

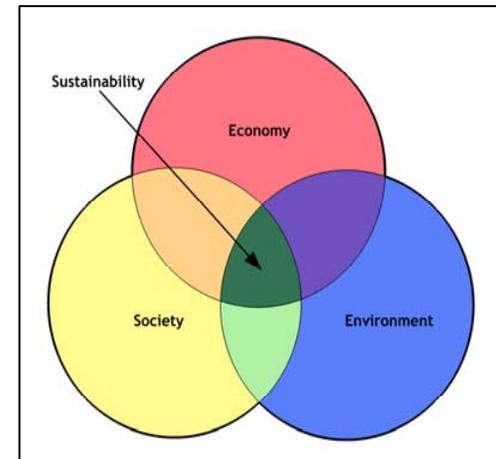
COMMUNITY SUSTAINABILITY: RAPID ASSESSMENT for WARWICK TOWNSHIP, LANCASTER COUNTY

Final, 12/18/09

Overview. Between September and December of 2009, staff from the Brandywine Conservancy's Environmental Management Center (EMC) conducted a rapid assessment of Warwick Township's ordinances, plans, and policies (collectively, the "framework") as these pertain to community sustainability. Using the rapid assessment approach allowed EMC staff to investigate Warwick's broad and complex framework given limited time and resources, while yielding clear recommendations for future action.

It may also be helpful to define the term "sustainability" (or "sustain" plus "ability"). Sustainability is widely accepted to refer to: *an approach that meets the current needs of a population while not compromising the needs of future populations.* For example, applying this definition to the water resources component of Warwick's environmental framework would mean an approach which *Insures that the Township's aquifers are not depleted over time by: monitoring and managing water withdrawals; enacting water conservation policies and regulations; and/or, incentivizing groundwater recharge in wastewater and stormwater disposal situations.*

Sustainability is often represented by the graphic shown here, at the intersection among environmental, societal, and economic issues – in Warwick's case, at the municipal level; within its broad regulatory, planning, and policy-making framework; and, applied to environmental matters. Accordingly, EMC staff evaluated the Township's efforts principally within this environmental circle – i.e., how Warwick is achieving the land use, ecological, and other directly related aspects of sustainability as contained in Township regulations, plans, and strategies. Specifically, we evaluated the following aspects of sustainability: Natural Resource Protection; Water Quality and Quantity; Land Use and Community Character; Climate Change; Alternative Energy and Energy Conservation; Mobility and Transportation; Community Health and Safety; and, Food Production and Security. Given the rapid assessment's focus on ordinances, plans, and policies, we did not evaluate any of the Township's operations as they relate to sustainability (e.g., municipal vehicle types and fuels used; procurement of supplies). Nor did we address the major components of the societal and economic circles (e.g., local economies), since the Township does not have nearly as much control over, nor affect on, these issues when compared with its roles within sustainability's environmental circle.





Methodology. EMC staff attended three meetings in support of the rapid assessment; the first two were held at the start of the process to gather information and perspective on September 2nd and 14th, 2009. The final meeting was held on November 12th, 2009 to review the draft of this document prior to its finalization; present at all three meetings were a combination of Township staff, Township consultants, EMC staff, and Lancaster County Planning Commission staff . Extensive research and analysis was conducted to perform the actual assessment, using either the electronic or paper versions of the following documents:

- ✓ Warwick Township Ordinances, Chapter 270: Stormwater Management (2007)
- ✓ Warwick Township Ordinances, Chapter 285: Subdivision and Land Development (2007)
- ✓ Warwick Township Ordinances, Chapter 340: Zoning (2009)
- ✓ Lititz Borough and Warwick Township Joint Act 537 Sewage Facilities Plan Update (2007) *[Note, referred to herein as the "Act 537 Plan"]*
- ✓ Lititz Run Watershed: A Community Improving Its Water Quality (1999) *[Note, referred to herein as the "Lititz Run Watershed Plan" and abbreviated as "LRWP"]*
- ✓ Lititz Run Watershed Water Quality map (2009)
- ✓ Lititz Warwick Joint Strategic Comprehensive Plan Update (2006) *[Note, abbreviated herein as "LWJSCP"]*
- ✓ Lower Susquehanna River Basin Comprehensive Water Management Study and related planning documents (2003 and earlier)
- ✓ Northern Lancaster Groundwater Study (2005)
- ✓ Official Map, Warwick Township, Lancaster County (2008)
- ✓ Warwick-Ephrata Rail Trail Feasibility Study (2006) *[Note, referred to herein as the "Rail Trail Study"]*
- ✓ Warwick Historic Resources Survey Report/Warwick Historical Survey: Warwick and Elizabeth Townships; Lititz Borough (2008) *[Note, referred to herein as the "Historic Resources Survey"]*
- ✓ Warwick Region Comprehensive Recreation, Park, and Open Space Plan: Warwick and Elizabeth Townships; Lititz Borough (2002) *[Note, referred to herein as the "Open Space Plan "]*
- ✓ Warwick Township, Primary and Secondary Conservation Corridor Delineation map (2002)
- ✓ Warwick Township, Zoning Map (2008)

The Township also provided the following documents that EMC staff determined were not directly applicable to the rapid assessment of community sustainability:

- ✓ Energy Audits: Township administration and police buildings, with summary; Lititz library; Lititz recreation center (2009)
- ✓ Penn Township Cluster Ordinance with LEED [Leadership in Energy and Environmental Design] Standards (2009, draft)
- ✓ Warwick Emergency Services Alliance Strategic Plan (2009)

Results and Recommendations. The results of the rapid assessment of Warwick’s efforts are provided in the charts that start on this page. These charts are organized according to the issues evaluated (e.g., natural resources, community health and safety, etc., as previously identified), while the symbols “+” and “x” are used to indicate the strengths and weaknesses, respectively, of the Township’s current regulations, plans, and policies within sustainability’s environmental circle. For the same criteria, the letter “n” is used to note a neutral, or adequate, evaluation; i.e., the Township’s efforts are neither significantly strong nor notably weak. To consider improvements to noted gaps, each chart is followed by recommendations developed through consultation with Township staff, EMC staff expertise, and/or EMC staff knowledge of other municipal successes.

Each recommendation is characterized in two ways; first, according to its implementation priority as determined by EMC and Township staff – i.e., short-term (**ST**-within the next two years); long-term (**LT**-beyond two years); and/or **Ongoing** (recommendations currently underway, should continue as such). This is not to say that we discourage the continuation of the Township’s many other current, notable, and successful contributions to sustainability – refer to the “Conclusions and Summary” section of this assessment on page 21.) The second characterization is whether the recommendation removes obstacles to, creates incentives for, or sets standards for achieving sustainability. It is notable that there are a number of recommendations that could fit under more than one of these latter three categories. For example, “Land Use and Community Character” includes a recommendation to develop incentives for greater residential growth in Warwick’s villages – while this recommendation was placed under the “Create Incentives” category, regulations will be needed to create the actual incentives. Finally, a clear vision for Warwick’s sustainable future, already under development by the Board of Supervisors and staff, should directly inform prioritization, implementation, and/or continuation of any of these recommendations along with broad participation from other Township officials, residents, businesses, and other key stakeholders.

+++++

Natural Resource Protection

<i>Key Ordinance Short-Cuts</i>	<i>Key Zoning District Abbreviations (from Zoning Map, 11/08)</i>		<i>Q: Quarry Zone (§340.20)</i>
<i>Ch. 270: Stormwater Management</i>	<i>A: Agricultural Zone (§340.11)</i>	<i>I-1: Industrial Zone (§340.18)</i>	<i>R-1: Residential Zone (§340.14)</i>
<i>Ch. 285: Subdivision/Land Development</i>	<i>C: Conservation Zone (§340.13)</i>	<i>I-2: Campus Industrial Zone (§340.19)</i>	<i>R-2: Residential Zone (§340.15)</i>
<i>Ch. 340: Zoning</i>	<i>CC: Community Commercial Zone (§340.17)</i>	<i>MU: Mixed Use Zone (§340.16)</i>	<i>RE: Rural/Estate Residential Zone (§340.12)</i>

Protect: floodplains	<p>§340-22 (Floodplain Zone (overlay)): + includes alluvial soils</p> <ul style="list-style-type: none"> + excludes structures + allows stream restoration, by-right + prohibits expansion of existing structures n disturbance/certain improvements allowed
----------------------	---

Protect: riparian buffers	<p>§270-15: + and x 35' riparian buffer easement required; riparian buffer is not defined nor is a wider extent provided</p> <p>+ prohibits new discharges in riparian buffer easement</p> <p>+ requires planting with native species</p> <p>Other: + Lititz Run Watershed Alliance exists and is active</p> <p>+ LRWP: riparian buffers are secondary conservation areas</p> <p>+ LRWP recommendations address riparian buffer protection/restoration</p>
Protect: woodlands	<p>§340-13: + 80% of woodlands must be maintained/replaced in Conservation Zone</p> <p>x but not in all zoning districts; protection of existing vegetation is also required, which could be invasive; similarly §270-34 requires that only 15% of pre-existing wooded areas must be retained (could be invasive or of poor ecological function) or replaced</p> <p>+ new plantings must be native</p> <p>LRWP: + woodlands are secondary conservation areas</p> <p>x but no recommendation to protect/manage them other than forested riparian buffers</p>
Protect: prime agricultural soils	<p>§340-11: + protects prime agricultural soils (purpose)</p> <p>+ only very low residential density permitted</p> <p>+ sending area for transferable development rights (TDRs)</p> <p>LRWP: + recommends protection of prime/statewide important agricultural soils</p> <p>LWJSCP: + Directs growth away from agricultural resources</p>
Protect: wetlands	<p>§340-64 (conservation cluster): + provisions applicable to Conservation Zone, requires minimal disturbance to wetlands in conservation cluster, with inclusion in common open space where possible</p> <p>n PA Department of Environmental Protection (PADEP) regulations are followed within the Township; wetland protection buffer not established by ordinance</p>
Protect: steep slopes	<p>§340-64: + provisions applicable to Conservation Zone, requires minimal disturbance to slopes >15% in conservation cluster, with inclusion in common open space where possible</p> <p>x no other apparent steep slope protection, although Township staff note that limits on slopes >25% are under consideration, >15% limits already rejected.</p>
Protect: rare species	<p>LRWP: + Primary Conservation Corridor criteria includes endangered/threatened species</p>

<p>Identify, map and protect greenways</p>	<p>“Primary and Secondary Conservation Corridor Delineation” map: + taken from the LRWP, designates primary- and secondary-level natural resources (e.g., primary are floodplains, wetlands, wildlife habitat, historic sites) x but no clear connection on a corridor/linear basis, including habitat nodes formed by forested interiors and other key natural resources n while protection and restoration mechanisms are formally undefined, Township staff commonly request and secure primary and secondary conservation corridor protection through revisions to land development plans Open Space Plan: + contains recommendations for “Parkland Development and Open Space Conservation” that are consistent with LRWP and other guides</p>
--	--

Natural Resource Protection Recommendations

Remove Obstacles

- ✓ Identify, map, and set protection and restoration priorities, Township-wide, for key natural resources and open spaces such as wetlands and wetland margins, riparian buffers (as defined by recommended ordinance revisions, see below), and greenways with a particular focus on woodlands and forested interiors, as well as for homeowners association common open space lands **ST**
- ✓ Modify Chapters 270, 285, and 340 to include a clear definition of riparian buffers **ST**

Create Incentives

- ✓ Allow off-site woodland replacement or restoration if development sites, especially within the Urban Growth Boundary (UGB), cannot accommodate it **LT**
- ✓ Provide pro-bono support to homeowner’s associations seeking to encourage and revise/update common open space maintenance plans (established through cluster and conservation cluster provisions) consistent with Township-wide natural resource priority planning **LT**

Enact Standards

- ✓ Consider a tiered approach to riparian buffer protection; i.e., in addition to required 35-foot buffer, establish a 35- to 75-foot wide buffer where some modification is allowed with a 35- to 100-foot wide buffer along first order streams **LT**
- ✓ Establish Township-wide standards for native plant use (e.g., eliminate non-native species from street tree and ground cover lists; allow removal of existing wooded vegetation and replacement with native species in certain situations; add native fruit and nut trees to list(s) of allowed species) **ST**
- ✓ Pursue steep slope protection standards starting with limits on disturbance of slopes >25% through a steep slope/resource protection ordinance **LT**

- ✓ Establish wetland protection provisions Township-wide, including standards for wetland margins, through a wetlands/resource protection ordinance **LT**
- ✓ Update and codify the Primary and Secondary Conservation Corridor map consistent with Township-wide natural resource priority planning, and as part of resource protection ordinances **LT**
- ✓ Classify woodlands based on ecological value, and correlate overlay or woodland/resource protection ordinance standards to each identified class (e.g., 1, 2, or 3) **LT**
- ✓ Either through woodland classification ordinance recommended above or separately, extend Conservation Zone woodland replacement standards to all zoning districts through a woodland/resource protection ordinance **LT**
- ✓ Tighten requirements for homeowner open space criteria (e.g., §340.59 cluster ordinance, not conservation cluster) does not specify natural features to be protected), and maintenance thereof, consistent with Township-wide natural resource priority planning **ST**

+++++

Water Quality and Quantity

<i>Key Ordinance Short-Cuts</i>	<i>Key Zoning Abbreviations (from Zoning Map, 11/08)</i>		<i>Q: Quarry Zone (§340.20)</i>
<i>Ch. 270: Stormwater Management</i>	<i>A: Agricultural Zone (§340.11)</i>	<i>I-1: Industrial Zone (§340.18)</i>	<i>R-1: Residential Zone (§340.14)</i>
<i>Ch. 285: Subdivision/Land Development</i>	<i>C: Conservation Zone (§340.13)</i>	<i>I-2: Campus Industrial Zone (§340.19)</i>	<i>R-2: Residential Zone (§340.15)</i>
<i>Ch. 340: Zoning</i>	<i>CC: Community Commercial Zone (§340.17)</i>	<i>MU: Mixed Use Zone (§340.16)</i>	<i>RE: Rural/Estate Residential Zone (§340.12)</i>

Water Conservation

Ordinance prevents depletion of groundwater and surface water supplies	<p>§340-12, §340-11: + specifies that public utilities are not to be extended, thus requiring on-lot sewer and water; excess nitrates from on-lot septic systems are regulated to maintain groundwater quality in areas that have on-lot sewer and water</p> <p>+ §245-46 (on-lot sewage disposal): requires routine pumping, repair of malfunctioning systems, etc. of on-lot septic systems</p> <p>+ §285-37: requires hydrogeologic report for land developments proposed in areas underlain by permeable carbonate rock</p>
Permit/promote harvested/recycled water (e.g., greywater systems, rain barrels) use	<p>§270-35: + prohibits non-stormwater discharges to Township stormwater system</p> <p>§270-36: n strong priority given to groundwater infiltration, although case-by-case approval of roof drain discharge to stormwater system is permitted</p> <p>+ Warwick Township Municipal Authority has a strict water conservation policy</p>

Identify native and drought-tolerant plants for use in required landscaping plans	<p>§285-34: x lists a number of street trees that are not native to meet required planting</p> <p>§285-34, §340-37 (Screening and Landscaping): x requires an all-season ground cover but not specified to be native</p> <p>§340-37: x allows for gravel to be used in complementary manner, but this could also have stormwater benefits</p>
---	---

Water and Sewer Infrastructure

Utilize existing public water/sewer lines before expanding or increasing capacity	<p>Act 537 Plan: + documents that Township has adequate sewage capacity for 20 years' of growth within the UGB</p> <p>LWJSCP: + Future Land Use Map consistent with Act 537 Plan and UGB</p> <p>LRWP: + recommends wellhead protection guidelines</p> <p>+ Lower Susquehanna River Basin Comprehensive Water Management Study documents, Northern Lancaster Groundwater Study address current and future water supply needs</p>
Ensure the future land use plan directs any expansion of water, sewer, stormwater capacities	Official Map, Zoning Map, Act 537 Plan: + all are in agreement that public utilities will only be provided inside the UGB
Update the community's Act 537 plan based on the future land use plan	Official Map, Zoning Map, Act 537 Plan: + all are in agreement that public utilities will only be provided inside the UGB
Encourage spray/drip irrigation where use of <u>existing</u> treatment is not an option	Act 537 Plan: + on-lot sewer is required outside the UGB

Stormwater Management

Implement stormwater BMPs	<p>§270: + numerous provisions that require treatment of stormwater quality/quantity plus the recharging of groundwater with managed stormwater</p> <p>x does not require native plants, only consideration thereof</p>
Require Low Impact Development techniques	<p>§270 and other ordinance provisions: + many techniques meet criteria for "LID," but not specifically called out as such</p> <p>LWJSCP, LRWP: + numerous recommendations are consistent with LID-like approaches</p>
Require routine maintenance of stormwater management facilities	§270.14: + requires maintenance agreements, individual management, etc. as applicable

Water Quality and Quantity Recommendations

Remove Obstacles

- ✓ Identify, map, and set protection and management priorities for all Township water resources, using a water-balance approach, whether or not the resources are used for water supply, and where not otherwise addressed through existing or recommended wellhead and natural resource protection efforts **ST**
- ✓ Based on the water-balance approach, consider alternatives to a centralized sewer collection and treatment system that return treated wastewater closer to its groundwater source, especially within hydrologically sensitive areas of the UGB. Those alternative methods, policies, or practices that favor continued use of on-lot private sewer disposal systems must reflect the importance of private landowners regularly maintaining such systems, and continued education, monitoring, and enforcement efforts by the Township **LT**

Create Incentives

- ✓ Consider incentives (as well as standards) for water conservation, Township-wide **LT**
- ✓ Provide trees and other supplies for landowners willing to reforest riparian buffers and other critical hydrologic resource areas, consistent with Township-wide natural and water resource priority planning **ST**
- ✓ Add a natural resource sending area (i.e., for resources other than farmland) to the TDR options available to developers and landowners **LT**
- ✓ Enact voluntary standards to incentivize green roofs **ST**

Enact Standards

- ✓ Ensure Warwick Township meets, if not exceeds, the minimum applicable standards of the federal Municipal Separate Storm Sewer System (MS4) program **Ongoing**
- ✓ Establish inspection program for stormwater management systems/structures, with priority given to where these systems and structures exist on individual lots and based on the Township's current process for on-lot septic system inspection **LT**
- ✓ Evaluate potential revisions to land development standards (e.g., parking criteria, street width) to further LID approaches that minimize generated stormwater volumes and other potential water-related impacts, consistent with the recommendations of the LWJSCP and the LRWP **ST**

+++++

Land Use and Community Character

<i>Key Ordinance Short-Cuts</i>	<i>Key Zoning Abbreviations (from Zoning Map, 11/08)</i>		<i>Q: Quarry Zone (§340.20)</i>
<i>Ch. 270: Stormwater Management</i>	<i>A: Agricultural Zone (§340.11)</i>	<i>I-1: Industrial Zone (§340.18)</i>	<i>R-1: Residential Zone (§340.14)</i>
<i>Ch. 285: Subdivision/Land Development</i>	<i>C: Conservation Zone (§340.13)</i>	<i>I-2: Campus Industrial Zone (§340.19)</i>	<i>R-2: Residential Zone (§340.15)</i>
<i>Ch. 340: Zoning</i>	<i>CC: Community Commercial Zone (§340.17)</i>	<i>MU: Mixed Use Zone (§340.16)</i>	<i>RE: Rural/Estate Residential Zone (§340.12)</i>

Land Use Planning

Steer growth and new development to the most appropriate places within community/region	LWJSCP, Official Map, Zoning Ordinance, Zoning Map, Act 537 Plan: + all are in agreement that growth should occur inside the UGB
Participate in multi-municipal/regional land use planning	LWJSCP: + Warwick participated in original 1999 Plan, and in 2006 Update
Ensure planning policies, documents, regulations are consistent with regional growth management plans	LWJSCP, Official Map, Zoning Ordinance, Zoning Map, Act 537 Plan: + all are consistent, in turn, with Balance, the Growth Management Element of Envision, Lancaster County's Comprehensive Plan
Increase density in urban and village areas where appropriate	§340-107 (transfer of Agricultural Zone subdivision/development rights), other ZO sections as noted elsewhere: + permit/facilitate the transfer of development rights with appropriate density in receiving areas LWJSCP: + recommends mixes of land uses as appropriate
Encourage and/or incentivize infill development and redevelopment of previously disturbed lands	LWJSCP, Official Map, Zoning Ordinance, Zoning Map, Act 537 Plan: + all are in agreement that growth should occur inside the UGB LWJSCP: + provides for "Reinvestment Areas"
Adopt and implement Smart Growth principles	LWJSCP, Official Map, Zoning Ordinance, Zoning Map, Act 537 Plan: + all seek to achieve Smart Growth principles, although not specifically called out as such
Allow for Traditional Neighborhood Development	§340-16: + MU Zone encourages village-like development and redevelopments x could be brought up-to-date with shorter setbacks, graphic design standards, TDR- and non-TDR-related incentives, etc. §340-23 (Village Overlay, applicable to R-2-Zone): + fairly complete x needs TDR- and non-TDR-related incentives

Adopt Transferable Development Rights ordinance	§340-45 (TDRs), §340-107, other ZO sections: + permit and otherwise facilitate development right transfer
Update municipal comprehensive plan to promote sustainability	LWJSCP: + 2010 objectives address the need to achieve sustainable growth projections, which in and of itself could achieve the overall definition of sustainability cited herein n many efforts already underway in pursuit of a “sustainable Warwick”

Character and Aesthetics

Preserve, through zoning and other means, the community’s significant historical resources	§340-46.1 (historical record): + requires an historical record for a property or structure subject to zoning approval or permit, also requires consideration of adaptive reuse prior to demolition and encourages material salvage if demolition does occur n no other specific criteria for demolition delay, although Township staff commonly secure and request delays through revisions to land development plans §340-61 (conversion of historic structures): + extensive standards that allow conversion x no specific criteria apparent to incentivize conversion (e.g., modification of setback standards) Historic Resources Survey: + proposes three historic districts x none enacted
Encourage and promote through zoning the adaptive reuse of historic buildings	§340-61: + extensive standards that allow conversion of historic structures
Preserve through ordinance incentives significant cultural and scenic resources	§340.64: + conservation cluster, applicable to Conservation Zone, requires 75% open space w/ “proper” site planning that identifies archaeological, historic resources x no requirements that open space protect these particular areas
Enact ordinances limiting both noise and light pollution	§340-42 (operations and performance standards): + regulates noise pollution per PADEP standards, as well as other ZO sections that regulate noise for specific uses (e.g., nightclubs) §285: + specifies lighting standards n currently drafting glare /night sky ordinance; Township staff commonly request and obtain glare reduction and night sky benefits through revisions to land development plans

Land Use and Community Character Recommendations

Remove Obstacles

- ✓ Undertake charette or another type of visioning process for areas zoned MU and Village Overlay to create framework for village development and redevelopment **ST**

- ✓ In conjunction with the process recommended immediately above, or separately, further develop the vision for a “sustainable Warwick” **ST** or **LT**
- ✓ Conduct build-out analysis of existing zoning and compare with population projections **ST**

Create Incentives

- ✓ Develop non-TDR-related mechanisms (e.g., Township- or grant-funded streetscape improvements) for both MU and Village Overlay zoned areas to incentivize development and redevelopment within these areas **ST**
- ✓ Allow for receipt of TDRs in MU and Village Overlay zoned areas to incentivize greater residential growth in these areas **LT**
- ✓ Develop setback modifications and other standard zoning adjustments to incentivize the adaptive re-use of historic structures **LT**

Enact Standards

- ✓ Amend traditional neighborhood development ordinances to accommodate higher densities, shorter setbacks, graphic-based design standards, walkability, mixed uses, bike racks, etc. **ST**
- ✓ Amend conservation cluster provisions to require protection of identified historic resources **ST**
- ✓ Pursue enactment of ordinances to reduce light glare and provide night sky benefits **LT**
- ✓ Establish geographically-defined historic districts or overlays with protection standards for historic resources, consistent with Historic Resources Survey **LT**
- ✓ Adopt specific standards to delay demolition of historic structures until a thorough search for alternatives is conducted, and include provisions to prohibit “demolition by neglect” and to promote protection of historic structures **LT**
- ✓ Adjust zoning consistent with build-out analysis **LT**

+++++

Climate Change

<i>Key Ordinance Short-Cuts</i>	<i>Key Zoning Abbreviations (from Zoning Map, 11/08)</i>		
<i>Ch. 270: Stormwater Management</i>	<i>A: Agricultural Zone (§340.11)</i>	<i>I-1: Industrial Zone (§340.18)</i>	<i>Q: Quarry Zone (§340.20)</i>
<i>Ch. 285: Subdivision/Land Development</i>	<i>C: Conservation Zone (§340.13)</i>	<i>I-2: Campus Industrial Zone (§340.19)</i>	<i>R-1: Residential Zone (§340.14)</i>
<i>Ch. 340: Zoning</i>	<i>CC: Community Commercial Zone (§340.17)</i>	<i>MU: Mixed Use Zone (§340.16)</i>	<i>R-2: Residential Zone (§340.15)</i>
			<i>RE: Rural/Estate Residential Zone (§340.12)</i>

Greenhouse Gas Reduction

<p>Enact ordinances to encourage mixed use/TODs</p>	<p>x no TOD provisions LWJSCP: + notes Red Rose Transit available in north-south corridor n plan establishes marginal link between transportation and land use (e.g., focuses on road improvements, shuttle bus goal from 1999 Plan received no attention since then), although Township staff commonly request and secure consideration of these issues through revisions to land development plans §340-16: + MU Zone encourages village-like development and redevelopments x could be brought up-to-date with shorter setbacks, graphic design standards, TDR- and non-TDR-related incentives, etc. §340-23: + fairly complete x needs TDR- and non-TDR-related incentives</p>
<p>Enact ordinances to allow live-work units and home-based businesses in residential zoning districts</p>	<p>+ §340: mixed uses are allowed (see above); although live-work units not specifically called out, Township staff indicate they are allowed + §340-78 (home occupations) and other ordinance provisions: allow home occupations</p>
<p>Incentivize green building techniques for new developments and redevelopment projects</p>	<p>x no specific ordinance or planning provisions</p>
<p>Promote and incentivize reforestation on open space</p>	<p>§340-13: + 80% of woodlands in Conservation Zone must be maintained/replaced x but not in all zoning districts; protection of existing vegetation is also required, which could be invasive + new plantings must be native</p>
<p>Encourage use of alternative transportation (public transit, bikes, walking)</p>	<p>LWJSCP, Official Map, Open Space Plan, Rail Trail Study, and §340-43 (common open space requirements): + actively plan for and otherwise establish requirements for sidewalks, greenways, and/or trail linkages (e.g., "Safe Routes to School," rails-to-trails, etc.); Lititz/Warwick Trailway recently opened LWJSCP: + notes Red Rose Transit available in north-south corridor n plan establishes marginal link between transportation and land use (e.g., focuses on road improvements, shuttle bus goal from 1999 Plan received no attention since then), although Township staff commonly request and secure the provision of bike and buggy lanes, with marking, through revisions to land development plans</p>
<p>Develop, adopt and implement a Climate Action Plan to reduce greenhouse gas emissions</p>	<p>n currently developing a process to inventory greenhouse gas emissions</p>

Climate Change Recommendations

Remove Obstacles

- ✓ Continue efforts to inventory greenhouse gas emissions; use to develop, adopt and implement a Climate Action Plan to reduce greenhouse gas emissions **Ongoing, ST, LT**
- ✓ Amend LWJSCP to prioritize safety improvements on roads along with shuttle bus, other public transportation options, and non-automotive mobility options **ST**
- ✓ Amend LWJSCP to prioritize planning and funding decisions based on clear linkages between transportation and future land use **ST**
- ✓ Continue to implement trail expansion/extension/connection recommendations of the Rail Trail Study and Open Space Plan **Ongoing**

Create Incentives

- ✓ Amend traditional neighborhood development ordinances to accommodate higher densities to increase demand for public transportation plus add provisions for shorter setbacks, graphic-based design standards, walkability, mixed uses, TDR- and non-TDR-related incentives, etc. **ST**
- ✓ Cultivate business donations and public support to elevate planning for the shuttle bus service to a higher priority **ST**
- ✓ To increase carbon sequestration, add a natural resource sending area, especially for woodlands, to the TDR options available to developers and landowners **LT**
- ✓ Enact standards to incentivize green building techniques (e.g., green roofs per Water Quality and Quantity recommendations) **ST**

Enact Standards

- ✓ Enact specific standards to allow live-work units **ST**
- ✓ Establish Township-wide standards for native plant use (e.g., eliminate non-native species from street tree and ground cover lists; allow removal of existing wooded vegetation and replacement with native species in certain situations; add native fruit and nut trees to list(s) of allowed species) **ST**
- ✓ Enact standards to increase carbon sequestration by following prior recommendations to undertake Township-wide natural resource priority planning and develop resource protection ordinances **LT**
- ✓ Classify woodlands based on ecological value, and correlate overlay or woodland/resource protection ordinance standards to each identified class (e.g., 1, 2, Or 3) **LT**
- ✓ Either through woodland classification ordinance recommended above or separately, extend Conservation Zone woodland replacement standards to all zoning districts through a woodland/resource protection ordinance **LT**

+++++

Alternative Energy and Energy Conservation

<i>Key Ordinance Short-Cuts</i>	<i>Key Zoning Abbreviations (from Zoning Map, 11/08)</i>		
<i>Ch. 270: Stormwater Management</i>	<i>A: Agricultural Zone (§340.11)</i>	<i>I-1: Industrial Zone (§340.18)</i>	<i>Q: Quarry Zone (§340.20)</i>
<i>Ch. 285: Subdivision/Land Development</i>	<i>C: Conservation Zone (§340.13)</i>	<i>I-2: Campus Industrial Zone (§340.19)</i>	<i>R-1: Residential Zone (§340.14)</i>
<i>Ch. 340: Zoning</i>	<i>CC: Community Commercial Zone (§340.17)</i>	<i>MU: Mixed Use Zone (§340.16)</i>	<i>R-2: Residential Zone (§340.15)</i>
			<i>RE: Rural/Estate Residential Zone (§340.12)</i>

Renewable Energy

Allow solar panels by-right when accessory to a principal use	§340-25 (Accessory uses and structures): + permits “solar energy units” in all zoning districts, subject to the requirements of each zoning district
Establish a minimum percentage of solar-oriented lots or buildings in new developments	x no specific ordinance provisions
Permit small wind energy conversion systems (WECS) in all zoning districts	§340-25: + permits WECS in all zoning districts, without height restrictions
Add an energy element to the comprehensive plan	x LWJSCP does not contain such a provision

Energy Efficiency and Conservation

Encourage new residential/commercial buildings to achieve LEED or Energy Star standards	x no specific ordinance or planning provisions
---	---

Alternative Energy and Energy Conservation Recommendations

Remove Obstacles

- ✓ Amend LWJSCP to include an energy element **ST**

Create Incentives

- ✓ Provide pilot funding or technical guidance for new residential/commercial buildings to achieve specified LEED, Energy Star, etc. standards **ST**

Enact Standards

- ✓ Establish a minimum percentage of solar-oriented lots or buildings in new developments **ST**
- ✓ Enact an ordinance to allow solar farms in certain zoning districts **LT**
- ✓ Establish standards for alternative energy systems when proposed for historic structures **LT**

+++++

Mobility and Transportation

<i>Key Ordinance Short-Cuts</i>	<i>Key Zoning Abbreviations (from Zoning Map, 11/08)</i>		<i>Q: Quarry Zone (§340.20)</i>
<i>Ch. 270: Stormwater Management</i>	<i>A: Agricultural Zone (§340.11)</i>	<i>I-1: Industrial Zone (§340.18)</i>	<i>R-1: Residential Zone (§340.14)</i>
<i>Ch. 285: Subdivision/Land Development</i>	<i>C: Conservation Zone (§340.13)</i>	<i>I-2: Campus Industrial Zone (§340.19)</i>	<i>R-2: Residential Zone (§340.15)</i>
<i>Ch. 340: Zoning</i>	<i>CC: Community Commercial Zone (§340.17)</i>	<i>MU: Mixed Use Zone (§340.16)</i>	<i>RE: Rural/Estate Residential Zone (§340.12)</i>

Non-vehicular Transportation

Encourage TOD	<p>§340-19, §340-23, §340-95 (shopping centers >50,000 sq.ft.): + require consideration of transit/bus stops in the I-2 and Village Overlay Zones, and for shopping/retail centers greater than a certain size</p> <p>LWJSCP: n plan establishes marginal link between transportation and land use (e.g., focuses on road improvements, shuttle bus goal from 1999 Plan received no attention since then), although Township staff commonly request and secure consideration of these issues through revisions to land development plans</p>
Establish sidewalks in residential, village, downtown areas	<p>§285-28: + requires sidewalks in new developments with a density >2 du/ac</p> <p>x no requirements for sidewalks or other pedestrian pathways in appropriate locations in, and connecting to, lower density developments</p> <p>LWJSCP, Official Map, and §340-43: + plan for and otherwise establish sidewalks, greenways, and/or trail linkages (e.g., "Safe Routes to School," rails-to-trails, etc.); Lititz/Warwick Trailway recently opened</p>
Require bike racks at appropriate locations in new/infill developments	<p>§340-17: + requires bike racks</p>

Roads and Streets

Codify “complete streets” principles in the SALDO	x no specific ordinance provisions
Eliminate the creation of new cul-de-sacs	§285-27: + does not allow new cul-de-sacs when a through street is more advantageous Official Map: + identifies where through streets are preferred
Use future land use plan to direct expansion of road capacities	LWJSCP, Official Map, Zoning Ordinance, Zoning Map, Act 537 Plan: + all are in agreement that growth should occur inside the UGB x however, some of the “Future Widening and/or Resurfacing” shown on the LWJSCP map, “Future Transportation Improvements Projected, 2005-2007” will occur outside the UGB; policies, plans, and ordinances should continue to direct any growth to within the UGB in spite of necessary transportation improvements outside of it
Maximize existing road capacity (e.g., traffic calming, TDM, etc.) before constructing new roads	Lancaster County Transportation Authority: + addresses these issues through the corridor plans for both Route 501 and Route 772
Plan road improvements to prioritize safety and pedestrian/bike uses	LWJSCP: + summarizes various non-motorized transportation successes related to trails x but no specific mention of criteria used to decide on and fund transportation improvements

Parking

Establish a range of parking standards for commercial uses	§340-35 (off-street parking requirements): x establishes minimum parking standards for residential and non-residential uses
Ordinances should require porous pavement, shade trees, landscape buffers in parking lots	§340-35: x concrete or bituminous surface specifically required §340-35: + requires shade trees and landscape buffers x but without consideration to native species (e.g., pachysandra, ivy, etc. allowed)
Permit on-street parking wherever possible and appropriate	§340-16: x does not provide for on-street parking §340-23: + allows for on-street parking x but it is not included in calculation of parking requirements
Permit shared parking in non-residential zoning districts	§340-35: + reduces parking requirements for uses that share a “joint parking lot”
Promote parking demand management techniques	x no specific planning provisions

Trails

<p>Require the establishment and maintenance of pedestrian/bike trails that connect to public facilities, parks, open space, schools, business/shopping</p>	<p>§285-28: + requires sidewalks in new developments with a density >2 du/ac x no requirements for sidewalks or other pedestrian pathways in appropriate locations in, and connecting to, lower density developments LWJSCP, Official Map, Open Space Plan, Rail Trail Study, and §340-43: + actively plan for and otherwise establish requirements for sidewalks, greenways, and/or trail linkages (e.g., "Safe Routes to School," rails-to-trails, etc.); Lititz/Warwick Trailway recently opened</p>
---	---

Mobility and Transportation Recommendations

Remove Obstacles

- ✓ Amend LWJSCP to prioritize safety improvements on roads – outside the UGB – along with shuttle bus, other public transportation options, and non-automotive mobility options **ST**
- ✓ Amend LWJSCP to prioritize planning and funding decisions based on clear linkages between transportation and future land use **ST**
- ✓ Adopt policies to maximize existing road capacity through traffic calming, transportation demand management, etc. **ST**
- ✓ Continue to implement trail expansion/extension/connection recommendations of the Rail Trail Study and Open Space Plan **Ongoing**

Create Incentives

- ✓ Amend traditional neighborhood development ordinances to accommodate higher densities to increase demand for public transportation plus shorter setbacks, graphic-based design standards, walkability, mixed uses, TDR- and non-TDR-related incentives, bike racks, etc. **ST**
- ✓ Establish a sidewalk-trail-public transportation educational and informational program for the metropolitan planning organization making pertinent transportation funding decisions for the Township and immediately beyond **LT**
- ✓ Consider transit alternatives (e.g., park'n'ride lots, bus transit stations, etc.), and work closely with the metropolitan planning organization making pertinent funding decisions **LT**

Enact Standards

- ✓ Require sidewalks in all zoning districts, as needed to for pedestrian safety and mobility, as well as to establish connections to planned or existing trails **ST**
- ✓ Amend subdivision and land development standards to require consideration of "complete streets" principles **LT**
- ✓ Revise parking and street design standards where appropriate to minimize the amount of land used for parking and streets, creating less stormwater runoff **ST**
- ✓ Require porous pavement in off-street parking lots **ST**
- ✓ Revise parking criteria to allow some or all of on-street parking to count towards required off-street parking **LT**

+++++

Community Health and Safety

<i>Key Ordinance Short-Cuts</i>	<i>Key Zoning Abbreviations (from Zoning Map, 11/08)</i>		<i>Q: Quarry Zone (§340.20)</i>
<i>Ch. 270: Stormwater Management</i>	<i>A: Agricultural Zone (§340.11)</i>	<i>I-1: Industrial Zone (§340.18)</i>	<i>R-1: Residential Zone (§340.14)</i>
<i>Ch. 285: Subdivision/Land Development</i>	<i>C: Conservation Zone (§340.13)</i>	<i>I-2: Campus Industrial Zone (§340.19)</i>	<i>R-2: Residential Zone (§340.15)</i>
<i>Ch. 340: Zoning</i>	<i>CC: Community Commercial Zone (§340.17)</i>	<i>MU: Mixed Use Zone (§340.16)</i>	<i>RE: Rural/Estate Residential Zone (§340.12)</i>

Public Health and Safety

Require street trees and sidewalks in residential areas and village/downtown areas	<p>§285-28, §285-34, §340-16, §340-23, §340-37: + requires sidewalks in certain residential areas (e.g., density >2 du/ac), plus in villages; also required are shade trees and landscape buffers</p> <p>x but without consideration to native species (e.g., pachysandra, ivy, etc. allowed)</p> <p>x no requirements for sidewalks or other pedestrian pathways in appropriate locations in, and connecting to, lower density developments</p>
Provide adequate active and passive recreational opportunities	<p>Open Space Plan: + numerous provisions for active and passive recreational facilities, both within Warwick Township and on a multi-municipal basis</p> <p>LWJSCP, Official Map, Open Space Plan, Rail Trail Study, and §340-43: + actively plan for and otherwise establish requirements for sidewalk, greenways, and/or trail linkages (e.g., "Safe Routes to School," rails-to-trails, etc.); Lititz/Warwick Trailway recently opened</p> <p>x no requirements for sidewalks in appropriate locations in, and connecting to, lower density developments</p>

Solid Waste and Recycling

Require recycling centers/stations in new developments over a certain size	<p>§260 (Solid waste and recycling): + requires all residents of Warwick Township to recycle designated materials; also required is the provision of appropriate collection and transfer to an authorized recycler</p>
Adopt a construction debris demolition ordinance or require construction waste management plan	<p>§260-26: + prohibits illegal disposal</p> <p>+ much debris recycled through the Lancaster County Solid Waste Management Authority's closed-loop system</p>

Require salvage/material recycling in demolition permit or land development approval	x no specific ordinance requirements, although material salvage from demolished historic structures is encouraged (§340-46.1)
--	---

Housing Diversity and Accessibility

Create incentives to promote a diverse housing supply that includes affordable housing	§340-101 (temporary farm employee housing): + allows temporary housing for farm workers x no other specific ordinance provisions related to “workforce housing”
Locate housing w/in walking distance of businesses, services, employment centers, public transportation	LWJSCP, Official Map, Open Space Plan, Rail Trail Study, and §340-43: + actively plan for and otherwise establish requirements for sidewalks, greenways, and/or trail linkages (e.g., “Safe Routes to School,” rails-to-trails, etc.); Lititz/Warwick Trailway recently opened LWJSCP: + notes Red Rose Transit available in north-south corridor
Permit smaller lot sizes in appropriate residential zoning districts	§340-23: + permits up to 10% of lots with narrow width x but no similar provisions for MU Zone
Permit accessory dwelling units (in addition to primary residence) on residential lots	§340-23, §340-65: + permits, by either conditional use or special exception, the existence or conversion of accessory building apartments with no more than one dwelling unit; also permitted by conditional use are apartments in an over/under configuration in the Village Overlay Zone §340-11: + permits ECHO (elder cottage housing opportunity) housing
Permit second-story (and greater) residential uses in commercial and mixed-use zoning districts	x no specific ordinance provisions, other than the over-under apartments noted above

Community Health and Safety Recommendations

Remove Obstacles

- ✓ Implement Open Space Plan recommendations regarding recreational facility planning, provision, and management **ST, LT**
- ✓ Assess and analyze workforce housing needs, with future consideration of the establishment of regulatory incentives (e.g, density bonuses for construction of dedicated units) **LT**
- ✓ Continue to implement trail expansion/extension/connection recommendations of the Rail Trail Study and Open Space Plan **Ongoing**

Enact Standards

- ✓ Pursue ordinance revisions to expand ECHO and other accessory housing opportunities in all appropriate zoning districts **LT**
- ✓ Require salvage/material recycling in demolition permit (or land development approval), not just encouragement thereof **LT**
- ✓ Revise MU Zone to allow narrow lot widths **ST**

- ✓ Enact standards to specifically allow accessory dwelling units, as well as second-story and higher residential uses over commercial uses **ST**
- ✓ Amend traditional neighborhood development ordinances to specifically require village greens, pocket parks, and other civic spaces **ST**

+++++

Food Production and Security

<i>Key Ordinance Short-Cuts</i>	<i>Key Zoning Abbreviations (from Zoning Map, 11/08)</i>		<i>Q: Quarry Zone (§340.20)</i>
<i>Ch. 270: Stormwater Management</i>	<i>A: Agricultural Zone (§340.11)</i>	<i>I-1: Industrial Zone (§340.18)</i>	<i>R-1: Residential Zone (§340.14)</i>
<i>Ch. 285: Subdivision/Land Development</i>	<i>C: Conservation Zone (§340.13)</i>	<i>I-2: Campus Industrial Zone (§340.19)</i>	<i>R-2: Residential Zone (§340.15)</i>
<i>Ch. 340: Zoning</i>	<i>CC: Community Commercial Zone (§340.17)</i>	<i>MU: Mixed Use Zone (§340.16)</i>	<i>RE: Rural/Estate Residential Zone (§340.12)</i>

Incentivize through ordinances the permanent preservation of agricultural lands	§340-45, §340-107, other ZO sections: + permit and otherwise facilitate the transfer of development rights, specifically established for sending from the Agricultural Zone
Permit a broad range of agricultural uses by right in rural and semi-rural areas	§340-69 (farm occupations), §340-70 (farm related businesses): + wide range of agricultural occupations and businesses permitted within the Agricultural Zone §340-98 (septage or spent mushroom compost processing and/or commercial mushroom operations): + permits mushroom operations and composting by conditional use in the Agricultural and I-1-Zones §340-108 (slaughtering and rendering of food products and their by-products): + permits these operations by conditional use within the I-2 Zone
Permit farmer’s markets, farm stands, community gardens in public/open spaces, residential vegetable gardens	§340-71 (flea and/or farmer’s markets): + these uses are permitted x however, these are allowed only by special exception and only within the Community Commercial Zone §270-18: + exempts vegetable gardens from requirement for stormwater management plan submittal
Permit small-scale farming uses (e.g., egg production) w/ complementary structures in all residential or mixed-residential zoning districts	n small-scale farming allowed in certain zoning districts and on lots ≥ 3 acres
Permit small-scale manufacture of food products within appropriate zoning districts	§340-78: + permits home occupations by special exception in Agricultural, Rural Estate, R-1, R-2, and MU Zones x but would eliminate small-scale, non-home manufacturing

Allow composting as part of gardening and small-scale farming uses	§340-26 (unenclosed storage): + permits composting as an accessory residential use
Require or encourage fruit and nut trees as part of landscaping requirements	§285-34: x does not include native fruit or nut trees in list of species allowed to meet planting requirements

Food Production and Security Recommendations

Enact Standards

- ✓ Permit farmer’s markets in all zoning districts **ST**
- ✓ Enact specific provisions that allow community gardens and residential vegetable gardens in most zoning districts **ST**
- ✓ Establish Township-wide standards for native plant use (e.g., eliminate non-native species from street tree and ground cover lists; allow removal of existing wooded vegetation and replacement with native species in certain situations; add native fruit and nut trees to list(s) of allowed species) **ST**
- ✓ Enact specific standards to allow live-work units **ST**

+++++

Conclusions and Summary. Warwick has taken great strides to achieving greater sustainability at the municipal level, and within the realm of its policies, plans, and regulations related to environmental issues. Specifically and through its clear and forward-thinking efforts, the Township has been very successful in directing land development and re-development to areas that are planned for growth both at the local and regional levels (i.e., within the UGB) and where that growth can be accommodated by necessary infrastructure that includes sewer, water, and roads. As a result, key natural resources such as prime agricultural soils, floodplains, woodlands, and riparian buffers outside the UGB are afforded full, or some, measure of protection through both plans and the implementing regulations (e.g., TDRs). Within the UGB, Township plans and regulations allow and otherwise promote mixed use, dense, and walkable development and redevelopment within its two villages (Brunnerville, Rothsville). Also promoted is the ongoing development of Warwick’s Campus Industrial Zone, which is also supported by existing or planned infrastructure improvements. Construction and expansion of the Heart of Lancaster hospital and other similar uses have utilized numerous TDRs from the Township’s extensive and valuable family farms, resulting in their permanent preservation. Within the UGB, the Township actively provides and often requires trails and sidewalks that allow Warwick’s residents and visitors to be mobile without depending on a car; the Red Rose Transit service also helps in this regard. Regulatory obstacles are minimal when solar and wind technologies are proposed to warm/cool homes and businesses.

Still, there is room for improvement on the Township’s path to greater sustainability within the environmental circle. Specific recommendations to close the noted gaps are listed in prior sections of this report, based on the detail provided by each sustainability topic’s table. For example, Warwick lacks a

municipality-wide resource protection and restoration approach at the regulatory level, although there is recognition at the planning level (i.e., Lititz Run Watershed Plan; Lititz Warwick Joint Strategic Comprehensive Plan) of the need to fully protect key resources such as wetlands, steep slopes, greenways, and water/wetlands. Warwick could benefit from expanded opportunities for residents and businesses to use public transportation, as well to move about even more freely via trails or sidewalks. Wide-ranging energy planning and conservation efforts are needed to both reduce greenhouse gas emissions within the Township, and resulting costs to its taxpayers and residents. And, there are gaps in the Township's approach to a wide range of other matters (e.g., native plant materials, sidewalks in certain areas).

Seeking sustainability requires both continued vigilance and extensive patience, as evidenced by the circular nature of the graph on page 1. Accordingly, the recommendations made in this report are intended to broadly guide efforts to achieve sustainability, above and beyond the Township's already exemplary work. It is notable that many of the recommendations are interrelated both within their own subject area and under the broader umbrella of sustainability. For example, expanding resource protection regulations can reduce greenhouse gas emissions while also providing protection from flooding, as well as habitat benefits. Or, making the Township's villages more vibrant, walkable, and mixed will contribute to the density and demand needed to expand public transportation opportunities, and may also contribute to new or expanded varieties of housing opportunities. Decisions regarding which of the recommendations to implement, or which are even feasible, should be made by the Warwick Board of Supervisors, in consultation with Township staff, appointed and advisory officials, and the public. EMC staff are ready to answer questions, provide additional information, and otherwise assist as the Township proceeds forward with implementation.