"A Conversation with Greenable Woodbridge"……Understanding the climate question and what we can do about it?

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Sustainability Pillar: Climate Mitigation & Resiliency

Introduction: Back in 1975 a Columbia University professor is credited with first using the term "Global Warming" in an article ironically entitled "Climatic Change: Are We on the Brink of a Pronounced Global Warming?" Since that time, a national and even international debate has raged over the term global warming. Former Vice President Al Gore's campaign to raise awareness even resulted in an award winning 2006 documentary film by Davis Guggenheim called "An Inconvenient Truth." Unfortunately, debate over terminology and data has distracted focus away from the clear need for better preparedness, adaptation and resiliency in the face of more frequent and severe weather events.

Over the past decade, the term "climate change" has grown in popularity to better connect to an indisputable fact – the world, our nation, our state and our region are experiencing more frequent extreme weather events. Greenable Woodbridge has adopted a format for communication with Township residents called "The 12 Pillars of Sustainability." Our July Pillar is Climate Mitigation & Resiliency. Each week in July we will post topical summaries on the Climate question. These summaries will address:

- What is Climate Change and why do we care about it?
- What is the State of New Jersey doing to address climate change?
- What have we done in Woodbridge Township to combat climate change?
- What can each of us do to help the fight?

The narrative summaries will also be supplemented by companion You-Tube videos and links to additional reference materials for those interested in more detail.

Week 1: What is climate change and why do we care about it?

The question of climate change centers on the degree that human behavior in producing greenhouse gas emissions has, and is, contributing to a rise in surface temperatures all across the world. Earth can sustain life in large part due to gases in our atmosphere that can hold heat. These "greenhouse gases" trap heat, as does a greenhouse, resulting in an average worldwide temperature of 59 degrees. Scientists estimate that human behavior, such as burning fossil fuels and clearing

forests, has increased the amount of greenhouse gases by as much as 35%. The more greenhouse gases, the more heat trapped in our atmosphere, with resulting potential impacts of great concern:

- More frequent and intense storms, flooding, droughts, heat waves and extreme snowfalls, all of which have been observed in recent years in the U.S. and locally;
- Accelerated melting of the polar ice caps. Polar ice reflects sunlight and deflects heat. With less ice we will experience more heat in our atmosphere;
- As the ice caps melt and the oceans warm, sea level rise is occurring. This can result in more significant flooding, when coupled with extreme weather, but also kills coral reefs, essential to supporting the food chain of the seas;
- Changing climate also affects plants and animals and increases in extinctions can be expected, thus altering natural systems worldwide.

While debate over the causes of more extreme weather events continues, no one can argue with fact that they are happening and with virtually unprecedented severity. Three current examples are in most recent memory for New Jersey, Middlesex County and Woodbridge Township:

- Just four short years ago, New Jersey sustained the most costly disaster in the State's history when Hurricane Irene struck on August 28, 2011. The storm resulted in about $1 billion in damage to 200,000 homes and buildings. An estimated 1.46 million utility customers across all 21 counties lost power;
- A little over a year after Irene, Superstorm Sandy made landfall on New Jersey on October 29, 2012. Over 2 million households lost power, 346,000 homes were damaged or destroyed and 37 people were killed. The impact of Sandy dwarfed Irene with estimates of economic losses up to $30 billion;

- The Winter of 2014/15 was one of the coldest on record for New Jersey. February 2015 was the sixth coldest month in State history since recordkeeping began 120 years ago in 1895 with an average temperature of 22 degrees, nearly 12 degrees below normal. Overall, we just experienced the coldest Winter in the past 120 years. In particular, post Superstorm Sandy, scientists, academics, non-profit organizations, businesses and government officials have focused on "mitigation, preparedness, adaptation and resiliency" to address climate change. These terms are, at times, used interchangeably and cause confusion. Here are some general definitions:

- **Mitigation** consists of actions to limit the magnitude and/or rate of long-term climate change through measures to reduce greenhouse gas emissions and create "carbon sinks" through planting trees;

- **Preparedness** represents a set of actions that are taken as precautionary measures in the face of potential disasters. These actions can include both physical preparations (such as emergency supplies depots, adapting buildings to survive earthquakes and so on) and training for emergency action;

- **Adaptation** seeks to reduce the vulnerability of communities and biological systems to climate change and offset the effects of global warming through mitigation measures and preparedness plans. Mitigation measures like reducing emissions and reforestation efforts will take literally decades to advance. We need to plan for and "adapt" to severe weather conditions and events all along the way;

- **Resiliency** is the ability of communities and ecological systems to handle new stress and operate normally in the wake of climate change impacts and to adapt, reorganize and evolve through preparedness planning and implementation. Climate Resiliency is the term that rolls mitigation, adaptation and preparedness all into one.

Climate resilience is complex and mitigation and preparedness plans are, by necessity, extraordinarily comprehensive. Next week, we will explore some of the measures the State of New Jersey has taken to address long term climate change impacts.

To Learn More: If interested, please check out the following websites and You-Tube videos:

Websites and Literature:

- Sustainable Community Plan and Climate Action Plan – Woodbridge Township, New Jersey
- Website of the New Jersey Department of Environmental Protection, Sustainability and Green Energy Program
- Website of the New Jersey Climate Adaptation Alliance
- NJ Climate Brochure
- "Resilience – Preparing New Jersey for Climate Change: Policy Considerations from the New Jersey Climate Adaptation Alliance"
- New Jersey Global Warming Response Act
- "New Jersey's Global Warming Response Act Recommendations Report" – December 2009

You-Tube Videos:

- Climate Science: What You Need To Know (PBS Digital Studios)
- Why People Don't Believe In Climate Science (PBS Digital Studios)
- Climate change just hit home (NBC documentary)
- Climate Change Is Happening Faster Than You Think (DNews)
- Morgan Freeman's Powerful Climate Change Short Film (The Daily Conversation)