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Performance Measurement System Appendix

**Livable Communities Planning Project
Thomas Jefferson Planning District Commission
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PO Box 1505, 401 East Water Street, Charlottesville, VA 22902 ▪ (434) 979-7310 ▪ www.1-community.org

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save the date!

one community conversations

Join staff from the Livable Communities Planning Project for a discussion about shared community planning goals for Charlottesville and Albemarle County. The same information will be discussed at each meeting, so pick the location that is most convenient for you! All meetings will run from 6-8 pm and are open to all.

Visit 1-community.org for directions and more detailed information.





Appendix 1

Review Of Existing Performance Measurement Systems

At the beginning of the process to develop the Performance Measurement system, the Livable Communities Planning project formed a preliminary Research Panel comprised of graduate students from UVA's Urban and Environmental Planning program. This group worked in collaboration with TJPDC staff during the spring 2011 academic term. The research panel studied existing performance measurement systems, collected preliminary data and developed a framework for the Livable Communities Planning Project Performance Measurement System.

Appendix One contains information about other performance measurement systems reviewed as part of the development process for the Performance Measurement System. Systems reviewed by the Research Panel included city, regional and statewide assessments. The Research panel developed a list of six key characteristics that they thought made a performance measurement system easy to read and informative.

1. Categories

Most systems divided the indicators into thematic categories such as Environment, Economy, Health, Housing, etc. While there was some variation on titles and the number of categories all of the reviewed systems had a system for grouping similar indicators together. Having categories helps organization of the report and provides a means for grouping similar indicators with one another.

2. Time intervals

Most performance measurement systems are assessed on an annual basis. Most are able to compare previous years' data to discern trends, though the period of time for which data is available often varies by source. For example The American Community Survey data is available for 3-year or 5-year intervals depending on the size of the community.

3. Targets

Along with defining specific indicators, some performance measurement systems have specific targets they would like to achieve, sometimes with a specific deadline in mind. For example, Minneapolis includes teen birthrate as an indicator and set a goal of reducing the pregnancy rate among 15-17 year olds to 46 pregnancies per 1,000 by 2010. Targets can be an important part of performance measures, especially if the goals are reflective of a community's desires. Also if a community sets targets, they need to be linked to policy actions that would help achieve goals.

4. Action plans

Some performance measurement systems have developed actions plans to identify what steps a locality intends to take in order to achieve the goals they have set. For example, PlaNYC has developed detailed action plans related to brownfield cleanup, stormwater management, and energy efficient buildings in order to achieve the sustainability goals it has set for 2030.





Appendix 1

5. Evaluating Progress

Many plans rate each indicator based on trends towards achieving a set goal. The city of Santa Monica assigns letter grades while the state of Virginia rates indicators according to three levels of progress, indicated by up, down, or straight arrows.

6. Presentation

Plans were often presented in a web-based format. Different presentation styles allowed for various levels of user interaction. For example, the Virginia Performs website allows the viewer to examine data based on indicator category, or by comparing performance across Virginia regions.

Many of these elements have been employed in the development of this Performance Measurement System Report. It is expected that when the data in the report are updated there will be an opportunity to look at trends and possibly begin to have discussions with the community about setting targets and goals.





Appendix 1

Example: Santa Monica Sustainable City Report Card

The City of Santa Monica, located in Southern California publishes an annual Sustainable City Progress Report. This report tracks the locality's progress in areas such as Environmental & Public Health, Housing, Economic Development and Transportation. Each of these categories consists of a number of data-based indicators, such as the water quality in the Santa Monica bay, income disparities, affordable housing and bus ridership. For many of these indicators, a target has been set, and annual reports include a

letter grade for each category based on how well the city has progressed in meeting this target, as shown in the example below. The Santa Monica example shows how performance measures can be used to create a framework for analyzing data and grading the trends over a period time. Grades were not included in the Charlottesville Albemarle Performance Measurement System because the current report illustrates baseline conditions. Future versions of the report might look at incorporating a grading system to highlight positive or negative trends in the data.

SUSTAINABLE CITY REPORT CARD

SUSTAINABLE CITY REPORT CARD

	2005	2006	2007	2008	2010
Grade	B	B	B	B	B
Effort	C+	B+	A-	A-	A-

ECONOMIC DEVELOPMENT

Goals: Nurture a diverse, stable local economy that supports the basic needs of community members / Increase sustainable business practices

Santa Monica's economy remains resilient, and experienced growth in the finance, information and health sectors. The local economy continues to be stable and diverse with no sector representing more than 25% of total economic activity. Though total wages fell 8% in 2009, back to 2006-7 levels, no one sector was disproportionately affected. The city, Chamber of Commerce, Convention and Visitors Bureau and Sustainable Works continue to collaborate on programs that support local businesses. More than 200 businesses now participate in the recently launched Buy Local Santa Monica program. To date, 51 Santa Monica businesses have been recognized for their exceptional commitment to sustainable practices through the Green Business Certification Program and 78 businesses have been recognized with Sustainable Quality Awards. An additional 158 businesses have participated in the Sustainable Works Business Greening Program. The rising cost of living and an unbalanced ratio of jobs to housing make it difficult for people to live near their workplace, exacerbating traffic and parking problems. The consistent grade reflects the continued strength of the local economy and growth in local green business, while recognizing the challenges presented by cost of living and the global recession.

Website Link: <http://www.smgov.net>



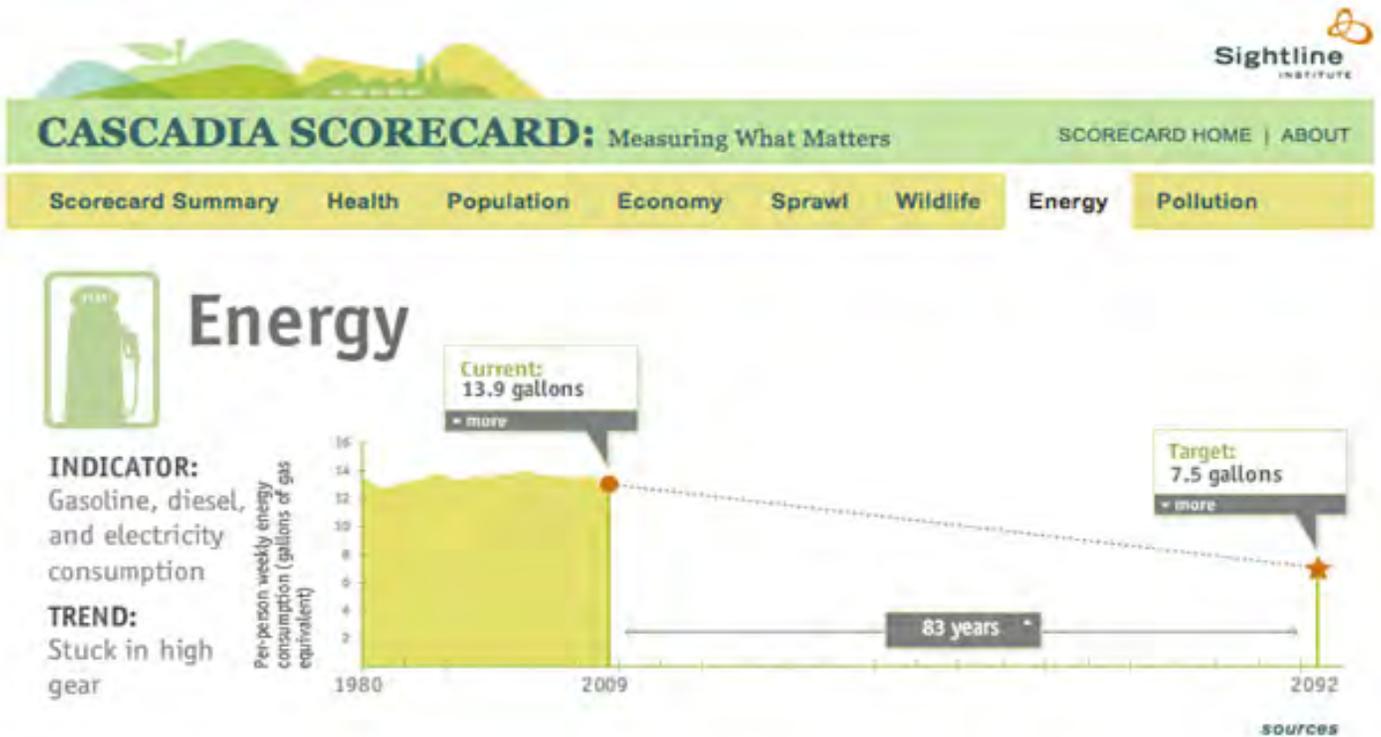
Appendix 1

Example: Cascadia Scorecard

The Cascadia Scorecard is an assessment system established by the Sightline Institute, a non-profit think tank, to measure particular indicators across the Pacific Northwest, including parts of Oregon, Washington, Idaho and British Columbia. These regional-based assessment was unique among those examined for it's geographic range. The system measures seven areas: Health, Population, Economy, Sprawl, Wildlife, Energy and Pollution, using only one data point as an indicator for each category. A goal has

been set for each indicator and the data is examined as a trend over time, typically since 1980. Graphs demonstrate the amount of time, according to current trends, it will take to reach this goal, as shown in the graph below. In the Cascadia example the performances measurements track trend data and establish targets that relate to specific goals. The Charlottesville Albemarle Performance Measurement System could include trend data in future versions, but the setting of goals will be left up to the individual localities.

CASCADIA SCORECARD



Website Link: <http://www.sightline.org>



Appendix 1

Example: Virginia Performs

Virginia conducts a statewide assessment known as Virginia Performs, which covers the areas of Economy, Education, Health and Family, Public Safety, Transportation, Natural Resources and Government and Citizens. Progress is measured for a number of indicators in each category such as employment growth, educational attainment, crime rates, life expectancy and voter participation. Data for each indicator is compared with that of peer states such as

Maryland and North Carolina and can also be compared across Virginia's eight regions. Each indicator is assessed with a performance trend rating of improving, maintaining or worsening compared to previous years data (represented by up, down, or sideways arrows). This scorecard is most likely what future versions of the Charlottesville Albemarle Performance Measurement System will look like. Future Reports could be organized in a similar manner that highlights how trends are evolving over time.

VIRGINIA PERFORMS

07.2012

SCORECARD AT A GLANCE



Economy

Goal: Be a national leader in the preservation and enhancement of our economy.

Business Climate	↑
Business Startups	→
Employment Growth	→
Personal Income	↑
Poverty	↓
Unemployment	↑
Workforce Quality	↑

Education

Goal: Elevate the levels of educational preparedness and attainment of our citizens.

School Readiness	↑
3rd Grade Reading	→
4th Grade Reading/Math	→
High School Graduation	↑
High School Dropout	→
College Graduation	↑
Educational Attainment	↑
Lifelong Learning	→

Health and Family

Goal: Inspire and support Virginians toward healthy lives and strong and resilient families.

Adoption	→
Cancer	↑
Cardiovascular Disease	↑
Child Abuse and Neglect	↑
Foster Care	↑
Health Insurance	↓
Immunization	→
Infant Mortality	↑
Life Expectancy	↑
Obesity	↓
Smoking	→
Suicide	→
Teen Pregnancy	↑

Each topic covers:

Why Is This Important?

How Is Virginia Doing?

- Over Time
- By Region
- Compared to Other States

What Influences the Indicator?

What Is the State's Role?

Public Safety

Goal: Protect the public's safety and security, ensure a fair and effective system of justice, and provide a prepared response to emergencies and disasters of all kinds.

Crime	↑
Emergency Preparedness	↑
Juvenile Intakes	↑
Recidivism	↑
Traffic Fatalities	↑

Natural Resources

Goal: Protect, conserve and wisely develop our natural, cultural and historic resources.

Air Quality	↑
Energy	↑
Historic Resources	→
Land Preservation	↑
Solid Waste and Recycling	↑
Water Quality	↑

Transportation

Goal: Ensure Virginia has a transportation system that is safe, enables the easy movement of people and goods, enhances the economy, and improves our quality of life.

Infrastructure Condition	→
Land Use	→
Traffic Congestion	↓

Government & Citizens

Goal: Be recognized as the best-managed state in the nation.

Bond Rating	↑
Civic Engagement	→
Consumer Protection	↓
Government Operations	↑
Internet Access	↑
Taxation	→
Voter Registration & Turnout	→

Performance Trend

- Improving ↑
- Maintaining →
- Worsening ↓

Website Link: <http://vaperforms.virginia.gov/>



Appendix 2

Glossary of Terms

Name	Description
Areas of Ecological Significance	Areas of lands that support naturally occurring populations of regionally significance species of plants or animals.
Attached Single Family	Single family residence that share at least one common wall but are on separate lots. A common example would be townhouses.
Benthic	The aquatic organisms living in or on the bottom of a body of water. Benthic organisms include crayfish, aquatic snails, clams, leeches, aquatic worms, certain insect larvae and nymphs (e.g., mayflies, dragonflies), and adult aquatic insects (e.g., riffle beetles). Changes in water quality generally result in changes in the types, numbers, or diversity of the benthic communities.
Body Mass Index (BMI)	A measure of human body shape based on an individual's mass and height. It is defined as an individual's body mass divided by the square of their height.
Deciduous Forest	Areas dominated by trees generally greater than 15 feet tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
Duplex	A unit of housing that contains two or more dwelling units on one lot that are in the same structure.
eCO ₂ (equivalent Carbon Dioxide)	The unit of measure for greenhouse gas emissions. The measure is the tons of carbon dioxide equivalent for the following greenhouse gasses: carbon dioxide, methane and nitrous oxide.
Evergreen Forest	Areas dominated by trees generally greater than 15 feet tall, and greater than 20% of total vegetation cover where more than 75% of the tree species maintain their leaves all year. Canopy is always has green foliage.
Forest Harvest	Areas where timber cutting has occurred for profit.
Forested Buffers	The area within a given distance of a stream bank that is forested or should be forested. In many jurisdictions this is defined as 100 feet from the top of the stream bank.
Geographic Information Systems (GIS)	A computer system designed to capture, store, manipulate, analyze, manage, and present all types of geographical data.
Habitat	An ecological or environmental area that is inhabited by particular species of animal, plant or other type of organism. It is the Natural Habitat in which the organism lives.



Appendix 2

Name	Description
Housing Costs	The amount of money a household spends on housing, including the cost of rent, mortgage payments, utilities insurance and minor upkeep.
Impervious Surfaces	Land surfaces which are impenetrable to water. These surfaces are often man made structures like roofs, driveways, roads, sidewalks, and parking lots.
Income	The sum of all the wages, salaries, profits, interest payments rents and other forms of earnings received in a fixed period of time.
Infill Development	The use of land within a built-up area for further construction or for community redevelopment.
Mean Household Income	Mean income (average) is the amount obtained by dividing the total aggregate income of a group by the number of units in that group. The means and medians for households and families are based on all households and families. Means and medians for people are based on people 15 years old and over with income.
Median	The numerical value that falls in the middle of a set of numerical values when values are arranged from highest to lowest. In cases when there are an even number of values the median is defined as the mean average of the two middle values.
Median Household Income	The middle point at which 50% of households in a given geography are either earning more or less income. The U.S. Census Bureau uses the following definition: “Median income is the amount which divides the income distribution into two equal groups, half having income above that amount, and half having income below that amount.”
Obese	In adults, being obese is defined as having a body mass index of 30 or higher. In children, being obese is defined as having a body mass index at or above the 95th percentile for children of the same age and sex.
Open Land	Land that is in cultivation, grasses, or other grassy and herbaceous vegetate types. It excludes forested land cover or impervious surfaces.
Overweight	In adults, being overweight is defined as having a body mass index between 25 and 29.0. In children, being overweight is defined as a body mass index above the 85th percentile and lower than the 95th percentile for children of the same age and sex.
Per Capita	A statistical term that means “per person or per head”.
Per Capita Income (income per person)	The mean income of the people in an economic unit such as a country or a city. It is calculated by taking a measure of all sources of income in aggregate and dividing it by the total population.



Appendix 2

Name	Description
Pine Plantation	Areas of evergreen forest where trees have been planted with the intent of harvesting them for commercial purposes.
Population	The summation of all organisms of the same group or species, which are living in a defined geographical area.
Population Density	The measurement of a population per unit area of land. In the context of this report it is the number of persons residing in a given jurisdiction measured in persons per acres.
Proximity	A numerical description of how far apart objects are from one another. Or the location of things to one another.
Recycling Rate	The Recycling Rate is calculated by taking the total amount of solid waste generated in a defined area and dividing it by the amount of material recycled.
Tree Canopy	The area of the earth's surface covered by tree leaves and branches. The term normally refers to tree leaf coverage when deciduous trees are in a leaf on state.
Unemployment Rate	The percentage of the labor force that is unemployed. In other words it is the ratio of persons unemployed compared to people who are employed. Being unemployed means that a person jobless looking for a job, and is available to work.





Dataset Name	Source	Web Link	Update Frequency
Decennial Census	US Census Bureau	factfinder2.census.gov/	Every 10 Years
Housing Plus Transportation (H+T) Affordability Index	Center for Neighborhood Technology	http://www.cnt.org/	Yearly
American Community Survey	US Census Bureau	factfinder2.census.gov/	Every 2 Years
Labor Force Statistics	Bureau of Labor Statistics	http://www.bls.gov/data/	Monthly
Virginia Partnership for Economic Development Community Profiles	Virginia Partnership for Economic Development	http://www.yesvirginia.org/	Monthly
County Budget	Albemarle County Office of Management and Budget	http://www.albemarle.org/	Yearly
City Budget	City of Charlottesville Office of Budget and Performance Management	http://www.charlottesville.org/	Yearly
Albemarle County Financial Report	Albemarle County Department of Finance	http://www.albemarle.org/	Yearly
Charlottesville Financial Report	City of Charlottesville Department of Finance	http://www.charlottesville.org/	Yearly
Virginia Atlas of Community Health	Virginia Atlas of Community Health	http://atlasva.org/	Yearly
Food Environment Atlas	USDA Economic Research Service	http://www.ers.usda.gov/	Yearly
Population Estimates	Weldon Cooper Center	http://www.coopercenter.org/	Yearly
National Land Cover Dataset	USGS Land Cover Institute	http://landcover.usgs.gov/	Every 10 years



Dataset Name	Source	Web Link	Update Frequency
Labor Market Statistics, Quarterly Census of Employment and Wages	Virginia Workforce Connection	https://www.vawc.virginia.gov	Monthly
Comprehensive Target Markets Report	Central Virginia Partnership for Economic Development	http://www.centralvirginia.org/	Contracted Study
County Business Patterns	US Census Bureau	http://www.census.gov/econ/cbp/	Yearly
Economic Impact of Domestic Travel	Virginia Tourism Corporation	http://www.vatc.org	Contracted Study
The Economic Impact of Non Profit Arts & Cultural Organizations & Their Audiences in the Greater Charlottesville Region	Americans for the Arts	http://www.artsusa.org/	Contracted Study
Census of Agriculture	USDA Census of Agriculture	http://www.agcensus.usda.gov	Every 5 Years
HUD Consolidated Planning Data	US Department of Housing and Urban Development	http://egis.hud.gov/cpdmaps/	Yearly
Solid Waste Generation and Recycling Rates	Thomas Jefferson Planning District Commission	http://www.tjpc.org/environment/solidWaste.asp	Every 5 Years
Albemarle GIS Data	Office of Geographic Data Services	http://www.albemarle.org/	Continuously
Charlottesville GIS Data	Mapping and Spatial Data Resources	http://www.charlottesville.org	Continuously
2009 Local Land Cover	Rivanna River Basin Commission	http://www.rivannariverbasin.org	Contracted Study
Regional Habitat Framework	TJPC Ecological Report	http://www.tjpc.org/	Unknown
Virginia 305(b)/303(d) Water Quality Report	Department of Environmental Quality	http://www.deq.state.va.us	Every 2 Years
Air Quality Index	Department of Environmental Quality	http://vadeq.tx.sutron.com/	Daily
Albemarle Emissions Baseline Report	Department of General Services	http://www.albemarle.org	Every 5 Years
Charlottesville Baseline Report	Environment and Sustainability	http://www.charlottesville.org	Every 5 Years

Indicator Tables

Page #	Indicator	System	Albemarle Comprehensive Plan Linkage	Charlottesville Comprehensive Plan Linkage	Type	Source
12	Population and Density	Community and Neighborhoods	Chapter 3 Growth Management Policy	Housing 8.3	Proportion	2010 US Census, Population Blocks. Albemarle County GIS, City of Charlottesville GIS (2011).
14	Age Breakdown	Community and Neighborhoods	Chapter 9 Objective 2	Housing 3.0	Average	U.S. Census Bureau: 2008-2010 American Community Survey 3-Year Estimates, Table B01001 (Age By Sex).
15	Median Age	Community and Neighborhoods	Chapter 9 Objective 2	Housing 3.0	Median	U.S. Census Bureau; 2008-2010 American Community Survey 3-Year Estimates, Table B01002 (Median Age By Sex).
16	Residential Proximity to Parks and Schools	Community and Neighborhoods	Chapter 11 Objective 5	Community Facilities 7.0	Percentage	2010 US Census, Population Blocks. Albemarle County GIS, City of Charlottesville GIS (2011).
17	Residential Proximity to Services (Libraries & Grocery Stores)	Community and Neighborhoods	Chapter 11 Objective 5	Community Facilities 7.0	Percentage	2010 US Census, Population Blocks. Albemarle County GIS, City of Charlottesville GIS (2011).
18	Local Government Expenditures of Public Services	Community and Neighborhoods	Chapter 12 Objective 1	Economic Sustainability 5.3	Ratio	Charlottesville Budget FY 13: 2010-2011 adopted budget. Albemarle Budget FY 13: 2010-2011 adopted budget.
19	Overweight and Obese	Community and Neighborhoods	Chapter 11 Strategy 4f	Housing 8	Percentage	The Virginia Atlas of Community Health (http://www.atlasva.com/) accessed 2012, (data for CY 2010).
20	Access to Healthy Food Choices	Community and Neighborhoods	Chapter 8 Objective 9	Economic Sustainability 6.5	Percentage	USDA2011 Food Environment Atlas Data File http://www.ers.usda.gov/data-products/food-environment-atlas/data-access-and-documentation-downloads.aspx . Accessed January 3rd 2013.

Page #	Indicator	System	Albemarle Comprehensive Plan Linkage	Charlottesville Comprehensive Plan Linkage	Type	Source
21	Land Conversion	Community and Neighborhoods	Chapter 3 Growth Management Policy	Land Use 3.1	Ratio	Population, Welden Cooper Center Virginia Population Estimates 2000-2010. USGS National Land Cover Database 2001-2006 From To Change Index, downloaded 1/6/13 National Land Cover Database 1992/2001 Retrofit Land Cover Change Product.
23	Income	Economy	Chapter 6 Objective 6	Economic Sustainability 1.0	Median, Mean & Average	U.S. Census Bureau; 2008-2010 American Community Survey 3-Year Estimates, Table B19301.
24	Unemployment	Economy	Chapter 6 Objective 2	Economic Sustainability 1.5	Percentage	Bureau of Labor Statistics; Local Area Unemployment Statistics (LAUS), accessed 7/13/13.
25	Economic Diversification (Number of Establishments)	Economy	Chapter 6 Objective 2	Economic Sustainability 2.0	Percentage	Accessed via Virginia Workforce Connection. Data Source: Labor Market Statistics, Quarterly Census of Employment and Wages Program (Q3 2012).
26	Economic Diversification (By Jobs)	Economy	Chapter 6 Objective 2	Economic Sustainability 2.0	Percentage	Accessed via Virginia Workforce Connection. Data Source: Labor Market Statistics, Quarterly Census of Employment and Wages Program (Q3 2012).
27	Wages in Major Business Clusters/ Industry Groups	Economy	Chapter 6 Objective 6	Economic Sustainability 1.3	Average	Central Virginia Partnership for Economic Development (CVPED), Comprehensive Target Markets Report. (2011).
28	Employment Concentration in Major Business Clusters/ Industry Groups	Economy	Chapter 6 Objective 6	Economic Sustainability 1.3	Average	Central Virginia Partnership for Economic Development (CVPED), Comprehensive Target Markets Report. (2011).
29	Economic Diversification Index	Economy	Chapter 6 Objective 6	Economic Sustainability 2.0	Index	US Census; County Business Patterns (CBZ) for Nation and U.S., States and Counties (1998-2010).

Page #	Indicator	System	Albemarle Comprehensive Plan Linkage	Charlottesville Comprehensive Plan Linkage	Type	Source
30	Economic Impact of Tourism	Economy	Chapter 6 Strategy 5f	Economic Sustainability 5.0	Total \$	Virginia Tourism Corporation, 2011 Economic Impact of Domestic Travel Report.
31	Economic Impact of Arts and Entertainment	Economy		Economic Sustainability 3.5	Total \$	The Economic Impact of Non Profit Arts & Culture Organizations & Their Audiences in the Greater Charlottesville Area (FY2010). Published by Americans for the Arts.
32	Economic Impact of Agriculture	Economy	Chapter 7 Strategy 2a	Economic Sustainability 6.5	Total \$	2007 USDA Census of Agriculture (Albemarle).
33	Educational Attainment and High School Graduation Rate	Economy	Chapter 6 Objective 6	Educational Institutions 1.0	Percentage	Virginia Economic Development Partnership Community Profile Reports for Albemarle, Charlottesville and Virginia. (Educational Attainment is from the US Census American Community Survey 5 year, 2007-2011).
35	Types of Housing Units	Housing and the Built Environment	Chapter 9 Objective 4	Housing 8.0	Percentage	US Census Bureau, 2005-2009 (5Year) American Community Survey DP04: Select Housing Characteristics.
36	Renter and Owner-Occupied Housing	Housing and the Built Environment	Chapter 9 Objective 4	Housing 8.0	Percentage	US Census Bureau, 2005-2009 (5Year) American Community Survey DP04: Select Housing Characteristics.
37	Income and Housing	Housing and the Built Environment	Chapter 9 Objective 4	Housing 3.0	Percentage	US Census Bureau, 2005-2009 (5Year) American Community Survey DP04: Select Housing Characteristics.
38	Housing Affordability	Housing and the Built Environment	Chapter 9 Objective 6	Housing 3.1	Percentage	Department of Housing and Urban Development Consolidated Plan mapping Interface: http://egis.hud.gov/cpdmaps/ Accessed on January 3 2013 and 2006-2010 HUD Consolidated Planning data.
39	Housing and Transportation Cost	Housing and the Built Environment	Chapter 9 Strategy 5a	Housing 3.2	Percentage	Center for Neighborhood Technology (www.CNT.org) accessed on January 3, 2013.
40	Number of Bedrooms in Housing Units	Housing and the Built Environment	Chapter 9 Objective 4	Housing 7.0	Percentage	US Census Bureau, 2005-2009 (5 Year) American Community Survey DP04: Select Housing Characteristics.



Page #	Indicator	System	Albemarle Comprehensive Plan Linkage	Charlottesville Comprehensive Plan Linkage	Type	Source
41	Number of Building Permits Issued 2011	Housing and the Built Environment	Chapter 9 Objective 3	Housing 8.0	Number	Albemarle County Community Development (CY 2011). City of Charlottesville Neighborhood Development Services (CY2011).
42	Home Values	Housing and the Built Environment	Chapter 9 Strategy 4a	Housing 1.0	Percentage	US Census Bureau, 2005-2009 (5 Year) American Community Survey DP04: Select Housing Characteristics.
43	Median Value of Housing Units	Housing and the Built Environment	Chapter 9 Objective 3	Housing 1.0	Median	US Census Bureau, 2005-2009 (5 Year) American Community Survey DP04: Select Housing Characteristics.
45	Solid Waste and Recycling	Natural Resource and Environment	Chapter 9 Strategy 4a	Environment 8.0	Number and Percent	Thomas Jefferson Solid Waste Planning Unit; 2011 Solid Waste Management Plan.
46	Residential Proximity to (Parks and Trails)	Natural Resource and Environment	Chapter 11 Goal 1	Community Facilities 7.0	Percentage	US Census 2010 Total Population by Census Block GIS. Albemarle, Charlottesville and TJPDC GIS data (2011).
47	Tree Canopy and Forest Buffers	Natural Resource and Environment	Chapter 8 Strategy 6b	Environment 2.2	Percentage	Rivanna River Basin Commission 2009 land cover analysis GIS dataset.
48	Land Cover	Natural Resource and Environment	Chapter 4 Strategy 4c	Environment 2.0	Percentage	Rivanna River Basin Commission 2009 land cover analysis GIS dataset.
49	Regional Habitats Framework	Natural Resource and Environment	Chapter 4 Objective 4	Environment 3.3	Score	TJPDC Eco Logical: Integrating Green Infrastructure and Regional Transportation Planning Report (2011).
51	Impaired Waterways	Natural Resource and Environment	Chapter 4 Strategy 1a	Environment 4.8	Miles	Virginia DEQ 2010 305(b)/303(d) Water quality Assessment Integrated Report.
53	Waterway Impairment Sources	Natural Resource and Environment	Chapter 4 Strategy 1a	Environment 4.8	Miles	Virginia DEQ 2010 305(b)/303(d) Water quality Assessment Integrated Report.

Page #	Indicator	System	Albemarle Comprehensive Plan Linkage	Charlottesville Comprehensive Plan Linkage	Type	Source
55	Stormwater Management	Natural Resource and Environment	Chapter 12 Strategy 9g	Environment 4.0	Various	Albemarle County urban stormwater BMP point GIS data file (May 2012). Albemarle County local background information submitted for the Chesapeake Bay TMDL Watershed Implementation Plan Phase II (February 2012) Charlottesville urban stormwater BMP point GIS data file (December 11). Charlottesville local background information submitted for the Chesapeake Bay TMDL Watershed Implementation Plan Phase II (February 2012).
56	Greenhouse Gas Emissions Per Capita	Natural Resource and Environment	Chapter 4 Strategy 2a	Environment 6.4	Tons of eCO ₂	County of Albemarle, VA Emissions Baseline Report. February 2009. 2012 Charlottesville Emissions Report Update .
57	Air Quality	Natural Resource and Environment	Chapter 4 Strategy 2a	Environment 6.3	Index Measure	DEQ Air Quality Index Data For Station #33-A Located at Albemarle HS (2008-2012).
59	Residential Proximity to Transportation Facilities	Transportation	Chapter 10 Objective 3	Transportation 1.0	Percentage	US Census 2010 Total Population by Census Block GIS. Albemarle, Charlottesville and TJPDC GIS data (2011).
60	Monthly Household Transportation Cost	Transportation	Chapter 10 Goal 1	Transportation 4.0	Cost per Household	Center For Neighborhood Technology www.CNT.org.
61	Means of Transportation to Work	Transportation	Chapter 10 Strategy 9c	Transportation 3.1	Percentage	US Census Bureau, 2009-2011 (3-Year) American Community Survey, Commuting Characteristics (table S0801).
61	Average Commute Times to Work	Transportation	Chapter 10 Objective 9	Transportation 3.2	Percentage	US Census Bureau, 2009-2011 (3-Year) American Community Survey Travel Time To Work (table B08012).
63	Traffic Congestion	Transportation	Chapter 10 Goal 1	Transportation 4.2	Percentage	Charlottesville Albemarle MPO Transportation Demand Model. 2010 baseline data, outputted 7/24/13.
65	Motor Vehicle Crashes	Transportation	Chapter 10 Goal 1	Transportation 3.0	Number of Crashes	Virginia Department of Transportation 2007-2012 Crash Data. Charlottesville Albemarle MPO Transportation Demand Model. 2010 baseline data, outputted 7/24/13.



Chapter	Indicator	Included in Report	Notes
CNE	Number of Structures or Districts Designated as Historic or Protected by Historic Easement		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	# Historic markers		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	# Local historic designations		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	# Application for Historic Register		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Number of police officers per capita		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Deaths per 1000 Population		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Infant Mortality		Indicator lacked any clear linkage to Comprehensive Plan Goals or Objectives.
CNE	% age 65 and over living in poverty		No available data source identified.
CNE	Availability of home/personal assistance for seniors (to age in place)		No available data source identified.
CNE	Community gardens		Economic impact of agriculture was used as an indicator of the local food economy.
CNE	Employees insured (have insurance by poverty level)		No data available for this indicator.
CNE	Childhood obesity	x	
CNE	Juvenile alcohol/drug arrests per 1000 youth		Crime data was not included as a measure of livability
CNE	Median Age	x	
CNE	Physicians per 1000 residents		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Population change	x	
CNE	Recreation expenditures per participant	x	
CNE	Total index crime rate		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Uninsured by age and by poverty level		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Number of police officers and fire/rescue professionals per capita (historic data would be helpful)		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	% Registered Voters Participating in Local Elections		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Neighborhood Organizations (The total number of active neighborhood associations)		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Total number of registered voters		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Average residential proximity to jobs		Data was not available



Appendix 5

List of Suggested Indicators

Chapter	Indicator	Included in Report	Notes
CNE	Residential proximity to parks (add the Development Areas as a separate category.)	x	
CNE	Residential proximity to grocery store or farmer's market (add the Development Areas as a separate category.)	x	
CNE	Residential proximity to libraries (add the Development Areas as a separate category.)	x	
CNE	Residential proximity to public schools (add the Development Areas as a separate category.)	x	
CNE	Percent of population within 0.5 miles of Sidewalk/Trails (add the Development Areas as a separate category.)	x	
CNE	Percent of population within 1 mile of Bike Lane (add the Development Areas as a separate category.)	x	
CNE	Percent of population within 0.5, 1, 2.5, 5 miles of bus stop (add the Development Areas as a separate category.)	x	
CNE	Population using public library		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Public library circulation per capita		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Share of non-English speakers (Language spoken at home)		Indicator was not included because it was too specific and does not provide an overall measure of livability.
CNE	Use of recreation centers		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Employment Diversification by Industry	x	
E	Employment Diversification by Occupation	x	
E	Median Household Income	x	
E	Per capita personal income	x	
E	Unemployment Rate	x	
E	Commuting Trends	x	
E	Average annual wage in top 4 sectors	x	
E	Average Annual Salaries in Selected Clusters	x	
E	Employment concentration in top 4 sectors	x	



Chapter	Indicator	Included in Report	Notes
E	Employment of disabled population capable of working		No data available for this indicator
E	Employment migration		Accurate data difficult to obtain
E	High-Tech Sector Employment Concentration Compared to the US Average		Indicator was not included because it was too specific and does not provide an overall measure of livability
E	High tech sector output growth relative to national average		Indicator was not included because it was too specific and does not provide an overall measure of livability
E	High Tech sector diversity		Indicator was not included because it was too specific and does not provide an overall measure of livability
E	Overall average annual wage		Reported in income measures category
E	Percent employment growth		Same as unemployment trend data
E	Percentages of workers from surrounding areas		No reliable data source available for making this determination.
E	Where commuters live		No reliable data source available for making this determination.
E	Homeless and housing insecure students		No reliable data source available for making this determination.
E	Number of homeless persons		Indicator was not included because it was too specific and does not provide an overall measure of livability
E	Educational Attainment	x	
E	Standard of Learning (SOL) Pass rate		Graduation rate was decided to be a better measure of educational achievement.
E	Graduation Rate	x	
E	Number training participants supported by business development partnership		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	3rd graders reading at grade level 4th grade Reading		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	10th graders reading at grade level 8th grade reading		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Adult higher ed enrollment rate Enrollment at higher education facilities		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	CATEC - # of certifications for HS and adult; # programs		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Community College CTE Student Performance		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Dropout rates		Graduation rate was decided to be a better measure of educational achievement.
E	Full Time Students per Full time Teacher		Graduation rate was decided to be a better measure of educational achievement.
E	GEDs granted		Graduation rate was decided to be a better measure of educational achievement.
E	K-12 teachers with advanced degree		Graduation rate was decided to be a better measure of educational achievement.
E	Per Pupil Expenditures		Graduation rate was decided to be a better measure of educational achievement.
E	Public High school on-time graduation rate		Graduation rate was decided to be a better measure of educational achievement.



Chapter	Indicator	Included in Report	Notes
E	Workforce center usage		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Free/Reduced Lunch Program Eligibility Rate		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	% Population eligible for Medicaid (number enrolled in Medicare has been attained)		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Major Public Assistance Program Enrollment		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Population receiving TANF		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Unemployment benefits claims		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	USDA supplemental nutrition program		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Real Estate tax base		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Annual taxable retail sales		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Property receiving exempt or reduced tax rate		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Economic Impact of Tourism	x	
E	Annual New Businesses Creation		Indicator was not included because it was too specific and does not provide an overall measure of livability.
E	Total Nonprofit Arts and Culture Industry Organizations and Their Audiences Expenditures	x	
E	Full time jobs Jobs supported by spending by arts and culture organizations and their audiences (direct and indirect impacts combined)	x	
E	Household Income Paid to Residents from spending by arts and culture organizations and their audiences (direct and indirect impacts combined)	x	
E	Revenue Generated to Local Government from spending by arts and culture organizations and their audiences (direct and indirect impacts combined)	x	
E	Total Attendance to Arts and Culture Events (broken down by resident and non resident)	x	



Appendix 5

List of Suggested Indicators

Chapter	Indicator	Included in Report	Notes
E	Average Event-related spending per person by Arts and Culture Audiences	x	
E	Hotel room demand and occupancy rates		Data not readily available for both Albemarle and Charlottesville
E	Tourism related employment	x	
E	Tourism related tax receipts	x	
E	Visitor Spending	x	
E	Number of participating in Buy Fresh Buy Local		Economic impact of agriculture was used as an indicator of the local food economy.
E	Number of local food outlets/markets		Economic impact of agriculture was used as an indicator of the local food economy.
HBE	Renter and Owner Occupied Housing	x	
HBE	Average Household Size		Indicator was left out of the final report because other indicators were deemed better measures of housing.
HBE	Number of Bedrooms	x	
HBE	Types of Housing Units	x	
HBE	Vacancy Rate		Indicator was not included in final report. Including vacancy rate did not relate well to any comprehensive plan goal.
HBE	Average Number of Occupants Per Room		Indicator was not included in final report. Staff suggested that the ACS data on occupants often does not capture housing units with overcrowding problems because segments of the population dealing with overcrowding often don't fill out the Census.
HBE	Number of mixed use developments		Indicator was not included because there is a lack of a common definition of mixed use.
HBE	Number of persons residing in a unit		This indicator was not included for the same reason that number of occupants per room was not included.
HBE	New Residential Building Permits in Rural and Urban Areas separated by type	x	
HBE	Housing Permits by type	x	
HBE	Residential Density in urban and rural areas	x	
HBE	Build out numbers		Indicator was not included because the data was not available for both City and County
HBE	Number of development with green infrastructure practices		Indicator was not included because there is no reliable dataset that tracks green infrastructure projects.
HBE	Type of Heating Fuel used by Households		Indicator was removed from final report because the data was not really relevant to measuring community wide livability.
HBE	Green buildings (USGBC, Earth Craft, etc)		Data available but number was very small.
HBE	Year Structure Built		Although it is a good idea to understand the age of structures knowing the year they were built has little to do with livability.
HBE	Housing Lacking Plumbing Facilities		Not included because staff suggested that its not a relevant measure in 2013



Chapter	Indicator	Included in Report	Notes
HBE	Housing Lacking Kitchen Facilities		Not included because staff suggested that its not a relevant measure in 2013
HBE	% Household spending > 30% on housing broken out by age/accessibility		Data was reported for whole population and not broken out by age or accessibility.
HBE	Age restricted and housing/homes for individuals with disabilities		Not included because there is no source for such data.
HBE	Low interest loans for green upgrades – UVA Green sense and Powersaver loans - Number and Value of loans; find out what all is available		Not Included because data would be limited to one program and one source of funds.
HBE	Rehabbed housing		Not Included because data would be limited to one program and little data is available
HBE	Percentage HH spending >30% income on housing	x	
HBE	Value of Housing Units	x	
HBE	Median Housing Unit Value	x	
HBE	Income needed to afford a home compared to typical salaries (of different professions)		Complexity calculating such a measure of this measure is beyond the scope of the Performance Measurement System.
HBE	Rent needed to afford a one-bedroom unit		Other indicators of housing affordability were determined to be more appropriate indicators of affordability
HBE	Available housing by type and price that is on the market for sale as of January 31, 2012		Data captured in the home values indicator.
HBE	Assessed value of homes		Data captured in the median home values indicator.
NRE	Average Household Water Consumption Rates		Indicator was not included because it was to specific and does not provide a overall measure of livability.
NRE	Average Household Natural Gas Consumption Rates		Indicator was not included because it was to specific and does not provide a overall measure of livability.
NRE	Average Household Electricity Consumption Rates		Dominion unwilling to provide data.
NRE	Tons of Solid Waste Generated/Recycled	x	
NRE	Households served by broadband internet provider		not included because of the expectation of levels of service between the urbanized and rural areas
NRE	User Rates for Water		Indicator was not included because it was to specific and does not provide a overall measure of livability.
NRE	User Rates for Natural Gas		Indicator was not included because it was to specific and does not provide a overall measure of livability.
NRE	Safe Yield of Water System and Actual Average Usage		Indicator was not included because it was to specific and does not provide a overall measure of livability.
NRE	Water Treatment Capacity		Indicator was not included because it was to specific and does not provide a overall measure of livability.
NRE	Wastewater Treatment Capacity		Indicator was not included because it was to specific and does not provide a overall measure of livability.



Chapter	Indicator	Included in Report	Notes
NRE	Tap water contaminants/drinking water exceedances		Indicator was not included because it was too specific and does not provide an overall measure of livability.
NRE	Residential proximity to parks	x	
NRE	Residential proximity to trails	x	
NRE	Portion of Land Protected		Data not included because it is not available at the same scale for the City and the County
NRE	Land Protection Measures by Area		Data not included because it is not available at the same scale for the City and the County
NRE	Number of Agricultural Best Management Practices		Data not included because it is not available at the same scale for the City and the County
NRE	% Area treated by SWM facilities	x	
NRE	% Energy from renewable sources		No data source
NRE	% Streams with functional buffer	x	Replaced with forested buffer percent.
NRE	% Trails permanently dedicated		Indicator was not included because it was too specific and does not provide an overall measure of livability.
NRE	Number of acres in PDR - ACE		Data not included because it is not available at the same scale for the City and the County.
NRE	Number of Green Roofs		No central tracking of green roofs (current number is also very low)
NRE	Distance of Piped streams		Currently no complete datasets exist that identify these conditions.
NRE	Number of Stormwater Facilities	x	
NRE	Acres of parkland/capita or % of county/city		Proximity to parkland uses instead of per capita.
NRE	Acres daylight/acres stream light perhaps info from UVA, if can get easily		Data incomplete
NRE	Alternative energy production sites (Piedmont biofuels)		No Data available
NRE	Alternative energy providers		No Data available
NRE	% ACE Conserved		Data not included because it is not available at the same scale for the City and the County.
NRE	Compare acres protected to ACE metrics/values - % prime land in conservation		Data not included because it is not available at the same scale for the City and the County.
NRE	Number of on-site stormwater treatment facilities	x	Information captured in the number of stormwater facilities.
NRE	Percent of Land Covered by Impervious Surfaces (City, County Development Area, and County Rural Areas separately)	x	
NRE	Impervious areas lacking stormwater treatment	x	



Appendix 5

List of Suggested Indicators

Chapter	Indicator	Included in Report	Notes
NRE	Amount of land in land use		Data not included because it is not available at the same scale for the City and the County.
NRE	Acres of land in agricultural use		Data not included because it is not available at the same scale for the City and the County.
NRE	# Acres in Ag/forestal districts		Data not included because it is not available at the same scale for the City and the County.
NRE	# and acres rezoning of conservation/ag land to residential		Indicator reported as land conversion.
NRE	Agriculture Sales	x	
NRE	Identify agricultural lands	x	
NRE	Greenhouse Gas Emissions	x	
NRE	Air quality- Ozone Levels	x	
NRE	Impaired Waters	x	
NRE	Air Quality Index	x	
NRE	Annual maximum ozone level	x	
NRE	Dissolved Oxygen Water Quality Index		Included in 303d data.
NRE	Invertebrate counts		Included in 303d data.
NRE	Max and average PM2.5 Levels	x	
NRE	Number of carbon monoxide exceedances		Not currently monitored by DEQ in our region
NRE	Impaired Waters	x	
NRE	TMDLs	x	Included in impaired streams Performance Measure.
NRE	Water quality	x	
NRE	Tree Canopy Coverage	x	
NRE	Habitat Fragmentation		Data set designed for a statewide resolution. Regional Habitats Framework takes this into account
NRE	Land Cover	x	
NRE	Lowest annual river flow		Indicator was not included because it was too specific and does not provide an overall measure of livability.
NRE	Water supply protection areas		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	Residential proximity to bus stops	x	
T	Residential proximity to bike lane	x	
T	Residential proximity to a sidewalk	x	
T	% Bus stops with benches/shelters for seniors/disabled		Not included because it pertains to only part of the region.
T	Disability non accommodations for transit		Indicator was not included because it was too specific and does not provide an overall measure of livability
T	Monthly Household Transportation Costs	x	



Chapter	Indicator	Included in Report	Notes
T	Cost of public transit/rider		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	Cost to ride public transit		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	Means of transportation to work	x	
T	Bus ridership		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	JAUNT ADA ridership		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	% bus headways within 30 min during peak		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	% bus headways within 60 min during nonpeak		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	% Population using transit in the Development Area		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	# Airport passengers		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	# Crossings on 29/250		Indicator not included because it was too specific.
T	# Flights		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	# Routes to outlying commuter areas		Not included as an indicator because any road could be called a route to outlying areas
T	# Smart lights		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	Destinations served by airport		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	Public transit to parks/trail heads		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	Tons cargo at airport		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	# Network gaps – bike, pedestrian – connectivity index		Proximity to Sidewalks and trails used instead.
T	Contiguous sidewalks/bikeway length (connectivity)		Proximity to Sidewalks and trails used instead.
T	Miles of paved bike trails per capita		Sidewalks and trails included as a proximity indicator instead of per capita.
T	Average traffic delay		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	Average commute time		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	Number of Accidents	x	
T	Daily vehicle miles traveled per Household		Indicator was not included because it was too specific and does not provide an overall measure of livability.



Chapter	Indicator	Included in Report	Notes
T	Motor vehicle accidents per 1000 people		Total number of crashes was deemed to be a better indicator of road safety.
T	Survey of public parking availability and cost		Indicator was not included because it was too specific and does not provide an overall measure of livability.
T	Serious bike/pedestrian accidents per 100,000		Existing state level data is poor and local data does not currently exist.
T	Traffic fatalities		Fatalities included in the number of accidents

Chapter Code	Chapter/System Name
CNE	Community and Neighborhood System
E	Economy
HBE	Housing and the Built Environment
NRE	Natural Resources and Environment
T	Transportation