

Transit-Oriented Design - Smart Growth Communities

Summary: This initiative recommends the continued adoption and acceleration of existing and future statewide land-use and transportation policies that follow more sustainable “smart growth” principles that generate fewer private auto trips, promote the use of transit and non-motorized modes, protect open spaces, and minimize the generation of associated GHGs. Smart growth seeks to create more compact communities throughout the state featuring walkable communities of concentrated development and a mixture of land uses that generate less vehicle traffic while being more supportive of auto trip-reduction measures, such as transit, non-motorized modes and TDM programs, such as car sharing, carpooling, etc. Smart growth also sites commercial and industrial facilities and growth with ready access to an efficient, multimodal freight transportation system. This measure is envisioned as walkable centers incorporating smart growth as the fundamental design principle. These developments will be created both within the context of larger urbanized areas where they are particularly successful, as well as in less developed areas where smart growth can lead to more support for non-motorized modes, conserve land, and reduce VMT.

~~TODs~~

Smart growth ~~land-use~~ approaches and incentives need to be initiated as soon as possible and as aggressively as possible to secure early GHG reductions, which are then cumulative through the 2020 analysis year. Early, successful implementations also encourage other parties to implement similar approaches, and yield earlier state and local infrastructure investments that are more efficient and cost-effective.

This effort seeks to expand the collaborative process between state and local agencies to promote smart growth as a viable and preferable alternative to the current sprawled development pattern. In addition, the statewide land-use policies and programs promoted will continue to seek to limit the encroachment of development onto farmland and natural spaces, in particular wooded areas, which act as carbon sinks. Trip reduction, transit enhancements, and other measures cannot reach their full potential without the adoption of supportive land-use measures. As such, the adoption of smart growth principles helps to ensure the success of ~~the~~ proposed transportation ~~measures~~ investments. ~~In addition, these P~~olicies should promote walkable communities and foster more compact development, which in turn reduces transportation and other infrastructure costs.

Other Agencies Involved: DEP, PennDOT, DCED, local transit agencies, MPO/RPOs, DCNR, CFA, Pennvest and county and local governments.

Possible New Measures:

~~The concept of S~~smart growth has been widely accepted as a measure to help mitigate traffic and promote development that reduces vehicle travel, encourages use of transit and non-motorized (bicycle and pedestrian) travel modes, reduces land consumption, and reduces initial and ongoing infrastructure costs. The maximum benefit of smart growth development will be realized in urban areas with access to high-quality transit, but benefits will be realized in other areas if elements of smart growth become the preferred approach to development throughout the commonwealth.

The benefits of smart growth, including the associated reductions in GHG emissions, may be realized on a small scale through the creation of TODs that capitalize on existing and proposed transit infrastructure.

TOD is characterized as mixed-use development focused on transit access, generally with reduced parking requirements and active TDM programs to assist employees and residents in utilizing travel modes other than private autos.

The Keystone Principles & Criteria for Growth, Investment & Resource Conservation adopted by the Economic Development Cabinet May 31, 2005, provides a policy framework for greater support for smart growth measures. These 10 principles and related criteria can be more actively pursued and expanded upon to encourage more development and redevelopment using smart growth concepts. The principles include:

- **Redevelop first**
- **Provide efficient infrastructure**
- **Promote walkable communities**
- **Concentrate development**
- Increase job opportunities
- **Foster sustainable business**
- **Restore and enhance the environment**
- **Enhance recreational and heritage resources**
- Expand housing opportunities
- **Plan regionally; implement locally**
- Be fair

While all of these principles have value, eight of them (highlighted in bold) are noted as having direct impacts on GHG emissions and should therefore be key pieces of any climate action plan. Additionally, the 2006 report by the Pennsylvania Transportation Funding and Reform Commission, *Investing in Our Future: Addressing Pennsylvania's Transportation Funding Crisis*,¹ provides clear goals that address transportation funding and demand issues, which in turn intrinsically address GHG emissions:

- Link land use and transportation through the implementation of “Smart Transportation” design practices and preconditioning major capacity improvements on a community land use/transportation vision that provides for sustainable investments.
- Develop an incentive-based funding program to link land- use and multimodal community investments through collaboration with partners, including municipalities, Metropolitan Planning Organizations, Rural Planning organizations, and other interested parties.

¹ *Investing in Our Future: Addressing Pennsylvania's Transportation Funding Crisis*, Commission Final Report, Pennsylvania Transportation Funding and Reform Commission, November 2006. Available from PennDOT or at: HYPERLINK "http://www.dot.state.pa.us/Internet/pdCommissCommitt.nsf/HomePageTransFundReformComm?OpenForm" <http://www.dot.state.pa.us/Internet/pdCommissCommitt.nsf/HomePageTransFundReformComm?OpenFo>

1. Link land use and transportation through the implementation of “Smart Transportation” design practices and preconditioning major capacity improvements on a community land use/transportation vision that provides for sustainable investments.

The report *Back to Prosperity: A Competitive Agenda for Renewing Pennsylvania*¹ noted that the current development patterns within the commonwealth are both spreading out the population and industry and “hollowing out” the urban fabric, with city neighborhoods and services in decline, while unsustainable suburban and exurban development continues unabated. The result of this development pattern is an increased need for auto travel, communities where transit is not viable, households that generate an excessive number of auto trips per capita, and sparse, outlying development of commercial and industrial facilities, and retail and employment centers, all of which result in increased GHG emissions. Additionally, there is a backlog of both state and local transportation maintenance needs that are not being met, while at the same time a public demand for additional capacity. In response, the commonwealth and PennDOT have instituted the concept of “Smart Transportation” with regard to the planning process.

Smart Transportation is defined as partnering to build great communities for future generations by linking transportation investments and land-use planning to decision making. Smart Transportation aims to accommodate growth without taxing the transportation infrastructure, and in doing so reducing vehicle travel and associated GHG emissions. By linking transportation and land-use decisions, growth can occur in more sustainable ways that do not require the infrastructure or land area that current development patterns would demand. Smart Transportation fully supports both the guiding principles from the Transportation Funding and Reform Commission and the Keystone Principles.

The intent is that this GHG reduction work plan will build on and fully implement the various Smart Transportation concepts and Keystone Principles already advocated by the state, promoting these concepts such that they become intrinsic to the decision process at PennDOT, other state agencies, MPO/RPOs, and local governments. The goal is to align the project planning and approval process throughout the commonwealth to recognize smart growth and smart planning concepts as core values for all projects and related activities. While existing work has identified and begun implementing these principles, the Land Use-Transportation Subcommittee recommends that an increased effort to adopt these as standard practice statewide would result in the benefits being realized sooner and the final impact being greater. The subcommittee therefore recognizes the established framework as the path forward, and feels that a greater emphasis on these concepts will further the commonwealth goal toward meeting its GHG reduction needs.

Smart Transportation Principles

PennDOT’s 2008 *Sound Land Use Implementation Plan, Building a Strategic Agenda for Smart Transportation* identified 10 principles that define the core concepts in this approach to land use and transportation planning:

1. Money counts

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¹*Back to Prosperity: A Competitive Agenda for Renewing Pennsylvania*, The Brookings Institution Center on Urban and Metropolitan Policy, 2003. http://www.brookings.edu/reports/2003/12metropolitanpolicy_pennsylvania.aspx

2. Choose projects with high value to price ratio
- 3. Enhance the local network**
4. Look beyond level-of-service
5. Safety first, and maybe safety only
- 6. Accommodate all modes**
7. Leverage and preserve existing investments
- 8. Build towns and not sprawl**
9. Understand the context; plan and design within the context
10. Develop local governments as strong land use partners

While all of these concepts are necessary for Smart Transportation to succeed as a guiding principle, three of the concepts (**bold** highlight) are noted as having direct impacts on greenhouse gas emissions. The Subcommittee endorses all these core concepts. We highlight the following as principles of particular interest in regards to reducing greenhouse gases:

Enhance the Local Multimodal Transportation Network

One of the basic tenets of smart growth is the need to focus on local communities and develop a transportation network that connects local residents, employment and services rather than supporting segregated land uses. Enhancing the local network of both local and state facilities provides this continuity and in doing so encourages trips to remain local and supports the use of modes other than private auto and truck. At the same time an enhanced and connected local network minimizes the need to travel between more distant centers for services and helps to minimize the vehicle miles of travel (VMT) within a local community. A fully connected network has a higher capacity and is more economical to construct and maintain than a series of segregated neighborhoods served by arterial and bypass roadways.

Accommodate all Modes

In order to reduce passenger travel by private vehicles there must be alternative modes (including bicycle, pedestrian, bus, rail, and high occupancy auto) that can reasonably be used for a substantial proportion of trips. Conversion of truck freight to more cost-effective and less polluting modes, such as rail and water, is also a critical component. Smart transportation makes this a primary consideration and accommodation of other modes of travel an intrinsic part of the planning process instead of an add-on to a roadway design effort.

Build Towns not Sprawl

There is a consensus that current sprawl development, with its associated separation of land uses, necessitates the use of private auto and the absence of defined communities does not readily accommodate or support other forms of transportation. Building towns, whether as independent rural communities or as neighborhoods in a larger urban context encourages people to remain local and as such opens up the opportunity to use other forms of transportation. The subcommittee feels this will directly impact greenhouse gas emissions and should be fully pursued.

Using Transportation to Encourage Sound Planning Practices

It has long been argued that the “car culture” has resulted in the current planning paradigm which necessitates the use of private auto for the majority of passenger trips and results in the excess consumption of land and fuel. However, just as the current transportation planning practices tend to encourage sprawling development, a shift towards transportation projects that support smart growth can help drive residential and commercial/ industrial development into more compact and integrated forms. PennDOT’s emphasis on smart transportation supports this shift. Local land use and transportation planning are critical components to success.

Focusing funding on smart growth supportive transportation projects discourages the adoption of projects that might otherwise result in increased sprawl. An example of this is NJDOT’s “right sizing” approach, which seeks to encourage projects focusing on connectivity to increase capacity, rather than bypassing congested areas, as well as focusing on improvements for local access and avoiding constructing restricted access roads which tend to favor regional trips. A renewed focus on the local community fosters smart growth, which leads to reduction in the number of trips, vehicle miles of travel and GHG emissions.

PennDOT’s 2008 *Sound Land Use Implementation Plan, Building a Strategic Agenda for Smart Transportation* (PennDOT, 2004), The Keystone Principles, and other existing statewide initiatives provide a focused approach to the types of policies that can be adopted at the local level to encourage smart growth within existing laws, regulations, and codes. Redevelopment of an existing site, redevelopment of a corridor in a more context-sensitive manner, neighborhood redevelopment, infill, or a new construction on a greenfield site all offer the opportunity for local agencies to influence how their communities will grow. PennDOT and other state agencies have a role to play by prioritizing infrastructure investments on those projects that support local smart growth efforts and help communities realize the savings involved in adopting these principles.

Building on the programs already in place, local officials and decision makers need to have the tools and knowledge available to help guide the growth of their communities in more sustainable ways. By providing communities with the support needed in moving toward a smart growth planning approach, state agencies can help ensure that new growth can be accommodated in ways that minimize and even reduce GHG emissions while also being more cost-effective.

2. Develop an incentive-based funding program to link land use and multimodal community investments through collaboration with partners including Municipalities, Metropolitan Planning Organizations, Rural Planning organizations, and other interested parties.

Sound land use policies that seek to reduce private vehicle travel and limit GHGs can only succeed with the support of the local communities who guide development within their regions. The decentralized nature of development planning within the commonwealth limits the impact that state agencies can have on local decisions, in particular PennDOT.

There is growing support at the local level to change the business-as-usual approach to development. Pennsylvania state agencies have limited authority regarding local and regional land-use and

transportation decisions. However, PennDOT can and should focus its limited funds on projects that encourage more sustainable development patterns. Local projects tend to focus capacity increases where they are needed most. If carried out in light of the local context, the projects will generate maximum return for a given investment. By fostering smart growth through available funding mechanisms, PennDOT maximizes the return on its investment and helps support development that reduces GHGs. In conjunction with transportation measures, policies involving other infrastructure investments, such as water and sewer infrastructure, could be developed to ensure that these services are expanded in a way that encourages and supports smart growth.

This, in particular, applies to passenger modes other than private autos. Transit services are not only more successful in compact communities, but also require fewer subsidies to operate, with more passengers attracted to a system served by a more compact route network. Compact development also means that non-motorized trips become increasingly viable, and investments in facilities to support these trips (trails, sidewalks, expanded shoulders, etc.) are better patronized and more cost-effective.

Agencies such as PennDOT also have a role in educating communities on the preferred development patterns and how this can benefit the local area. Communities often see compact development in the negative light of blighted urban communities. PennDOT has the opportunity to not only support smart growth through funding decisions, but also provide examples of vibrant, livable, smart growth communities. PennDOT is also in a position to demonstrate how the return on the investment is higher for the smart growth projects and the long-term costs substantially less. By implementing the concept of smart growth at the local level, communities can be encouraged to make land-use decisions that reduce transportation needs and maximize benefits to the community, including the reduction in GHG emissions.

Finally, compact development and smart growth reduce the need to develop new areas and help protect and expand wooded and other natural spaces that act as carbon sinks. State agencies have an additional role to play in the preservation and expansion of these areas. Natural settings enhance the neighboring communities and can provide an opportunity to attract tourism. Assisting communities in preserving natural areas through planning support, making focused transportation investments that do not encourage the development of new land, and supporting local community conservation efforts can further build local support for smart growth efforts.

Using an approach that directs funds into successful, smart growth supportive initiatives and partnering with local communities can advance compact, context-sensitive projects that will improve the livability of towns and cities, reduce transportation demands and the associated costs, and in turn reduce GHG emissions.

Potential GHG Reductions and Economic Costs:

Table-1. Estimated GHG Reductions and Cost-effectiveness

GHG emission savings (2020)	1.34	MMtCO ₂ e
Net present value (2013–2020)	<\$0	\$million
Cumulative emissions reductions (2013–2020)	28.43	MMtCO ₂ e
Cost-effectiveness (2013–2020)	<\$0	\$/tCO ₂ e

GHG = greenhouse gas; MMtCO₂e = million metric tons of carbon dioxide equivalent; \$/tCO₂e = dollars per metric ton of carbon dioxide equivalent. Negative numbers indicate costs savings.

Cost to Regulated Entities:

If any, costs and/or cost savings will vary based on the specific policies being implemented.

Cost to State:

State costs would generally be limited to the costs associated with improvements to transit facilities and access to the site (if required).

This will also vary depending on the specific policy being implemented, but there is potential for cost savings, as limited transportation and other infrastructure costs are minimized by focusing on more compact areas, where maximum benefits can be realized.

There will be front-end costs of program development and implementation. Also, a successful program will likely require ongoing incentives and similar actions to ensure continued success.

Cost to Region:

Infrastructure costs associated with improvements to services, major roadways, and transit facilities. Potential costs associated with property tax reductions if this is used as an inducement to development.

In general, research supports the assertion that similar land-use measures net economic benefits outweigh any associated costs to implement.

In general, research supports the assertion that similar land-use measures result in net economic benefits that outweigh any associated costs to implement.

Other Potential Benefits:

Additional potential benefits of promoting smart growth and transportation include:

- Decreased emissions of ozone precursors (VOC and NO_x), CO, and PM.
- Enhanced mobility for citizens, goods, and visitors.
- Reduced congestion.
- Increased urban redevelopment.
- Financial stabilization of declining towns and cities.
- Increased tourism revenue to revitalized communities and preserved natural areas.
- Increased density reduces infrastructure costs for related services, such as water and sewer lines. The capital and ongoing costs for roadways serving denser development also tend to be lower.
- Retaining urban professionals attracted to smart growth communities.
- Reduced infrastructure costs.

Ease of Implementation

The implementation of a TOD project is dependent on the local community's desire or acceptance of such a development. Initial phases of a project can be realized quickly, depending on the need for permits and planning in conjunction with the proposed development and any existing planning efforts that may have been undertaken. Existing PA laws and regulations allow and encourage local implementation of these approaches. In general the initial planning can be completed within 3 years, and initial construction beginning soon thereafter. Completion of the entire TOD will depend on the phasing that a developer chooses for the project. With regard to broader land-use policies, mandates will generally be met with more resistance but will realize greater and more immediate results, while incentives will generally be met with less resistance but will realize less immediate results. The redistribution of development among regions, the costs associated with the preparation of brownfield sites, the home-rule nature of the commonwealth, the costs of new transit, and the potential need to offset tax revenues make these policies challenging to implement.

Implementation Steps:

These will vary based on the specific measure, but many were described in-depth in this work plan's previous sections. Listed here are highlights of those recommendations.

- Encourage the continued promotion of smart growth as the preferred framework for future development throughout the commonwealth.
- Seek to promote the creation of TOD projects within existing urban areas where current and planned transit services are or will be available.
- In areas where TOD is not appropriate, encourage the consideration of smart growth principally in support of non-motorized modes and to achieve some reduction in VMT.
- Fund ongoing studies in the DVRPC and SPC MPOs and transportation management agencies statewide to investigate and promote TOD centers in their regions.
- Encourage the regional transit authorities to develop lists of stations and other locations most suitable for TOD projects.
- Have the MPO and/or state develop or expand training for communities on smart growth, including TOD.
- Alter the project selection process for PennDOT and its planning partners to include consideration of smart growth measures and, in particular, the advancement of projects.
- Provide funding to regional authorities to assist in planning TOD projects.
- Investigate and publicize tax advantages that could be extended to TOD projects to help promote development and attract residents/employers/commercial development.
- Expand DCNR's TreeVitalize Program

- Expand “Main Street” and “Elm Street” Programs
- Reauthorize and Increase Funding for Growing Greener II
- Consider GHG Emission Impact Studies and Fees
- Offset the Global Warming Pollution of New Development
- Provide State-Level Incentives for Smart Growth Development
- Support Regional Urban Growth Boundaries
- Increase Local Control Through Temporary Land-Use Restrictions
- Support Urban Revitalization and Infill Housing

Key Assumptions

Key assumptions are outlined in the quantification section, below.

Quantification

The impacts of Transit Oriented Design, Smart Growth Communities ~~and Land-Use Solutions~~ speak to the issue of land use and development. Quantification methods for land-use impacts at the state level are general in nature and implicitly include TOD as a general policy. As specific information on TODs in the commonwealth could not be obtained or synthesized, the impacts of these two measures were analyzed together.

An extensive review of land-use measures as they appear in existing climate action plans, as well as other related sources, was undertaken (see references below.) Although no one methodology was identified as a preferred approach or state of the practice, the results reported provided guidance for this effort. The studies have estimated the VMT reductions that can be achieved by land-use measures, and in turn calculated the associated GHG reductions. Again various approaches have been employed in this regard, with reduction goals being applied to specific categories of VMT:

- Overall VMT (statewide).
- Urban VMT only.
- Light-duty (auto) VMT.
- VMT in specific urban areas (generally quoting earlier studies).

The vast majority of the climate action plans reviewed considers VMT reductions from baseline projected VMT levels, while a small number of more recent plans have included ambitious GHG targets specific to land use and will require per-capita decreases in VMT from current conditions. However, it was felt that for the commonwealth, impacts closer to those found in the majority of the studies were more appropriate.

VMT projections from PennDOT's Roadway Management System (RMS)/Highway Performance Monitoring System (HPMS) database, including both current estimates and estimates for 2020, formed the basis of this analysis. For the purpose of this work, the VMT estimates were segregated into the following area type categories:

- *Urban Areas:* Urban areas consist of a central city and surrounding areas whose combined population is greater than 50,000. Other towns outside of urban areas whose populations exceed 2,500 are also included in the urban population.
- *Small Urban Areas:* Small urban areas are those urban places, as designated by the Bureau of the Census, having a population of 5,000 or more that are not located within any urban area.
- *Rural Areas:* Rural areas are any area not falling within either of the above categories.

While a general VMT reduction factor could have been applied statewide, it was felt that attention to factors specific to both the area type and the county was appropriate. The research undertaken indicated that land-use measures have the greatest impact in urbanized areas and minimal impact in rural areas. Also, a number of counties within the commonwealth are not expected to grow significantly prior to 2020 (the analysis year of this effort); as such, the opportunities to incorporate smart growth into new and redeveloped areas would be limited. A review was done to classify VMT in the state as occurring in areas with significant, intermediate, and minimal land use/VMT reduction potential, as well as by urban, small urban, and rural areas. The thresholds between these categories were determined by inspection and were based on the expected growth between 2013 and 2020. Table 2.2 summarizes the thresholds that were used in these calculations.

Table-2. Thresholds Used for Determining VMT Reduction Potential

Potential for Land Use to Impact VMT	2005–2020 VMT Growth Thresholds by Area Type		
	Urban	Small Urban	Rural
Significant	>50%	>50%	>15%
Intermediate	2%–50%	25%–50%	10%–15%
Minimal	<25%	<25%	<10%

The total VMT for the state was disaggregated into these categories and is summarized in Table 2.3, below. In addition, based on the research of other state plans and related studies, high and low estimates of the VMT reduction that could be reasonably expected were extrapolated for each category and are summarized in Table 2.4.

Table-3. VMT by Potential Land Use Impact and Area Type

Potential Land Use Impacts	VMT Reduction Goals		
	Urban	Small Urban	Rural
Significant	0	4,178,175,075	12,229,722,850
Intermediate	0	2,219,319,355	9,697,073,260
Minimal	99,264,000,000	3,384,394,610	20,987,317,500

Table-4. VMT Reduction Targets by Potential Land Use Impact and Area Type

Potential for Land Use to Impact VMT	VMT Reduction Goals		
	Urban	Small Urban	Rural
Significant	7%–10%	5%–10%	1%–2%
Intermediate	5%–7%	2%–5%	0%
Minimal	2%–5%	0%	0%

The estimated annual VMT reduction ranged from 2,668,000,000 to 10,423,000,000 vehicle miles. This was used to proportion out the benefits from the overall GHG emissions for on-road gasoline vehicles as found in the PA GHG inventory. The total estimated emission reductions ranged from 11.39% to 2.39% annually in 2020. Total GHG emission reductions ranged from 5.68 to 1.34 MMtCO₂e annually in 2020. Benefits (VMT and GHG reduction) were assumed to begin in 2013, and decrease linearly to 2020, resulting in cumulative benefits over the period of analysis of 28.43MMtCO₂e.

Key Uncertainties

The ability to meet the targets outlined above remains in question, and growth estimates used in the RMS are questionable, in particular given current economic conditions.

Additional Benefits and Costs

Additional potential benefits of expanding smart growth initiatives include:

- Enhanced mobility for citizens and visitors.
- Reduced congestion.
- Increased urban redevelopment.
- Financial stabilization of declining towns and cities.
- Increased tourism revenue to revitalized communities and preserved natural areas.
- Increased density reduces infrastructure costs for related services, such as water and sewer lines. The capital and ongoing costs for roadways serving denser development also tend to be lower.
- Retaining urban professionals attracted to smart growth communities.
- Reduced infrastructure costs.

Potential Interrelationships With Other GHG Reduction Measures:

This initiative recognizes that transit is a key factor in influencing the success of smart growth principles in urban areas. In less developed regions, smart growth leads directly to the preservation of farmlands and natural spaces, which in turn act as carbon sinks and, in the case of agriculture, provide a potential for supporting the alternative fuels industry.

Synergistic:

- Transit enhancements both support smart growth and require this type of development in order to be successful.
- Compact development is a more supportive environment for TDM measures.
- Compact development and smart growth tend to be supportive of passenger non-motorized (bicycle, pedestrian) and more efficient freight (e.g., rail) modes.

Other:

- Creation and preservation of GHG sinks.
- Production of alternative fuels.

Drawbacks:

The movement to more compact forms of development will limit the distribution of new development, and locations that would have been attractive under the current paradigm may no longer be attractive for new projects. This seeming disparity will need to be addressed.

Summary of Initiative

- Encourage the continued promotion of smart growth as the preferred framework for future development throughout the commonwealth.
- Seek to promote the creation of TOD projects within existing urban areas where current and planned transit services are or will be available.
- In areas where TOD is not appropriate, encourage the consideration of smart growth principally in support of non-motorized modes and to achieve some reduction in VMT.
- Fund ongoing studies in the DVRPC and SPC MPOs and transportation management agencies statewide to investigate and promote TOD centers in their regions.
- Encourage the regional transit authorities to develop lists of stations and other locations most suitable for TOD projects.
- Have the MPO and/or state develop or expand training for communities on smart growth, including TOD.
- Alter the project selection process for PennDOT and its planning partners to include consideration of smart growth measures and, in particular, the advancement of projects.
- Provide funding to regional authorities to assist in planning TOD projects.

- Investigate and publicize tax advantages that could be extended to TOD projects to help promote development and attract residents/employers/commercial development.

Though not incorporated into the quantification, other potential measures could aid in the promotion of smart growth and the preservation of open spaces, helping to decrease emissions and preserve areas that can act as carbon sinks:

Expand DCNR's TreeVitalize Program: This program supports the planting of trees in urban areas. It was started in southeastern Pennsylvania in 2004, expanded to the Pittsburgh region, and is now branching out throughout the state. Its current goal is to plant one million trees across Pennsylvania in the next 5 years. With increased funding and resources, this number could be even higher, meaning that an even greater amount of GHG emissions could be captured.

Expand "Main Street" and "Elm Street" Programs: These state-run programs offer financial support for commercial-corridor and residential-corridor redevelopment, respectively. Healthy downtown communities help to prevent sprawl and thus cut down on GHG emissions. Increasing funding for these programs could help to further strengthen downtown communities throughout Pennsylvania.

Reauthorize and Increase Funding for Growing Greener II: The largest preservation program in Pennsylvania, Growing Greener II has helped to protect thousands of acres of open spaces, woodlands, and family farms throughout Pennsylvania since its original enactment. Its funding is due to run dry in 2011. Renewing this program, *and* providing a dedicated funding source for it moving forward would help to ensure the program can continue its good work for years to come.

Consider GHG Emission Impact Studies and Fees: Similar to when developers have to include impact fees for infrastructure like new roads and sewage lines that are needed to support their new development, the GHG emissions impact of a new development should also be considered. A first policy could involve simply quantifying the GHG emissions impact, including both the loss of carbon sinks due to destroyed woodlands or farmlands *and* the new GHG emissions that will be created by the new structures, the travel by its inhabitants, and the infrastructure necessary to support the development. The potential for fragmentation of intact forestland to lead to future conversion of those fragmented sections to non-forested land should ideally be included in these studies. A second policy could involve incorporating these costs into the price of the development, and/or state distribution of funds to municipalities taking into account whether the municipality requires such GHG emission impact studies.

Offset the Global Warming Pollution of New Development: Related to the concept of GHG emission fees, developers could be required or encouraged to purchase "offsets" for the new global warming pollution that would be created from their development.

Provide State-Level Incentives for Smart Growth Development: Tax incentives or expedited permitting could be granted to developers who demonstrate that their projects adhere to the Keystone Principles.

Support Regional Urban Growth Boundaries: To prevent sprawling development, local governments should be given the option of implementing regional boundaries beyond which they

can forbid any additional development. Such boundaries can help to protect existing open spaces, and instead direct development to already developed areas.

Increase Local Control Through Temporary Land-Use Restrictions: In the event of a municipality revising its land-use plan or zoning ordinance, or a municipality receiving an unfavorable court decision against its plan or ordinance, developers should not be allowed to seize upon these opportunities to develop in an “unregulated” state. To correct for this, the Municipalities Planning Code curative amendment process should be revised, and municipalities should be given the option of implementing temporary moratoriums on local development while a new land-use plan is being developed.

Support Urban Revitalization and Infill Housing: Impact fees and permitting processes should be used to encourage “infilling” of existing urban and developed areas, and discourage development in undeveloped areas.

Subcommittee Comments

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