Montgomery County Human Progress and Human Services 2035 Scenarios

By the Montgomery County Department of Health and Human Services and the Institute for Alternative Futures,
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Introduction

What will human progress, human need and human services be in Montgomery County, Maryland in 2035? What implications does it have for today's strategies for public and private human service providers and community partners? These Montgomery County Human Progress and Human Services 2035 Scenarios offer a tool for the Montgomery County human services community to explore these questions at the level of their own jurisdiction and to better inform future-oriented, long-term strategies and efforts. For this purpose, these scenarios consider a range of forces, challenges, and opportunities shaping local and national human services, and offer a plausible set of expectable, challenging, and visionary pathways for how human services may change over the years to 2035, and the roles of current human service providers within these plausible pathways.

These Scenarios will be used at a Scenario Workshop hosted by the Montgomery County Department of Human Services on February 28, 2017 where participants will consider their current directions and strategies, including their "robustness" or potential for success in multiple scenarios. Participants will also develop recommendations.

These Montgomery County Human Progress and Human Services 2035 scenarios are an important part of a larger project – Human Progress and Human Services 2035 – conducted by the Institute for Alternative Futures (IAF) and supported by the Kresge Foundation. In addition to developing scenarios for the human services community in six cities and counties and two states, IAF is developing a set of national human service scenarios. These national scenarios will allow human service leaders, practitioners and partners to consider to challenge their own assumptions about the future, identify emerging risks and opportunities, and formulate more robust strategies with a greater potential to advance their mission over the decades to come.

Why scenarios?

The future is uncertain. However, scenarios – different stories describing how the future may unfold – can be used to bound that uncertainty into a limited number of paths. These paths help us think about different probabilities in a larger space of possibilities. Scenarios also force us to consider the systems surrounding our topic and to clarify our assumptions. People who work with scenarios find more creative options than those who plan based only on the past and present. Strategies, plans, and actions can also be "future tested" against the different scenarios to assure robust initiatives that have more potential for success. Scenarios provide a powerful method for systematically addressing the uncertain future.

Methodology

IAF partnered with the Montgomery County Department of Human Services and community partners to develop the scenarios using the "Aspirational Futures" approach (see **Figure 1**

below) which IAF has evolved over the last three decades. This technique creates forecasts and then scenarios in three zones:

- A "zone of conventional expectation" reflecting the extrapolation of known trends, the expectable future (scenario 1);
- A "zone of growing desperation" which presents a set of plausible challenges that an organization or field may face, a challenging future (scenario 2); and
- A "zone of high aspiration" in which a critical mass of stakeholders pursues visionary strategies and achieves surprising success (scenarios 3 and 4).

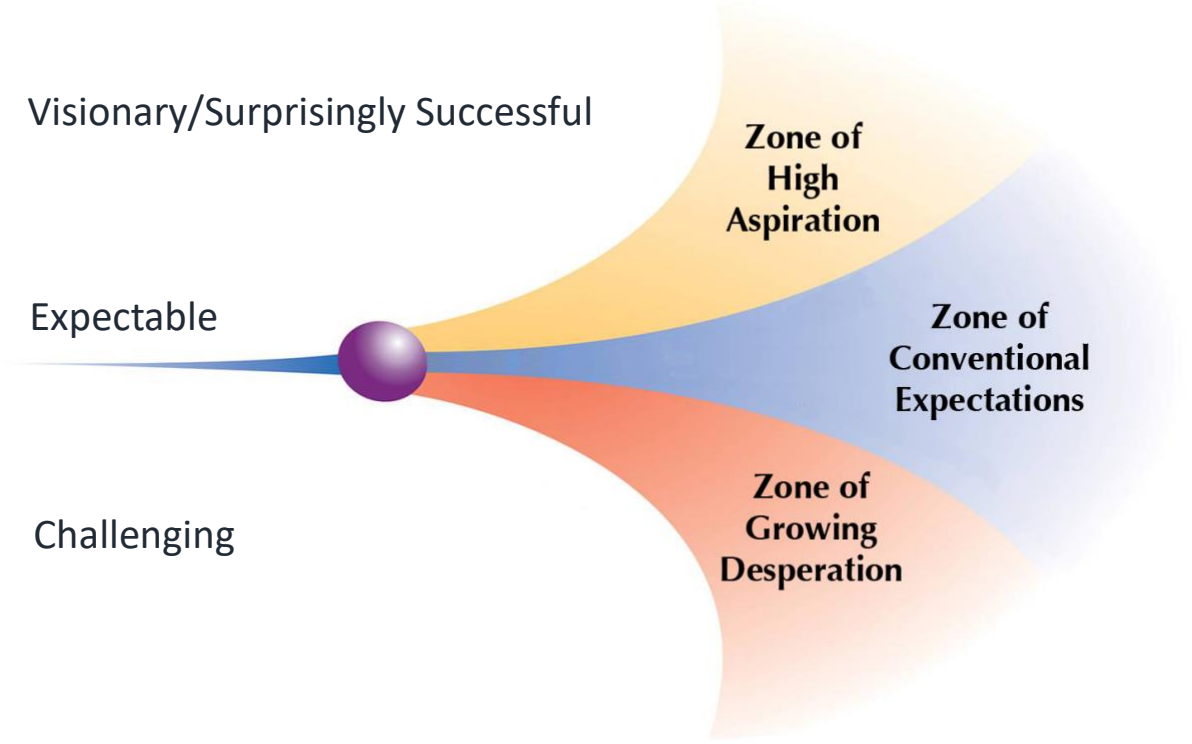

Figure 1: IAF's "Aspirational Futures" Approach

The Montgomery County Human Progress and Human Services 2035 scenarios presented on the following pages were developed based on a review of human services programs and activities, plans and documents. We held interviews and focus groups with 24 individuals from the Department and other Community Partners. We explored "driving forces" and preliminary forecasts for the economy, employment, the environment, technology, as well as trends within specific areas of human services (aging, behavioral health, children, youth and family, disability, housing, and income supports). Approximately 20 human service and community leaders assembled on November 30, 2016 to review the preliminary forecasts and develop the distinct scenarios presented below.

The resulting four Montgomery County Human Progress and Human Services 2035 Scenarios are:

- Scenario 1: (Expectable) Cloudy
- Scenario 2: (Challenging) Big Storms
- Scenario 3: (Visionary) Beautiful Days
- Scenario 4: (Visionary) Blue Skies.

Each scenario description will begin with an overview of the economy, technology and human services, followed by the forecasts for specific human service areas: aging services; behavioral health services; child, family and youth services; disability services; housing services; and income support services.

As we developed the scenarios there were aspects of the driving forces that call for greater explanation than the scenario narratives allow. This larger explanation is given in a series of end notes at the back of this report:

- Job loss to Automation –from 9% to 47% of U.S. jobs could be lost to automation by 2030[i] (included in all Scenarios).
- Abundance advances – a cluster of technologies that, if applied appropriately can lower the cost of living by providing in-home and in-community production of food, energy, and many home goods.[ii] (in Scenarios 3 and 4)
- Options for Increasing Low Income Housing Stock – options include expanded government funding; increasing neighborhood density; encouraging accessory dwelling units; low cost 3D printed homes.[iii] (various options across the Scenarios)
- Guaranteed Basic Income – faced with permanently high unemployment, a Universal Basic Income would give $12,000 a year to each adult and $4,000 for each child.[iv] (in Scenario 3 only).
- The Human Services Value Curve – a "vision" for the human services field[v]
- Equity Rising – the transformative influence of equity as a value and attitude shift affecting policy, personal, and neighborhood political decisions[vi]

Scenario 1: (Expectable) Cloudy

The U.S. economy had slow economic growth, at 1 to 2% each year between 2015 to 2030, with downturns for recessions and higher growth in the years just after the recessions. The economy and work was transforming, partially driven by job loss to automation. This led to a loss of 6% of jobs by 2021[1]. Federal ***human services policy overall*** *saw significant decreases in spending during the Trump Administration combined with the growth of block grants. Human service funding saw a slight rebound in the 2020s. During the Trump Administration, Counties in Maryland successfully positioned themselves to have more influence on the distribution of block grant funds. Maryland human service policy reemphasized support for accessing employment. The federal government encouraged data integration to track recipients and eligibility. Montgomery County remains a well-resourced county. And the minimum wage did increase to $15.00 an hour by 2022. Poverty grew, but remained concentrated in several zip codes where poverty rates grew from "in the 20s" range in 2014 to "in the 30%s" range, by the 2020s. The State and the County maintained their funding for human service programs and used two generation strategies to focus on the workforce, child care, behavioral health, transportation, economic development, and educational preparation for work. Some human service funding moved towards a "pay for success" model and public-private partnerships accelerated achieving these markers of success. Immigrants continued to change the County's population – growing from less than 20% in 1990 to over 30% by 2010 and 35% by 2020. Montgomery County remained dedicated to embracing its diverse population, however restrictions and monitoring by federal agencies increased significantly, disproportionately impacting services available for immigrants, refugees, and asylum-seekers. Human service jobs, as jobs in general, were shaped by computers and automation. By the late 2020s cognitive computing tools, intelligent agents, were handling much of the case management and eligibility determination tasks; allowing human service workers to focus on the cases most in need and to oversee the work of the intelligent agents. Human services data was linked to other community, environmental, public safety, and economic data. In the 2020s this allowed the human services to work with clients to anticipate and, at times, prevent emerging problems.*

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[1] Forester Job loss to automation and computers is increasingly likely. Forester Research argues that 22.7 million jobs will be lost by 2025, or 16% of the workforce. And, while automation will create 13.6 million jobs (in software, engineering, design, maintenance, support and training), it believes the net effect will be negative: a loss of 9.1 million jobs in ten years, or 7% of the total workforce. https://www.fastcoexist.com/3050428/robots-will-take-your-job-but-first-theyll-be-your-annoying-co-worker

Frey and Osborne project about 47% of total U.S. employment is at risk for automation in "The Future of Employment: How Susceptible are Jobs to Computerization?" http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

McKinsey Global focuses on probability of tasks within occupations being automated, and determined that 49% of time spent on tasks with current technologies, but only 5% of total jobs in the report , *A Future that Works: Automation, Employment, and Productivity*; *Harnessing Automation for a future that works,* http://www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works

Specific Human Service Areas in the Expectable Scenario

Between 2015 and 2030, as the population of the County grew to over 1,114,000[1], and the number of those aged 65 increased to 222,800 people or 20%. The needs and delivery of **aging services** grew with the population. In 2030, over 25,000 elders in the County had Alzheimer's[2]. County funds for aging services, which still included disability services, increased though less than the increase in the aging population. Senior services are integrated across the community through libraries, schools, cafes, and churches. Senior centers are not exclusively available to seniors, or even defined by a physical structure with walls. Many seniors meet virtually and "virtual visits" between patients and their health care and human service providers are common. Intelligent robots and intelligent agents took over some interaction and tasks by the mid-2020s. In the late 2020s, senior property relief tax was readdressed because it was not serving lower income seniors- and others- that do not own properties. Accessible design standards are put in place across commercial and residential buildings. The Baby Boomers continued their aging into the 2040s and human services grew increasingly focused on the needs of this population; however, serving people in poverty, low income and uninsured seniors remained a challenge for service providers. Increased longevity coupled with increased costs for insurance and medication, increased the number of seniors on fixed incomes living in poverty.

While receiving **behavioral health services** became less stigmatized, access to care was under threat due to budget and other constraints. Particularly between 2017-2020, there were large cuts to behavioral health services, despite increasing need. The needs of people became more complex in Montgomery County due to the variation of cultures, psycho-social and economic stress. In 2017, Montgomery County was providing behavioral health services to about 15,000 people – though this was estimated to be only 45% of the mental health need in the County. In the 2020s, need increased due to new and expanded stressors, including notable increases in opioid dependency, poly-substance abuse and related co-occurring disorders. Funding for opioid treatment increased under the Trump administration—off-set by cuts of other services—however, access to treatment and success rate varies across race and socioeconomic classes. Budgets were periodically cut. While technology was able to provide some services, unmet need continued to grow. The stress of being in, or on the verge of, homelessness impacted many in Montgomery County. This includes the newly unemployed, minimum wage workers, and underemployed workers in the gig economy. Populations that have experienced trauma, particularly refugees and asylees, require long term engagement, but often funding only dealt with short term needs. The complexity of the system of care also compounded recipient's understanding of the services and how to access them. Increases in students from low income

[1] Montgomery College, *County Demographic Data*, http://cms.montgomerycollege.edu/EDU/Department.aspx?id=45574 (accessed February 3 2017).
[2] Alzheimer's Association, *2016 Alzheimer 's disease Facts and Figures*, http://www.alz.org/facts/ (accessed February 3 2017).

families challenged the school system. County schools adopted behavioral health prevention practices. Teachers, school counselors and in-school clinics were trained to identify adverse childhood experiences (ACEs), behavioral risks and needs. Thanks to integrated data systems, information from the schools gets to behavioral health providers. However, treatment was only as successful as the financial and human resources available, which varied.

Cross agency partnerships, such as public agencies, courts, law enforcement, creates a more coherent way to work with clients. This is driven both by shared goals among agencies, and out of necessity as budget reductions required more effective actions. The CRISP system used by Maryland was replaced by a new system that facilitated smart data sharing.

By the mid-to-late 2020s, the spread of behavioral services was aided by increased use of software programs, smart apps, and virtual reality that could relate with patients and provided effective counseling. Apps evolved, expanding from monitoring physical conditions to monitoring feelings. "Affective computing" used in these behavioral health tools proved effective and led to increased acceptance by the patient. Human therapists provided oversight and dealt with the most complex cases. These tools proved to be effective for many, but not for those with more serious or chronic mental illness who still require human behavioral health providers.

Child, Family and Youth Services in Montgomery County include programs that involve child care, child and adolescent programs, early childhood programs, and gang prevention and services to refugees, immigrants, and asylees. The evolution of child and family services is driven by the increase in single parent and multi-generational households; the needs within each home are increasingly complex and intertwined. The demand for services was shaped by economic recessions, environmental events, widespread job loss to automation and psycho-social stressors. Funding for these services, largely from County funds, drops during periods of economic decline, and community efforts partially fill the void.

Evidence of its importance pushes the County toward universal early care, pre-K, and Head Start programs. Year-round school became the norm in the late 2020s. The current conversations in hospitals around preventing hospital readmissions expanded to the early childhood space. Behavioral health and child and family services are more connected.

Cognitive computing methods and predictive analytics using big data are largely adapted by licensed private and public child and family service deliverers, implemented through standardized application programing interfaces. Services are more effectively delivered with more efficient connection to other services.

Prevention became, conditionally, more effective in addressing abuse and neglect during the late 2020s, following increased domestic violence rates in the 2010s and early 2020s, which prompted intervention. After putting in place stringent privacy protections and data sharing protocols, data for each child and family member, particularly those who have participated in child welfare programs, is accessible across stakeholders. This allowed the use of data on job

loss, neighborhood violence, school truancy, and other factors to predict some needs for child service agencies.

Despite efforts to recognize and serve all in the County, some communities, often those with the highest need, remained increasingly isolated, with abuse, neglect, behavioral health issues remaining high.

Economic and racial disparities in instances of adolescent pregnancies remain, often correlated with lack of success in school. Some low income populations did see an increase in educational attainment. Teen pregnancy rates decline in those populations. Planned Parenthood was defunded during the Trump Administration but was able to get private and charitable funds to remain open though reduced in size and service levels. This was a challenge for women's health, with the County struggling to fill the gaps.

The number of families doing foster care dropped because of diminished funding and fewer social workers available to handle placements. Congregate care settings grew, due to loss in funding and fewer social workers for in-home services. Preventive or alternative response programs, which utilize an investigative approach to low risk child welfare cases, grew in the County, though periodic funding reductions repeatedly lowered the number of child service workers available to do this.

Human trafficking becomes a greater issue in and around Montgomery County, influenced by the development of nearby casinos. Because these cases are so specialized and comprise a very small percentage of the County's child welfare cases, they were periodically neglected and thus made worse.

The needs of refugees are like those of asylum seekers and some immigrants, all of which require services in Montgomery County. Montgomery County explicitly continued to provide medical care to the uninsurable. The Trump Administration deportations included many from the County. Some of the deported left behind their domestic-born children to enter the foster care system.

Refugee acceptance had become an increasingly contentious issue during the Syrian crisis. During the Trump Administration immigration, refugee or not, became much stricter. However, Montgomery County remained welcoming and committed to serving these people. There is no national placement, so families settle where there are already communities from their home country, such as in Montgomery County.

Refugee services were stretched thin, and community members assembled to deliver services, such as informal language lessons and other knowledge sharing. DHHS staff, contract providers, and volunteers were trained on issues of equity, social determinants of health and well-being, culture and socioeconomic status, and the use of language apps. Most enhanced their effectiveness but some community service providers were not prepared or effective.

Local and state programs for people with **disabilities** include supportive housing, respite care for families of disabled, emergency response systems, and home and vehicle modification assistance. Federal funding was reduced during the Trump administration but rebounded in the 2020s. Maryland funding varied with the fiscal health of the state throughout the 2020s. Generally, disability services grew more focused, benefit levels were reduced, eligibility requirements stiffened, even while the number of people with disabilities and their degree of disability increased.

In 2022, the Social Security Disability Insurance (SSDI) trust fund reduced benefit levels, and raised eligibility requirements, making it harder to get the benefits. In 2032 the SSDI trust fund regulated service levels by using the national outcomes research data base to assure only services with demonstrated success get reimbursed above maintenance level payments.

Diabetes was another source of disability in the County. By 2030 diabetes affects over 180,000 in the County, disproportionately impacting minorities. By 2030, the more than 60,000 disabled seniors[3] in the County included over 20,000 people, of varying ages, with a diabetes-related ailment such as visual impairment, renal failure, or leg amputation[4].

New conditions such as rise of opioid addiction, communicable diseases like Zika, and psychological trauma increased the number of people with recognized disability. Funding for opioid treatment increased under the Trump administration; however, access to treatment and success rate varies across race and socioeconomic classes.

Disability services evolved significantly by the mid-2020s as technology became more advanced; this includes self-driving cars; intelligent digital assistants, 3D printing of smart prosthetics, home monitoring and home care robots.

Housing is at the forefront of issues faced by Montgomery County. There were efforts to maintain or increase the stock of housing available to moderate income families, and particularly to very low income households. Yet the growth in need outstripped the enhanced low income housing stock. A number of older high density low-income units were deemed unsafe as they aged, adding more pressure to the already limited availability. The efforts to maintain or increase the availability of very low and low income housing included rezoning to allow secondary living units on the property of single family homes and encouraging building on empty space around homes; however, this was met with some resistance and animosity in many neighborhoods in Montgomery County.

The funding for Section 8 housing decreased during the Trump administration then marginally increased, in the 2020s, although well below the need. Montgomery County and the State

[3] Montgomery County Maryland, Figure 13 Alternative Projections of Disabled Seniors in Montgomery County, https://www.montgomerycountymd.gov/senior/Resources/Files/16_senior_demographics_chapterii.pdf (Accessed 6 February 2017).
[4] IAF Maryland Diabetes Data and Forecasts, applying Montgomery County population proportions http://www.altfutures.org/pubs/diabetes2030/MARYLANDDataSheet.pdf, (Accessed 3 February 2017).

passed regulations that prohibit landlords from refusing to accept vouchers as rent. This serves to help alleviate concentrations of poverty by giving voucher holders more options of where to live. Housing benefits coordinate with TANF, and all capable beneficiaries of Section 8 and public housing are better able to engage in employment programs.

Regulation is adjusted in the County to support fast construction of new developments that include very low income housing; at times, these lead to overcrowding of neighborhoods. There was greater support for alternative construction, sustainable building, 3D printing of housing components and repurposed materials, and "tiny homes". Housing services coordinates with other services and use Montgomery County and Maryland self-sufficiency standards to identify the best, case-specific plan of action for the person/family. By assessing their needs across multiple dimensions housing service providers ensure the right mix of resources and services.

Montgomery County becomes more diverse, which affects the need and delivery of all human services, including **income support services**. Income support programs in Montgomery County serve people through supplying cash assistance; these programs include temporary cash assistance, emergency assistance to families with children, temporary disability assistance program, and supplemental nutritional assistance program (SNAP).

All income support programs in Montgomery County fluctuate due to budget and need. Temporary Assistance for Needy Families (TANF) evolved throughout the 2020s and early 2030s during varying periods of economic downturn and ecological disruption. In the Trump Administration, the tenor of TANF and other welfare programs shifted and there are stiffer requirements for work or work preparation in exchange for benefits. TANF case workers use the Maryland self-sufficiency matrix to help clients make plans including transportation, work attire and child care.

TANF in Montgomery County emphasized empowering recipients with education and skills training, which proved particularly important as the types and number of specific jobs available continued to shift due to increased computerization and the percentage of work on the gig economy rose. In Montgomery County, hospitality, health care, biotechnology, construction and cybersecurity are growth sectors, but these require a minimum of GED certification. Montgomery County worked to prepare people to be successful in the workforce through early education and training. Child-support programs better coordinate with state workforce development programs, without duplicating services, and work to increase non-custodial parent's participation in these programs.

Automation influenced how income support services are delivered, although at a relatively slow place. Technological platforms integrated, which allowed for better case management. FARMS and SNAP integrated by the late 2020s. States were given more authority in how school nutrition programs operate, including adjusting the food served to children.

Refugees and asylum seekers were not eligible for TANF and certain other programs before the 2020s, but they could receive Refugee Cash Assistance (RCA), which provides financial and

medical services. The RCA program came under threat due to budget cuts and increasingly polarized views about allowing refugees into the county and community. Despite deportations and threat of funding cuts during the Trump administration, Montgomery County remained a welcoming community, committed to understanding and empowering immigrant populations.

In the 2020s, comprehensive immigration reform was put in place. TANF is amended to allow for refugees to obtain benefits. TANF is more beneficial than the refugee cash assistance program, which it ultimately replaced.

Montgomery County becomes more deliberate in preparing for immigration arrival and transitional needs, utilizing more language tools. There is a greater focus across County agencies to help redirect new residents to jobs.

Food and nutrition income support programs, such as SNAP evolve. Federal funding was decreased while need remained the same or increased, so community organizations in the County scrambled to fill the gaps. The Ryan Budget passed under the Trump administration hurt other nutrition programs, such as school meals and early childhood food. Cuts to programs like WIC decreased the number of places, such as child care centers, where low income children receive daily meals. Fewer school children received school meals because of these limitations and higher barriers to qualifying.

SNAP moved to a block grant system, like TANF. Local health and human service agencies began coordinating their care and services with SNAP; as did state and federal programs. Community food banks and soup kitchens also checked with their customers to ensure that they were enrolled in SNAP.

Scenario 2: (Challenging) Big Storms

*The need for **human services overall** grew, even though funding did not. The economy grew slowly for most of the two decades to 2035, with periodic recessions. The big one, the Great Recession of 2023, was particularly challenging to employment, tax receipts, and human service spending. Human service funding was cut in the late 2010s, with a rebound in the early 2020s and then major cuts during and after the Recession of 2023. Human service organizations were increasingly restricted and monitored by federal agencies, disproportionately impacting services available for immigrants, refugees, and asylum-seekers. Human service organizations were forced to "do more with less;" to automate what they could; to collaborate to ensure that the funds and services provided are deployed most effectively for individual and family's unique needs; to reinforce their overworked and underpaid employees on the importance of their mission. This is true for government and non-profit sector human service workers. High unemployment, home ownership foreclosures, public schools funding redirected to support charter and increasingly private schools, and failure to address societal inequities during the Trump administration created major imbalances. The needs of many residents, both long time*

County residents and new arrivals, are less able to be met. The nation and Montgomery County experienced increased crime, homelessness, drop-out rates, which contributed to more violence and animosity. Technology advances. Smart phones and their successors such as virtual reality tools became ubiquitous and continued to shape how we live and how human services were delivered. These advances improved aspects of life and learning, but also led to job loss to automation – 5% of all jobs were lost by 2021 and more than 30% by 2030. Some high-tech employers moved overseas due to fewer issued H1 visas and a less technically savvy domestic workforce unable to afford college. The Great Recession compounded job loss in 2023 and the next few years. Human services evolved – spurred by limited funds and by the creativity and inventiveness of both human service organizations and those in need. As public funding diminishes, the non-governmental sector, and philanthropic and faith based organizations were more heavily relied upon.

Specific Human Services in the Challenging Scenario

The growing number of elder Boomers increased demand for **aging services**, home care and health care while each faced reduction in spending. Increased longevity coupled with increased costs for insurance and medication, increased the number of seniors on fixed incomes living in poverty. Social Security monthly payments are reduced for most Americans, and the political climate nationally and in Maryland is volatile as the conservative Trump influenced local elections.

Many government-provided senior services were limited due to budget constraints, including home care through Medicaid, rental assistance, respite care, elder abuse and neglect prevention services, and disability payments. Other services are available for those who could afford them; this included high tech and effective home care robots, and hired human home care. Many families in the County provide care for family members. When family members do fill the role of caregivers, there are great emotional, financial, and physical impacts. This is particularly the case for low income families. Medicaid home care and nursing care was reduced. Some families lost family members who could help care for their elders because they had to move to look for jobs elsewhere. Technology, including virtual visits and affective computing did provide some services and increased interaction for elders. While some of these were too costly for low income elders, others, like many smart phone apps (virtual reality, biomonitoring and emotion monitoring, smart home monitoring, enhanced hearing and language translation) were in widespread use by 2025 despite the economic challenges. There is less housing security and housing quality for elders, and increased instances of elder abuse.

The need for **behavioral health services** increased due to the stress and trauma of economic downturn and increased vulnerability, but the availability diminished year after year. Abuse of substances such as opioids, increased dramatically with growing harm to individuals, families and communities. Despite evidence from demonstration projects around the country showing that behavioral health can counter the epidemic of drugs, funding became scarcer during the 2020s. Behavioral health services for low income folks was reduced through Medicaid,

Medicare, and the Obamacare replacement. Prisons and jails continued their role as the largest providers of residential behavioral health care. In the late 2010s and into the 2020s the return of a "get tough" stance in criminal justice increases arrests and convictions. Black and Hispanic populations were most affected because their arrest rates remain higher and their sentences longer than for the White population. Some criminal justice reform was proposed, but not properly enacted. Notable increases in drug dependency, poly-substance abuse and related co-occurring disorders were seen, while access to treatment and success rate varied across race and socioeconomic classes.

Behavioral health computer programs (often delivered via smart phones) did become very effective by the mid-2020s. They were available to the affluent, those with expensive health insurance, and to the few low-income folks still on Medicaid managed care plans (these provided the app to their patients without charge).

Human service providers use predictive analytics to help triage the population when budget reductions mean people must be cut from programs. These cuts take a toll on social service providers as well as their clientele. Burnout remains a problem for human service workers in government and the non-profit sector, where the recruitment and retention rates are low.

Between 2017 and 2020, new and current problems strained the state of **family and child services**. Then they got worse through the 2020s. The main driver was budget cuts to human services. Poverty and racial disparities continued to drive the growing need for services as poverty grew worse during recessions and adverse childhood experiences, particularly violence, grew to harm children developmentally in a way that would have lifelong consequences. Increasing distrust in government programs led to both cuts in funding for government programs and large privatization of services across Montgomery County. Private foster care services and monitoring varies, with some providers endangering the children in their care.

The school achievement gap between schools worsened. High school graduation rates decreased and youth incarceration rates rose. Opioid and heroin addiction increased dramatically throughout the 2020s and became a major contributing factor harming children. Social service providers automated much of their work to deal with staff cuts. Human service areas used the integrated information system to target the best set of services from their dwindling pool of programs and funds. But there are times when the information systems are not updated and may not be reliable. Human trafficking becomes more frequent. Adult protective services and refugee assistance services are cut year after year. Other programs that experienced cuts, or elimination, included: child care subsidies, programs to provide school clothing, transportation assistance, home repairs funding, and job training. Faith and other community groups and philanthropic groups worked to address some of these unmet needs. This included creating summer food programs when schools were closed and other food programs had been cut.

Many disconnected youths were not in school or working and this led to increased gang activity. Job loss to automation and economic downturns made jobs scarcer, and failure to

adequately raise the minimum wage kept many full-time workers near or below the self-sufficiency level.

There is a lack of immigration reform, lack of leadership, and increased animosity. Some deported parents leave behind domestic born children that enter foster care. Among the Latino population, there is a large divide between those that are foreign and domestic born. This is true for Asian and African populations as well. By 2018 the United States had stopped accepting refugees from war torn areas of the Middle East. Some refugees that were already in the U.S. often met with resentment from American residents, fostered by Islamophobia and other-phobic sentiments. Due to lack of resources and hostility from neighbors, some refugee families in Montgomery County formed their own isolated communities, many of which had to defend against attacks from others who view immigrants as a threat for jobs and resources.

Budget stress brought about increases in **disability** payroll taxes, reductions in federal Social Security Disability Insurance (SSDI) payment levels, and tougher eligibility standards. The percentage of people with disabilities grew year after year, fueled by higher structural unemployment, more severe weather events, the 2023 recession, and growing chronic disease – particularly diabetes and Alzheimer's. State and local services for people with disabilities - which include housing and home modification assistance, transportation services, and job services - are also negatively impacted. The 1000 person waiting list for disability services in Montgomery County in 2016 increased steadily through the 2020s.

The most common type of disability in adults continues to be mobility related. Diabetes can result in mobility disabilities, such as amputation or impaired vision. By 2030 diabetes was affecting over 180,000 in the County; over 20,000 people experienced a diabetes-related ailment such as visual impairment, renal failure, or leg amputation[5]. By 2030 there were more than 25,000 people with Alzheimer's in the County. Racial and ethnic minority populations were disproportionately impacted by these diseases.

There were technological and medical advances that removed disabilities or lessened their impact, but most low income people lacked access to consistent health care that provides the medical advances and they cannot afford many of the technological advances (e.g. self-driving cars, 3-D printed prosthetics and orthotics, home robots, and neuro-enhancements). These new technologies heighten the differences between those who are sufficiently well off to be newly enabled rather than disabled, versus those whose lives are marginalized and shortened in 2035.

Poverty rates and access to housing worsened across the County, increasing the divide between low income and wealthy, and between middle class and wealthy. **Housing services**, like most other human services, had to determine who got what services, often with a growing proportion of those in need not getting any of the services. Large numbers of people lost their

[5] IAF Maryland Diabetes Data and Forecasts, applying Montgomery County population proportions http://www.altfutures.org/pubs/diabetes2030/MARYLANDDataSheet.pdf

homes while human services had little to offer in response. Homeless populations soared while spending was reduced, or eliminated. And more of the homeless were families. Churches, synagogues, mosques and community groups in Montgomery County repeatedly stepped up their efforts to temporarily meet some of the need, providing shelter and meals; however, increased hostility towards synagogues and mosques limited their ability to expand coverage.

Laws and regulations were changed in Montgomery County to allow more unrelated individuals into housing units, to permit secondary dwelling structures in homes and in yards. Many neighborhoods resisted the greater numbers and were hostile to those who did increase their density.

Montgomery County encounters a unique challenge in meeting the needs of new residents that migrate in from nearby worse-off areas. Local governments, both Montgomery County and those nearby, evolve **income support services** in response to increased migration between neighboring counties, and migration from outside areas. County-based programs try to fill the need left by federal and state cuts, but with limited ability. Montgomery County residents are 'competing' with people in Washington, DC and nearby areas for access to services. TANF and all other cash assistance programs, experienced greater cuts and limitations - and some were fully eliminated - particularly under the Trump Administration and subsequent conservative administrations. TANF restrictions grew, while jobs diminished because of ongoing job loss to automation during the 2023 Recession. During the 2020s as the categories of training and job alternatives that TANF recipients could perform were narrowed (e.g. dropping community service and providing day care for someone in a training program as options). Many families were less able to meet their basic needs; particularly the growing number of single parent households. Some did without, some grew part of their food, some found alternative income sources, including criminal activity. By the 2030s, a growing number of the population in prison are former TANF recipients who resorted to crime for survival. For many families, the only means available in the 2020s comes through the informal or underground economy as paid work was not available and government assistance was limited or nonexistent.

Food support programs also changed. SNAP was moved to a block grant where the funds further reduced its economic and nutritional impact. While there were periods of supportive Administrations and SNAP-friendlier Congresses which periodically reversed, or slowed the decline, it continued until the late 2020s, when despite overt need, the SNAP program ended all together. As a response, home food growing and community gardening increased in the County's low income neighborhoods.

FARM, the Free and Reduced Meal program, county wide had a 30% enrollment. Yet in a few zip codes that percentage was above 50%, a reflection of poverty distribution and concentration.

Montgomery County was tested but maintained its long held position as a welcoming community. Though the Trump administration's deportation efforts increased as the National

Guard was activated for round-up raids and ultimately the County's refugee cash assistance payments were reduced then finally eliminated.

Job loss to automation removes many low skill positions, and eliminates 5% of all jobs by 2021. During the Trump administration, although the economy grows, human services funding is cut and so government application of technology is slower. There is a reduction of human service workforce, driven more by budget cuts than automation. Human service workers continued to rely on outdated technology and clinical judgment, rather than new and helpful technologies, which aggravated burnout. The 2023 Great Recession slowed down some innovation; however, after the recession, there wasan uptick in IT growth and automation. For businesses to remain viable and operable, they often had to automate many positions. The job loss was not limited to lower skill position, but knowledge based positions face elimination as well. There was job growth in high tech companies, but these are high skill positions.

Scenario 3: (Visionary) Beautiful Days

Human Services and human progress *were redefined and transformed in the 2020s because of transformations in the economy, changing values, and accelerating technology change. This followed, and was accelerated by, a period of economic growth, increased inequity, job loss to automation, conservative policy and funding cuts in human services during the Trump Administration. Demographics and values were changing; the country, like Montgomery County became minority-majority. Concern for fairness – related to nationality, ethnicity, race, gender, gender preference and identity, opportunity, income, health outcomes, housing and neighborhood, safety and justice – accelerated and included a call for greater equity.*

The economy was transforming. More "work" could be done by automation, robots and intelligent agents. Self-driving cars and trucks took over the work of many of the more than 4 million workers involved in driving. Jobs (and work) were lost – 6% of jobs disappeared by 2021, mostly during the Trump Administration. By 2035 one-third of all jobs had disappeared. Much of the work that remained for humans shifted from full time "jobs" to piece work or consulting assignments on the "gig economy".

There were upsides to technology. 3D printing or distributed manufacturing allowed many products to be created in homes or in the community, rather than factories in another city or country. By the late 2020s many families were producing many of their needs in-home or co-producing them with their neighbors. Urban agriculture, community gardening and in-home food production, including 3D printed food and cultured meat, lowered the cost of food. Solar and other sustainable energy production and storage became low cost and was added to homes in most regions of the country. Policies and regulations were changed to facilitate in-community energy storage, and to pay consumers for the excess energy they shared with the grid.

Being "low income" or "below the poverty line" took on new meaning because of access to this self-production and community co-production of food and other needs. But all families needed income for housing and other needs they can't self-produce. And as job loss to automation accelerated there was a growing recognition that jobs or paid work would not be available to all – some income support was needed. In the early 2020s a national guaranteed basic income (GBI) was put in place[6]. Adult citizens receive $12,000 annually and $4,000 per child. This income led to the elimination of most cash transfer programs, such as SNAP, TANF, and others, but allows low income families greater stability and independence. Montgomery County, given the high cost of living in the County, supplements the GBI for very low income residents.

The GBI and increased home and community co-production increased self-sufficiency in the County. High school graduation rates and other degree earning increased as colleges and public universities were made affordable. Teen pregnancies decreased.

Human services were still needed. While reduced, problems such as child abuse, physical and mental disabilities, and homelessness persist. Human services address these more effectively, automating some of its work, supporting prevention and individual and community self-reliance, and recruiting workers from the communities being served. Human progress extends beyond survival, and focuses on how people can physically and emotionally thrive. Health care becomes universal, and moves towards a wellness model. Equity and compassion strengthen the social fabric of Montgomery County – and influence how human services are viewed and delivered.

Specific Human Service Areas in the Visionary Scenario with Guaranteed Basic Income

The demand for innovative services forced changes in the way **aging services** were delivered so that they offer customized quality of life for elders. Montgomery County increased their number of senior centers and integrated senior services into libraries, schools, churches, cafes, and other settings, including homes and neighborhoods. Virtual reality and remote participation became increasingly easy and effective as even those in their 80s and 90s spend time in virtual reality. Senior nutrition programs, such as SNAP payments, were eliminated after the guaranteed basic income was implemented in the 2020s. Meals on wheels programs began charging recipients, given their basic income payments, with only special categories of individuals, e.g. the disabled, whose meals remain free. Aging services became more neighborhood-centric and more anticipatory – combining an individual's health care and human

[6] The guaranteed basic income has been proposed for decades but liberals and conservatives offer different approaches. There has been growing support for the policy in recent years as the forecasts for job loss to automation have grown. While there are a range of levels that the GBI has been set e.g. $10,000 income plus 3,000 for health insurance; up to $32,000 yearly in Switzerland; the level in this forecast $12,000 yearly for adult citizens, $4,000 per child, is proposed by Andrew Stern, see Stern, Andy and Lee Kravitz. *Raising The Floor: How A Universal Basic Income Can Renew Our Economy And Rebuild The American Dream*. 1st ed. New York: PublicAffairs, 2016. Print. Conservatives who support GBI propose lower levels for the GBI payments, and greater reduction of other government spending and programs (see The Atlantic, "The Conservative Case for a Guaranteed Basic Income" https://www.theatlantic.com/politics/archive/2014/08/why-arent-reformicons-pushing-a-guaranteed-basic-income/375600/).

service data with community data, to anticipate elders' needs. Senior group living and co-housing grew steadily through the 2020s, as did "smart homes" for many seniors. This made trading services among residents within group housing easier, while the intelligent agent in smart home programs played many roles- including friend, bookkeeper, secretary and counselor.

Many **behavioral health** problems were prevented in the 2020s because of increased self-sufficiency and early integrated treatment access. All families had their guaranteed basic income and most were producing or co-producing some of their food and other needs. This reduced some of the poverty-related root causes of behavioral health issues. However, addictive, violent and other damaging behavior as well as mild (depression, anxiety) and more severe (schizophrenia) behavioral health conditions did continue. It became more acceptable to be receiving behavioral care. Behavioral health by the early 2020s did get parity with physical medicine and access to health care was near universal by 2025 (with the replacement to the replacement to Obamacare).

Technology tools to deliver behavioral health services advanced. Competing intelligent agent counselors provide effective, affective care. These are provided and maintained by health care systems, but SIRI and other smart phone apps and wearable technology assistants evolved to also provide "wellness" coaching that is similar to effective behavioral care. Human behavioral health physicians are still needed to write prescriptions or approve those generated by the health system's intelligent agent. Other behavioral health professionals provide oversight and quality control for the intelligent agents. Because of the reduced demand and cost, the County refocused some of its effort to enhance behavioral health services in the safety-net providers, ensuring access to services among immigrants, refugees and others not eligible for health care insurance or access. Immigration reform in the mid-2020s enabled many immigrants access to health care services, though they remained ineligible for the guaranteed basic income until they become citizens.

The need for **child and family services** was shaped by the existence of the guaranteed basic income (GBI) in the 2020s. The GBI, although relatively low, was consistent and contributed to greater family stability and reductions in family violence and child abuse. The guaranteed income also contributed to lower teen pregnancy rates and increased high school graduation rates. College and universities became increasingly affordable though subsidizes and allowing graduating students' debt-relief if they volunteer in their communities.

Two, or multi, generational strategies were implemented for child and family services, focusing on preventative measures and addressing root causes of child and family crisis, such as substance abuse or behavioral health issues. The use of cognitive computing provided children's services opportunity for preventive approaches. For example, using data on truancy can identify at-risk children, allowing for early intervention. This helped keep more children in their homes. Customized plans, specific to children and family members, were developed for each case. Children that did require services in instances of abuse and neglect were better

served through the widespread use and advancement of cognitive computing systems along with affective computing that provides true artificial intelligence in the 2020s. This intelligence combines both the knowledge of experts and the emotional empathy of great healers, teachers and preachers as it interacts with the child and their parents.

Human trafficking was reduced. When instances did occur, technology helped anonymously identify and help the child, while taking legal action against the perpetrator. A data base of local motel and hotel rooms - a common place for the crime to occur - allows for a mobile phone photo of the room to be anonymously texted or posted and action to be taken from there. This, and campaigns to put a "face" to human trafficking, increased awareness of the criminal activity.

Disability, or the impacts of disability, were reduced for low income people, as well as the wealthy, during the 2020s. The epidemic of chronic diseases, particularly diabetes and arthritis, was slowed for some and reversed for many. Research on the cause of various disabilities, helped to generally lower disability rates through understanding and promoting prevention. Human service providers promoted prevention strategies including physical activity and weight loss among overweight and obese individuals; in-neighborhood walking, exercise and social activities for elders; safer and healthier work places and work styles; healthier food, including community gardening produced vegetables. Many workers were displaced by robots and computers but for the jobs that remain, most employers became more inclusive of workers with disabilities.

Yet disabilities and disparities in disability levels along racial, ethnic, income, and rural vs. urban lines persisted. There were over 30,000 disabled seniors in Montgomery County by 2030,[7] disproportionately elders of color. Those with high degrees of disability receive disability support payments above the GBI. Technology, including robotics, intelligent agents, and virtual reality alter the nature of disability – though access to the best technology remains unequal.

After a decline in federal funding for low income housing, a rebound began in 2021. **Housing** policies led to the construction of more moderate and very low income housing units (single family and multifamily buildings) – usually in mixed income neighborhoods. Zoning changed to allow secondary dwelling units in homes or on premises, such as in yards. This reduced concentrations of poverty. The County worked hard to have these more dense, mixed income neighborhoods feel neighborly and safe and not lose their market value. Housing and homelessness are no longer viewed as separate areas. Homelessness remained in Montgomery County, but was drastically reduced.

After reductions in the level of payment and tighter eligibility for **income support programs** from 2017 to 2021, there was more than a rebound, it was a transformation. The passage of

[7] Montgomery County Maryland, *Figure 13 Alternative Projections of Disabled Seniors in Montgomery County,* https://www.montgomerycountymd.gov/senior/Resources/Files/16_senior_demographics_chapterii.pdf (Accessed 6 February 2017).

the guaranteed basic income (GBI) in the 2020s redefined income support programs. These GBI payments were there during the emergencies of unemployment, which increased through job loss due to automation, providing a low but stable income to all citizens. Given the GBI payments, TANF was largely eliminated along with SNAP and others, except when natural disasters brought emergency needs. Some programs such as emergency and medical assistance, and resources for the disabled (where needed above the GBI) were continued through a commitment to compassion. The GBI payments enabled people to have better lives in which they contribute to their communities and society. Refugees and some immigrants are not eligible for citizen's income, so alternative systems remain to meet the needs of this population.

A comprehensive employment system remains in place in the County to enable people to rise higher than the GBI. This includes training, education, internships, and securing employment. This training anticipates sectors, companies and specific jobs that will be available and matches potential workers. Given the ongoing job loss to automation, this targeting was important for those being trained.

Other types of training were added to human services work: financial literacy to aid a person in their most rewarding use of the GBI funds; trading and volunteering skills to take part in the sharing economy; gardening and food production skills for home and community growing; and other self-sufficiency aids.

Food insecurity was significantly reduced by self-production of food in homes, with community co-production utilizing technological advances. These include hydroponics, aeroponics, and urban and vertical agriculture, 3D printed foods, cultured meat and other advances. These are done commercially, in community gardens, and in homes. Montgomery County retained most of its agricultural zone and many individual farms. Some worked on these farms to supplement their GBI funds. By the late 2020s farming or food production is at least a part-time focus for a large part of the population. These community food production efforts lead to the emergence of community leaders that help build well-being and implement evidenced best practices for food and nutrition security.

Scenario 4: (Visionary) Blue Skies

Human services overall *became more integrated, automated, efficient and effective. The 2020s saw an accelerated change in attitudes, economics, and policies. The economy grew, as did the stock market, during the Trump Administration – but so did unemployment and income inequality. During the Trump administration, many programs moved to a block grant and human services funding was somewhat reduced. Montgomery County was strategic in making this block grant focus successful for County residents. Flexibility of funding is maximized through*

improved data sharing between public and nonprofit sectors, not only to strategically utilize funding but also philanthropic resources. In the 2020s, human services funding rebounded. College and public universities became nearly free. The economy was transforming – losing jobs to automation, even as the minimum wage was rising and much work was shifting from formal jobs to piece work and consulting on the "gig economy." New job prospects were identified early and people in the County were trained and educated for the evolving work. Universal child care was provided for infants and young children of working parents. "Full employment" evolved to people having adequate paid work – and by that measure there was success. Most people had paid work that provided close to a living wage level or more. Job sectors with growth include biosciences and cyber security. In addition, families also became more self-reliant – producing some of their food and other goods and trading time and services. There are virtual doctors and telehealth systems of care. Food is accessible to the disabled and elderly. Human service workers continue to focus on vulnerable people, but are doing more in communities. This is particularly true for the community health workers added in the 2020s. Many human service tasks and some whole jobs (e.g. eligibility worker) were automated. Human service workers focus more on prevention, serving as mentors and coaches. The "American dream" evolves- there is less consumerism, more sharing, and more community connections. People are healthier and live longer. There is greater community security and fewer gangs. People know their neighbors, and human service workers know the community members.

Specific Human Service Areas in the Visionary Scenario with "Full Employment"

Aging programs in Montgomery County grow with the Boomer population and morph as technology increases connections and goes virtual. Multigenerational homes increase, and families share resources. Senior centers increase in variety and number. There is a positive movement towards working together across aging programs and dementia research networks, which helps to better support the increased elderly population. Predictive analytics helps families anticipate the declines of their family members. Medical advances enabled dementia and Alzheimer's to be slowed and then reversed by 2030. These advances were not covered by Medicare until after 2030. Their application to low income elderly was a welcome benefit to their families. Mobile phone apps, successors to Apple's SIRI, Microsoft's Cortana, and Google's Intelligent Assistant, offered elderly tools that can apply smart home features from a smart phone, enhance volume and clarity of words for the hearing challenged, schedule appointments and communicate with doctors' offices and arrange transportation. These include instant language translation across dozens of languages and compensate for the elders hearing loss and cognitive decline. The biomonitoring devices worn by elders can sense gait changes, falls, activity levels and position inside the home or in the neighborhood. These tools were available and used by the affluent by 2020 then widely used by middle income and well retired elders by 2025. And by 2030 Medicaid and Medicare provided these tools to low income and marginalized elderly. Low cost medical advances, some enabled by 3D printing of replacement organs, extended quality and quantity of life and reduced the need for costly medications. For some this extended the time they can remain independent in their homes. The opportunity and quality of life of low income and disabled elderly in the late 2020s and 2030s was remarkably high.

Behavioral health services improve dramatically. Advances in understanding genetics, mood, affect, cognitive decline, disease, and environmental influences are incorporated into behavioral health approaches, increasing efficacy dramatically.

Communication among providers, agencies and individuals grows. HIPAA is amended to enable this and yet maintain protections. Data sharing takes place between child welfare, behavioral health, schools, primary care physicians, and non-profits. Environmental factors near those at-risk are monitored.

Communication systems use AI to monitor information violations and ensure privacy. As digital native millennials fill leadership positions in the 2020s they accelerated the use of technology in service delivery. Intelligent agents, deployed for behavioral health by health care systems became very effective by the mid-2020s. All Medicaid and Medicare recipients have access to these services via their smart phones. They also have the option of virtual reality, or human providers with in-person or televisits.

Human services and health care providers integrated data. Population trends, trauma, languages, and religious practices, cultural differences are incorporated into behavioral health tools. Genetic and epigenetic analysis, advances in integrative therapeutics and pharmaceutical are included in diagnosis and prescription. Virtual reality, genetic testing, pharmaceutical advances, and artificial intelligence improved behavioral health care. However, the person-to-person and community relationships across Montgomery County remained important.

The County has adequate funding, technological tools, and trained staff that enable them to look forward and focus on prevention, rather than being overwhelmed with crisis response.

The jail remained a major site for behavioral health but demand is reduced as poverty and criminal justice reform and diversion into community programs lowered the number of those incarcerated.

Each family is assigned an in-person and/or virtual case manager for **child and family service** needs. These case managers help families determine how they can best use their allotted cash support amounts and how to trade and barter services and grow some of the own food. Transitions from human to virtual case managers happened after the individual or family had a long period of successful person to person care.

Head start and pre-K became universal. School became year-round, which allows parents to sustain year-round employment. High School and adult training has targeted curriculum which allowed for a smoother transition into workforce or next level work or self-sufficiency. This positively impacted the family.

There is blending and braiding of resources and human services tied to better outcomes, measured for each household. Health and human services integrate, and partnerships across all stakeholders were strengthened. This helps to generate a 'continuum of care' for clients. Families can create and enact customized service plans.

Communities were also strengthened through different abundance practices. This includes household and community co-production of food and energy (such as low cost solar and wind generation with in-home and community storage and use). This reinforces family and community stability and social equity, which contributes to effective and safe systems for raising children. When communities made great strides in improving the lives of their most vulnerable members, especially children, word went out quickly and other communities followed in their path. Child and family services aided in training and directing families to use and benefit from these advances.

Immigration reform and refugee friendly policies help enhance the diverse population of Montgomery County and remained a major focus of the County's child and family services.

Disabilities services felt increased demand from the results of diabetes, Alzheimer's, and aging generally. There were over 30,000 disabled seniors in Montgomery County by 2030,[8] and disproportionately elders of color. Physical and mental disabilities are lessened through technological advances such as 3D printing of prosthetics; home utility robots; driverless cars; intelligent agents; and smart homes. Universal access to health care that makes these disability-reducing medical advances available lessened the impact of racial, ethnic, and income disparities from disabilities.

Funds for services are block granted federally and "block granted" for clients. Clients are assigned a dollar amount of cash support for services or needs. The client then works with a case manager to determine how these funds can best be applied towards services to suit their specific needs, including **housing.** There is a real-time marketplace of all available housing units, sorted by price, geography, and unit size, which is accessible to all. Cross-sectional partnerships are developed with Hospitals and other stakeholders promoting income restricted housing. Energy costs dropped dramatically with low cost fuel cells and solar, effective in-home and in-community energy storage. Federal and state policies steered local utilities into supporting effective, decentralized grids where energy can be used from the grid or contributed to it. Most homes generate surplus energy at various times of the day and get credit for the energy they put into the grid. Human Services agencies have less demand to aid in electricity shut off emergencies. Incentives and regulations were put in place that required landlords to provide low cost home energy production and storage in their Section 8 or subsidized units and pass the savings to their renters.

[8] Montgomery County Maryland, Figure 13 Alternative Projections of Disabled Seniors in Montgomery County, https://www.montgomerycountymd.gov/senior/Resources/Files/16_senior_demographics_chapterii.pdf (Accessed 6 February 2017).

As with housing benefits, TANF and SNAP become more discretionary, allowing them to be included in the package of total **income supports**. This income support was aggregated in a way that best suits a specific family, and that family works with a human service agent to develop a comprehensive self-sufficiency plan. Growing food and making some goods, living in a home, financial literacy, self-sufficiency training, and community/neighborhood support are parts of the package for most families. Income support funding had decreased from 2017 to 2021, but was raised in the 2020s and those programs were given the flexibility to allow their funds to be aggregated with those from other programs.

Local workforce and economic development experts, the business community, and DHHS effectively anticipated which jobs would likely be lost to automation and which companies and jobs were likely to grow. These agencies collaborated with Montgomery County Public Schools to streamline high school and job training and were able to assess individuals' interests, skills, family and social conditions to accelerate training and readiness for the jobs that would become available. These **employment** services worked with companies, including startups, to assess company needs, encourage local hiring, and then connect effectively trained individuals. As wages were raised closer to a living wage, competition was strong. But County residents had a better than average chance of getting the work and jobs that came available in the 2020s.

Child care had cost around $17,000 a year. Universal Pre-K was put in place in the County with access to early childhood services for 3 and 4 year olds. Human services facilitate cooperative day care and employer day care on site for large companies and aggregation among smaller employers.

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[i] Job loss to automation

Job loss to automation and cognitive computing will have a major impact on the economy, family income, and the need for human services in the years ahead. We believe this has been happening and it will eliminate more jobs through the 2020s. As with past disruptions of this type, new jobs will be created. Some of these new jobs are identified in the sources below. And there will be teaming of AI and human workers (as precedent; in 2017, the best chess competitors are teams of humans, without grand master chess champions, and multiple computers, but not supercomputer as often used for IBM's Watson). Yet overall, the number of new jobs created is likely to be far fewer than the jobs lost.

For these Human Services and Human Progress 2035 scenarios, we have used the Forrester estimate of a net loss, by 2025, of 7% of US jobs (see first bullet below). And we assume that net job loss will accelerate in the later 2020s and 2030s. We have worked with human service experts to apply and check forecasts for specific human service jobs as well. Below are highlights of the forecasts that indicate the range from which we developed the forecasts we are using in our scenarios.

- Forrester forecasts in the report "The Future of White-Collar Work: Sharing Your Cubicle With Robots" that cognitive technologies such as robots, artificial intelligence (AI), machine learning, and automation will replace 22.7 million (or 16%) of U.S. jobs, while 13.6 million will be created — a net loss of 7% of U.S. jobs by 2025. Office and administrative support staff will be the most rapidly disrupted. Newly created

jobs will include robot monitoring professionals, data scientists, automation specialists, and content curators.

Forrester Research. (2017). *The Future Of Jobs, 2027: Working Side By Side With Robots.*

As cited in Schiller, B. (2015, August). Robots Will Take Your Job, But First They'll Be Your Annoying Coworker. Retrieved from https://www.fastcompany.com/3050428/robots-will-take-your-job-but-first-theyll-be-your-annoying-co-worker

- Within five years (of 2016), robots and so-called intelligent agents will eliminate many positions in customer service, trucking and taxi services, amounting to 6 percent of jobs, according to a Forrester report. "By 2021, a disruptive tidal wave will begin," said Brian Hopkins, VP at Forrester Research. "Solutions powered by AI/cognitive technology will displace jobs, with the biggest impact felt in transportation, logistics, customer service, and consumer services."
  Taylor, H. (2016, September). AI will eliminate 6 percent of jobs in five years, says report. Retrieved from http://www.cnbc.com/2016/09/12/ai-will-eliminate-six-percent-of-jobs-in-five-years-says-report.html

- McKinsey Global focuses on probability of tasks within occupations being automated and determined that 49% of time spent on tasks could be automated with current technologies, but only 5% of total jobs could be automated away in the report by McKinsey Global (2017). *A Future that Works: Automation, Employment, and Productivity; Harnessing Automation for a future that works*. Retrieved from http://www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works.

- An OECD policy brief forecasts that an average of 9% of US jobs (13 million) are at high risk for automation; these are jobs for which 70% of the tasks could be automated.
  OECD (2016). *Policy Brief on the Future of Work: Automation and Independent Work in a Digital Age*. Retrieved from http://www.oecd.org/employment/Policy%20brief%20%20Automation%20and%20Independent%20Work%20in%20a%20Digital%20Economy.pdf.

- A study by the UK office of PWC analyzed the workforce in several countries. In terms of specific sectors, it found different degrees of risk for automation. The following economic sectors have varying probabilities of automation, represented as a percentage: transportation and storage (56%), manufacturing (46%) and wholesale and retail (44%), but lower in sectors like health and social work (17%). For countries overall, the jobs at high risk of automation by the early 2030s are U.S. (38%), Germany (35%), UK (30%) and Japan (21%).
  PriceWaterhouseCooper. (2017). *Will robots steal our jobs? The potential impact of automation on the UK and other major economies.* PWC UK Economic Outlook. Retrieved from https://www.pwc.co.uk/economic-services/ukeo/pwcukeo-section-4-automation-march-2017-v2.pdf
  Nelson, E. (2017, March). Why Americans have a higher risk of automation than jobs in Germany, the UK, and Japan. Retrieved from https://qz.com/941163/pwc-study-automation-risk-is-higher-for-american-jobs-than-for-workers-in-germany-the-uk-and-japan/

- One of the most cited studies is from Oxford University researchers Frey and Osborne. They project about 47% of total U.S. employment is at risk for automation by 2030.
  Frey, C., & Osborne, M. (2017). The future of employment: How susceptible are jobs to computerization?. *Technological Forecasting and Social Change, 114*, 254-280. Available at http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

- The Bain & Company 2018 report "Labor 2030: The Collision of Demographics, Automation and Inequality" states that "In the US, a new wave of investment in automation could stimulate as much as $8 trillion in incremental investments and abruptly lift interest rates. By the end of the 2020s, automation may eliminate 20% to 25% of current jobs, hitting middle- to low-income workers the hardest. The study

estimates an average annual displacement of 2.5 million workers from 2020 onward over the next 10 to 20 years.
Bain & Company. (2018). *Labor 2030: The Collision of Demographics, Automation and Inequality.* Bain. Retrieved from http://www.bain.com/publications/articles/labor-2030-the-collision-of-demographics-automation-and-inequality.aspx.

- In developing countries job loss could be higher. Harnessing new World Bank data that builds on Frey and Osborne's original methodology, the authors consider the risks of job automation to developing countries, estimated to range from 55% in Uzbekistan to 85% in Ethiopia, with a substantial share of jobs being at high risk of automation in major emerging economies including China and India (77% and 69% respectively).

  While manufacturing productivity has traditionally enabled developing countries to close the gap with richer countries, automation is likely to impact negatively on their ability to do this, and new growth models will be required.

  The impact of automation may be more disruptive for developing countries, due to lower levels of consumer demand and limited social safety nets. With automation and developments in 3D printing likely to drive companies to move manufacturing closer to home, developing countries risk 'premature de-industrialisation'.

  Even within countries, the impact of automation will not be a 'one size fits all' issue, leading to the divergence of the fortunes of different cities. While a number of cities may have been affected by, for example, offshoring of manufacturing in the past, the expanding scope of automation now means that even low-end service jobs are at risk, making a different set of cities vulnerable. Technology at Work v2.0: The Future Is Not What It Used to Be. Retrieved from: https://www.oxfordmartin.ox.ac.uk/publications/view/2092

New Jobs Created

While there will be a net loss of positions, technology will create new jobs.

- The number and types of jobs projected span a wide range. Forrester forecasts that by 2027, there will 14.9 million jobs created (although there will be a loss of 24.7 million jobs in the same period). New jobs will be created in software, engineering, design, maintenance, support, training, and other specific areas. Forrester Research. (2017). Forrester Predicts Automation Will Displace 24.7 Million Jobs and Add 14.9 Million Jobs by 2027. Retrieved from https://www.forrester.com/Forrester+Predicts+Automation+Will+Displace+247+Million+Jobs+And+Add+149+Million+Jobs+By+2027/-/E-PRE9745 ; Cited in Passy, J. (2017). This is how many U.S. jobs robots will create over the next 10 years. Retrieved from https://www.marketwatch.com/story/this-is-how-many-us-jobs-robots-and-automation-will-create-over-the-next-10-years-2017-04-04

- Types of jobs created include robot monitoring professionals, data scientists, automation specialists, and content curators. Many new jobs will be in the fields of software, engineering, design, maintenance, support and training. Other future jobs include avatar designers, synthetic acting casting agents, roboticians, fluid interface engineers and programmable surface designers.

- There are several main AI technologies that advancing and may change business and business operations[i]. These include: natural language generation, speech recognition, virtual agents, machine learning platforms, AI optimized hardware, deep learning platforms, semantic technology, biometrics, image and video analysis, and robotic process automation. These technologies may replace positions or they may supplement tasks within positions.

Press, G. (2017 January). Top 10 Hot Artificial Intelligence (AI) Technologies. Retrieved from https://www.forbes.com/sites/gilpress/2017/01/23/top-10-hot-artificial-intelligence-ai-technologies/#3118410d1928

- There are many projections about the future of work evolving through robots and humans working together across various sectors. For example, established and traditional jobs may need additional skills to monitor the interactions between humans and robots, such as newly specialized lawyers and new human resources positions to guide staff as robots enter the workplace.

- It is projected that by 2020, 20% of businesses will have workers that monitor and guide neural networks. Gartner. (2017). The Disruptive Power of Artificial Intelligence. Retrieved from https://www.gartner.com/smarterwithgartner/the-disruptive-power-of-artificial-intelligence/

- The CEO of IBM asserts that ultimately AI will create jobs- including programmers, developers, and jobs that manage the relationship between AI and humans.
  Business Insider Intelligence. (2017). IBM CEO says AI and automation will create jobs. Retrieved from http://www.businessinsider.com/ibm-ceo-says-ai-and-automation-will-create-jobs-2017-1

[ii] Abundance Advances

Technological advancements that could become widely used in the 2020s could lower the cost of living and can support equity and sustainability along with increasing self-sufficiency and helping families and communities meet some of their basic needs. These include technologies for low cost energy and storage, food production, and 3D printing of home goods, electronics, and even homes. We label 'abundance advances'.

Energy Abundance

A variety of advances in energy production and storage are likely to lower the cost of this basic item. This includes solar, hydrogen, nuclear and even fusion energy. An important aspect of low cost energy is the potential to transform lives of low-income communities.

Low Cost Solar Energy

Low cost solar energy production and storage is likely in the 2020s. New solar cell technologies for low cost production include nantennas, kerovskite and perovskite materials that will likely provide highly effective solar cells.

Perovskite cells are an efficient photovoltaic technology that have the potential to be produced at low cost. Hybrid perovskite cells may double the efficiency of solar cells, and ultimately lower cost.
Purdue University. (2017). Crystalline material could replace silicon to double efficiency of solar cells. Retrieved from https://www.purdue.edu/newsroom/releases/2017/Q2/crystalline-material-could-replace-silicon-to-double-efficiency-of-solar-cells.html

Perovskite cells for solar energy are being created at the fastest pace in solar energy history. As reported in Solar Magazine, the cells must achieve increased durability and scalability of production to be a widespread use but do hold great potential.
Burger, A. (2018). Industrial Chimera or Evolutionary Leap: Perovskite Solar Cells and Cheap, Ubiquitous Solar Energy. *Solar Magazine*. Retrieved from https://solarmagazine.com/perovskite-solar-cells-commercialization/
See also: National Renewable Energy Laboratory. (2018). Perovskite Solar Cells. Retrieved from https://www.nrel.gov/pv/perovskite-solar-cells.html

Other advances include a solar cell designed to be full spectrum with the ability to capture nearly all of the solar spectrum.
George Washington University. Scientists design solar cell that captures nearly all energy of solar spectrum. (2017). *Tech Xplore*. Retrieved from https://techxplore.com/news/2017-07-scientists-solar-cell-captures-energy.html

Installation and Storage costs for solar are decreasing and are projected to continue to become less expensive.

Solar and energy storage costs have been declining and are likely to continue to fall. "These declines reflect innovation and benefits from mass production and are welcome signs on the road to greater adoption of renewable energy for electricity" according to J.P. Morgan Chase & Co. (2017). Annual Energy Paper. Retrieved from https://www.jpmorgan.com/jpmpdf/1320736484665.pdf

As solar energy advances, costs will drop. As reported by the Solar Energy Industry Association (SEIA), from 2010-2017, the cost to install solar energy declined by 70% while solar grew in terms of installation and share of energy capacity across the United States. Labor costs, permitting and installation fees and supply chain costs related to solar likewise declined. SEIA. (2018). Solar Industry Research Data: Solar Industry Growing at a Record Pace. Retrieved from https://www.seia.org/solar-industry-research-data

As projected by Green Tech Media, prices of solar are projected to continue to decline at the rate of 4.4% for a 27% reduction by 2022. Wesoff, E., & Lacey, S. (2017). Solar Costs are Hitting Jaw-Dropping Lows in Every Region of the World. Retrieved from https://www.greentechmedia.com/articles/read/solar-costs-are-hitting-jaw-dropping-lows-in-every-region-of-the-world

Storage prices are dropping much faster than anyone expected, due to the growing market for consumer electronics and demand for electric vehicles (EVs). Major players in Asia, Europe, and the United States are all scaling up lithium-ion manufacturing to serve EV and other power applications. No surprise, then, that battery pack costs are down to less than $230 per kilowatt-hour in 2016, compared with almost $1,000 per kilowatt-hour in 2010. McKinsey research has found that storage is already economical for many commercial customers to reduce their peak consumption levels. At today's lower prices, storage is starting to play a broader role in energy markets, moving from niche uses such as grid balancing to broader ones such as replacing conventional power generators for reliability, providing power-quality services, and supporting renewables integration. David Frankel and Amy Wagner, Battery storage: The next disruptive technology in the power sector, McKinsey & Company. Retrieved from: https://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/battery-storage-the-next-disruptive-technology-in-the-power-sector

Fuel Cell, Nuclear, and Other Energy Forms

Other forms of sustainable energy may develop, such as small scale fusion and fuel cells that produces low cost energy may become available.

Nuclear fusion power has the potential to produce nearly four times the energy as nuclear fission with very low carbon emission and could provide accessible, clean energy. Tokamak Energy's ST40, was successful in 2017 in achieving first steps toward fusion energy. Developers hope to have a successful power generator by 2025 and be delivering fusion energy to the grid (in the UK) by 2030.
Lant, K. (2017, May 18). Mini Reactors Could Make Affordable Fusion Power a Reality by 2030. Retrieved from https://futurism.com/mini-reactors-could-make-affordable-fusion-power-a-reality-by-2030/.

Small scale fusion, a low-cost form of energy production in which atomic nuclei release energy, capable of powering a small town using a unit the size of a flatbed truck. See 21st Century Tech. (2016). Fusion Reactors Two Steps Closer to Reality. Retrieved from http://www.21stcentech.com/fusion-reactor-step-closer-reality

Small scale nuclear (fission) power stations are being proposed and in 2018 one developer argued they would be online in 8 years – by 2026. The company, NuScale, is aiming for commercial operations in 2026 for a plant in Utah comprised of a dozen 50-megawatt reactors. Retrieved from Polson, J. (2018, April 10). First Small-Scale Nuclear Reactor May Be Just Eight Years Away. Available at https://www.bloomberg.com/news/articles/2018-04-10/first-small-scale-nuclear-reactor-may-be-just-eight-years-away

Hydrogen fuel cells have been proposed as a clean source of energy. Though it has been costly to develop the feedstock for hydrogen, recent research published in the Journal of Catalyst has found that ammonia can be used to stimulate hydrogen fuel. Cited in Robitzki, D. (2018, April 30). Cheap Hydrogen Fuel Was a Failed Promise – But its Time May Have Arrived. Retrieved from https://futurism.com/ammonia-hydrogen-fuel

According to an article published on Energy Central, fuel cell technology will change daily lives in five ways. These are: cleaner vehicles with less or no carbon emission, more reliable power for homes and buildings, enhancing mobile phone charge and design, incorporation into fossil fuel design to bridge the gap with renewables, and freedom from the grid towards independent and individual energy production. Hughes, J. (2016, February 15). Top 5 Ways That Fuel Cells Will Impact the Way We Live in the Future. Retrieved from https://www.energycentral.com/c/iu/top-5-ways-fuel-cells-will-impact-way-we-live-future

3D Printing

3D printing for distributing and manufacturing of goods may disrupt global supply chains and allow local and customized production of goods, often using sustainable and upcycled materials. 3D printing has the potential to impact the lives of low income communities, including through 3D printing of home goods and even whole homes, transportation aids and vehicles, and prosthetics. Communities can become empowered through low cost 3D printing, and as 3D printers become more affordable they can be shared and accessed in libraries, community centers or the equivalent of Kinkos stores. Housing for low income can also be transformed by 3D printing.

3D printing can help alleviate poverty in several ways argues Ashley Morefield in Borgen Magazine. 3D printing can lower the cost weather stations from $10,000 to $200, enabling communities in developing countries to get weather stations and better anticipate severe weather; a company called Liquidity Nanotech uses electrospinning 3D printing to create water filters that remove impurities and block microbes; the Victoria Hand Project uses 3D printers to create upper-limb prosthetics and works with health care providers to make these available in developing countries; a Chinese company called WinSun Decoration Design Engineering constructed 10 single story homes in 24 hours at a cost of $5,000 each; transport vehicles, starting with mountain bikes have been 3D printed. A Harvard Business Review argued that "with five years (of 2015), one can expect to see fully automated, large-quantity manufacturing systems that are extremely economical"
Morefield, A. (2016, October 14). Borgen Magazine, Five Ways 3D Printing Can Help Alleviate Poverty. Retrieved from http://www.borgenmagazine.com/3d-printing-alleviate-poverty/

3D printing of homes and multiunit buildings has already begun. For example, San Francisco based company Apis Cor built an entire small 400 square foot home through 3D printing in 24 hours. However, workers completed touches such as painting and some manual installation.
Moon, M. (2017). A San Francisco startup 3D printed a whole house in 24 hours. Retrieved from https://www.engadget.com/2017/03/07/apis-cor-3d-printed-house

3D printed homes are also being manufactured at an economical price. Texas based company ICON in cooperation with New Story created a 650-square foot 3D printed home that costs $10,000; took 24 hours to complete; and meets the building codes of the City of Austin where it was built. New Story intends to build these in developing countries for a cost of $4,000.
Resinger, D. (2018, March 12). *This Company will 3D Print a House for $10,000*. Retrieved from http://fortune.com/2018/03/12/sxsw-2018-3d-print-home-icon/

Food Abundance

Food insecurity and inability to access healthy foods are common problems for many low-income communities across the nation. This may be challenged further with environmental and economic changes; however, there are technologies that may empower communities to increase self and shared sufficiency and produce nutritious, affordable food.

While conventional agriculture is being challenged by climate change – particularly drought, higher temperatures – but also floods and fires, in-community and in-home food production is growing, both conventional gardening and more high-tech forms such as hydroponics and aeroponics. In addition, 3D printing and cultured meat could change food patterns.

Advances in food production include aeroponics and hydroponics (growing plants in an air, mist or water environment) to produce nutritious food in large amounts quickly and sustainably. This can be done in urban environments using vertical farms and other techniques. Vertical farming, which grows food usually with hydroponic or aeroponics methods in stacked layers, offers a more sustainable year-round crop production with high yields and climate resiliency. There are employment opportunities including with engineers and workers in maintenance. Then, as automation increases, new jobs will include system analysis and software development positions.
Benke, K. & Tomkins, B. (2017). Future food production systems: vertical farming and controlled-environment agriculture. *Sustainability: Science, Practice and Policy, 13,* 13-26.
David Rosenburg, CEO of AeroFarms (see more: http://aerofarms.com/) is quoted as explaining vertical farming can grow produce in around half the length of time observed in a field, using 95% less water, around 50% less fertilizer, and no herbicides, fungicides, pesticides.
Brennan, M. & Gralnick, J. (2015). Vertical farming: The Next Big Thing for Food- and Tech. Retrieved from https://www.cnbc.com/2015/06/24/vertical-farming-the-next-big-thing-for-food-and-tech.html

Another area of food abundance is cultured meat, which is progressing in taste and affordability and may become a major sustainable and accessible source of producing protein.

When lab grown burgers first emerged, they were extremely expensive – and not particularly tasty. In 2013, Mosa Meat produced a cell-cultured beef burger which took months to produce and would have cost $1.2 million per pound to sell. But, in four years, the price has fallen dramatically. In four years, the price of lab-grown "meat" has fallen by 99% and there's still a long way to go.
Purdy, C. (2017, June 5). There's still a long way to go. Retrieved from https://qz.com/997565/in-four-years-the-price-of-lab-grown-meat-has-fallen-by-96-theres-still-a-long-way-to-go/

Mosa Meat can currently produce meat that costs $27 to $45 per pound, and they will enter the market with a premium priced product in five years (thus, around 2021) and that in another five years (around 2026) the prices will be competitive to what people currently pay for beef. The lower competitive price, combined with a convincingly real taste and sensation, and environmental and animal rights motivations, may allow for widespread production and consumption of cultured meat.
Burningham, G. (2016, February 28). Lab-Grown Beef Will Save the Planet- And Be a Billion Dollar Industry. Retrieved from http://www.newsweek.com/2016/03/11/lab-grown-beef-will-save-planet-and-be-billion-dollar-business-430980.html
Several other companies, including Impossible Foods (see more: https://www.impossiblefoods.com/) , are producing fully plant-based meats and cheeses. In 2017 the chain Clover Food Lab began selling Impossible Food's meatballs in a sandwich or platter in its stores. Retrieved from https://www.cloverfoodlab.com/locations/location/?l=cloverhsq

In 2017 the Futurist Thomas Frey in a review of the emerging sector and the companies involved, forecast that "by 2025 industrial grown meats will become the world's cheapest food stocks". The Coming Meat Wars (2017).

Retrieved from https://www.futuristspeaker.com/job-opportunities/the-coming-meat-wars-17-mind-blowing-predictions/

Some advocates of cultured meat argue for it as a way to get beyond animal agriculture and its harmful impacts on the environment – contributing to as much as 19% of greenhouse gases. And some are calling it the "clean meat" industry.

The cattle and beef industry is objecting to the terms cultured meat or clean meat and pressing for regulation to prevent the use of the term "meat". The succeeded in having the state of Missouri where a bill passed with bi-partisan support that says that only products that are derived from harvested production livestock or poultry (which died by slaughter) can be called meat. From Haridy, R. (2018, May 20). Lab-grown meat not meat according to state of Missouri. New Atlas. Retrieved from https://newatlas.com/lab-grown-meat-classification-bill-missouri/54687/

There will be issues of nutrients, micronutrients, and other issues to be dealt with, but if Thomas Frey's forecast above is correct, cultured meat could be a major food by the late 2020s.

More Abundance

For a more extensive look of abundance, some entrepreneurs project that technology will advance incredibly rapidly in the upcoming two decades and enable the basic needs of water, food, energy, health and education to be met for every person on the planet. Peter Diamandis published his book in 2012: See: Diamandis, P., & Kotler, S. (2012). *Abundance: The Future is Better Than You Think*. New York: Free Press. And has an ongoing monitoring of developments that he and his colleagues report in their weekly "Abundance Insider" blog. https://www.diamandis.com/blog/topic/abundance-insider

And nanotechnology expert K. Eric Drexler, argues that in the 2030s the full flowering of nanotechnology will allow us to do nano-manufacturing of most of our needs at relatively low costs – hence the title of his book: *Radical Abundance*. For example:

- Molecular biology and chemistry will enable many of the items we use daily to be built with atomic precision.
- Transportation, construction, manufacturing, water and food production will become easier to do and so more accessible and beneficial to more people globally.

See: Drexler, K. Eric. (2013). *Radical abundance*. New York: PublicAffairs.

[iii] Developing low and very-low income housing options

Housing remains a major human need. Housing insecurity brings a series of other needs. Communities around the country are and will use a variety of approaches to increase the stock of low and very low income housing, including:

- Rezoning to allow secondary living units, typically called Accessory Dwelling Units, attached to or in the yards of existing homes.
- Allowing a higher number of unrelated individuals to live in the same house;
- Encouraging sustainable, energy efficient, low cost construction of new units;
- Fostering neighborhood parking and driving regulations to calm traffic from increased residents;
- Taxing unoccupied homes;
- Prohibiting or taxing AirBnb and related uses of rental properties or taxing that use to provide a fund to make other properties available;
- Require or incentivize landlords to accept housing vouchers;
- In addition to federally funded vouchers create state or locally funded vouchers;
    - This serves to help alleviate concentrations of poverty by giving voucher holders more options of where to live.
- Tax construction profits to add to the funds for low income housing development;

- When low cost solar and other sustainable energy production and storage becomes available, require or incentivize landlords to install this and pass the savings on to renters;
    - Or enable, through loans from utilities or others, to install this equipment; paying the loans off with the energy savings.
- Adjust regulation to support fast construction of safe, sustainable and energy efficient new developments that include very low-income housing;
- Support and encourage alternative construction, including 3D printing of housing components and repurposed materials, using modular and "tiny homes";
    - Use of local 3D printing of home parts with quick on-site assembly will be available in many communities in the 2020s (see discussion above of developments in 3D home printing).
- Following Los Angeles' lead, providing cash grants to home owners to build secondary units and agree to rent the units to formerly homeless individuals. Retrieved from https://la.curbed.com/2017/8/16/16157282/los-angeles-homeless-housing-accessory-dwelling-granny-flat
- As the city of Denver demonstrated, where some high-end apartments are vacant, subsidize low to middle income renters moved into the units. (Schiller, B. (2018). Denver's Solution to Its Housing Crisis: Subsidize Rent for Expensive, Empty Apartments. Retrieved from https://www.fastcompany.com/40515202/denvers-solution-to-its-housing-crisis-subsidize-rent-for-expensive-empty-apartments).
- Use various combinations of these approaches to deconcentrate poverty.

[iv][iv] The Guaranteed Basic Income

The guaranteed basic income (GBI), also called the Universal Basic Income, the Negative Income Tax, the Citizen's Income, and the Basic Income Guarantee has been proposed by conservatives and liberals in the U.S. for decades. Richard Nixon proposed the Negative Income Tax.
Support by liberals and conservatives offered different rationales. For example, some conservatives favor reduced government spending, eliminating duplicative programs and staff, through an effective way to reduce poverty. Gordon, N. (2014, August 6). The Conservative Case for a Guaranteed Basic Income. Retrieved from https://www.theatlantic.com/politics/archive/2014/08/why-arent-reformicons-pushing-a-guaranteed-basic-income/375600/ .
Leading conservative Charles Murray supports basic income to help keep the United States competitive during labor market transformation to robotics and replace the current welfare program. Murray, C. (2016, June 3. A Guaranteed Income for Every American. Retrieved from: https://www.wsj.com/articles/a-guaranteed-income-for-every-american-1464969586
Basic income is presented as a way to make welfare programs more impactful, challenge ideas of safety nets, adapt to technological change and evolve the relationship between work, income and identity. Flowers, A. (2016, April 25). What Would Happen If We Just Gave People Money? Retrieved from http://fivethirtyeight.com/features/universal-basic-income

Basic income experiments have taken place across the world. In Canada and Namibia, both of their GBI experiments saw a reduction in poverty and other positive impacts. The Canadian province Manitoba piloted basic, minimum income- referred to as "mincome"- in the mid-1970s. Although the program was removed after a few years, it yielded positive results including higher rates of remaining in school, lower rates of hospitalization, and hardly a change in work rates. The amount of money recipients received was determined by need. See Surowiecki, J. (2016). Money For All. *The New Yorker*. Retrieved from https://www.newyorker.com/magazine/2016/06/20/why-dont-we-have-universal-basic-income and Lum, Z. (2014). A Canadian City Once Eliminated Poverty And Nearly Everyone Forgot. *The Huffington Post*. Retrieved from https://www.huffingtonpost.ca/2014/12/23/mincome-in-dauphin-manitoba_n_6335682.html

Announced with significant world attention, Finland is piloting a two-year basic income program. Henley, J. (2017). Finland trials basic income for unemployed. Retrieved from https://www.theguardian.com/world/2017/jan/03/finland-trials-basic-income-for-unemployed. A change in political sentiment has led to a decision not to expand or renew the project but let it expire in January of 2019 and instead use other approaches to deal with payments for low income individuals. Henley, J. (2018) Finland to end basic income trial after two years. Retrieved from https://www.theguardian.com/world/2018/apr/23/finland-to-end-basic-income-trial-after-two-years

A major GBI effort has been launched in Kenya:

> The US charity GiveDirectly (see more: https://www.givedirectly.org/) has officially launched its trial of basic income in rural Kenya and is now enrolling experimental participants. The US $30 million experiment will be the largest trial of basic income to date, in terms of both size and duration. All residents of about 120 rural Kenyan villages, comprising more than 16,000 people in total, will receive some type of unconditional cash transfers during the experiment. Some of these villages, moreover, will receive the universal basic income for twelve years. It is also unique among current experiments in that it is designed as a randomized controlled trial in which the experimental units are *villages* rather than individuals. This means that, unlike the studies occurring in Finland, Ontario, the Netherlands, and elsewhere, the GiveDirectly experiment will be able to capture community-level effects of the basic income.
>
> McFarland, K. (2017, November). US/Kenya: GiveDirectly Officially Launches UBI Experiment. Retrieved from https://basicincome.org/news/2017/11/uskenya-givedirectly-officially-launches-ubi-experiment/

Another basic income program has been proposed by India's chief economic adviser:

> India launched a small UBI pilot in the state of Madhya Pradesh in 2010. Then, in November of 2016 Arvind Subramanian, the Indian Government's chief economic adviser submitted his annual economic survey which included a proposal for a UBI that would give recipients 7620 rupees ($113) a year. "Equivalent to less than a month's pay at the minimum wage in a city, it is well short of what anyone might need to lead a life of leisure. But it would cut absolute poverty from 22% to less than 0.5%" as quoted in The Economist (2017, February 4). India floats the idea of a universal basic income. Retrieved from https://www.economist.com/finance-and-economics/2017/02/04/india-floats-the-idea-of-a-universal-basic-income
>
> In July of 2017 talks were held to determine whether such an initiative could be brought to fruition in India, but opinion is still divided. It is thought that a state-by-state strategy would be more viable, given India's population of 1.3 billion. Jones, B. (2018, January 31). We Could See an Indian Universal Basic Income by 2020. Retrieved from: https://futurism.com/we-could-see-indian-universal-basic-income-2020/
>
> In January of 2018, Subramanian made a forecast: "I can bet… within the next two years, at least one or two states will implement UBI." Times of India. (2018, January 29). 1 or 2 states may roll out universal income in two yrs: CEA. Retrieved from: https://timesofindia.indiatimes.com/business/india-business/1-or-2-states-may-roll-out-universal-income-in-two-yrs-cea/articleshow/62696341.cms?from=mdr

Basic income is gaining attention and policy action in the United States.
Hawaii has become the first state to pass a bill in its State Legislature to study a universal basic income, (UBI) bill HRC89. Hawaii has experienced job declines in their agricultural sector and service jobs being automated. The bill sets up a working group to explore options for a state UBI, involving members from State House and Senate, director of human services, Chamber of Commerce and University of Hawaii's Economic Research Organization. This group will develop policy recommendations. Matthews, D. (2017, June 15). Hawaii is considering creating a

universal basic income. Retrieved from https://www.vox.com/policy-and-politics/2017/6/15/15806870/hawaii-universal-basic-income and Business Insider. (2017). Hawaii just became the first U.S. state to pass a bill supporting basic income. Retrieved from http://www.businessinsider.com/hawaii-basic-income-bill-2017-6
In an effort to boost the economy and support families in poverty, Stockton, California is piloting a basic income program, and will provide participants $500 each month. The Stockton experiment aids to collect data on how the unconditional money can impact the economic, health and wellbeing aspects of low-income families.
Langone A. (2018, April). Why This 27-year-old Mayor is Giving His City's Poorest Residents $500 a Month- No Strings Attached. Retrieved from http://time.com/money/5243564/why-this-27-year-old-mayor-is-giving-his-citys-poorest-residents-500-a-month-no-strings-attached/
Generally, there has been growing support for basic income in recent years as the forecasts for job loss to automation have grown. The projections for total job loss by roughly 2030 in the United States range from: 47% (Frey and Osborne), 38% (Price Waterhouse Cooper), to 9% (OECD). These are referenced in the "Job Loss to Automation" End Note, above.

Financing a Basic Income

While there are a range of levels that the GBI has been proposed e.g. $10,000 yearly income plus $3,000 for health insurance (Charles Murray), up to $32,000 yearly in Switzerland. The level used in Scenario 3 is the $12,000 yearly for adult citizens and $4,000 per child proposed by Andrew Stern. See Stern, A. & Kravitz, L. (2016). *Raising The Floor: How A Universal Basic Income Can Renew Our Economy And Rebuild The American Dream*. 1st ed. New York: Public Affairs. Print.
That is $12,000 and $4,000 in 2015 dollars, in Scenario 3 we assume that these figures would be adjusted for inflation, and so would be higher when they begin in the 2020s, and they would grow with inflation after they are established.
Stern argues that the costs of a GBI would be roughly $3 trillion yearly. An income of $12,000 for every adult, would cost between $1.75-$2.5 trillion in federal funds each year. The $4,000 for each person under 18 would add another $296 billion. Stern's book proposed several ways to pay for the UBI. Below is a list of options for funding GBI from Stern and other proponents:

- Ending all or many of the current 126 welfare programs[iv], which cost $700 billion in government and $300 billion state government
    - Eliminating food stamps (save $76 billion), housing assistance ($49 bil.), and EITC ($82 bil.)
- Adjusting long term retirement policy for future generations, but not changing Social Security for those who have already been contributing to the system
- Creating a new and more cost effect non-employer based healthcare system
- Some redirection of government spending and taxation
    - Raise revenue by eliminating all or some of the federal governments $1.2 trillion in tax expenditures; do away with reductions such as investment expenses, preferential treatment of capital gains, foreign taxes, charitable contributions, mortgage interest, and accelerated depreciation.
    - Look at trimming expenditure on the federal budget, such as reducing military budget (current $600 million), farm subsidies ($20 billion), or subsidies to oil and gas companies ($30+ billion)
- Increased revenue from new sources
    - Consider a value added tax (VAT) of 5 to 10% on the consumption of goods and services, with all revenue funding basic income
- Implement a Financial Transaction Tax (FTT) (also known as the "Robin Hood Tax" and "Tobin Tax") a tax on financial transactions, such as a federal tax on stock sales
- Wealth tax, a levy on the total value of personal assets, including housing and real estate, cash, bank deposits, money funds, stocks, etc.
- Carbon Tax, which at a rate of $15/ton of CO2 would bring $80 billion in annual revenue, or about $250 per U.S. resident
- A "common goods tax" such as the one placed on oil to fund the Alaska Permanent Fund

[v] Human Services Value Curve

In developing these scenarios, we looked for human service visions, or descriptions of their visionary states. One leading contender for the preferred future of the field is the Human Services Value Curve, developed by Harvard's Technology and Entrepreneurship Center's Leadership for a Networked World with the American Public Human Services Association (APHSA).
APHSA argues that the desired progression in value can best be described from the point of view of the consumer in this way:

- At the regulative level, consumers receive a specific product or service that is timely, accurate, efficient and easy to understand.
- At the collaborative level, consumers "walk through a single door" and have access to a complete array of products and services that are available "on the shelf."
- At the integrative level, products and services are combined into packages, and designed and customized with input from the consumer themselves, delivered in the most convenient ways, with the objective of best meeting the consumer's true needs and driving positive outcomes.
- At the generative level, those providing products and services are joining forces to make the consumer's overall environment better for them, resulting in value that is broader and more systemic than an individual or family might receive

More information available:
http://www.aphsa.org/content/dam/aphsa/pdfs/Resources/Publications/TOOLKIT_Moving%20through%20the%20Value%20Curve%20Stages_.pdf
A group of local human service agency leaders within APHSA developed the "local vision" for the human services value curve in terms of what it would include, namely these core components:

- A resolute focus on a person-centered approach to casework and service delivery
- Testing and implementation of innovative evidence-based practices
- Partnering with other organizations and systems across sectors
- An integrated infrastructure, with information technology systems that enable and produce cross-system data; led first by the integrated health and human services information system.
- A workforce of "skilled tradespeople" able to build community well-being— with the competencies to deliver evidence-based practices
- Effective and efficient internal change management processes that enable leaders to continuously improve their organizations
- Accountability processes that clarify outcome measures and quantify impacts, including reduced health care costs, improved health, and greater self-sufficiency.

And these principles guiding human services:

- Solid prevention- and strengths-based orientation
- Two-generation and multi-generation approaches
- Holistic, person-centered, and customized service planning
- Both pre-trauma and trauma-informed strategies
- Sustained attention on fatherhood engagement
- Commitment to defining and tracking of a set of common indicators across all well-being and health domains.

See: A NEW PATHWAY TOWARD PROSPERITY AND WELL-BEING, *A Concept Paper by the National Council of Local Human Service Administrators, May 16, 2016*

[vi] Equity Rising

Equity is a value that has been driving movements for social, political and economic changes in the US and globally that has been growing and becoming more refined in recent decades. It is accompanied by attitudes supporting inclusion and rejecting exclusion. This "equity rising" trend is forecast in Scenarios 3 and 4 of these Human Progress and Human Services 2035 Scenarios to play a significant part of the transformations of policies, local attitudes, and local development (e.g. the shift from "NIMBY" to "YIMBY" in increasing mixed income neighborhoods and neighborhood density).

Equity in this sense, means offering each person what they may need to succeed. This is different from equality, which promotes treating everyone the same. Equity acknowledges that not everyone is equally or fairly positioned in society, which relates to human and social services in understanding how to best distribute and redistribute resources.

Health equity is a component of equity and the public health community has usefully defined health equity as a "state in which every person has the opportunity to attain his or her full health potential and no one is disadvantaged from achieving this potential because of socioeconomic or environmental conditions. Source: HCPH Strategic Plan; Adapted from CDC, Promoting Health Equity. (2008). In Harris County Public Health, Health Equity Policy, Retrieved from http://sites.bu.edu/nephtc/files/2017/11/Health-Equity-Policy.pdf

Equity rising reflects society changing its mind about fairness and what is appropriate fairness. This happened with slavery, spanning decades in the 19th century and required a Civil War to accomplish. That was followed by Jim Crow laws, discrimination and lynchings. The Civil Rights Act of 1964 represented society's mind change on discrimination. Other mind changes include voting rights for women, environmental protections, employment and pay equity, education. More recently the relative rapid protection of LGBTQ rights and gay marriage reflect on going changes of mind (and heart). In all of these cases, unfairness has certainly not totally disappeared. But discrimination and other offences are no longer legally acceptable. This equity rising reflects a maturing of thought on the components of opportunity – a recognition of social and economic determinants, including structural racism and exclusion. The growth of this awareness can be traced to many developments in the U.S. and globally. One manifestation of these mind changes are visions or statements of goals. Globally the major shared goals developed collectively by the nationals of the world are the Millennium Development Goals for 2015 and their successor Sustainable Development Goals (SDGs). These consciously include equity in calling for elimination of poverty and hunger; gender equality; reduced inequality; quality education, water and sanitation, peace and justice. See: https://www.un.org/sustainabledevelopment/sustainable-development-goals/

In the health arena, the World Health Organization (WHO) in its 1998 restatement of the definition of "health for all" added the commitment to the ethical concepts of equity, solidarity and social justice and a gender perspective, while emphasizing the importance of reducing social and economic inequities in improving health of the whole population. World Health Organization. H**EALTH**21: An Introduction to the Health for All Policy Framework for the WHO European Region. European Health for All Series ; No. 5, page 4. Retrieved from https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwix5POkieDbAhUMna0KHSg4A7kQFggsMAA&url=http%3A%2F%2Fwww.euro.who.int%2F__data%2Fassets%2Fpdf_file%2F0004%2F109759%2FEHFA5-E.pdf&usg=AOvVaw2XuIrSfKt5OeSy1FF-TSzy and www.euro.who.int/__data/assets/pdf_file/0004/109759/EHFA5-E.pdf

In the U.S., the growing focus on equity was illustrated in the Healthy People Objective for the Nation that set goals for the coming decade. In the late 1990s, the nation set its Healthy People 2010 Objectives for the Nation, including two overarching goals: "increase quality and years of healthy life" and "eliminate health disparities." For 2020, these goals were amended to say, "achieve health equity, eliminate disparities, and improve the health of all groups." The draft 2030 overarching goals include "eliminate health disparities, achieve health equity, and attain health literacy to improve the health and well-being of all."

The CDC in the 2000s increased its focus on health equity and the social determinants of health. In state and local government equity and health equity offices were created in a large number of jurisdictions. And budgeting and policy making consciously adopted an "equity lens" for determining distribution of services that consider neighborhood disparities in income, infrastructure and other conditions. See more: https://www.cdc.gov/nchs/healthy_people/hp2010.htm

Equity movements are emerging across the globe and the United States. Many of these movements have specific focuses on race or gender within the larger framework of equity. These are sometimes understood as social justice

movements, and are responses to oppression, injustice, inequity or driven by other cultural ideologies for progress.
Black Lives Matter is a national movement with many local chapters which utilized social media to leverage political advocacy promoting racial justice and action against violence inflicted upon African American communities. Black Lives Matter brought conversations around privilege and race-based violence and oppression into national areas, including political spheres. See more: https://blacklivesmatter.com/about/herstory/
The "Me Too" movement is a national movement which has gained momentum in supporting survivors of sexual assault and promoting the end of sexual violence. See more: https://metoomvmt.org/ Movements for equal pay and equal treatment across genders have also gained national attention, as well as movements which support the rights of all people to be safe and respected in their gender orientation
The Dreamers Movement and United We Dream movements which support immigrant rights have had success in influencing national policy. See more: https://unitedwedream.org/
As with most of these major "mind changes" there are periodic reversals or counter trends. Currently those include increased minority and immigrant hostility, the rise of white nationalism, the election of President Trump and many of the policies of his administration. The forecast of "equity rising" argues that the support for equity, attention to policies and services that ensure opportunity to the excluded, and personal attitudes of inclusion will continue to grow, leading to support for the policy transformations and community inclusion featured in Scenarios 3 and 4.

Observations supporting Equity Rising
An aspect of mind change includes different and enhanced experiences and understandings of inequities. Recent years have seen growth in a range of such observations in health, wealth and income, and incarceration.

- Health inequality

  As noted, local public health is focusing much more on health inequalities and achieving health equity. Measures comparing differences in life expectancy in counties identified a 20-year difference related to wealth, with the more affluent and better educated counties living longest. These differences have been increasing for the 34 years between 1980 and 2014. Stein, R. (2017, May 9). Life Expectancy Can Vary By 20 Years Depending on Where You Live. *NPR All Things Considered*. Retrieved from https://www.npr.org/sections/health-shots/2017/05/08/527103885/life-expectancy-can-vary-by-20-years-depending-on-where-you-live

  The same is true for neighborhoods in many cities. The Center on Society and Health of Virginia Commonwealth University mapped this for 21 cities and notes that "life expectancy can differ by as much as 20 years in neighborhoods only about five miles apart from one another." VCU Center on Society and Health. (2016, September). Mapping Life Expectancy. Available at https://societyhealth.vcu.edu/work/the-projects/mapping-life-expectancy.html

  And there are similar divides in most nations, the U.S. is among the leaders in health disparities as measured by individual's perceptions of their health and their income.
  Hero, J., Zaslavsky, A., Blendon, R. (2017, June). The United States Leads Other Nations In Differences By Income in Perceptions of Health and Health Care. *Health Affairs*. 36(6). Retrieved from https://www.healthaffairs.org/doi/abs/10.1377/hlthaff.2017.0006

- Wealth and income disparity

  There has been significant growth in income inequality and media coverage of it. Spotlight on Poverty reported on its survey of reporting in major news outlets from 2007 to 2016 and found that coverage of income inequality "increased substantially in the New York Times and Washington Post, and saw more modest increases in the other outlets (including USA Today, the Los Angeles Times, the New York Post, and the Chicago Tribune), save for the Wall Street Journal, where coverage remained stagnant".

Spotlight Staff. (2017, October 24). Media Coverage of Low-Income Americans in a New Political Era. Retrieved from https://spotlightonpoverty.org/spotlight-exclusives/media-coverage-low-income-americans-new-political-era/

Specific examples of reporting include:

Wealth inequality is worsening in the United States. According to a 2017 article in the Washington Post "the richest 1 percent now owns more of the country's wealth than at any time in the past 50 years." Ingraham, C. (2017) The richest 1 percent now owns more of the country's wealth than at any time in the past 50 years. Retrieved from https://www.washingtonpost.com/news/wonk/wp/2017/12/06/the-richest-1-percent-now-owns-more-of-the-countrys-wealth-than-at-any-time-in-the-past-50-years/?noredirect=on&utm_term=.c5d137c95748.
As with health disparities, wealth and income disparity are even more marked between racial groups in the United States. For example, for every $100 in white family wealth, black families hold just $5.04. Census Bureau's Current Population Survey cited in The New York Times Badger, E. (2017). Whites Have Huge Wealth Edge Over Blacks (but Don't Know It). Retrieved from https://www.nytimes.com/interactive/2017/09/18/upshot/black-white-wealth-gap-perceptions.html
And higher than one in four black household have zero or negative net worth, in contrast to the less than one in ten white families without wealth or net worth. Jones, J. (2017). The Racial wealth gap: How African-Americans have been shortchanged out of the materials to build wealth. *Economic Policy Institute*. Retrieved from https://www.epi.org/blog/the-racial-wealth-gap-how-african-americans-have-been-shortchanged-out-of-the-materials-to-build-wealth)

- Incarceration Rates

Criminal justice and incarceration rates in the United States are greatly uneven across racial lines. While the United States has very high incarceration rates compared to other developed nations, there is also a stark difference of incarceration rates across white, Black and Hispanic populations. Hispanics and African Americans make up around 32% of the US population but comprised 56% of all incarcerated people in 2015. And while African Americans and whites use drugs at similar rates, the imprisonment rate for African Americans for drug charges is nearly 6 times that of whites. NAACP. Criminal Justice Fact Sheet. Retrieved from http://www.naacp.org/criminal-justice-fact-sheet/