# OptimaSonoranVillageII Common Impacts



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Report Summary

Report Date/Time: Thursday, February 04, 2010 8:26 AM

Scenarios in this Report

What is a scenario?

Base Scenario

Common Impacts Parameters

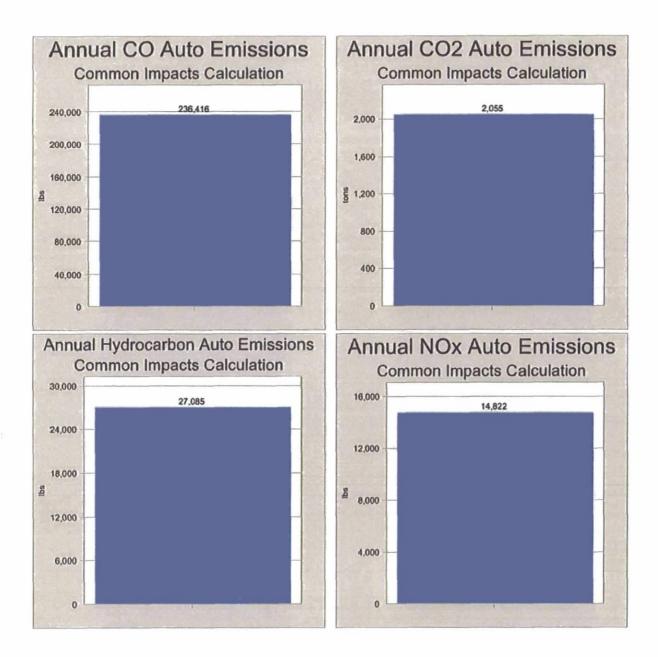
What is a common impacts parameter?

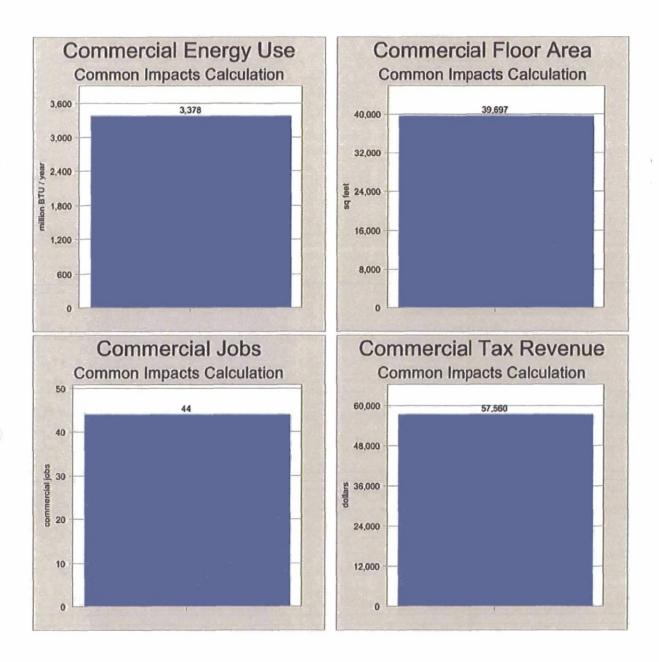
Standard Parameters		
Buildings Layer	Buildings	
Dwelling Units per Building	(Attribute: Buildings) Dwelling Units	
Commercial Floor Area per Building	(Attribute: Buildings) Floor Area	
Commercial Floor Area Units	square feet	

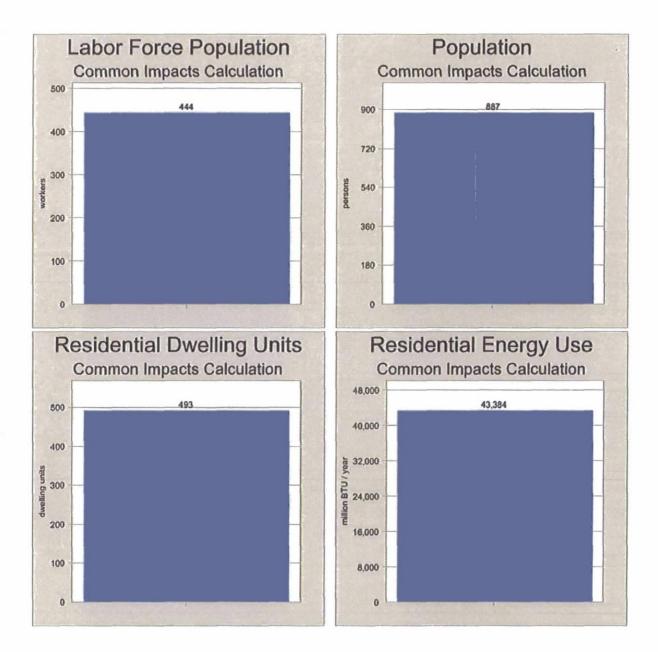
Indicator Charts

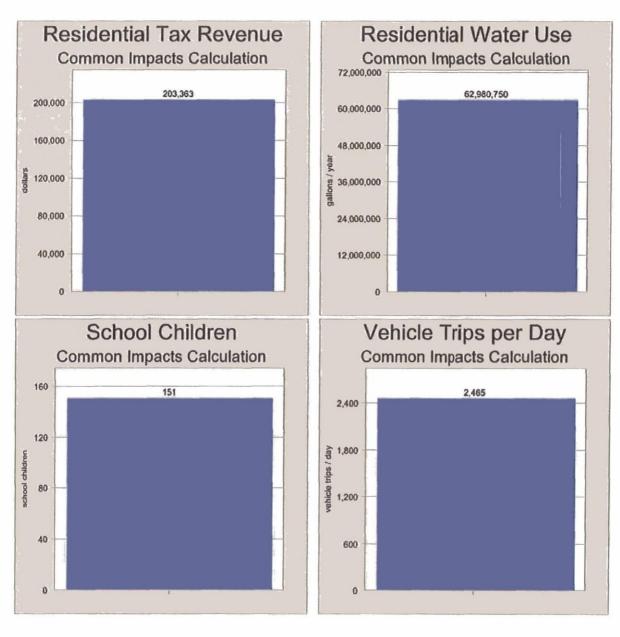
What is an indicator?

1-GP-2010 2nd: 03/12/10









Indicators
What is an indicator?
Todicatore

Indicator	Base Scenario	Units	
Common Impacts - Annual CO Auto Emissions	236,416	lbs	
Common Impacts - Annual CO2 Auto Emissions	2,055	tons	
Common Impacts - Annual Hydrocarbon Auto Emissions	27,085	lbs	
Common Impacts - Annual NOx Auto Emissions	14,822	lbs	
Common Impacts - Commercial Energy Use	3,378	million BTU / year	

Common Impacts - Commercial Floor Area	39,697	sq feet	
Common Impacts - Commercial Jobs	44	commercial jobs	
Common Impacts - Commercial Tax Revenue	57,560	dollars	
Common Impacts - Labor Force	444	workers	
Common Impacts - Population	887	persons	
Common Impacts - Residential Dwelling Units	493	dwelling units	
Common Impacts - Residential Energy Use	43,384	million BTU / year	
Common Impacts - Residential Tax Revenue	203,363	dollars	
Common Impacts - Residential Water Use	62,980,750	gallons / year	
Common Impacts - School Children	151	school children	
Common Impacts - Vehicle Trips per Day	2,465	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:Cl Assumption - Passenger Car Fuel Efficiency] = 0, Then (0), Else ((([Assumption:Cl Assumption - Average Vehicle Trip Length]/[Assumption:Cl Assumptio - Passenger Car Fuel Efficiency])*[Assumption:Cl 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				
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 -	Units: million BTU / year Formula: (([ Assumption:CI Assumption - Annual Commercial Energy Use ] * Sum				

Commercial Energy Use	( [ Attribute:Bulldings:Floor Area ] ) ) / 1000 )  ' This formula was automatically created by the Common Impacts Wizard to describe impacts			
	associated with the layer 'Buildings'.			
	Units: sq feet Formula:			
Common Impacts - Commercial Floor	Sum( [ Attribute:Buildings:Floor Area ] )			
Area	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.			
	Units: commercial jobs			
Common Impacts - Commercial Jobs	Formula:   If( [ Assumption:CI Assumption - Floor Area per Employee ] = 0, Then ( 0 ), Else ( Sum   ( [ Attribute:Buildings:Floor Area ] ) / [ Assumption:CI Assumption - Floor Area per   Employee ] ) )			
	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.			
	Units: dollars			
Common Impacts -	Formula: Sum( [Attribute:Buildings:Commercial Floor Area Tax] )			
Commercial Tax Revenue	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.			
	Units: workers			
Common Impacts - Labor Force	Formula: ( [ Assumption:CI Assumption - Percent Employed ] * [ Indicator:Common Impacts - Population ] ) / 100			
Labor Force	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.			
	Units: persons			
Common Impacts - Population	Formula: {			
	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.			
	Units: dwelling units			
Common Impacts - Residential Dwelling	Formula: Sum( [ Attribute:Buildings:Dwelling Units } )			
Units	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.			
	Units: million BTU / year			
Common Impacts - Residential Energy	Formula:  [ Assumption:CI Assumption - Annual Household Energy Use ] * Sum ( [ Attribute:Buildings:Dwelling Units ] )			
Use	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.			
	Units: dollars			
Common Impacts - Residential Tax Revenue	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'.			
	Units: gallons / year Formula:			
Common Impacts - Residential Water	[ Assumption:CI Assumption - Daily Household Water Use ] * 365 * Sum ( { Attribute:Buildings:Dwelling Units ] )			
Use	' 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 wit 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 disdaimer.			
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 - Commercial Energy Use	Total annual energy used by commercial buildings in the Common Impacts buildings layer for all applications, including electricity and heating. See Help for details and disclaimer.			
Common Impacts - Commercial Floor Area	Total commercial floor area in the Common Impacts buildings layer.			
Common Impacts - Commercial Jobs	Total jobs associated with commercial floor space in the Common Impacts buildings layer. See Help for details and disclaimer.			
Common Impacts - Commercial Tax Revenue	Annual tax revenue from commercial floor space 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
<b>B</b> uildings	
Commercial Floor Area Tax	Type: Double Formula:  If ( ( [ Attribute:Buildings:Dwelling:Units:] >= 0.5 ) Or ( [ Attribute:Buildings:Floor Area ] > 0 ) ),  Then ( [ Assumption: CI Assumption - Commercial Usage Rate ] * [ Attribute:Buildings:Floor Area ] ),  Else ( 0 ) )  This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Rësideritial 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
Bulldings	
Commercial Floor Area Tax	Commercial use taxes for this building feature based on floor area. (Annual taxes are implied.)
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 Commercial(Energy Use)	85.1	85:1	thousand btu / sq foot
CI:Assumption - Annual Household Energy Use	101	88	million btu <sub>s</sub> / household / year
CI Assumption - Auto Emissions - CO	476.76	476.76	grāms // ġállon
CI Assumption - Auto Emissions - CO2	19.70	18.27	lbs / ˈgallon
CI-Assumption - Auto Emissions - Hydrocarbons	60.22	54.62	grams / gallon
CI Assumption * Auto Emissions * NOX	29.89	29.89	grams://gailon
CI Assumption - Average Vehicle Trip:Length	9.78	6:00	miles
CI Assumption - Commercial, Usage Rate	1,45	1.45	dóllárs / sq fóot
CI Assumption - Daily Household Water Use	391	350	gailgñs://household / day
CI: Assumption + Floor Area per Employee	823	900	square feet / employee
CI Assumption - Household Vehicle Trips per Day	5.95	5:00	household vehicle trips / day
CI Assumption - Mean Residential Property, Value	250000	250,000	dollars
CI Assumption - Passenger Car Fuel Efficiency	24	24.0	miles / gallon
CI Assumption - Percent Employed	40.89	50.00	percent of population;

CI Assumption - Percent School Children	18.9	17.0	percent of population
CI Assumption - Persons per Household	2.56	1.80	persons / household
CI Assumption - Residential Millage Rate	1.65	1.65	mills

### Assumption Descriptions

Assumption	Description
CI Assumption - Annual Commercial Energy Use	Average annual energy used by each commercial building for all applications, including electricity and heating. Default value is from "Commercial Buildings Energy Consumption Survey (1999)," Form EIA-871A, Energy Information Administration, Office of Energy Markets and End Use.
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 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 - 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 - Commercial Usage Rate	Annual tax rate for commercial floor space in terms of tax per unit area.
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 - Floor Area per Employee	Average amount of commercial floor area that equates to one job.  Default value is from "Commercial Buildings Energy Consumption Survey (1999)," Energy Information Administration.
Cl 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.
C1 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.
	Number of people living the dwelling units of the building layer, Default value is from "Households, Persons Per Household, and

CI Assumption - Persons per Household	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 Commercial Energy Use	Commercial Buildings Energy Consumption Survey (1999), Form EIA-871A, Energy Information Administration, Office of Energy Markets and End Use.
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 - Floor Area per Employee	Commercial Buildings Energy Consumption Survey (1999), Energy Information Administration.
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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# **Existing Orchidtree Development2 Common Impacts**



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Charts

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Report Summary

Report Date/Time: Thursday, February 04, 2010 9:16 AM

Scenarios in this Report

What is a scenario?

Base Scenario

Common Impacts Parameters

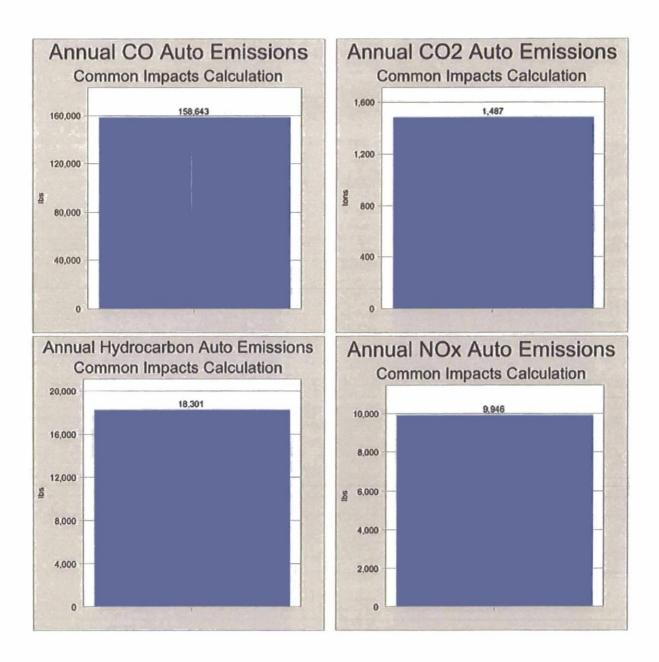
What is a common impacts parameter?

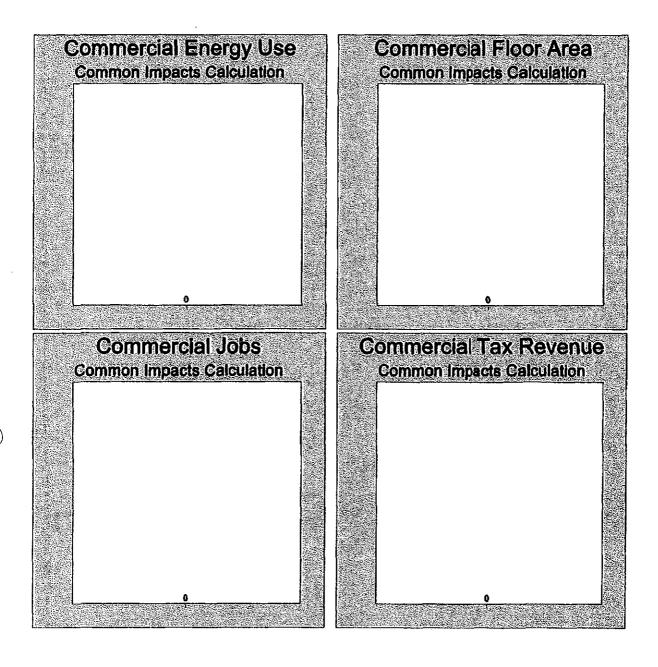
Standard Parameters	
Buildings Layer	Buildings
Dwelling Units per Building	(Attribute: Buildings) Dwelling Units
Commercial Floor Area per Building	(Attribute: Buildings) Floor Area
Commercial Floor Area Units	square feet

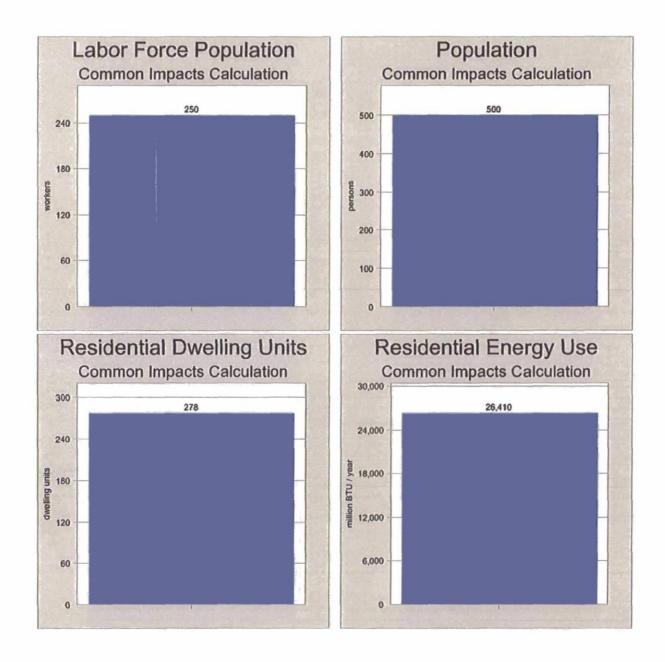
# Indicator Charts

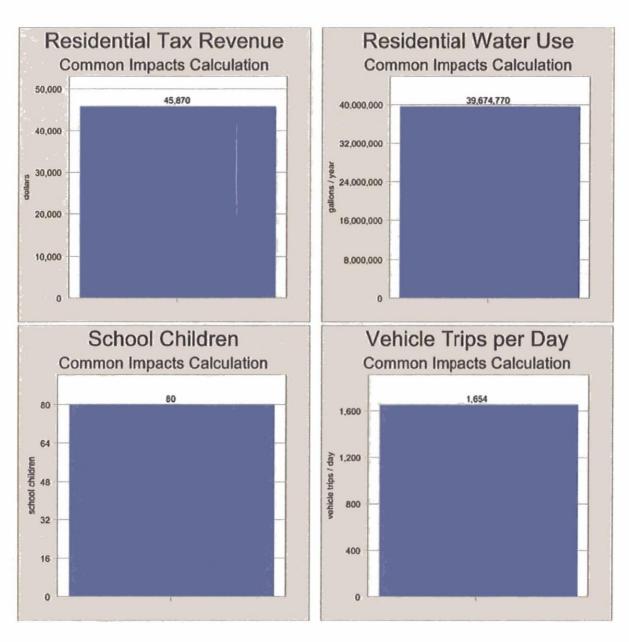
What is an indicator?

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<b>■</b> Indicators	
What is an indicator?	
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Indicator	Base Scenario	Units
Common Impacts - Annual CO Auto Emissions	158,643	lbs
Common Impacts - Annual CO2 Auto Emissions	1,487	tons
Common Impacts - Annual Hydrocarbon Auto Emissions	18,301	lbs
Common Impacts - Annual NOx Auto Emissions	9,946	lbs
Common Impacts - Commercial Energy Use	0	million BTU / year

Common Impacts - Commercial Floor Area	0	sq feet
Common Impacts - Commercial Jobs	0	commercial jobs
Common Impacts - Commercial Tax Revenue	0	dollars
Common Impacts - Labor Force	250	workers
Common Impacts - Population	500	persons
Common Impacts - Residential Dwelling Units	278	dwelling units
Common Impacts - Residential Energy Use	26,410	million BTU / year
Common Impacts - Residential Tax Revenue	45,870	dollars
Common Impacts - Residential Water Use	39,674,770	galtons / year
Common Impacts - School Children	80	school children
Common Impacts - Vehicle Trips per Day	1,654	vehicle trips / day

### **Details**

Indicator	Details
Common Impacts - Annual CO Auto Emissions	Units: ibs  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:Cl Assumption - Passenger Car Fuel Efficiency ] = 0, Then ( 0 ), Else
Common Impacts - Annual NOx Auto Emissions	Units: lbs Formula:  If ( { Assumption:CI Assumption - Passenger Car Fuel Efficiency } = 0, Then ( 0 ), Else
Common Impacts -	Units: million BTU / year Formula: (([Assumption:CI Assumption - Annual Commercial Energy Use] * Sum

Commercial Energy Use	( [ Attribute:Buildings:Floor Area ] ) ) / 1000 )
	'This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Commercial Floor	Units: sq feet Formula: Sum( [ Attribute:BuildIngs:Floor Area ] )
Area	'This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts - Commercial Jobs	Units: commercial jobs  Formúla:  If( [ Assumption:CI Assumption - Floor Area per Employee ] = 0, Then ( 0 ), Else ( Sum ( [ Attribute:Buildings:Floor Area ] ) / [ Assumption:CI Assumption - Floor Area per Employee ] ) )  'This formula was automatically created by the Common Impacts Wizard to describe impacts
	associated with the layer 'Buildings'.
Common Impacts - Commercial Tax	Units: dollars Formula: Sum( [Attribute:Buildings:Commercial Floor Area Tax] )
Revenue	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Buildings'.
Common Impacts -	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 Owelling	Units: dwelling units Formula: Sum( [ Attribute:Buildings:Dwelling Units ] )
Units	' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer 'Bulldings'.
	Units: million BTU / year Formula:
Common Impacts - Residential Energy Use	[ 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'.
<del></del>	Units: gallons / year formula:
Common Impacts - Residential Water Use	[ 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 - Commercial Energy Use	Total annual energy used by commercial buildings in the Common Impacts buildings layer for all applications, including electricity and heating. See Help for details and disclaimer.
Common Impacts - Commercial Floor Area	Total commercial floor area in the Common Impacts buildings layer.
Common Impacts - Commercial Jobs	Total jobs associated with commercial floor space in the Common Impacts buildings layer. See Help for details and disclaimer.
Common Impacts - Commercial Tax Revenue	Annual tax revenue from commercial floor space 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	
Commercial Floor Area Tax	Type: Double Formula:  If ( ( ( [ Attribute:Buildings:Dwelling Units ] >= 0.5 ) Or ( [ Attribute:Buildings:Floor Area ] > 0 ) ), Then ( [ Assumption:CI Assumption - Commercial Usage Rate ] * [ Attribute:Buildings:Floor Area ] ), Else ( 0 ) )  ' This formula was automatically created by the Common Impacts Wizard to describe impacts associated with the layer '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	
Commercial Floor Area Tax	Commercial use taxes for this building feature based on floor area. (Annual taxes are implied.)
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 Commercial Energy Use	85.1	85.1	thousand BTU / sq foot
CI Assumption - Annual Household Energy Use	101	95	million BTU / household / year
CI Assumption - Auto Emissions - CO	476.76	476.76	grams / gallon
CI Assumption - Auto Emissions - CO2	mption - Auto Emissions - 19.70   19.70   lbs / gallon		lbs / gallon
CI Assumption - Auto Emissions - Hydrocarbons	60.22	55.00	grams / gallon
CI Assumption - Auto Emissions - NOx	29.89	29.89	grams / gallon
CI Assumption - Average Vehicle Trip Length	9.78	6.00	miles
CI Assumption - Commercial Usage Rate	1.45	1.45	dollars / sq foot
CI Assumption - Daily Household Water Use	391	391	gallons / household / day
CI Assumption - Floor Area per Employee			square feet / employee
CI Assumption - Household Vehicle Trips per Day	5.95	5.95	household vehicle trips / day
CI Assumption - Mean Residential Property Value	100000	100,000	dollars
CI Assumption - Passenger Car Fuel Efficiency	24	24.0	miles / gallon
CI Assumption - Percent Employed 40.		50.00	percent of population

CI Assumption - Percent School Children	18.9	16.0	percent of population
CI Assumption - Persons per Household	2.56	1.80	persons / household
CI Assumption - Residential Millage Rate	1.65	1.65	mills

#### **Assumption Descriptions**

Assumption	Description
CI Assumption - Annual Commercial Energy Use	Average annual energy used by each commercial building for all applications, including electricity and heating. Default value is from "Commercial Buildings Energy Consumption Survey (1999)," Form EIA-871A, Energy Information Administration, Office of Energy Markets and End Use.
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 dwellling 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.
Ct 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 - Commercial Usage Rate	Annual tax rate for commercial floor space in terms of tax per unit area.
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 - Floor Area per Employee	Average amount of commercial floor area that equates to one job.  Default value is from "Commercial Buildings Energy Consumption Survey (1999)," Energy Information Administration.
CI Assumption - Household Vehicle Trlps 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.
	Number of people living the dwelling units of the building layer. Default value is from "Households, Persons Per Household, and

CI Assumption - Persons per Household	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 Commercial Energy Use	Commercial Buildings Energy Consumption Survey (1999), Form EIA-871A, Energy Information Administration, Office of Energy Markets and End Use.
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 - Floor Area per Employee	Commercial Buildings Energy Consumption Survey (1999), Energy Information Administration.
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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