

# Greenhouse Gas Reducing Action Items Tracking Spreadsheet How-To

## A Report by the City of Bloomington Environmental Commission Bloomington, Indiana, April 2010

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### How To Use This Spreadsheet – An Overview

This document details how to use the Excel spreadsheet file “GGE-Reducing Action Items Tracking\_complete.xlsx” (hereafter referred to as “the spreadsheet”; available on the Bloomington Environmental Commission website<sup>1</sup> in PDF form) to keep track of the implementation status of the GGE-reducing actions items on behalf of the City of Bloomington. The action items include primarily those recommended in Environmental Commission’s July 2006 report, “A Framework for Developing a Greenhouse Gas Reduction Plan for Bloomington, Indiana.”<sup>2</sup> This 2006 document details 120 recommended action items to be undertaken by the City<sup>3</sup> in order to reduce the greenhouse gas emissions (GGEs) at both the City government and broader community level. In the spreadsheet, each of these action items is given a separate row, and assigned values for each of nine classification schemes, or variables (represented by the columns). Each of the eleven total spreadsheet columns is explained further below. Following these explanations, this document next outlines some of the simple statistical analyses built into the spreadsheet and how to use them. Finally, this document discusses recommended future use and necessary updating of the spreadsheet. A companion document to this explanatory guide is the “2010 GGE-Reducing Action Items Summary Report and Recommendations for Future Steps,” which summarizes the status of action items as of April 2010 and makes brief recommendations for prioritization of future City GGE-reducing efforts. (See Appendix for a list of other related documents.)

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<sup>1</sup> [http://bloomington.in.gov/documents/viewDocument.php?document\\_id=3800](http://bloomington.in.gov/documents/viewDocument.php?document_id=3800)

<sup>2</sup> City of Bloomington Environmental Commission. (2006, July). “A Framework for Developing a Greenhouse Gas Reduction Plan for Bloomington, Indiana,” prepared by E. Roberts. Retrieved 27 Apr 2010 from <https://bloomington.in.gov/media/media/application/pdf/5198.pdf>.

<sup>3</sup> This document follows the use of the terms “City” and “city” as other City of Bloomington documents do: the word “City” with a capital C refers to the City of Bloomington city government, while the lowercase “city” refers to the community at large falling under the jurisdiction of the City of Bloomington.

## Column Classification Schemes

Sheet 1 (entitled “LIST”) of the spreadsheet document lists the 120 action items and classifies each according to 9 different variables, represented by the following columns in the spreadsheet.

### 1. Action Item (column A)

This column in the spreadsheet is simply a listing of the 120 action items as presented in the Environmental Commission’s 2006 report. Some of the original action items have been combined into one action item, while some of them have been split into two separate action items due to the nature of their implementation. It should be noted that the list of action items presented in the 2006 report is not a definitive list of all possible GGE-reducing actions the City could undertake, and thus, the list of action items presented in the initial version of the spreadsheet should be added to as necessary. When adding action items, classify each according to the following categories for each column. Avoid double-classification (categorizing a single action item into two categories) wherever possible.

### 2. Type of Action (column B)

This column answers the question, *what is the nature of the action item in terms of the type of action required by the City?* Categories for classification include the following six titles. **Policy decisions** are those actions that require a change in stated City policies, and may or may necessarily involve changes to the Municipal Code. These action items include verbs<sup>4</sup> such as “promote,” “develop,” “support,” and “ensure.” **Ordinance changes** include those actions whose implementation must necessarily require changes to the City code. These action items involve the verbs “require,” “allow,” and “implement,” among others. Action items that include provision of incentives can be ordinance changes or policy decisions, depending on the primary nature of the action item. **Education campaigns** include those action items that primarily consist of educational outreach efforts on behalf of the City. These action items could also include publicity efforts. Possible verbs include “inform,” “educate,” “publicize,” and “encourage.” The **Operations & infrastructure** category includes those action items requiring direct change in the way the City operates (such as buildings and facilities management) and those actions requiring infrastructure change in the city-at-large (such as changes in street lighting). These action items involve verbs such as “replace,” “research,” “install,” “maintain,” and “convert.” The operations & infrastructure category also includes research efforts occurring within the City. **Programs & services** include those action items that originate from or involve City programming and services beyond just educational campaigns. Verbs may include “facilitate,” “work with,” “assist,” or “provide,” among others. The **Advocacy** category is reserved for those actions that fall outside the scope or jurisdiction of City and its government, and as such, the action item largely consists of efforts to advocate, promote, or lobby for a particular policy change at the regional, state, or federal level. These action items include the verbs “support,” “lobby,” and “advocate.”

When classifying action items according to the type of action necessary it should be noted that many action items may require more than one type of action on behalf of the City. Where this occurs, one of two things should be done: either the action item should be split into two separate but related action items; or, the type of action category assigned should reflect the component of the action item that needs to occur first or that comprises the majority of the action required.

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<sup>4</sup> Note that the verbs listed are merely provided as guidance and should not serve as the sole criteria for assigning an action item to a category. Action items containing the verbs listed for a certain category may in fact fit better in a different category. Thus, the verbs should serve as a starting point for category assignment.

### 3. Govt/Comm (Government or Community; column C)

This category reflects whether the action will effect government (**Govt**) or community (**Comm**) level greenhouse gas emissions, according to ICLEI's "International Local Government GHG Emissions Analysis Protocol (IEAP)."<sup>5</sup> This categorization enables alignment between action items tracking and actual greenhouse gas (GHG) inventorying. Because the City of Bloomington uses the ICLEI CACP<sup>6</sup> GHG inventory software (which tracks emissions from government operations separately from community-wide emissions),<sup>7</sup> it is useful to have a means of dividing GGE-reducing action items that affect government operations emissions only from those that affect community-level emissions. Additionally, this column includes an **Info** category for those action items that are ICLEI-designated information items, which offset emissions or are outside City jurisdiction and thus are not directly included any the GHG inventory. It is important to note that action items designated Info in the Govt/Comm column must also be designated Info Items in both the Macro Sector column and the ICLEI Sector column (descriptions follow).

### 4. Macro Sector (UNFCCC Macro Sector; column D)

This column classifies the action item according to the United Nations Framework Convention on Climate Change (UNFCCC) macro sector in which the emissions reductions would result. This is a useful categorization because although government and community-level emissions are generally tracked separately, the UNFCCC macro sectors are uniform across government and community emissions categories. As mentioned above, because Bloomington follows the ICLEI framework for GHG inventorying as outlined in the IEAP and other relevant documents, categorizing action items according to the macro sectors is important to maintaining internal consistency in GHG inventorying and action items tracking for the City of Bloomington.

ICLEI's IEAP defines five major UNFCCC macro sectors, two of which include sub-sectors, for a total of 12 sector categories as follows: **Energy-General**, **Energy-Stationary**, **Energy-Transport**, **Energy-Fugitive Emissions**, **Industrial Processes**, **Agriculture**, **Land Use Change**, **Waste-General**, **Waste-Solid**, **Waste-Biological Treatment**, **Waste-Incineration**, and **Wastewater**.<sup>8</sup> (See Tables 1 and 2 below for charts detailing the relationship of these macro sectors to ICLEI government and community sectors, respectively). These sectors are fairly self-explanatory, however a few notes should be made. The category of **Energy-General** is reserved for those action items from which emissions reductions from will result in multiple subsectors within the energy sector (**Energy-Stationary**, **Energy-Transport**, or **Energy-Fugitive Emissions**). Similarly, the category of **Waste-General** is reserved for those action items from which emissions reductions will result in multiple subsectors (**Waste-Solid**, **Waste-Biological Treatment**, **Waste-Incineration**, or **Wastewater**). The **Energy-Fugitive Emissions** category is for action items resulting in the reduction of significant sources of emissions in the energy sector that are not accounted for in other categories. The **Wastewater** category should be reserved for action items that will reduce the emissions resulting from wastewater during treatment and discharge (and not from transportation of wastewater, the reducing actions for which should go into the Energy-Transport category). The

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<sup>5</sup> ICLEI-Local Governments for Sustainability. (2009, Oct). "International Local Government GHG Emissions Analysis Protocol (IEAP)," Version 1.0. 56pp. Retrieved 5 Apr 2010 from

[http://www.iclei.org/fileadmin/user\\_upload/documents/Global/Progams/CCP/Standards/ICLEI\\_IEAP\\_2009.pdf](http://www.iclei.org/fileadmin/user_upload/documents/Global/Progams/CCP/Standards/ICLEI_IEAP_2009.pdf).

<sup>6</sup> Clean Air and Climate Protection software; for more information see the ICLEI USA website, <http://www.icleiusa.org/action-center/tools/cacp-software>.

<sup>7</sup> See City of Bloomington Environmental Commission. (2009, May). "Greenhouse Gas Inventory for the City of Bloomington, Indiana: Footprint, Projections, and Recommendations," prepared by M. Lemon, P. Foley, & F. Gary. Retrieved 28 Apr 2010 from <https://bloomington.in.gov/media/media/application/pdf/5047.pdf>.

<sup>8</sup> ICLEI, (2009), IEAP.

**Waste-Biological Treatment** category includes action items that consist of composting of solid organic waste, and not those that involve use of wetlands and living machines for biological treatment of wastewater (which should go in the Wastewater category). The **Industrial Processes** category is reserved for those action items reducing emissions from industrial activities other than emissions from electricity and heat production. The category of **Land Use Change**, for the purposes of this spreadsheet, includes action items that result in the emissions from conversion of open space to buildings and vice versa, and also includes urban greening and tree planting efforts (this category should not include greenspace acquired or trees planted specifically to *offset* emissions, which according to ICLEI must be classified as info items). Additionally, for the purposes of this spreadsheet, there has been added a category for **info items**, which is reserved for those action items designated as info in the Govt/Comm column explained above.

#### 4. ICLEI Sector (column E)

The ICLEI IEAP and CACP software used to track emissions categorize emissions into different sectors for the government and community-level; thus, to insure consistency and enable easy comparison between GHG inventorying and emissions reductions efforts, the ICLEI sector spreadsheet column categorizes action items into the same sectors. Table 1 shows the relationship of the UNFCCC macro sectors to ICLEI government sectors; Table 2 shows the relationship of the UNFCCC macro sectors to ICLEI community sectors.<sup>9</sup> Action items should be classified into the appropriate government or community sector corresponding to the UNFCCC macro sector in which they were classified. ICLEI government sectors include: **Buildings & Facilities**, **Street Lighting**, **Wastewater Distribution** (includes only energy generated for this purpose, not emissions resulting from, which should be included in waste), **Government Transport**, **Employee Commute**, **Waste**, and **Other**. ICLEI community sectors include: **Residential**, **Commercial**, **Industrial** (includes only from energy used for electricity and heating/cooling, and not other emissions from industrial processes), **Transportation**, **Agricultural Emissions**, **Waste**, and **Other**. Note that there has been an additional category added, **Info Items**, for all action items that have been designated Info Items in the UNFCCC macro sector column.

**Table 1. Relationship of UNFCCC macro sectors (column D) to ICLEI government sectors (column E), as used in the spreadsheet "GGE-Reducing Action Items Tracking\_complete.xlsx."**

UNFCCC Macro Sector		ICLEI Government Sector
Energy-General	Energy-Stationary	Buildings & Facilities
		Street Lighting
		Wastewater Distribution
	Energy-Transport	Government Transport
Employee Commute		
	Energy-Fugitive Emissions	Other
Industrial Processes		
Agriculture		
Land Use Change		
Waste-General	Waste-Solid	Waste

<sup>9</sup> Note that although the UNFCCC macro sector and ICLEI sector columns seem similar, they are actually two related but unique classification schemes. The UNFCCC sectors correlate to the typical global emissions sectors, while the ICLEI sectors are unique sectors to government- and community-level emissions. Classification of action items according to both schemes is important because the UNFCCC macro sector allows a city to see the potential impact of their emissions reductions actions on global emissions categories, while the ICLEI sectors allow a city to see the potential impact of actions on those sectors by which government or community emissions are tracked in the city's GHG inventory.

	Waste-Biological Treatment	
	Waste-Incineration	
	Wastewater Treatment	

Table 2. Relationship of UNFCCC macro sectors (column D) to ICLEI community sectors (column E), as used in the spreadsheet “GGE-Reducing Action Items Tracking\_complete.xlsx.”

UNFCCC Macro Sector		ICLEI Community Sector
Energy	Energy-Stationary	Residential
		Commercial
	Energy-Transport	Industrial
	Energy-Fugitive Emissions	Transportation
Industrial Processes		Other
Agriculture		Agricultural Emissions
Land Use Change		Other
Waste-General	Waste-Solid	Waste
	Waste-Biological Treatment	
	Waste-Incineration	
	Wastewater Treatment	

## 6. Implementation (column F)

The implementation column is a qualitative variable addressing the current status of the action item in terms of implementation by the City. This column answers the question, *has the action item been implemented and to what degree?* Because these action items all involve some sort of change in behavior or thinking, this column on implementation status draws on the “trans-theoretical model” of change thinking (TTM) and Bob Doppelt’s sustainability change thinking research.<sup>10</sup> This research postulates five separate stages of change, on which the status categories in this column are based: **not started**, **thinking**, **doing**, **defending**, and **done**. A **not started** designation indicates that nothing has been done on this action item beyond listing it in this spreadsheet. A **thinking** designation indicates that this action item is in the planning or deliberation stages and that the City may be thinking about change but has not yet committed to any definite action. A **doing** designation indicates that current work is being done in this action item but more is still needed, or that the action item is in the process of being completed. The doing category is a transitional category between thinking and defending or done. The **defending** category means that the action item is being done or has been done, but that ongoing doing and monitoring will be necessary to sustain the GGE reductions resulting from the action item. Action items in the defending category are those that will require constant action on behalf of the city. A **done** designation indicates that this action has been completed and that no further action is necessary. Action items in the done category should be revisited occasionally to make sure no reversal of policy or progress has occurred.

## 7. Responsibility (column G)

This column addresses the question, *to whom has responsibility for implementing this action item been delegated?* Additionally, for action items for which the implementation will be largely dependent on resident actions, this column asks, *to whom have educational outreach efforts been assigned at the City level?* Category options include all City departments, agencies, boards, individuals, community

<sup>10</sup> Doppelt, B. (2008). *The Power of Sustainable Thinking: How to Create a Positive Future for the Climate, the Planet, Your Organization, and Your Life*. Earthscan, London.

nonprofits, etc. A category of **none specified** indicates that no specific entity has been assigned this action item. A category of **n/a** indicates that because no implementation is occurring (action item has a not started implementation status), no entity has been assigned responsibility.

### 8. Redux (reduction potential; column H)

The Redux column is a qualitative column that expresses the potential GGE reductions that could result from the action items, qualified as **high**, **medium**, or **low**. A designation of **n/a** is used for items for which there is no directly measureable GGE reductions potential from the action item itself but the completion of which will further other action items (e.g. maintenance of a GGE inventory, and many other research-related action items). **Offset** indicates that the item is not a direct reduction in City government or community GHG emissions, but is instead an action that offsets emissions. Note that action items designated as offsets in this column should also be designated as an info item in the Govt/Comm, Macro sector and ICLEI sector columns, because actions that offset GGEs are not tracked in any GHG inventory (and thus do not directly contribute to GHG emissions reductions, according to the ICLEI protocol and CACP software.<sup>11</sup>

### 9. Cost Impact (column I)

This column is similar to the Redux column discussed above. The Cost Impact column is a qualitative column that assesses the potential *immediate* costs of implementing the action item (note, that this is the cost of implementation of *just* the action item itself, and not the costs of any *results* of the action item). **Negative** indicates that the action item will cost money (to the City, residents, stakeholders, etc.). **Neutral** indicates that the action item has no significant cost impact. **Positive** indicates that the action will result in savings. Note that the estimations made for this column are a sort of best guess and intended only to inform preliminary decision making, not any commitments made to action item implementation or abandonment. Further research into specific cost impacts, cost effectiveness, or cost-benefit analyses may be necessary to establish complete justification for any action item.

### 10. Visibility (column J)

This column is also similar to the Redux and Cost Impact columns mentioned above. The Visibility column is another qualitative variable addressing the potential or current visibility of implementation of the action item. “Visibility” is defined as the ability of the action item to increase awareness of global warming, GGEs, GGE-reducing activities, etc. among the public, or to positively affect City image. Categories are **little to none**, **some**, and **high**. Visibility categories should be assigned also by making a best educated guess about the visibility impacts of the action item.

### A Note About Redux, Cost Impact, and Visibility Columns

This trio of columns can be used collectively to aid in decision-making as to which action items designated not started should be undertaken by the City next. These columns are all qualitative (due to the extensive amount of research involved in assessing quantitative reduction potential, cost impact or visibility of the action items), and should be used only as preliminary tools to aid in early decision-making and not as definitive measures. It may be determined that one or more of these columns does not serve a useful purpose for either decision-making or action items tracking (for either a specific action item, or for all action items in general). As such, the columns may be left blank for individual action items, or deleted at such time in the future it is deemed prudent to do so.

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<sup>11</sup> Recall that ICLEI does not recommend inclusion of actions that offset GHG in any GHG inventory; however, ICLEI does recommend that these items be tracked as information items.

### 11. 2010 Summary # (column K)

This column is only filled in for action items with the status of “not started” as of the creation of the spreadsheet. The column contains a code with a letter and a number that corresponds to the code in Table 2 of the “2010 GGE-Reducing Action Items Summary Report.” This column is simply inserted for easy cross-referencing of the not started action items between documents. In future years, additional columns of a similar nature could be added to correspond to future reports.

### Notes (column L)

This column is reserved for notes about the action item itself, its implementation status, or any other relevant information. In particular, major specific City actions that contribute to the implementation of the action item should be noted in this column to help in future decisions regarding that action item. Additionally, research that has been conducted that may reveal certain action items unfeasible or impossible should be noted. However, if action items are determined to be impossible, they should *not* be deleted from the spreadsheet, but instead kept and noted as impossible so that future decision-makers know what is possible.

## Simple Statistical Functions In The Spreadsheet

Although it is recognized that complex statistical functions would not help the decision-making processes resulting from use of this spreadsheet, some simple descriptive statistics about the action items are built into this spreadsheet using the Excel PivotTables and PivotChart features. Sheets 2-5 (entitled, respectively, “By type of action,” “By ICLEI sector,” “By implem,” and “By UNFCCC sector”), include simple PivotTables derived from the main “LIST” sheet, as well as charts derived from these PivotTables, which collectively present a summary of the action items according to ICLEI sectors, implementation status, and UNFCCC sectors respectively. Upon updating the LIST sheet, these PivotTables should be refreshed (by clicking on the exclamation point within the PivotTable toolbox while any box within the PivotTable is selected), and will then automatically present the new summary of action items in the table and accompanying chart. These three sheets are best used for summarizing purposes, when a report of progress on action items is requested. Thus, the most interesting and useful sheet is “By implem,” which presents a summary of the number of action items within each implementation status category, separated by whether they fall into the Govt, Comm or Info designations of the Govt/Comm column (column C). The chart in this sheet presents a snapshot of where the City is in implementing the various action items (e.g. how many are not started, and in the thinking, doing, defending or done stages).

## Recommended future use

This spreadsheet should serve two functions in the future: one as a tracking tool, and another as a tool to assist decision-making. As a tracking tool, it would be ideal that this spreadsheet be updated as action items are implemented by those who have been delegated responsibility. However, recognizing that this may not be entirely feasible, alternatively, this spreadsheet could be updated on an annual basis by an Environmental Commission intern or other appropriate party. As a tool to aid decision-making, the action items listed in this spreadsheet should be revisited frequently in the City’s quest to reduce greenhouse gas emissions. Those action items whose implementation status is not started should be assessed and reprioritized to help the City decide which action items to take on next. It is recommended that once every 3-4 years, a brief report be compiled on the overall status of the City’s GGE-reducing efforts, including recommendations for the next “big ticket” action items that should be

addressed. This report could also be the responsibility of the Environmental Commission intern, or another appropriate party. Logically, the same party could be responsible for making annual spreadsheet updates and periodic reports.

## Appendix: List of Related Documents

The following is a chronological list of reports by the City of Bloomington Environmental Commission summarizing the City of Bloomington's actions to track both greenhouse gas emissions and GGE-reducing actions. (This list should be updated as more reports are produced. Include also presentations to City Council, or other related activities.)

- *"A Framework for Developing a Greenhouse Gas Reduction Plan for Bloomington, Indiana," City of Bloomington Environmental Commissions (prepared by Eric Roberts, Intern), July 2006*
- *"Preliminary Assessment of Greenhouse Gas Emissions Associated with Activities in Bloomington, Indiana: Inventory and Trends," City of Bloomington Environmental Commission (prepared by Michael Steinhoff, Intern), July 2006*
- *"Greenhouse Gas Inventory for the City of Bloomington, Indiana: Footprint, Projections, Recommendations," City of Bloomington Environmental Commission, City of Bloomington Commission on Sustainability, & City of Bloomington Office of the Mayor (prepared by Mark Lemon, Patrick Foley, and Frances Gary), May 2009*
- *"Evaluation of Greenhouse Gas Reduction for Bloomington, Indiana," City of Bloomington Environmental Commission (prepared by Sarah Batto, Intern), September 2009*
- *"Greenhouse Gas Reducing Action Items Tracking Spreadsheet How-to," City of Bloomington Environmental Commission (prepared by Jessica Vogt, Intern), April 2010 – **THIS DOCUMENT***
- *"2010 GGE-Reducing Action Items Summary Report and Recommendations for Future Steps," City of Bloomington Environmental Commission (prepared by Jessica Vogt, Intern), May 2010*
- *"2010 GGE-Action Tracking Spreadsheet," City of Bloomington Environmental Commission (prepared by Jessica Vogt, Intern)*

(Documents in *italics* available on the Environmental Commission website, Greenhouse Gas Reduction Information page: [http://bloomington.in.gov/documents/viewDocument.php?document\\_id=3800](http://bloomington.in.gov/documents/viewDocument.php?document_id=3800).)