

DVRPC Community Investment Index (CI²): Project Summary and Data Dictionary

Project Purpose and Summary

Successful applications for federal funding sources increasingly require applicants to demonstrate their ability to leverage the requested funding by building on other local planning or investments. This is particularly true for funding related to the DOT/HUD/EPA Interagency Partnership for Sustainable Communities – as these federal agencies seek to improve their efficiency and effectiveness by combining efforts, they have rewarded local agencies and governments that do the same. **The purpose of this project is to gather and map indicators across a range of disciplines that relate to a locality's ability to leverage new investments based on prior investments and a supportive policy and planning climate.** To this end, this project builds an inventory of livability¹- or sustainability-supportive investments, planning activities, and other indicators across the Pennsylvania portion of the DVRPC region.

The datasets gathered fall under three broad categories:

- ▶ **Location-based investments:** these are livability-supportive public investments that are localized in a specific place (as opposed to investments in things like operations, issue education, or communication where outcomes will be more dispersed). Such place-based investments can be directly and locally leveraged by new investments in the same areas.
- ▶ **Sustainability-oriented planning activities and policy climate:** these are indicators that relate to planning, local incentives, and engaged local stakeholders, which together reflect localities that will be more likely to ensure that the impacts of new investments will be maximized through partnerships across disciplines.
- ▶ **Underlying development characteristics that relate to walkability and connectivity:** these are indicators that relate to a locality's supportiveness of public transit, walking, and bicycling, as reflected by densities, connectivity, and infrastructure.

These indicators summarize activity across planning disciplines, and taken together, relate to a location's ability to leverage new sustainability- or livability-oriented public investments. DVRPC's work under this project for FY2011 was requested by the Southeastern Pennsylvania

¹ For this project, livability or livable communities refer to “places where transportation, housing, and commercial development investments have been coordinated so that people have access to adequate, affordable and environmentally sustainable travel options.” (Source: U.S. DOT Strategic Plan, FY2010-FY 2015).

Transportation Authority (SEPTA); a similar analysis for the New Jersey portion of the DVRPC region could be undertaken in subsequent fiscal years.

Drawing on the initial mapping inventory, this project also included the development of composite scoring (“heat map”) datasets that identify relative concentrations of indicators across each topic area, as well as a final composite scoring map across all topic areas: the **Community Investment Index (CI²)**.

It bears noting that the topic area scoring maps and Community Investment Index summarize inputs: they do not reflect an evaluation of investment outcomes. Two locations might have equivalent numerical CI² scores, but the contributing factors in each case might be very different, as might the success of prior investment activity. The Community Investment Index can be used in a variety of ways: a high score can be used to make the case for making new investments in the same locations as prior investments (since in the best case, groups of investments can combine to have a greater impact than they do individually). However, a lower score could also be used to make a case for historical underinvestment in a given location.

Dataset Summary and Data Dictionary

The **82 datasets** that were gathered are listed by topic area in the tables that follow, along with relevant summary information. Where datasets have a time component to them (such as grants for a specific year), data has been gathered for the last 10 years (2000 – 2010/2011).

This project explored the ways in which local place-based investments are geographically distributed, and specifically where they are concentrated. As a result, investments were filtered to only include projects where direct, mappable (place-based) investments were made, such as construction, renovation, and site or area planning. Investments were excluded if they were primarily for administration costs, operating costs, communication and outreach, or if they were not associated with a precise geography. For all investments, staff reviewed activity descriptions and other information to pull out the exact project location or area of interest. If no geographic location was mappable, or if an investment was for one of the soft costs listed above, then it was removed from the CI² datasets. Investments that funded place-based activities, but which were unable to be mapped to a specific area or intersection, were mapped to the smallest geography possible (typically either the zip code or the municipality).

Table 1: Environmental Datasets

Dataset	Source	Geography	Number of items	Smallest in region	Largest in region	Date updated in CI ²	Shapefile name
Trails and Protected Open Space							
Protected Open Space	DVRPC	Polygons	7,888	--	--	2007	DVRPC Protected Open Space
Pennsylvania Recreational Trails Program	DCNR	Trails	2	\$47,500	\$250,000	2011	PA Recreational Trails
Rails-to-trails program	DCNR	Trails	3	\$20,000	\$406,035	2011	Rails to Trails Program
Community recreation & conservation	DCNR	Points / Polygons	165 126 points 39 polygons	\$7,200	\$1,250,000	2010	Community Recreation – Points Community Recreation – Polygons
Land trust grants	DCNR	Points	13	\$60,400	\$750,000	2011	Land Trust Grants
Green Energy							
Alternative / Clean Energy loans & grants	DEP	Points	1	\$494,574	\$494,574	2011	Alternative Clean Energy
Alternative fuels incentive grant	DEP	School Districts / Points	24 15 points 9 polygons	\$2,160	\$1,875,000	2011	Alternative Fuels – Points Alternative Fuels – Polygons
Energy Harvest (including American Recovery and Reinvestment Act funds)	DEP	Points	36	\$11,000	\$400,000	2011	PA Energy Harvest
PA Energy Development Authority	DEP	Points	31	\$130,457	\$1,093,427	2011	PA Energy Development Authority
Solar energy program	DEP	Municipality / Points	14 13 points 1 polygon	\$4,530	\$1,000,000	2011	Solar Energy Program – Points Solar Energy Program – Polygons

Dataset	Source	Geography	Number of items	Smallest in region	Largest in region	Date updated in CI ²	Shapefile name
Contaminated Sites and Related Activities							
Brownfields (Includes assessment grants provided by federal, state, and local sources as well as Superfund sites)	EPA	Points	264	\$271	\$200,000	2011	EPA Brownfields
Impaired waterways with Total Maximum Daily Loads (TMDLs) completed	EPA	Polygons / Polyline / Points	782 187 points 560 lines 35 polygons	--	--	2011	EPA TMDL – Points EPA TMDL – Lines EPA TMDL – Polygons
Land Recycling Cleanup Locations	DEP	Points	3,382	--	--	2011	PA Land Recycling Program
Industrial Sites Reuse Program (ISRP) grants and loans	DCED	Points	87	\$6,319	\$3,000,000	2011	Industrial Sites Reuse Program
Pollution Prevention Assistance	DEP	Points	28	\$15,993	\$100,000	2011	Pollution Prevention Assistance
Underground storage tank program	DEP	Points	3	\$17,881	\$135,320	2011	Underground Storage Tank Program
Water Infrastructure and Protection Grants and Loans							
Flood protection grants	DEP	Municipality	4	\$4,190	\$8,619	2011	Flood Protection
Growing Greener: watershed protection grants	DEP	Points / Streams / Polygons	44 29 points 8 lines 7 polygons	\$6,312	\$755,513	2010	Watershed Protection – Points Watershed Protection – Lines Watershed Protection – Polygons

Dataset	Source	Geography	Number of items	Smallest in region	Largest in region	Date updated in CI ²	Shapefile name
PA H ₂ O grants (flood control, high hazard dam, water supply, stormwater, wastewater)	DCED	Municipality / Lines / Points	50 18 points 4 lines 28 polygons	\$40,000	\$5,000,000	2010	H ₂ O – Points H ₂ O – Lines H ₂ O – Polygons
PENNVEST	PA Infrastructure & Investment Authority	Watershed / Creeks / Points	49	\$49,343	\$25,000,000	2010	PENNVEST – Points PENNVEST – Lines PENNVEST – Polygons
PennWorks	DCED	Municipality / Points	9 5 points 4 polygons	\$983,812	\$4,672,696	2011	PennWorks – Points PennWorks – Polygons
River conservation program	DCNR	Watershed / Streams / Points	7 total: 2 points 2 lines 3 polygons	\$12,100	\$331,400	2011	Rivers Conservation – Points Rivers Conservation – Lines Rivers Conservation – Polygons
Source Water Protection	DEP	Municipality	12	\$21,530	\$100,000	2010	Source Water Protection
Miscellaneous Environmental Grants and Loans							
Environmental Stewardship Fund	DCNR	Municipality / Trails / Points	24 total: 11 points 4 lines 9 polygons	\$10,000	\$500,000	2010	Env. Stewardship Fund – Points Env. Stewardship Fund – Lines Env. Stewardship Fund – Polygons
EPA Section 319 Nonpoint Source implementation projects	EPA / DEP	Watershed / Municipality / Bodies of Water / Points	33 total: 13 points 4 lines 16 polygons	\$7,800	\$284,458	2010	EPA Section 319 – Points EPA Section 319 – Lines EPA Section 319 – Polygons
Federal Land and Water Conservation Fund	DCNR	Points	3	\$300,000	\$1,000,000	2011	Federal Land and Water Conservation

Dataset	Source	Geography	Number of items	Smallest in region	Largest in region	Date updated in CI ²	Shapefile name
Leadership in Energy and Environmental Design (LEED) buildings	USGBC	Points	308	--	--	2011	Green Buildings - LEED and Energy Star
Energy Star buildings	DOE / EPA	Points	146	--	--	2011	Green Buildings - LEED and Energy Star
Growing Greener I & II grants	Various	Municipality / Streams / Points	160 131 points 18 lines 11 polygons	\$1,047	\$2,000,000	2010	Growing Greener – Points Growing Greener – Lines Growing Greener – Polygons
Growing Greener Bond Fund	DCNR	Points	17	\$29,000	\$1,035,000	2011	Growing Greener Bond Fund
Infrastructure and Facilities Improvement Program	DCED	Points	7	\$200,000	\$1,542,706	2010	PA IFIP
Infrastructure Development Program	DCED	Points	27	\$300,000	\$2,500,000	2010	Infrastructure Development

Table 2: Planning Activities Datasets

Dataset	Source	Geography	Number of items	Smallest in region	Largest in region	Date updated in CI ²	Shapefile name
PA Community Action Team	DCED	Points	3	\$38,890	\$75,000	2010	PA Community Action Team
PA Land Use Planning and Technical Assistance Program (LUPTAP)	DCED	Polygons / Points	49 15 points 34 polygons	\$4,250	\$138,700	2011	LUPTAP – Points LUPTAP – Polygons
Neighborhood Assistance Program (NAP), NAP-Enterprise Zone Program (EZP), NPP, Comprehensive Services Program (CSP), SPP	DCED	Polygons / Points	327 190 points 137 polygons	\$1,250	\$1,624,706	2010	Neighborhood Assistance Program – Points Neighborhood Assistance Program – Polygons
New Communities - Elm Street	DCED	Polygons / Points	22 16 points 6 polygons	\$12,500	\$1,000,000	2010	New Communities: Elm Street – Points New Communities: Elm Street – Polygons
Pennsylvania Community Transportation Initiative (PCTI)	DVRPC	Points / Polylines	22 18 points 4 lines	\$27,000	\$3,500,000	2011	PennDOT PCTI – Points PennDOT PCTI – Lines
Transportation and Community Development Initiative (TCDI)	DVRPC	Polygons	100	\$8,000	\$187,500	2011	DVRPC TCDI - County Projects DVRPC TCDI - Philadelphia Projects
Take Me to the River grants	DVRPC	Points	13	\$25,000	\$125,000	2011	Take Me To The River Grants
Efficient Growth for Growing Suburbs (EGGS) grants	DVRPC	Polygons	8	\$12,616	\$100,000	2011	EGGS

Table 3: Affordable & Accessible Housing Datasets

Dataset	Source	Geography	Number of items	Smallest in region	Largest in region	Date updated in CI ²	Shapefile name
Community Development Block Grants (CDBG)	HUD	Polygons / Polylines / Points	1,249 1,059 points 48 lines 142 polygons	\$313	\$7,500,000	June 2011	HUD CDBG – Points HUD CDBG - Lines HUD CDBG – Polygons
Assisted Living Conversion Program	HUD	Points	2	\$2,043,664	\$2,820,717	2011	HUD Assisted Living Conversion
Communities of Opportunity	DCED	Polygons / Points	10 8 points 2 polygons	\$115,000	\$2,050,000	2011	Communities of Opportunity – Points Communities of Opportunity – Polygons
Federally-Assisted Housing Projects	HUD	Points	158	--	--	2011	Federally Assisted Housing Projects
HOPE VI (Revitalization and Demolition)	HUD	Points	9	\$511,000	\$34,800,000	2011	HUD Hope VI Grants
Housing and Redevelopment Assistance	HUD	Municipality / Points	26 24 points 2 polygons	\$30,000	\$2,000,000	2011	Housing Redevelopment Assistance – Points Housing Redevelopment Assistance – Polygons
Housing Opportunities for Persons with AIDS (HOPWA)	HUD	Points	2	\$741,268	\$1,339,000	2011	HUD HOPWA Grants
HUD Disaster Recovery	HUD	Municipality	2	\$250,000	\$275,000	2011	HUD Disaster Recovery
Low Income Housing Tax Credits	HUD	Points	575	--	--	2011	Low Income Housing Tax Credits

Dataset	Source	Geography	Number of items	Smallest in region	Largest in region	Date updated in CI ²	Shapefile name
Philadelphia Housing Trust Fund Awards (Includes Rental and Homeownership Projects)	Philadelphia Housing Trust Fund	Points	46	\$80,000	\$2,000,000	2011	Philadelphia Housing Trust Fund
Section 515 – Rural Rental Housing Loans	USDA	Points	11	--	--	2011	USDA 515
Section 202 -Supportive Housing for the Elderly	HUD	Polygon / Points	18 17 points 1 polygon	\$4,077,400	\$10,323,100	2011	HUD 202 – Points HUD 202 – Polygons
Section 811 -Supportive Housing for Persons with Disabilities	HUD	Points	20	\$639,600	\$2,175,400	2011	HUD 811

Note on HUD dataset inclusion: The CI² CDBG dataset reflects a subset of the total list of CDBG investments provided by HUD. Investments were filtered in the same way as for the other topic areas: the focus was on projects where direct, mappable investments were made, such as for construction and site or area planning. As for other programs, CDBG items were excluded if they were primarily funding administration costs, operating costs, and activities over dispersed geographies. The one exception made for CDBG projects was to include administration and operating costs for homeless shelters. Although these aren't "hard" costs, the benefits, activities, and services are mappable to the location of the shelter. Furthermore, unlike other housing construction, ongoing funding is needed to continue to provide this critical housing type. For all grants initially included, staff reviewed activity descriptions and other information to pull out a mappable location or area of investment wherever it was possible to do so.

Based on this process, projects with the following CDBG-eligible activity codes were mapped and kept as part of the CI² dataset:

- 1: Acquisition of property
- 2: Disposition
- 3: Public Facilities and Improvements (This is item had many subcategories; all were included [3A – 3S])
- 4: Clearance, Demolition, and Remediation
- 4A: Cleanup of Contaminated Sites

- 7:** Urban Renewal Completion
- 12:** Construction of Housing
- 14A:** Rehab; Single-unit Residential
- 14B:** Rehab; Multi-unit Residential
- 14C:** Public Housing Modernization
- 14D:** Rehab; Other than Public-owned Residential Buildings
- 14E:** Rehab; Public/Private-owned Commercial/Industrial
- 14F:** Energy Efficiency Improvements
- 14G:** Acquisition for Rehabilitation
- 16A:** Residential Historic Preservation
- 16B:** Non-residential Historic Preservation
- 17A:** Economic Development Acquisition by Recipient
- 17B:** Commercial/Industrial Infrastructure Development
- 17C:** Commercial/Industrial Acquisition, Construction, Rehabilitation
- 17D:** Other Commercial/Industrial Improvements
- 18A:** Economic Development Assistance to For-profits
- 20:** Planning – Entitlement Communities

Not all of the above codes are represented in the final dataset, since some codes were not present within the CI² study area; and some codes were present but removed due to one or more of the issues identified above.

Table 4: Community & Economic Development Datasets

Dataset	Source	Geography	Number of items	Smallest in region	Largest in region	Date updated in CI ²	Shapefile name
Brownfields Economic Development Initiative	HUD	Points	10	\$1,000,000	\$2,000,000	2010	Brownfield Economic Development
Community Economic Development Loan program	DCED	Municipality / Points	14 1 polygons 13 points	\$16,568	\$200,000	2011	Community Economic Development Loans – Points Community Economic Development Loans – Polygons
Growing Greener II – Downtown Development	DCED	Points	11	\$150,000	\$2,000,000	2011	Growing Greener: Downtown Development
New Communities – Anchor Buildings	DCED	Points	6	\$250,000	\$500,000	2011	New Communities: Anchor Buildings
New Communities – Enterprise Zones	DCED	Polygons / Points	16 15 polygons 1 point	\$50,000	\$200,000	2010	New Communities: EZ – Points New Communities: EZ – Polygons
New Communities - Main Street	DCED	Polygons / Points	53 47 polygons 6 points	\$20,000	\$1,200,000	2010	New Communities: Main Street – Points New Communities: Main Street – Polygons
PA Business in Our Sites	DCED	Municipality / Points	11	\$168,926	\$18,308,000	2011	PA Business In Our Sites
PA Employment and Community Conservation program (ECC)	DCED	Points	219	\$5,000	\$2,500,000	2011	PA Employment and Community Conservation
Section 108 Loan Program	HUD	Points	11	\$3,000,000	\$5,000,000	2011	HUD 108 Loans
Urban Development	DCED	Points	169	\$5,000	\$3,000,000	2011	PA DCED Urban Development

Table 5: Livability-Supportive Transportation Datasets (topic area 5)

Dataset	Source	Geography	Number of items	Smallest in region	Largest in region	Date updated in CI ²	Shapefile name
Transportation Investment Generating Economic Recovery (TIGER) grants	DVRPC	Polylines / Points	8 3 lines 5 points	\$1,000,000	\$15,000,000	2011	TIGER Grants – Lines TIGER Grants – Points
Identified livability-supportive projects in the DVRPC Transportation Improvement Program (TIP), falling into one or more of the following project and funding types: <ul style="list-style-type: none"> • Bicycle/Pedestrian • Streetscape • Transit • Home Town Streets / Safe Routes to School (HTS/SRTS) • Transportation, Community, and System Preservation (TCSP) • Transportation Enhancements (TE) • Congestion Management and Air Quality (CMAQ) 	DVPRC (TIP years 2001 – 2014)	Points / Polylines	1,494	\$12,000	\$446,150,000	2011	PA TIP: 2001-2004 – Lines PA TIP: 2001-2004 – Points PA TIP: 2003-2006 – Lines PA TIP: 2003-2006 – Points PA TIP: 2005-2008 – Lines PA TIP: 2005-2008 – Points PA TIP: 2007-2010 – Lines PA TIP: 2007-2010 – Points PA TIP: 2009-2012 – Lines PA TIP: 2009-2012 – Points PA TIP: 2011-2014 – Lines PA TIP: 2011-2014 – Points

Note on TIP dataset inclusion: included projects are limited to those that are mappable for TIP project sets from 2001 – 2014. Dollar values for TIP projects reflect the most updated estimates for the actual amount programmed and amount budgeted (for future years) over a project’s history, according to PennDOT records (by MPMS number). In some cases, programmed funds may not have been spent as anticipated, but their programming still reflects supportive project activity. TIP projects were included in this analysis if they were deemed to be “identified livability-supportive projects.” For this project, livability-supportive investments are those that support transportation choices other than driving. Projects included in the CI² mapping are those with at least one of the following funding types: Bicycle/Pedestrian, Streetscape, Transit, Home Town Streets/Safe Routes to School, TCSP (Transportation, Community, and System Preservation), TE (Transportation Enhancements), or CMAQ (Congestion Management and Air Quality). All “livability-supportive” TIP projects were grouped into one dataset, regardless of funding stream. In most cases, the individual funding streams are listed in the description for each item.

Table 6: Select Local Partners & Incentives (topic area 6)

Dataset	Source	Geography	Number of items	Date updated in CI ²	Shapefile name
Improvement Districts: <ul style="list-style-type: none"> • Business Improvement Districts (BIDs) • Neighborhood Improvement Districts (NIDs) • Special Improvement Districts (SIDs) • Special Services Districts (SSDs) 	PCPC	Polygons	33	2011	Improvement Districts
HUD Renewal Communities	HUD	Polygons	21	2010	HUD Renewal Communities
Keystone Innovation Zones (KIZs)	DCED	Polygons / Points	57 32 points 25 polygons	2010 - 2011	Keystone Innovation Zones – Points Keystone Innovation Zones – Polygons
Keystone Opportunity Zones (KOZs) Keystone Opportunity Expansion Zones (KOEZs) Keystone Opportunity Improvement Zones (KOIZs)	City of Philadelphia Revenue Department Montgomery County Dept. of Economic and Workforce Development	Polygons / Points	138 107 points 31 polygons	2011	Keystone Opportunity Zones – Points Keystone Opportunity Zones – Polygons
City of Philadelphia Redevelopment Authority (RDA) parcels	RDA	Polygons	2,764	2011	Philadelphia RDA Parcels
Philadelphia CDCs	PCPC	Polygons	32	2009	Philadelphia Community Development Corporations
Philadelphia Community Organizations	PCPC	Polygons	114	2010	Philadelphia Community Organizations
Philadelphia Empowerment Zones	PCPC	Polygons	2	2010	Empowerment Zones
Philadelphia Enterprise Zones	PCPC	Polygons	3	2010	Enterprise Zones
Philadelphia Neighborhood Advisory Committee (NACs)	PCPC	Polygons	8	2009	Philadelphia NACs

Table 7: Regionally-Scaled Datasets

Dataset	Related topic area	Source	Geography	Scoring treatment	Number of items	Date updated in CI ²	Shapefile name
Comprehensive plan freshness	Planning activity	Counties	Municipality	<5 years, 5-10 years, 10+ years	239	2011	Comprehensive Plan Age
Rail station areas, including TOD planning or development activity for 79 priority stations identified through DVRPC TOD inventory planning plus 6 bus hubs identified by SEPTA (33rd & Dauphin, 23rd & Venango, 61st & Pine, 5th & Godfrey, Ridge & Summit, Wycombe)	Planning activity	<ul style="list-style-type: none"> • <i>Regional TOD Inventory Volume 2 (2003)</i> – 31 stations profiled in PA; • <i>On-Track: Progress Toward TOD in the Del Valley (2007)</i> – 65 stations profiled in PA (roughly 17 stations appear in both publications); • <i>On-Track</i> update completed by smart growth staff in spring 2010; • Other web and publication sources 	¼ mile station buffer, ¼ mile bus hub buffer	Scores ranging from 0-6: 1. Station area present: Y/N 2. TOD plan in place (including TRIDs): Y/N 3. Proposed TOD: Y/N 4. Developer Interest: Y/N 5. Grant Received (including TRIDs): Y/N 6. Completed TOD: Y/N	228	2011	TOD Potential
2005 Transit Scores	Planning activity	DVRPC	TAZ	Low (1), marginal (2), medium (3), med-high (4), high (5)	1,875	2005	DVRPC 2005 Transit Score by TAZ
<i>Connections</i> Planning Areas	Planning activity	DVRPC	Municipality	Rural area (1), growing suburb (2), developed community (3), core city (4)	353	2009	DVRPC <i>Connections</i> Planning Areas
DVRPC Degrees of Disadvantage (DOD) mapping	Community & economic development	DVRPC	Census Tract	8 DOD score bins, 0-8	1,380	2000	DVRPC Degrees of Disadvantage

Dataset	Related topic area	Source	Geography	Scoring treatment	Number of items	Date updated in CI ²	Shapefile name
<p><i>Connectivity Score:</i> Summarizes the connectivity of a place's street network; commonly used as a proxy for walkability</p>	Transportation	DVRPC: Density of 3+ leg non-freeway intersections from TIM 2.0 network; intersections <100 ft. apart were combined	TAZ	<p>Connectivity Score: Intersection density (number of intersections per square mile) grouped into 5 quantiles and scored low (1) to high (5)</p> <p><i>Also included in the dataset:</i></p> <p>Intersection Count: Number of intersections with 3 or more legs in the TAZ</p>	3,370	2011	Connectivity Score by TAZ
<p><i>Transit Service Level:</i> Number of transit vehicle departures (bus plus rail) from a given TAZ each day</p>	Transportation	DVRPC: Scheduled transit service from TIM 2.0 network	TAZ	<p>24 hour Vehicle Volume: Total number of vehicles per weekday 24 hour period, grouped into 5 quantiles and scored none (1) to high (5)</p> <p><i>Also included in the dataset:</i></p> <p>Average Weekday Frequency (min): Average number of minutes between weekday transit vehicle departures (all modes)</p>	3,370	2011	Transit Service Levels by TAZ

Source glossary for tables 1-7:

DCED = Pennsylvania Department of Community & Economic Development

DCNR = Pennsylvania Department of Conservation & Natural Resources

DEP = Pennsylvania Department of Environmental Protection

DOE = United States Department of Energy

DVRPC = Delaware Valley Regional Planning Commission

EPA = United States Environmental Protection Agency

HUD = United States Department of Housing and Urban Development

PCPC = Philadelphia City Planning Commission

RDA = Philadelphia Redevelopment Authority

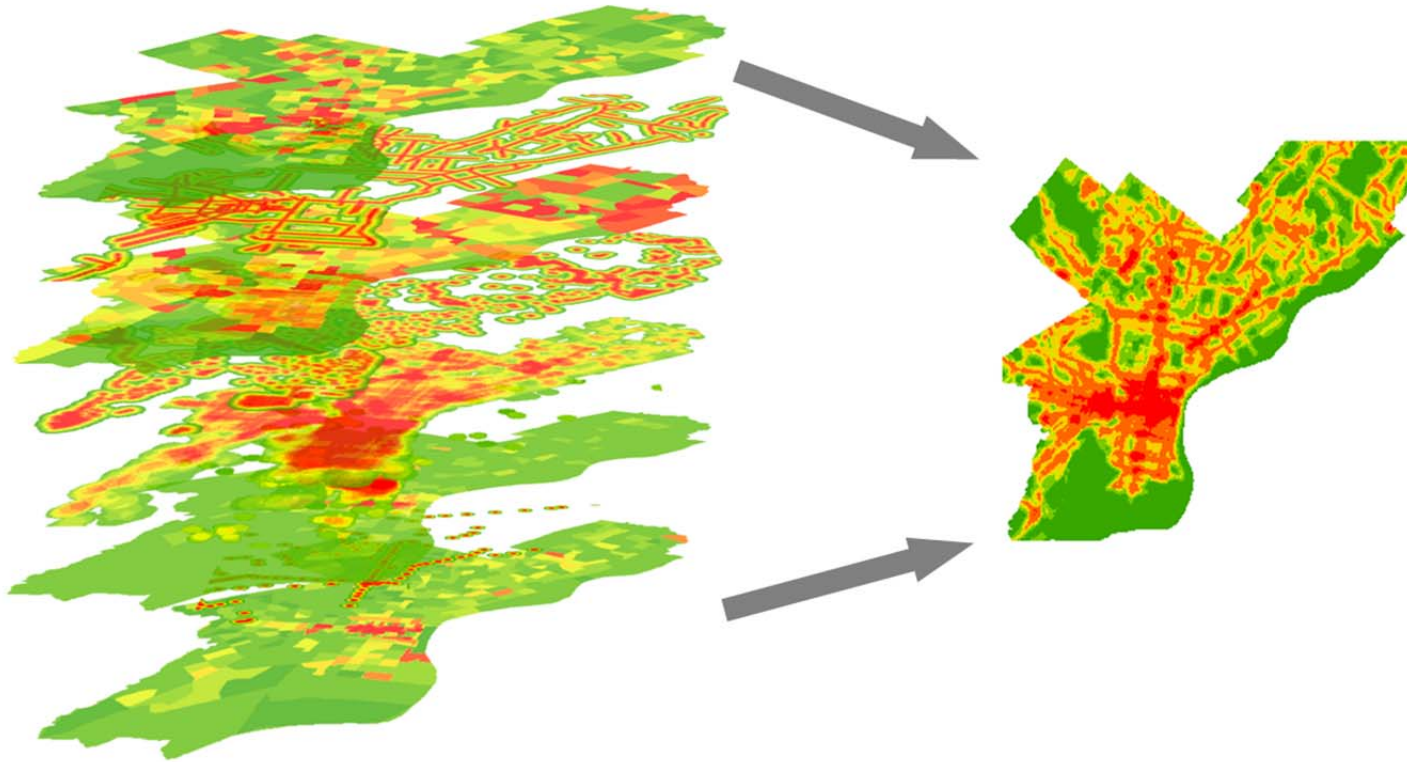
USDA = United States Department of Agriculture

USGBC = United States Green Building Council

Development of the composite topic area and CI^2 scoring datasets

The second major task in this project was to analyze the combined distribution of all of the above datasets across the Pennsylvania portion of the DVRPC region and to identify geographies where multiple positive indicators are concentrated. This analysis resulted in the composite **Community Investment Index (CI^2)**, as well as the composite heat maps for each topic area. The method for this task was to conduct a weighted sum raster analysis using ArcGIS software, which permits the aggregation of datasets from multiple geography types (points, lines, and polygons). Figure 1 (from DVRPC's recent work on the Philadelphia bike share study) illustrates the raster aggregation concept.

Figure 1: Illustration of weighted sum raster aggregation process



In developing the composite **Community Investment Index (CI²)**, the many assembled datasets were first combined for each topic area as described below.

Creation of topic area scoring datasets and the Community Investment Index (CI²)

All point, line, and polygon indicator datasets were first converted into individual raster datasets. This was done with a focus on the number and concentrations of investments or indicators, rather than their dollar value, in order to avoid unduly favoring large lump sum investments rather than concentrations of investment activity.

Points and lines were rasterized using a kernel density at a radius of 500 meters with a 10 meter grid. Polygons were converted into raster datasets based on the number of overlapping shapes. The resulting individual raster datasets were then reclassified into 5 quantiles, with scores ranging from 0 through 4. Each of the seven regional scaled/scored indicator datasets (comprehensive plan freshness, rail & bus hub TOD

potential, degrees of disadvantage, intersection density, transit service levels, Transit Scores, and *Connections* planning areas) was rasterized using the score classifications summarized in Table 7.

The next step was to aggregate these individual datasets into the scoring dataset for each topic area. This was accomplished using the weighted sum process, with each input dataset being assigned a weight of “1” within each topic area. Finally, in order to give each topic area equal weight in the final **Community Investment Index (CI²)**, each topic area scoring dataset was reclassified to have a score range from 1-10, with score bins being assigned based on geometric intervals.

The final **Community Investment Index (CI²)** was created by combining the seven topic area scoring datasets using the weighted sum process, with each topic area scoring dataset being assigned a weight of “1.”

In summary, this GIS process resulted in the creation of the following eight composite scoring datasets:

- ▶ CI² Environmental Score
- ▶ CI² Planning Activity Score
- ▶ CI² Housing Score
- ▶ CI² Community & Economic Development Score
- ▶ CI² Transportation Score
- ▶ CI² Special Local Partners & Incentives Score
- ▶ Community Investment Index (CI²)

Example mapping application

As noted in the introduction, the purpose of this project's mapping is to help planning partners and project sponsors understand how new project proposals can support—and be supported by—prior investments across a range of disciplines (or topic areas). For example, a proposal for a new transit facility or trail connection could be strengthened if it supports a recent investment in affordable housing or a brownfield redevelopment proposal.

Figure 2 illustrates an example for the use of this kind of mapping in support of a proposed project at 69th Street Transportation Center.

Figure 2: CI² mapping for 69th Street Transportation Center

