This document contains comments received for MWCOG's Greenhouse Gas Multi-Sector Working Group (MSWG) between January 30, 2015 and March 16, 2015.

Tad Aburn
Maryland Department of the Environment (MDE)
February 13, 2015

Maryland Department of the Environment
Draft strategies for "What We Can Do" Report

Prepared for MWCOG' Multi-Sector GHG Working Group
February 13, 2015

1. **Provide Transparency in Transportation Planning**
    - To better understand and inform the public about how the region's transportation plans will decrease – or increase – CO_2 emissions, COG should make available to the public the CO_2 data that is automatically generated whenever a MOVES run is done for the NOx and VOCs conformity analysis in the Transportation Planning Board (TPB's) Short Range Transportation Improvement Plans (TIPs).

2. **Set GHG Benchmarks for TIP updates**
    - COG to adopt a benchmark goal to increase the rate of reduction of GHG emissions by 1 percent from the previous TIP each time a TIP is updated (i.e. annually)
    - COG to provide technical assistance to help local government transportation planners assess GHG impacts and develop reduction strategies early in the planning phase for projects under consideration for funding
    - The TPB to link project funding to progress toward meeting the benchmark
    - COG to identify and share best practices with local governments for analyzing and reducing GHG impacts in transportation project planning

3. **Advance Electric Vehicle Deployment**
    - Encourage local jurisdictions to adopt grant and tax incentives for EVs and charging equipment (EVSE). Examples:
        - Maryland Energy Administration's Smart Energy Communities Program – provides funding to jurisdictions for EV/EVSE purchases/ installations
        - MD's EV excise tax credit
        - MD's EVSE rebate
    - Explore other opportunities to support EVSE infrastructure build-out, e.g.:
        - Use settlement funds from environmental enforcement actions (e.g. Maryland SEP funds to build fast charger network)
        - Encourage partnerships between auto manufacturers (OEMs) and EVSE providers (e.g. NISSAN/NRG partnership)
    - Develop HOV lane reciprocity for MD, VA and DC
    - Conduct an EV Readiness Workshop for COG local government planners, building code and purchasing agencies
    - Convene a Workplace Charging Summit for large employers in COG jurisdictions

- Promote Bulk Fleet Purchases
    - Adopt an overall fleet purchasing goal for COG jurisdictions
    - Develop vehicle specs and joint purchasing opportunities
- Create a Dealer Recognition Program for regional leaders in EV sales and workforce training
- Work with dealers and OEMs to identify, evaluate, and implement creative financing strategies to reduce EV purchase prices
- Develop and implement a public EV education/outreach campaign
    - Develop a speakers bureau
    - Piggyback onto regional events as opportunities arise
        - Staff EV information booths
        - Work with OEMs and dealers to set up public ride and drives

4. Advance Creative "Green" Financing

- Develop innovative and effective methods of financing for environmental projects
- Extend outreach during project planning phase to attract green private investment at scales that impact GHG emissions
- Educate municipalities about the role of finance and economic development in reducing environmental impact
- Develop green markets and economies to meet (increasing) energy demand with zero or low-carbon technologies
- Design public policies that help local governments and organizations overcome investment risks
- Set-up "green bank" to provide financing for "green projects" by leveraging public funds to attract private investment
- Work with regional lending institutions to offer commercial and consumer loans structured to amortize energy efficiency and clean energy investments through monthly savings over the life of the project
- Work with local jurisdictions to adopt Property Assessed Clean Energy (PACE) ordinances allowing energy efficiency and clean energy improvements to be financed through property tax assessments (modeled after Montgomery County's program)
- Work with regional utilities to adopt "on bill" financing for energy efficiency improvements
- Examples of organizations currently providing support for "green financing"
    - Environmental Finance Center (EFC) at the University of Maryland
    - Maryland Smart Energy Communities Program (MSEC)
    - Coalition for Green Capital (CGC)

Rachel Healy
Washington Metropolitan Area Transit Authority (WMATA)
February 17, 2015

We are good with the strategies outlined in National Capital Region Climate Change Report, Table ES-1. Recommendations: Summary and Qualitative Assessment, IIII. Transportation and Land Use.

We also wanted to share some resources that staff and/or consultants might find useful in preparing for meetings or reports.

http://www.citylab.com/commute/2015/02/all-the-ways-germany-is-less-car-reliant-than-the-us-in-1-chart/385163/
The map comparison half way down the article is fascinating. The Stuttgart region is about half the size of the DC region for the same number of people. Which clearly means more density and less sprawl. Coordination across policy objectives has shaped the city increasing health and reducing operating costs along with emissions.

http://coolclimate.berkeley.edu/maps
Tabulated GHG emissions by source for every zip code in the United States. Yes, every one of them. A quick scan tells us that the transport sector is the BIGGEST culprit in the DC region.

https://www.itdp.org/a-global-high-shift-scenario/
While a number of studies have focused on the effects on global warming pollution of more stringent standards for motor vehicle fuel economy, emissions of local air pollutants, and alternative fuels, this is the first study to examine how major changes in transport infrastructure and transit system investments world-wide would affect urban passenger transport emissions as well as mobility by different income groups. The findings of the study are relevant to three concurrent policy discussions of: how to manage climate change, how to advance equitable and environmentally sustainable economic and social development, and how to manage unprecedented urbanization. To make progress, the world needs to find ways to do all these things together. This report shows a way to do so.

http://www.washingtonpost.com/blogs/wonkblog/wp/2014/09/22/how-compact-cities-help-curb-climate-change/
Our very own WP wonkblog on the post.

Tim Roseboom
Virginia Department of Rail and Public Transportation
February 19, 2015

I'd like this group to consider the air quality impact of a couple of scenarios of converting or constructing new transit garages that are alternative fuels. Figure that a typical garage houses 200 buses and on any give weekday 75-80 percent are out delivering service. I'd like to measure the reduction in emission of

converting a diesel garage to hybrid (gas electric) or to CNG and eventually to fully electric (the technology hasn't evolved yet but my personal opinion is that is where the transit industry ends and hybrid diesel-electric are a step on the way). One huge advantage of hybrids is that they don't require completely renovating or constructing a new garage the way that CNG does.

As a state agency, we don't really offer any incentives for converting to CNG or purchasing higher cost hybrids but we do get requests from time to time. And we haven't seen any fully CNG facilities constructed. Most transit agencies are typically only interested in hybrids as an operating cost savings and not for the environmental benefits on their own.

Noel Kaplan
Fairfax County
February 20, 2015

COG Multi-Sector Working Group, Land Use Subgroup
GHG emissions reduction strategies for consideration—Brainstorming, 2-20-15

1. **Establish a region-wide tree canopy goal that would result in an increase in tree canopy over the region compared with what might be expected based on recent trends and growth projections.**

   Responsibility: Regional planning effort along with local government implementation through regulation, policy and tree and forest conservation, management and planting initiatives

   Potential co-benefits: Urban heat island reduction; Air quality improvement; building energy use reduction; stormwater runoff reduction; wildlife habitat; nonpoint source water pollution reduction; and human health and well-being.

   Strategies/measures/targets: This would need to be determined by urban forest professionals in the region based on an analysis of existing tree canopy, an evaluation of trends and an evaluation of potential targets for feasibility.

2. [Perhaps this would be something that would need to be considered by the Energy/Environment Subgroup, but I do see a land use process component].

   Incorporate energy performance targets into local government green building policies as they relate to private sector development, or otherwise increase energy efficiency requirements in building codes.
   - An example is Arlington County's green building bonus density program, which requires, for attainment of various levels of density bonuses, both attainment of specified levels of LEED certification AND minimum levels of energy

performance (i.e. LEED energy optimization points or ENERGY STAR certification).

- Strengthening of requirements, as opposed to voluntary approaches through green building density incentives and/or proffer commitments, may require building code and/or legislative changes at the state level.

Responsibility: May require state enabling and/or building code changes. Otherwise, this would be a local government responsibility.

Potential co-benefits: Reduced energy costs for building owners/tenants; Reduced emissions of air pollutants from energy generation

Strategies/measures/targets: The question of measures/targets could perhaps be referred to the Energy/Environment Subgroup. Perhaps "what if" questions could be posed based on differing levels of energy efficiency and different levels of implementation.

3. [Perhaps this would be something that would need to be considered by the Transportation Subgroup, but I do see a land use process component. Also, I don't see this action directly resulting in emissions reductions, but it would facilitate future reductions through support for future EV charging retrofits.]

   Establish regional guidelines for electric vehicle-readiness in site designs for residential and commercial development. This would not set expectations for provision of electric vehicle charging stations but would provide guidelines that localities could use to negotiate or require certain percentages of parking facilities to be designed to allow for easy, inexpensive retrofitting of charging stations in the future (e.g., provision of conduit, access points, sizing of electrical rooms and assurance of sufficient electrical loads).

   Responsibility: Regional planning effort to establish guidelines, with local government implementation through regulation and/or policy. State enabling legislation may be needed depending on the implementation approach that would be pursued.

   Potential co-benefits: Air quality improvement (depending on the source of electricity generation); reduced reliance on fossil fuels.

   Strategies/measures/targets: Localities around the country that have applied EV-ready thresholds have pursued this at levels ranging from 1% to 20% of parking spaces; there's no clear answer as to what the "best" figure would be. Further, there would not be a way to directly equate EV-ready design to GHG emissions reductions, as market conditions would dictate when EV charging stations would be installed, along with electric vehicle sales.

4. **Pursue natural landscaping techniques (using native plant species that would require less maintenance, thereby reducing energy usage associated with**

maintenance and irrigation) for new development projects and retrofits. Encourage property owners/site managers to apply these concepts.

Responsibility: Local government implementation through regulation, policy and public outreach/education, as well as direct application on government-owned properties. Application of the concept by property managers (whether public or private).

Potential co-benefits: Stormwater runoff reduction; wildlife habitat; nonpoint source water pollution reduction; reduced stress on water supply during drought conditions.

Strategies/measures/targets: This would need to be determined by urban forest and landscaping professionals in the region based on an analysis of existing landscaped acreage, future development potential, and an evaluation of potential targets for feasibility.

Ron Burns
Frederick County
February 20, 2015

1. Land use mixing (i.e. MXD PUD's) and placement (e.g., exurban job sites on radial corridors) can reduce VMT and increase non-peak, less congested traffic flows, respectively
2. Cost effective roadway improvements applied to bottlenecks, makes the best use of resources for the win-win of less motorist travel time and less idling
3. Signal efficiency improvements and roundabouts as the default over signals for intersection control, are cost effective improvements that reduce idling time

Dyan Backe
City of Gaithersburg
February 24, 2015

What We Can Do Suggestions

- Identify local, best practices for fuel choices, seeking to phase out/remove "dirtiest" fuel types (in local context).
- Investigate effectiveness of voluntary and mandatory benchmarking policies.
- Investigate effectiveness of energy performance requirements by building type, as alternative to green building standards.
- Evaluate local effectiveness of night-time only deliveries to large scale businesses (grocery stores, big-box retail).
- Analyze impact of upgrading school bus fuel choice.
- Analyze impact of having a certain percentage of buildings within the region "off-grid", to see if air quality would measurably improve.

- Analyze the impact of larger scale initiative for outreach and engagement of the general public to tackle the issue of Greenhouse Gas emissions locally (ie. mobilization of neighborhoods, HOA's, more pilot projects at the neighborhood scale).
- Consider equitable distribution of impacts (ie. do those in activity centers suffer worse air quality due to higher concentration of vehicles and lower concentration of trees, open space).
- Evaluate impact of greater densification of Activity Centers and even greater limits on future development outside of small Activity Centers.
- Seek alternative funding mechanisms for strategies to reduce Greenhouse Gas Emissions.
- Analyze impact of comparing areas in a like to like basis (rather than compare each COG jurisdiction, compare/contrast by similar characteristics such as Activity Center to Activity Center and village to village).
- Evaluate impact of using smog-eating materials in construction and reducing older cars/yard equipment in Activity Centers.

Gary Erenrich
Montgomery County
February 25, 2015

From my earlier work as a consultant, I found that buses have to be well used in terms of ridership to offset their CO2 emissions. I asked John Thomas of my staff to runs some numbers for our Ride On fleet. This analysis can be easily run for the entire fleet of transit buses by operator. Basically, Ride On has a mix of CNG and Diesel buses with a few gasoline buses in its fleet. Using data from the National Transit Database fuel amount use by fuel type is readily available. For Ride for year 2013, buses consumed 2.4 million gallons of diesel, 940,000 gallon equivalent of CNG and 1600 gallons of gasoline. With our bus fleet total miles, Ride On emits about 3.5 pounds of CO2 per mile traveled. A typical car, as reported by EPA emits 0.9 pounds of CO2 per mile traveled.

Doing the math, it takes about 3.8 cars off the road to offset the bus emissions per mile. This also translates into about 3.25 person trips on the average on the bus using the Ride On average trip length. This equivalent number of cars to bus has been reduced over time because we have newer bus fleet with more clean diesel and CNG buses. The equivalency was much larger with the older diesel fleet.

This means that on average every bus mile traveled has to have 4 to 5 riders on board. Ride On runs about 70,000 bus miles per day and carries about 86,000 daily weekday riders. This translates into about 1.2 passengers per bus mile averaged throughout the day. Of course buses are full during the peak periods, but with long operating span from early morning to late at night the daily average is lower than expected. There are many routes that have excellent ridership and performance, but we also have many policy routes that serve less dense areas that need access to transit.

In conclusion, more detailed analysis will be needed to identify the bus emissions profile of all of the public transit operators and to determine where and how increasing public transit supply will reduce greenhouse gases.

Gary V. Hodge
TPB Citizen's Advisory Committee (CAC)
February 26, 2015

I hope that the new multi-sector workgroup you are putting together will take a serious look at the potential for nuclear energy development as part of the region's strategy for reducing greenhouse gas emissions. Everything worth doing "faces significant hurdles to implementation," especially when proven technology is considered "off limits" for political or ideological reasons.

I invite you to view tonight's broadcast of the American Experience biography of Admiral Hyman Rickover, the father of the nuclear Navy, at 9:00 on WETAH, for some insights to overcoming "significant hurdles."

A few days ago I came across the following excerpt from the 2003 report by the Columbia (Space Shuttle) Investigation Board: "The U.S. nuclear Navy (as of 2003) has more than 5,500 reactor years of experience without a reactor accident. Put another way, nuclear-powered warships have steamed a cumulative total of over 127 million miles, which is roughly equivalent to over 265 lunar round trips." The Board cited the accident-free record of the nuclear Navy in recommending that the safety procedures used by the Navy be adopted for the NASA shuttle program.

It has been 60 years since the United States developed nuclear technology for military AND civilian use. We created this technology and proved that it can be operated safely. But in 2014 the question must be asked, "As a nation, are we up to the challenge of perfecting this technology for domestic energy production, or are we content to let other countries like China take the lead?"

Time is the enemy, and we are losing the race against global climate change. As a highly respected regional institution, I believe COG can play an important leadership role in revisiting this issue in the context of the need for urgent action to address this international threat, with vision and analysis driven by facts and science, not clouded by political agendas and rhetoric from either the left or the right.

The potential exists for expansion of the nuclear power generating capacity of Calvert Cliffs, in Calvert County, right here in the metropolitan Washington area, with the addition of a third reactor. The result would be a dramatic increase in energy production, sufficient to meet the needs of approximately half the households in the State of Maryland. A few years ago Calvert Cliffs was the first nuclear plant in the nation to apply for a license to build a new reactor since 1979. The local elected leaders of Calvert County and Southern Maryland have been on record for years strongly endorsing this project, and it has widespread community support throughout the region. My understanding is that the principal obstacle was a federal law prohibiting American utility companies from partnering with a foreign companies in the development of new nuclear facilities----in this case Electricite de France (EDF), the successful operator of nuclear power plants that meet 70 percent of France's domestic energy needs, with a proven track record second to none. Here is a case where the support of our Congressional leaders would be needed to move this project forward.

The overarching question is, are we still world leaders in the field of nuclear energy, or are we content to surrender that role to others?" Are we prepared to dither away a few more decades hoping to be rescued by renewable energy sources like solar and wind? Will these new sources, along with tighter controls on vehicle emissions, enable us to roll back total greenhouse gas emissions, or just limit their rate of increase? Will these improvements "at the margins" keep pace with our region's rapidly growing population and economy, without bringing on-line the one proven strategy we already know would have the "hitting power" to replace energy now being produced with fossil fuels? Are we serious about addressing the causes of climate change, or would we prefer to talk about it until it's too late?

These are issues I hope your new workgroup will consider, not only in the microcosm or "test bed" of the Washington area, but also as a contribution to a badly needed discussion at the national level. I hope your analysis and deliberations will be driven by both urgency and by objectivity. For too long, the discussion of energy policy and climate change has been a "political football," passed around from election cycle to election cycle, with the two interconnected issues on parallel tracks, rather than on a concurrent, comprehensive and integrated path. COG is in a unique position to illuminate this discussion. Perhaps we can do better at the regional level, and help point the way forward.

Nicholas Bonard
National Capital Planning Commission
March 6, 2015

GHG reduction strategies – Planning Subgroup

In general, the following two books are a great resource and were used for many of the ideas below:

Ewing, Reid H. **Growing Cooler: Evidence on Urban Development and Climate Change.** Washington, D.C.: ULI, 2008. Print.

Calthorpe, Peter. **Urbanism in the Age of Climate Change**. Washington, DC: Island, 2011. Print.

Municipal Policies

- **Comprehensive Plan Changes**
  - Make walkability/bikablity chief urban design considerations. Make the areas that are currently dense even more inviting.
  - Include GHG emissions impacts as part of comprehensive plan, and ensure that a new plan helps meet GHG reduction targets.
- **Zoning changes**
  - Maximum parking regulations
  - Incentives to connect to district energy system if available
  - Incentivize (Density bonuses) housing and every day services around transit
  - Change zoning to accept accessory dwelling units near transit

- **Project Review**
  - Require an assessment of GHG emissions impacts as part of plan review
  - Carbon impact fees for new developments.

        - Should include location as part of the assessment. Look at San Joaquin Valley Air Pollution Control District as an example.

Regional Banks

- Offer Location efficient mortgages (mortgages that take cost of commuting into account)

Policy Ideas

- **Planning to Reduce VMT**
    - Make driving harder
        - VMT Cap and trade. Set a Limit for the region based on a per capita goal for each jurisdiction.
        - VMT reduction per capita goals
        - Downtown congestion charge
        - Reduce vehicle right of way on existing streets
        - Car free streets
    - Make Biking/Walking/Transit better
        - Transit accessible affordable housing
        - Pedestrian only streets
        - Reduce vehicle right of way on existing streets
        - Require Bike paths when road building
            - Oregon Bike Bill requires state and local government to provide footpaths and bike trails wherever a highway road or street is being constructed.
    - Incentive area companies to increase Teleworking / Flex Scheduling
- **Planning to increase density (while maintaining height limits)**
    - Set targets for type of new housing. Calthorpe recommends that within a region, new growth that is sustainable should be 10% single family, 35% attached single family, 55% multifamily.
    - Increase the percent of new growth/offices required to be in Activity Centers
- **Planning for open space preservation**
    - Transfer of development rights from "farmland" to city (See Montgomery County)
    - Tree Canopy/open space Cap and Trade
- **Regional strategies to reduce cooling loads**
    - Increase tree canopy
    - Require street trees

Regional Land Use Credit System

This is a stretch idea – very rough draft.

Each jurisdiction agrees to pay a substantial yearly fee to a new GHG reduction fund. However, this fee can be reduced, or even completely offset, by helping the region meet certain land use targets which are agreed upon by all COG members. The fund will help pay for GHG reducing projects – bike lanes, transit, canopy preservation.

COG members set regional goals for:

- Acres of Tree Canopy
- Acres of Farmland
- Multi Family Housing Units
- Housing Units around 1 mile of transit
- Acres of land devoted to renewable energy production

- Acres of development on brownfield or infill sites
- Miles of public transportation

The goal is to balance the opportunities of the rural/suburban areas with the urban ones. For example, we don't want increased density in rural areas, but rural areas can help the region reach its farmland, tree canopy and renewable energy targets. We want to encourage renewable energy generation, but it doesn't make sense to install it on urban land where residential living has significantly lower carbon per capita compared to suburban living.

Each goal is worth a fraction of a greenhouse gas credit (to be determined by consultant). For example, 1 acre of new tree canopy could be worth .5 GHG credits. 1 GHG credit reduces the annual fee by $1,000. Therefore a jurisdiction that adds 10 acres of new tree canopy gets 5 GHG credits and reduces the amount they pay to the GHG fund by $5,000. The GHG credit fraction should be set such that the burden for achieving these goals is equally shared among rural and urban communities.

Tad Aburn
Maryland Department of the Environment
March 16, 2015

Maryland Department of the Environment

Additional Draft Strategy for "What We Can Do" Report

Prepared for MWCOG's Multi-Sector GHG Working Group

March 13, 2015

Provide Transparency in Development Projects

This strategy adapts the first step in the San Joaquin Air Pollution Control District's Rule 9510, also known as the Indirect Source Review (ISR), substituting GHG emissions for the Rule's focus on NOx and PM10. The strategy envisions that whenever a developer proposes a new development project over a certain size it would run a GHG modeling analysis for mobile source activity the development attracts or generates during its construction and 10 years of operation. Modeling could include GHG reductions that could be achieved with onsite mitigation measure. The analysis would be shared with the TPB and made available to the public.

Using the Rule as a template, the strategy could cover residential, commercial and industrial development projects which meet certain size thresholds. It would be applied to mobile source emissions during construction, e.g. construction equipment exhaust, and operational emissions, defined in the Rule as "area sources", i.e. onsite sources such as water heaters, furnaces, fireplaces, wood stoves, etc., and mobile source activity generated by the use of the site following construction.

Just taking the first step of transparency -- modeling and making public the mobile and area source GHG emissions from proposed development projects over a 10 year horizon – would raise public awareness of the emissions impacts of land development. In time this may generate support for the next step in Rule 9510, which requires developers to submit a modeling-based Air Impact Assessment for the Air District's

approval as a condition of getting project approval by the local permitting authorities. Over a 10 year span the project must achieve the emission reduction targets set by the Air District (through onsite reduction measures) or pay a fee for offsite mitigation projects (such as diesel retrofits or transit projects).

At least one California air district is considering ways to link an ISR to its local council of government's regional development plan. The San Joaquin model could be tweaked in a number of ways, including thresholds for coverage, types of development covered, and the time horizon for operational emissions.