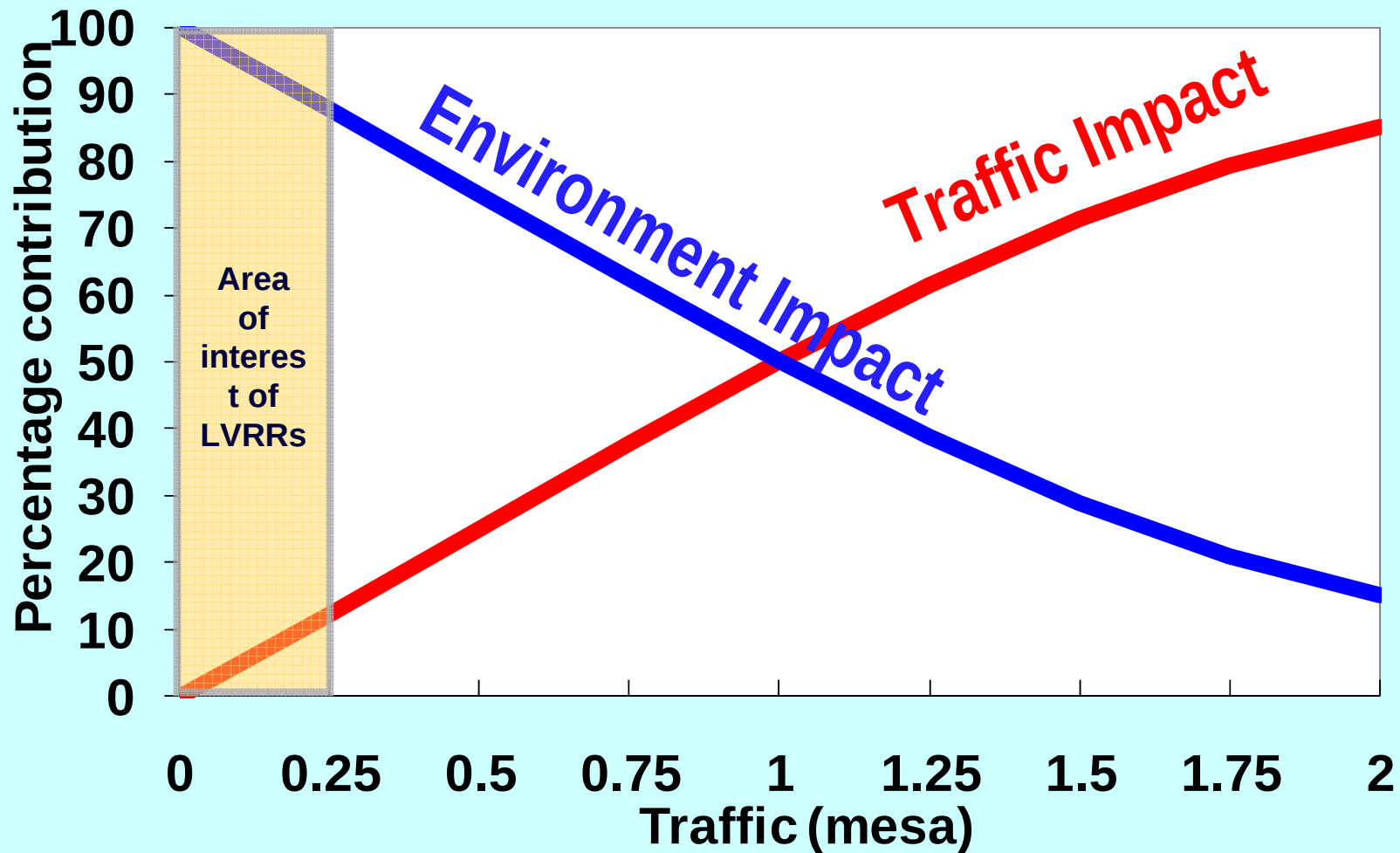
1. Introduction - Costs
2. LVRR Surfacing and Paving Deterioration
3. Unsealed Road Sustainability
4. Road Agency Whole Life Costs (WLC)
5. Whole Life Transport Costs
6. Conclusions

1. Introduction: Transport Costs

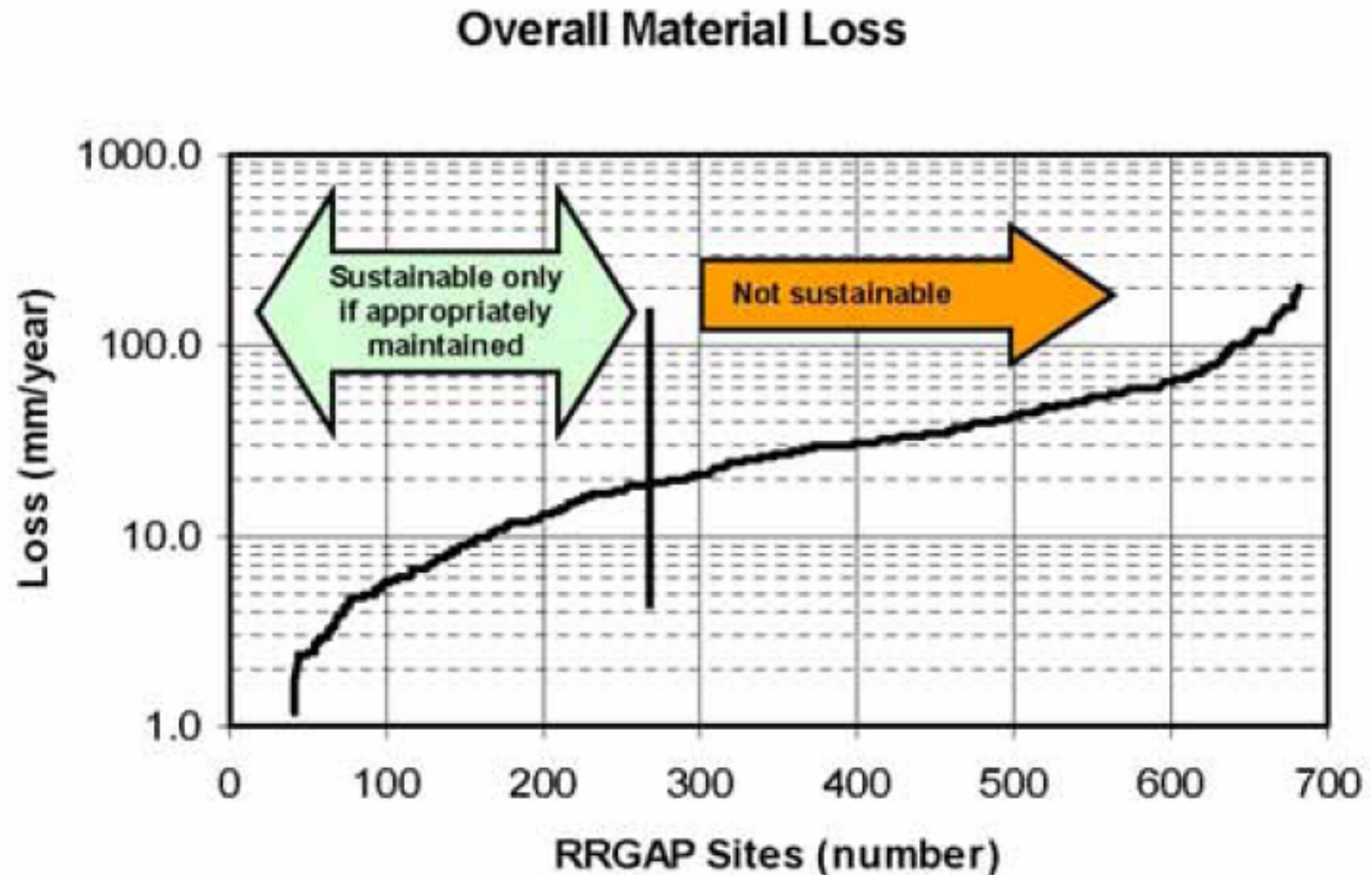
Optimising Total Transport Costs



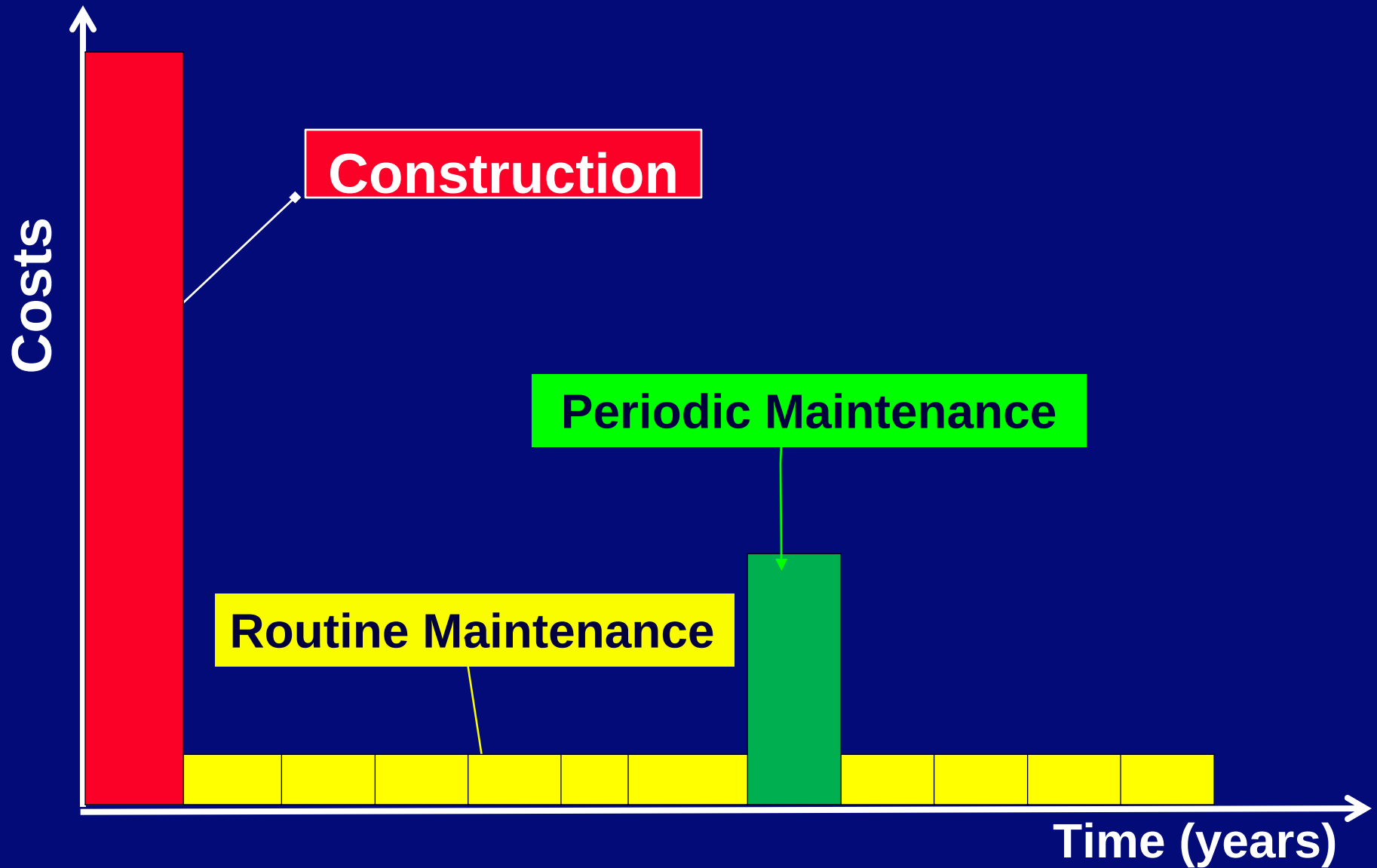
2. LVRR Deterioration



3. Unsealed Road Sustainability



4. Road Agency Whole Life Cost (WLC)



4. Road Agency Whole Life Costs

How to calculate?

$$\text{WLC} = \sum_{i=0}^n \frac{C_i}{\left(1 + \left(\frac{r}{100}\right)\right)^i}$$

$$\text{Discounted Residual Value } R = \frac{R_n}{\left(1 + \left(\frac{r}{100}\right)\right)^n}$$

$$\text{Net WLC} = \text{WLC} - R$$

4. Road Agency Whole Life Costs

Gravel vs Paved



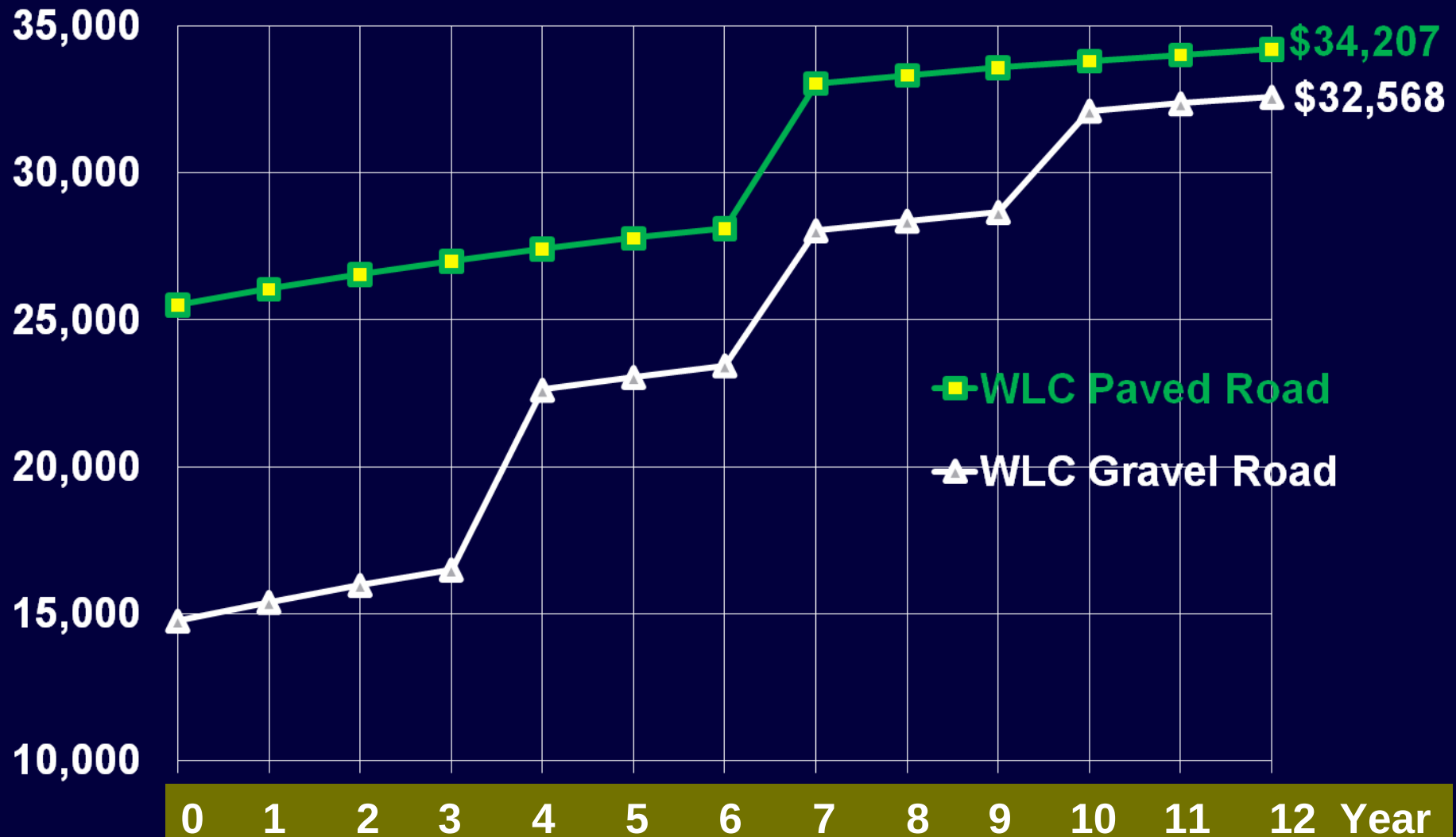
**Lower initial investment
but
high maintenance**



**Higher initial investment
but
lower maintenance**

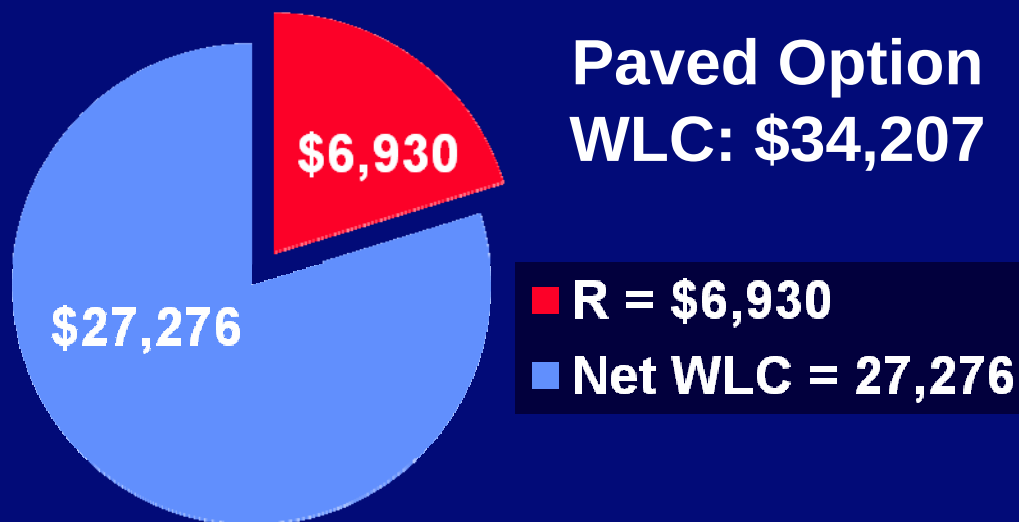
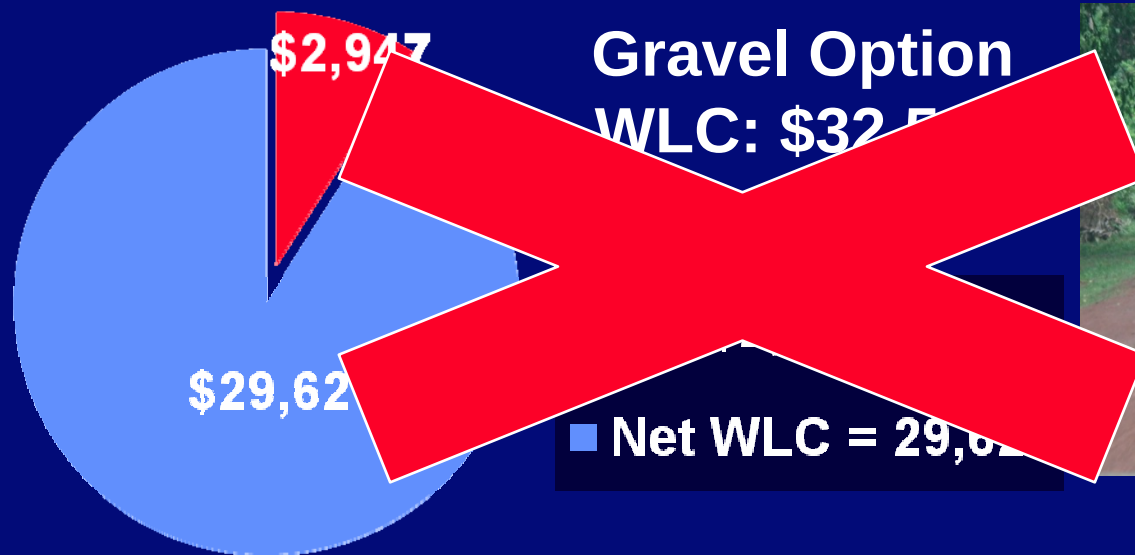
4. Road Agency Whole Life Costs

NPV of Costs (US\$)



2. Whole Life Costs (WLC)

Final Decision?



5. Whole Life Transport Cost

- PIARC's **H**ighway **D**evelopment & **M**anagement (**HDM-4**)
- **R**oad **E**conomic **D**ecision Model (**RED**)
- **R**oad **T**ransport **I**nvestment **M**odel (RTIM)
developed by TRL – UK



**Data input
Resources
Expertise**

6. Conclusions

- Road Agency WLC - practical, simple and transparent tool.
- An important first step towards understanding full economic implications of the decisions.



Thank You

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