Real Resilience: Positioning Montgomery County to Thrive Through Changing Times

Harriet Tregoning
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CHANGE
## Coming Big Disruptions and the County’s Role in Managing Change

### Transport and Mobility
- Opportunity for Disruption
- Technology-enabled options

### Climate Change/Resilience
- Existence, Habitability
- Information/Action/Choice?
- Increasing disparities or shrinking ones?

### Changing Economy/Disparity
- Housing
- Demographics
- Limned in the geography
Transportation and New Mobility
The rise of new mobility services

“New mobility” is a loose term for business models using technology to deliver transport in new ways.
The Mobility Ecosystem is Changing

Communities need to define their mobility priorities, and the role modes play in a balanced ecosystem.
IT’S HAPPENING FAST(ER)

**E-Scooter Growth**


WORLD RESOURCES INSTITUTE
THE IMPACTS ARE FAR-REACHING

MOBILITY DISRUPTIONS

Car sharing
Ride sharing
Transit apps
On-demand consumption
Electric batteries
Connected & autonomous vehicles

PUBLIC BENEFIT

THE BUSINESS SECTOR

POLICY

LAND USE & BUILDINGS

ENVIRONMENT & ENERGY

URBAN MOBILITY

GOVERNMENT REVENUES

EMPLOYMENT

Source: WRI
OUR MOBILITY FUTURE

HELL
- Massive sprawl
- Single occupancy modes
- Pollution
- Unsafe streets
- Historic job losses
- Sudden drop in tax revenues
- Unjust, unsustainable cities

HEAVEN
- Compact and accessible
- Shared modes
- Decarbonized
- Complete streets
- Retrained labor
- New (and fair) revenue streams
- Just, sustainable, livable cities
BENCHMARK
CLIMATE CHANGE/RESILIENCE
The worst flooding ever. So far.

Homes near Silver Sands Beach in Milford were flooded by Hurricane Sandy in 2012. (MICHAEL McANDREWS / Hartford Courant)
Coastal Concentration of Risk

• In 2010, 123.3 million people, or 39 percent of US population lived in counties directly on shoreline.
• 1970 - 2010, population + 40%.
• + 10 million people or 8% by 2020
• 6X population density of inland communities
Disasters in the Making

- Elevated Temperature
- Sea Level Rise
- Coastal Flooding
- Drought
- Wildfire
- Violent Storms
- Very Heavy Rain
- Disease Migration
What does Montgomery County Need to Know?

• Know the risk
• Share knowledge of the risk
• Use your *Engineering Chops*
• Use your *regulations*
• What were chronic vulnerabilities BEFORE Irene, Sandy, 2018 Nor’easters?
• What were your aspirations?
• Take Risks to Innovate, Adapt, LEARN
• Leverage work underway or planned
Boston’s South Seaport

HISTORIC AND CURRENT SHORELINE
Boston’s South Seaport

PROBABLE FUTURE STORM FLOOD EXTENTS
AT THE 1% ANNUAL CHANCE STORM EVENT

- CURRENT (2017)
- 9" SEA LEVEL RISE (2030)
- 36" SEA LEVEL RISE (2070)

SOUTH BOSTON TIDAL FLOOD PATHWAYS
VULNERABILITY BEYOND SOUTH BOSTON BEGINNING 2050

STUDY AREA
FUTURE

- Storm Intensity
- Urban Population
- Temperature
- Sea Level Rise

YOU ARE HERE

• IMAGE: SCAPE/LANDSCAPE ARCHITECTURE
Where are property owners getting signals about growing risk?

- Homebuilders and Realtors?
- Insurance Premiums?
- Federal Disaster Relief?
- Changing Bond ratings?
- Mortgage Lending?
Federal Flood Insurance

Repetitive-Loss Properties by U.S. County

Number of properties with two or more NFIP claims from 1978–2013 (by county)
It’s not engineering VS. regulation

- Stronger building codes
- Buyouts
- Disclosure Requirements
- Prohibitions against building in the most dangerous places
- Other actions to reduce repeatedly flooded properties
- Use of flexibility in land use to encourage more housing in the best places
Assessing Shocks and Stresses

- High Frequency/Likelihood
- Low Frequency/Likelihood
- High Consequence
- Low Consequence

Assessment Key
- Priority Shocks/Stresses

- Insect-Borne Disease
- Infrastructure Failure
- Access to Education
- Gender Inequality
- Civil Unrest/Riot
- Aging Infrastructure
- Hurricane
- Poverty
- Community Cohesion
- Flooding

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FACILITATED DISCUSSION: DEFINE RESILIENCE VALUE

OBJECTIVE

Establish a common set of resilience values and drivers as they relate to the project or program.

APPROACH

Facilitated brainstorm exercise to identify and group values and drivers.

OUTCOME

An organized list of values and drivers, leading toward a resilience opportunity statement.
RESILIENCE VALUES

**TOP SHOCKS AND STRESSES**
- Lack of High Quality Education, Workforce Development and Access to Opportunity
- Aging and Vulnerable Infrastructure
- Quality and Affordable Health Care Access
- High Cost of Living (including Energy Cost)
- Lack of Housing and Affordability

**VALUES**
- OPTIMISM ABOUT THE FUTURE, ECONOMIC DIVERSITY, OPPORTUNITY
- SAFETY, ACCESS, COMPETITIVENESS, SUSTAINABILITY, RELIABILITY, ACCOUNTABILITY
- HEALTH
- WELL-BEING, DIVERSITY
- WELL-BEING, SAFETY, COMPETITIVENESS, AFFORDABILITY
## Mapping Projects to Resilience Values Exercise

<table>
<thead>
<tr>
<th>Project Example #1: Restore Electric Power System</th>
<th>RESILIENCE VALUE</th>
<th>Barriers to Success</th>
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<tbody>
<tr>
<td>#1 INVEST IN PEOPLE</td>
<td>#2 SAFETY/ REDUCED RISK</td>
<td>#3 COMPETITIVE</td>
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<tr>
<td>Lower energy bills</td>
<td>Microgrids + Distributed generation: o redundancy o lower rate of failure o protect critical facilities</td>
<td>Get people to return</td>
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<td>New jobs for residents</td>
<td>Composite poles, underground</td>
<td>Be first mover on tech innovation &amp; renewables (solar)</td>
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<tr>
<td>Train/retrain on new technology, technique</td>
<td>Do risk mgt screen to prioritize</td>
<td>Lower energy costs- LPG &amp; renewables</td>
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<td>Diversify economy with renewables</td>
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<td>Make USVI Caribbean/ Global energy leader</td>
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<td>&gt; Energy efficiency of homes</td>
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<td>Engage students on sustainability</td>
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Aren’t we doing Disaster Recovery and Resilience?

No, we are using Physical Planning and Investment to “Win the Economy (and all future economies)”
Innovate – FAIL - Succeed
Regional bike transit system

Over 5,700 bikes at over 500 stations

DC; Arlington, Fairfax County & Alexandria, VA; Prince Georges County & Montgomery County, MD

32,000 Annual Members

410,000 Casual members

- 80% said they bicycle more often
- 40% said they drive less
- $819/year saved per member ($15 million total)
GROWING DISPARITY/CHANGING ECONOMY
DC Households by Income

Households by Household Income
District of Columbia
2000, 2005 and 2014

Poverty is concentrated
It is not just housing, but access...

• This map shows average Commute Times.
• The darker the census tract, the longer the commute to a job
Income Disparity Growing

Figure 13: Distribution of Household Income by Income Level, 2016

1 in 5 households have incomes of $200,000 or more

Average $135,151

Median $99,763

Effects of Recession Linger

Median Sales Prices of Inner-Region Jurisdictions

Source: Urban Institute analysis of data from CoreLogic Market Trends.
Notes: Prices are for single-family home sales only. Median sales price is calculated as a 12-month moving average. Prices are adjusted for inflation annually.
Commuting

2016 Commuting by Locality

- Drove alone
- Carpoled
- Public transport
- Walked
- Other
- Worked at home

Legend:
- Montgomery County
- Frederick County
- Prince George’s County
- Howard County
- District of Columbia
- Fairfax County
- Loudoun County
- Alexandria City
- Arlington County
Accumulated barriers to Housing Development: Significant costs to Households, Local Economies

Source: Gyourko, Malloy (2015)

How Have Rents Changed Since 1960?

Source: US Census; AL Calculations

Median Rents Vs. Median Household Income, 1960-2014

- Real median rent (indexed to 1960)
- Real household income (indexed to 1960)
Do new housing types make sense for Montgomery County?

Accessory Dwelling Units

Illustration by Ryan Sullivan of Paste In Place.
**ADUs**: getting more housing into opportunity-rich, single family neighborhoods

ADUs in Eugene and Portland, OR
Where will knowledge workers prefer to live? Are we educating the workforce of tomorrow?
The future has already arrived. It's just not evenly distributed yet.

William Gibson