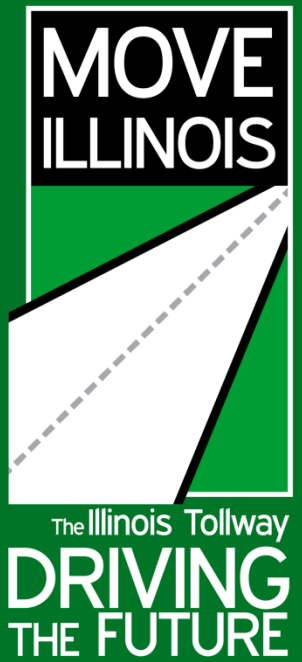


Measuring Sustainability on Tollway Projects

Paul Kovacs, *Illinois Tollway*
April 12, 2017

Move Illinois Program

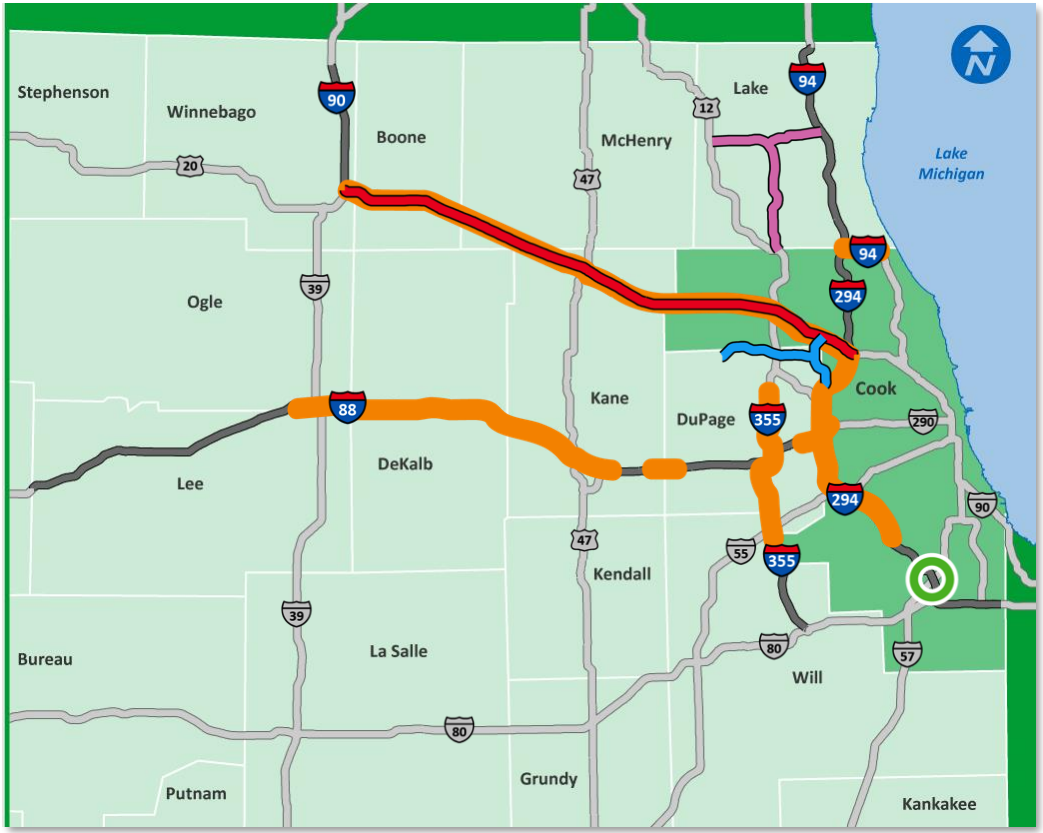
ADDRESS EXISTING SYSTEM NEEDS

JANE ADDAMS MEMORIAL TOLLWAY
$2.5 billion

ELGIN O'HARE WESTERN ACCESS
$3.4 billion

I-294/I-57 INTERCHANGE
$719 million

INTERCHANGES AND
OTHER EMERGING PROJECTS



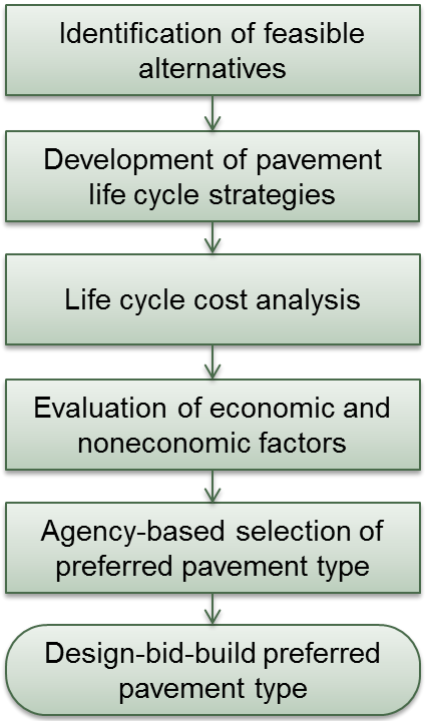
Measuring The Sustainability Of Pavement

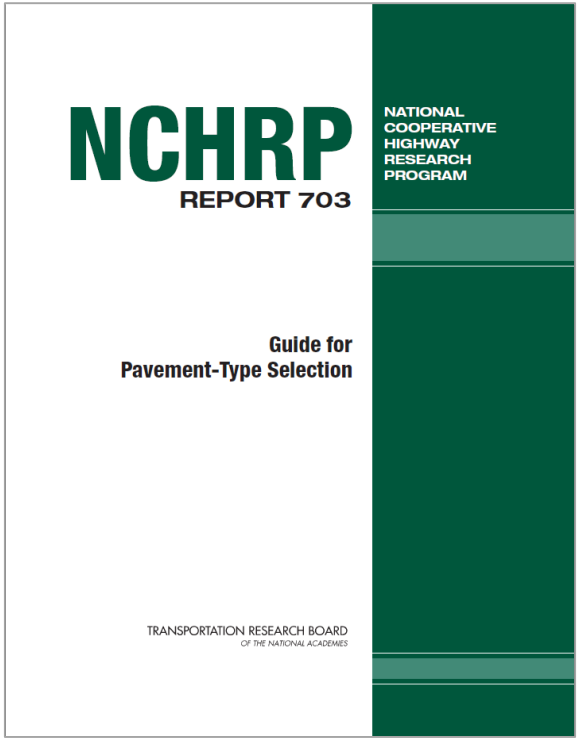
You cannot control what you do not measure

MOVE ILLINOIS
The Illinois Tollway
DRIVING THE FUTURE

Process For Pavement Type Selection

Agency-based pavement-type selection





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Pavement Type Selection Grade Card

Combines economic and noneconomic factors

	Guide Factors	Tollway Factors	Factor Weight
Economic	Initial cost	***Initial Construction Cost***	***40%***
Economic	Rehabilitation cost Maintenance Cost	***Capital Preservation Cost***	***40%***
Economic	Conservation of materials/energy Sustainability	***"Green" - Recycling Factor***	***10%***
Economic	Traffic during construction Availability of local materials Stimulation of competition	***Constructability / Schedule Factor***	***10%***
Non-economic	Maintenance capability	Preference to keep Maintenance yards consistent	
Non-economic	Subgrade soils Future needs Experimental features Safety Continuity of adjacent sections Continuity of adjacent lanes Roadway geometrics	No difference between alternatives	
Non-economic	Noise issues Local preference	Not considered	

LCA DATA

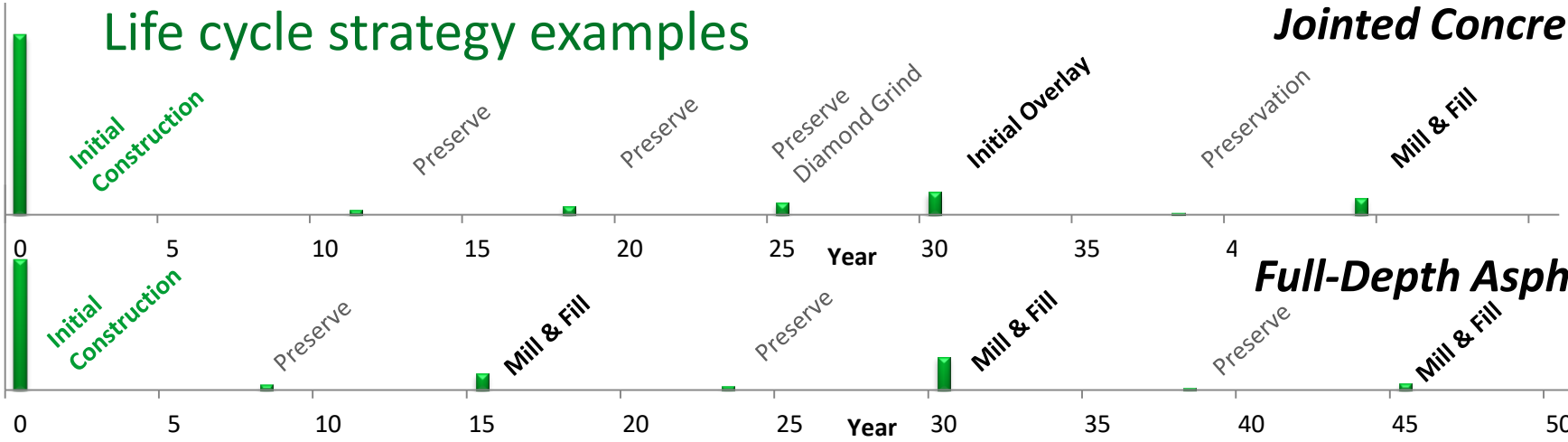
LCA Application to Pavement Life Cycle

Designs for current and future traffic

Pavement types evaluated

Life cycle strategy examples

Jointed Concrete
Reinforced Concrete
Full-Depth Asphalt
Asphalt over Reinforced Concrete
Asphalt over Jointed Concrete



Illinois Tollway LCA Process

Intended to be used for projects more than $10 million

Includes five categories

- Drainage
- Landscaping
- Lighting
- Pavement
- Structures (six sub-categories)

Illinois Tollway LCA Process

Each category broken into as many as four phases

- Materials and construction
- Maintenance and rehabilitation
- Use
- End-of-life

Environmental impact categories

- Global warming potential
- Total energy
- Single point score (several impacts combined into a single value)

Lessons Learned And Future Direction

Input and output data must be trustworthy and accurate

Programs must be made easy to adopt and implement (training manuals and programs are critical)

Programs should be easy to update or modify

Pavement tools need to be developed for future performance-related specifications

THANK YOU