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RISING TO THE CHALLENGE AND SHAPING A DYNAMIC FUTURE FOR THE TRI-VALLEY







ABOUT THIS DOCUMENT

The Innovation TRIVALLEY Leadership Group and the Bay Area Council Economic Institute previously collaborated on two successful Tri-Valley Rising reports, in 2014 and 2018. Both of these reports highlighted the Tri-Valley region's many economic assets and its successful collaborations across the cities of Dublin, Livermore, Pleasanton, San Ramon, and the Town of Danville. The most recent project called on Tri-Valley stakeholders to produce their own long-term vision to address the challenges and opportunities that each of the two Tri-Valley Rising reports called out.

This document represents the output of more than one year of stakeholder engagement and more than 1,000 points of input across workshops, webinars, surveys, focus groups, and interviews. It is meant to be a bold jumping off point for further strategizing, prioritizing, and long-term implementation within the Tri-Valley.

ACKNOWLEDGMENTS

The Tri-Valley is a region known for public-private collaboration, and the Bay Area Council Economic Institute and Innovation TRIVALLEY Leadership Group would like to thank the 25 financial supporters of this 2040 Tri-Valley Vision. Special acknowledgment goes to Alameda County Supervisor Scott Haggerty, whose founding investment made this regional planning project possible.

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ABOUT INNOVATION TRIVALLEY LEADERSHIP GROUP

Innovation TRIVALLEY Leadership Group (ITV) was founded in 2010 by business leaders and influencers committed to connecting the businesses, research labs, educational institutions, and civic leaders in the Tri-Valley. These cross-sector collaborators are drawing in new businesses, helping businesses to expand, attracting workforce, and branding the region. Growing brand recognition of the TRIVALLEY: The Heart of California Innovation™ spotlights the region's geographic location in the center of the Northern California Megaregion, and underscores the commitment to the ideal that here, all boats must rise with the tide. ITV has put the Tri-Valley on the map as one of the most innovative and fastest growing areas in Northern California. The organization continually advocates for the Tri-Valley by illuminating its unique attributes and assets while putting the spotlight on its member businesses and their impact on the world.

ABOUT THE BAY AREA COUNCIL ECONOMIC INSTITUTE

Since 1990, the Bay Area Council Economic Institute has been a leading think tank focused on the economic and policy issues facing the San Francisco/Silicon Valley Bay Area, one of the most dynamic regions in the United States and the world's leading center for technology and innovation. A valued forum for stakeholder engagement and a respected source of information and fact-based analysis, the Institute is a trusted partner and adviser to both business leaders and government officials. It is guided by a Board of Trustees drawn from influential leaders in the corporate, academic, non-profit, and government sectors. The Institute is housed at and supported by the Bay Area Council, a public policy organization that includes hundreds of the region's largest employers and is committed to keeping the Bay Area the world's most competitive economy and best place to live.

DESIGN

Ogden Costa Creative Group designed this publication around a central image of a leading scientist at work at Lawrence Livermore National Laboratory. Thank you to Kyle Ogden, Rich Costa, and their Pleasanton-based agency, which creates great design by effectively capturing every client's personality and brand equity.

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As we approach the halfway point of 2021, focus across the globe has begun to shift to long-term strategies for rebuilding with an emphasis on a better future. In Washington DC, trillion-dollar infrastructure packages and investment programs are being discussed. In California, state leaders are looking for ways to strategically invest a historic budget surplus. And in the Tri-Valley, the public and private sectors have continued their close partnership to look toward the future — taking the bold step of envisioning the future of the region in 2040.

That collaboration across sectors and the ambitious strategies created by the Tri-Valley's stakeholders are why we are so excited for the release of this 2040 Vision and the upcoming work on implementation.

As they have proven time and again, the leaders of the Tri-Valley are not waiting for the next problem or opportunity to spring into action, they are being proactive to get ahead of the issues we know are coming. This is one of the reasons the Tri-Valley has led the Bay Area in many areas including growth.

No one person or group can drive transformational change alone. In fact, that is one of the main reasons our two organizations, the Innovation TRIVALLEY Leadership Group and the Bay Area Council, partnered in 2014 and 2018 to release Tri-Valley Rising. Since that report was produced, the Tri-Valley has continually grown its contributions to the innovation ecosystem of the Bay Area. With the economy resetting after COVID-19, the Tri-Valley is strategically positioned to increase its impact. Recommendations put forth in this vision set the stage for a thriving Tri-Valley for the next 20 years.

We know that these words on a page will have little effect if they are not acted upon. Both the Innovation TRIVALLEY Leadership Group and the Bay Area Council are committed to seeing this vision through to implementation. But we cannot do it alone. We need the stakeholders of the Tri-Valley to be just as committed to advancing these bold ambitions as they were to providing input into the vision itself. As a reminder, the Leadership Group includes members from Industry, Government – both city and county – Education, our local National Labs, and Innovation Centers.

Some of these recommendations can begin to move forward today, while others are intermediate and long term, and even new ideas might still be envisioned in the years to come.

Progress is at the heart of the Tri-Valley's innovative spirit. This makes us confident that the 2040 Vision will serve as the foundational document for the Tri-Valley's current stakeholders and the next generation of leaders.

Steve Lanza

Chair, Innovation TRIVALLEY Leadership Group

Jim Wunderman

President and CEO, Bay Area Council

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->>> EXECUTIVE SUMMARY

Positioned at the geographic center of the Northern California Megaregion, the Tri-Valley continues its ascendance as a nationally-significant innovation economy, creating robust economic opportunity while balancing its suburban character.

But not long ago, The Tri-Valley was thought of as just a suburb of San Francisco – a place known primarily for its warm climate, wineries, and hiking trails. Today the Tri-Valley is heralded for its collaborative culture and enviable work-life balance. The region delivers ground-breaking scientific discoveries, produces new startups, and is home to some of the world's fastest growing companies.

Key to this change are organizations like Innovation TRIVALLEY Leadership Group (ITV). Only 10 years ago, a small group of people gathered around a table to create ITV, an organization based on the power of regionalism. These founders believed in the bounty of assets in the region they lived in. They also believed that by linking business leaders, educators, and civic leaders, they could erase boundaries in five cities and two counties and establish the Tri-Valley as a thriving region recognized for collaboration and innovation.

The Tri-Valley is now the fastest growing region in the Bay Area. And from that growth, ITV has cultivated new regional stakeholders that want to ensure the Tri-Valley's next 20 years are as prosperous as the last 20 years.

ITV, along with its partner the Bay Area Council Economic Institute, believes that in order to maintain the Tri-Valley's success and its dedication to quality of life for all residents and businesses, it must plan its own future and create the infrastructure needed for 2040 and beyond.

This 2040 Vision encompasses input from over 1,000 stakeholders over more than a year. These stakeholders conceived 24 bold ideas that will ensure that the Tri-Valley will be globally recognized for its innovation, while growing in a way that is equity and inclusion focused.

The vision combines ambitious goals with specific recommendations for action that will serve as the foundation for the region's next wave of growth.

2040 Priorities

If there is one certainty over 20 years, it is change. In the Tri-Valley, stakeholders want to be proactive to plan for that change, not allowing it to just occur without strategies in place. The bold ideas in the 2040 Vision will allow the Tri-Valley to not only plan for change, but proactively create change. This vision allows the region to embrace and design the future so the Tri-Valley continues to grow as a diverse economy and as a region where all ships rise with the tide.

The five key priorities of the 2040 Vision presented on the following page are purposefully open-ended, as they are not meant to be a roadmap with specific directions, but rather a destination that is accessible via a number of different routes.

These Priorities Include:

(Globally
	Recognized
	Innovation:

The Tri-Valley is already home to two national labs, more than 450 technology companies, and some of the top technical talent in California. Tri-Valley leaders recognize these assets and seek to build on them to make the region one of the top places not just in California, but across the globe, to create new ideas, start businesses, fund them, and build them to scale.

Equity and Inclusion Focused:

While the region has been one of the most economically successful geographies in the U.S. — particularly over the last decade — Tri-Valley leaders are explicit about the need to produce more equitable opportunities and outcomes for all of the region's residents and workers.

Connections and Collaboration:

Partnerships that mix the public and private sector, such as the Innovation TRIVALLEY Leadership Group itself, have the effect of breaking down silos and allow for the creation of solutions at scale. While other locales do have this sense of shared ownership, the Tri-Valley has been able to achieve collaboration at a regional scale.

Balanced and Diverse Lifestyle:

In addition to making a high quality of life accessible to all, the future of the Tri-Valley relies on it maintaining a delicate balance of vibrancy and suburban character that has not been achieved elsewhere in the Bay Area. Downtowns will be filled with music, art, food, and festivals attracting families of all backgrounds. And the region will continue its commitment to hiking trails, wineries, and open spaces.

Epicenter of Solutions:

The region has not waited for the nation, state, or metropolitan area to dictate its future; it has instead produced its own ideas and succeeded in implementing them. At its very core, this vision is the next step in continuing that trend.

This vision is meant to be owned and acted upon by Tri-Valley leaders. At its foundation is a diverse group of stakeholders — from elected officials and business leaders to high school and college students and young professionals — who helped to craft and shape the ideas found within the vision.

Using the priorities outlined above as guideposts, stakeholders created a long list of ideas, concepts, and recommendations for the Tri-Valley's future. That list was pared down to the 24 recommendations highlighted in the grid at the end of this plan.

From those recommendations emerged the following five major themes. In this Executive Summary, three of the major recommendations in each theme are detailed in the following sections.

FIVE MAJOR THEMES



World Class Talent

Looking ahead to 2040, today's 22-year-olds will be the median worker — half of the workforce will be younger than them. For the Tri-Valley to remain on the leading edge, it will need education systems that can compete on a global scale. Therefore, a robust ability to produce, attract, and retain talent is the first major piece of the 2040 Vision.

A CENTER FOR LIFELONG LEARNING – A FIRST OF ITS KIND PLACE FOR EVERYONE TO EMBRACE EDUCATION

This lifelong learning and innovation center will create a relationship between inventors of the latest technology, the educators who can teach that technology, and the businesses in need of a workforce that knows how to use the latest innovations. This lifelong learning center will help the region ensure that it is never left behind. It will allow the Tri-Valley to find the resources needed to learn anything throughout a lifetime.

A RESEARCH UNIVERSITY PRESENCE

Stakeholders should explore and stretch the bounds of what is possible for education in the Tri-Valley through multiple layers of higher education catering to a diverse set of potential students. A university or satellite University of California campus in the Tri-Valley working with the two national laboratories in a significant way opens up unique and extraordinary possibilities for applied research in the region.

COMMUNITY COLLEGE TO PRIVATE SECTOR PIPELINE

Tri-Valley employers can become the biggest boosters of the community college system — regionally and in the state broadly — by revisiting their hiring criteria and removing four-year degree requirements where they are unnecessary.

Critical Connections

Ensuring that the Tri-Valley maintains and builds upon its connections to the broader Bay Area and the Northern San Joaquin Valley is vital to its success in 2040. As such, the Valley Link rail project, which as planned would connect the Dublin/ Pleasanton BART station with a direct rail line to Stockton, is an enormously critical piece of connectivity that will transform the region by 2040. With that project moving through planning phases, this vision looks toward what is next, to build upon Valley Link rail and to provide other mobility options that will create transportation sustainability in the Tri-Valley.

EMPLOYER-SPONSORED TRANSPORTATION MANAGEMENT ASSOCIATIONS

A Transportation Management Association could be created across the Tri-Valley, with employers of all sizes paying into a fund that could support autonomous buses, shared bikes and electric/autonomous vehicles, and on-demand micro-transit. These new investments could be used by any traveler in the region.



SELECT AND INVEST IN KEY CORRIDORS FOR AUTONOMOUS VEHICLES

Tri-Valley cities and counties should begin working with private industry to develop a number of potential autonomous vehicle corridors within the Tri-Valley to move people and goods to their last mile destinations.

MOBILITY SUBSCRIPTIONS & FARE INTEGRATION

A mobility subscription program could unify purchases across transit agencies and private operators to a single mobile payment system. A program like this could address the affordability of transit and enable free or reduced-price connections when transferring modes, and it could even include a system that matches drivers and riders looking to carpool.

Vibrant Placemaking

The physical footprint of the Tri-Valley — its housing stock, downtown areas, commercial districts, recreational areas, schools, and community spaces — gives the region its unmatched character. Building upon that vibrancy, and ensuring that everyone can access it, is important to making the Tri-Valley an in-demand destination now and out to 2040.

HOUSING FOR ALL

For it to grow in an inclusive way, the Tri-Valley needs diverse housing options that allow people from all income levels to live in the region. The Tri-Valley's future economic growth is dependent on housing production to match a growing workforce demand.

PIONEER WALKABLE, SMART, AND GREEN COMMUNITIES

Tri-Valley cities should set a goal of creating a total of 10 walkable, smart, and green communities. Smart communities will be committed to sustainability and net zero energy use with renewable energy sources and water recycling integrated into the building process. To optimize connections and strengthen neighborhoods, these spaces can be wired with the fastest broadband technology and offer free public wi-fi.

NEW TECH / LIGHT INDUSTRIAL PARK / INNOVATION ZONE

A tech/light industrial park could solidify the region as a place where ideas not only are created, but they also come to fruition. Light industrial manufacturing requires space and an array of talent, making the Tri-Valley an ideal location to pull engineers from around the Bay Area and the Northern San Joaquin Valley.

Opportunity For All

The 2040 future of the Tri-Valley will also be marked by social mobility. While innovation is a key pillar of this vision, not everyone will work for a tech company, or have an advanced degree, or become an entrepreneur. Developing accessible job categories that can provide a family-sustaining wage and upward career trajectory will be critical in ensuring a future for all families in the Tri-Valley.

INTERNET ACCESS AS A HUMAN RIGHT

It is imperative that every business, household, and student have access to the technologies they need to stay connected. Access to technology is vital, and an ability to know how to use it is just as important.

ENHANCE HEALTHCARE SYSTEMS AS A KEY STRENGTH

The Tri-Valley region has a tremendous opportunity to form innovative partnerships and connections between its healthcare providers and its innovation ecosystem to keep its healthcare system best-in-class. The Tri-Valley's network of hospitals and healthcare providers give Tri-Valley residents access to a teaching hospital, world-class doctors, new clinical trials, and advanced healthcare technologies. Enhanced connections between the laboratories, private sector, and healthcare system will create extraordinary new opportunities for healthcare and biotech innovation in the Tri-Valley.

INITIATE A PRIVATE SECTOR-LED PHILANTHROPIC FUND

A private sector-led philanthropic fund has the benefit of allowing the region's business stakeholders to create strategies to provide operational support to arts organizations, social service organizations, and even educational efforts within the Tri-Valley.

Green Economy

"Future sustainability" was a term brought up often during the vision process, as it can refer to environmental sustainability and the region's own ability to sustain itself as an economic hub. Those two concepts are combined here as the green economy, with recommendations that will make the Tri-Valley a model for environmental stewardship and create new employment opportunities.

GLOBAL LEADERSHIP IN SUSTAINABILITY

The Tri-Valley should be a model community as it grows in a sustainable way. Developing more walkable communities, offering greener travel options, and looking to the national laboratories and the private sector for new technologies that promote sustainability are all part of the portfolio of solutions that can reduce carbon emissions and protect the environment.

PILOT RENEWABLE ENERGY MICROGRIDS AND BATTERY STORAGE THAT CAN PROVIDE ENERGY INDEPENDENCE

Tri-Valley leaders spoke at length about energy independence during the vision process. While moving entirely off the grid will require households to generate and store their own energy, the region's business parks and major employers should explore the use of microgrids and battery storage to take responsibility for their own energy provision.

DOUBLE DOWN ON EFFORTS TO COMMERCIALIZE LAB RESEARCH WITHIN THE TRI-VALLEY

More funding for the labs to mature technologies so that they become ready for spin-out can be a good first step to producing more startups in the region. Tri-Valley leaders should ensure their voice is heard both in Sacramento and in Washington, D.C.

Call To Action

With this vision, we, the stakeholders of the Tri-Valley, can create a better region in 2040:

- We can build houses for all and transform cities, making them green, walkable, and diverse.
- We can provide better healthcare and education to all by solving the digital divide.
- We can create an education system that is lifelong, which trains for new jobs and competencies through a rich, cross-disciplinary structure.
- We can protect our environment and our planet.

As Tri-Valley students have noted during this visioning process, if leaders do not step up now, the future will remain uncertain. Together, we can build a rich future: one where all residents of the Tri-Valley can thrive and one where growing startups and businesses are inspired by the ideas generated in the Tri-Valley.

It is up to Tri-Valley leaders to follow through with these recommendations and implement these visionary ideas. It is up to all of us to embrace and design our future.



THE NEED FOR A 2040 VISION

Before looking ahead, it can be useful to look back. In November 1999, Tri-Valley residents were preparing for the new millennium much like everyone else: with optimism and uncertainty. Technology hubs around the country were benefiting from a nascent internet economy, but Y2K and fears of a bubble had many believing it would all come crashing down.

In the Tri-Valley, that same internet economy was putting pressure on the region. That pressure came to a head in failed ballot initiatives in Livermore, Pleasanton, and San Ramon that would have required voter approval for housing developments of nearly all sizes. The Tri-Valley was deciding how, and if, it wanted to grow.

Tri-Valley voters in 1999 probably would not have predicted that the region would be the fastest growing part of the Bay Area over the next 20 years, becoming one of the few suburban regions around the country that can also boast a thriving and nationally significant innovation ecosystem. Those voters did, however, have the foresight to look ahead and to ask, "What do we want our community to look like in the future?"

Today, that same question still holds true even after the Tri-Valley region has been the beneficiary of tremendous economic growth. It has cultivated new regional stakeholders that want to ensure the Tri-Valley's next 20 years are as prosperous as the last 20 years.

The Tri-Valley 2040 Vision is the product of 12 months of extensive stakeholder outreach and collaboration led by the Innovation TRIVALLEY Leadership Group in consultation with the Bay Area Council Economic Institute. Originally conceived in 2018's Tri-Valley Rising report as a way to chart a path forward for the fast-growing region, the vision outlined

here represents transformative future ideas developed by the community—including those that live in the Tri-Valley and those that work in the Tri-Valley; business executives and non-profit leaders; elected officials and government staff; and the region's youth leaders and early career professionals.

Long-term vision planning is not new for the region. In 1998, Tri-Valley stakeholders compiled a 2010 vision for the Golden Valley. The fundamental premise of the Golden Valley plan was to ensure that the region's urban core has a strong economy and vital communities, while preserving open space and enhancing agriculture beyond the core. The Golden Valley plan set the stage for Measure D's passage in 2000, which codified urban growth boundaries in Alameda County. The plan also called for strategies that would create more spinoffs from the national laboratories, and the Tri-Valley followed through on this idea in 2010 with the creation of i-GATE—a partnership between Tri-Valley cities and the national laboratories dedicated to building a thriving startup ecosystem in the region.

At the same time, the idea to create a group of community leaders committed to advancing innovation and quality of life in the Tri-Valley began to germinate. That concept eventually grew into the Innovation TRIVALLEY Leadership Group, which became official in 2011.

Many of the issues highlighted in 1998—housing, mobility, education, jobs, regional collaboration—are the same key topics that were explored by stakeholders in the creation of the 2040 Vision. This vision seeks to be big and bold, combining ambitious goals with actionable recommendations that can be driven forward through partnership between the public, private, and nonprofit sectors, and that will serve as the foundation for the region's next wave of growth.

>>>> 2040 VISION PRIORITIES

Long-term planning exercises are almost always rooted in key pillars or guiding principles that a community wants to preserve or expand. While this plan does not attempt to predict what a 2040 future will look like, it does recognize that the Tri-Valley has aspirational goals in several areas that are of critical importance to the community. These priorities were continuously highlighted by stakeholders throughout the 12-month process, and they include:

GLOBALLY RECOGNIZED INNOVATION

The Tri-Valley is already home to two national labs, more than 450 technology companies, and some of the top technical talent in California. Tri-Valley leaders recognize these assets and seek to build on them to make the region one of the top places not just in California, but across the entire globe, to create new ideas, start businesses, and build them to scale. Importantly, innovation is not just about patents and startups. Innovation should be a hallmark of the Tri-Valley's transportation system, its ability to build new homes, how it educates its youth, and in the ways it tackles the many other challenges that will arise by 2040.

EQUITY AND INCLUSION FOCUSED

While the region has been one of the most economically successful geographies in the U.S., particularly over the last decade, Tri-Valley leaders are explicit about the need to produce more equitable opportunities and outcomes for all of the region's residents and workers. Equity spans the need for affordable housing options; diversity and inclusion in hiring practices; and access to educational opportunities, transportation choices, quality healthcare, and communications connectivity.

CONNECTIONS AND COLLABORATION

The Tri-Valley is unique in its ability to produce partnerships across five cities and two counties. Partnerships that mix the public and private sector, such as the Innovation TRIVALLEY Leadership Group itself, have the effect of breaking down silos

and allow for the creation of solutions at scale. That sense of collaboration and an ability to mobilize resources from across the region to tackle major issues is a key tenet of the Tri-Valley today and will be critical to its vitality in 2040. While other locales do have this sense of shared ownership, the Tri-Valley has been able to achieve collaboration at a regional scale.

BALANCED AND DIVERSE LIFESTYLE

A high quality of life is often associated with the Tri-Valley, and leaders stressed the need to maintain this characteristic. But the term "quality of life" can mean different things to different people. In addition to making a high quality of life accessible to all, the future of the Tri-Valley relies on it maintaining a delicate balance—preserving a mixture of suburban living with vibrant urban downtowns, fostering robust job growth in fast-growing industries while preserving its agricultural and open spaces, providing places for its entrepreneurs to innovate while lifting up its most vulnerable populations, and giving its youth access to unique educational experiences and allowing them to grow with the region. Many Tri-Valley residents call it home because this balance and diversity has not been achieved elsewhere in the Bay Area.

EPICENTER OF SOLUTIONS

The Tri-Valley has never been about admiring its own issues. The region has not waited for the nation, state, or metropolitan area to dictate its future; it has instead produced its own ideas and succeeded in implementing them. This solutions orientation has created a sense of resilience and sustainability within the Tri-Valley. Any challenge can not only be addressed, but the solution can also serve as a model for other regions globally. Whether pertaining to business continuity and resilience through recessions, the threat of climate change, or its own future sustainable growth trajectory, the region needs to continue to use its visionary leaders to create its own solutions. At its very core, this vision is the next step in continuing that trend.

2040 VISION PROCESS

With representation from employers, elected officials, public sector agencies, and nonprofits in the Tri-Valley, the Innovation TRIVALLEY Leadership Group and the Bay Area Council Economic Institute kicked off the 2040 Vision process in late 2019 with a goal of providing actionable policy recommendations, potential partnerships, and investments that can keep the Tri-Valley economy vibrant and sustainably growing through 2040, with the aforementioned priorities in mind. The vision has a particular focus on bold, new ideas that can leverage the Tri-Valley's existing assets and create new building blocks for long-term economic growth.

The process of creating the Tri-Valley 2040 Vision was structured to capture as many diverse viewpoints as possible. The vision presented here is the result of engagement with over 1,000 stakeholders over the course of one year in workshops, via surveys, and in one-on-one interviews:

- · 2040 Vision Planning Summit
- · Transportation Workshop
- Housing Workshop
- · Innovation & Entrepreneurship Virtual Workshop
- · CEO Virtual Roundtable
- · Public Sector Interviews, Cities and Counties
- · Chamber Leaders Meeting, CEOs and Board Chairs
- · Young Professionals Meeting
- Arts | Culture | Lifestyle Meeting
- · Nonprofit Roundtable
- · Health Industry Leaders Interviews
- · Communications Industry Leaders Interviews
- · Education and Workforce Development Workshop
- · Young Leaders and Student Visioning Summit
- · Diversity, Equity, and Inclusion Workshop
- · Venture Capital Leaders Interviews
- · Climate Change Expert Interviews
- National Laboratory Interviews: Lawrence Livermore
 National Laboratory and Sandia National Laboratories

- · Water Agency Leaders Meeting
- · Startup Leaders: Incubator and Accelerator Interviews

It should be noted that many of the 2040 Vision inputs were gathered during 2020—at the height of the COVID-19 pandemic, during an unprecedented wildfire season in California, and amidst extensive protests of racial injustice in the U.S. While the Tri-Valley's path to 2040 will not necessarily be defined by these transformational events, they nonetheless serve as a backdrop to the vision. The areas of healthcare, climate change, and equity became essential topics of exploration as the process evolved.

Within each of the discussions, participants were challenged to think about their lives and organizations in 2040. Given the natural uncertainty about technological advancement, personal preferences, and the economy's general trajectory out to 2040, these discussions were not meant to try to predict the future. Instead, the vision seeks to put forward new ideas that can begin to be implemented over the next five years that will have a profound impact on life in the Tri-Valley in 2040. While the change that occurs between now and 2040 is unknown...

...the communities that plan together, govern well, and communicate will be best suited to thrive in a changing environment.

Each conversation was different, but there were multiple questions that were used consistently throughout the process, which are outlined on the following page.

2040 VISION QUESTIONS:

(1)

If you were elected governor of the Tri-Valley with a 20-year term, what would be your vision for the region? What's the biggest opportunity in achieving that vision? What's the biggest barrier to achieving that vision?

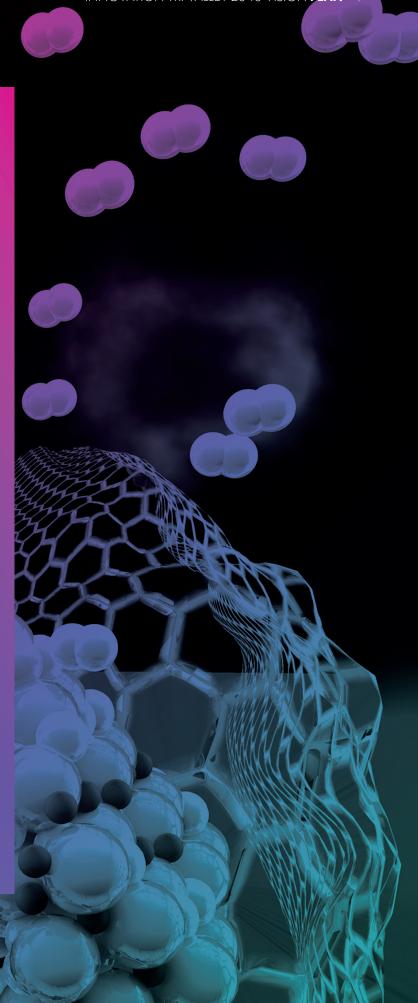
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What will be the Tri-Valley's biggest challenge over the next 20 years? What can the region do better to address that issue?



In what area could the Tri-Valley region create a "first-in-the-state" type of investment, policy, or partnership?

The recommendations presented herein are a compilation of ideas gathered from stakeholder input sessions. The Bay Area Council Economic Institute has added detail where necessary.



THE TRI-VALLEY IN 2020

It is instructive to highlight where the Tri-Valley is today and how it has grown over the preceding 20 years. In 2000, the five cities of the Tri-Valley—Danville, Dublin, Livermore, Pleasanton, and San Ramon—had a reported population of just over 250,000 people. As of early 2020, those same five cities have seen their populations grow to 364,000, a gain over 114,000 people over 20 years. For comparison, the City of Oakland added just over 30,000 people during this same 20-year period. The population growth has been a function of housing production, as the region has permitted over 33,000 new housing units since 1999.

Job growth in the Tri-Valley has also made it more attractive to those wanting to live close to where they work. While the Tri-Valley's jobs recovery from the dot-com bubble in the early 2000s was relatively slow—as it was across much of the Bay Area—the region began to flourish as an employment hub in the years that followed. Between 2010 and early 2020 (pre-COVID-19), the Tri-Valley grew employment by nearly 25%, adding 40,000 jobs over the decade to begin 2020 with 208,000 jobs. While the COVID-19 recession has impacted those numbers, the region's strong set of jobs in professional services, manufacturing, healthcare and social assistance, and information gives it an employment profile that has been relatively more resilient to job dislocation.

A large part of the Tri-Valley's job growth has been led by its innovation economy. The Innovation TRIVALLEY Leadership Group has identified Life Sciences, Advanced Manufacturing, and Software-as-a-Service (SaaS) as three industries where the region has particular strength and a competitive advantage to grow further. Tri-Valley companies are producing ground-breaking technologies, ranging from gene sequencing technology to geospatial instrumentation, and electric buses to semiconductor fabrication equipment.

The Tri-Valley is home to more than 450 technology-related companies, and it has two headquartered companies ranked in the top four in Fortune's Future 50 list of global companies with the best long-term growth potential: Veeva Systems (#2) and Workday (#4). Additionally, Tri-Valley Ventures, the region's first venture capital fund, has helped to cultivate

the local startup ecosystem and has invested in numerous companies that are growing within the region.

Outside investors also see the potential of the Tri-Valley's growing companies as \$2.2 billion in venture capital funding was invested in the region between 2015 and 2019, according to Mirador Capital Partners.

\$2.2 BILLION

in venture capital funding was invested in the region between 2015 and 2019

In addition to a private sector that includes companies of all sizes, innovation in the Tri-Valley has its roots in the region's two national laboratories: Lawrence Livermore National Laboratory ("LLNL") and Sandia National Laboratories ("Sandia"). With the two labs serving as anchor institutions, the Tri-Valley has a research capacity that cannot be matched nationally. Only the Chicago region can call itself home to multiple national laboratories, but its labs are not neighbors as they are in the Tri-Valley. That proximity is an important feature, as the labs partner on multiple research initiatives.

One such partnership between Sandia and LLNL, the Livermore Valley Open Campus ("LVOC"), creates a venue for collaboration by lab researchers and researchers from universities, the private sector, and other laboratories.

The LVOC is home to the High Performance Computing Innovation Center, which provides partners with access to a collection of high-powered computing resources, and the Combustion Research Facility, which partners with industry on fuel combustion engine research and has produced advanced technologies for hydrogen fuel cells. The LVOC does have a strategic plan that includes new physical spaces that will allow for flexibility and adaptability of uses as research focuses change over time.

The LVOC and the laboratories' participation in i-GATE are important connection points between the labs and the Tri-Valley community. But it is also critical to recognize the national importance of these institutions as centers of leading scientific research and development. Both laboratories have a national security mission but have the capability to apply expertise across a wide range of topics. As such, both LLNL and Sandia are doing work on understanding and providing solutions to issues such as COVID-19 and climate change, among others.

This ecosystem of private sector and public sector innovation—and partnership and connections between the two—give the Tri-Valley a dynamic economy today. Looking ahead, this vision provides recommendations that will allow the Tri-Valley to grow as an innovation hub, producing jobs and opportunity for its residents while continuing to produce technologies that will have important uses across the globe.

INNOVATION AT THE NATIONAL LABS

As COVID-19 upended the healthcare system and the economy in 2020, both LLNL and Sandia were working to model the spread of the virus in order to assist policymakers in understanding testing needs and hospital capacity concerns. At LLNL, detection and instrumentation technologies produced at the lab, such as the Lawrence Livermore Microbial Detection Array, have been used in inexpensive point-of-care diagnostics to identify COVID-19. LLNL researchers designed ventilators that could be rapidly manufactured to fill holes in the supply chain, and they have also used artificial intelligence to analyze different ways to attack the virus, accelerating the ability to produce vaccines and therapeutics.

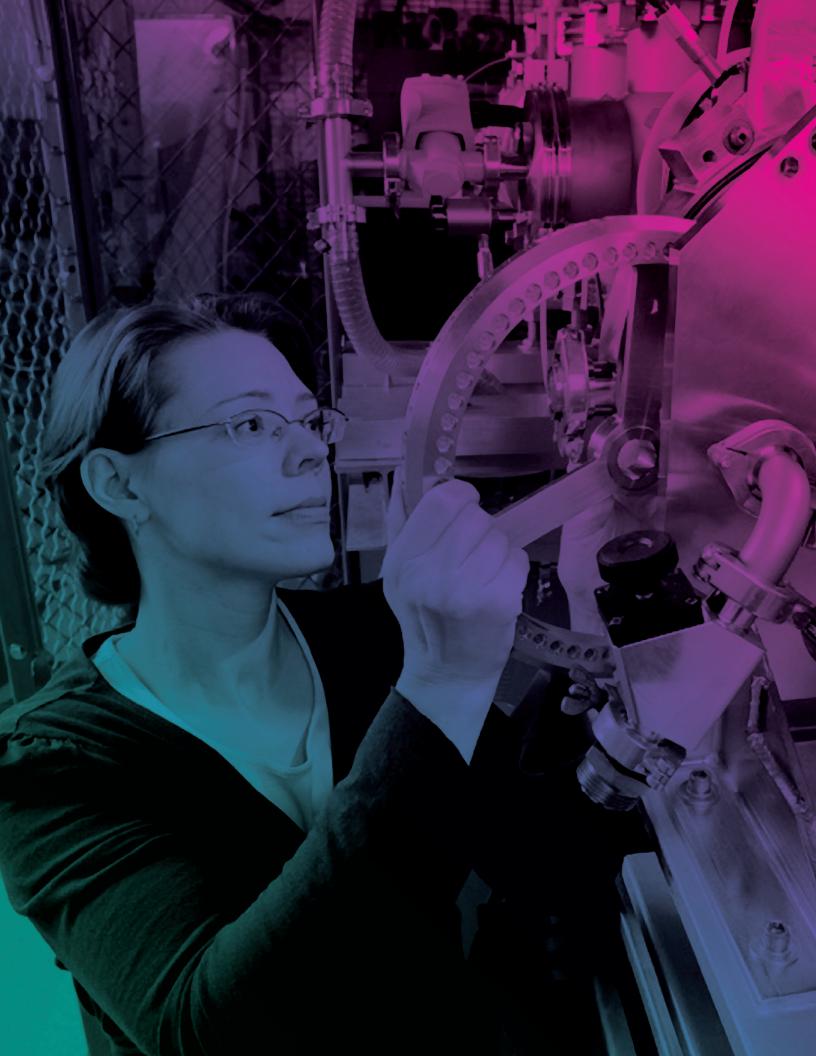
At Sandia, researchers are working to safeguard synthetic biology equipment from data theft or targeted attack by hackers hoping to interrupt the production of vaccines and therapeutics. Finally, both labs are working together on a new project on DNA and RNA sequencing and extraction that will allow for the development of a pipeline of antibody therapeutics for emerging viruses.

In addition to COVID-19, 2020 also saw a historic wildfire season in California. Both laboratories are using their expertise to study climate change adaptation and mitigation and greenhouse gas emissions reduction technologies.

Researchers have developed multiple technologies that take existing technologies and reduce their greenhouse emissions:

- Sandia's Legion supercomputing programming system is being used to develop predictive models of better internal combustion engines, enabling calculations that capture turbulence-chemistry interactions that were previously out of reach.
- Researchers at Sandia have also developed ducted fuel injection, which is able to adjust the fuel-air mixture in an engine to reduce or eliminate soot production.
- Sandia's AeroMINE technology is a low impact wind energy generation technology, aimed at new and existing commercial buildings—the technology will be deployed commercially in 2021.
- And at LLNL, a recently released report charts a path for California toward a carbon neutral future. It analyzes different policy and technological options, such as management of natural and working lands, direct air capture of carbon, and carbon capture from waste biomass.

Highlighting the breadth of research happening at the national laboratories, LLNL and Sandia are also working on advanced manufacturing technologies. Precision manufacturing technologies will allow for production processes to occur at smaller and smaller levels. Volumetric additive manufacturing technologies developed at LLNL allow for 3D printing using liquid inputs. And lastly, the laboratories even have a presence in space. Lenses developed at LLNL have been launched into space to monitor CO_2 and methane concentrations.

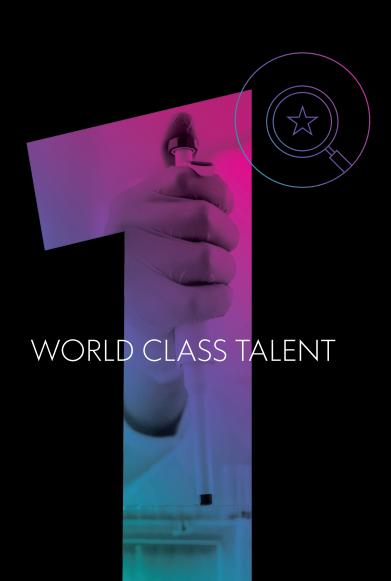


RECOMMENDATIONS

This vision document is meant to be owned and acted upon by Tri-Valley leaders. At its foundation is a diverse group of stakeholders who helped to craft and shape the ideas presented here. Given the quantity and depth of feedback received over the 12-month process, organizing and categorizing the recommendations has proven to be one of the most challenging aspects of the entire project.

Many of the recommendations have overlapping aspects, and there are synergies across different topic areas. For example, housing policies and transportation investments are inextricably linked, and there are aspects of education policy that also tie into the innovation community. Rather than grouping the vision by the stakeholder engagement sessions, the following sections have been consolidated into five major themes:

- WORLD CLASS TALENT
- · CRITICAL CONNECTIONS
- · VIBRANT PLACEMAKING
- · OPPORTUNITY FOR ALL
- · GREEN ECONOMY



WORLD CLASS TALENT

Talent is what sets the Tri-Valley apart from other regions in California. There are few other regions in the U.S. even that can compare to the collection of highly-skilled, highly-educated workers that exists in the Tri-Valley. While it is true that jobs can be a magnet to draw in population; increasingly, companies are looking to locate in geographies where they can have easy access to the workers they need. While the future of remote work may complicate this relationship, the places that are able to assemble a diverse set of skilled workers will likely be a step ahead of other regions in a more globally competitive economy.

And talent is not just about today's workforce. It is about the educational systems and opportunities that exist in the Tri-Valley today that are producing the workforce of 2040. In 2019, the median age of a U.S. worker was 42.3 years old. Looking ahead to 2040 (assuming that trend carries forward), today's 22-year-olds will be the median worker and half of the workforce will be younger than them. For the Tri-Valley to remain on the leading edge, it will need education systems that can compete on a global scale.

Therefore, a robust ability to produce, attract, and retain talent is the first major piece of the 2040 Vision.

LIFELONG LEARNING AND INNOVATION CAMPUS

The education system across America has long been a combination of a K-12 education followed by an array of secondary options, ranging from four-year institutions to community colleges to technical education programs. Beyond that system, the opportunity to gain new skills is relatively limited.

A Lifelong Learning and Innovation Campus in the Tri-Valley would fill this void and become a first-of-its-kind California asset that would focus on the skills needed for the future economy. Its mission would be "No Worker Left Behind," and its curriculum would be the product of private sector input and development by educational experts. Areas for focus could include high-demand sectors: Mechanical and Civil Engineering, Computer Science, Healthcare and Applied Technologies (e.g., biotech and advanced manufacturing), and Business Creation.

Rather than a focus on degrees, the campus (a combination of a physical space and virtual learning) would focus on credentials. This type of model could cater to students of all ages—professionals looking to change careers, high school graduates looking for a new skill, and even younger students looking to access courses not taught in high schools. This type of model could also incorporate applied skills training across a variety of in-demand occupations.

A Lifelong Learning Campus would not be meant to replace or compete with Las Positas College, Diablo Valley College, Cal State University East Bay, or even a future UC satellite in the region, it instead could be an extension of all of those institutions that stretches the bounds of what is possible for education in the Tri-Valley. Partnerships across multiple levels of higher education—community college, CSU system, and UC system—can cater to a diverse set of potential students and create a unique educational partnership in the Tri-Valley.

By bringing together all of the region's education and knowledge assets, the Tri-Valley can create educational programming for people of every age that builds off of local expertise in technology, innovation, science, music, art, culture, and politics. Inserting the two national laboratories into this model could also open up new possibilities for applied research in the region.

TRI-VALLEY CAREER EXPLORATION COLLABORATIVE

Experiential learning was one of the key topic areas brought up by students during the vision input process. Many students viewed these opportunities to learn about different career paths as some of the most valuable experiences they were given. Career exploration already occurs in the region's public schools through the Tri-Valley Regional Occupation Program, but there is an opportunity to double down on this effort and to ensure that every student is given the chance to explore a multitude of career paths, not just those that opt in.

Business also needs a seat at the table in shaping both curricula and career exploration programs. A collaborative partnership between employers, school districts, and students can be the next step in helping to ensure that curricula and experiences cater to future employer needs through the creation of education master plans. With more opportunities for employers to enter the classroom and more opportunities for students to enter the workplace, the Tri-Valley can showcase the many opportunities in its own backyard.

This partnership would also serve as the oversight body for student-run quarterly or monthly career exploration events that span the Tri-Valley school districts. Something as simple as employers engaging with students or an afterschool enrichment program can be the spark that pushes a student into nursing, computer science, manufacturing, accounting, or any number of occupations. Sector-based networks can also be created for interested students so that they can better understand the skills needed to succeed in the field.

EMPLOYER-BASED TEACHER TRAINING

Tri-Valley employers want to be more involved in the region's education system—some even mentioned funding public education with corporate dollars—in order to boost the region's education system from leading in California, to leading nationwide. In addition to the collaborative outlined in the previous recommendation that would benefit students, Tri-Valley employers can also be a source of learning for the region's teachers. Truncated summer internships or externships with Tri-Valley employers for teachers can be another way to help bridge between the skills that are taught and the skills that are needed by employers, particularly in STEAM-related industries and occupations.

Greater support for the region's teachers can be a long-term differentiator for the Tri-Valley, adding to its already rich list of educational programming. Projecting skill needs out to 2040 is difficult for many employers, and this process yielded mixed responses regarding the top future skill needs for employers. Responses ranged from better communication and teamwork skills to more ability to work independently as a self-starter. Almost all employers agreed that technical skills were important, though others said soft skills were often the hardest to find. Given this uncertainty, having teachers with a comprehensive learning background that includes some training within high-demand sectors will undoubtedly give Tri-Valley students an edge.

PILOT COMMUNITY COLLEGE TO PRIVATE SECTOR PIPELINE

Without a major university, many of the Tri-Valley's young leaders leave the region for college and never return. One of the Tri-Valley's greatest educational assets, Las Positas College, can play a role in a reversing that trend—and employers can and should help to strengthen the positioning of the community college.

Tri-Valley leaders recognize that not every student can or needs to attend a four-year institution, yet parents and the school system generally push students toward four-year degree programs. Part of the reason for this is that career pathways through community college are less visible. Tri-Valley employers can become the biggest boosters of the community college system—regionally and in the state broadly—by revisiting their hiring criteria and removing four-year degree requirements where they are unnecessary.

This would eliminate an initial barrier, but employers can go a step further by partnering with Las Positas College to create learning modules, credentialing programs, and apprenticeships that feed directly into full-time employment. A strong Las Positas College, combined with the Lifelong Learning Campus described earlier, can become the future models for workforce training and re-training.

BUILD A RESEARCH UNIVERSITY PRESENCE AND CONNECT IT TO THE NATIONAL LABORATORIES

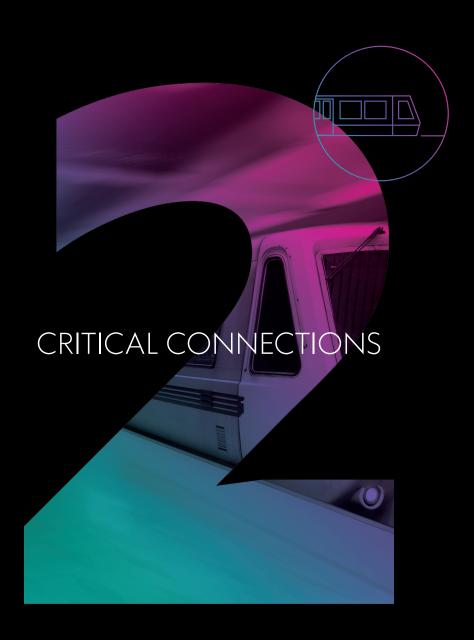
A tremendous amount of applied research is already occurring today within the two national laboratories based in the Tri-Valley. A university or satellite University of California campus in the Tri-Valley working with the two national laboratories in a significant way would open up new and extraordinary possibilities for applied research in the region.

A university research presence in the Tri-Valley could be another avenue for taking laboratory research and turning it into a commercially viable startup. Universities are often more successful than national laboratories at spinning out research, as their post-docs and graduate students are often looking to become entrepreneurs. Having both labs and a graduate level university presence in the Tri-Valley could help weave opportunities together for post-docs to combine their own research with lab developments to create innovative products and companies. Cross-pollination between lab researchers and university graduate students and post-docs could provide the boost that new ideas need, and a business mentor could turn the idea into a successful new startup.

CREATE SEATS ON LOCAL AND REGIONAL COMMISSIONS THAT ARE DEDICATED TO YOUNG LEADERS

Tri-Valley students expressed a desire to be better connected their community—by both learning about career opportunities in the Tri-Valley and giving input on city and regional processes (much like what was done for this vision process). These types of connections can be incredibly useful in helping them envision a future in the Tri-Valley, giving students a regional identity in addition to their connections to school and local community.

The Tri-Valley cities, counties, and related agencies should seek to create dedicated opportunities for young leaders, so that the next generation can have a voice in planning decisions. At the very least, youth advisers can give voice to a large population group that has historically been left out of government processes. The young leaders that participated in this vision planning process were particularly passionate about diversity and environmental sustainability, both of which are key issues that the Tri-Valley will have to address going forward. By having a diversity of voices in those conversations, creative solutions are more likely to emerge.



*** CRITICAL CONNECTIONS

Geographically, the Tri-Valley sits at the center of one of the most economically significant megaregions in the world. Producing over \$1.6 trillion in 2019 gross domestic product, or 6% of the total economic output generated in the United States, the Northern California Megaregion is made up of 21 counties and stretches from the San Francisco Bay Area to Sacramento, down toward Monterey Bay, and into the Northern San Joaquin Valley.

The Tri-Valley is its own major node in the innovation ecosystem of the Bay Area, with close ties to San Francisco and Silicon Valley. The region is also well positioned to source from a diverse talent pool. High-tech talent from across the Bay Area can make a reverse commute to the Tri-Valley, while manufacturers can also benefit from access to skilled workers in the Northern San Joaquin Valley.

Ensuring that the Tri-Valley maintains and builds upon these physical connections is vital to its success in 2040. As such, the Valley Link rail project, which as planned would connect the Dublin/Pleasanton BART station with a direct rail line to Stockton, is an enormously critical piece of connectivity that will transform the region by 2040. With nearly 100,000 workers commuting into the Bay Area daily over the Altamont Pass, this rail connection will ease highway congestion and facilitate the movement of even more workers into and throughout the region. With that project moving through planning phases, this vision looks toward what is next, to build upon Valley Link rail and to provide other mobility options in the Tri-Valley.

However, connectivity is not just about people movement, it is about making connections both across and outside of the Tri-Valley that can help the region thrive. This section also explores partnerships and structures that can strengthen the Tri-Valley's positioning within the Northern California Megaregion.

EMPLOYER-SPONSORED TRANSPORTATION MANAGEMENT ASSOCIATIONS

The Tri-Valley is served by a number of different public transit agencies—BART, ACE, Wheels, and County Connection—

which provide for transit connections within the Tri-Valley and throughout the Bay Area. Yet, like other regions, the Tri-Valley struggles with last-mile connections to its places of employment, which are spread across the region.

Transportation Management Associations (TMAs), which are oftentimes coalitions of large employers, have stepped in to fill this void in other parts of the country. TMAs are particularly prevalent in Silicon Valley, where they are active in Palo Alto, Mountain View, Sunnyvale, and at the Stanford Research Park. These TMAs provide a variety of services meant to limit greenhouse gas emissions and ease travel, including local bus service, transit passes, and bike and car share programs.

A TMA-like structure already exists at Bishop Ranch in San Ramon, where corporate tenants are able to utilize transportation programs that are supported by the business park. That model could be expanded throughout the Tri-Valley, with employers of all sizes paying into a fund that could support autonomous buses, shared bikes and electric/autonomous vehicles, and on-demand micro-transit. Employers could work in conjunction with transit agencies, county congestion management agencies, and cities to ensure that new mobility options both build on the existing network and serve areas of need. These new investments could be used by any traveler in the region.

MOBILITY SUBSCRIPTIONS & FARE INTEGRATION

As new mobility options proliferate between now and 2040 (including potential investments made by the TMA outlined above), providing Tri-Valley residents and workers with an easy way to sort through their travel options will become necessary. Uber and Lyft are currently piloting subscription-based models, but what if an entire suite of mobility options was subscription-based? This model would make the Tri-Valley one of the first places in the nation able to integrate all of its various mobility options, providing a single payment option through an app, and giving its users freedom to choose the fastest or cheapest route to work, school, or any destination of their choosing in the Tri-Valley.

A mobility subscription program could unify purchases across transit agencies and private operators to a single mobile payment system. A pilot like this could address the affordability of transit and enable free or reduced-price connections when transferring modes, and it could even include a system that matches drivers and riders looking to carpool.

There are many mobility and network-creating possibilities that a subscription and a mobile application could unlock. Fare integration could also be a step toward consolidating the public transit agencies in the Tri-Valley, or a push toward more syncing up of routes and schedules. Most profoundly, with enough mobility options built into the subscription, it could replace car ownership for some people. Fewer cars would also reduce the need for parking—potentially freeing up spaces in the Tri-Valley for other uses.

All of the transportation solutions reflected here that reduce the need for parking have the added effect of opening land that could be used to increase housing stock or for more economically advantageous uses. With transportation and housing inextricable linked, finding solutions that can solve both issues will be advantageous to the Tri-Valley in 2040.

EXPRESS BUS MOBILITY HUB AT DUBLIN/ PLEASANTON BART

One of the biggest flaws of the Bay Area transit system is its relatively limited ability to deliver express service, particularly on BART, which makes eight stops between the Tri-Valley and San Francisco. An express bus system that uses carpool lanes has long been sought by regional planners, and the Tri-Valley should be first in line once a regional express bus network is developed.

With Valley Link meeting BART at the Dublin/Pleasanton BART station, that station area should become the hub for mobility in and around the region. Express buses that link the Tri-Valley to the Central Valley, north to Walnut Creek and Concord, south to Fremont and San Jose, and across the bay to Silicon Valley would be a boon to commuters and Tri-Valley businesses. If the express bus network were to be complemented by other mobility options at the Dublin/ Pleasanton station, this type of network could solve for both longer commutes and the first- and last-mile problem.

INTEGRATE THE LIVERMORE AIRPORT INTO THE TRANSPORTATION SYSTEM

While the Tri-Valley's highways, bus systems, and rail lines will continue to carry people by 2040, new modes of transportation may move off of the ground altogether. Companies like Uber have begun to explore electric, semi-autonomous drones that could carry 4-5 passengers over intermediate distances that are congested or not well served by transit. Uber's first test site is in Frisco, Texas, a suburban area roughly 30 miles outside of Dallas, which happens to be approximately the same distance between the Tri-Valley and San Francisco.

The Livermore Airport can become a key piece of infrastructure for the region by 2040.

Currently important for company executives making trips into and out of the Tri-Valley, it could be re-envisioned to incorporate use by more members of the community. If short-range air travel technologies can prove their effectiveness, routes could be developed from Livermore to key locales around the region, including the Oakland International Airport ("OAK"). A more direct link between OAK and the Tri-Valley can support both airports and provide a key connection for companies looking to locate in the Tri-Valley that need access to other markets. Short-range air travel brings equity and affordability concerns, but added mobility options into and out of the Tri-Valley provide economic and environmental value for their ability to remove single-occupancy vehicles from the road.

SELECT AND INVEST IN KEY CORRIDORS FOR AUTONOMOUS VEHICLES

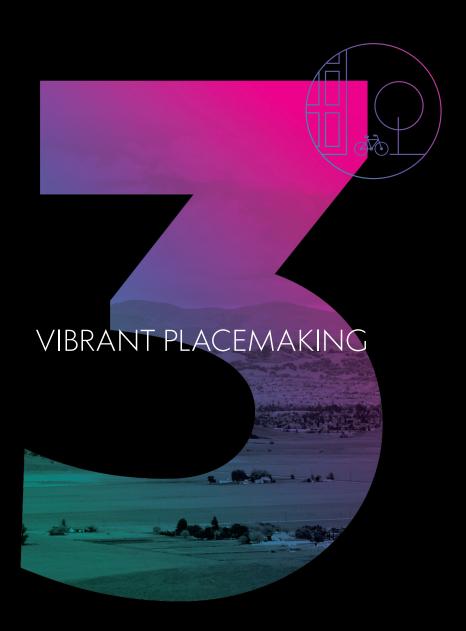
The Tri-Valley can build upon the Bay Area's leadership in autonomous vehicle technology by beginning to plan for a future that includes autonomous vehicles. While their uptake and prevalence are uncertain, the technology is advancing quickly but many cities are not equipped to handle an influx of autonomous technology.

Tri-Valley cities and counties should begin working with private industry to develop a number of potential autonomous vehicle corridors within the Tri-Valley to move people and goods to their last mile destinations. The region can become a proving ground for autonomous technologies using a corridor approach, where shared autonomous vehicles operate much like an ondemand transportation service with scheduling possible before a ride and traffic signal priority once a ride begins.

BUILD THE TRI-VALLEY BRAND THROUGH ENHANCED MARKETING

The Tri-Valley is already a premier destination for many businesses and visitors, and the households that live there have chosen it for its quality of life. But the Tri-Valley's last 20 years of economic prosperity is not guaranteed for its next 20, and a more concerted effort to draw in visitors and new businesses could buoy its economy even during recessions.

A regional partnership that combines aspects of site selection and employer attraction can help businesses identify opportunity sites. A similar type of partnership can market the region's open space and wineries to Bay Area residents and other visitors to Northern California. The brand of the Tri-Valley is strong within the region itself. Taking it to the next level outside of the region should be a priority for the next 20 years.



>>> VIBRANT PLACEMAKING

The physical footprint of the Tri-Valley—its housing stock, downtown areas, commercial districts, recreational areas, schools, and community spaces—give the region its unmatched character. Building upon that vibrancy, and ensuring that everyone can access it, is important to making the Tri-Valley an in-demand destination now and out to 2040.

Barring significant shifts in supply or demand, housing affordability is likely to remain a key barrier to the Tri-Valley's long-term economic growth. While still relatively more affordable than other parts of the region, remote work could allow housing choices to be made over a much more dispersed geography as employees may no longer be tied to an office or a desk. Households may have more choices for where they live, pitting the Tri-Valley against lower cost metropolitan regions across the U.S. rather than the high-cost cities of the Bay Area. The regions that are able to grow their economy and their housing stock at a similar rate will be best positioned to attract new workers in the future.

The Tri-Valley of 2040 will not just be shaped by housing development. New spaces for innovation and cultural amenities will play a role in whether or not the Tri-Valley will continue to attract talent and grow its innovation economy.

EMBRACE A "HOUSING FOR ALL" APPROACH BY FINDING INNOVATIVE HOUSING OPPORTUNITIES

If the Tri-Valley's population is to grow by 2040, the region will require a large number of new housing units. While there is no single policy that will solve housing affordability in the Tri-Valley, added supply of ALL housing types for ALL types of households is needed to address the housing crisis.

Within this vision process, there was much discussion on preserving what the Tri-Valley has today (e.g., open spaces and suburban character) versus the need to accommodate future growth. There was general agreement among stakeholders that the Tri-Valley should continue to preserve its open spaces and neighborhood character, and participants agreed that building upward will likely be limited to areas along the I-580 and I-680 corridors. Stakeholders also agreed that without sufficient housing, businesses will have a hard time recruiting

and retaining their employees. If inventory is not increased, rising housing costs are likely to price new residents out of the market altogether.

By 2040, the Tri-Valley should seek to add density without significantly changing the nature of its communities. This is easier said than done, but there are options for the Tri-Valley to produce more housing for the "missing middle," simultaneously addressing the affordability needs of the middle class while using building types that lightly add to density.

Housing affordability is also critical at lower income levels—meaning that creating a housing future that includes both subsidized and market-rate units, allows for home ownership at a variety of price points, and mixes access to transportation networks and jobs will be needed to achieve an inclusive Tri-Valley in 2040. As an example of a pioneering approach that solves the housing problem for those most in need, the CrossWinds Church in Livermore is now providing 28 supportive housing units, or tiny homes, to people experiencing chronic homelessness in the Tri-Valley. The site also includes an onsite vocational program, mental health support, substance use services, and case management.

In addition to programs like the tiny home strategy in Livermore, there are a variety of different approaches that should be explored to embrace housing for all:

- First, shifting from single-family to dual-family zoning in strategic locations can serve as a model for more elegant density. More duplexes and townhouses can provide the types of affordable housing needed by young families and middle-income households.
- Second, incentivizing the building of accessory dwelling units (ADUs) in all new single-family construction can provide an income-generating tool for households, a place for older relatives to age in place, or a rental for a young worker in the Tri-Valley.
- Third, economic and technological shifts may create new opportunities for housing in underutilized commercial areas or parking lots. Adapting zoning as land use needs change can be an innovative way of providing new areas for housing production.

 Fourth, urban growth boundaries should be further analyzed to better understand the highest and best use of the lands they are protecting.

Subtle shifts in zoning and a process to make ADU building widespread in the Tri-Valley can make it the national model for sustainable suburban growth.

The region should strive to balance the desires of existing residents, but there must be an understanding that the Tri-Valley's economic growth will be closely tied to population growth—which is a function of housing production.

PIONEER AFFORDABLE, SMART, GREEN, WALKABLE COMMUNITIES NEAR TRANSIT AND IN DOWNTOWNS

Valley Link rail will add new stations to the Tri-Valley in Livermore. New station area locations provide the ability to re-envision transit-oriented development. Whereas the Tri-Valley's BART stations contain large parking lots adjacent to the station, the Valley Link stations could instead be built at the center of car-free zones, with a mix of housing units, commercial buildings, stores, and green spaces within walking distance. These self-sustaining villages would limit the need for car ownership. Park-and-ride lots with bus service to the station could accommodate those that need to drive but could be located on less valuable real estate further from the stations.

Developing out from stations in a concentric circle model, whereby density decreases as mileage from the station increases can preserve neighborhood character while concentrating activity in a small geographic area. Building with affordability in mind—mixing market-rate housing, belowmarket-rate housing, and smaller units that are affordable by

their design—can ensure that the Tri-Valley is able to house its workforce in a way that limits housing cost burdens and provides access to jobs within the region and around the Bay Area. Affordable housing is also key to supporting the Tri-Valley's population of veterans, the elderly, and low-income households.

The Tri-Valley should explore combining smart living with green living in these new transit-oriented communities and in its downtowns. These spaces should be wired with the fastest broadband technology, contain free public wi-fi, and be built in a way to maximize interactivity (e.g., coworking spaces and maker spaces). Zoning for jobs near these areas could be attractive to companies looking to source talent from within the Tri-Valley and outside of it, while also accessing the fastest connectivity upon which to build their products.

Building smart communities will not be enough by 2040. This vision process revealed that youth were particularly interested in living in communities that are committed to sustainability and environmental progress. New transitoriented communities should also strive to be net zero in their energy use, with renewable energy sources and water recycling being key aspects of the building process. These new stations and their surrounding areas provide a new canvas for Tri-Valley leaders to experiment on land use and development procedures—building with past preferences and methods in mind should be the baseline and not the goal.

PLAN FOR A NEW TECH / LIGHT INDUSTRIAL PARK / INNOVATION ZONE

One reason for the Tri-Valley's rapid employment growth over the last two decades is its relatively affordable, high quality office space. Bishop Ranch in San Ramon and Hacienda in Pleasanton give the Tri-Valley two of the Bay Area's premier office locations, and both are home to headquarters of many prominent companies.

Tri-Valley leaders voiced the need for more spaces for innovation to occur, where serendipitous collisions of innovators can lead to the birth of new ideas. A tech/light industrial park could solidify the region as a place where ideas

not only are created, they come to fruition. Light industrial manufacturing requires space and an array of talent, making the Tri-Valley an ideal location to pull engineers from around the Bay Area and the Northern San Joaquin Valley.

To ensure that industrial-zoned lands are not used for warehousing sites (which have a relatively low job density), Tri-Valley cities should consider new types of zoning designations that maximize the job-creation and innovation potential of available sites. Tri-Valley cities might also explore the creation of Innovation Zones, within which new job-creating projects could be streamlined and new financing tools (e.g., Enhanced Infrastructure Financing Districts) could be utilized to invest in utilities and other infrastructure.

Similar examples around California are already showcasing how tech and research spaces can provide an important catalyst to the economy. SFMade's Foundry in San Francisco offers affordable industrial space to small businesses, ranging from robotics companies to textile makers. Aggie Square, a partnership between UC Davis and the City of Sacramento, is a planned innovation district that will harness the power of UC Davis and allow new businesses to locate there. In the Tri-Valley, there are already plans for expansion of the Livermore Valley Open Campus, which can house joint research initiatives between the national labs and universities and the private sector. A new tech park and/or Innovation Zone coupled with the partnership capability of the two national labs can create a powerful research and development ecosystem that complements the office spaces throughout the Tri-Valley.

INCREASE PLANNING COORDINATION ACROSS THE TRI-VALLEY CITIES

Tri-Valley leaders spoke often about the need to streamline government interactions with the private sector, particularly when it comes to permitting new construction. With each city in the Tri-Valley having its own requirements and permitting processes, regional builders often feel they must go through onerous processes to complete new projects.

While individual cities have been known to streamline processes—cutting months, and therefore significant costs, out of the permitting timeline—a group of cities coming together to coordinate development policies has no precedent in California. Each of the Tri-Valley cities would still retain their abilities to approve projects and plan for the futures of individual communities, but the process could be quickened and standardized across all jurisdictions.

Greater coordination at the level of city economic development departments can also be useful in creating spaces for new jobs. Tri-Valley leaders have identified life sciences, advanced manufacturing, and software-as-a-service as important sectors for the region's future economic growth. Work is already being done around business attraction in these areas, but a holistic look at the available spaces for these jobs; the future need for office, research and development, and industrial space; and strategies to attract new private investment should all be part of a regionwide undertaking.



•••• OPPORTUNITY FOR ALL

With equity and inclusion a priority for the 2040 Vision, this section focuses on providing opportunity for all Tri-Valley residents. The Tri-Valley already has a rich network of nonprofit service providers seeking to create a sustainable future for all—where training for jobs, social programs, and supportive living spaces are readily available to those that need them. The recommendations presented here take another step in ensuring the 2040 future of the Tri-Valley will also be marked by social mobility. While innovation is a key pillar of this vision, not everyone will work for a tech company, or have an advanced degree, or become an entrepreneur. Lifting up accessible job categories that can provide a living wage and upward career trajectory will be critical in ensuring a sustainable future for all families in the Tri-Valley.

INITIATE A PRIVATE SECTOR-LED PHILANTHROPIC FUND

The Tri-Valley's nonprofit institutions are a key part of the fabric of the community. Many provide services to those most in need that are experiencing poverty, while others add cultural amenities to the community. Other large regions have area-specific philanthropies that ensure their local nonprofit groups are well-funded and able to achieve their missions. In the Tri-Valley, there is a new Tri-Valley Nonprofit Fund that was set up in 2020 to fund service providers that are responding to the COVID-19 pandemic. That fund could be a precursor to philanthropic efforts that are bigger in scale and scope, which could support a multitude of nonprofit efforts in the region.

Many foundations are originated by a family, but absent that, the Tri-Valley could tap into its network of companies to fund a new philanthropic effort. A private sector-led philanthropic fund also has the benefit of allowing the region's business stakeholders to create strategies to provide operational support to arts organizations, social service organizations, and even educational efforts within the Tri-Valley.

CIVIC LEADERSHIP TRAINING ACADEMY FOR ASPIRING ELECTED OFFICIALS AND NONPROFIT LEADERS

The path to 2040 in the Tri-Valley will be heavily defined by the region's elected leaders, in addition to the companies that call the region home and the technologies that are developed there. The Innovation TRIVALLEY Leadership Group already provides a forum for elected officials and their staffs to interact with community members from business, education, nonprofits, and other groups. But what does not exist is a clear way for more people to gain an understanding of how governmental bodies work, particularly at regional scale, and to learn more about opportunities and threats facing the region's employers.

A regionally-focused civic leadership training academy—which could be housed at Las Positas College with partnerships with each of the Tri-Valley's five cities—would allow early career professionals to gain exposure to the public sector via once per week training sessions and externships with regional bodies, city departments, or county agencies. If the training academy had buy-in from employer groups, companies could offer up top-performing individuals to take part in the yearly program with the goal of allowing more people access to public office.

NON-TECH SMALL BUSINESS INCUBATOR

The Tri-Valley has Daybreak Labs in Livermore—an incubator for hard tech and life sciences—and San Ramon is home to BRIIA: The Intelligent Accelerator for startups using machine learning and artificial intelligence. The Tri-Valley can create another opportunity for aspiring entrepreneurs by creating an incubator for companies in food, hospitality, and other service industries.

While the region's focus on tech is justified, there are models that would allow for non-tech companies to grow in the region, such as La Cocina's nonprofit kitchen incubator. Alternatively, the vision process yielded a focus on small business service providers in software, hardware, and talent solutions to enable the Tri-Valley to build a more robust startup environment. The Tri-Valley's tech ecosystem utilizes these types of companies to do business, so it makes sense to build an environment where they can launch and grow in the region.

SOLVE THE DIGITAL DIVIDE

Universal access to high-speed internet connectivity is critical to achieving equity in the Tri-Valley. The economy was already highly reliant on digital connectivity prior to the COVID-19 pandemic, but 2020 has proven that an ability to connect digitally—whether for school, work, or doctor visits—can unlock more economic opportunity.

As communications companies roll out new technologies, such as 5G wireless and gigabit fiber broadband, the Tri-Valley should ensure that it is equipped to support such a buildout. Rather than having communications companies work across the five cities, a single point of regional contact or a five-city task force could be the coordinating point for approval of new communications investments, such as fiber optic cable. Because new technologies are usually piloted in large cities first given their population density, aggregating the demand in the Tri-Valley could make it more attractive for investment.

This same task force would also be charged with ensuring that the adoption of new technology does not exacerbate the digital divide. Tri-Valley cities can work to alleviate access issues by providing free wi-fi in heavily trafficked locations, such as neighborhood parks, community centers, and commercial areas. By working with schools and the communications companies themselves, the Tri-Valley can also become the 2040 model for digital literacy through targeted programming to the populations in need of training.

Digital access and literacy are particularly important for the future of the region's healthcare system. As telehealth becomes more prominent, access to and ability to use digital tools will be necessary to ensure a healthy Tri-Valley population in 2040. Digital connectivity also has an ability to unlock future improvements related to government service provision, energy use, and transportation, thus a world-class wired and wireless network—and the digital literacy levels so that everyone can access it—should be a top priority for the region.

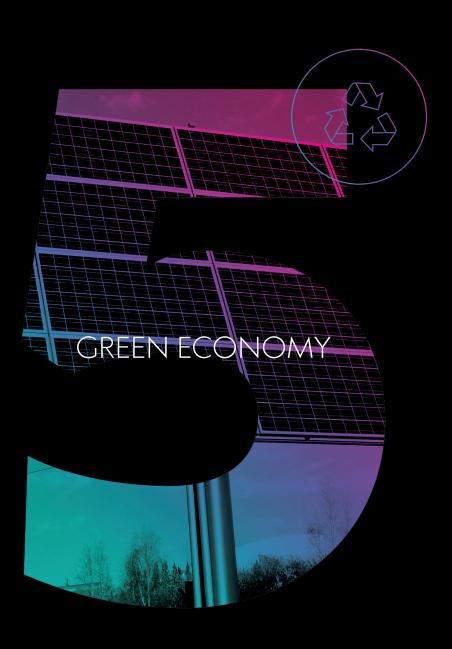
EMBRACE THE REGION'S HEALTHCARE SYSTEMS AS A KEY STRENGTH

By 2040, the Tri-Valley's population will have grown significantly, and as such, will become more prevalent users of the healthcare system at large. While the healthcare industry is largely regulated by federal and state entities, the Tri-Valley region has a tremendous opportunity to form innovative partnerships and connections between its healthcare providers and its innovation ecosystem to keep its healthcare system best-in-class.

The COVID-19 pandemic exemplified how quickly the healthcare system can change, as providers ramped up testing, moved a large portion of visits to telehealth, and began to administer vaccines. It is clear that partnerships between the healthcare sector and local government can provide a greater influence on the community when needed, and can ensure that healthcare provider needs are met when new challenges arise in the future.

The Tri-Valley's network of hospitals and healthcare providers—and their connections into teaching universities and larger health networks—give Tri-Valley residents access to world-class doctors, new clinical trials, and advanced healthcare technologies. Policy enacted across the region needs to ensure that these institutions can grow their footprint if needed and that all residents can have access, whether through in-person visits or digital interactions

Additionally, the Tri-Valley's vast array of biotechnology companies have commercialized technologies that were originally developed within the national laboratories. Partnerships with the local hospital system have allowed these products quick access to market. Enhanced connections between the laboratories, private sector, and healthcare system can create new opportunities for healthcare and biotech innovation in the Tri-Valley.



GREEN ECONOMY

The final section of the 2040 Vision points to the environment, a prominent feature in the quality of life that so many Tri-Valley residents appreciate today. Future sustainability was a term brought up often during the vision process, as it can refer to environmental sustainability and the region's own ability to sustain itself as an economic hub. Those two concepts are combined here as the green economy, with recommendations that would make the Tri-Valley a model for environmental stewardship and create new employment opportunities.

The Tri-Valley is already a leader in environmental sustainability efforts, with many Tri-Valley cities and employers having long-term climate action plans. The recommendations that follow will allow the Tri-Valley to continue to lead on innovations that will move the state and nation further down the path toward a greener economy.

PILOT RENEWABLE ENERGY MICROGRIDS AND BATTERY STORAGE THAT CAN PROVIDE ENERGY INDEPENDENCE

In addition to a pandemic and wildfires, 2020 also brought California more rolling blackouts—first as a result of high heat and next as a safety precaution due to high winds. The state's reliance on renewable energy likely creates scenarios where energy disruptions become the norm rather than one-off events, absent additional investments in storage. The Tri-Valley is already taking additional steps toward producing and storing renewable energy through the Aramis Renewable Energy Project, an approved large-scale solar energy and battery storage facility in North Livermore that will provide power to over 25,000 Bay Area households annually.

Tri-Valley leaders spoke at length about energy independence during the vision process. While moving entirely off the grid will require households to generate and store their own energy, the region's business parks and major employers should explore the use of microgrids and battery storage to take responsibility for their own energy provision.

Microgrids, like the one used at VMWare's headquarters in Palo Alto, allow users to disengage from the utility grid if needed by producing and storing their own electricity.

If enough Tri-Valley employers create their own microgrids and battery storage, the Tri-Valley could be the pilot zone for a more distributed energy future, whereby users are less reliant on utility-scale production and distribution. A pilot like this would also demonstrate the Tri-Valley's commitment to environmental resilience, as most microgrids are powered by renewable energy.

DOUBLE DOWN ON EFFORTS TO COMMERCIALIZE LAB RESEARCH WITHIN THE TRI-VALLEY

The two national laboratories give the Tri-Valley unmatched institutional research capability, and the labs have recognized that they can provide the seed for startup formation within the region. i-GATE has helped to build the startup ecosystem in the region to the point where researchers can feel more comfortable leaving the laboratory to branch out on their own to commercialize a new technology, and the labs allow researchers to return if new endeavors do not succeed commercially. There are strong examples of lab technologies being commercialized in the region. Yet, ideally there should be more. Long research processes and a researcher mindset that is traditionally different from an entrepreneur mindset are a few of the reasons that the flow of lab-connected startups is more of a drip than a constant flow.

More funding for the labs to mature technologies so that they become ready for spin-out can be a good first step to producing more startups in the region. Tri-Valley leaders should ensure their voice is heard—both in Sacramento and in D.C.—to bring more funding to the Department of Energy's Technology Commercialization Fund. Additionally, creating new pathways for startups to access the knowledge capital of researchers can provide new ways for lab technologies to be commercialized. Driving better understanding of public lab research initiatives within the local and regional entrepreneur and venture capital community may unlock new partnerships or licensing agreements that previously would not have occurred.

LEAD ON MOVING TOWARD A CARBON-NEUTRAL AND WATER-NEUTRAL FUTURE

Many of the pieces of the housing and transportation strategies outlined here will serve to lower greenhouse gas emissions, but future population and employment growth is likely to add to environmental pressures if not planned for in a strategic way. For example, more investments in water storage and conveyance in California will be a benefit for the Tri-Valley's future growth, but smarter water use overall can put the Tri-Valley on a sustainable path long beyond 2040. The region's water providers have advanced recycled water technology and succeeded in conservation efforts, and more work should be done to make certain aspects of the Tri-Valley's water system fully recycled.

The same is true for carbon emissions. Future growth could move closer to 100% carbon neutral, but more will need to be done to remove existing carbon from the atmosphere and limit emissions from other sources. The two national laboratories have scientists that are working to find ways to combat climate change through novel carbon sequestration technologies and by neutralizing carbon emissions in mechanical processes. The Tri-Valley can be the proving ground for new technologies, such as waste biomass conversion to forms that retain carbon dioxide rather than emit it and direct air capture of carbon dioxide that could then be converted to chemicals or fuels. With the laboratories' presence in the region, the Tri-Valley can be the geography where carbon-neutral and water-neutral technologies are developed and pioneered—and where job opportunities in the green economy flourish.

Call to Action

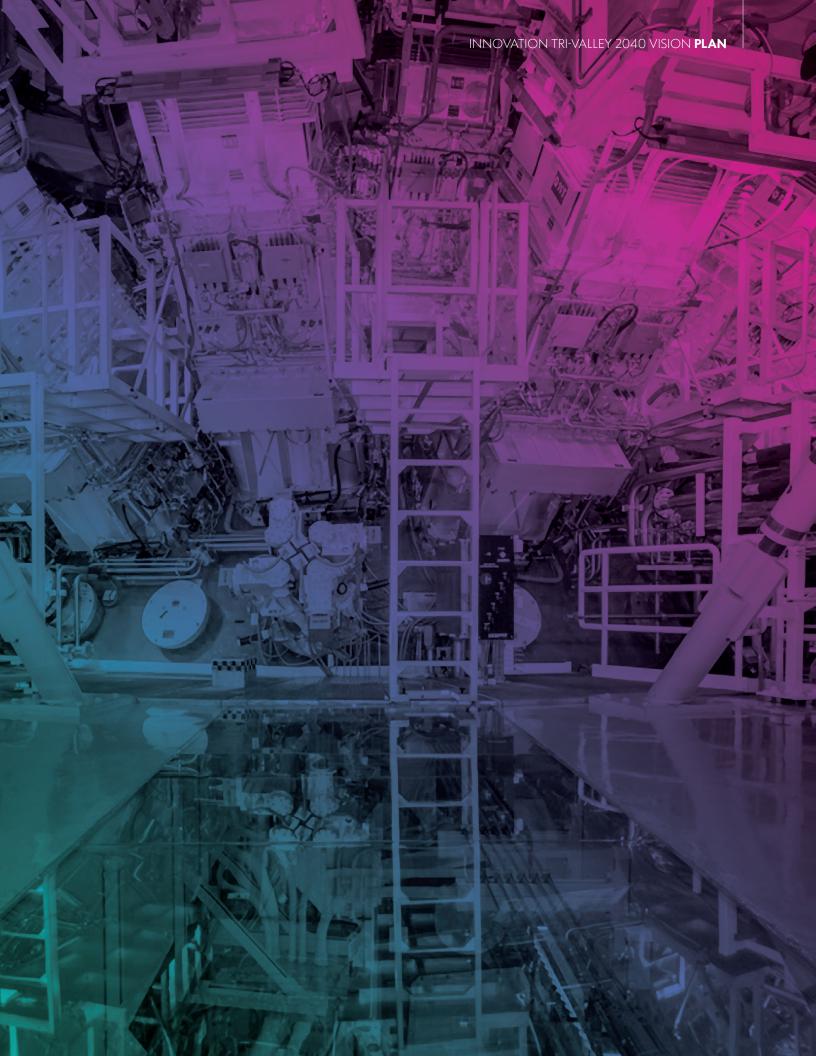
Positioned at the geographic center of the Northern California Megaregion, the Tri-Valley continues its ascendance as a thriving innovation economy. Widely heralded for its collaborative culture, empathy, and enviable work-life balance, the region delivers on its promise as the TRIVALLEY: The Heart of California Innovation. The 2040 Vision provides the framework to continue that ascendance.

The 2040 Vision is about more than just words on a page. The vision outlined here summarizes a year of stakeholder engagement and over 1,000 points of input. It is the roadmap that the Tri-Valley will use to guide its growth over the next 20 years. It blends bold, ambitious goals—that will require further refinement and additional planning to achieve—with relatively specific ideas where implementation actions can begin today or in the next few years.

Taking the 2040 Vision to the next step and putting its ideas into action will be incumbent upon the stakeholders of the region, led by the Innovation TRIVALLEY Leadership Group. For the 2040 Vision to become more than just another document released with fanfare with little follow through, the recommendations found here must be prioritized and implementation plans will need to be formulated. These ideas will need dedicated champions for them to move forward.

This document represents a successful first step that renewed energy around regional planning, pushed stakeholders to think about the long-term future, and engaged the next generation of leaders. The vision was created by the Tri-Valley and will be owned by the Tri-Valley going forward. The energy brought to this 2040 Vision process will need to be matched for parts of this vision to become a reality. The work is not done.

WORLD CLASS TALENT	CRITICAL CONNECTIONS	VIBRANT PLACEMAKING	OPPORTUNITY FOR ALL	GREEN ECONOMY
1. Lifelong Learning and Innovation Campus	7. Employer-Sponsored Transportation Management Associations	13. Embrace a "Housing for All" Approach by Finding Innovative Housing Opportunities	17. Initiate a Private Sector-Led Philanthropic Fund	Pilot Renewable Energy Microgrids and Battery Storage that can Provide Energy Independence
2. Tri-Valley Career Exploration Collaborative	8. Mobility Subscriptions & Fare Integration	14. Pioneer Affordable, Smart, Green, Walkable Communities Near Transit and in Downtowns	18. Civic Leadership Training Academy for Aspiring Elected Officials and Nonprofit Leaders	23. Double Down on Efforts to Commercialize Lab Research Within the Tri-Valley
3. Employer-Based Teacher Training	9. Express Bus Mobility Hub at Dublin/ Pleasanton BART	15. Plan for a New Tech / Light Industrial Park / Innovation Zone	19. Non-Tech Small Business Incubator	24. Lead on Moving Toward a Carbon- Neutral and Water- Neutral Future
4. Pilot Community College to Private Sector Pipeline	10. Integrate the Livermore Airport into the Transportation System	16. Increase Planning Coordination Across the Tri-Valley Cities	20. Solve the Digital Divide	
5. Create Seats on Local and Regional Commissions that are Dedicated to Young Leaders	11. Select and Invest in Key Corridors for Autonomous Vehicles		21. Embrace the Region's Healthcare Systems as a Key Strength	
6. Build a Research University Presence and Connect it to the National Laboratories	12. Build the Tri-Valley Brand Through Enhanced Marketing			



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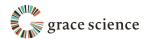


































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