

What Role Does the GMA Play in Reducing Greenhouse Gas Emissions? The GMA Requires Communities to Mitigate and Adapt to Global Warming

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The mission of Futurewise is to promote healthy communities and cities while protecting working farms, working forests, and shorelines for this and future generations.

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What Role Does the GMA Play in Reducing Greenhouse Gas Emissions? The GMA Requires Communities to Mitigate and Adapt to Global Warming

I. Introduction

“Climate change will be the defining issue for urban planning and land development in the years ahead,” says [Reid] Ewing[, executive director of the National Center for Smart Growth Research and Education at the University of Maryland]. “It will trump everything.”¹

Washington State and its counties and cities are leaders in addressing the issue of climate change. After this brief introduction in Part I, this paper, in Part II, will identify the role of land use planning and development in mitigating greenhouse gas generation. Part II also summarizes the land use related recommendations of the Washington Climate Advisory Team and its technical working groups.

In Part III, this paper will explain why the Growth Management Act (GMA) requires counties and cities to address green house gas emissions. Part IV will explain why the Washington State Environmental Policy Act (SEPA) requires counties and cities to address global warming. Part V summarizes steps that counties and cities can take now to begin to address the impacts of global warming. Part VI includes some web resources that may be helpful for those interested in further reading.

II. The Important Role of Land Use Planning in Mitigating Global Warming

1. Human Caused Global Warming and its Adverse Impacts are Occurring Now

The Intergovernmental Panel on Climate Change (IPCC) has concluded that “[w]arming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.”² These observations include:

- “Eleven of the last twelve years (1995-2006) rank among the twelve warmest years in the instrumental record of global surface temperature (since 1850).”³
- “Global average sea level has risen since 1961 at an average rate of 1.8 [1.3 to 2.3] mm/yr and since 1993 at 3.1 [2.4 to 3.8] mm/yr, with contributions from thermal expansion, melting glaciers and ice caps, and the polar ice sheets.”⁴

¹ Mark Clayton, *New test for developers in Maine: Climate Change: Huge development around Moosehead Lake would create 500,000 tons of CO2 over 50 years, environmentalists say* *The Christian Science Monitor* (January 16, 2008). Accessed on October 28, 2009 at: <http://www.csmonitor.com/2008/0116/p01s04-wogi.html?page=2>

² Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Synthesis Report Summary for Policymakers* p. 2 (November 2007). Accessed on October 28, 2009 at: http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf

³ *Id.*

- Mountain glaciers and snow cover on average have declined in both the north and southern hemispheres.⁵

The IPCC was established by the World Meteorological Organization (WMO) and by the United Nations Environment Program (UNEP) in 1989.⁶ The IPCC consists of the governments that are parties to the two organizations, including the United States of America, and scientists. The IPCC assesses and synthesizes research on greenhouse gas emissions and global warming to provide objective information to decision makers.

The IPCC has concluded that the warming of the global climate system and the other effects are the result of human caused greenhouse gas (GHG) emissions, which the panel refers to as “anthropogenic GHG.”

Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations. It is likely that there has been significant anthropogenic warming over the past 50 years averaged over each continent (except Antarctica).⁷

As would be expected since it is a global problem, Washington State is also experiencing the effects of global warming too. The *Impacts of Climate Change on Washington’s Economy: A Preliminary Assessment of Risks and Opportunities* concluded that: “Climate change impacts are visible in Washington State and their economic effects are becoming apparent.”⁸ The University of Washington’s Climate Impacts Group recently finished an analysis of the impacts of climate change on Washington State. They concluded that the

[p]robable impacts associated with projected 21st century change in Northwest climate include the following:

- **April 1 snowpack is projected to decrease by 28% across the state by the 2020s, 40% by the 2040s, and 59% by the 2080s compared with the 1916 – 2006 historical average.** As a result, seasonal streamflow timing will likely shift significantly in sensitive watersheds.

⁴ *Id.* The “[n]umbers in square brackets indicate a 90% uncertainty interval around a best estimate, i.e. there is an estimated 5% likelihood that the value could be above the range given in square brackets and 5% likelihood that the value could be below that range. Uncertainty intervals are not necessarily symmetric around the corresponding best estimate.”

⁵ *Id.*

⁶ The “History” webpage, accessed on October 28, 2009 at http://www.ipcc.ch/organization/organization_history.htm

⁷ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Synthesis Report Summary for Policymakers* p. 5 (November 2007) (footnotes omitted).

⁸ Washington Economic Steering Committee and the Climate Leadership Initiative Institute for a Sustainable Environment University of Oregon, *Impacts of Climate Change on Washington’s Economy: A Preliminary Assessment of Risks and Opportunities* p. 7 (Washington State Department of Ecology and State of Washington Department of Community, Trade, and Economic Development: November 2006). Accessed on October 28, 2009 at: <http://www.ecy.wa.gov/pubs/0701010.pdf>

- **The Yakima basin reservoir system will likely be less able (compared to 1970 to 2005) to supply water to all users, especially those with junior water rights.** Historically (1916-2006), detrimental water shortages in the Yakima basin occurred in 14% of years. Without adaptation, shortages would likely occur more frequently: 32% of years in the 2020s, 36% of years in the 2040s, and 77% of years in the 2080s. Due to lack of irrigation water and more frequent and severe prorating, the average production of apples and cherries could decline by approximately \$23 million (about 5%) in the 2020s and by \$70 million (about 16%) in the 2080s.

....

- **Due to increased summer temperature and decreased summer precipitation, the area burned by fire regionally is projected to double by the 2040s and triple by the 2080s⁴.** The probability that more than two million acres will burn in a given year is projected to increase from 5% (observed) to 33% by the 2080s. Primarily east of the Cascades, mountain pine beetles will likely reach higher elevations and pine trees will likely be more vulnerable to attack by beetles.
- **Although few statistically significant changes in extreme precipitation have been observed to date in the Puget Sound, the Spokane area, or Vancouver/ Portland, regional climate model simulations generally predict increases in extreme high precipitation over the next half-century, particularly around Puget Sound.** In that region, existing drainage infrastructure designed using mid-20th century rainfall records may be subject to rainfall regimes that differ from current design standards.
- **Climate change in Washington will likely lead to significantly more heat- and air pollution-related deaths throughout this century.** Projected warming would likely result in 101 additional deaths among persons aged 45 and above during heat events in 2025 and 156 additional deaths in 2045 in the greater Seattle area alone⁵. By mid-century, King County will likely experience 132 additional deaths between May and September annually due to worsened air quality caused by climate change.

⁴ Relative to 1916 - 2006.

⁵ Relative to 1980 - 2006.

The significance of these regional consequences of climate change underscore the fact that historical resource management strategies will not be sufficient to meet the challenges of future changes in climate. Rather, these changes demand new strategies.⁹

⁹ Littell, J.S., M. McGuire Elsner, L.C. Whitely Binder, and A.K. Snover (eds); *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate - Executive Summary* in *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate* pp. 1 – 2

The *Impacts of Climate Change on Washington's Economy: A Preliminary Assessment of Risks and Opportunities* identified a variety of economic effects:

- Federal and state costs of fighting wildfires may exceed \$75 million per year by the 2020s (a 2°F warming), 50 percent higher than current expenditures.
- Water conservation expenditures to offset the decline in firm yield of Seattle's water supply due to climate change impacts could exceed \$8 million per year by the 2020s and \$16 million per year by the 2040s.
- Tourism and recreation revenues may be reduced in some localities due to forest closures and smoke intrusion associated with larger, more frequent wildfires.
- Hydropower revenues may be affected as stream flow regimes change in response to rising temperatures.
- Consumers could face water price increases in some basins that supply municipal water.
- Two key counties may experience a decline in dairy revenues by as much as \$6 million by the 2040s due to the effects of higher-than-optimal temperatures on dairy cows.
- Water allocation restrictions or higher costs for water affecting farmers in the Yakima Basin may become more probable as the likelihood of drought years increases.
- New sea level rise projections could trigger costly re-design of some long-term investments in shoreline protection such as Seattle's Alaskan Way seawall and critical infrastructure such as bridges and culverts.
- Cumulative economic effects larger than the sum of individual sector or regional effects may occur due to interactions between industries and economic sectors.¹⁰

In addition to these costs, the report also identified benefits concluding that:

efforts within the state to reduce greenhouse gas emissions, as well as action to prepare for impacts that appear all but inevitable, will create economic opportunities. Among the key opportunities, this assessment emphasizes initiatives in transportation, biofuels, renewable power, energy efficiency, and carbon capture. These emerging industries can help the state achieve greenhouse gas mitigation and climate change adaptation goals, while enhancing

(Climate Impacts Group, University of Washington, Seattle, Washington: June 2009). Accessed on October 28, 2009 at: www.cses.washington.edu/db/pdf/wacciaexecsummary638.pdf

¹⁰ Washington Economic Steering Committee and the Climate Leadership Initiative Institute for a Sustainable Environment University of Oregon, *Impacts of Climate Change on Washington's Economy: A Preliminary Assessment of Risks and Opportunities* p. 8 (Washington State Department of Ecology and State of Washington Department of Community, Trade, and Economic Development: November 2006).

Washington's capacity to export technology and expertise to trading partners around the nation and world seeking to meet the challenges of climate change.¹¹

2. Well planned communities can significantly reduce greenhouse gas emissions

The IPCC report documents that transportation and residential and commercial buildings are major sources of greenhouse gas emissions.¹² This is also true in Washington State.¹³ In Washington State, transportation activities are the largest contributor to greenhouse gas emissions, generating 47 percent of our state's global warming causing gases.¹⁴ Greenhouse gas "emissions associated with transportation are projected to be the largest contributor to future emissions growth from 2005 to 2020."¹⁵

The IPCC has identified land use and infrastructure planning measures that reduce single-occupancy vehicle trips and trip lengths as environmentally effective policies to reduce greenhouse gas emissions.¹⁶ The Puget Sound Clean Air Agency's Climate Protection Advisory Committee reached the same conclusion.¹⁷

The Washington Climate Advisory Team (CAT) also made the same point:

In order to significantly reduce [transportation] emissions, growth patterns and long-term infrastructure choices that result in compact walkable, bikable and transit friendly communities must be supported, funded and implemented. Cleaner cars and fuels alone will not sufficiently reduce Washington's transportation-related emissions challenge, nor will improved business practices and more efficient energy use alone. Compounding the challenge, most cap-and-trade market mechanisms being considered throughout the world at this time do not directly reduce transportation-related emissions. To put it bluntly, without reductions in vehicle miles traveled (VMT) by single occupancy vehicles, we are unlikely to meet the State's goals for emission reductions. And people will not—

¹¹ *Id.* at p. 9.

¹² Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Synthesis Report Summary for Policymakers* p. 5 (November 2007).

¹³ Center for Climate Strategies, Washington State Department of Ecology and State of Washington Department of Community, Trade, and Economic Development, *Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2020* p. 8 (December 2007). Accessed on October 28, 2009 at: http://www.ecy.wa.gov/climatechange/docs/WA_GHGInventoryReferenceCaseProjections_1990-2020.pdf

¹⁴ Center for Climate Strategies, Washington State Department of Ecology and State of Washington Department of Community, Trade, and Economic Development, *Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2020* p. 8 (December 2007); *Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State Recommendations of the Washington Climate Advisory Team* p. 57 (February 1, 2008). Accessed on October 28, 2009 at: <http://www.ecy.wa.gov/pubs/0801008b.pdf>

¹⁵ Center for Climate Strategies, Washington State Department of Ecology and State of Washington Department of Community, Trade, and Economic Development, *Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2020* p. ES-3 (December 2007).

¹⁶ Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2007: Synthesis Report Summary for Policymakers* p. 17 (November 2007).

¹⁷ Puget Sound Clean Air Agency Climate Protection Advisory Committee, *Roadmap for Climate Protection: Reducing Greenhouse Gas Emissions in Puget Sound* pp. 36 – 37 (12/29/04). Accessed on October 28, 2009 at: <http://www.pscleanair.org/programs/climate/rptfin.pdf>

in fact, cannot—get out of their cars in sufficient numbers if they do not have viable alternative options for conducting the activities, trips and travels needed and desired for daily life.¹⁸

CAT “Recommendation 5” is to “build and continue to redesign communities [to] offer real and reliable alternatives to single-occupancy vehicles.” This recommendation includes incentives and requirements to plan for development patterns that facilitate travel by transit, walking, and bicycling. These measures are designed to reduce urban area vehicle miles traveled (VMT) by 7–15 percent in 2020 and by 25–50 percent in 2050, compared to baseline levels.¹⁹ If vehicle miles traveled are reduced by 7 percent, greenhouse gas emissions would be reduced by 8.9 million metric tons of carbon dioxide equivalents (MMtCO₂e) between 2008 and 2020.²⁰ With a 15 percent reduction in vehicle miles traveled, greenhouse gas emissions would be reduced by 20.8 MMtCO₂e during the same time period.²¹

The CAT Transportation Sector Technical Work Group (TWG) included more detailed recommendations to support Recommendation 5:

- “Encourage compact development within urban growth areas by designating urban centers for employment, services and housing growth, increasing urban residential densities while assuring adequate services, and encouraging ‘brownfield’ development.”²²
- Countywide planning policies, a framework to guide county and city comprehensive plans prepared by counties and cities, should designate urban centers for employment, services, and housing growth.²³ Counties and cities would then amend their comprehensive plans and development regulations to provide for a mix of uses with suitable densities consistent with state guidelines for the urban centers.
- The Growth Management Act should be amended to provide for urban residential densities that recognize the state’s diversity. Contiguous urban areas and large cities should adopt densities with an average of eight to ten dwelling units per acre outside extensive critical areas to support frequent transit service (ten to 15 minute headways). Smaller cities should have densities that reflect the historic, walkable densities of places such as historic Ellensburg and Wenatchee.²⁴
- Provide incentives for brownfield redevelopment in urban growth areas. Brownfield redevelopment is cleaning up and redeveloping previous developed areas that have environmental contamination.²⁵

¹⁸ *Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State Recommendations of the Washington Climate Advisory Team* p. 57 (February 1, 2008).

¹⁹ *Id.* at p. 58.

²⁰ *Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State Recommendations of the Washington Climate Advisory Team* (February 1, 2008) Transportation Sector Technical Working Group Policy Option Recommendations p. 31. Accessed on October 28, 2009 at: http://www.ecy.wa.gov/climatechange/InterimReport/122107_TWG_trans.pdf

²¹ *Id.*

²² *Id.* at p. 28.

²³ *Id.* at pp. 29 – 30. Countywide planning policies are required by RCW 36.70A.210.

²⁴ *Id.* at p. 30.

²⁵ *Id.* at p. 30.

- Carefully analyze the greenhouse gas emissions likely to result from urban growth area expansions. Urban growth areas are designated in county comprehensive plans to accommodate residential, commercial, manufacturing, and industrial uses at urban densities and intensities. If urban growth area expansions are approved, “the city or county comprehensive plan for this area must provide for a compact development pattern and other measures to mitigate [greenhouse gas] emissions.”²⁶
- Transit-oriented development should be required at all high capacity transit stations.²⁷ Transit-oriented development is a mix of residential, commercial, office, and other uses at densities that encourage transit use both by providing customers and reducing the need to drive to satisfy daily needs.
- Counties should set housing targets so that low- and moderate-income “workers can live within an easy transit or bike commute to work. Sufficient affordable housing should be included in transit-oriented development plans and projects.”²⁸
- Facilities and amenities should be constructed to encourage walking and biking. This would include amenities, such as street trees, small plazas, and frequent retail shops, which make urban density living more attractive and encourage walking and biking.²⁹
- The state should provide planning grants and technical assistance to help counties and cities carryout these requirements.³⁰

The CAT Transportation Sector Technical Work Group also observed that these measures would help protect critical areas from urbanization and help conserve the best agricultural and forest land for natural resource production.³¹ The CAT Agriculture Sector Technical Work Group estimates that reducing the rate at which agricultural lands are converted to other uses by 30 percent in 2010 and 50 percent in 2020 will continue to allow the farmland to sequester carbon in the soil and crops and grasses, reducing greenhouse gas emissions by 0.35 MMtCO₂e a year by 2020.³² The CAT Forestry Sector Technical Work Group estimates that reducing the rate at which forest land is converted to non-forestry uses by 70 percent by 2020 will continue to allow the forest land to sequester carbon in the soil, forest products, and avoid the releases of greenhouse gases that occur during conversion thereby reducing greenhouse gas emissions by 26.8 MMtCO₂e between 2008 and 2020.³³

²⁶ *Id.* See RCW 36.70A.110 for the main requirements for urban growth areas.

²⁷ *Id.* at pp. 28 – 30.

²⁸ *Id.* at pp. 30 – 31.

²⁹ *Id.* at p. 29.

³⁰ *Id.* at p. 30.

³¹ *Id.* at p. 28.

³² *Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State Recommendations of the Washington Climate Advisory Team* p. 50 (February 1, 2008) Agriculture Sector Technical Working Group Policy Option Recommendations p. 76. Accessed on October 28, 2009 at: http://www.ecy.wa.gov/climatechange/InterimReport/21308_TWG_agr.pdf Carbon sequestration is the removal and storage of carbon from the atmosphere in carbon sinks (such as oceans, forests or soils) through physical or biological processes, such as photosynthesis.

³³ *Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State Recommendations of the Washington Climate Advisory Team* p. 50 (February 1, 2008) Forestry Sector Technical Working Group Policy Option Recommendations p. 18. Accessed on October 28, 2009 at: http://www.ecy.wa.gov/climatechange/InterimReport/122107_TWG_for.pdf

The CAT recommendations are supported by *Growing Cooler* published by the Urban Land Institute. *Growing Cooler* estimates comprehensive plans and development regulations that incorporate smart growth programs, such as those recommended by the CAT, have the potential to reduce how far we have to drive in our daily lives by 20 to 40 percent.³⁴ This would then lead to a seven to ten percent reduction in total transportation carbon dioxide emissions by 2050.³⁵ *Growing Cooler* also agrees with the CAT that if the transportation sector is going to achieve the greenhouse gas emissions needed to achieve the emission reductions needed to maintain a healthy climate and environment, “progress will be required on all three legs of the policy stool: vehicle efficiency, fuel content, and vehicle miles traveled (VMT).”³⁶ *Growing Cooler* also notes that “leading analysts believe we have less than ten years, and possibly less than five years to get on track” towards the necessary reductions in greenhouse gas emissions.³⁷

The Washington State Department of Commerce’s forthcoming report also documents that land use strategies can significantly reduce greenhouse gas emissions. The report concluded that transit-oriented development can reduce greenhouse gas emissions by five to 44 percent compared to business as usual development practices depending on how effectively it is implemented.³⁸ Mixed-use development can reduce greenhouse gas generation by five to 35 percent, and an improved jobs to housing balance can reduced greenhouse gas emissions by two to 15 percent both compared to business as usual development practices.³⁹ The earlier Land Use and Climate Change Advisory Committee (LUCC) report, required by 2008 Wash. Laws Ch. 289 § 2, reached the same conclusion.⁴⁰

So we see that there is substantial evidence of the need for land use policy to design communities that allow us to reduce the distances we drive alone and reduce greenhouse gas emissions. Protecting farms and forests can also help reduce these emissions. This evidence has led to amendments to the Growth Management Act to address greenhouse gas emissions in 2008 and 2009.⁴¹ While these amendments alone do not require comprehensive planning to reduce greenhouse gas emissions and to adapt to climate change, when read together with the goals and other requirements of the Growth Management Act we see that this is exactly what the Act requires.

³⁴ Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen, *Growing Cooler: The Evidence on Urban Development and Climate Change* p. 4 (The Urban Land Institute, Washington D.C.: 2008). Accessed on October 28, 2009 at: <http://www.smartgrowthamerica.org/documents/growingcoolerCH1.pdf>

³⁵ *Id.* at p. 155. (This page is not available at the website listed above.)

³⁶ *Id.* at p. 129. (This page is not available at the website listed above.)

³⁷ *Id.*

³⁸ Fehr & Peers, EDAW, and AECOM, *Assessment of Greenhouse Gas Analysis Tools* p. 3-5 (State of Washington Department of Commerce: December 2009). Accessed on December 10, 2009 at: <http://www.commerce.wa.gov/site/1277/default.aspx> (please click on the “report” link for the full report).

³⁹ *Id.*

⁴⁰ State of Washington Department of Community, Trade, & Economic Development, *Planning for Climate Change: Addressing Climate Change through Comprehensive Planning under the Growth Management Act* p. 4 & p. 32 (December 2008) accessed on November 6, 2009 at: http://www.ecy.wa.gov/climatechange/2008GMAdocs/2008LUCC_finalreport.pdf

⁴¹ 2008 Wash. Laws Ch. 289 accessed on October 28, 2009 at: <http://apps.leg.wa.gov/documents/billdocs/2007-08/Pdf/Bills/Session%20Law%202008/6580-S.sl.pdf> and 2009 Wash. Laws Ch. 459 § 12 accessed on October 28, 2009 at: <http://apps.leg.wa.gov/documents/billdocs/2009-10/Pdf/Bills/Session%20Law%202009/1481-S2.sl.pdf>

III. The GMA Requires Counties and Cities to Address Global Warming

1. The GMA environment goal requires the protection of state's air quality and environment from greenhouse gas emissions

Comprehensive plans and development regulations and amendments to comprehensive plans and development regulations must comply with goals and requirements of the Growth Management Act. As the Court of Appeals has held:

The Board is required to consider both goals and the specific requirements in determining whether a plan complies with the GMA:

The board shall find compliance [with GMA] unless it determines that the action by the state agency, county, or city is clearly erroneous in view of the entire record before the board and in light of the *goals* and requirements of this chapter.

RCW 36.70A.320(3) (emphasis added).

Likewise our Supreme Court relied on both GMA planning goals and regulations as independent bases for rejecting an amendment to the King County Comprehensive Plan that would have allowed for recreational use of agricultural land.

When read together, RCW 36.70A.020(8) [goals], .060(1) [Development Regulations for natural resource lands and critical areas], and .170 [designations for natural resource lands and critical areas] evidence a legislative mandate for the conservation of agricultural land. Further, RCW 36.70A.177 [innovative zoning techniques for agricultural lands] must be interpreted to harmonize with that mandate. Nothing in the Act permits recreational facilities to supplant agricultural uses on designated lands with prime soils for agriculture.

King County v. Cent. Puget Sound Growth Mgmt. Hearings Bd., 142 Wn.2d 543, 562, 14 P.3d 133 (2000).⁴²

The Growth Management Act's environment goal provides that comprehensive plans and development regulations are to "[p]rotect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water."⁴³ The United States Supreme Court has held that greenhouse gases are air pollutants.⁴⁴ Consequently, in preparing, amending,

⁴² *Low Income Housing Institute v. City of Lakewood*, 119 Wn. App. 110, 115 – 16, 77 P.3d 653, 655 (2003).

⁴³ RCW 36.70A.020(10).

⁴⁴ *Massachusetts et al. v. Environmental Protection Agency et al.*, 549 U.S. 497, 532, 127 S.Ct. 1438, 1462, 167 L.Ed.2d 248 (2007).

and updating comprehensive plans and development regulations, the state's air quality must be protected from the greenhouse gas air pollutants.

Some may argue that the legislature that adopted the Growth Management Act could not have reasonably anticipated the threat to air quality and the environment posed by greenhouse gases. But the dangers of greenhouse gases were known in 1990 when the goals of the Growth Management Act were adopted.⁴⁵ For example in 1989, the Washington State Department of Ecology published *Environment 2010, Global Warming and Ozone Depletion: Comparative Risks for Washington State*. In addition, the United States Supreme Court addressed this issue in the *Massachusetts v. Environmental Protection Agency* concluding that:

While the Congresses that drafted §202(a)(1) might not have appreciated the possibility that burning fossil fuels could lead to global warming, they did understand that without regulatory flexibility, changing circumstances and scientific developments would soon render the Clean Air Act obsolete. The broad language of §202(a)(1) reflects an intentional effort to confer the flexibility necessary to forestall such obsolescence. *See Pennsylvania Dept. of Corrections v. Yeskey*, 524 U. S. 206, 212 (1998) (“[T]he fact that a statute can be applied in situations not expressly anticipated by Congress does not demonstrate ambiguity. It demonstrates breadth” (internal quotation marks omitted)). Because greenhouse gases fit well within the Clean Air Act’s capacious definition of “air pollutant,” we hold that EPA has the statutory authority to regulate the emission of such gases from new motor vehicles.⁴⁶

2. GMA requirements mandate protection of the environment

In addition to the environment goal, several Growth Management Act requirements mandate the protection of the environment, in addition to the requirements for critical areas. Fully contained communities, new cities located in rural areas or on resource lands, must address and provide for environmental protection.⁴⁷ Major industrial developments, freestanding industrial sites outside urban growth areas, must also provide for the environmental protection including air quality.⁴⁸ Major industrial developments in master planned locations, areas planned for multiple industrial sites outside urban growth areas, must also provide for the environmental protection including air quality.⁴⁹ The need to commute to and from these areas, which may be a quite some distance from cities and towns, has the potential to generate significant greenhouse gas emissions. This may be one of the reasons that these three areas are required to also undertake transit-oriented site planning and include traffic demand management programs.⁵⁰ So the GMA requires the mitigation of greenhouse gas emissions.

⁴⁵ 1990 Wash. Laws 1st ex.s. Ch. 17 § 2.

⁴⁶ *Massachusetts*, 549 U.S. at 532, 127 S.Ct. at 1462.

⁴⁷ RCW 36.70A.350(1)(f).

⁴⁸ RCW 36.70A.365(2)(d).

⁴⁹ RCW 36.70A.367(3)(e).

⁵⁰ RCW 36.70A.350(1)(b); RCW 36.70A.365(2)(b); RCW 36.70A.367(3)(d).

3. 2008 Wash. Laws Ch. 289 § 1 adopted un-codified findings that recognized that the land use planning needs to address greenhouse gas emissions

In 2008 the legislature adopted the following un-codified intent findings:

(1) The legislature recognizes that the implications of a changed climate will affect the people, institutions, and economies of Washington. The legislature also recognizes that it is in the public interest to reduce the state's dependence upon foreign sources of carbon fuels that do not promote energy independence or the economic strength of the state. The legislature finds that the state, including its counties, cities, and residents, must engage in activities that reduce greenhouse gas emissions and dependence upon foreign oil.

(2) The legislature further recognizes that: (a) Patterns of land use development influence transportation-related greenhouse gas emissions and the need for foreign oil; (b) fossil fuel-based transportation is the largest source of greenhouse gas emissions in Washington; and (c) the state and its residents will not achieve emission reductions established in RCW 80.80.020 without a significant decrease in transportation emissions.

(3) The legislature, therefore, finds that it is in the public interest of the state to provide appropriate legal authority, where required, and to aid in the development of policies, practices, and methodologies that may assist counties and cities in addressing challenges associated with greenhouse gas emissions and our state's dependence upon foreign oil.⁵¹

In this finding the legislature recognized the need for land use planning to address the greenhouse gas emissions from transportation. 2008 Wash. Laws Ch. 289 § 2 directed the Washington State Department of Commerce, along with the Land Use and Climate Change Advisory Committee (LUCC), to prepare a report to the legislature recommending changes, “if any, to chapter 36.70A RCW and other relevant statutes that would enable state and local governments to address climate change issues and the need to reduce dependence upon foreign oil through land use and transportation planning processes[.]”⁵² That report was produced and recommended an amendment to the GMA’s environment goal, a requirement for countywide planning policies to address greenhouse gas emissions, and a requirement that comprehensive plans be consistent with regional transportation plans that include measures to reduce the number of vehicle miles traveled.⁵³ The report was provided to the legislature, but the legislature has not adopted these recommendations.

⁵¹ 2008 Wash. Laws Ch. 289 § 1. These findings also follow RCW 36.70A.580 in the Revised Code of Washington. Washington’s emission limits were originally adopted as goals by 2007 Wash. Laws Ch. 307 § 3(1) which were codified at RCW 80.80.020 and were re-adopted as emission limits by 2008 Wash. Laws Ch. 14 § 3 and codified in RCW 70.235.020(1)(a).

⁵² 2008 Wash. Laws Ch. 289 § 2(1)(a)(ii).

⁵³ Washington State Department of Community, Trade, and Economic Development (the former name of the Department of Commerce), *Planning for Climate Change: Addressing Climate Change through Comprehensive Planning under the Growth Management Act* pp. 5 – 6 (December 2008) accessed on October 28, 2009 at: http://www.ecy.wa.gov/climatechange/2008GMAdocs/2008LUCC_finalreport.pdf

Some may point to the report language from 2008 Wash. Laws Ch. 289 § 2 quoted above and say the legislature has concluded that counties and cities lack the authority under the GMA to address greenhouse gas emissions. However, the report also required “descriptions of actions counties and cities are taking to address climate changes issues...”⁵⁴ So it appears that cities and counties already have that authority.

Further, as we will see, 2008 Wash. Laws Ch. 289 also directed the Department of Commerce prepare information on both assessing and reducing greenhouse gas emissions and authorized but did not adequately fund a pilot program to encourage this work. If local governments lack the authority to do this work these sections would have been unnecessary. The better interpretation is that while a goal amendment and the other recommendations are desirable, they are not necessary.

4. The GMA, in RCW 36.70A.580, requires the preparation of Advisory Climate Change Response Methodologies (2008 Wash. Laws Ch. 289 § 2)

RCW 36.70A.580 directs the Washington State Department of Commerce to “develop and provide to counties and cities a range of advisory climate change response methodologies, a computer modeling program, and estimates of greenhouse gas emission reductions resulting from specific measures.”⁵⁵ Commerce “must complete and make available the advisory climate change response methodologies, computer program, and estimates required by this section by December 1, 2009.” The GMA requires counties and cities that plan under RCW 36.70A.040 to update their comprehensive plans and development regulations every seven or ten years depending on their populations and growth rates.⁵⁶ The counties and cities required to do seven year updates are divided into four groups with deadlines spread over four years.⁵⁷ The advisory climate change response methodologies, computer program, and estimates must be updated two years before each completion date established in RCW 36.70A.130(4)(a).⁵⁸ However, RCW 36.70A.580 expires on January 1, 2011, so it is unclear that the updates will occur unless the section is reauthorized.⁵⁹

Commerce has issued a draft of the report that responds to the requirements of RCW 36.70A.580 for public and expert review.⁶⁰ The report analyzed 62 available tools for estimating greenhouse gas emissions related to land use and transportation. While some of these tools have been updated since the draft was completed, the tool evaluation in Appendix B is a useful source of tools for those who want to analyze greenhouse gas emissions from both projects and

⁵⁴ 2008 Wash. Laws Ch. 289 § 2(1)(a)(i).

⁵⁵ RCW 36.70A.580(1).

⁵⁶ RCW 36.70A.130.

⁵⁷ RCW 36.70A.130(4).

⁵⁸ RCW 36.70A.580(3).

⁵⁹ RCW 36.70A.580(4).

⁶⁰ Fehr & Peers, EDAW, and AECOM, *Assessment of Greenhouse Gas Analysis Tools* (State of Washington Department of Commerce: December 2009). Accessed on December 10, 2009 at: <http://www.commerce.wa.gov/site/1277/default.aspx> (please click on the “report” link for the full report).

comprehensive plans and amendments.⁶¹ In Chapter Four, the report explains how to select the best tool to analyze the greenhouse gases generated by various land use and transportation plans. Chapter Three documents the greenhouse gas emission reductions that can be achieved by various land use and transportation measures. The final report will be issued this December.

It is common for counties and cities doing this work to use computer programs such as the program created by ICLEI-Local Governments for Sustainability.⁶² These programs help identify and organize the data needed to calculate the current level of greenhouse gas emissions in a community. The software can then backcast emission estimates to a base year, commonly 1990.⁶³ The software can also forecast the emissions out twenty or more years and estimate the greenhouse gas emissions that will result from various measures. Spreadsheets and transportation demand models can also be used as well. Existing tools are being updated and new tools are likely to be developed, so it is worth checking on which tools are the most current and effective before conducting an analysis.

Washington is not the only state currently working on this issue. California has developed a “Municipal Operation Protocol” that local governments can use to estimate the emissions from government buildings and operations and potential reductions.⁶⁴ The California Air Resource Board has also drafted but has not adopted a “Community Protocol” that is intended to estimate community-wide emissions including those from the residential, commercial and industrial use of energy, transportation, and industrial emissions and potential reductions.

⁶¹ Fehr & Peers, EDAW, and AECOM, *Assessment of Greenhouse Gas Analysis Tools* (State of Washington Department of Commerce: December 2009) Appendix B - Table 1 Transportation and Land Use Tools. Accessed on December 10, 2009 at: <http://www.commerce.wa.gov/site/1277/default.aspx> (please click on the “appendices” link).

⁶² See for example, Coolcities, *Measuring Your Cool City’s Greenhouse Gas Emissions* pp. 1 – 2. Accessed on October 28, 2009 at: <http://coolcities.us/resources/bestPracticeGuides/GHGInventoryFactsheet.pdf> ICLEI-Local Governments for Sustainability is an international association of more than 650 local governments. ICLEI’s mission is to improve the global environment through local action. On the global warming issue, ICLEI provides its members with resources, tools, peer networking, best practices, and technical assistance to help local governments measure and reduce greenhouse gas emissions in their communities. ICLEI-Local Governments for Sustainability, *About ICLEI* accessed on October 28, 2009 at: <http://www.iclei.org/index.php?id=global-about-iclei> There are other modeling tools and the Washington State SEPA Implementation Work Group (IWG) also inventoried the existing tools. An Excel spreadsheet containing that analysis, Appendix F to Appendix 6: Compilation Table of Measurement Tools, is available at: www.ecy.wa.gov/climatechange/2008CATdocs/IWG/sepa/092908_appendix_f_sepa_tools_matrix.xls

⁶³ 1990 is commonly used because the country specific emissions targets in the Kyoto Protocol are designed to total to a five percent reduction from the 1990 greenhouse gas emission level. United Nations Framework Convention on Climate Change, Kyoto Protocol webpage. Accessed on October 28, 2009 at: http://unfccc.int/kyoto_protocol/items/2830.php So many reduction requirements are based on reductions to or below the 1990 level including Washington’s greenhouse gas emission limits. RCW 70.235.020(1)(a).

⁶⁴ California Environmental Protection Agency, Air Resources Board, *Local Government Protocols for Greenhouse Gas Assessments* webpage. Accessed on October 28, 2009 at: <http://www.arb.ca.gov/cc/protocols/protocols.htm>

5. The GMA, in RCW 36.70A.5801, authorized a Local Government Global Warming Mitigation and Adaptation Pilot Program (2008 Wash. Laws Ch. 289 § 3)

RCW 36.70A.5801 authorized a pilot grant program to fund local government efforts to mitigate global warming and adapt to its effects. In the nomenclature of global warming or climate change, “mitigate” means to reduce greenhouse emissions to help lessen the concentration of greenhouse gases in the atmosphere and the severity of the potential adverse impacts. To “adapt” means to take steps to address the experienced and anticipated problems, such flooding due to sea level rise or increased winter runoff. While the 2009 Washington State Budget includes a small, \$25,000, appropriation for this section, the appropriation is only enough for technical assistance. As the Governor wrote in her veto message:

Only partial funding was provided for the pilot program -- enough for the Department to provide limited technical assistance, but not enough to provide state grant funds to the pilot jurisdictions. I ask the Department to encourage local jurisdictions that have their own resources to begin, on a voluntary basis, to address the role of land use and transportation planning in mitigating climate change. However, given the state's budget forecast, I strongly believe that additional state funding for the pilots will not be available next biennium.⁶⁵

Nevertheless, the Governor did not veto Section 3. Section 3 expires on January 1, 2011.⁶⁶

6. The GMA, in RCW 36.70A.695, requires certain local governments to allow electric vehicle charging and battery replacement stations in certain areas

RCW 36.70A.695(2) requires that King County, and the cities in the county with a population of over 20,000 and adjacent to I-5 and SR 520; Pierce County; Snohomish County; and Thurston County must allow electric vehicle infrastructure in all areas except those zoned residential, natural resource lands, or that are critical areas by July 1, 2010. “‘Electric vehicle infrastructure’ means structures, machinery, and equipment necessary and integral to support an electric vehicle, including battery charging stations, rapid charging stations, and battery exchange stations.”⁶⁷ “By July 1, 2011, or six months after the distribution required under RCW 43.31.970 occurs, whichever is later, the development regulations of any jurisdiction adjacent to Interstate 5, Interstate 90, Interstate 405, or state route number 520 planning under this chapter [the GMA] must allow electric vehicle infrastructure as a use in all areas except those zoned for residential or resource use or critical areas.” “By July 1, 2011, or six months after the distribution required under RCW 43.31.970 occurs, whichever is later, the development regulations of any jurisdiction planning under this chapter must allow battery charging stations as a use in all areas except those zoned for residential or resource use or critical areas.”⁶⁸ Any of these jurisdictions “may adopt and apply other development regulations that do not have the effect of precluding the siting of electric vehicle infrastructure in areas where that use is

⁶⁵ 2008 Wash. Laws Ch. 289 veto message on p. 8.

⁶⁶ RCW 36.70A.5801(5)(c).

⁶⁷ RCW 36.70A.5801(2).

⁶⁸ RCW 36.70A.695(3).

allowed.”⁶⁹ “Cities are authorized to adopt incentive programs to encourage the retrofitting of existing structures with the electrical outlets capable of charging electric vehicles. Incentives may include bonus height, site coverage, floor area ratio, and transferable development rights for use in urban growth areas.”⁷⁰

7. The GMA also requires local governments to address adaptation to global warming and global climate change

Adaptation is the “[a]djustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.”⁷¹ Many of the changes that require adaptation, such as reduced water supplies or increased winter flooding, affect mandatory comprehensive plan elements, such as the capital facilities element, or critical areas.⁷² All Washington Counties and cities must designate and effectively manage critical areas.⁷³ So the GMA requires adaptation in addition to the mitigation of greenhouse gas emissions.

IV. SEPA Requires Counties and Cities to Address Global Warming

The Washington State Environmental Policy Act (SEPA) provides supplemental authority to counties and cities to analyze and mitigate the environmental impacts of their actions, including comprehensive planning and permitted decisions.⁷⁴ “Climate” is an “element of the environment.”⁷⁵ The SEPA Checklist’s air questions ask for the emissions to the air that will occur during project construction and occupancy.⁷⁶ They also ask for the proposed measures to reduce or control emissions.⁷⁷ The SEPA Checklist’s “Supplemental Sheet for Nonproject Actions” asks how the proposal would be likely to increase emissions to air and proposed measures to avoid or reduce these increases.⁷⁸ “Nonproject actions” involve decisions on policies, plans, regulations, or programs.⁷⁹ So we see that SEPA already requires counties and cities to analyze the impacts of their planning and permitting decisions on air quality and climate and therefore global warming and authorizes the mitigation of these impacts.

In addition, the SEPA Checklist’s “Supplemental Sheet For Nonproject Actions” asks that the proponent “[i]dentify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.”⁸⁰ WAC 197-11-330(2)(e)(iii) provides that when making the threshold determination as to whether an EIS is required, the

⁶⁹ RCW 36.70A.695.

⁷⁰ RCW 36.70A.695(4).

⁷¹ United Nations Framework Convention on Climate Change (UNFCCC) Glossary of Climate Change Acronyms accessed on October 28, 2009 at: http://unfccc.int/essential_background/glossary/items/3666.php

⁷² RCW 36.70A.070; RCW 36.70A.030(5).

⁷³ RCW 36.70A.170(1)(d); RCW 36.70A.060(2).

⁷⁴ RCW 43.21C.060.

⁷⁵ WAC 197-11-444(1)(b)(iii).

⁷⁶ WAC 197-11-960(B)(2)(a).

⁷⁷ WAC 197-11-960(B)(2)(c).

⁷⁸ WAC 197-11-960(D)(1).

⁷⁹ WAC 197-11-704(2)(b).

⁸⁰ WAC 197-11-960(D)(7).

responsible official shall consider whether the action to a significant degree will conflict with a law or requirement. The Washington State Supreme Court has held that the renewals of an air quality permit variance that would allow the violation of air emission limits for up to five years requires the preparation of an environmental impact statement (EIS). As the Washington State Supreme Court wrote in *ASARCO Inc. v. Air Quality Coalition*:

We reverse the trial court and uphold the PCHB's [Pollution Control Hearings Board's] determination that there is a reasonable probability PSAPCA's [Puget Sound Air Pollution Control Agency] variance would have a significant adverse impact on the quality of the environment. PSAPCA promulgated the emission levels in a statutorily mandated effort to protect the health of plant, animal and human life as well as the quality of the environment. A variance request seeking to considerably exceed such limits for up to 5 years, in itself suggests a reasonable probability that the quality of the environment will be at least moderately affected.⁸¹

An EIS must be prepared when "more than a moderate effect on the quality of the environment is a reasonable probability."⁸²

In 2007, the Washington State Legislature and the Governor adopted a bill setting goals to reduce global warming gas emissions to no more than the 1990 level by 2020 and to reduce emissions to 50 percent of the 1990 level by 2050.⁸³ In the 2008 legislative session, the legislature and Governor restated the goals as emission limits and moved them to RCW 70.235.020.⁸⁴

Like the emission limits at issue in *ASARCO*, the greenhouse gas emission limits in RCW 70.235.020(1)(a) were adopted to protect the quality of the environment and Washington's communities and the economy.⁸⁵ Global warming is already adversely affecting the Washington environment.⁸⁶ Global warming will also adversely impact human health through increases infectious diseases and heat-related illness and mortality.⁸⁷ So actions that increase greenhouse gas emissions are inconsistent with the state emissions limits and require an environmental impact statement (EIS) on that basis too.

⁸¹ *ASARCO Inc. v. Air Quality Coalition*, 92 Wn.2d 685, 704, 601 P.2d 501, 514 (1979).

⁸² *Norway Hill Preservation and Protection Ass'n v. King County Council*, 87 Wn.2d 267, 278, 552 P.2d 674, 680 (1976) citing *City of Davis v. Coleman*, 521 F.2d 661, 673-74 and n. 16 (9th Cir. 1975).

⁸³ RCW 80.80.020(1) repealed by 2008 Wash. Laws Ch. 14 § 13.

⁸⁴ 2008 Wash. Laws Ch. 14 § 3.

⁸⁵ 2007 Wash. Laws Ch. 307 § 1(1)(a) accessed on October 29, 2009 at: <http://apps.leg.wa.gov/documents/billdocs/2007-08/Pdf/Bills/Session%20Law%202007/6001-S.sl.pdf>

⁸⁶ Washington Economic Steering Committee and the Climate Leadership Initiative Institute for a Sustainable Environment University of Oregon, *Impacts of Climate Change on Washington's Economy: A Preliminary Assessment of Risks and Opportunities* pp. 7 – 8 (Washington State Department of Ecology and State of Washington Department of Community, Trade, and Economic Development: November 2006).

⁸⁷ *Id.* at pp. 83 – 85.

V. Given these Requirements, what should Counties and Cities be doing now and for the 2011 – 14 updates to address the challenges of Global Warming?

Futurewise shares the views of the authors of *Growing Cooler* that we must act quickly to begin to address climate change. We applaud the impressive work being done by the Washington State Legislature, Governor, and state agencies to address this important problem. We also applaud the many counties and cities throughout Washington State that are addressing this serious problem. We encourage these local governments and others to continue the important work of mitigating greenhouse gas emissions and adapting to both the problems and opportunities presented by global warming. Futurewise has the following recommendations.

1. Mitigation

Mitigation refers to measures to reduce greenhouse gas emissions. As we have seen, land use planning has the potential to significantly reduce these emissions.

A. Update comprehensive plans to reduce greenhouse gas emissions

We recommend that counties and cities evaluate and update their comprehensive plans to direct growth in smart ways to reduce our need to drive, reducing our global warming emissions. We think both the CAT and *Growing Cooler* have many good recommendations that can be incorporated into county and city comprehensive plans and development regulations right now. Based on these and other reports, we recommend the following updates to comprehensive plans:

- Adopt a comprehensive plan goal calling for reductions in greenhouse gas emissions and to adapt to the impacts of global warming. This goal should, at a minimum, be consistent with Washington State's greenhouse gas emissions limits. These standards limit greenhouse gas emissions to no more than the 1990 level by 2020, to 25 percent below the 1990 level by 2035, and to 50 percent below the 1990 level by 2050, or 75 percent below the state's expected emissions that year.⁸⁸ Local governments should consider a goal with greater reductions as there is evidence that these emissions reductions will not be sufficient to stabilize greenhouse gas emissions at levels that would minimize the adverse effects of global warming. To stabilize atmospheric carbon dioxide equivalents at a concentration of 450 parts per million (ppm), greenhouse gas emissions need to be reduced by 80 to 95 percent below the 1990 level by 2050 in developed countries.⁸⁹ More recent studies show even this level of atmospheric carbon dioxide equivalents may be too high to stabilize the climate at a level that does not produce serious adverse impacts on the human and natural

⁸⁸ RCW 70.235.020(1)(a).

⁸⁹ S. Gupta, D. A. Tirpak, N. Burger, J. Gupta, N. Höhne, A. I. Boncheva, G. M. Kanoan, C. Kolstad, J. A. Kruger, A. Michaelowa, S. Murase, J. Pershing, T. Saijo, A. Sari, 2007: *Policies, Instruments and Co-operative Arrangements* pp. 775 -76 in *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds)], Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Accessed on December 10, 2009 at: <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter13.pdf>

environments. A goal describes the desired end result of a comprehensive plan and helps guide policies and future actions to implement the comprehensive plan.

- Mixed-use developments that include housing, jobs, services, and retail stores that serve the daily needs of the occupants. These developments have the potential to both reduce trip lengths and allow trips to be shifted from single-occupancy vehicles to walking and biking. We also agree with the CAT that these types of developments need amenities to make urban living delightful and to encourage walking. The densities in these developments should support transit use. We recommend densities of at least 30 housing units per acre. At densities of 30 units per acre, transit use triples.⁹⁰ Higher densities are preferable to meet other community goals.
- Transit-oriented development at transit stations, along transit lines, and at the focuses of bus lines. While there are many great examples of transit-oriented development at transit stations, these developments can also work at bus stations too. King County has done several successful transit-oriented developments at park and ride lots and the City of Burien has transformed its transit center by incorporating many elements of transit-oriented development. Again, we recommend densities of at least 30 housing units per acre. For information on how to effectively plan for and develop transit-oriented communities and maximize their social and environmental benefits please see Futurewise's, GGLO's and Transportation Choices' publication Transit-Oriented Communities: A Blueprint for Washington State available at: <http://www.futurewise.org/resources/publications/FuturewiseBlueprintforTOCforWebsite.pdf>
- Locate housing in proximity to employment concentrations and plan for densities that are affordable to those who work in the employment concentrations. This is often referred to as "workforce" housing.⁹¹
- A community's land use and housing elements should plan for housing so low- and moderate-income workers can live within an easy transit or bike commute to work.
- Urban residential densities should support bus service to give residents travel choices and provide mobility for those who do not or cannot drive. We agree with the CAT that urban residential densities should average eight to ten dwelling units per acre outside extensive critical areas. In no case should these densities be less than seven dwelling units per acre outside extensive critical areas or other areas where residential development is incompatible with other uses, such as airport or military operations. Residential densities of at least seven dwelling units per acre are needed to economically support local bus routes with 30 minute headways.⁹²
- Adopt a complete streets policy. Complete streets means that when streets are constructed or rehabilitated, all needed facilities including sidewalks or trails, bike lanes, and bus and transit

⁹⁰ Institute of Transportation Engineers, *A Toolbox for Alleviating Traffic Congestion* p. 97 (1989). Accessed on October 28, 2009 at: http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/10803.pdf

⁹¹ Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen, *Growing Cooler: The Evidence on Urban Development and Climate Change* p. 153 (The Urban Land Institute, Washington D.C.: 2008).

⁹² Institute of Transportation Engineers, *A Toolbox for Alleviating Traffic Congestion* p. 87 (1989).

stops are constructed so the needs of all travelers who use the street or road are met, not just those traveling in cars.⁹³

- The comprehensive plan and development regulations should allow appropriate renewable energy sources. An important part of the solution to global warming will be both small scale and large scale renewable energy sources such as solar energy and wind energy. The comprehensive plan and development regulations should encourage the siting of these technologies in appropriate locations and have reasonable provisions to protect solar collectors from shading.
- Protect working forests, working farms, wetlands, and other carbon sinks from development. In 2005, forest land and land use sequestered an estimated 30 percent of Washington greenhouse gas emissions.⁹⁴ Agricultural soils sequestered an estimated 1.5 percent of the state's greenhouse gas emissions.⁹⁵ Paving over forest land, farmlands, wetlands, and other carbon sinks will require us to reduce emissions even more than is currently required to achieve the state's adopted greenhouse gas reduction requirements.

B. Evaluate the greenhouse gas generation from comprehensive plan updates and amendments and developments for conformance with the state's greenhouse gas emission limits

CAT Recommendation 3 is that state agencies, counties, and cities “analyze greenhouse gas emissions and mitigation options early in the decision-making, planning ..., and development” review processes.⁹⁶ The authors of *Growing Cooler* also make the same recommendation.⁹⁷ The CAT Transportation Sector Technical Work Group also recommended analysis of the greenhouse gas emissions likely to result from urban growth area expansions. If urban growth area expansions are approved, “the city or county comprehensive plan for this area must provide for a compact development pattern and other measures to mitigate [greenhouse gas] emissions.”⁹⁸ We strongly support these recommendations. We also recommend that the analysis also be conducted for other planning decisions that commit counties and cities to long-term land use patterns such as subarea plans, comprehensive plan amendments, and rezones. Local comprehensive plans and development regulations should then incorporate measures to mitigate the greenhouse gas emissions from these proposals.

⁹³ See the National Complete Streets Coalition website accessed on October 28, 2009 at: <http://www.completestreets.org/>

⁹⁴ Center for Climate Strategies, Washington State Department of Ecology and State of Washington Department of Community, Trade, and Economic Development, *Washington State Greenhouse Gas Inventory and Reference Case Projections, 1990-2020* p. ES-5 (December 2007).

⁹⁵ *Id.*

⁹⁶ *Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State Recommendations of the Washington Climate Advisory Team* p. 48 (February 1, 2008).

⁹⁷ Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen, *Growing Cooler: The Evidence on Urban Development and Climate Change* pp. 143 – 45 (The Urban Land Institute, Washington D.C.: 2008).

⁹⁸ *Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State Recommendations of the Washington Climate Advisory Team* (February 1, 2008) Transportation Sector Technical Working Group Policy Option Recommendations p. 30.

While addressing global warming during the permitting process may increase some costs for developers, those costs can be reduced by conducting assessments of the global warming impacts of development as part of the process for the adoption and updating of comprehensive plans and development regulations. Conducting some of the evaluation at the comprehensive planning level will increase the likelihood that comprehensive plans will effectively address greenhouse gas generation while minimizing cost increases for developers.

In interpreting SEPA, the Washington state courts look to federal court decisions for guidance since SEPA was patterned after the National Environmental Policy Act (NEPA).⁹⁹ The United States Ninth Circuit Court of Appeals has recently held that the National Highway Traffic Safety Administration (NHTSA) was required to prepare either a new environmental assessment or an EIS to address the greenhouse gas emissions from the new corporate average fuel economy (CAFE) standards.¹⁰⁰ The CAFE standards regulate the average fuel efficiency of motor vehicles. The Court of Appeals concluded that a substantial question had been raised as to whether the CAFE standards may significantly affect the environment.¹⁰¹ This is similar to the SEPA standard that an EIS must be prepared “whenever more than a moderate effect on the environment is a reasonable probability.”¹⁰² The Ninth Circuit found as persuasive evidence the IPCC reports.¹⁰³ The court cited to the reports to document that human activities were causing global climate change.¹⁰⁴ The court also concluded that the CAFE rule may have a cumulatively significant impact with respect to global warming.¹⁰⁵

Interestingly, the Ninth Circuit rejected the argument that because the new regulations reduced the rate of greenhouse gas emissions compared to the prior light truck CAFE standard, an EIS was not needed. The court wrote that simply because the final rule may be an improvement over the earlier standard “does not necessarily mean that it will not have a ‘significant effect’ on the environment.”¹⁰⁶ The Washington courts are also likely to conclude that EISs are required to assess greenhouse gas emissions when faced with appeals under SEPA.

Washington is not the only state addressing the question of how to use its state environmental policy act to address greenhouse gas emissions. Massachusetts is using its Massachusetts Environmental Policy Act (MEPA) to require that project proponents quantify greenhouse gas emissions and identify measures to avoid, minimize, and mitigate the emissions.¹⁰⁷ California

⁹⁹ See *Norway Hill Preservation and Protection Ass'n v. King County Council*, 87 Wn.2d 267, 278, 552 P.2d 674, 680 (1976) citing *City of Davis v. Coleman*, 521 F.2d 661, 673-74 and n. 16 (9th Cir. 1975); *Narrowsview Preservation Ass'n v. City of Tacoma*, 84 Wn.2d 416, 423, 526 P.2d 897, 902 (1974) citing *Hanly v. Kleindienst*, 471 F.2d 823, 828 (2d Cir. 1972).

¹⁰⁰ *Center for Biological Diversity v. National Highway Traffic Safety Administration*, 538 F.3d 1172, 1227 (9th Cir. 2008).

¹⁰¹ *Id.* at 1225.

¹⁰² *Norway Hill Preservation and Protection Association v. King County Council*, 87 Wn.2d 267, 278, 552 P.2d 674, 680 (1976).

¹⁰³ *Center for Biological Diversity*, 538 F.3d at 1221 – 22.

¹⁰⁴ *Id.*

¹⁰⁵ *Id.* at 1222.

¹⁰⁶ *Id.* at 1224.

¹⁰⁷ Deerin Babb-Brott, *MEPA Greenhouse Gas Policy and Protocol* (State of Massachusetts, Executive Office of Energy & Environmental Affairs: December 7, 2007). Accessed on October 28, 2009 at: http://www.eot.state.ma.us/smartgrowth/downloads/SessionsB/B6/B6_babb-brottd.pdf

has seen a fair amount of litigation over failures to assess and mitigate greenhouse gas emissions under its California Environmental Quality Act (CEQA). California Attorney General Jerry Brown has been active in this litigation bringing a lawsuit against San Bernardino County over its update to its comprehensive plan, subarea plans, and development regulations. That lawsuit was settled when the county agreed to adopt a Greenhouse Gas Emissions Reduction Plan.¹⁰⁸

As we have seen, The Washington State Department of Commerce is currently preparing a report that analyzes and makes recommendations on tools local governments can use to assess greenhouse gas emission. The Washington State SEPA Implementation Work Group (IWG) also inventoried the existing tools and included the inventory in its final report.¹⁰⁹ An Excel spreadsheet containing that analysis, Appendix F to Appendix 6: Compilation Table of Measurement Tools, is available at: www.ecy.wa.gov/climatechange/2008CATdocs/IWG/sepa/092908_appendix_f_sepa_tools_matrix.xls

Ecology and the successor to the SEPA IWG is also working on guidance that local governments and state agencies can use. It is expected that this work will be concluded by the end of this year. Until Ecology issues this guidance, we recommend that for smaller actions acknowledge impacts qualitatively or through a worksheet and apply reasonable mitigation through a mitigated determination of non-significance (MDNS). For larger actions, such as comprehensive plan amendments, use the existing tools to estimate impacts and mitigate towards the state reduction standards through a MDNS or prepare an EIS.

C. Use incentives to encourage development patterns and fund transportation and capital improvements that support reductions greenhouse gas generation

The CAT also recommends that incentives be used to encourage improved community planning and improved building design and construction.¹¹⁰ *Growing Cooler* contains a similar recommendation.¹¹¹ We concur. We also recommend that the metropolitan planning organizations, such as the Puget Sound Regional Council, and the regional transportation planning organizations incorporate this criterion into their grant programs.

¹⁰⁸ Office of the Attorney General State of California, California Environmental Quality Act webpage. Accessed on October 28, 2009 at: <http://ag.ca.gov/globalwarming/ceqa.php>

¹⁰⁹ Washington State Climate Action Team, *Leading the Way: Implementing Practical Solutions to the Climate Change Challenge* (November 2008) Appendix 6: State Environmental Policy Act (SEPA) Implementation Working Group (IWG) Report to the Climate Action Team. Accessed on October 28, 2009 at: http://www.ecy.wa.gov/climatechange/2008CATdocs/ltw_app_v2.pdf

¹¹⁰ *Leading the Way: A Comprehensive Approach to Reducing Greenhouse Gases in Washington State Recommendations of the Washington Climate Advisory Team* pp. 50 – 52 (February 1, 2008).

¹¹¹ Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen, *Growing Cooler: The Evidence on Urban Development and Climate Change* p. 146 (The Urban Land Institute, Washington D.C.: 2008).

D. Change the rules of development so that developments that reduce greenhouse gas generation are the easiest to build

Growing Cooler recommends that local governments amend their comprehensive plans and development regulations so that developments that reduce greenhouse gas generation are the easiest to build.¹¹² The authors recommend an evaluation of comprehensive plans and development regulations, such as zoning regulations, to eliminate barriers to this type of development. For example, the City of Seattle has eliminated parking requirements for certain types of residential development in neighborhoods with good transit service and the City of Tacoma has eliminated minimum parking requirements in most of their mixed-use centers. This provides an incentive for developments that do not rely on single-occupant vehicle travel.

Growing Cooler also recommends that local governments favor smart growth projects in the development approval process.¹¹³ Communities could give expedited permit processing for smart growth projects. Bonuses could be granted for certain types of features that reduce greenhouse gas generation.

E. Adopt pedestrian-friendly site and building design standards

Community design can increase walking and bicycling. So can better building design. Counties and cities should adopt site and building design standards for urban areas that encourage walking and biking. This includes building close to sidewalks, providing for uses that create activity on the street such as retail uses, and prohibiting offstreet parking between the building and the street.

F. Adopt a carbon fee for new developments

One method of streamlining development review is to adopt a carbon fee for new development to offset the development's greenhouse gas emissions.¹¹⁴ For example, fee revenues from a carbon fee could be used to purchase development rights from forest and farm land to maintain their ability to sequester carbon. Fee revenues could also fund sidewalks, bikeways, and transit to reduce greenhouse gas emissions. A carbon fee is market-based and would also send a price signal to encourage development in locations that would allow for lower greenhouse gas emissions and, therefore, have a low carbon fee or even no carbon fee.

G. Promote green jobs

As we have seen, greenhouse gas reduction efforts can also lead to more business and more jobs. These are often referred to as "green jobs." The comprehensive plan economic development element should include measures to increase green businesses and green jobs in the community.

¹¹² *Id.* at pp. 151 – 52.

¹¹³ *Id.* at p. 152.

¹¹⁴ *Id.* at p. 148.

2. Adaptation

As we have seen, counties and cities in Washington are going to be faced with sea level rise due to global warming. Other natural hazards, such as flooding, are likely to be exacerbated as more winter precipitation falls as rain rather than snow. This pattern will reduce water supplies for cities, towns, farmers, ranchers, and residents and businesses. Local governments should take steps now to address these problems. By starting now we can reduce the total costs, protect people and property, and help maintain our economy. We recommend that counties and cities take the following steps as they update their comprehensive plans and development regulations and consider amendments to plans and regulations:

- Identify areas likely to be adversely affected by sea level rise and increased winter flooding. Direct growth away from areas likely to be inundated by storm driven waves and higher floods or more frequent floods.
- Identify which lifeline facilities, such as streets and highways, that are likely to be inundated by sea level rise, erosion driven by sea level rise, or flooding. Plan to relocate, harden, or elevate these facilities before the impacts are likely to occur.
- Reconsider the criteria used to size storm water facilities in light of the more intense storms we are likely to see. Use low impact development techniques in new development and retrofit existing development with those methods to reduce storm water flooding in already built up areas. Identify outfalls, tide gates, and other facilities that are likely to be less functional due to higher water levels in functional plans and plan for their replacement or improvement.
- While some jurisdictions will have adequate drinking and irrigation supplies, others will not. Counties and cities should plan for how they will address the changes in water supply. Conservation is a particularly valuable way to extend declining water supplies.

The University of Washington's Climate Impacts Group's *The Washington Climate Change Impacts Assessment: Evaluating Washington's Future in a Changing Climate* identifies impacts and some potential solutions, see <http://cses.washington.edu/cig/res/ia/waccia.shtml>. The University of Washington's Climate Impacts Group; former King County Executive Ron Sims, and King County's climate team have prepared a helpful guidebook on adaption entitled *Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments*. You can download it for free at: <http://cses.washington.edu/cig/fpt/guidebook.shtml>

VI. Additional Resources

There are many excellent sources of additional information on global warming on the internet. They include:

- Intergovernmental Panel on Climate Change (IPCC) <http://www.ipcc.ch/index.htm>
- United Nations Framework Convention on Climate Change (UNFCCC) <http://unfccc.int/2860.php>

- United Nations Framework Convention on Climate Change Local Coping Strategies Database: <http://maindb.unfccc.int/public/adaptation/> Information on strategies for adapting to climate change.
- Western Climate Initiative (WCI) <http://www.westernclimateinitiative.org/>
- Washington State Department of Ecology Climate Change webpage: <http://www.ecy.wa.gov/climatechange/index.htm>
- Washington State 2008 Climate Action Team (CAT): http://www.ecy.wa.gov/climatechange/2008CAT_overview.htm
- Washington State Department of Commerce's Climate Change Webpage with helpful web links: <http://www.commerce.wa.gov/site/1105/default.aspx>
- Washington State Department of Commerce's webpage for its final Greenhouse Gas Emissions Planning Tools report: <http://www.commerce.wa.gov/site/1277/default.aspx>
- Washington State SEPA Implementation Work Group (IWG): http://www.ecy.wa.gov/climatechange/2008CAT_iwg_sepa.htm
- Climate Change Mitigation through the Growth Management Act & Land Use and Climate Change Advisory Committee: <http://www.ecy.wa.gov/climatechange/growthmgt.htm#landusecommittee>
- Puget Sound Clean Air Agency Climate Change website: <http://www.pscleanair.org/programs/climate/default.aspx>
- King County Department of Development and Environmental Services Climate Change and Development Regulations website: <http://www.kingcounty.gov/property/permits/info/SiteSpecific/ClimateChange.aspx>
- City of Seattle Climate Action Plan webpage: <http://www.seattle.gov/climate/>
- ICLEI-Local Governments for Sustainability webpage: <http://www.iclei.org/index.php?id=392>
- University of Washington Climate Impacts Group (CIG) webpage: <http://eses.washington.edu/cig/>
- Cool Cites webpage: <http://coolcities.us/>
- Association of Washington Cities (AWC) Climate Change Training Materials: <http://www.awcnet.org/portal/studionew.asp?Mode=b1&WebID=1&UID=&MenuActionTypeID=80&MenuActionParm=137&OriginPage=/portal/studionew.asp&EDate=&ChannelLinkId=7682>
- The Greenhouse Gas Protocol Initiative has guidance and calculators that can be used to estimate greenhouse gas emissions: <http://www.ghgprotocol.org/calculation-tools/all-tools>
- California Environmental Protection Agency, Air Resources Board Greenhouse Climate Change Program: <http://www.arb.ca.gov/cc/cc.htm>
- The California Air Resources Board (ARB) Local Government Toolkit at the Cool California website: <http://www.coolcalifornia.org/local-government> A one stop shop on how local governments can reduce greenhouse emissions and save money.

- The [California] Governor's Office of Planning and Research's CEQA Guidelines and Greenhouse Gases webpage: <http://opr.ca.gov/index.php?a=ceqa/index.html> This website includes links to methodologies, lists of environmental documents and plans and policies that address climate change and GHG emissions, and links to other reports on assessing and mitigating greenhouse gas emissions.
- California Air Pollution Control Officers Association: <http://www.capcoa.org/> The website includes a handbook for assessing greenhouse emissions and mitigation for environmental reviews and also model policies for greenhouse gas reductions in comprehensive plans

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