# MEMORANDUM 2. MEETING 1 SUMMARY

This memorandum notes the global driving forces of change that came out of the brainstorming session during the first meeting of the Greater Philadelphia Futures Group, held at DVRPC's offices on September 17, 2014.

## ATTENDENCE

Many thanks to those who lent their expertise and time at the first Futures Group meeting:

- Manny Anastasiadis, PennDOT
- Peter Angelides, Econsult Solutions
- Christina Arlt, DVRPC
- Saul Behar, University City Science Center
- Mary Bell, DVRPC
- Mike Boyer, DVRPC
- David Cohen, Ben Franklin Technology Partners of Southeast Pennsylvania
- Adam Cutler, Fox Rothschild, LLP
- Michael Dahl, Pew Charitable Trusts
- Joe Donald, New Jersey Department of Environmental Protection
- Patty Elkis, DVRPC
- Tim Evans, NJ Future
- Darryl Farber, Penn State University
- Bradley Flamm, Temple University
- Brett Fusco, DVRPC
- Alisa Goran, PlanSmart NJ
- Rob Graff, DVRPC
- Erick Guerra, University of Pennsylvania
- Faith Haeussler, Philadelphia Corporation for Aging
- Phil Hopkins, IHS Global Consulting
- Lee Huang, Econsult Solutions
- Mark Alan Hughes, University of Pennsylvania
- Greg Krykewycz, DVRPC
- Jacki Mandly, Philadelphia Regional Port Authority
- Laurie Matkowski, DVRPC
- Nando Micale, Wallace, Roberts, and Todd
- Daniel Miles, Econsult Solutions
- Christina Miller, Health Promotion Council
- Howard Neukrug, Philadelphia Water Department
- Chris Puchalsky, DVRPC
- Ed Reagle, AECOM
- Leslie Richards, Montgomery County
- Christina Rosan, Temple University
- Megan Ryerson, University of Pennsylvania
- Barry Seymour, DVRPC
- Mike Smart, Rutgers University
- Tahirih Smith, Sustainable Lawrence
- Randy Solomon, Sustainable Jersey
- Mark Stout, MLS Consulting
- Christopher Swann, Select Greater Philadelphia
- Steve Wray, The Economy League of Greater Philadelphia
- Sarah Wu, Mayor's Office of Sustainability
- Mindy Zacharjasz, Philadelphia School Partnership
- Asta Zelenkauskaite, Drexel University

## NEXT STEPS

The next meeting of the Futures Group will take place at DVRPC's offices on Wednesday, October 15, 2014 at 3 PM. This meeting will commence with a general discussion of the different driving forces identified in the first meeting and outlined in the following pages, to allow group members to better understand them. Next will be some time for additional brainstorming. Last, the Futures Group will vote on likelihood and impact of the identified driving forces, to identify the most critical ones.

The third Futures Group meeting will be held on **Wednesday, December 10, 2014 at 3 pm**, also at DVRPC's offices.

## GLOBAL DRIVING FORCES

For ease of reviewing the global driving forces identified in the first brainstorming session have been classified by social, technological, economic, environmental, and political (STEEP) categories.

## SOCIAL

### 1. Golden Years

Lifespans get significantly longer, thanks in part to cures for cancer and other diseases. People are able to live more active lifestyles much later in life. But many urban development patterns and housing units do not accommodate people with mobility impairments.

### 2. Emergency!

Greater Philadelphia's role as a major economic center is tested by the challenge of responding to increasing numbers of major crises, such as acts of terrorism, pandemics, major weather events, etc.

### 3. Enduring Urbanism

Urban locational preferences of millennials and empty nesters are just the start of a long-term trend, as future generations show an even stronger desire for city living and alternative transportation.

### 4. Is there a Doctor in the House?

Chronic health conditions such as diabetes, obesity, heart disease, stroke, cancer, and arthritis hamper the region's workforce, shorten lifespans, and increase the demand for, and cost of, healthcare.

### 5. Lessennial Generation

High levels of student loan debt and unemployment during the millennial generation's formative years, starts them on a path where they become the first generation with a lower standard of living than their parents.

### 6. Magnet Education

Use of performance measures, big data, and additional funding have led to improvements in pre-K and K-12 education in urban schools, helping to retain, and even attract families into the region's core.

### 7. Priced out of the City

As poverty shifts to the suburbs, U.S. cities begin to resemble European Cities with the wealthy largely residing in the region's core, and poor and minority communities, and the middle class to a lesser extent, located further out.

### 8. TGITH (Thank God it's Thursday)

The work week is shortened to just three or four days, as demand for labor shrinks relative to supply.

## TECHNOLOGICAL

### 9. Automation Nation

Manufacturing returns to the region as robotics, 3-D printing and other emerging labor saving technologies flatten global production cost differentials.

### 10. Bike Lanes, Trains, and Automobiles

Increased mobility and connectivity, along with big data and apps to use it, allows transportation system users to seamlessly navigate a balanced, multimodal network of car sharing, taxi, ride sharing, transit, biking and bike sharing, and walking to get around.

### 11. Sharing a Lyft

When autonomous vehicles fail to take hold, ride sharing services such as Uber, Lyft, and Sidecar, along with emerging models such as Las Vegas 100 and Bridj, overcome regulatory hurdles and capture significant trip modeshare.

### 12. Intelligent Infrastructure

There are rapid advances in infrastructure technology, such as 3-D printing, low cost sensor technologies, road-embedded energy collection and distribution, nanotechnology, and stronger composite construction materials.

### 13. It's a Small World

Internet and communications technologies create wider social networks, allow ideas to flow faster, and more collaboration across sectors. Telecommuting becomes more common and one's job becomes more disconnected from where one chooses to live.

### 14. Robocars

Thanks to increased road safety and capacity enhancements, self-driving cars, trucks, and buses overcome cost, legal, liability, and regulatory hurdles in an astonishingly short amount of time. By 2045, they constitute the majority of the vehicle fleet.

## ECONOMIC

### 15. Haves and Have Nots

Income inequality is worsened due to reasons such as: declining union power, reduced buying power of the minimum wage, and an increasing technological divide.

### 16. Instantaneous Delivery

Demand grows for same-day delivery, which leads to more overnight deliveries in thriving downtown areas, and strategically located consolidation centers (where multiple shippers bring goods into an area, and a single truck delivers them). Ride sharing services and delivery drones may also help to serve this market.

### 17. Keeping up with the Joneses

The growing global middle class increases demand for finite supplies of energy and raw materials and leads to rapidly rising costs and negative environmental impacts.

### 18. Megaregional Mobility

Higher performance passenger rail improves access between major cities and airports all along the Northeast Corridor and reduces intra-megaregion air travel demands, freeing up airspace for more international and long-distance flights at PHL.

### 19. No College Left Behind

Delivery of education moves online, reducing the place based draw of regional colleges and universities. Some liberal arts colleges reposition themselves as technical training schools, helping to keep the region's workforce competitive in a fast changing global economy.

### 20. Off the Beaten Path

After merging with US Airways, American Airlines pulls out of Philadelphia as a hub. Funding constraints mean Amtrak is unable to make substantial improvements to the NE corridor.

### 21. The Pennsylvania Energy Boom

As a net producer of energy, Pennsylvania benefits from removing restrictions on petroleum exports. Meanwhile, the next generation of smart grids, micro grids, and distributed energy generation helps to make energy distribution more efficient, leading to an abundance of domestically produced energy.

### 22. Putting the Ship Back in Shipping
Improved logistics, technology, larger ships (which Greater Philadelphia cannot currently serve), and the wider Panama Canal reduces shipping costs.

### 23. Take Two Aspirin and Skype Me in the Morning
Virtual reality and web-based communications reduce the need to visit doctor's offices and hospitals, allowing the elderly and other patients to stay home for most basic treatment and care. 3-D printers can print prosthetic or even replacement body parts, changing how healthcare is performed.

## ENVIRONMENTAL

### 24. Confronting Climate Change
World leaders come to a joint resolution, with teeth, to significantly reduce carbon emissions by government regulation and changing consumer preferences. Options such as pricing, vehicle restrictions, better land use decisions, alternative transportation, technology, and cost competitive clean energy sources become viable.

### 25. The Parched Landscape
Worldwide water scarcity is worsened by increasing pressure on limited clean water resources.

### 26. PhilAmsterdam
Demand for regional bikability rises. E-bikes and other small electric vehicles, and the bicycle become a significant portion of trip modeshare.

### 27. What's for Dinner?
Global food insecurity increases importance of regional and local food systems, and the ability of regions to feed themselves.

### 28. When it Rains it Pours
Little progress is made in terms of mitigating climate change, and the region must prepare for the worst case scenario: hotter and wetter weather, more frequent storms, and rising sea levels.

## POLITICAL

### 29. The New New Deal
Substantial new governmental investment in infrastructure, education, and other core governmental services is achieved either by: governments raising taxes at all levels, or the federal government using inflation as the only limiting factor on public spending (post Keynesianism, or modern market theory).

### 30. Partisan Paralysis
Partisan politics and fiscal austerity hamper governmental effectiveness. Increasing personal, business, and government (especially for pensions) debt levels limits willingness to fund major new investments, public or private. Economic growth is slow, to nonexistent. Aging and increasingly complex systems overwhelm the capacity of governments and their partners to respond to challenges and opportunities.

### 31. Sabergovernmetrics
Government becomes more efficient using existing resources through: regional cooperation, municipal consolidation and shared services, planning regulations to permit more compact development, and use of big data for better decision-making. Government and the private sector increasingly join forces to solve problems, through the use of public-private partnerships. Entrepreneurial non-profits emerge to fill other gaps.

# MEMORANDUM 1. FUTURES GROUP OVERVIEW

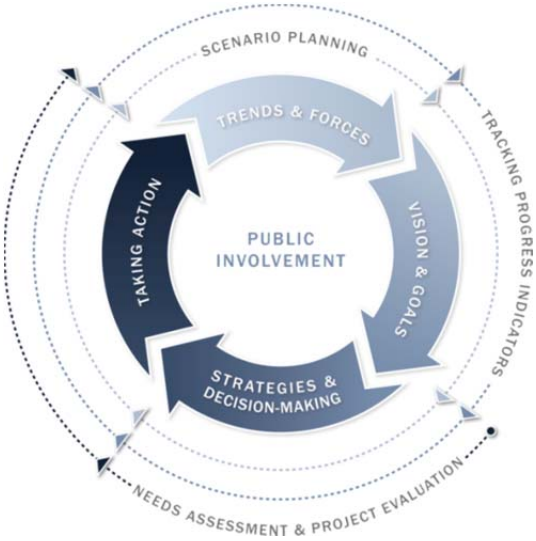
This memorandum will identify the purpose, scope of work, and schedule, as well as seed the discussion for the Greater Philadelphia Futures Group.

## INTRODUCTION

Scenario planning is a tool for collaboration and collective learning. It can be used to change perceptions, deal with uncertainty, and improve strategic decision-making. Scenario planning is one of the most important tools we can use to guide the development and implementation of the region's long-range plan. The process should emphasize discussion and consider wide-ranging, but interconnected issues such as: transportation, the economy, the environment, land use, technology, education, health, and plan implementation.

The goal of scenario planning is not to get the future exactly right, but rather to identify intermediate actions that should be undertaken in order to make the most strategic decisions. DVRPC researched scenario planning and published key findings in The *Future of Scenario Planning White Paper* (DVRPC publication #WP14038). This document contains more information about scenario planning and driving forces.

Long-Range Planning Process & Products




*Source: DVRPC 2014.*

## PURPOSE

**The Futures Group will collaboratively identify and develop a set of global drivers of change and assess their long-range planning implications for Greater Philadelphia. The Futures Group will analyze how the drivers of change may impact the need and manner in which people and goods are transported, and consider how the region and its institutions will need to adapt and change to better prepare for the anticipated future.**

These efforts should be relevant to the region's long-range plan and consider additional topics and issues that have not already been covered in previous DVRPC scenario efforts, such as development patterns and transportation funding levels. The results of the Futures Group findings will be summarized in a short, graphic document, and will help to guide the next update to the region's Long-Range Plan. It will also be included in the update to Choices & Voices, DVPRC's public involvement web application.

## FUTURES GROUP

This effort will be an exercise in the marketplace of ideas. The Futures Group will be comprised of a diverse group of regional experts in land use, transportation, the economy, the environment, technology, demographics, and other fields. The collaborative group discussion will be one of the most important aspects of this exercise. It can uncover assumptions that had not been previously considered, connect dots between important trends and their impacts, and identify actions that would be beneficial, regardless of which future driving forces ultimately occur.

The Futures Group will meet three times in the fall of 2014, and reconvene in a webinar in late spring or early summer of 2015. The first meeting will include an overview of the process, a few expert presentations on driving forces, and group brainstorming. The second meeting will continue with discussion on identified driving forces, and culminate with a group vote on the likelihood and potential impact of the identified drivers. The Futures Group will use the results of this voting to identify the most critical driving forces.

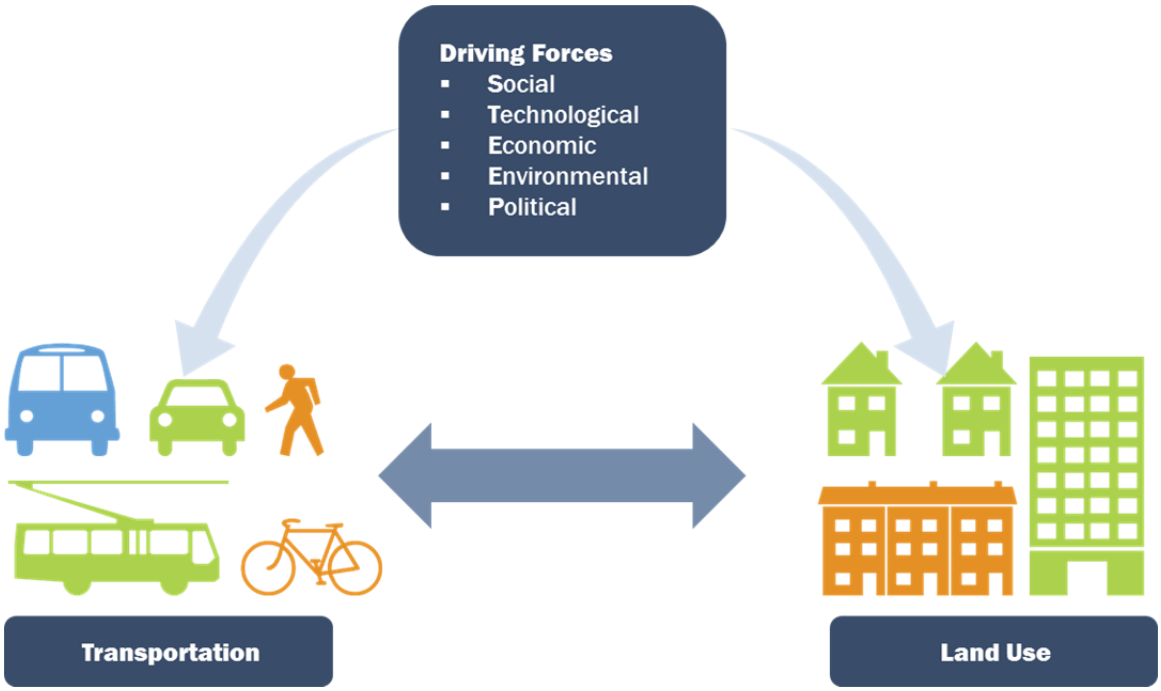
The third, and final working meeting of the Futures Group will be held jointly with DVRPC's Regional Technical Committee (RTC). The RTC is a committee consisting of DVRPC's member counties, State DOTs, transit operators, and representatives of state and federal planning partners. The third meeting will involve break out group discussions for each identified driving force, and consider how they will shape future transportation investments, development patterns, and steps the region should take to prepare for the future.

DVRPC will prepare a short, graphic draft report of the Futures Group key findings, and incorporate them into a new version of Choices & Voices. These will be presented to the Futures Group for their review and additional input in a webinar in the late spring or early summer of 2015. The Futures Group effort and findings will be regularly updated to the Regional Technical Committee (RTC) and the DVRPC Board. Decisions on any actions the region takes in respect to this effort will rest with the DVRPC Board.

## DRIVING FORCES OF CHANGE

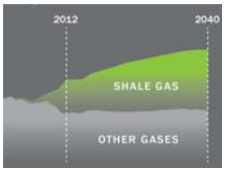
Driving forces are often beyond the control of a firm, government, or organization. They are broader social, technical, economic, environmental, and political (STEEP) forces that can create sudden and rapid change, with impacts to both land use and transportation patterns. While current events often create a bias toward specific STEEP impacts, it is worth noting that these may only be short-term drivers and not things are going to create long-term transformative change.

### Transportation System, Land Use, and Driving Forces




*Source: DVRPC 2014.*

**The Futures Group is encouraged to start with a blank slate, and identify the most relevant driving forces of change going forward.** To begin this conversation, DVRPC has identified a few potential drivers to show the type of issues the Futures Group could consider.



*Natural gas production is forecast to increase by 50 percent by 2040. Source: EIA 2014.*

### A Cheap, But Volatile Energy Future
The rising cost of oil has led to increased extraction of natural gas. However, the global nature of the economy means that conflicts, weather events, and other supply chain disruptions may continue to cause energy price spikes in the future. Additional rapid advances in solar, wind, hydro, or other renewable resources, as well as continued energy efficiency improvements in cars, residences, appliances, lighting, and business operations could also lower energy costs and/or demand in the future.

### Increased Energy Prices
Emergence of new energy sources is slowed by environmental concerns. World population growth and economic development increase demand for energy resources, which are getting more expensive and harder to extract.

### Shifting Lifestyle Preferences
VMT per capita has steadily declined since 2004, which can largely be attributed to young people and empty nesters choosing to locate in cities where alternative transportation is available. Environmental and cost concerns, as well as mobile technology have reduced demand for personal vehicles, particularly among the millennial generation (born between 1980 and 2000).

### The Shared Economy (or Collaborative Consumption)
Owners and service providers use internet-based technologies to rent goods and services. These services include car-share, bike-share, streaming video, room rental, and even household appliances, all aided by reduced transaction and communication costs by the internet. Challenges have and will continue to include oversight and regulation, shifts in consumer preferences, and potential loss of service-sector jobs.

### Low-Cost Transportation Infrastructure
Rapid advances in infrastructure technology, such as 3-D printing, low cost sensor technologies, and stronger composite materials, could reduce costs for system repair and expansion, while increasing operational efficiency.

### High-Cost Transportation Infrastructure
The cost of building infrastructure rises well above inflation as world economic development causes demand for raw materials, such as concrete and steel, to be far beyond what is produced.

### Confronting Climate Change
Continued reliance on carbon-based energy sources could accelerate climate change. This may result in mounting pressure to combat climate change through government regulation, and shifting consumer preferences. There are many instruments the region could adopt to reduce greenhouse gas emissions, including: pricing, vehicle restrictions, better land use decisions, alternative transportation, technology, and cleaner energy sources.


*Google's latest self-driving vehicle does not contain a steering wheel or brake pedal. Source: Google*

### Autonomous Vehicles
Autonomous vehicles (AVs) may be the most significant transportation technology on the horizon. AVs will have a substantial impact by improving safety and traffic flow, increasing VMT, reducing emission rates per mile, altering road design, and allowing for more free time while in vehicles. While this technology is still in development, issues related to cost, liability, and oversight are more likely to slow down AV deployment. Experts have theorized that AVs, combined with car sharing, could replace large numbers of personal vehicles. This technology could revolutionize the trucking industry.

### Other Considerations
The Futures Group could explore the impact of local taxes, crime, education, and health concerns. These are issues that often arise in discussions about the future of Greater Philadelphia. Such efforts should tie back into regional transportation and land use impacts. The future funding source of the transportation system remains

unclear. The Futures Group could also consider how new transportation funding sources, such as VMT fees or congestion pricing, would impact the region.

## DRIVING FORCES IMPACTS

The Futures Group and the RTC will identify where they think regional growth is most likely to occur under each driving force. They will also consider how the region should invest transportation dollars given different driving forces of change. The types of projects will include:

- Roadway system preservation;
- Roadway operational improvements;
- New or improved arterials and local roads;
- New or improved limited access roads;
- Transit system preservation;
- Transit operational improvements;
- New or expanded regional transit lines;
- Improved inter-regional high-speed rail;
- Bike and pedestrian improvements;
- Expansions at Philadelphia International Airport;
- Expanded freight rail facilities; or
- Port improvements and Delaware River channel deepening.

## INVOLVING THE PUBLIC

Coinciding with DVRPC's 50th Anniversary, we will create a website where the public can vote on driving forces identified by the Futures Group. The website will also consider the most important driving forces of the past 50 years, the most transformative transportation projects over the last 50 years, and which projects are most critical to invest in over the next 50 years.

## SCHEDULE

Futures Group meeting dates are shown in orange below. Each meeting will be approximately 2 hours long.

2014
July
August
September
**September 17th, 2014, 3 pm – 5 pm** – 1st meeting of Futures Group (Brainstorm Driving Forces)
October
**October 1, 2014** – DVRPC 50 Drivers and Game Changers website launches
**Week of October 20-24, 2014** – 2nd meeting of Futures Group (Vote on and Identify Driving Forces)
November
December
**Week of December 1-5, 2015** – 3rd meeting of Futures Group (Driving Forces Impacts and Transportation Investments Break-out Groups, with RTC)
2015
January
February
March
**March-April, 2015** - Stakeholder meetings with Healthy Communities Task Force, Goods Movement Task Force, EJ Working Group
April
**April-May, 2015** - Webinar 4th meeting of Futures Group and RTC to review draft Alternative Futures Scenario document and Choices & Voices v2.2
May
June
**June, 2014** - Publish Alternative Futures report; Launch Choices & Voices v2.2