Barcelona1 Common Impacts

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Analysis Description

Minor GP Amendment from AMU to AMU-R

Report Summary

Report Date/Time: Wednesday, August 17, 2011 4:52 PM

Scenarios in this Report

What is a scenario?

Base Scenario

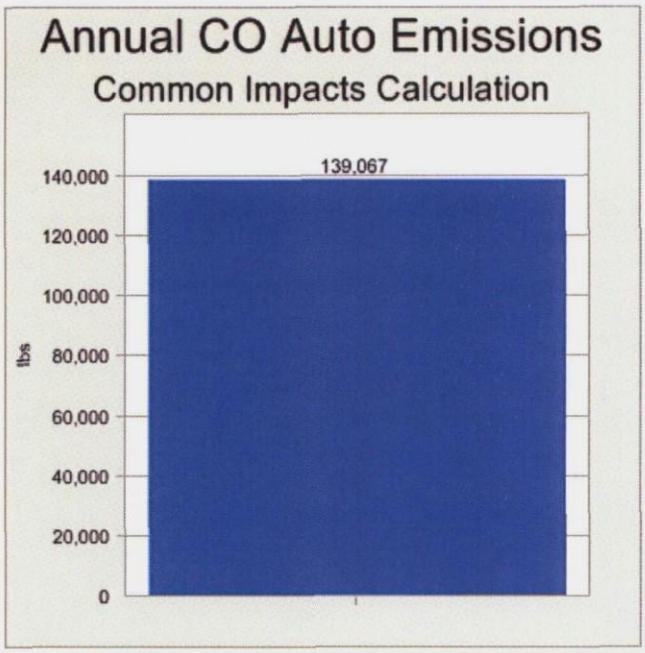
Common Impacts Parameters

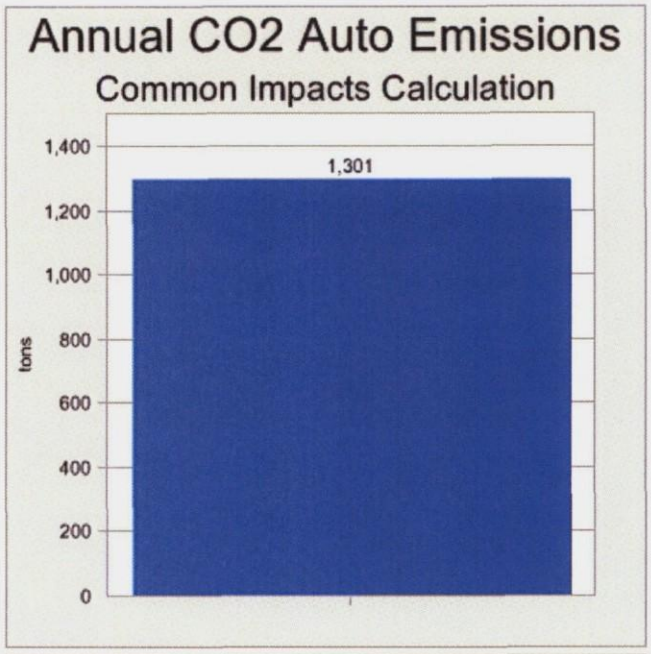
What is a common impacts parameter?

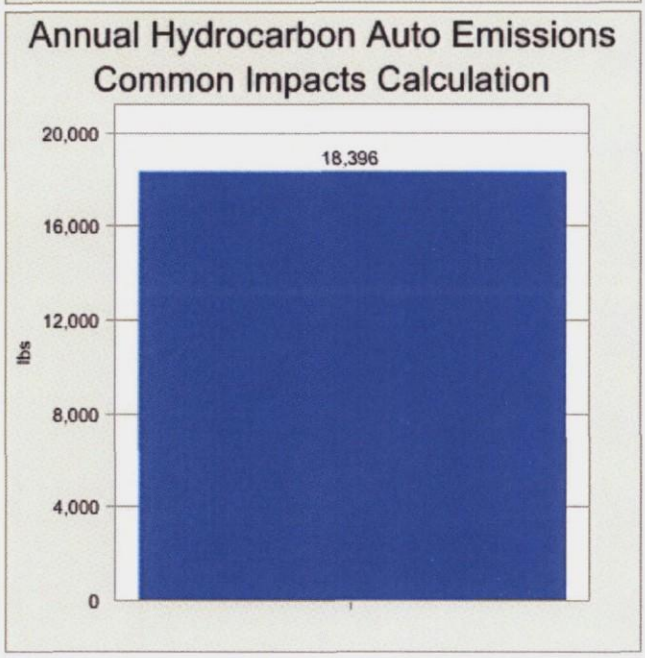
Standard Parameters	
Buildings Layer	Buildings
Dwelling Units per Building	(Attribute: Buildings) Dwelling Units
Commercial Floor Area per Building	(Attribute: Buildings) Floor Area
Commercial Floor Area Units	square feet

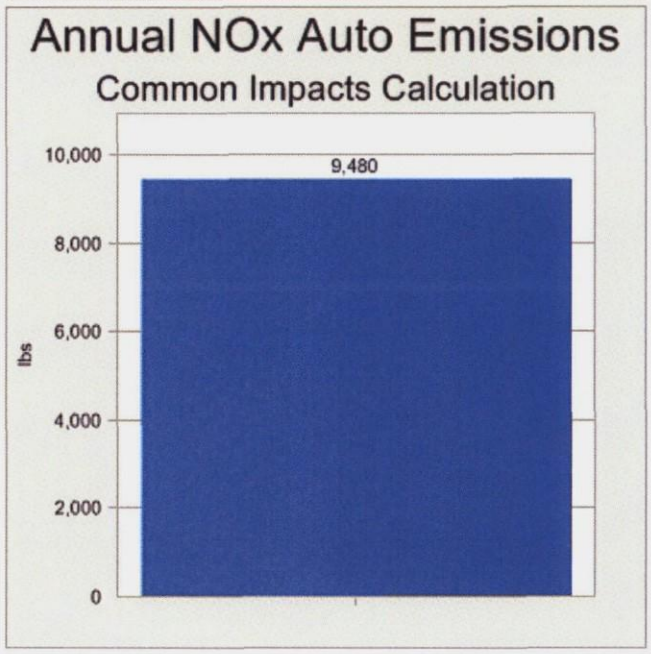
Indicator Charts

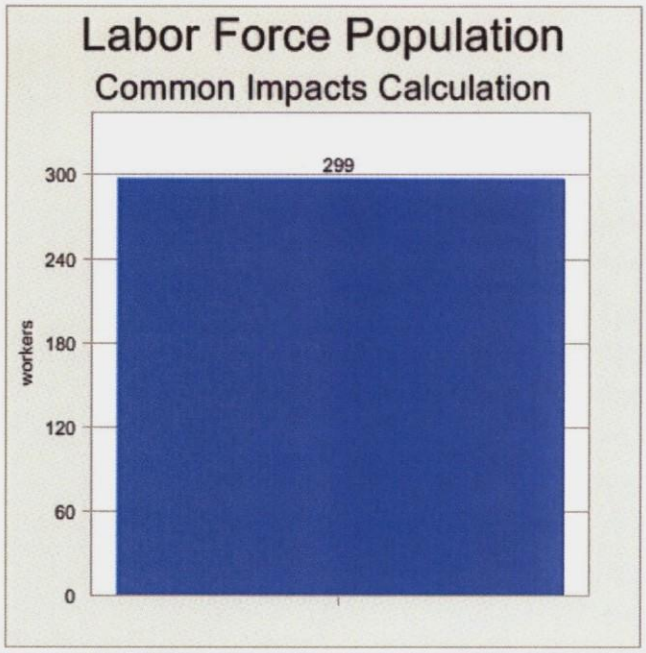
What is an indicator?

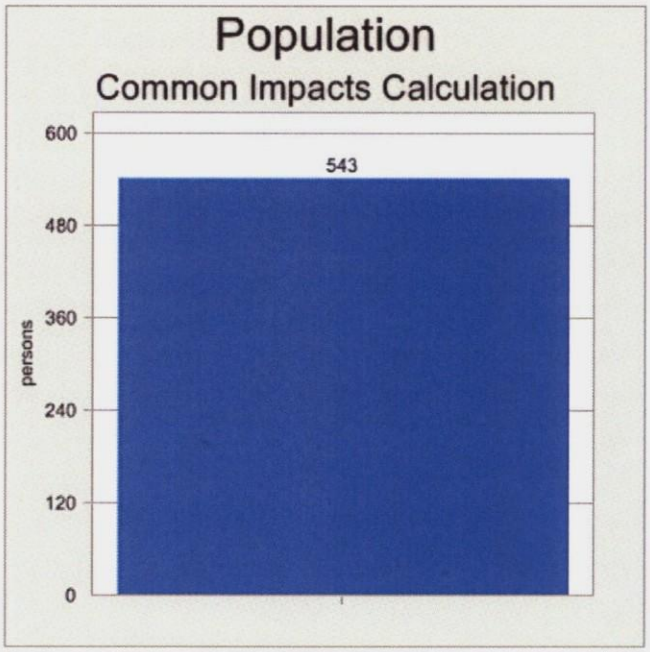

Annual CO Auto Emissions
Common Impacts Calculation
139,067
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
lbs

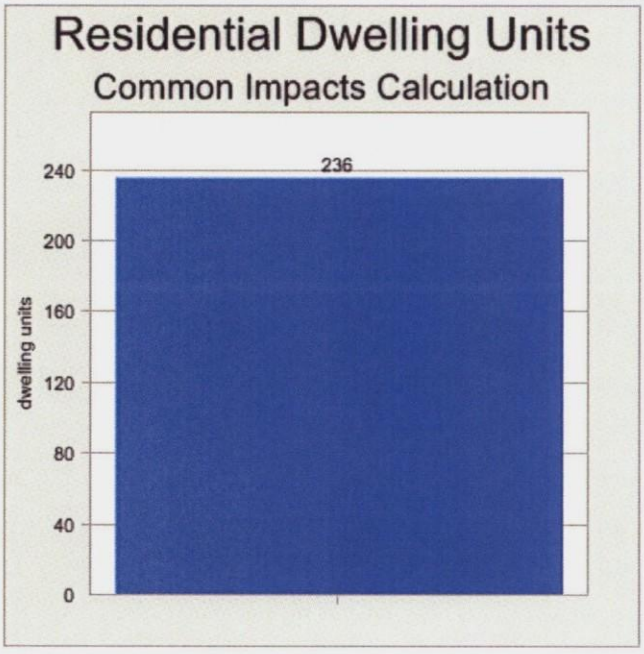

Annual CO2 Auto Emissions
Common Impacts Calculation
1,301
1,400
1,200
1,000
800
600
400
200
0
tons

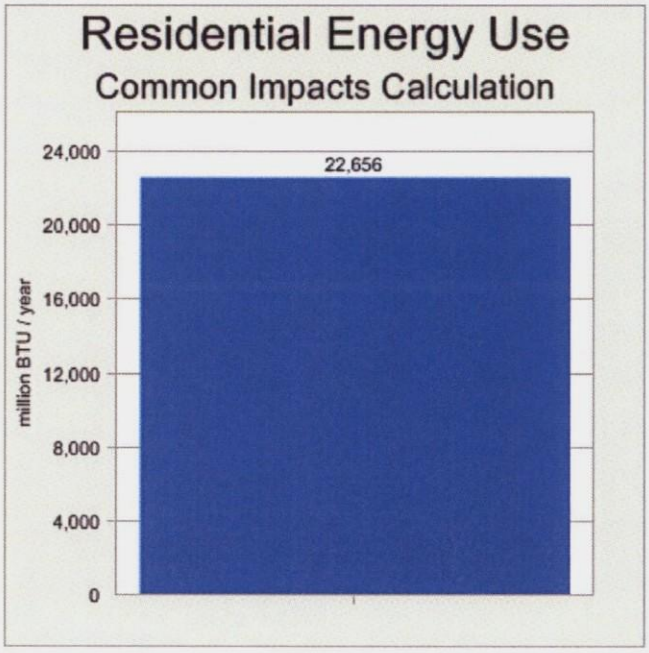

Annual Hydrocarbon Auto Emissions
Common Impacts Calculation
18,396
20,000
16,000
12,000
8,000
4,000
0
lbs

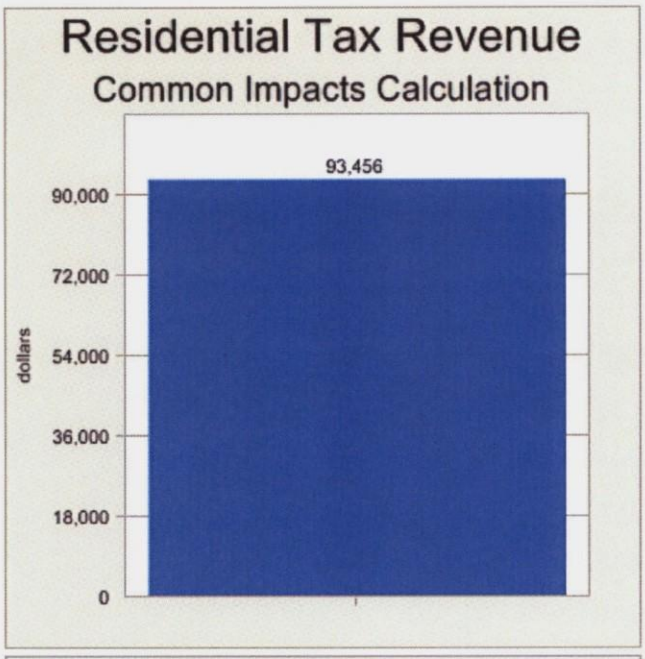

Annual NOx Auto Emissions
Common Impacts Calculation
9,480
10,000
8,000
6,000
4,000
2,000
0
lbs

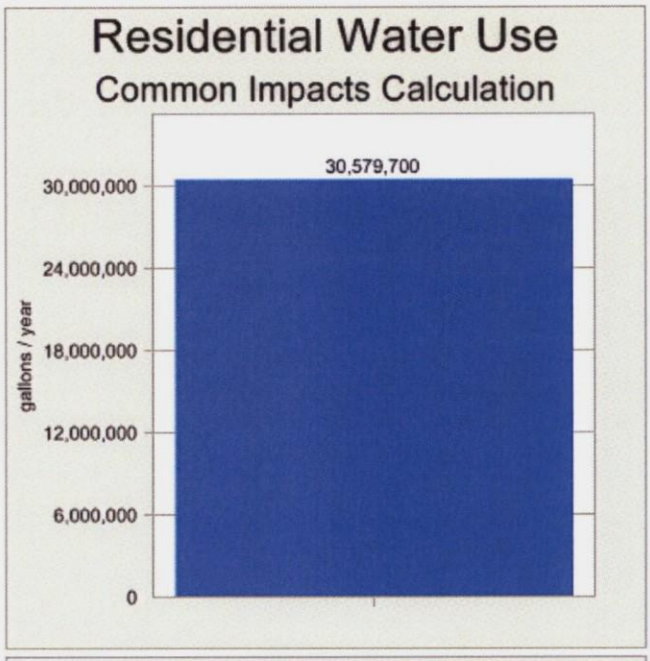

Labor Force Population
Common Impacts Calculation
299
300
240
180
120
60
0
workers

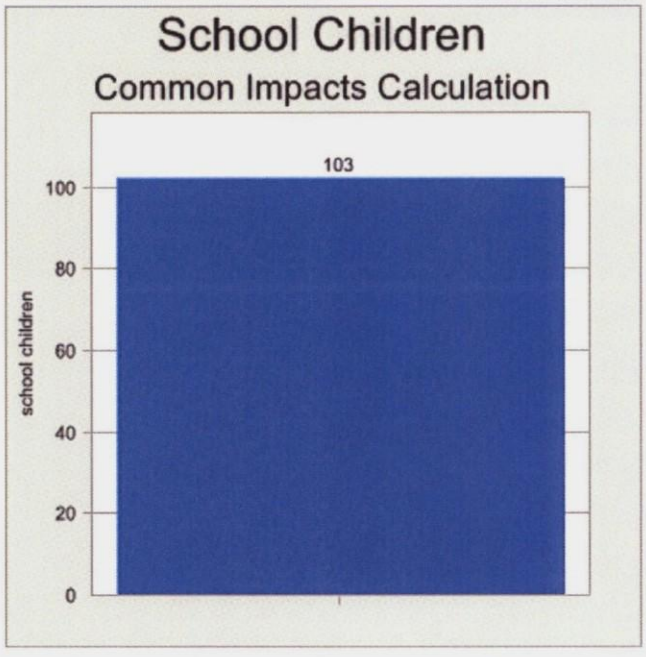

Population
Common Impacts Calculation
543
600
480
360
240
120
0
persons

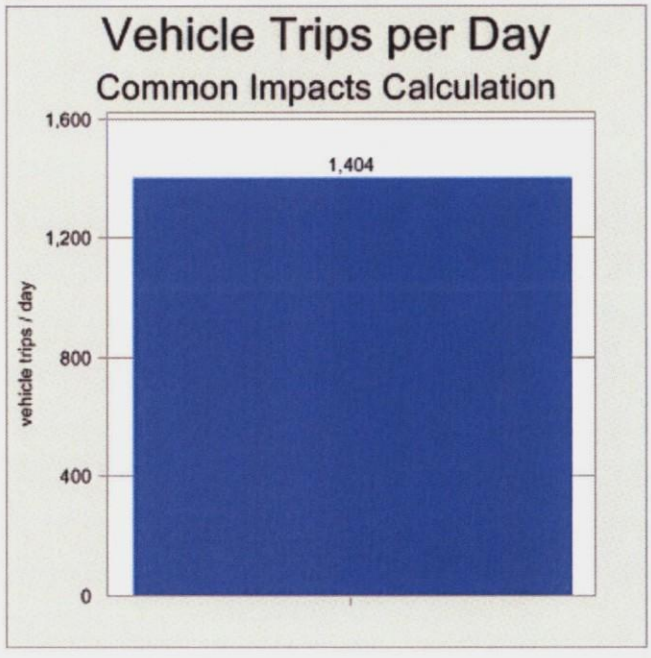

Residential Dwelling Units
Common Impacts Calculation
236
240
200
160
120
80
40
0
dwelling units


Residential Energy Use
Common Impacts Calculation
22,656
24,000
20,000
16,000
12,000
8,000
4,000
0
million BTU / year









Indicators

What is an indicator?

Indicators

Indicator	Base Scenario	Units
Common Impacts - Annual CO Auto Emissions	139,067	lbs
Common Impacts - Annual CO2 Auto Emissions	1,301	tons
Common Impacts - Annual Hydrocarbon Auto Emissions	18,396	lbs
Common Impacts - Annual NOx Auto Emissions	9,480	lbs
Common Impacts - Labor Force	299	workers

Common Impacts - Population	543	persons
Common Impacts - Residential Dwelling Units	236	dwelling units
Common Impacts - Residential Energy Use	22,656	million BTU / year
Common Impacts - Residential Tax Revenue	93,456	dollars
Common Impacts - Residential Water Use	30,579,700	gallons / year
Common Impacts - School Children	103	school children
Common Impacts - Vehicle Trips per Day	1,404	vehicle trips / day

Details

Indicator	Details
Common Impacts - Annual CO Auto Emissions	Units: lbs Formula: If([Assumption:CI Assumption - Passenger Car Fuel Efficiency] = 0, Then (0), Else (((([Assumption:CI Assumption - Average Vehicle Trip Length] / [Assumption:CI Assumption - Passenger Car Fuel Efficiency]) * [Assumption:CI Assumption - Auto Emissions - CO]) / 453.6) * 365 * [Indicator:Common Impacts - Vehicle Trips per Day])) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Annual CO2 Auto Emissions	Units: tons Formula: If([Assumption:CI Assumption - Passenger Car Fuel Efficiency] = 0, Then (0), Else (((([Assumption:CI Assumption - Average Vehicle Trip Length] / [Assumption:CI Assumption - Passenger Car Fuel Efficiency]) * [Assumption:CI Assumption - Auto Emissions - CO2]) / 2000) * 365 * [Indicator:Common Impacts - Vehicle Trips per Day])) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Annual Hydrocarbon Auto Emissions	Units: lbs Formula: If([Assumption:CI Assumption - Passenger Car Fuel Efficiency] = 0, Then (0), Else (((([Assumption:CI Assumption - Average Vehicle Trip Length] / [Assumption:CI Assumption - Passenger Car Fuel Efficiency]) * [Assumption:CI Assumption - Auto Emissions - Hydrocarbons]) / 453.6) * 365 * [Indicator:Common Impacts - Vehicle Trips per Day])) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Annual NOx Auto Emissions	Units: lbs Formula: If([Assumption:CI Assumption - Passenger Car Fuel Efficiency] = 0, Then (0), Else (((([Assumption:CI Assumption - Average Vehicle Trip Length] / [Assumption:CI Assumption - Passenger Car Fuel Efficiency]) * [Assumption:CI Assumption - Auto Emissions - NOx]) / 453.6) * 365 * [Indicator:Common Impacts - Vehicle Trips per Day])) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Labor Force	Units: workers Formula: ([Assumption:CI Assumption - Percent Employed] * [Indicator:Common Impacts - Population]) / 100 ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Population	Units: persons Formula: [Assumption:CI Assumption - Persons per Household] * Sum([Attribute:Buildings:Dwelling Units])

	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Residential Dwelling Units	Units: dwelling units Formula: Sum([Attribute:Buildings:Dwelling Units]) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Residential Energy Use	Units: million BTU / year Formula: [Assumption:CI Assumption - Annual Household Energy Use] * Sum ([Attribute:Buildings:Dwelling Units]) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Residential Tax Revenue	Units: dollars Formula: Sum([Attribute:Buildings:Residential Millage Tax]) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Residential Water Use	Units: gallons / year Formula: [Assumption:CI Assumption - Daily Household Water Use] * 365 * Sum ([Attribute:Buildings:Dwelling Units]) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - School Children	Units: school children Formula: ([Assumption:CI Assumption - Percent School Children] * [Indicator:Common Impacts - Population]) / 100 ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Vehicle Trips per Day	Units: vehicle trips / day Formula: [Assumption:CI Assumption - Household Vehicle Trips per Day] * Sum ([Attribute:Buildings:Dwelling Units]) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.

Indicator Descriptions

Indicator	Description
Common Impacts - Annual CO Auto Emissions	Total carbon monoxide emissions generated by vehicles associated with residential buildings in the Common Impacts buildings layer. See Help for details and disclaimer.
Common Impacts - Annual CO2 Auto Emissions	Total carbon dioxide emissions generated by vehicles associated with residential buildings in the Common Impacts buildings layer. See Help for details and disclaimer.
Common Impacts - Annual Hydrocarbon Auto Emissions	Total hydrocarbon emissions generated by vehicles associated with residential buildings in the Common Impacts buildings layer. See Help for details and disclaimer.
Common Impacts - Annual NOx Auto Emissions	Total emissions of oxides of nitrogen generated by vehicles associated with residential buildings in the Common Impacts buildings layer. See Help for details and disclaimer.
Common Impacts - Labor Force	Total number of jobholders living in the dwelling units in the Common Impacts building layer. See Help for details and disclaimer.
Common Impacts - Population	Total number of people living in the dwelling units in the Common Impacts building layer. See Help for details and disclaimer.
Common Impacts - Residential Dwelling Units	Total number of residential dwelling units in the Common Impacts building layer.

Common Impacts - Residential Energy Use	Total annual energy used by residential buildings for all applications, including electricity and heating. See Help for details and disclaimer.
Common Impacts - Residential Tax Revenue	Annual tax revenue from residential taxes in the Common Impacts buildings layer. See Help for details and disclaimer.
Common Impacts - Residential Water Use	Total annual water use by dwelling units in the Common Impacts building layer for all indoor and outdoor applications. See Help for details and disclaimer.
Common Impacts - School Children	Total number of school children living in the dwelling units in the buildings layer. See Help for details and disclaimer.
Common Impacts - Vehicle Trips per Day	Total number of motorized trips taken each day, on average, by residential households (dwelling units) in the Common Impacts buildings layer. See Help for details and disclaimer.

Dynamic Attributes

What is a dynamic attribute?

Attributes

Attribute	Details
Buildings	
Residential Millage Tax	Type: Double Formula: If ((([Attribute:Buildings:Dwelling Units] >= 0.5) Or ([Attribute:Buildings:Floor Area] > 0)), Then (([Assumption:CI Assumption - Residential Millage Rate] * [Assumption:CI Assumption - Mean Residential Property Value] * [Attribute:Buildings:Dwelling Units]) / 1000), Else (0)) ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.

Attribute Descriptions

Attribute	Description
Buildings	
Residential Millage Tax	Residential taxes for this building feature based on millage rate. (Annual taxes are implied.)

Assumptions

What is an assumption?

Assumptions

Assumption	Default	Base Scenario	Units
CI Assumption - Annual Household Energy Use	101	96	million BTU / household / year
CI Assumption - Auto Emissions - CO	476.76	438.46	grams / gallon
CI Assumption - Auto Emissions - CO2	19.70	18.08	lbs / gallon
CI Assumption - Auto Emissions - Hydrocarbons	60.22	58.00	grams / gallon
CI Assumption - Auto Emissions - NOx	29.89	29.89	grams / gallon
CI Assumption - Average Vehicle Trip Length	9.78	8.00	miles
CI Assumption - Daily Household Water Use	391	355	gallons / household / day
CI Assumption - Household Vehicle Trips per Day	5.95	5.95	household vehicle trips / day
CI Assumption - Mean Residential Property Value	240000	240,000	dollars

CI Assumption - Passenger Car Fuel Efficiency	24	28.5	miles / gallon
CI Assumption - Percent Employed	40.89	55.00	percent of population
CI Assumption - Percent School Children	18.9	18.9	percent of population
CI Assumption - Persons per Household	2.56	2.30	persons / household
CI Assumption - Residential Millage Rate	1.65	1.65	mills

Assumption Descriptions

Assumption	Description
CI Assumption - Annual Household Energy Use	Average annual energy used by each residential building for all applications, including electricity and heating. Default value is from "Residential Energy Consumption Survey (1997)," Energy Information Administration.
CI Assumption - Auto Emissions - CO	Carbon monoxide emissions generated by vehicles associated with each dwellilng unit. Default value is from "Figures for average annual emissions and fuel consumption for passenger cars and light trucks (July, 2000)," US Environmental Protection Agency.
CI Assumption - Auto Emissions - CO2	Carbon dioxide emissions generated by vehicles associated with each dwelling unit. Default value is from "Figures for average annual emissions and fuel consumption for passenger cars and light trucks (July, 2000)," US Environmental Protection Agency.
CI Assumption - Auto Emissions - Hydrocarbons	Hydrocarbon emissions generated by vehicles associated with each dwelling unit. Default value is from "Figures for average annual emissions and fuel consumption for passenger cars and light trucks (July, 2000)," US Environmental Protection Agency.
CI Assumption - Auto Emissions - NOx	Emissions of oxides of nitrogen generated by vehicles associated with each dwelling unit. Default value is from "Figures for average annual emissions and fuel consumption for passenger cars and light trucks (July, 2000)," US Environmental Protection Agency.
CI Assumption - Average Vehicle Trip Length	Average length of trip for vehicles associated with the dwelling units. Default value is from the US Bureau of Transportation Statistics (2001).
CI Assumption - Daily Household Water Use	Average daily water use by each dwelling unit for all indoor and outdoor applications. Default value is from "Estimated Use of Water in the United States in 2000," USGS Circular 1268, United States Geological Survey.
CI Assumption - Household Vehicle Trips per Day	Number of motorized trips taken by residential households each day, on average. Default value is from Transportation Energy Data Book (2001), chapter 8, edition 24, US Department of Energy, Energy Efficiency and Renewable Energy.
CI Assumption - Mean Residential Property Value	Average value of each residential dwelling unit.
CI Assumption - Passenger Car Fuel Efficiency	Average fuel efficiency of cars used by residents. Default value is from the US Bureau of Transportation Statistics (2004).
CI Assumption - Percent Employed	Number of jobholders living in the dwelling units in the buildings layer, represented as a percent of total population. Default value is from "Private nonfarm employment (2001)," U.S. Census Bureau, 2000 Census of Population, State and County Quick Facts.
CI Assumption - Percent School Children	Number of school children living in the dwelling units in the buildings layer, represented as a percent of total population. Default value is from "USA Population by Age (2000)," U.S. Census Bureau, 2000 Census of Population, Profiles of General Demographic Characteristics.
CI Assumption - Persons per Household	Number of people living the dwelling units of the building layer. Default value is from "Households, Persons Per Household, and Households with Individuals Under 18 Years (2000)," U.S. Bureau of the Census, 2000 Census of Population, Profiles of General Demographic Characteristics.
CI Assumption - Residential Millage Rate	Tax rate for residences based on tax per thousand units of value.

Potentially Useful References

What is a common impacts reference?

Assumption	Source
CI Assumption - Annual Household Energy Use	*Residential Energy Consumption Survey (1997)*, Energy Information Administration.
CI Assumption - Average Vehicle Trip Length	*Bureau of Transportation Statistics (2001)*
CI Assumption - Daily Household Water Use	*Estimated Use of Water in the United States in 2000*USGS Circular 1268, United States Geological Survey. *Denver Water Consumption Table (1994 and 2001)*, (good for arid climates), Denver Water, Denver, CO.
CI Assumption - Household Vehicle Trips per Day	*Transportation Energy Data Book (2001), chapter 8*, edition 24, US Department of Energy, Energy Efficiency and Renewable Energy.
CI Assumption - Passenger Car Fuel Efficiency	*Bureau of Transportation Statistics (2004)*
CI Assumption - Percent Employed	*Private nonfarm employment (2001)*, U.S. Census Bureau, 2000 Census of Population, State and County Quick Facts.
CI Assumption - Percent School Children	*USA Population by Age (2000)* U.S. Census Bureau, 2000 Census of Population, Profiles of General Demographic Characteristics (updated every 10 years).
CI Assumption - Persons per Household	*Households, Persons Per Household, and Households with Individuals Under 18 Years (2000)*, U.S. Bureau of the Census, 2000 Census of Population, Profiles of General Demographic Characteristics (updated every 10 years).
Auto Emissions	*Figures for average annual emissions and fuel consumption for passenger cars and light trucks (July, 2000)*, US Environmental Protection Agency.

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