SAE Green Engineering & Technology Transfer Workshop:

How Can a Green Center Help the Automotive Industry Succeed?

Bill Stough, CEO
Sustainable Research Group
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Moving Toward Sustainability

1. Introduction
2. Sustainability as a Strategic Tool to Help Drive Costs Out of the Aumotivie Supply Chain by Using Lean & Green Assessments

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Moving Toward Sustainability

SRG Background

Provide counsel to businesses, municipalities, and institutions to assess, design and Implement sustainable strategies.

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Sustainability in a Competitive Market

WHY NOT MAKE DETROIT THE WORLD'S LOW COST *ADVANCED* MANUFACTURING OPTION?

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The Sustainable Development Advantage

I propose that we use the principles of Sustainable Development and the tools of lean & green assessments to become the new low cost option for *advanced* manufacturing.

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SRG's Definition of Sustainability

A NEW VIEW:

A sustainable business is one that adopts strategies and activities that allow the enterprise and its stakeholders to realize their *profit* goals in ways that *protect*, *sustain*, and *restore* earth's life support systems for future generations.

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What are Leading Michigan Companies doing to Develop an Environmentally Sustainable Business Strategy?

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Moving Toward Lean & Clean Supply Chain

Background of Lean & Green Project

- US EPA asked local economic development agency to take the lead on Lean & Green project for office furniture industry
- Furniture Manufacturers such as Steelcase promoted program to its key suppliers
- SRG is working with manufacturers and to date have completed over 40 Lean & Green Assessments

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Sustainable Manufacturing Seeks to Eliminate *ALL* Non-Value Added Aspects of Waste

1. Underutilized resources
2. Inefficient energy use
3. Wasteful byproducts and scrap
4. Excessive regulatory requirements
5. Human & ecosystem health and safety issues
6. Liability and risks faced by owners

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GSN Assessment Model Overview

Integrating Lean and Green Savings:

- Purpose of a GSN Assessment:
  - To show through assessment action that lean and environmental go hand-in-hand
  - To show the client the dollar savings of combining the two into an integrated approach
  - To train the client in how to conduct lean/green assessments and to take action

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GSN Assessment Model Overview

Typical Process

Prefer Initial data collection, then three meetings with customer:

1. Orientation/goal setting meeting.
2. Current/Future State meeting:
    1. Interviews, tour of value stream and documentation of current state
    2. Validation of current state, development of potential improvements and future state VSM.
3. Report out

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GSN Assessment Model Overview

Preliminary Environmental Information

- **Energy** (electricity & natural gas) data purchased annually
- **Water/Sewer** data, the annual cost of water and sewer purchased for the last full year of records
- **Emission Permits**, a list liquid or hazardous waste permits and environmental reports submitted to environmental regulatory agencies

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GSN Assessment Model Overview

- **Hazardous waste** costs for the last full year of records
- **Trash**, annual cost of trash disposal (solid waste)
- **Chemicals**, list of any chemicals used on the product line, or for operations and maintenance in a year
- **Oils**, amount of oils purchased for the last year
- **Recycling,** list of all materials recycled; the monthly volume and any revenue generated as a result of the recycling.

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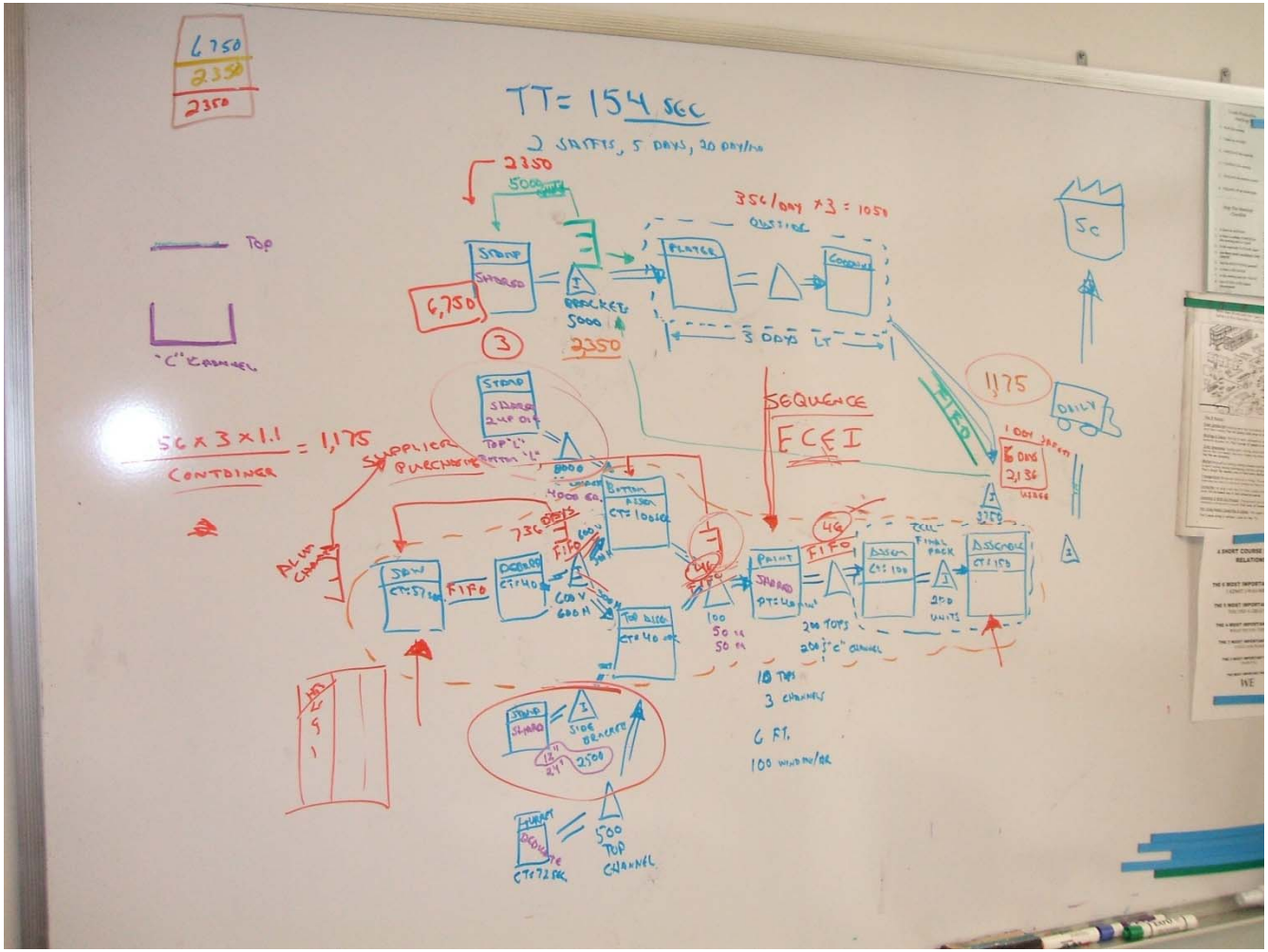
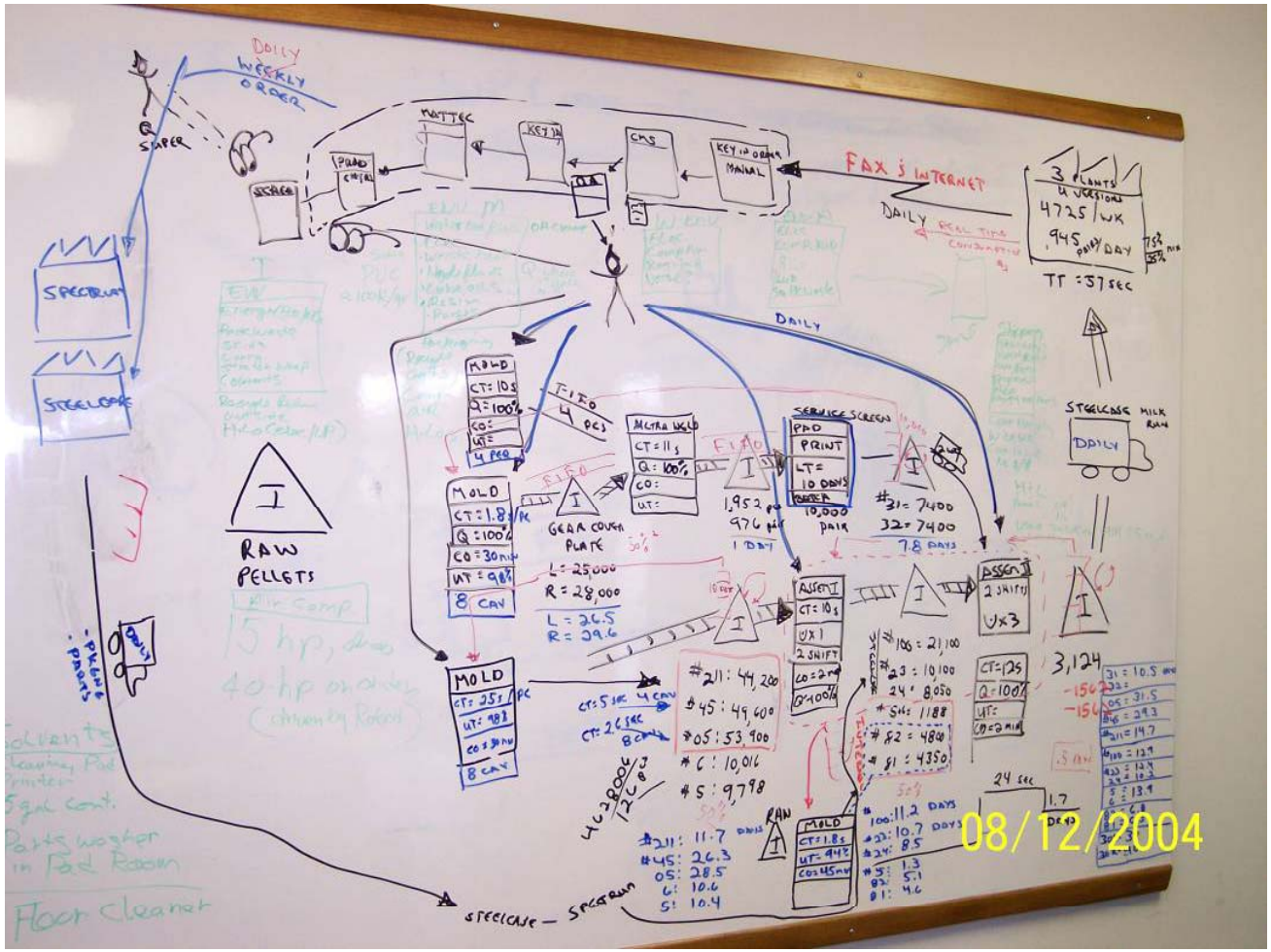
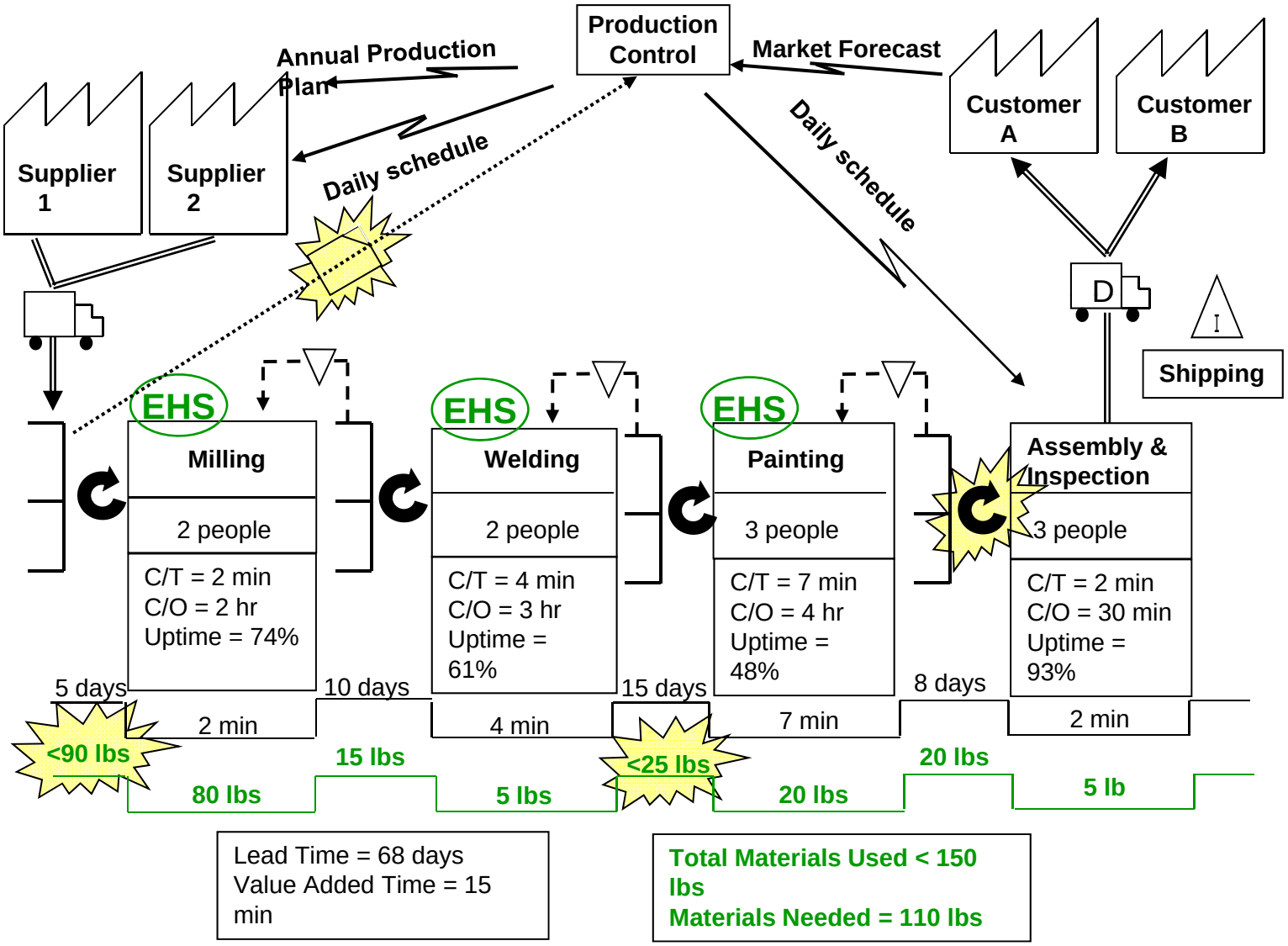
CURRENT STATE VSM



FUTURE STATE VSM
MANUFACTURING COMPANY



Value Stream Mapping – Future State



Company	Green Savings	Lean Savings	Total Savings
1	$ 28,620.00	$ 606,891.00	$ 635,511.00
2	$ 350,420.00	$ 212,954.00	$ 563,374.00
3	$ 109,161.00	$ 133,000.00	$ 242,161.00
4	$ 126,035.00	$ 820,824.00	$ 946,859.00
5	$ 106,750.00	$ 355,640.00	$ 462,390.00
6	$ 549,906.00	$ 724,327.00	$ 1,274,233.00
7	$ 208,336.00	$ 469,077.00	$ 677,413.00
8	$ 112,800.00	$ 1,084,417.00	$ 1,197,217.00
9	$ 253,600.00	$ 1,172,646.00	$ 1,426,246.00
10	$ 31,700.00	$ 796,375.00	$ 828,075.00
11	$ 285,270.00	$ 950,054.00	$ 1,235,324.00
Total	$ 2,162,598.00	$ 7,326,205.00	$ 9,488,803.00
Average	**$ 196,599.82**	**$ 666,018.64**	**$ 862,618.45**

The Power of Collaboration

- Currently Detroit does not have a focal point for educating automotive suppliers about the business benefits of implementing sustainable development principles into their operations.

- The opportunity exists for a Green Technology Transfer Center to sieze this opportunity to help companies in the automotive supply chain profit by delivering sustainable growth solutions focused on eliminating waste and improving human and ecosystem health.

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What Can SAE do to Help Transfer Sustainable Businesses Practices in the Auto Industry?

Work with automotive companies to train and develop qualified engineers and technicians to transfer sustainable business practices to the supply chain.

As companies look for new ways to stay proffitable in the future, access to workers that understand how to eliminate all forms of waste will be a strong competitive advantange. SAE can help prepare suppliers to compete in a market with higher cost raw materials and energy and more restrictions on chemical inputs.

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For Further Information, contact:

Bill Stough, CEO

Sustainable Research Group, LLC
949 Wealthy Street, SE
Grand Rapids, MI 49506
616.301.1059

bstough@sustainableresearchgroup.com

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