



**ACEC-IA
Iowa DOT
FHWA
Transportation Conference**

Marlon W. Vogt, PE, M.ASCE, F.SEI

What is Our Challenge?

<p>Needs</p>  <p>Infrastructure Report Cards</p>	<p>Resources</p>  <p>Aging – Shrinking Workforce</p>
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**Keeping Your Project
between the Guardrails**


**Identifying and
Mitigating Wasted Time,
Money and Effort on
Your Projects**

Project Goals

	Traditional Approach		
Scope	Budget	Schedule	
	Critical to Customer Satisfaction		
Quality	Delivery	Cost	Safety

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I Like Roundabouts



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Toyota Lean Production System

“Lean production is ‘lean’ because it uses less of everything – half the human effort, half the construction space, half the investment in equipment, half the engineering hours to develop the plans, results in fewer defects, and produces a greater and ever growing variety of solutions.”

The Machine that Changed the World

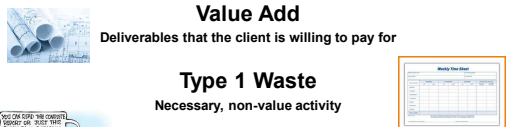

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Types of Project Work

Value Add
Deliverables that the client is willing to pay for

Type 1 Waste
Necessary, non-value activity



Type 2 Waste
Unnecessary, non-value add activity

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Overproduction

Producing more than required





Cost of Staff to Produce **Cost of Material and Equipment**

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Types of Waste

DOTWIMP





Hidden Costs **Goal – Make Waste Visible**

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Transportation

Moving people and stuff from A to B





Time is Money **Downtime Costs**

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Defects

Errors and mistakes




Rework Costs **Reputation Costs**

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Waiting

Doing nothing until next process step



Often unavoidable – but costly

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Inventory

Parts and equipment not producing value




Paid when installed or used

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Staff Waste

Staffing is expensive Work hours are limited




Right-size and right-skill project teams

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Motion

Unnecessary moving without value




Cycle times

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Staffing Exercise

Define the customer and their needs
What are they willing to pay for




Quality Delivery Cost Safety

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OverProcessing

Doing more of an activity than the client wants




Know When Enough is Enough

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Staffing Exercise

Evaluate tasks and durations
For each person




Trust but verify

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Staffing Exercise

Identify each task as Value-add, Type 1 or Type 2



Painful

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The Challenge and Opportunity



Questions?


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Staffing Exercise

Eliminate Type 2 tasks

Some hours go away

Assign remaining tasks to correct staff




Right-skill the work

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Staffing Exercise

Balance the work hours among the staff



Opportunity savings by optimizing staff

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