

# Appendix A: List of Indicators Considered

The following pages contain a list of all indicators considered for analysis as part of this report. Not all indicators received full analysis due to data limitations and/or applicability to the Highlands Regional Master Plan.



## Natural Resources

**Threatened and Endangered Species Habitat:** Threatened and endangered species segregated by habitat specialization.

**Acres of Forest Mortality:** Measures acres of Forest Mortality as compared to existing healthy forest.

**Acres of Parks and Protected Open Space per Capita:** Measures acres of parks and protected open space per capita for each municipality in the Highlands Region.

**Carbonate Rock Areas:** Change in land use (development) or preservation of carbonate rock areas, including analysis of building permit data:

- Distinguish between residential and non-residential uses in LULC analysis
- Add Tier 2 indicator analyzing ordinances regarding development in carbonate rock areas
- Add Tier 2 indicator tracking issuance of NJDEP Bureau of Surface Water Permits
- Refine Carbonate Rock Area to identify areas that have a high rate of dissolution

**Change in Population of Wildlife Not Using Core Habitat:** Measures change in wildlife population not using Core Habitat.

**Conservation Priority Areas:** Measures change in land use or preservation of Highlands Council ranked high priority areas for conservation.

**Constrained Slopes:** Measures change in land use or preservation of moderate and severely constrained slopes.

**Critical Wildlife Habitat:** Measures change in extent, preservation, or development of habitat types in Critical Wildlife Habitat areas, vernal pools, and Natural Heritage Priority Sites.

**Deer Patterns (Index):** Deer population in Deer Management Zones, deer browsing, deer harvest.

**Forest Area:** Measures change in land use or preservation of the total forested area, including conversion to agricultural lands.

**Forest Impacts:** Measures the change in total forest area, and development and preservation in core forest areas.

**Forest Integrity Index:** Measures quantifiable landscape level changes that impact forest quality/integrity. Individual indicators include: total forest acreage, core (interior) forest acreage/percent of core forest by HUC 14, area statistics for distance to forest edge, patch size distribution, proportion of total forest (3km search area) and forest integrity value class (all 183 HUC 14s).

**Forest Integrity Score :** Measures the change in total forest area, and development and preservation in core forest areas.

**Forest Resiliency:** Measures the change in total forest area, and development and preservation in core forest areas.

**Forest Resource Area:** Measure change in land use or preservation of the Forest Resource Area.

**Habitat Restoration:** Identifies the number and location of areas with habitat restoration plans or projects.

**Hydric Soils:** Measures change in land use or preservation of hydric soil areas.

**Invasive alien earthworm:** Destruction by invasive alien earthworms of the organic humus layer that nurtures native plant reestablishment.

**Invasive Species:** Identifies number and location of invasive species occurrences and eradications, including “invasive alien earthworms”.

**Land Acquisition Costs:** Cost of land acquisition for preservation.

**Native species regeneration:** Measures the regeneration of native flora and fauna throughout the Highlands Region.

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**Number and species of birds:** Changes in the numbers and species of birds counted in Christmas counts 2008-2014 in both Preservation Area and Planning Area, changes in the numbers of birds dependent upon early successional forests, edge forests counted in Christmas counts 2008-2014.

**Oak regeneration:** Estimated percentage of the above acreage with oak regeneration greater than 3' in height or ~10,000 feet/acre of aggregate oak regeneration height, thus serving as a proxy for deer damage to forest.

**Open Space Taxes:** Measures change in the rate and net value of open space taxes collected.

**Open Water Protection Areas:** Measures change in land use or preservation of Highlands Open Waters Protection Areas.

**Preserved Lands:** Measures change in total acreage of preserved open space lands.

**Priority Conservation:** Measures the change in development or preservation of the Special Environmental Zone, Conservation Priority Area, and Significant Natural Areas (Natural Heritage Priority).

**Recreation Land Use Patterns:** Qualitative information about the use patterns of state and federal recreation and conservation lands.

**Resilient Landscape Preservation:** Comparative analysis of OSI resilient landscapes to Highlands protection zone, and change in land use and preservation.

**Riparian Integrity Score:** Measures change in total forest area in riparian areas.

**Significant Natural Areas:** Measures change in land use or preservation of Significant Natural Areas.

**Soil impairment from pollution:** Measures acres of soil impairment due to pollution.

**Soil quality:** Measures soil quality throughout the Highlands Region.

**Special Environmental Zone:** Measures the change in development or preservation of the Special Environmental Zone, Conservation Priority Area, and Significant Natural Areas (Natural Heritage Priority).

**Urban and community forest cover within municipalities**

**Vernal Pools:** Measures change in land use or preservation of vernal pools and their buffers.

**Watershed Resource Value:** Measures change in watershed resource value score by HUC14 subwatershed.

**White-Tailed Deer:** Measures change in the number of deer.



## Water Resources

**Wellhead Protection Areas:** Measures change in number of wellhead protection areas, as well as land use or preservation in designated wellhead protection areas.

**Aquatic Invasive:** Measures change in the proliferation of aquatic invasive species.

**Change in Impervious Cover:** By watershed, may need to use LULC data as proxy.

**Conservation of Highlands water outside of Highlands:** Measures efforts to conserve Highlands water outside of the Highlands Region.

**Contaminated site remediation:** Identifies the number of contaminated sites that have been remediated since the Highlands Act was passed.

**Critical Water Resource Areas (Index):** Measures the change in land use and preservation within Wellhead Protection Areas and Open Water Protection areas regionally, as well as Prime Groundwater Recharge Areas by HUC14 subwatershed.

**Fish Consumption Advisories:** Measures change in the number and location of fish consumption advisories.

**Fish IBI Assessment:** Measures change in the Fish Index of Biotic Integrity assessment.

**Ground and Surface Water in Carbonate Rock Areas:** Ground and surface water monitoring in relation to carbonate rock areas of the Conservation Zone to establish agricultural pollutant baselines (especially nitrate), and should be repeated over time to establish trends to determine the impact of the educational and administrative efforts mentioned above.

**Groundwater Quality:** Measures change in ground water nitrate concentration by Land Use Capability Zone (LUCZ) and HUC14 subwatershed.

**Impervious Surface Cover:** Measures change in impervious surface coverage by HUC14 subwatershed.

**Net Water Availability:** Measures change in net water availability.

**Nitrate concentration:** Nitrate concentration, including identification of and changes in nitrogen source loads.

**Nitrogen mass balance:** Measures the amount of nitrogen currently held in biomass.

**Prime Groundwater Recharge Areas:** Measures change in land use or preservation in prime groundwater recharge areas.

**Private well contamination:** Measures change in the share of tested wells exceeding maximum contaminant levels (as proxy for groundwater quality).

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**Soil and/or groundwater depth:** Measures soil and / or groundwater depth throughout the Highlands Region.

**Streamflow:** Measures change in streamflow at flow gauging stations (where feasible).

**Surface Water Quality:** Measures change in designated use support status and impairment by HUC14 subwatershed.

**Water Deficits:** Change in land use or preservation in water deficit areas. Trends in water demand from water deficit areas.

**Water Resource Management:** Measures the number of Water Resource Management plans implemented in ARA.

**Water Supply added to Highlands Region:** Measures the volume of water imported into the Highlands region through interbasin transfers.

**Water Use:** Measures change in water withdrawal by HUC14 subwatershed for major use types, including agricultural, commercial, industrial, irrigation, mining, portable supply, and power generation.

**Waterbody Impairment:** Measures change in the level of water body impairment.

**Wetlands:** Measures change in land use or preservation of wetland areas and buffers.



## Water and Wastewater Utilities

**BOD5 Loading:** Measures points of BOD5 loading to each surface waterway from NJPDES permitted discharges.

**Domestic Sewerage Facilities Capacity and Demand:** Measures change in domestic wastewater sewerage facilities current available capacity and demand by facility.

**Ground Water Level:** Measures change in groundwater average annual depth to water level.

**Non-revenue water:** Measures amount of water lost in transmission, metering and operations. TAC added:

- Moved to Tier 2 indicator
- Perform analysis where demand in water deficits area are trending negative

**Number of Residences on Septic:** Number of residences using septic assumed without the Highlands Act.

**Public Community Water Systems Capacity and Demand:** Measures change in public community water systems firm capacity and demand by Public Water System Identification number (PWSID).

**Reservoirs:** Measures change in annual average reservoir levels.

**Septic System Failures:** Measures number and locations of septic system failures to identify hot spots that may need infrastructure up-grades.

**Stormwater Discharge:** Number of stormwater discharge pipes along each stream.

**Wastewater Existing Areas Served:** Measures change in extent of wastewater existing areas served (EAS).

**Water Supply Existing Areas Served:** Measures change in extent of water supply existing areas served (EAS).

**Water Use Efficiency:** Measures change in per capita and consumptive use of water.

### Agricultural Resources:

**Agricultural Labor:** Measures agriculture employment including labor intensive organic farms.

**Agricultural Activities:** Measures changes in the acreage of land used for various major agricultural activities (e.g., cropland, fruit, cattle, equine).

**Agricultural Economics Index:** Measures change in farm gross income, expenses, and net income, the market value of major agricultural products (e.g., cropland, fruit, cattle, and equine) and direct sales to consumers, the number of farms and income from agritourism or recreational services, the number and percentage of agriculture producers engaging in value-added activities, and farm loan defaults.

**Agricultural Employment Index:** Measures change in:

- Number of farmers
- Agricultural retail employment
- Number of farm labor worker

### Agricultural Land Use and Preservation Index:

Measures change in acreage of preserved farmland, share of total farmland that is preserved, acreage of preserved farmland by Land Use Capability Zone, and the change in land use or preservation of Moderate and High Priority Agriculture Resource Areas.

**Agricultural Product Value:** Measures change in the value of major agricultural products (e.g., cropland, fruit, cattle, equine).

**Agricultural Property Value:** Measures change in median per acre value of property sales for preserved and non-preserved farmland to compare agricultural property values for Preservation Area and Planning Area farms

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**Agricultural Value Added Production:** Measures change in net income from agricultural value added production.

**Agriculture Development Applications:** Measures annual number and location of applications for agriculture development projects.

**Agriculture Development Projects:** Measures annual number and location of approved agriculture development projects.

**Agriculture Priority Areas:** Measures change in land use or preservation in “high” value agriculture priority areas.

**Agriculture Resource Area:** Measures change in land use or preservation in the Highlands Agricultural Resource Area.

**Agriculture Retail-Based Employment:** Measures change in agricultural retail employment.

**Agritourism:** Agritourism: sales tax collected, money spent by visitors to farm markets, agriculture tourism venues.

**Agritourism income:** Measures change in gross income from agritourism activities.

**Direct Sales:** Number of farms making direct sales to public 2007 vs 2012.

**Economic Impact of Act:** Economic effects of Highlands agriculture sales (besides sales).

**Farm Characteristics Index:** Measures change in the number of farms, total and average acreage of farms, acreage of land used for various major agricultural activities, number, average age and primary occupation of farmers, farm tenure, number of farm labor workers, and agricultural retail and wholesale operation employment.

**Farm Housing Units:** Number of new farm housing units built.

**Farm Laborers:** Measures change in the number of farm labor workers.

**Farm Loans:** Number of Farm Credit loans since 2008 for business development, expansion etc.

**Farm Operator Age:** Measures change in the average age of principal farm operator.

**Farm Ownership and Tenancy:** Identifies trends in farm ownership tenancy, e.g. change in share of farms that are farmed by owner vs. farmed by tenant.

**Farmers’ Markets:** Number and location of farmers’ markets

**Farmland Assessed Acreage:** Measures change in total acreage of assessed farmland.

**Farmland Assessed Values:** Measures change in the assessed property value of farmland.

**Farm-to-School Programs:** Measures number and location of farm-to-school programs.

**Field crop production:** Measures change in acres of land in field crop production.

**Important Farmland Soils:** Measures the acres and location of important farmland soils in the Highlands Region, and the proportion that are currently used for agriculture purposes.

**Important Farmland Soils, Undeveloped:** Measures change in land use or preservation of important farmland soils.

**Managed Woodland:** Measures change in acres of farmland assessed non-appurtenant woodland.

**Number of Agritourism Initiatives:** Measures change in the number of agritourism initiatives undertaken by agriculture operators.

**Number of Farms:** Measures change in the number of farms.

**Number of Independent Agriculture Producers entering Value-Added Activities:** Measures change in the number or share of agriculture producers engaging in value-added activities.

**Preserved Farmland:** Measures change in acreage of preserved farmland by LUCZ.

**Preserved Farmland:** Measures change in acreage of preserved farmland.

**Right to Farm:** Measures change in the number and location of Right to Farm complaints.

**Share of Farmland that is Preserved:** Measures change in share of total farmland that is preserved.

**Small Farms:** Measures change in the number of farms smaller than SADC priority size by County.



## Historic, Cultural, Archaeological, and Scenic Resources

**Cultural Resource Inventory:** Measures change in development or preservation of scenic resources and critical vistas, open space, trails, and historic resources.

**Archaeological Grids:** Identifies the number and location of archaeological grids.

**Built Scenic Resource Inventory:** An inventory to catalog the scenic qualities of the built environment, similar to the existing scenic resources inventory.

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**Distribution of Recreational Capacity:** Measures recreational facilities per unit of population.

**Educational Institutions:** Identifies the number and location of educational institutions.

**Highlands Historic and Cultural Resource Inventory:**

- Update per SHPO inventory
- Change in resources listed in the Highlands Historic and Cultural Resources Inventory
- Change in protection status of historic and/or cultural resources within the Highlands Region
- Permanent protection of resources listed on the Highlands Historic and Cultural Resources Inventory
- Affirmative local development decisions relative to historic/cultural resources
- Highlands Consistency Review reports issued with a historic/cultural resource component
- Adoption of local regulations to protect historic/cultural resources

**Historic Districts:** Identifies the number and location of Historic Districts.

**Historic Properties:** Identifies properties listed or eligible for National or State Register of Historic Places.

**Historic Resource Inventory:** Identifies the number, location, and change in status of historic resources, as well as stewardship of public and non-profit owned historic resources (Index).

**Historic Resource Public Investment:** Tracks public investment in the preservation and rehabilitation of historic resources.

**Passive and Active Recreation:** Measures the proportion of recreational amenities that are passive vs. active.

**Performing and Visual Arts Facilities:** Identifies the number and location of Performing and Visual Arts Facilities.

**Recreational amenities:** Inventory of number and location of recreational amenities by type.

**Scenic Resources Inventory:** Identify scenic resources to add to the Scenic Resources Inventory.



## Transportation and Air Quality

**Accidents:** Measures change in the number and location of vehicular accidents.

**Adult Asthma Rates:** Measures change in the estimated share of adults with current asthma.

**Air Quality Conditions (Index):** Measures state of air quality conditions in region, including vehicle miles traveled vs. pollutant volume emitted from transportation sources

**Air Quality Index (AQI):** Measures change in the number of days annually that the Air Quality Index (AQI) exceeds the United States Environmental Protection Agency (EPA) National Ambient Air Quality Standards (NAAQS) for sensitive groups, and change in adult and childhood asthma rates.

**Alternative transit programs participation:** Measures change in the number of Highlands region employers participating in or offering programs such as carpools, vanpools and employer shuttles.

**Asthma Induced Emergency Department Visits:** Measures change in age-adjusted asthma induced emergency department visit rates per 100,000 residents.

**Bicycle Parking:** Identifies number and location of bicycle racks and amenities in the Highlands region.

**Bike and Pedestrian Infrastructure (Index):** Inventory of bicycle and pedestrian infrastructure in Highlands, including sidewalks, trails, shared lanes, bike lanes, and bike parking.

**Bikeable routes:** Identifies miles of bike lanes, shared lanes and bikeable routes.

**Carpooling:** Measures change in the share of Highlands resident workers who commute by carpooling.

**Childhood asthma rates:** Measures estimated change in share of children with current asthma.

**Commutation Patterns Index:** Measures change in commuting behavior, including travel mode, commute time, vehicle miles traveled (VMT), annual average daily traffic (AADT), origin and destination of commuting trips, total transit ridership, and park and ride usage.

**Commuting Patterns:** Measures change in the average commuting time and distance of resident workers who live in the Highlands Region.

**Commuting Patterns:** Measures change in the average time and distance for workers who work in the Highlands Region.

**Complete Streets:** Identifies number and location of municipalities and counties that have adopted Complete Streets policies.

**Freight Index:** Measures change in active freight rail miles, commercial and industrial land uses near freight rail lines and freight rail hubs, and jobs within freight rail hubs (and freight activity, if data available).

**Freight Miles:** Change in active vs. inactive freight miles. Proxy for freight demand in Highlands Region.



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**Freight Rail:** Measures change in tons of freight rail goods movement.

**Fuel consumption by land use and vehicles:** Measures fuel consumption by land use and vehicles.

**General Commuting Patterns:** An index of Census commuting patterns (including origin-destination) and public transportation ridership.

**Greenhouse Gas Emitters:** Measures change in the number of large facility greenhouse gas emitters.

**Large Greenhouse Gas Emitters (Index):** Measures number and location of greenhouse gas emitters in the Highlands Region, along with amount emitted.

**NJ TRANSIT bus ridership:** Measures change in median ridership of NJ TRANSIT bus lines that operate in the Highlands Region.

**NJ TRANSIT bus stops:** Measures change in the number of NJ TRANSIT bus stops.

**NJ TRANSIT rail ridership:** Measures change in average weekday rail boarding's at NJ TRANSIT rail stations in the Highlands Region.

**NJDOT Program Inventory (Index):** Measures change in NJDOT elements within the region: measurement of restrictions on road cover treatments and planting treatments in the road ROW which are non-toxic/non-contaminating especially where run-off is concerned. Work with NJDOT on salt-spreading restrictions due to groundwater contamination potential. Compare historic miles of available freight lines and identify where they intersect with business centers. Compare NJDOT Pedestrian Safety Study data with average pedestrian incident data in the region. Delta of circulation plan elements in the region that include pedestrian amenities between historic and current.

**Park and ride usage:** Usage of park and rides.

**Park and rides:** Identifies number and location of park and rides.

**Private bus routes:** Identifies number of private bus routes operating in the Highlands region. Alternatively, could be miles of bus routes.

**Private carrier bus ridership:** Measures change in the annual ridership of private bus lines that operate in the Highlands Region.

**Public Transportation Ridership and Usage (Index):** Measures change in ridership on and usage of bus, rail, shuttles, park and ride, etc. including: NJ TRANSIT rail, NJ TRANSIT bus, NJ TRANSIT and private carrier park and rides, County and TMA shuttles and private bus carriers.

**Share of commute by public transportation:** Measures change in the share of Highlands resident workers who commute by public transportation.

**Share of commute by walking or biking:** Measures change in the share of Highlands resident workers who commute by walking or biking.

**Share of people within walking distance of key destinations:** Share of people within walking distance of key destinations (employment centers, schools, parks and recreation areas, and transit service).

**Share of population living within 1/4 mile of bike lane or trail:** Measures the share of Highlands population living within 1/4 mile of a bike lane or trail.

**Share of population served by transit:** Measures the share of the Highlands population served by transit.

**Shuttle/community transit ridership:** Measures change in ridership of county- and TMA-operated and other community transit shuttles within the Highlands Region.

**Total GhG Emissions from Large Facilities:** Measures change in total greenhouse gas emissions of large facilities.

**Transit Land Area Activity:** Measures change in land use, population density, jobs, and construction activity in transit lands areas.

**Transportation System Baseline/Index:** Update of the 2008 Transportation System Preservation and Enhancement report with the following indicators/datasets: Census origin and destination info, roadway miles by county, trip length, LOS/congestion analysis, air quality emissions estimates, etc. Reassess air quality conformity analysis utilizing NJTPA and EPA estimates. Final report should point out changes, if any, and provide brief analysis as to the potential impacts (positive or negative) of those changes.

**Vehicle miles traveled per person:** Measures change in the annual vehicle miles traveled per person.

**Vehicle Miles Traveled vs. Pollutant Volumes:** Review the Roadway Capacity Assessment to determine VMT (vehicle miles traveled) and then to apply it to transportation-related emission estimates for the following pollutants: Ozone (Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOX)), Carbon Monoxide (CO) and Particulate Matter (PM) 2.5.

**Volume/Annual Average Daily Traffic:** Measures changes in annual average daily traffic estimates.

**Walkability:** Identifies the number of block groups ranked as very walkable or walker's paradise per the Walkscore.



## Future Land Use

**Affordable Housing:** Measures change in the number of affordable housing units by LUCZ.

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**Broadband Accessibility:** Measures access to high speed broadband internet.

**Broadband and Fiber Optic Infrastructure:** Measures broadband internet and fiber optic service area.

**Brownfield Redevelopment Sites:** Identifies known brownfield redevelopment areas.

**Building Permits:** Identifies the number of building permits issued by LUCZ.

**Density of New Residential Development:** Measures the density of new residential development.

**Development Trends:** Measures change in share of new development in water and sewer existing service areas compared to non-service areas, LUCZ, centers, redevelopment areas.

**Existing Community Zone:** Development by land use in ECZ:

- Building Permit Data
- Jobs created
- Change in assessed values

**Fiber Optic Infrastructure:** Identifies extent of fiber optic infrastructure.

**Home improvements permitted:** Number of existing Home Improvements permitted.

**Housing Occupancy:** Measures change in the proportion of renter- to owner-occupied housing units.

**Impervious Cover:** Measures change in impervious cover, by LUCZ, centers, redevelopment areas.

**Known Contaminated Sites:** Measures change in the number, location and status of known contaminated sites.

**Land Consumption:** Measures change in the ratio of developed to undeveloped land according to Highlands Land Use Capability Zone and Highlands Designated Centers.

**Land Use:** Measure change in total acres and percent by land use type (developed, agriculture, water/wetlands, forest, barren), as well as a transition matrix of the change from one category to another, by LUCZ, centers, redevelopment areas.

**Land Use Capability Zone Development:** Measures change in developed land, new residential development density, certificates of occupancy, employment, and population growth, distribution and density according to Land Use Capability Zone, Highlands Designated Centers, and Highlands Redevelopment Areas.

**Non-residential Vacancies:** Measures change in the amount (square feet) of vacant commercial, office and industrial space.

**Planned Growth:** Measures change in population and employment in the existing community zone and centers.

**Population Density:** Measures change in population density, by LUCZ, centers, redevelopment areas.

**Population Growth and Distribution:** Measures change in population growth and distribution, by LUCZ, centers, and redevelopment areas.

**Public Service Index:** Number and per capita ratio of key public service systems including capital investments, education, police, hospitals, and fire and ambulance.

**Redevelopment Areas:** Identifies areas in need of redevelopment and rehabilitation, and the number of building permits issued by redevelopment area by LUCZ.

**School enrollment:** Measure change in school enrollment.

**Septic Yield:** Measures changes in land use or preservation in low septic system yield areas, by LUCZ, centers, redevelopment areas.

**Sewer Service Areas:** Measures development patterns within approved Sewer Service Areas (SSAs) by analyzing change in developed land, population density, and certificates of occupancy.

**Subdivision Trends:** Measure change in subdivisions trends of large parcels.

**Urban Land Cover:** Measures change in the amount of urban land cover.

**Zoning Change:** Identifies zoning changes in conforming municipalities.



## Landowner Equity

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**Agricultural Easement Values:** Measures change in appraisal values of agricultural easements.

**Appraisals based on pre-Act zoning:** Number of landowners who have had appraisals based on pre-Act conditions versus current conditions.

**Cost of Land Preservation:** Measures the cost of land being preserved for in the Preservation and Planning Areas and how it compares to pre-Act acquisitions.

**Exemptions:** Identifies the number and location of Highlands exemptions.

**HDC Allocation:** Tracks HDC allocations, as well as number and minimum value of eligible HDCs.

**HDC Funding Availability:** Tracks sources and value of funding for HDC acquisition.

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**HDC Incentive Mechanisms:** Number of incentive mechanisms

**HDC Receiving Areas:** Tracks eligible and designated HDC receiving areas, as well as the location, expenditures and status of Highlands TDR Feasibility Grants.

**HDC Transfers Due to Density Increase:** Number of HDCs transferred due to density increases.

**HDC Value:** Value of HDCs.

**Highland Development Credit Values:** Measures median values of HDCs.

**Highlands Development Credits Transactions (formerly Bank Operation and Credits Purchased):** Measures the number and status of applications for purchase of Highlands Development Credits (HDCs) to the Highlands Development Credit Bank, as well as HDC Bank and private HDC transactions.

**Land Sales in Preservation Area:** Measures change in the number and value of land sales in the Preservation Area.

**Landowner Payment for Ecological Services:** Number of landowners paid for the ecological services their preserved property will produce for the public (dollars calculated like similar formula in the Pinelands found on the SADC website).

**Loss of equity caused by nitrate dilution model used in setting septic densities:** Analyze the loss of equity caused by using the unscientifically derived nitrate dilution model to set septic densities in Preservation and Planning Area communities. Compare to numbers derived from more scientifically supportable numbers in the formula.

**Opportunities to Recapture Land Value Equity:** Measures the number of opportunities to recapture land value equity.

**Subdivision Permits to qualify for Exemptions 1 or 2:** Number of landowners permitted to subdivide their land in order to qualify for Exemptions 1 or 2.

**TDR Sending Zones:** Areas from which TDR can be transferred.

**Waivers:** Identifies the number and location of Highlands waivers.

**Sustainable Economic Development:**

**Appraised value of Green Acres acquisitions:** Measures change in appraisal values of Green Acres acquisitions

**Assessed Property Value:** Measures change in assessed property values, by planning/preservation area.

**Business Establishments:** Measures change in the number of business establishments.

**Business Profile Index:** An index that measures change in employment by industry, median wage by industry, non-residential vacancy rates, net absorption, rental rates, and construction completions and value, per-capita retail sales, as well as the number of business establishments and sole proprietorships.

**Community Character Index:** Rating system for overall community character, including open space, vacant buildings, evidence of community development, non-code compliant buildings, etc.

**Entrepreneurship:** Measures change in the number of sole proprietor businesses.

**Equalized Property Value:** Measures change in equalized property value, by planning/preservation area.

**Estimated Construction Expenditures:** Measures change in estimated cost of construction authorized by building permits.

**Home Sales:** Measures change in median home sale prices.

**Housing Health Index:** Determines the health of the residential housing market by analyzing construction data, equalized value, number of home sales, months of housing supply, foreclosures, and vacancy rates.

**Housing Profile Index:** An index that measures change in:

- Vacancy rates
- Foreclosures
- Median home sales

**Labor Force Characteristics:** Measures change in labor force characteristics, including age, race, gender, and educational attainment.

**Lodging and prices:** Provides an overview of lodging options and price ranges.

**Non-residential Lease Rates:** Measures change in non-residential lease rates.

**Population Characteristics:** Measures change in population profiles and characteristics, including age, income, households, race and ethnicity, etc.

**Resident Profile Index:** An index that measures change in median household income, median disposable income, wages earned as a percent of population, resident unemployment rate, acres of open space per capita, as well as general demographic information including population, age distribution, household formation, and county-to-county migration.

**Residential Real Estate Transactions:** Measure change in the annual number of residential real estate transactions.

**Seasonal Employment:** Measures change in propensity for seasonal employment by industry.



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**Seasonal Housing Conversion:** Measures change in the gross number of housing units converted to year-round from seasonal, or to seasonal from year-round.

**Tourism Profile Index:** An index that measures change in the number of tourism related establishments, number of employees of tourism related establishments, median tourism-related wage, and seasonal employment by industry.

**Tourist Visits:** Measures change in the number of tourist visits.

**Wages:** Measures change in the breakdown of wages earned as percent of population.



## Implementation

**Acquisition:** How many Highlands landowners have approached the Green Acres, SADC or TDR programs to discuss acquisition? Of those landowners, how many finalized an agreement, how many are working to finalize an agreement, and how many have been turned away by the state? How long does the process take on average from the time a Highlands landowner expresses interest in selling or putting an easement on his land until the deal is finalized?

**Agriculture Conservation Plans:** Measures number of adopted Farm Conservation and Resource System Management Plans, including the number of acres affected.

**Agriculture Impervious Cover:** Participation in incentive program for 5% maximum impervious cover on agricultural land.

**Best Management Practices Implementation:** Number and location of BMP implementation projects.

**BMP Retrofits and Repair Projects:** Number and location of BMP retrofits and repair projects.

- Cash Flow Timetable:
- Dollars spent/encumbered in the Highlands planning grants
- Dollars awarded as part of the Highlands Property Tax Stabilization Aid
- Dollars awarded as part of the Watershed Moratorium Offset Aid
- Dollars associated with other State Aid funding in Highland Region municipalities and counties
- Dollars spent on preservation (fee simple and easements) in the Highlands Region

**Circulation Plans:** Adoption of circulation plans.

**Cluster Development:** Number of cluster provisions adopted and number of applications that have implemented cluster provisions.

**Community Design Plans:** Number of Municipal and county community design plans adopted.

**Community Facilities Plans:** Number of community facility plans adopted.

**Community Forestry Management Plans:** Identifies the number and location of Community Forestry Management Plans.

**County Plan Conformance:** A matrix of county Plan Conformance components and the current status of municipal completion, including for example, adoption of Highlands master plan element and zoning amendments

**Critical Wildlife Habitat Stewardship:** Measures quantity, location and quality of critical wildlife habitat stewardship activities.

**Economic Development Initiatives:** Economic development initiatives available for Highlands communities (number of initiatives/frequency of pursuit).

- Recognition of Highlands Council as an economic development advocate (survey local communities).
- Number of designated Highlands Redevelopment Areas.

**Economic Development Support:** Total dollars spent w/in Region by State and Federal programs targeted toward economic development:

- Economic Redevelopment and Growth (ERG) Program
- Grow NJ
- Federal EDA Economic Development Assistance Programs

**Education about Wellhead Protection Areas:** # people educated about WHPAs and protecting GW quality.

**Education around Protecting Water Resources:** Number of people educated about the importance of water quality and methods for protecting water resources.

**Enforcement:** Measures the quantity of enforcement actions and penalties related to anti-dumping efforts.

**Enforcement - Wetlands and Highlands Act:** Measures the quantity of enforcement actions and penalties related to wetland permit conditions and Highlands Act violations.

**Environmental Literacy:** Identifies number and participation levels in programs to educate the public about the importance of natural systems in the Highlands Region, including those by organizations other than the Highlands Council.

**Appendix A: List of Indicators Considered**

**Fair Share Plans (Affordable Housing):** Measures the number and status of Fair Share Plans and court petitions, as well as the number of planned and existing affordable housing units.

**Farmland Preservation Planning:** Identifies municipalities and counties that have Comprehensive Farmland Preservation Plans, year of last up-date, and PIG status.

**Farmland Preservation Planning:** Identifies counties that have Comprehensive Farmland Preservation Plans.

**Farmland Preservation Planning:** Identifies county and municipally adopted Comprehensive Farmland Preservation Plans, and the number of Agriculture Development Area (ADA), eligible farm, and preserved acres.

**Forest Stewardship Planning:** Monitors quantity, quality and location of forest stewardship plans in the Highlands Region.

**Highlands Council Grants:** The grant programs developed and in operation, and the amounts awarded, expended, and remaining for the various Highlands Council grant programs.

**Highlands Educational Programs:** Identifies educational programs developed or implemented by NJHC.

**Highlands Project Review:** Record of projects reviewed by the Highlands Council and decisions.

**Historic & Scenic Resources - Plan Conformance:**

- Municipal and county scenic resource assessments in the Highlands Region
- Municipal ordinances which regulate scenic resource impacts
- Highlands project reviews (consistency reports) which address scenic resources
- Adoption of scenic resource management plans
- Adoption of municipal scenic resource protection ordinance
- Adoption of county scenic resource protection standards/guidelines
- Municipal Historic, Cultural, and Scenic Resource Protection Element adopted as part of the municipal master plan
- County Historic, Cultural, and Scenic Resource Protection plan
- Adoption of municipal historic preservation ordinance
- Adoption of county historic preservation standards/guideline

**Historic Investment:**

- Public dollars dedicated to scenic resource protection
- Public dollars dedicated to resource protection of all Highlands resources

**Housing:** Creation of comprehensive approach to housing needs.

**Inter-Agency Coordination:** Summary of inter-agency coordination activities between the Highlands Council and other agencies.

**Lake Management:** The number of lakes in the Highlands Region for which lake management plans have been developed, funded and implemented. Land Preservation and Protection in Lake Management Area. Regulations and Documents adopted.

**Local Participation:** The number of meetings the Highlands Council has held for public outreach by municipality.

**Low Impact Development Projects:** Number of low impact projects implemented for new construction, redevelopment, or retrofit.

**LUCZ Map:** Number of Map Adjustments

**Number of updates to parcel based Development Lands Inventory (through plan conformance)**

**Mitigation Projects:** Number and type of mitigation projects approved in deficit areas.

**Municipal Adoption of Stormwater Ordinance with added Highlands Protections:** Measures the number of adopted stormwater ordinances with added Highlands protections

**Municipal Plan Conformance:** A matrix of municipal Plan Conformance components and the current status of municipal completion, including for example, adoption of Highlands master plan element and zoning amendments

**Municipalities with Interim Checklist Ordinance:** Identifies the location and number of municipalities with an interim checklist ordinance.

**NRCS Program Participation:** Measures Highlands agricultural landowner participation in resource management programs, e.g. CREP, EQIP.

**Outreach to municipalities:** Matrix of type and number of outreach efforts to municipalities.

**Pedestrian Safety Studies:** Number, location and quality of pedestrian safety studies to help determine walkability of community.

**Plan conformance ordinance training:** Identifies number and location of plan conformance ordinance training efforts.

**Plan Conformance:** Business:

- Municipal ordinances that allow home office and live-work units as a permitted use in a residential zone.
- Incubator initiative.

**Appendix A: List of Indicators Considered**

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**Plan Conformance:** Economic Development:

- Number of Sustainable Economic Development Plans prepared and adopted by municipal/county government
- Implementation strategies accomplished

**Preservation Area Highlands Development:** Number of NJDEP Highlands permit project reviews/approvals

**Projects with Conditional Water Availability Allocated:** Number of projects with conditional water availability allocated.

**Public Infrastructure Investment:** Measures the amount of public infrastructure investment by the New Jersey Environmental Infrastructure Trust in the Highlands Region.

**Regional Stormwater Plans:** Number and location of regional stormwater plans (ex: Troy Brook)

**Remediation Projects:** Number and status of remediation projects in the Highlands Region (NFAs granted)

**Research Initiatives:** Development and implementation of research initiatives needed to further resource planning and management.

**Right to Farm Ordinances:** Measures change in the number of agricultural municipalities that have adopted Right to Farm ordinances.

**RMP Update Applications:** Measures number of RMP Update applications and number processed.

**RMP Updates and Map Adjustments:** Record of updates and map adjustments implemented since the 2008 Regional Master Plan.

**Safe Routes to School:** Identifies number and location of Safe Routes to Schools (SRTS) program initiatives.

**Significant Natural Areas Stewardship:** Identifies number and location of stewardship activities in Significant Natural Areas.

**Stormwater Plans & Controls Implemented:** Measures the number of stormwater plans implemented.

**Tourism Programs:** Local, county, state or national initiatives that support tourism, including local ordinances, agritourism programs, and support from the National Park Service.

**Tourism Programs:** Active programs which advocate, facilitate and support tourism in the Highlands Region.

**Transit Oriented Development:** Identifies transit-friendly and transit-oriented plans and projects, and Transit Village participation.

**Transit-friendly planning:** Identifies number and location of municipalities participating in NJ Transit's transit-friendly planning initiatives, including the Transit Village program and other assistance programs.

**Violations and Discharges:** Number of violations and discharges associated with Highlands lands.

**Wastewater Management Planning:** The status of wastewater management plans for municipalities petitioning for plan conformance for the whole municipality.

**Water Protection Ordinances:** Identifies number and location of water protection ordinances.

**Water Use and Conservation Management Plans:** Number of WUCMPs in place.

**Water Use Waivers:** Number and types of water use waivers granted.

**Watershed-Based Management Plans:** Watershed-based management plans and project ID/implementation.

**Wellhead Protection Area Ordinances:** Adoption of ordinances related to WHPAs.