US EPA ARCHIVE DOCUMENT

partnership for Sustainable Communities
an interagency partnership HUD • DOT • EPA

Measuring Smart Growth and Location Efficiency

Ted Cochin
EPA Office of Sustainable Communities

partnership for Sustainable Communities
an interagency partnership HUD • DOT • EPA

Background

Partnership for Sustainable Communities Indicator Catalog (SCIC)

- In partnership with PennIUR and the Ford Foundation
- Approach:
  - Use previous research and Partnership expertise to vet existing indicators for their relevance and ease of use
  - Promulgate a set of indicators that simplifies outcome measurement among interested communities

partnership for Sustainable Communities
an interagency partnership HUD • DOT • EPA

A built environment perspective that emphasizes community sustainability goals

Livability Principles

1. Provide more transportation choices
2. Promote equitable, affordable housing
3. Enhance economic competitiveness
4. Support existing communities
5. Coordinate and leverage federal policies and investment
6. Value communities and neighborhoods

Qualities/Goals

Access and Equity

Health

Economic Competitiveness and Efficiency

Affordability

Environmental Quality and Resilience

Community and Sense of Place

Methods

- Identify Audience, Users, and Needs -

Method: Analysis of grants by the PSC (2009 through 2012).

Results:

- A preponderance of grants funded land use planning and interventions.
- Many of the potential users of the knowledge-sharing platform are small or resource-limited communities.

- **Consulted with expert panels**
  - Washington, DC (PSC)
  - Cambridge, MA (Lincoln Institute of Land Policy)
- **Suggested an equity measure for each highlighted indicator**
- **Create tip sheets on various aspects of measurement and indicator use**
  - 11 topics

partnership for Sustainable Communities
an interagency partnership HUD • DOT • EPA

- Create Use Cases -

Organization Type: Sub-Municipal Organization

User: Planner in a Community-based Healthy Neighborhoods Coalition

Areas of Interest: Promoting Biking and Walking

Use Case:

The community planner for a Healthy Neighborhoods Coalition is developing program to promote walking and biking as healthy, inexpensive, and sustainable modes of transportation.

partnership for Sustainable Communities
an interagency partnership HUD • DOT • EPA

Development

- Identify Tags -

Further analysis of the users/grantees to identify the most important characteristic and aspects of projects, followed by testing from the perspective of different types of users to develop tags.

Area of Concern • Access and Equity • Health • Economic Competitiveness and Efficiency • Affordability • Environmental Quality and Resilience • Community and Sense of Place	**Land Use** • Compact Development • Redevelopment • Growth Management **Housing**
Geographic scale and level of development • County • Municipal • Neighborhood • Site/project • Urban • Suburban • Rural	**Transportation** • Rail, Subway, Light Rail • Fixed Route Bus • Demand Response Transit • Non-motor Transportation • Auto-oriented transportation

partnership for Sustainable Communities
an interagency partnership HUD • DOT • EPA

Indicators

Housing	Land Use	Transportation
1. Housing Cost Burden 2. Homeownership Rate 3. Vacancy Rate 4. Building Permit Issuance 5. Stable Residential Tenure 6. Number of People Per Room	1. Growth in Existing Urban Centers and Suburbs 2. Access to Transit 3. Mixing of Uses 4. Access to Parks and Open Space 5. Access to Walking and Biking Networks 6. Brownfield Redevelopment	1. Commuter Mode Share 2. Bike lane and trail mileage 3. Public Transportation Ridership 4. VMT 9. Number of alternative transportation users 10. Walkability

partnership for Sustainable Communities
an interagency partnership HUD • DOT • EPA

partnership for
Sustainable Communities
an interagency partnership HUD • DOT • EPA

Expand Transportation Choices

Strategies:	Performance measures:	Indicators of progress:	Broad outcomes:
Expand high-quality transit service to employment centers	% of all jobs "well served" by transit	Transit trips per capita	Enhanced accessibility to jobs and services
		% of commute trips made by transit	Lower HH transportation Costs
Focus new residential development in areas well served by transit	% of new homes "well served" by transit	VMT per capita	Improved public health
			Improved air quality
			Reduced GHG emissions

PSC Website: www.sustainablecommunities.gov

- Partnership for Sustainable Communities website

- Sustainability Indicators link

PSC Website:
SCIC Overview Page

https://cms.sustainablecommunities.gov//indicators

Sustainable Commun...

partnership for
Sustainable Communities
an interagency partnership HUD • DOT • EPA

> Home > About Us > In Your Community > Resources and Tools

Home › Indicators

Overview

Tip Sheets

Discover Indicators

Sustainable Community Indicator Catalog

The Sustainable Community Indicator Catalog helps communities identify indicators that can measure progress toward their sustainability objectives. The indicators in this catalog focus on the relationships among land use, housing, transportation, human health, and the environment. Use this website to identify the indicators that are most closely aligned with the issues of greatest concern to your community.

To develop this catalog, a team of researchers evaluated over 100 community indicator initiatives across the United States. Among these initiatives, the team identified nearly 400 examples of indicators being used to measure community progress related to the Partnership for Sustainable Community's Livability Principles. Here you can learn more about the most popular and most useful indicators.

This project is the result of collaboration between University of Pennsylvania's Penn Institute for Urban Research, the HUD Office for International and Philanthropic Innovation and the Partnership for Sustainable Communities. Read more about the research that went into developing this catalog.

Share:

Go to the indicators catalog.

Browse **additional resources** for indicator programs and performance measurement

Click on either of these two links to access Indicators page

PSC Website:
SCIC Indicator Catalog

> Home > About Us > In Your Community > Resources and Tools

Home › Indicators

Indicator Topic - Any - **Geographic Scale** - Any - **Level of Urbanization** - Any - **Issue of Concern** - Any -

Indicator Name	Indicator Topic	Issue of Concern	Level of Urbanization	Geographic Scale
Crime Rate in Parks and Recreation Areas	Land Use	Community and Sense of Place	Urban	Neighborhood/Corridor
Access to Healthy Food Options	Housing	Access and equity	Rural	Neighborhood/Corridor
Acres of Brownfield Redeveloped/Remediated	Land Use	Access and equity	Rural	County
Growth in previously-developed areas	Land Use	Access and equity	Rural	County
Acres of Parks and Protected Open Space per Capita	Land Use	Access and equity	Suburban	County
Acres of Newly Developed Land for New Residents	Land Use	Access and equity	Rural	County
Bike Parking per Capita	Transportation	Access and equity	Suburban	Municipality
Access to transit: Percentage of population within walking distance of frequent transit service	Transportation	Access and equity	Rural	County
Residential Energy Use	Housing	Access and equity	Rural	County

The catalog allows the user to filter categories by topic, issue of concern, level of urbanization and geographic scale.
Then provides a list of indicators by name

PSC Website:
SCIC Indicator Detail

Acres of Newly Developed Land for New Residents	Land Use	Access and equity	Rural	County
Bike Parking per Capita	Transportation	Access and equity	Suburban	Municipality
Access to transit: Percentage of population within walking distance of frequent transit service	Transportation	Access and equity	Rural	County
Residential Energy Use	Housing	Access and equity	Rural	County
Percentage of population served by transit	Land Use	Access and equity	Rural	County

Click to get Indicator Detail page with definition, data source calculation instructions, other communities using the indicator and a link to other indicators in the same category

PSC Website:
SCIC Indicator Detail

Definition

Relationship to Sustainable Communities

Data sources

See who else is using it

Click on indicator category to find other indicators

Home

Residential Energy Use

Summary

Residential energy use is a measure of how much energy (electric, gas, oil, renewable, or other) that is used to heat and run residential buildings and associated activities.

How It Relates to Sustainable Communities

Energy use is a significant contributor to the cost of living in a home or apartment building. Efficient homes have lower energy costs and allow residents to save or spend money in other areas. Lower energy costs make residents more resilient to changes in their personal budget. Additionally, buildings are responsible for 35 percent of all greenhouse gas emissions and provide opportunities to reduce emissions.

Data Elements

Residential Energy Use

Collecting residential energy use data can be difficult and often requires data sharing agreements with local utilities, such as providers of electricity, oil, gas, and renewable energy companies. Communities should develop the program and data that they are interested in collecting (electricity usage for example) and approach the utility company for the area. Local government should be a partner or key player in these discussions. Very broad data on residential energy use is available from the U.S. Energy Information Administration (EIA) http://www.eia.gov/consumption/residential/. The EIA data only has state-specific data for 16 pilot states and does not include data at municipal, zip code, or at other small geographic scales.

If the local utility is receptive to sharing information, data becomes more useful when available at smaller geographic scales because it can demonstrate how

Communities Using This Indicator

- Baltimore, Maryland
- Berkeley, California
- Cambridge, Massachusetts
- Cape Cod, Massachusetts
- Oakland, California
- Pasadena, California
- San Mateo County, California

County
Housing
Rural
Access and equity
Indicator Category:
Housing

partnership for
Sustainable Communities
an interagency partnership HUD • DOT • EPA

http://www.baltimoresustainability.org/resource-conservation/energy-use

Energy Use Reduction - Res...

Home | About | Resource Center | Media Center | Links | Contact

Baltimore Office of Sustainability
People • Planet • Prosperity

- Cleanliness
- Pollution Prevention
- Resource Conservation
  - Overview
  - Energy Use Reduction
  - Water Use Reduction
  - Waste Minimization
  - Reuse & Recycling
- Greening
- Transportation
- Education & Awareness
- Green Economy

Resource Conservation

Energy Use Reduction

Reducing our electricity consumption can help improve our air quality, reduce our dependence on foreign fuels, curb our greenhouse gas emissions, prevent the construction of more power plants, reduce the risk of blackouts, and save us all money on electric bills.

By equipping our buildings to use less energy and informing our community about how to conserve, we can mitigate the effects of potential price increases in the future. These efforts align well with existing state and federal programs such as the EmPOWER Maryland Initiative, Governor O'Malley's goal of reducing electricity consumption in the state by 15% by the year 2015, and the EPA's ENERGY STAR program of which the City of Baltimore is a member. Here are six strategies to help:

- Require aggressive energy efficiency standards as part of the Baltimore Green Building Standards
- Increase energy conservation by residents, City government, businesses, and institutions
- Improve the energy efficiency of existing homes and buildings
- Increase renewable energy generation in Baltimore City
- Consider efficiency upgrades to homes at point of sale
- Leverage state and federal funds for energy efficiency

Metrics:

- 2010 Metrics
- 2009 Metrics

Partner Organizations:

- Baltimore Gas & Electric
- Baltimore Neighborhood Energy Challenge
- Live Baltimore
- Baltimore City Commission on Historical & Architectural Preservation
- Civic Works

What You Can Do

1. Sign up for the BGE Quick Home Energy Check-Up
2. Replace your lightbulbs with energy-saving compact fluorescent lightbulbs (CFLs)
3. Set your thermostat as low as is comfortable in the winter and as high as is comfortable in the summer
4. Clean or replace filters on furnaces once a month or as needed
5. Install a programmable thermostat to keep your house comfortably warm in the winter and comfortably cool in the summer
6. Air dry dishes instead of using your dishwasher's drying cycle
7. Turn off your computer and monitor when not in use
8. Plug home electronics, such as TVs and DVD players, into power strips; turn the power strips off when the equipment is not in use
9. Lower the thermostat on your hot water heater to 120°F

SUCCESS STORIES

Posted December 17, 2012
Not wasting energy

Posted December 17, 2012
Baltimore Energy Challenge - Business Energy Challenge

Posted December 17, 2012
Community Energy Savers Grant Program

E-NEWS SIGNUP

Sign-up for email updates on future meetings and announcements:

Name

Email Address

Submit

2:30 PM

partnership for
Sustainable Communities
an interagency partnership HUD • DOT • EPA

Home › Indicators

- Overview
- Tip Sheets
- Discover Indicators

Tip Sheets

Using Indicators and Performance Measurement

Communicating about Indicators

Nationally Available Data Sources

State and Local Data Sources

Using American Community Survey Data
Indicator Responsiveness

Point in Time or Change over Time

Aggregate versus Per-Capita Measurement

Using Indicators to Promote Inclusive Growth and Equity

Calculating Pedestrian Access Sheds

Updated: Tuesday, December 31, 2013

Tip Sheets

Using Indicators and Performance Measurement

Communicating about Indicators

Nationally Available Data Sources

State and Local Data Sources

Using American Community Survey Data
Indicator Responsiveness

Point in Time or Change over Time

Aggregate versus Per-Capita Measurement

Using Indicators to Promote Inclusive Growth and Equity

Calculating Pedestrian Access Sheds

Using Indicators and Performance Measurement

Share:

What are indicators?

Indicators help cities, communities, and other groups measure progress toward their goals.[1] Indicators can be used to compare the status of different places or track change over time for an issue of importance. This information helps people understand the results of policies, identify where progress has been made, and highlight changes or disparities that are inconsistent with community goals.

What are the different types of indicators and what information do they provide?

Different types of indicators are appropriate for different applications. The World Health Organization divides indicators into four types: descriptive, performance, efficiency, and total welfare (aggregate).[2] These types are not necessarily exclusive. For instance a community may select a performance indicator that is also a descriptive or efficiency indicator. Nonetheless these categories help to clarify different ways in which indicators are used to measure outcomes.

- Descriptive indicators measure the current state of a community with regard to one specific issue of interest, such as acres of parkland or vehicle miles traveled in the past year. These indicators can be used to provide a snapshot assessment of current conditions, compare conditions in different neighborhoods or places, or measure trends over time.

- Performance indicators (also known as performance measures) are designed to assess the outcomes of a particular policy or program, such as the percentage of all new development occurring within a designated urban growth area, . Performance indicators are often linked to a baseline reference value in order to assess whether progress is being made over time as well as the rate of progress. Performance indicators are also often linked to a specific policy target. For instance, a community may declare that by the year 2016 98% of all new commercial and residential development will be located within designated urban growth areas. Then the community can measure progress towards this goal to help assess whether current laws, policies, and programs are sufficiently effective in channeling new growth.

- Efficiency indicators show the efficiency of production and consumption processes, such as vehicle miles traveled per capita or energy use per household. Efficiency indicators are often the most useful to track over time as they facilitate accurate comparisons by accounting for background changes such as population growth.

- Aggregate indicators combine separate measures about several different community dimensions into one indicator (or index) that illustrates overall progress. They distill large amounts of information down to one value that summarizes a system as a whole Examples include, a community sustainability score or the Dow Jones Index. Aggregate indicators efficiently communicate a lot of information but, due to the information lost in aggregation, are often too simplified to inform action.

Applications

The SCIC is appropriate for communities that…

- would like to expand their existing set of measures to include:
  - New sustainability goals
  - Equity considerations
  - More rigorous and/or complex methods
- like their measures, but seek to improve their understanding of indicator use, communication, and strategy, in general
- have limited resources or technical capacities
- are interested in the measurement strategies of peers

partnership for Sustainable Communities
an interagency partnership HUD • DOT • EPA

Ted Cochin
Cochin.ted@epa.gov

www.sustainablecommunities.gov