jbe

John Beath Environmental, LLC

Experienced • Practical • Affordable

5 STEPS TO SUSTAINABILITY DATA MANAGEMENT

Plan, Gather, Document, Focus, and Leverage

Data Management Planning

Planned
Strategy
&
Execution

Our Approach to Developing Sustainability Work Products

1 Plan Effectively

Consult the governing guidance, regulations, standards, company policy, etc., while in the process of forming an execution plan for the project.

What guidance should be followed to establish the system boundary for emissions desired to be counted?

What categories of environmental impacts were reported by others so that the results could be benchmarked effectively?

2 Gather Data Carefully

Experience frequently dictates where

information is likely to be found, and a little coaching can be extremely beneficial.

Develop a data collection roadmap with site visit, planning and good interaction.

Data collection roadmaps help to facilitate where data might be found and who to ask.

Example Roadmap Considerations for Footprinting a City

Scope 1 Emissions

In-Boundary Transportation
City Run Bus Service Not Considered

In-Boundary Waste
Bin Distribution and Pickup

In-Boundary Water

Scope 2 Emissions

Grid-Supplied Energy
Bills from Power Company

Scope 3 Emissions

Out of Boundary Waste and Wastewater
Typical Municipal per Capita Data & Wastewater Plant Design

Other Indirect Emissions
Paper Use and Roadwork

Water in assumed to be Wastewater

Stationary Fuel Combustion
Based on Fuel Purchase Data

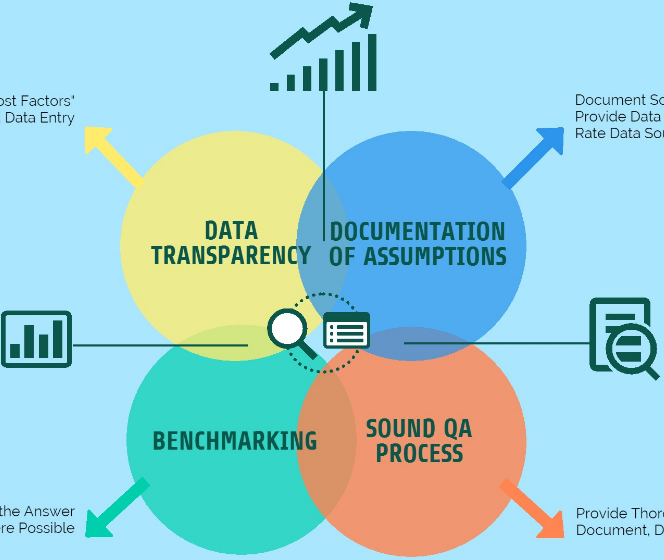
Out of Boundary Transportation
Travel Based on Supervisor Headcount

3 Develop and Document Results

The process of developing results is the most important element of any analysis. If bad assumptions are made , the conclusions drawn may be incorrect, leading the organization (or even its stakeholders) in the wrong direction.

Selecting data sources carefully is critical. Basing a study on experimentation with a high degree of uncertaintyis frequently done and always a bad idea.

Key Aspects of Results Development



No "Ghost Factors"
Limit Hard Data Entry

Document Source Data
Provide Data Ranges
Rate Data Sources

DATA TRANSPARENCY

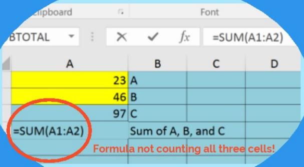
DOCUMENTATION OF ASSUMPTIONS

BENCHMARKING

SOUND QA PROCESS

Question the Answer
Compare Where Possible

Provide Thorough QA
Document, Document!



=SUM(A1:A2)

	A	B	C	D
	23	A		
	46	B		
	97	C		
	=SUM(A1:A2)	Sum of A, B, and C		
		Formula not counting all three cells!		

QA AND DOCUMENTATION ARE KEY!!!

Does the formula point to the right range of cells?

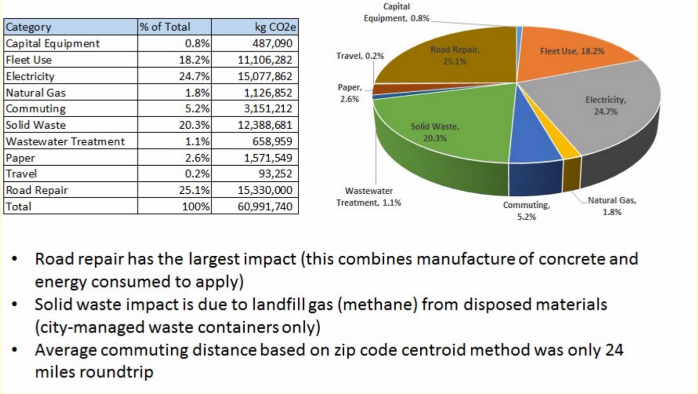
4 Focused Results Reporting

SIMPLE REPORTING

CLEAR PERSPECTIVE

Our experience suggests that complex, highly scientific-sounding reports with complicated and sometimes conflicting findings frustrate clients. Our approach is to identify critical needs and to build results around simplicity and easy-to-understand reporting.

Tabular or Visual Results are Effective



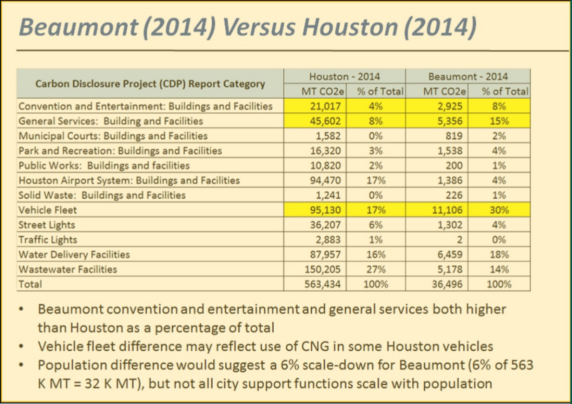
Category	% of Total	kg CO2e
Capital Equipment	0.8%	487,090
Fleet Use	18.2%	11,106,282
Electricity	24.7%	15,077,862
Natural Gas	1.8%	1,126,852
Commuting	5.2%	3,151,212
Solid Waste	20.3%	12,388,681
Wastewater Treatment	1.1%	658,959
Paper	2.6%	1,571,549
Travel	0.2%	93,252
Road Repair	25.1%	15,330,000
Total	100%	60,991,740

Capital Equipment, 0.8%
Travel, 0.2%
Road Repair, 25.1%
Fleet Use, 18.2%
Paper, 2.6%
Electricity, 24.7%
Solid Waste, 20.3%
Wastewater Treatment, 1.1%
Commuting, 5.2%
Natural Gas, 1.8%

- Road repair has the largest impact (this combines manufacture of concrete and energy consumed to apply)
- Solid waste impact is due to landfill gas (methane) from disposed materials (city-managed waste containers only)
- Average commuting distance based on zip code centroid method was only 24 miles roundtrip

5 Recommendations That Leverage

Results seldom speak for themselves. It is always important to answer the obvious question, “so what?” This involves bringing in a sense of perspective, understanding the objective of the work, and being practical. Often it means drawing on our experience to limit the conclusions properly, but also to use our creativity to suggest what might be achieved with recommended actions.



Beaumont (2014) Versus Houston (2014)

Carbon Disclosure Project (CDP) Report Category	Houston - 2014		Beaumont - 2014	
	MT CO2e	% of Total	MT CO2e	% of Total
Convention and Entertainment: Buildings and Facilities	21,017	4%	2,925	8%
General Services: Building and Facilities	45,602	8%	5,356	15%
Municipal Courts: Buildings and Facilities	1,582	0%	819	2%
Park and Recreation: Buildings and Facilities	16,320	3%	1,538	4%
Public Works: Buildings and facilities	10,820	2%	200	1%
Houston Airport System: Buildings and Facilities	94,470	17%	1,386	4%
Solid Waste: Buildings and Facilities	1,241	0%	226	1%
Vehicle Fleet	95,130	17%	11,106	30%
Street Lights	36,207	6%	1,302	4%
Traffic Lights	2,883	1%	2	0%
Water Delivery Facilities	87,957	16%	6,459	18%
Wastewater Facilities	150,205	27%	5,178	14%
Total	563,434	100%	36,496	100%

- Beaumont convention and entertainment and general services both higher than Houston as a percentage of total
- Vehicle fleet difference may reflect use of CNG in some Houston vehicles
- Population difference would suggest a 6% scale-down for Beaumont (6% of 563 K MT = 32 K MT), but not all city support functions scale with population

Normalize and Compare!

That said, it would not be expected that all categories of impacts would scale in the same way. If size breeds efficiency, it would be expected that Houston would end up more carbon-efficient on a per capita basis. In reality, a number of the categories tracked surprisingly well.

Given the difference in the geographic areas between the two cities, a closer evaluation of this aspect was recommended.

BENCHMARKING MUST BE THOUGHTFUL!