

ON TO 2050

# Alternative Futures Scenario Planning

August 4, 2016

# Agenda

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1. Review alternative futures approach to scenario planning
2. Explain criteria for selecting key trends
3. Group discussion of potential environmental and land use topics, their likelihood and impact
4. Preview/discussion of other potential trends

# Alternative Futures scenario planning in ON TO 2050

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- Continue GO TO 2040 emphases and explore new policy areas
- Focus on 5-8 macro level trends
- Identify policies and strategies to respond to macro level changes
  - Prepare
  - Mitigate
  - Capitalize
- Prioritize strategies benefitting multiple futures
- Robust analyses primarily through qualitative research
  - When possible and most useful, quantitative and spatial analyses
- Provide vehicle for discussion

# Criteria

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- 1. Plausible:** Is it already happening or likely to be happening by 2050?
- 2. Impactful:** Would it have a significant impact on transportation, housing, economic development, governance, environment, or quality of life in the region?
- 3. Strategic:** Does studying it encourage discussion about new focus areas and existing planning priorities?
- 4. Measurable:** Does CMAP have access to reliable quantitative and/or qualitative information necessary to understand the trend and its potential impact on the region?
- 5. Manageable:** Can we analyze the trend and identify some important strategies to respond to it within the timeframe of the scenario planning process?

# Initial list of trends

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- **Environment and Land Use**
  - Intensified climate change impacts
  - Constrained water supply
  - More efficient and resilient energy system
  - Transitioning agricultural and natural lands
  - Investment in mixed-use centers
  - Preference for suburban lifestyle
  - Smarter, more responsive built infrastructure and land use monitoring
- **Governance**
  - Diminished public resources
  - Politically gridlocked region
  - Tech-enhanced active citizenship
  - More regional planning
- **Demographics**
  - Aging nation and region
  - Diversified region
- **Regional Economy**
  - Economically stratified region
  - Stagnant regional growth
  - Economic restructuring
- **Transportation**
  - Increased freight intermodalism
  - Increase in non-auto passenger transportation modes
  - Smarter auto-oriented mobility
  - Driverless vehicles

# Environmental and land use trends

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- Intensified climate change impacts
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- Constrained water supply
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- Preference for suburban lifestyles

# Intensified climate impacts

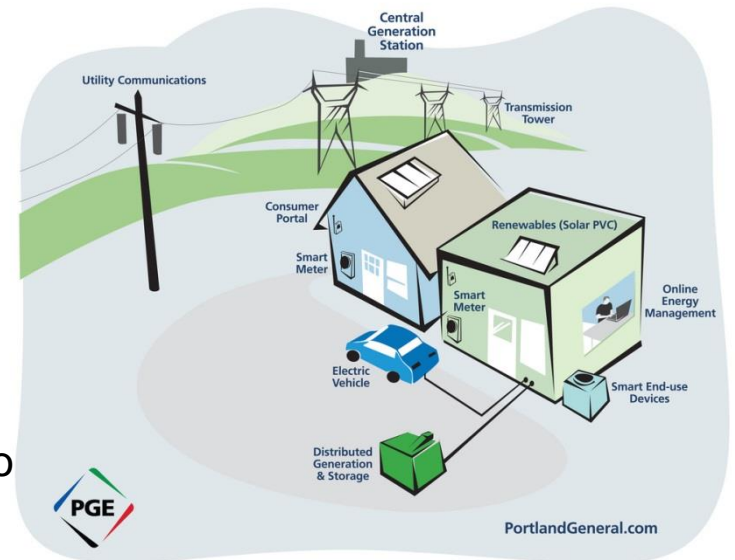
*Effects of climate change, including flooding, drought, and extreme heat, strain the region's infrastructure and natural systems, while the region also attracts residents and industries from severely impacted places.*

- **Weather events** such as storms, flooding, and drought, more extreme heat and cold, and damaging freeze-thaw cycles occur with greater frequency and intensity
- **Hard infrastructure** becomes strained and less reliable, fueling more demand for resilient, responsive alternatives
- Intensifying climate effects nationally/worldwide (particularly droughts) **increase migration** to the CMAP region and demands on regional assets
- Shifting **agricultural zones**, increased crop failures in the Midwest and nationally, and shifting crop composition impact the regional economy
- Shifting habitats causes more **invasive species** and pests, increase in die-offs/extinctions and conflicts between humans and other species

# More efficient and resilient energy system

*Changing policies and technologies facilitate a more efficient and resilient energy production and distribution system*

- **Federal and international regulations** (Clean Power Plan, Paris Agreement) alter the energy market, spurring a shift from fossil fuels to cleaner energy alternatives
- Improved battery technology leads to increased **distributed generation** at household and neighborhood scale, improving grid resilience
- Smart grid results in **better emergency response** to disasters and outages
- **Sensors and other technology** allow for increased automation of energy efficiency and new behavioral incentives (ex: time of day rates, VMT tax)
- Continued improvements in **vehicle efficiency** and vehicle electrification results in changes in fueling infrastructure and continued declines in fuel tax revenue





# Smarter, more responsive built infrastructure and land use monitoring

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*Transformative technology provides better information about built infrastructure, energy use, and land use patterns*

- Improvements in measurement and data analysis tools provides **more accurate and frequent information** about land use change
- Increased prevalence of sensors provides more granular data on **air, water, and infrastructure quality**
- Limited resources demand **smarter, more efficient spending**, likely facilitated by greater use of performance measures
- Development of new technologies and processes **increases energy efficiency** and enables more efficient construction and repair of built infrastructure
- **Widening gap** between municipalities with data analysis capacity and those without



# Constrained water supply

*Water supply constraints are exacerbated within the region and nationally, leading to changes in sources of water, economic development, land use, and environmental planning*

- **Increased drawdowns** of deep bedrock aquifers require communities to find alternative sources of water
- Water scarcity issues in other regions increases **migration** of people and water-intensive industries to the region
- Increasing pressure to weaken Great Lakes Compact and **divert lake water** to other cities
- Region reaches limits of **Lake Michigan allocation** and cannot extend water to communities in need of another source
- Increased use of **surface water**, especially rivers, for water supply results in greater focus on river water quality and watershed planning

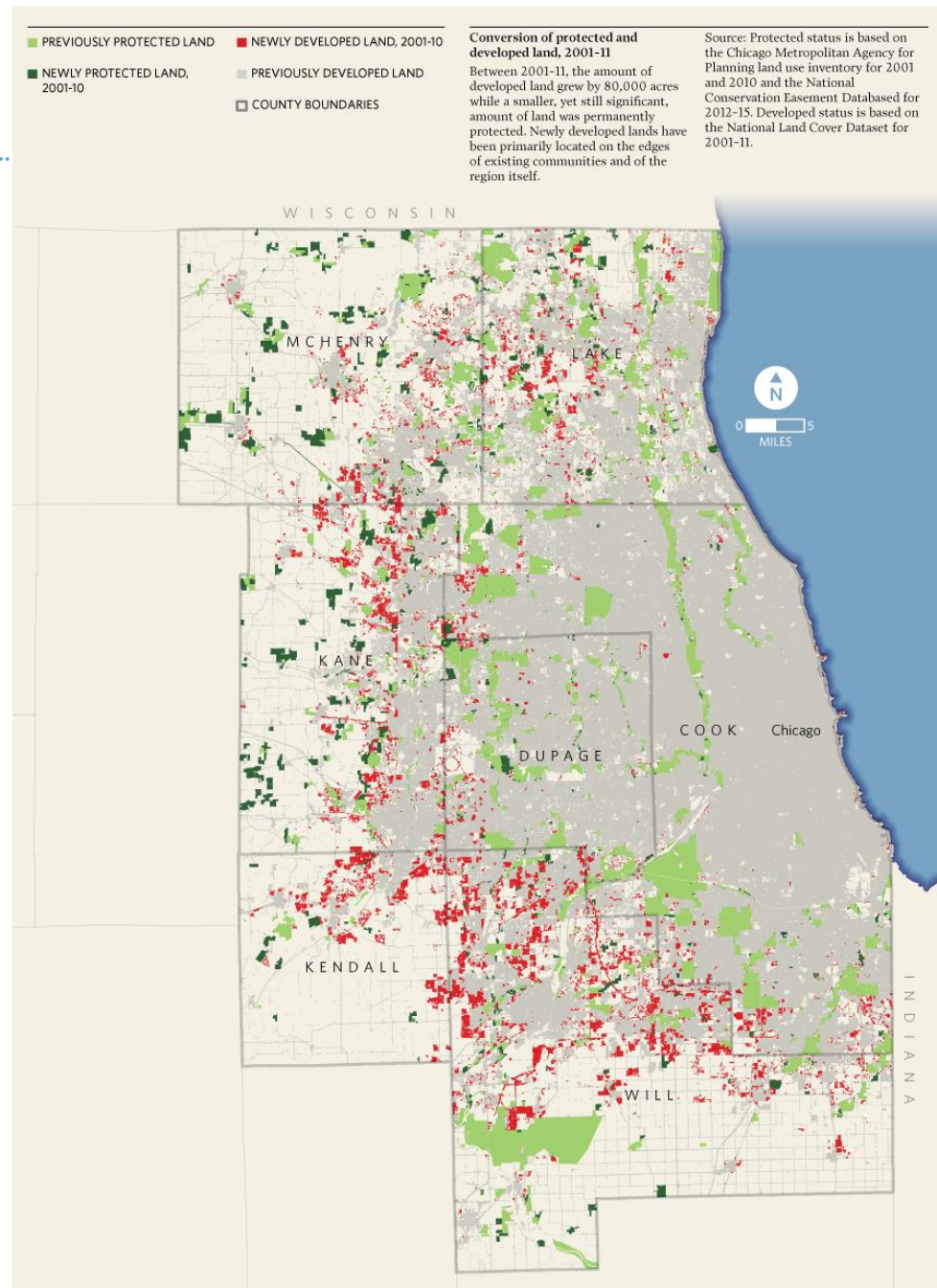




# Transitioning agricultural and natural lands

*Conversion of agricultural and natural land continues, driven by continuing demand for low-cost development*

- Residential, industrial and intermodal facilities continue to expand primarily at the **edge of the region**, creating increased transportation needs
- Municipal boundaries expand, adding to **infrastructure** construction and maintenance **costs**
- Expiration of **temporary easements** on agricultural and natural lands leads to loss of those assets
- Consumption of natural lands results in **adverse environmental impacts**, including decreased stormwater retention, poor water quality, decreased biodiversity, increased groundwater depletion



## Investment in mixed-use centers

*Preferences for walkable, mixed use communities leads to increased investment in urban neighborhoods, densifying suburban downtowns, and commercial cores*

- More **infill development** as population in the urban core and suburban downtown areas increases
- **Office jobs return** to urban areas, disinvestment from suburban office parks, strip malls, and corporate campuses continues
- Higher density suburban development allows for **expanded transit options** (ex: arterial rapid transit) and decreased auto dependence
- **Cost of living** in urban areas with good transit access grows, urban areas increasingly made up of the higher income and college educated
- More racial and ethnic **diversity**

## Preference for suburban lifestyle

*Preferences for traditional, low-density suburban living continues to drive suburban development patterns*

- Lower cost of living, more space, and suburban amenities continue to attract families to **suburban neighborhoods**
- Housing and transportation needs change as existing suburban residents **age in place**
- Expansion of existing intermodal and industrial facilities and employment centers, **intra-suburban and reverse commuting patterns** not well-served by transit continue and increase
- Increased racial and ethnic **diversity** in the suburbs, including larger immigrant population
- **Suburbanization of poverty** caused in part by high cost of living in urban areas

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# ONTO 2050

Questions?

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