GreaterWashington2050

BIG MOVES

Led by the Metropolitan Washington Council of Governments (COG) and a coalition of public, business, civic and environmental stakeholders, Greater Washington 2050 is a regional initiative to foster stronger regional awareness and innovative leadership. It creates an opportunity for consensus and action on big issues of growth, transportation and the environment. Greater Washington 2050 will focus on areas of regional agreement, identify actions that advance them, assess progress and measure performance.

Greater Washington 2050

May 2009

BIG MOVES

For Shaping the Future of the Greater Washington Region

A Report on the Greater Washington 2050 Scenario Thinking Workshop

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Harriet Tregoning, Planning Director, District of Columbia Office of Planning
George Vradenburg, President, The Vradenburg Foundation

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BIG MOVES

For Shaping the Future of the Greater Washington Region:
A Report on the Greater Washington 2050 Scenario Thinking Workshop

Introduction

REGIONAL OPPORTUNITIES & CHALLENGES

Over the past several decades the greater Washington region has become one of the most dynamic and desirable regions of the country. Our region contains an abundance of assets, resources, and amenities, which have the ability to attract human capital, advance innovations and further regional prosperity. Today the economy is poised to alter our everyday lifestyles by scaling new technologies with the potential to transform social connections, our environment, and global competitiveness. In the midst of such great opportunities, are growing issues such as transportation gridlock, aging infrastructure and environmental degradation. Regionally-adopted forecasts for job and population growth show a tremendous influx of people to this region between now and 2050. Forecasts also show that congestion, infrastructure costs, and environmental impacts will become increasingly unsustainable if current patterns of development remain unchanged. Global recession, climate change, and energy pose unprecedented challenges for our region. Currently there is no integrated approach to addressing these challenges and advancing regional collaboration to leverage our assets and compete in the new global economy. To shape

climate change
energy economy
federal presence + role
advanced technology

"Our work today is not about predicting the future. It's about understanding the breadth of change we might experience and what kind of region we will have to be to thrive. What are the qualities, attributes, relationships, and resiliencies we have to acquire? Are there characteristics and approaches that can make us successful across a range of scenarios? Today, let's all be futurists imagining the challenges and opportunities we might face over the next several decades and see if we can use the insights we gain to help put us on a course to be prosperous and competitive, with fewer disparities and inequalities in our region, with more engagement in civic life, so that we can become more sustainable, adaptable, and resilient. That's our "small" task for today."

Harriet Tregoning, Director, D.C. Office of Planning & Greater Washington 2050 Coalition Member

and enhance our future, while still maintaining our quality of life, innovative thinking and bold action are required, not business as usual. The Greater Washington 2050 Coalition is charged with developing a strategic framework to inform regional priorities and address these challenges over the next 40 years.

demographic changes

walkability housing

transportation choices

sustainability

A SCENARIO THINKING WORKSHOP

On November 20, 2008, Greater Washington 2050 hosted approximately 90 regional leaders from local governments, the federal government, and private and nonprofit sectors for a Scenario Thinking Workshop. Sponsored by the Metropolitan Washington Council of Governments, the National Capital Planning Commission, and the District of Columbia Office of Planning, the purpose of the workshop was to examine long-term risks and opportunities in the Metropolitan region and encourage bold and creative thinking about how to respond. The workshop allowed participants to clarify aspirations for the region's future; hear from experts on emerging technologies, the region's economy, the latest thinking on climate change; and, identify robust strategies likely to produce good results in any future. These robust strategies developed during the workshop are Greater Washington's Big Moves.

This report summarizes the outcomes from that one-day workshop, reflecting views expressed by the workshop's participants. While the report does not represent a statement of the Greater Washington 2050 Coalition, the ideas generated in the workshop are intended to inform the work of the initiative. The Greater Washington 2050 Coalition is seeking regional coordination and commitment to work together towards shared goals. These goals, however, are a reflection of what we know about our region today. By challenging participants to think about possible futures with significantly different conditions from today, the workshop encouraged bold thinking and creative ideas about the region's ability to recognize and respond effectively to the unknown but certain changes of the future.

Scenario Thinking

A NEW APPROACH: NOT BUSINESS AS USUAL

How can regional leaders prepare for the unexpected? How can they make long-term decisions in a world of great uncertainty? What can they do to help make the region more adaptable and resilient? Scenario planning was chosen as a technique because of its ability to set strategic direction, stimulate new creative thinking, and facilitate mutual understanding that fosters bold action towards common ends. Additionally, scenario planning allows for a brainstorming process to identify common actions that make sense in a variety of scenarios.

Quantitative scenario modeling is a technique widely used in transportation and urban planning, but those scenarios typically portray modest variations, where trends are forecasted into the future. Such an approach often lacks integration of a wide variety of key driving forces, which usually results in a continuation of business-as-usual. The scenarios developed for this Greater Washington 2050 Scenario Thinking Workshop are intentionally different. They explore the possibility of many factors including "tectonic changes" in areas such as energy, global climate change, the economy, emerging technologies, demographics, and the federal government's presence and role. The scenarios were designed to help regional leaders break away from conventional "modest variations" thinking, and to explore together the wide range of future circumstances for our region.

SCENARIO DEVELOPMENT

Four scenarios were developed describing how key global and national trends could affect our region over the next 30 to 40 years. Ideas for these scenarios were drawn from focus group discussions with Greater Washington 2050 members, COG staff, regional planning directors, and federal staffers. The scenarios were written to be plausible, but at the same time a drastic departure from conservative projections and different from each other. The four scenarios are:

High Tech Green | Investments in green infrastructure help end the Great Recession and create new mid-skill Green Collar jobs. High tech developments come together in a Green Industrial Revolution with a flowering of new entrepreneurial businesses. Growth is clustered in a dozen transit-oriented Activity Centers with pedestrian-friendly, mixed use designs. However, positive sustainable growth brings its own set of challenges, such as declining exurban areas and the lack of affordable housing in Activity Centers.

Federal Government Dispersal | Federal facilities slowly disperse outside the Washington region, driven by high rents and construction costs, security concerns, and technological innovations

that make distributed government workable. The federal presence declines from one-third to one-fifth of the economy, triggering fierce competition between jurisdictions for new businesses and jobs.

Hot and Gridlocked | Recession and falling oil prices derail strong climate policies. Low oil prices enable continued low density development, leading to traffic gridlock. By 2040, local climate impacts are obvious and huge impacts are forecast for the decades ahead. Adapting to climate change is now as important as quickly reducing CO_2 emissions.

Cooperation in Hard Times | The economy is constrained by an extended recession and then by an aging population, a shrinking labor force, runaway health costs, high energy prices and massive government debt. The region and the nation focus on finding the most cost-effective ways to move forward. Regional cooperation expands to pool resources for common goals.

WORKSHOP ACTIVITIES

Workshop participants were welcomed by David Robertson, Executive Director of COG, and Sharon Bulova, Chair of Greater Washington 2050 and Vice-Chair of the Fairfax County Board of Supervisors. Jim Oswald, the workshop's facilitator and graphic recorder, reviewed the day's agenda, and Harriet Tregoning, Director of the D.C. Office of Planning, set out the goal for the workshop.

In the first part of the workshop, Kojo Nnamdi of WAMU moderated an outstanding panel comprised of Alice Rivlin of the Brookings Institution, William Halal of George Washington University, and Anna Motschenbacher of the Pew Center on Global Climate Change. Their presentations focused on how the region might evolve over the next 40 years. Alice Rivlin discussed the current economic environment while stressing the region's economic assets and the need for regional collaboration to reorient growth in a more sustainable direction through compact development, improved transit, and more walkability. William Halal presented forecasted changes in technology and discussed its importance in addressing our generation's problems around climate change and energy. Dr. Halal also touched on our regional human capital assets and suggested that the National Capital Region should be marketed as a "knowledge hub." Anna Motschenbacher focused on issues around climate change and energy stressing the critical impact development patterns, such as sprawl, have on emissions and energy use. The panel helped participants look beyond the present and appreciate the range of change possible between now and 2050.

Following the panel, Bob Olson, Senior Fellow at the Institute for Alternative Futures, reviewed the task ahead and presented the four scenarios that would structure the workshop's discussions.

The heavy lifting came in the afternoon when participants joined breakout groups, each focused on one of the four scenarios. Participants were instructed to accept their scenario as-is and imagine themselves in the world of 2040. Their challenge was to decide what actions could be taken over the next ten years to improve their situation by 2050. Participants spent several hours imagining challenges and opportunities presented by their scenario and brainstorming strategic responses to help the region adapt, remain competitive, and improve upon the circumstances in the scenario. At the end of the workshop breakout groups reconvened and through group facilitation, participants discussed various ideas that were common to each scenario.

Workshop Outcomes

TEN BIG MOVES

A detailed analysis of the outcomes of each breakout group's discussion shows that ten robust strategies or Big Moves did emerge across the four divergent scenarios, described below. What is striking is not that these Big Moves are totally new ideas — they aren't — but rather, that they appear to produce positive results across such a wide range of potential future conditions. These strategies were considered important for participants working with every alternative scenario. As a result, these ideas deserve further consideration as a basis for policies to make the region better able to respond successfully to whatever future circumstances may arise.

The brainstorming ideas each scenario group developed to promote the region's success and livability by 2050 are not intended as specific recommendations. They are also not necessarily even politically feasible at the moment. Instead, they acted as the building blocks for a further examination of broader, similar themes. Examples of these relatively new ideas are shown in call-out boxes in the following pages to illustrate ideas the Ten Big Moves were synthesized from.

TEN BIG MOVES

Pursue Transit Oriented Development

Leverage Emerging Sustainable Technologies

Emphasize Green Economic Development

Develop Greater Washington as a Knowledge Hub

Strengthen Regionalism

Use Financial Innovations

Ensure Availability of Moderate and Low-Cost Housing

Focus on Quality of Life

Improve Public Education

Promote Health

ONE: Pursue Transit Oriented Development (TOD)

Reorienting development to Activity Centers where transit can link walkable, mixed-use communities was the most common response for participants working with each alternative scernario. A regional TOD approach made sense in the financially constrained Cooperation in Hard Times scenario because it reduces energy costs, makes the best use of existing infrastructure and avoids the cost of building and maintaining far-flung new infrastructure. Even participants working with the Hot and Gridlocked scenario, where low-density development continues for decades, developed immediate strategies to shift growth patterns toward transit-oriented communities.

Examples of Brainstorming Ideas

- Eliminate most single use zoning – promote mixed uses
- Create TOD around bus stations – not just rail
- Require provision of car-share and bike-share parking
- Enact a moratorium on the loss of green space
- Create a second generation of TDR programs that transfers density from outer suburban subdivisions to Activity Centers

2050

TWO: Leverage Emerging Sustainable Technologies

To meet the challenges faced in each scenario, all the breakout groups drew on technologies they believe will become important between now and 2050. Improved efficiency was a major theme, including energy-efficient green buildings, efficient vehicles, technologies for efficient water use, and cradle-to-cradle manufacturing systems, where pollution is viewed as a wasteful design failure. The groups all anticipated the creation of a regional Smart Grid increasingly fed by clean energy technologies such as wind, solar, geothermal, tidal, and wave energy. Most participants foresaw the spread of light rail and high-speed rail and increasing substitutions of advanced information technology for travel. Participants at some tables grappled with the possibility of a further round of technological advances such as regional high-speed magnetic levitation (Maglev) trains and a regional launch port for orbital spaceflight.

THREE: Emphasize Green Economic Development

Across the scenarios, participants viewed environmentally superior technologies as important for the region's economic development. A focus on developing these technologies would require the region to deliberately attract businesses and high-skill jobs oriented toward "green" applications of leading- edge developments in areas ranging from energy, biotechnology

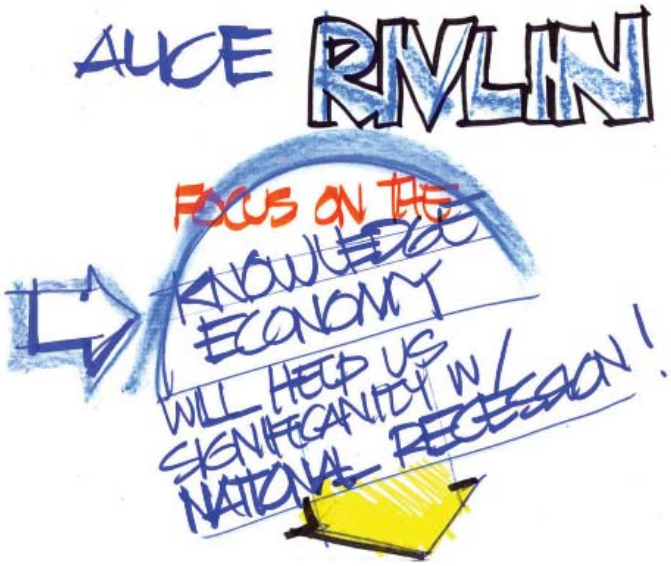
and information technology to materials science and nanotechnology. It would also provide opportunities for middle-skill Green Collar jobs such as weatherizing building, installing solar panels, conducting energy audits, building transit systems, implement local/regional sustainable agriculture, and constructing wind farms.

Examples of Brainstorming Ideas

- Region works with the Federal government as a test bed for vocational training programs for Green Collar jobs
- Washington Institute of Green Cities created to provide international training programs in Green Development
- Regional Farm Initiative to preserve farmland, create localized food supply and sustainable agriculture

2050

FOUR: Develop Greater Washington as a "Knowledge Hub"



Most scenario groups proposed some version of further developing the Greater Washington region as a "knowledge hub," a concept highlighted by William Halal and Alice Rivlin in the Workshop's opening panel. The region has a wide array of colleges and universities. The federal government has facilities, research and operations that seem to be underutilized. The area has a multiplicity of think tanks and nonprofit organizations dedicated to finding solutions to important problems. Improved coordination and exchange of knowledge between these institutions could be mutually beneficial and serve as a powerful economic engine. Several scenario discussion groups also emphasized leveraging the "power of place" by developing Washington further as a cultural center, tourist destination, and a global city with more international business, meetings and events.

Examples of Brainstorming Ideas

- Pilot a Regional Research Consortium of area universities
- Develop linkages between universities and business incubators
- Create a University-Business-International Consortium for Energy, Housing and Transportation

2050

FIVE: Strengthen Regionalism

Despite the varying challenges presented by the different scenarios, participants in all the breakout groups found increased regional collaboration essential for success. Even in the Federal Government Dispersal scenario, which posited fierce competition between jurisdictions for new businesses and jobs, a reversal toward greater regional cooperation was viewed as critical. Stronger regionalism was seen as necessary in areas ranging from business development, land use and transportation planning to water and sewer infrastructure, renewable energy, and service delivery. Strategies to encourage regionalism spanned a range of options, from voluntary agreements to binding contracts to a regional government with specified powers. One group mischievously proposed making the region a new state, the State of Potomac.

SIX: Use Financial Innovations

Participants in most scenario groups saw regional/local financial innovations as essential for meeting new challenges. A multitude of driving forces will require individual jurisdictions to find new financial resources to remain resilient and financially independent from federal and state governments.

Examples of Brainstorming Ideas

- Tax incentives for biking and walking
- GPS-Based VMT Tax & congestion-based roadway pricing
- Regional Carbon Tax
- Neighborhood-based TOD investment fund
- Cap and trade system for greenfield offsets

2050

SEVEN: Ensure Availability of Moderate and Low-Cost Housing

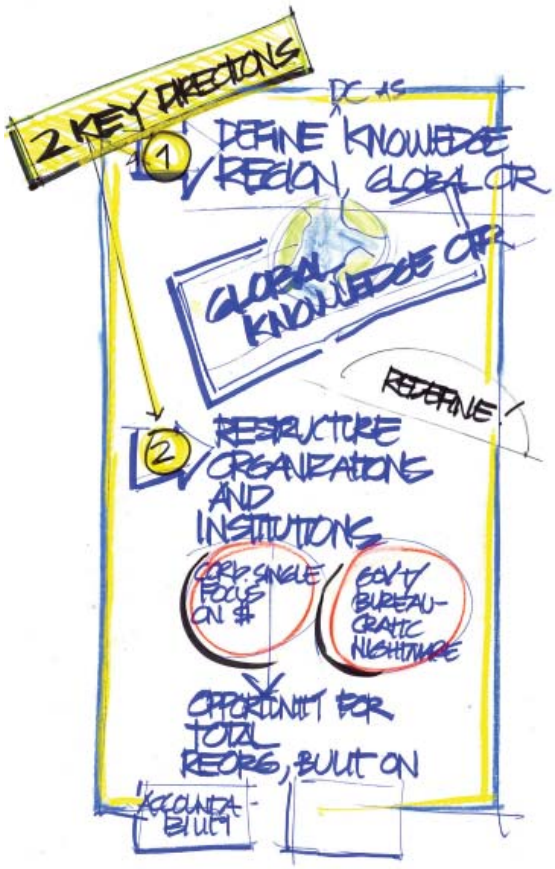
The availability of moderate- and low-cost housing emerged as a concern in all the scenarios, but most strongly in the High Tech Green future. In that scenario, high energy prices make outer suburban living very expensive and trigger a flight from the exurbs, while demand for housing around mixed-use, transit served locations skyrockets – along with housing prices. If those Activity Centers do not offer housing choices for all income groups that transit-oriented development advocates envision, the lack of moderate and low cost housing could stagnate economic development.

EIGHT: Focus on Improving Quality of Life

In all four scenarios, participants saw "quality of life" as increasingly important in people's decisions about where to live and where to locate their businesses. They saw the ability to remain connected to friends and family during a shift to higher density as an important indicator of high quality of life. Good schools and safe neighborhoods will be critical for success. Several scenario groups emphasized the importance of parks and easy access to green space. Those who anticipated a major rise in telecommuting foresaw the possibility of a resurgence of local community where the quality of life at the neighborhood level would become all the more important. Transit oriented development advocates envision, the lack of moderate and low cost housing could stagnate economic development.

NINE: Improve Public Education

Although the scenario write-ups did not focus attention on education, proposals for reforming public education emerged from discussions of each of the four scenarios. Improving urban schools and creating training programs for mid-skill "green collar" jobs were important themes. Some groups made a connection between the need to improve schools and addressing climate change, arguing that higher density development is necessary to reduce CO_2 emissions, and higher density development (particularly in existing urban areas) will only be attractive to families if schools are performing. A few groups proposed a cross-jurisdictional approach to creating magnet schools, and one group proposed creating a regional school district.



TEN: Promote Health

Faced with unsustainable growth in health care costs, some scenario groups – especially those working on the Cooperation in Hard Times scenario – proposed a stronger regional role in promoting health and wellness (to reduce the costs of dealing with illness). Some groups discussed the role of design of the built environment in supporting healthy living, emphasizing the importance of facilities for walking and biking and access to open space. Others proposed various kinds of health promotion programs run through local governments, schools, work places, and community centers.

Setting Strategic Direction

The Ten Big Moves generated in the scenario workshop will be used to set strategic direction by informing regional goals and policies throughout the Greater Washington 2050 initiative.

Shortly after the November 20th workshop, the Greater Washington 2050 Compact Task Force began utilizing the outcomes of the scenario thinking workshop to help shape broad goals expected to guide the region for the next 30 to 40 years. The scenarios also served as a useful resource to test the logic of proposed goals and gauge risk among a variety of potential futures.

The Greater Washington 2050 Planning Tools Task Force also began using the Ten Big Moves in their monthly meetings to help determine a set of comprehensive indicators intended to measure progress towards regional goals.

The Greater Washington 2050 initiative is working towards agreement on a regional vision based on goals for the National Capital Region. To create a comprehensive vision, broad public consensus is needed by government, business, and nonprofit organizations.

The Greater Washington 2050 Coalition is working towards such consensus through a regional compact intended to articulate long-term goals for the region while creating a framework to guide public decisions and measure progress.

In addition to the scenario workshop, the Greater Washington 2050 Coalition launched a regional survey to identify priorities, attitudes and core values of residents in the Greater Washington region. The regional survey involved four broadly representative focus groups and interviewed 1,300 Washington area residents. Based on the survey results, the outcomes of the scenario workshop, and existing regional policy, the Greater Washington 2050 Coalition will propose regional goals for public discussion.

NEXT STEPS

your future. your region.

These goals will be a key component of an initial public education and outreach effort designed to include public preferences towards addressing big issues of growth, transportation, energy and the environment. The first phase of public outreach and education will create an opportunity to further test and refine the Greater Washington 2050 goals based on additional public input.

Once consensus is achieved on a set of regional goals for the National Capital Region, the Greater Washington 2050 Coalition will develop a set of potential strategies to help guide regional leadership, and will create indicators to measure achievement of these goals. The second phase of public outreach and education will seek to further engage the public on guidelines for utilizing the compact when making decisions and how to measure progress towards our vision.

Appendices

Greater Washington 2050

Creating the Scenarios

The process for developing the scenarios began by asking members of the Greater Washington 2050 Coalition in September 2008 to respond to a single question: *What changes in global and national conditions – issues beyond our control – might have the largest impacts on growth, transportation and the environment in the Greater Washington region between now and 2050?*

This question was also the first of several questions discussed in two focus groups held with COG staff in October. In all three cases, the results were highly consistent. The largest global and national trends affecting the region over the next 30 to 40 years were judged to be:

energy climate change global + local economic conditions advanced technology federal government size + role demographic changes

Global & National Trends Expected to Influence Greater Washington

GREATER WASHINGTON 2050 SURVEY

Energy
Climate Change
Environment and Water
Economic Conditions
Advancing Technology
Green Technology
Demographic Changes

COG FOCUS GROUP ONE

Energy
Climate Change
Environment
Technological Changes
Demographic Changes
Economic Conditions
Evolution of Federal Role

COG FOCUS GROUP TWO

Climate Change
Energy
Economic Conditions
Technological Changes
Demographic Changes
Continuing Federal Presence & Role

Sample Views Expressed in the Focus Groups

Focus groups with COG staff, Washington area planning directors, federal government staff, and a session at an early November Greater Washington 2050 meeting were used to discuss how to respond to trends expected to influence our region. These conversations were an opportunity to test beliefs and assumptions while also discussing external changes or challenges our region has dealt with effectively or taken us by surprise.

COG FOCUS GROUPS

- We've assumed no limits to cheap energy, mostly from coal-fired power plants, but energy may become expensive.
- We ignored climate change until about two years ago. Now we know the future could bring droughts and downpours, flooding, health problems, constraints on agriculture, etc.
- The region is well positioned to provide leadership on climate change, drawing on high tech firms, our good universities, and engaging the feds to do pilot projects here where they are easy to monitor.
- We may be heading into a "Great Recession" with long-lasting impacts.
- Info tech could decentralize government. That could bring cut-throat economic competition between different parts of the region.

PLANNING DIRECTORS FOCUS GROUP

- 1.5 million additional people could live in the Greater Washington region by 2050.
- Our transportation-intensive growth pattern has been based on cheap energy. That situation will probably end soon. If not, we're headed for gridlock.

- An ideal situation would be to achieve concentrated growth in 15 to 20 regional activity centers in proximity to the downtown core and well connected to it.
- Climate change could bring flooding in the city's monumental core.
- We're too complacent about our water supply. In a five year drought we would have to drain lakes to feed the Potomac.
- We need to think about needed changes regionally, not one part against others.

FEDERAL FOCUS GROUP

- Increased leasing costs are driving plans to locate in other parts of the region and country.
- High quality of life, specifically good schools, is a must. It is very hard to recruit good employees because the DC region is not family friendly. Once people start a family, employees often move out of the region.
- A high cost of gas scenario should be considered as one of the regional futures because it will make long commutes unsustainable.
- Availability of mass transit for employees is important in DOD facility location decisions.
- All the reclaimed areas in DC are definitely susceptible to flooding.
- DC has become a 24-hour, cultural city. It has the kind of jobs & people that will adapt and transition in down markets.

The scenarios were constructed to reflect impacts participants in these discussions saw as plausible related to energy, climate, the economy, technology, the federal presence and role, and demographics. For example, in energy, the High Tech Green scenario emphasizes energy efficiency and renewables and contributes the most to dealing with climate change. The Hot and Gridlocked scenario on the other hand describes limited efforts to move away from fossil fuels, and the economically constricted Cooperation in Hard Times scenario focuses on energy efficiency to reduce energy costs. The federal government

remains centered in Washington in three of the four scenarios, but its activities are limited by shrinking revenues in the Cooperation in Hard Times scenario, and its functions are shifted out of the region in the Federal Government Dispersal scenario.

As the scenarios began to take form, brief interviews with experts were held to assure that their major elements are plausible. *Interviewees included:*

- John McClain, George Mason University Center for Regional Analysis
- Judy Greenwald, Pew Center on Global Climate Change
- William Halal, George Washington University
- Van Jones, Green for All
- Skip Laitner, American Council for an Energy Efficient Economy
- Anna Motschenbacher, Pew Center on Global Climate Change
- David Rejeski, Woodrow Wilson International Center for Scholars
- Jonathan Peck, Institute for Alternative Futures

Summary Description of the Scenarios

HIGH TECH GREEN

High Tech developments come together in a "Green Industrial Revolution"

Millions of new lower skill "Green Collar" jobs

Activity Centers with clustered, mixed use, walkable, transit-oriented development

GW area a test bed for these areas of change

Despite – or because of – these developments, the GW area faces severe growing pains: a population influx, a shortage of low/moderate cost housing, other limits to growth

HOT AND GRIDLOCKED

Recession and falling oil prices derail efforts to respond strongly to climate change

Moderate oil prices frustrate the movement toward Smart Growth; traffic worsens

Effects of climate change becoming strong; scientists forecast huge impacts by 2100

Everyone is now convinced of the seriousness of climate change and trying to find "the biggest steps that can be taken quickly"

GW area must focus on adapting to climate change as well as reducing emissions

FEDERAL GOVERNMENT DISPERSAL

Slow pull-out driven by high rents, construction costs, security concerns, accelerating in late '20s

50 Mbps broadband & Web 2.0 applications make distributed government workable

Federal presence declines from 1/3 to a little over 1/5th of the economy

Urgent efforts to diversify the economic base

Fierce competition between jurisdictions for new businesses and jobs

Regional collaboration suffers

COOPERATION IN HARD TIMES

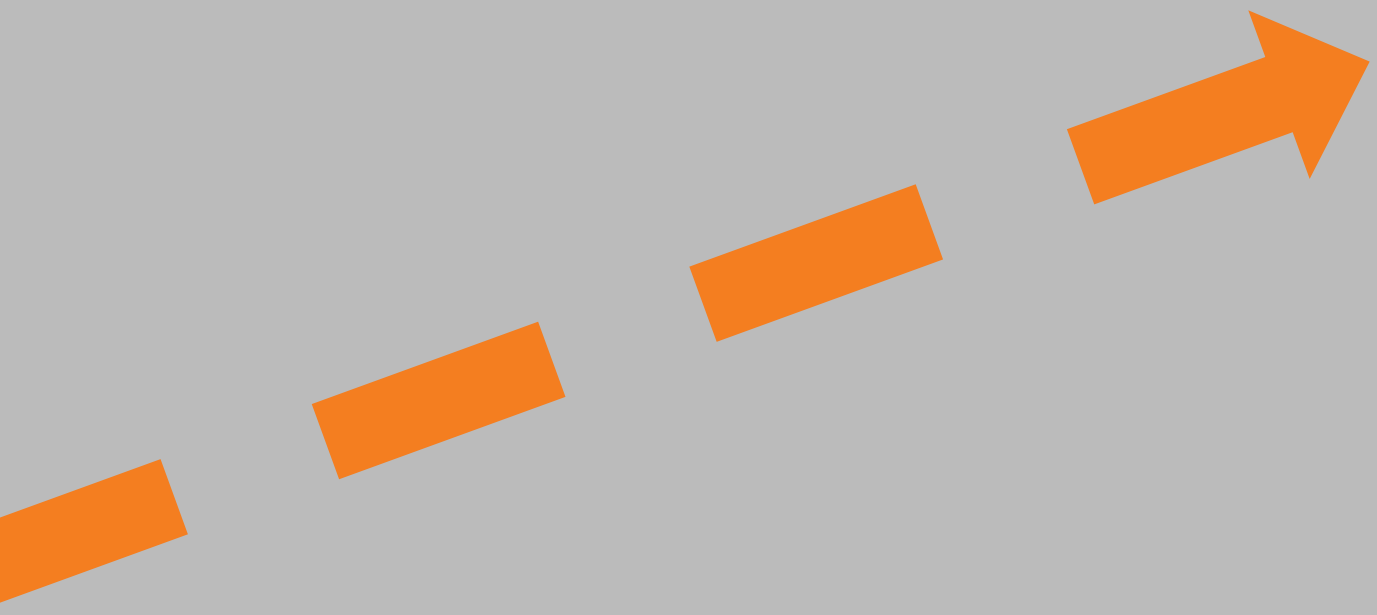
US economy constrained by extended recession and then by a shrinking labor force, an aging population, runaway health costs, high energy prices and massive government debt

A national/regional focus on finding the most cost effective ways to move forward

Expanded regional cooperation

"Quality of life" more important as a competitive factor between regions

Interest in the concept of making the region a "Knowledge Hub"



The Scenario Workshop Panel

The workshop began with an expert panel moderated by Kojo Nnamdi, host of the Kojo Nnamdi Show. The goal of the panel was to foster creative thinking about how trends in energy, the environment, the economy, technology, and demographics at the global, national, and regional level might evolve and influence the region. The expert panel included Alice Rivlin, a Brookings Institute Economist and former Budget Director for President Bill Clinton; William Halal, a professor of technology and innovation at George Washington University; and Anna Motschenbacher, a Solutions Fellow at the Pew Center on Global Climate Change. Each panelist gave a short presentation which was followed by an extensive Q&A session between panelists and workshop participants. The quotations below give a sense of the presentations.

ALICE RIVLIN

Senior Fellow at the Brookings Institution's Economic Studies Program; Director of Greater Washington Research at Brookings

It's incredibly important that this group has come together to think about 2050. We need to break free of the present, envision the future, and then translate it back into what do we need to do in the present to make 2050 better.
We have great potential in this region for sustainable, inclusive growth – if we do things right.

We should seize the opportunity to cooperate across jurisdictions, reorienting growth to a more sustainable basis…This is the moment for this region to make serious plans about its future growth – denser growth and transit, improved transit, more walkability.

The greatest strength of our regional economy is that we are a knowledge economy already, because it is knowledge-oriented businesses and regions that will lead this economy and the world.

The biggest challenge is training and skill development, particularly for the growing youth population that isn't part of our knowledge base yet.

RIVLIN'S PERSPECTIVE: We are going to have a recession that will be quite severe and maybe fairly long. And we are, I hope, going to have a transition to an economy which is less based on consumption and borrowing and more based on saving and investing for the future. This transition will be hard, but the path we've been following of continuous borrowing and spending beyond our means was unsustainable.

WILLIAM HALAL

Professor Emeritus of Science, Technology & Innovation at The George Washington University

We're going to see an explosion of more information technology and e-commerce over the next five to ten years. In a nutshell, we are forming the central nervous system of the planet and it's going to happen very quickly.

The 2020s will be a critical decade. The most important developments involve what I call the Crisis of Maturity. There is a constellation of problems that just can't be ignored – the energy problem, climate change, impacts on the environment, terrorism, weapons of mass destruction. They can't be put off. The longer we delay the tougher they will be to solve. By the 2020s alternative energy and the other advanced technologies necessary to address these problems need to be mature.

KOJO NNAMDI: We talk all the time about high tech, high tech jobs, high tech industries. Will people in the year 2050 look back at today and laugh at the idea that people in 2008 thought they already had an advanced technology?

WILLIAM HALAL: It's going to be a revolution. They will be laughing their heads off at us.

Talking about dramatic technological changes happening by 2050 is too pessimistic. I think major changes are coming much faster than that. By 2020, really large changes will have to be well underway or the survival of our civilization will be threatened.

I recommend thinking about developing our region as a global knowledge center. Knowledge is the most valuable resource we have now. It's the source of all progress in productivity and innovation. Our region has knowledge resources in spades. The biotech sector is strong, the IT sector rivals Silicon Valley, there's the federal government and all its research labs, the universities – it's a natural role for the region. Right now I don't think we recognize that. If we really see the potential that exists, we can change the way the region works. We're not using the knowledge that exists here effectively. If we can learn to better integrate knowledge across organizations and organizational silos, it could serve as the imprimatur of the strength of this region intellectually and economically.

ANNA MOTSCHENBACHER

Solutions Fellow at the Pew Center of Global Climate Change

Sea level is going to be a major concern in our region, particularly in the near coastal areas, with direct impacts of flooding, with coastal erosion problems, and with salt water intrusion into groundwater and issues of fresh water availability. The whole region will experience changes in precipitation patterns… We'll see more extremes. Heavy rainfall events will occur more frequently and be even more intense, so there will be an intensification of flooding. On the flip side, there will be more severe drought, which is a vicious combination. In addition, there will be many indirect impacts on biodiversity as a consequence of these physical changes… including effects on agriculture and marine systems. Higher temperatures will exacerbate air quality issues. There will be increased problems of respiratory disease, and insects and rodents that carry tropical diseases will move north into our region.

It's important to think about how different development pathways influence energy use and how much you are committing yourself to a particular level of emissions just by how you build your landscape. Whether you build densely vs. whether you sprawl out. Whether you have energy-efficient green buildings that use passive heating vs. whether you commit to heating inefficient buildings with fossil fuels. From a climate perspective, now is the time when you have the opportunity to avoid a lot of the commitment to emissions that you might otherwise have.

More efficient cars and more extensive transit systems are important for reducing carbon emissions. But this is a particularly carbon-intensive region because we rely so heavily on coal, so electric generation and buildings play a key role here even though we tend to think more often of transportation. Shifting away from coal to sources like wind, solar and tidal energy will be critical.

KOJO NNAMDI: If the U.S. and the world don't act quickly and decisively to move away from fossil fuels, if we stay addicted to oil and build more and more coal plants without sequestering carbon, what will the impacts be in the Washington region?

ANNA MOTSCHENBACHER: I feel like I've been set up to give the depressing answer of the day.

The Scenarios

HIGH TECH GREEN SCENARIO

Beginning in the 2010s, heavy investment in energy efficiency, renewable energy, transit and other environmentally superior technologies helped lift the economy out of the Great Recession and made the U.S. a global leader in reducing dependence on oil and dealing with climate change. From the 2010s onward much of the innovation and growth in the global economy has been focused on "green" technologies, and the U.S. has had to fight for its share of the market. This shift toward a greener economy created millions of new "green collar" jobs: performing energy audits, retrofitting buildings, installing solar panels, manufacturing millions of plug-in hybrid cars, constructing thousands of wind farms and solar farms, and much more. Most of these jobs were middle skill jobs well within reach for lower-skilled and low-income workers, as long as they had access to effective training programs. The Green Growth Alliance that emerged in the 2010s united clean tech entrepreneurs, labor, social justice activists, and environmentalists in efforts to insure that the initiative to move away from oil also became an initiative to move away from poverty and discrimination.

In the 2010s and 2020s, a wide variety of high tech developments came together in what people began to call the Green Industrial Revolution. Developments in nanomaterials made breakthroughs possible in areas as diverse as superefficient lighting, ultralight car bodies, low-cost solar cells, and high-capacity batteries. Advanced information technology gave the emerging national grid for carrying renewable electricity "smart" features like information displays and easy-to-use tools for conserving electricity and reducing energy bills. New biotechnologies used environmentally friendly microorganisms to produce the bulk of industrial materials that were previously made from petrochemicals.

Urban development patterns have changed as much as they did from WWII to the end of the 20th century. The end of the era of cheap energy brought the end of urban sprawl and a shift to more clustered, compact forms of development with mixed-use, walkable communities where mass transit can be effective and affordable. This shift has been strongly supported by the "Universal Design for Healthy Living" movement. Community design to promote walking and more active living, along with easy access to parks and green spaces, are important health promotion strategies for reversing the growth of health care costs.

In cooperation with the federal government, the Greater Washington area has been a test bed and a leader in these areas of change. Improvements in public education and the growth of green collar jobs have gone a long way to bridge the region's East-West divide. Virginia and Maryland deliberately attracted high tech companies focused on key elements of the Green Industrial Revolution. The area's population is concentrated in the District and in 8 major regional activity centers in the Maryland and Virginia suburbs. Major investments in light rail, subway extensions and hot bus lanes allow easy access to nearly all parts of the region.

Despite these successes – or because of them – the area faces severe growing pains. The region's economic success has attracted an influx of people from around the country and from other nations. But rising energy prices, especially the sharp increases since 2027 when global oil production began to decline, have made outer suburban living expensive and triggered a flight from the exurbs. And transit-oriented development has not yet provided the range of housing choices for all income groups that its advocates envisioned.

Until a good deal more of it is in place, only affluent people have been able to afford to live in the new activity centers. Moreover, the region is beginning to encounter limits. Wastewater treatment plant discharge limits to protect the Chesapeake Bay, for example, have become a barrier to people living in some of the areas where they would like to be. Finally, economic competition from cities in China and India is increasingly fierce, so that bold new partnerships between the federal government, business, local governments, NGOs and philanthropic organizations may be needed to remain competitive.

FEDERAL GOVERNMENT DISPERSAL SCENARIO

Following 9/11/2001, DOD quietly began to move some of its facilities away from the Washington area. Beginning in the 2010s, members of Congress began to openly compete for bringing federal government back-office, technical and R&D operations to their own states and districts. The federal pull-out moved slowly, driven mainly by high rents, construction costs and security concerns, but gradually accelerated in the late 2020s. By now (2040), most of the federal government has moved completely out of the Greater Washington region. Like the proverbial frog in the pot of water being brought slowly to a boil, regional leaders failed to notice the significance of the trend.

The federal government's dispersal was facilitated by the spread of 50 Mbps broadband connections and Web 2.0 applications, which made it much easier for the government to operate effectively while being geographically distributed. Advanced information technologies were already driving the deconstruction of large corporations (downsizing, de-layering, decentralizing, outsourcing) as well as the rise of dispersed "virtual corporations." Now the same technologies were applied to government.

Today Washington DC remains a symbolic city, the ceremonial capital, and the seat of agency headquarters offices. But most large government agencies now operate with only about twenty percent of their staff living and working in the greater Washington area. Federal procurement spending on contracts and outsourcing in the region has also declined, though not so dramatically as direct federal employment. The federal presence in measureable terms was once at least a third of the region's economy. Now it is a little over one-fifth.

The federal pull-out has had complex impacts. The main impact was to disrupt and weaken the region's economy, but it also triggered urgent efforts to diversify the area's economic base. Virginia, Maryland and the District itself have been working hard to attract the kind of high tech/clean tech businesses that have been thriving, despite the rise of Asia to global economic dominance. Washington remains a popular destination for vacationers, and tourism still supports a significant part of the service economy.

The region's population growth has slowed almost to a halt. While limiting economic expansion, this has turned out to have benefits ranging from easier commutes and less pollution to lower housing costs and less need for expensive new infrastructure.

Different parts of the region have been competing fiercely with each other to attract high tech businesses and high-skilled people. The city itself has adopted a more DC-centric attitude. As a result, regional collaboration has suffered. Many regional endeavors have been weakened, including efforts to guide growth to adapt to high energy costs, coordinate transportation planning, provide low-cost housing, and develop adaptation strategies for climate change.

Now, however, the business community, governments around the region, and the federal government are facing the reality that improved regional coordination is critical for keeping the area competitive. The business community is willing to play a large role. The federal government, feeling some responsibility for the impacts of its pull-out, is open to innovative approaches to assist the region in diversifying regional development. This seems to be one of those rare moments when fundamental change is possible.

HOT AND GRIDLOCKED SCENARIO

|The global recession in the late '00s and 2010s derailed global efforts to shift quickly away from fossil fuels. Oil prices fell and on the whole stayed moderate, limiting investment in energy efficiency and the more expensive renewables. The major oil companies proved correct about the vast scale of remaining reserves in areas ranging from the continental shelves, the arctic and the deep seabed to the oil shale and tar sands of Colorado and Alberta. There was growth in wind energy, but coal stayed King in electricity generation even though carbon sequestration proved too expensive to be practical. Large scale biofuel production sent food prices soaring and had to be scaled back. As economies everywhere struggled with recession and the global credit crunch, few nations were able to resist political pressures to stay with fossil fuels (oil, gas and coal), still the lowest cost energy sources.

Moderate oil prices also frustrated the movement toward Smart Growth. Most growth has continued along the low-density pattern of the past. There is more driving and more road infrastructure, and greater Washington is now tied with Los Angeles as the worst area in the country for traffic gridlock.

Continued growth in fossil fuel use on a global scale has made even the most pessimistic scenarios of the Intergovernmental Panel on Climate Change back in the '00s look too optimistic about the speed and scale of climate change. Some areas of the world today are already experiencing catastrophic impacts. Large parts of Bangladesh are now flooded so often they are uninhabitable. Some island nations, like the 1,200-island Maldives, are desperately trying to find countries willing to absorb their citizens or, better yet, willing to sell off a large area to establish a new homeland. Drought and aquifer depletion in China north of Beijing has created hundreds of thousands of environmental refugees.

The greater Washington area has not experienced such severe impacts, but climate change has become a dominant factor in the region's life and economy. Summer days over 100 degrees have become more common – like Phoenix but with humidity. Storms bring regular flooding in Alexandria and the District, sometimes spilling out over the Mall. Rain often comes in the form of downpours that overload the capacity of storm water sewer systems and cause severe erosion problems. But there are also more extended periods of drought that have reduced crop yields and threatened water supplies.

Scientists are forecasting that within a few more decades much of the Eastern shore of Maryland will be underwater and hurricanes on the Chesapeake Bay will raise the Potomac's water level as much as sixteen feet, flooding large areas of the city and other communities along the Potomac River. Foundation species in the Chesapeake Bay like blue crab and native oysters will disappear as the Bay ecosystem crumples. Maples and other deciduous trees will be dying off as forested areas throughout the Southeast are increasingly replaced by savanna. Tropical diseases will pose a growing health threat.

By now (2040) everyone everywhere is convinced of the seriousness of climate change. The U.S., like other nations, is trying to identify the "biggest steps that can be taken most quickly" to limit emissions of carbon dioxide and other greenhouse gases. Requirements for changes in organizational and personal behavior

are being considered as well as changes in technology. Cities and regions are being asked to join with other levels of government and with business in taking on the twin challenges of: 1) sharply reducing greenhouse gas emissions and 2) developing and implementing adaptation strategies for climate change impacts that cannot be prevented. Very large expenditures will be needed, and the federal government is willing to help in the greater Washington region. But there is concern that little money will be left to deal with the area's deteriorating roads and other infrastructure problems.

COOPERATION IN HARD TIMES SCENARIO

The financial meltdown in the first decade of the century marked the end of the post-WWII period of rapid U.S. economic growth. Even after the global credit crunch eased, the country was faced with growing constraints posed by a shrinking labor force, an aging society, runaway health costs, high energy prices, the challenge of global warming, and massive government debt.

As baby boomers retired, total workers' hours in the economy declined taking economic growth down with it. As the U.S. population aged, costs for Social Security, Medicare and Medicaid escalated beyond what the country could afford. At the end of the first decade of the century these programs already took up two fifths of the federal budget and they were on a course for doubling by 2030. Low energy prices were a thing of the past, and the "cap and trade" program passed by Congress in 2010 to reduce carbon dioxide emissions by "putting a price on carbon" put a rising floor under fluctuating energy costs. The ballooning federal deficit required sharp cutbacks in nearly all areas of discretionary expenditure.

As a result, the balance of economic and political power in the world has changed dramatically. Asia has not only replaced the U.S. as the major center for manufacturing, but has become increasingly the center for technological innovation. It leads in producing advanced, environmentally superior technologies as well as innovative low-cost technologies for the billions of people at the bottom of the global economic pyramid. At the same time, Asian consumer markets have replaced Western markets as the primary drivers of the global economy.

Fortunately, inspired leadership has helped the nation pull together in hard times and identify cost-effective ways to move forward. For example, the health care system has gone through a fundamental transformation from an orientation toward unlimited expectations and maximum profit to working within a fixed budget to get the best possible care per dollar. There have been large investments in energy efficiency, including massive efforts to weatherize homes in low income areas, because these investments actually saved money, created jobs for low- and mid-skilled people, and were critical for making climate change solutions affordable.

Today (in 2040), there is a clear understanding throughout the Greater Washington area that working together can allow limited resources to be mobilized more effectively. The Baltimore and Washington areas are increasingly addressing regional issues jointly. Leaders across the region are working to identify new, important, cost-effective ways to stimulate the areas' development despite slow growth at the national level. There is considerable interest in the concept of making the region a "Knowledge Hub" by better coordinating information resources of the federal government, local universities, the private sector and the area's concentration of nonprofit organizations.

There is an appreciation that in the global competition between cities, quality of life is emerging as an increasingly important factor. This is driving efforts to identify the most important things that can be done to create a more family-friendly environment throughout the region. Only limited funding is available for this purpose, but the hope is that a steady focus maintained over decades can bring major improvements.

There has been progress toward more clustered patterns of transit-oriented development with more walkable, mixed use communities. As in every other area, the challenge is to move forward in more innovative, cost-effective ways. Federal funding has generally been redirected to new "best bang for the buck" initiatives and the greater Washington area has to compete with everyone else for this spending. The challenge is to position the region to be as successful as possible in the competition.

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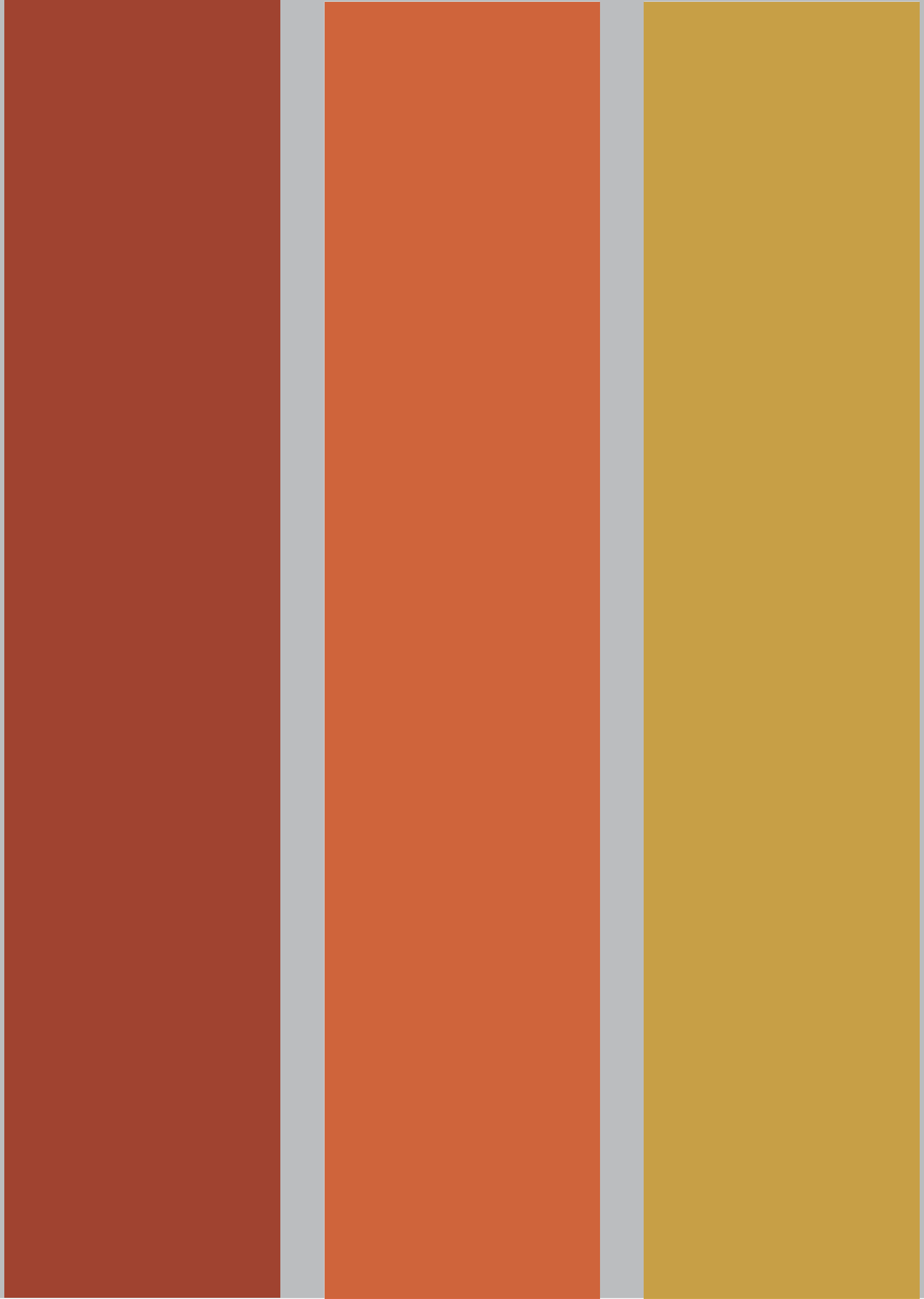

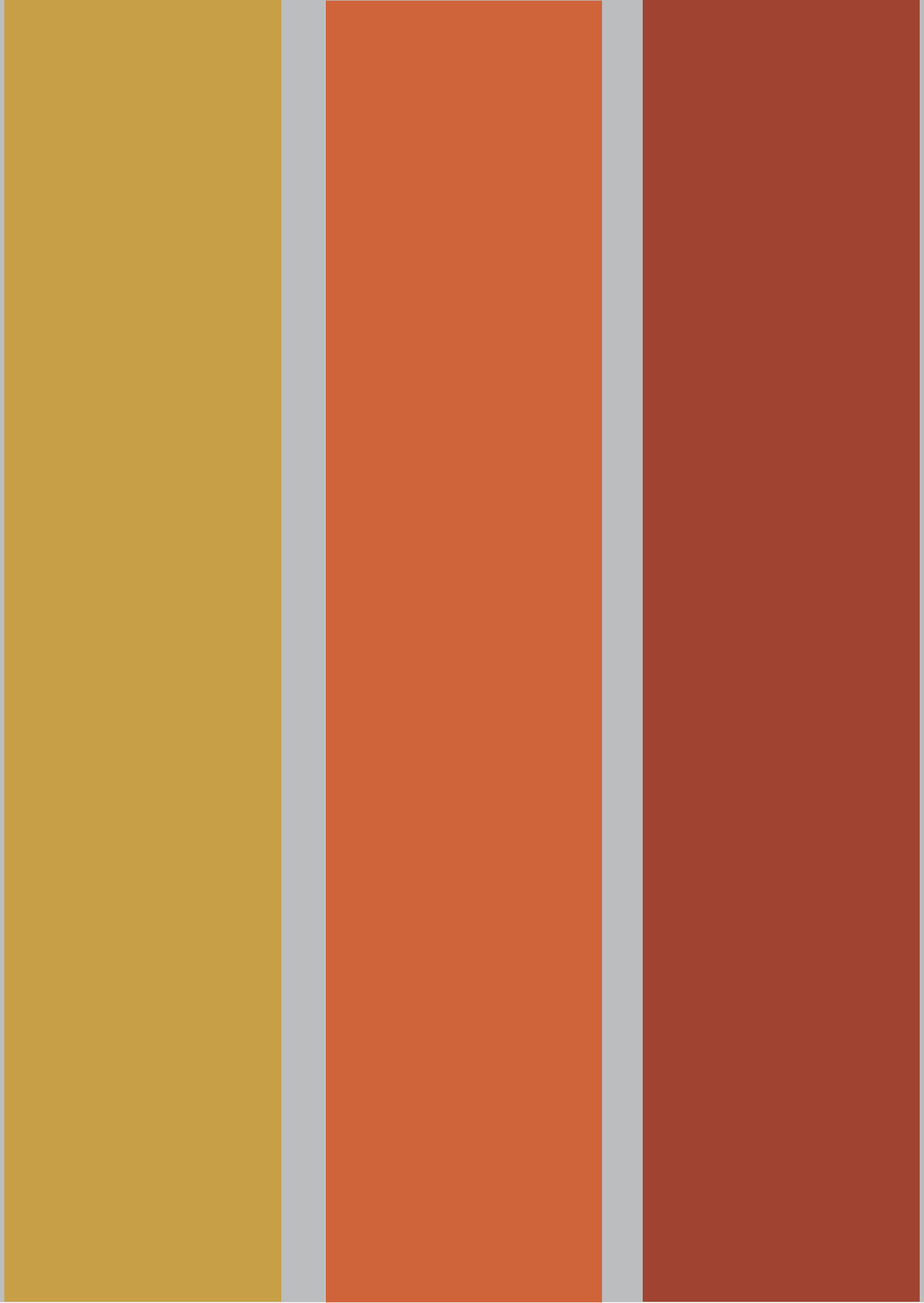

BIG MOVES

For Shaping the Future of the Greater Washington Region

A Report on the Greater Washington 2050 Scenario Thinking Workshop

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