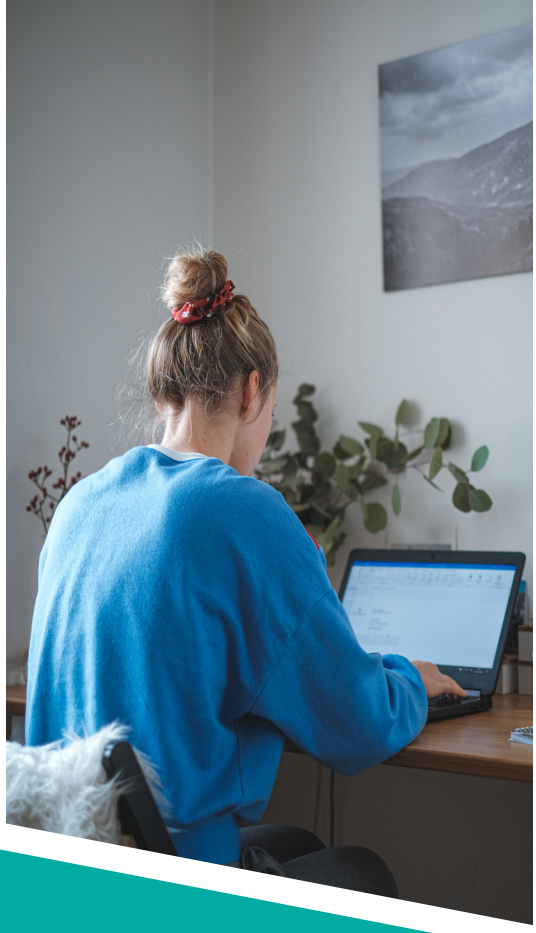

Remote Work in the Bay Area

An Initial Evaluation of the Data and Implications for Public Policy

December 2020

BAY AREA COUNCIL ECONOMIC INSTITUTE

About this Report

In light of the drastic shift to remote work as a result of the COVID-19 pandemic, this report provides a foundational analysis of remote work eligibility in the Bay Area. It also seeks to begin understanding the economic, equity, and environmental considerations surrounding a potential sustained increase in remote work adoption in the region.

This report was prepared by the Bay Area Council Economic Institute in partnership with the Bay Area Regional Collaborative (BARC). BARC is a consortium of regional government agencies in the nine-county Bay Area that work together to address the integrated issues of climate change, equity, air quality, and multi-modal, active transportation. BARC's membership consists of the Bay Area Air Quality Management District (BAAQMD), the Metropolitan Transportation Commission (MTC), the Association of Bay Area Governments (ABAG) and the San Francisco Bay Conservation and Development Commission (BCDC), in addition to three non-voting members: the State Coastal Conservancy, Caltrans District 4, and the San Francisco Bay Regional Water Quality Control Board.

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The authors wish to acknowledge the advisory committee that provided guidance and comments. The committee included representatives from BAAQMD, MTC, San Francisco Foundation, and Working Partnerships USA.

About the Bay Area Council Economic Institute

Since 1990, the Bay Area Council Economic Institute has been the leading think tank focused on the economic and policy issues facing the San Francisco 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. Through its economic and policy research and its many partnerships, the Institute addresses major factors impacting the competitiveness, economic development, and quality of life of the region and the state, including infrastructure, globalization, science and technology, and health policy.

It is guided by a Board of Advisors drawn from 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.

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Executive Summary

The opportunity for remote work to provide office workers with an alternative to commuting in their single-occupancy vehicles is not new. For example, on September 2, 1979, in response to the oil shortage of the 1970s, *The Washington Post* published an op-ed with the headline "Working at Home Can Save Gasoline." More than 40 years later, with remote work forced upon large swathes of the population due to the COVID-19 pandemic, that headline remains true but has taken on added meaning.

In the San Francisco Bay Area, the pandemic has collided with California's worst season for wildfires in its history. While the pandemic will eventually pass, climate change will continue to threaten the state—making solutions that limit greenhouse gas emissions paramount for the state's and region's future livability. With that backdrop, and the near overnight adoption of remote work by a large population of residents, remote work has once again emerged as a potentially important tool in reducing greenhouse gas emissions.

Planners and policymakers across the Bay Area are looking for ways to capture the potential environmental benefits of remote work while limiting its unintended consequences. In order to make sound decisions in policy and programs to support wider, long-term adoption of remote work, it is important to recognize the potential implications on local economies, public transit usage, and service jobs—with a social and racial equity lens across each of these areas.

What is missing from this conversation is a deep understanding of the data around remote work eligible occupations. While no model can predict the future uptake of remote work and it is impossible to disentangle the impacts of remote work from impacts related to the pandemic, much can be gleaned from understanding the population that could work remotely into the future. To that end, the Bay Area Council Economic Institute has partnered with the Bay Area Regional Collaborative to conduct this initial data collection and research to help lay a strong foundation for better understanding the opportunity and challenges around remote work.

This analysis finds that up to 45 percent of the jobs in the Bay Area are eligible to work remotely, equating to a total of 1.79 million remote eligible jobs in the region. Based on the location of employment, San Francisco County and Santa Clara County have the highest shares of remote work eligible jobs in the region, accounting for 51% of all jobs in each county. Napa, Solano, and Sonoma counties all have one-third or fewer of their jobs being remote eligible.

These numbers and the data presented herein do not represent the number of people working remotely today, or even those that have in the past or will in the future. Given that accessible data on work location is not real time, this analysis instead focuses on the occupations that could be completed remotely, offering an upper bound for potential remote work adoption. More importantly, this analysis seeks to use the available data to draw comparisons and highlight differences; it does not seek to definitively predict remote work uptake or frequency into the future.

As exemplified by the different levels of remote work potential across the nine counties of the region, the effects of more prevalent remote work will look different depending on geography and demographics, and they will be influenced by personal preferences and business strategies. Many of the impacts of remote work are still unknown and difficult to quantify, but this period of extended remote work does provide context to planners and policymakers that are attempting to optimize future outcomes related to the economy, the environment, and advancing greater social and racial equity.

This analysis outlines a number of different areas that should be considered if remote work becomes more prevalent over the next few decades—either via employee and business preference or by public policy.

Greenhouse gas emission effects

If each of the region's 1.79 million people employed in a remote eligible job worked outside of the office for just one day per week, over 1 million single-occupancy vehicle trips could be avoided each week—a reduction of 8% based on pre-COVID-19 travel. Reduced demand for commute trips will ease congestion for those that do travel, creating further emissions benefits. However, if households relocate to more dispersed locations in the region because they only need to be in the office a few days per week, more drivers could take to the roads for longer commutes between locations that are not currently connected by transit. In addition, if many households relocate to less transit and pedestrian-friendly locations, there could be a localized impact on the environment as people become more reliant on cars as a primary mode. Shifting travel behavior could also call for a re-prioritization of transportation investments away from commute trips to urban centers and toward local transit, bicycle, and pedestrian infrastructure.

Equity in opportunity for remote work

Remote work eligibility rises as average income increases. Prior to the pandemic, among those employed in the Bay Area in occupations with an average annual income below $40,000, only 6 percent were in occupations that are eligible for remote work. On the other end of the spectrum, among those employed in an occupation that has an average annual income over $150,000, 76 percent were employed in remote eligible occupations. There are also racial and ethnic inequities in the demographics of the pre-pandemic population employed in occupations eligible to work from home. Based on the pre-COVID-19 occupational makeup across the nine counties, 51 percent of the white workforce and 52 percent of the Asian workforce held a job in an occupation eligible for remote work, while 33 percent of the Black workforce and 30 percent of Latinx workforce in the region held a job in an occupation eligible for remote work. These racial disparities disadvantage the large parts of the population that are unable to enjoy the flexibility and commute time savings that remote work can offer.

Future of downtown commercial districts

In San Francisco, the Financial District (67 percent of total jobs are eligible for remote work) and SOMA (61 percent) show high remote work concentrations. In contrast, smaller commercial districts such as Downtown Napa (25 percent) and Downtown Vallejo (24 percent) have a smaller share of total jobs within remote eligible occupations. The potential for remote work to drive down daytime populations in downtown areas can impact the service economy, housing markets, and public transit usage.

Outmigration or a shift in housing preferences

It is impossible to disaggregate remote work effects from COVID-19 effects, and this is especially true when it comes to housing markets. Median rents have fallen by at least 20 percent year-over-year as of October 2020 in San Francisco, Mountain View, and Cupertino—all locations with a high percentage of jobs that could be done remotely. These drops in rental prices in these locations indicate their susceptibility to population decline driven by increased remote work. If remote workers begin to prefer housing in suburban locations, remote work could also alleviate some of the pressure on urban housing markets while simultaneously shifting affordability concerns to other parts of the region.

Disruption to the service sector

Of the 55% of workers in the Bay Area who hold occupations that are not eligible for remote work, many would be described as service sector employees. In dense urban areas, the service sector is dependent on the daytime office worker population and its spending. Within the 12 urban locations analyzed in this report, there are a total of 265,000 non-remote eligible jobs and a large share of them are in occupations that are directly connected to the size of the area workforce. This suggests that many service sector jobs in commercial districts could be at risk if the loss in daytime population is sustained. Alternatively, these jobs could migrate to local nodes, thereby supporting greater jobs-housing balance in the region. However, the geography of jobs is difficult to predict going forward.

Transit revenue impact

Among remote eligible workers in the Bay Area, 265,000 (or 15 percent of all remote eligible workers) take transit to work, while 1.1 million workers (or 62 percent) drive alone. The remaining 411,000 remote eligible workers commute via carpool, on bike, walking, or they already work from home. While remote work could eliminate a larger number of car trips, it could also reduce transit ridership. Trips to San Francisco could be particularly impacted, as almost half of the jobs in San Francisco that are remote eligible are filled by workers that take transit, equating to 183,000 daily transit riders. The top stations for morning exits for both BART (Montgomery Street and Embarcadero) and Caltrain (San Francisco, Palo Alto, and Mountain View) all are located in zip codes with high percentages of remote work eligible occupations.

This study is meant to provide an initial step in better understanding the population that could work remotely into the future. Surveys of employers and employees are needed to supply more nuance into the potential uptake and frequency of remote work. Research

1

Introduction

COVID-19 has created a monumental shift in the way regions around the world are functioning. One of the most stunning changes has been the rapid adoption of remote work. As person-to-person contact has been replaced by digital interaction, bedrooms, living rooms, and dining rooms across the globe have transformed into workspaces, classrooms, and even doctor's offices. With work-related travel reduced, many regions have reported healthier air quality and reduced congestion on roadways.[1] On the flip side, more workers are juggling at-home responsibilities with work, leading to productivity loss, mental health issues,[2] and a drop in labor force participation among women.[3]

In the San Francisco Bay Area region, an increased level of remote work has long been considered as a possible tool to break the region's gridlock and reduce greenhouse gas emissions from single-occupancy vehicles.[4] With COVID-19 proving that work-from-home can be viable for many, there is renewed interest in how the region can plan for greater prevalence of remote work going forward. However, consensus has not been reached on remote work's long-term viability as a solution for workers, employers, and regional planners; rather it has become the topic of intense conversation with opinions on all sides—some believe remote work will be here to stay, while others point to its limitations.

Many of the impacts of remote work are still unknown and difficult to quantify, but this period of extended remote work does provide a lens into potential impacts on the economy, housing preferences, and the interdependence of economic sectors. While it is impossible to disaggregate which of today's observed impacts of remote work are uniquely influenced by COVID-19 and which effects of remote work will endure regardless of pandemic conditions, it is clear that remote work has positives and negatives that must be considered in local and regional planning discussions.

From a planning perspective, the major benefit of expanded remote work is the potential to reduce commute congestion, thus reducing greenhouse gas (GHG) emissions. Reducing the number of people driving alone to work—referred to herein as single-occupancy-vehicle commuters—is a top priority among planners in meeting GHG emission reduction goals, and remote work could provide a path toward achieving these environmental goals. However, research surrounding the emissions impacts of expanded remote work is mixed. There are positive reports, but the overall impact of remote work on GHG emissions is inconclusive. Some studies that account for factors such as increased non-work travel and home energy use have found remote work to have a neutral or negative impact on overall energy use.[5]

The Current State of Remote Work

As of September 2020, the Bureau of Labor Statistics estimates that 23 percent of the national workforce is primarily working from home as a result of the pandemic, a number that is down from more than 40 percent in the immediate aftermath of shelter-in-place restrictions. These numbers represent a seismic shift in the number of people working from home.

Looking backward in the Bay Area, the share of people who reported primarily working from home grew from 3.4 percent in 1990 to 6.4 percent in 2018.[6] In addition to those who primarily work from home, there are also many workers who take advantage of remote work a few times per month or several days out of the week. Research from the Society for Human Resource Management confirms pre-pandemic adoption of partial remote work among the white-collar workforce, finding that 59 percent of firms surveyed in 2017 offered employees the opportunity to work remotely on an ad-hoc basis, up from 54 percent in 2014.[7] The flexibility of remote work is also highly valued, as a survey conducted by PwC found that 72 percent of office workers would like to work remotely at least two days per week.[8]

During the pandemic, employee and business opinions on remote work have been far from unanimous. Research conducted by McKinsey and Company found that 80 percent of people enjoy working from home.[9] However, many respondents also cited reduced productivity and more procrastination compared to a traditional office setting. Commonly referenced benefits of remote work include improved balance between personal and professional life as a result of a more flexible schedule, liberation from long commutes, and lower levels of work-related stress. On the other end of the spectrum, people in smaller living spaces, people in households with multiple remote workers or learners, and those faced with housing or broadband instability are less enthusiastic about permanent remote work.

Opinions on how remote work should be approached in the long-term also differ across the business community. Perceived business benefits include access to expanded talent, lower employee turnover, and reduced real estate costs. Some companies believe adopting a long-term remote work strategy is essential to retaining employees who have come to prefer access to remote work. Zillow is one example of a company that has committed to extending remote work after it is safe to return to the office. Their executive team has done extensive planning around post-pandemic remote work, and through that work found that just 2 percent of employees want to come back to the office five days per week.[10]

On the reverse side, Netflix is an example of a company that has outwardly expressed negativity toward long-term remote work, with CEO Reed Hastings stating that remote work is "a pure negative" and that he expects all Netflix employees to be back in the office once a vaccine is developed.[11] Hastings also noted that he imagines a future that favors office work over remote work, but expects most companies to have some flexibility, predicting most will adopt a four-to-one weekly split between office work and remote work.

Commercial real estate decisions are another indication of how the business community is envisioning remote work in the long-term. Notably, Google expanded its footprint in downtown San Francisco, leasing an additional 42,000 square feet during the pandemic despite plans to allow their employees to work from home until at least July 2021.[12] Google is also still moving forward with San Jose and Mountain View office expansion plans. Despite some individual company decisions such as this that favor retaining office space, San Francisco office vacancy rates reached 14 percent in September 2020, the highest level in almost a decade.[13]

Methodology & Study Limitations

The analysis that follows does not seek to predict the prevalence and level of remote work going forward. This analysis was conducted with the goal of better understanding the data around remote work—focusing on the occupations that could be done remotely in the nine-county Bay Area, while providing an understanding of what remote work at various scales of permanence could mean for the region.

This analysis uses a methodology that analyzes characteristics of job behavior by occupation to understand what share of regional jobs could be done remotely. Categorization by occupation was used to measure remote work eligibility because we believe the physical and structural characteristics of each occupation are the best indicators of whether or not a worker could complete their job function remotely.

In reality, multiple factors play into a worker's ability, desire, or preference to work remotely. Access to a stable living environment that has the space and technical capacity to accommodate working from home, personal preference toward remote work, employer policies surrounding remote work, and family responsibilities within the home, among others, influence an individual's ability to work remotely. However, these external factors do not entirely preclude someone from the ability to perform their job function remotely, making them inconsistent predictors of who will work remotely in the future; alternatively, we can be relatively certain that a construction worker cannot work from home based on job function alone. As such, occupation gives us the best measure of the workforce that is potentially able to work remotely.

All data presented herein is based on pre-pandemic job location. Please see Appendix A for more detail on the methodology used.

2

Quantifying the Bay Area's Remote Eligible Jobs

Remote Work Eligibility by Job Location

Counties in bold are included in the nine-county Bay Area

	Share of Jobs Remote Eligible	Remote Eligible Jobs
San Francisco County	**51%**	**391,248**
Santa Clara County	**51%**	**569,941**
San Mateo County	**47%**	**195,218**
Bay Area	45%	1,789,622
Sacramento County	40%	274,133
Alameda County	**40%**	**316,655**
San Diego County	39%	580,670
Orange County	39%	642,799
Marin County	**39%**	**45,013**
Contra Costa County	**38%**	**140,781**
Los Angeles County	38%	1,708,733
Sonoma County	**32%**	**67,926**
Fresno County	30%	120,780
Solano County	**29%**	**40,988**
Napa County	**26%**	**20,903**

Data: Emsi Occupation Data 2019

Note: In the Emsi data, if an occupation category for a specific geography has under 10 jobs it is reported as "<10" but the exact number is not reported. As a result, the sum of all nine counties remote eligible jobs does not sum to the overall Bay Area number of remote eligible jobs. This is due to scenarios in which the nine counties collectively have over 10 jobs in an occupation category, while the individual counties do not all have over 10 jobs in the same category.

This analysis finds that up to 45 percent of the jobs in the Bay Area are eligible for remote work, equating to a total of 1.79 million remote eligible jobs in the region. The nine Bay Area counties together have about the same number of remote eligible jobs as Los Angeles County (1.70 million), but the region has a larger share of the total workforce remote eligible compared to other geographies. San Francisco County and Santa Clara County have the highest shares of remote work eligible jobs in the region, accounting for more than half of all jobs in each county. *Given the limitations of this analysis presented earlier, these numbers are high bounds for expectations for the future level of remote work (and are calculated at the pre-pandemic job mix).*

The majority of the remote eligible jobs in the Bay Area are within the professional services sector. Within office and administrative support occupations there are 347,000 remote eligible jobs, the most out of any occupation category. Computer and Mathematical Occupations (306,000), Business and Financial Operations Occupation (278,000), and Management Occupations (271,000) similarly have a large number of remote eligible jobs and tend to be in the professional sector. The top four categories in the table on the following page combine to comprise more than two-thirds of all remote work eligible jobs in the region.

Remote Work Eligibilty by Occupation

Occupation	Total Remote Jobs
Office and administrative support occupations	346,931
Computer and mathematical occupations	306,070
Business and financial operations occupations	277,859
Management occupations	271,388
Education, training, and library occupations	201,947
Sales and related occupations	129,879
Architecture and engineering occupations	75,229
Arts, design, entertainment, sports, and media occupations	53,333
Legal occupations	35,524
Personal care and service occupations	34,444
Life, physical, and social science occupations	31,946
Community and social services occupations	17,517
All other occupations	7,555
Total	**1,789,622**

Data: Emsi Occupation Data 2019

Characteristics of the Remote Work Eligible Workforce

As average income increases, the share of workers eligible to work from home rises. Among those employed in the Bay Area prior to the pandemic, those holding occupations with an average annual income below $40,000, only 6 percent were employed in remote eligible occupations. On the other end of the spectrum, among those employed in an occupation that has an average annual income over $150,000, 76 percent were eligible for remote work.

There are also racial and ethnic inequities in the share of workers eligible to work from home. Across the nine counties, 51 percent of the white workforce (838,000 people) were employed in eligible occupations prior to the pandemic, while only 33 percent of Black workforce (83,000 people) and 30 percent (279,000 people) of Latinx workforce in the region were employed in occupations eligible for remote work. Lastly, remote work is slightly more accessible for females than males. Among females employed in the Bay Area, 48 percent were employed in remote work eligible jobs compared to 42 percent of males.

Demographic Data of Workers Employed in Remote Work Eligible Jobs

	Remote Work Eligible	Not Remote Work Eligible	Total
Total	1,789,622	2,219,774	4,009,396
%	45%	55%	100%
Race/Ethnicity			
White	838,221	820,667	1,658,888
%	51%	49%	100%
Black	82,977	168,141	251,117
%	33%	67%	100%
American Indian or Alaska Native	3,928	6,747	10,675
%	37%	63%	100%
Asian	531,029	488,549	1,019,578
%	52%	48%	100%
Native Hawaiian or Other Pacific Islander	6,697	14,789	21,487
%	31%	69%	100%
Two or More Races	46,975	57,699	104,674
%	45%	55%	100%
Hispanic or Latino	278,658	659,640	938,298
%	30%	70%	100%
Average Annual Income			
< $40,000	77,299	1,170,607	1,247,906
	6%	94%	100%
$40,001-$60,000	366,006	520,755	886,761
	41%	59%	100%
$60,001-$80,000	332,580	216,021	548,601
	61%	39%	100%
$80,001-$100,000	312,569	94,559	407,128
	77%	23%	100%
$100,001-$150,000	528,401	161,936	690,336
	77%	23%	100%
> $150,001	172,767	55,896	228,663
	76%	24%	100%
Home Location			
Bay Area Residents	1,696,867	2,089,208	3,786,075
	45%	55%	100%
Net Commuters	92,751	130,383	223,134
	42%	58%	100%
Age			
14-18	7,663	49,139	56,801
	13%	87%	100%
19-21	27,537	102,257	129,795
	21%	79%	100%
22-24	71,853	131,066	202,920
	35%	65%	100%
25-34	460,526	507,635	968,162
	48%	52%	100%
35-44	456,514	470,649	927,163
	49%	51%	100%
45-54	389,098	451,762	840,860
	46%	54%	100%
55-64	278,623	362,629	641,252
	43%	57%	100%
65+	96,772	141,686	238,458
	41%	59%	100%
Gender			
Male	881,360	1,223,968	2,105,327
	42%	58%	100%
Female	908,227	995,579	1,903,806
	48%	52%	100%

Note: Data does not always sum to total due to occupations with under 10 employees in a demographic category not reporting exact number.
Data: Emsi Occupation Data 2019
Analysis: Bay Area Council Economic Institute

Commute Patterns of the Bay Area's Remote Eligible Workforce

Among the remote eligible workforce in the Bay Area, 265,000 (or 15 percent of all remote eligible workers) take transit to work, while 1.1 million workers (or 62 percent) drive alone. Fewer people who are not eligible to work from home take transit, with 206,000 (or 9 percent of all who cannot work from home) commuting using transit, and 1.5 million (69 percent) driving alone. This breakdown of how people get to work, herein referred to as mode share, and home location of each county's remote eligible workforce varies widely, revealing that different parts of the region stand to experience more drastic changes as a result of higher levels of sustained remote work. The differences across counties have implications for economic activity, changes in GHG emissions, and equity in employment opportunities.

San Francisco County stands out as particularly different than other counties in the region. Almost half of the jobs in San Francisco that are remote eligible are filled by workers that take transit, equating to 183,000 daily transit riders or 69 percent of remote eligible transit riders in the entire region. No other county comes close in terms of number of remote eligible transit riders. The next highest number is in Santa Clara County, with only 35,000 or 13 percent of the region's remote eligible transit riders.

San Francisco County also has the largest share of its remote eligible jobs held by workers living outside the county, with only 53 percent both living and working in San Francisco. San Mateo has a similar share of in-commuters within their remote eligible occupations, with 54 percent both living and working in the county. The other seven counties have larger percentages of their remote-eligible workers that both live and work in the county. The charts on the following pages provide percentages within only the remote eligible category of occupations.

Alameda County

316,655

jobs are remote eligible.

40 percent

of countywide jobs are remote eligible.

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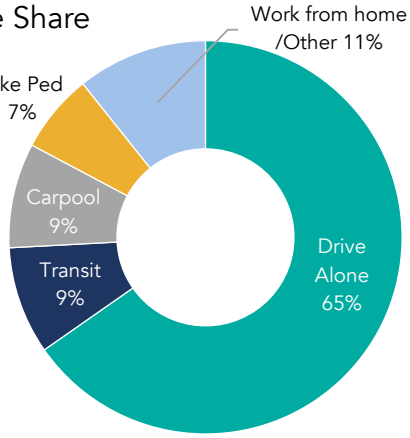

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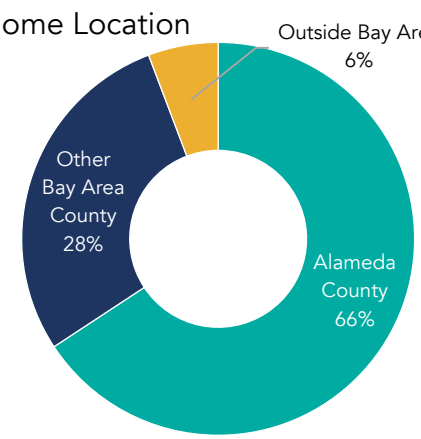

Contra Costa County

140,781

jobs are remote eligible.

38 percent

of countywide jobs are remote eligible.

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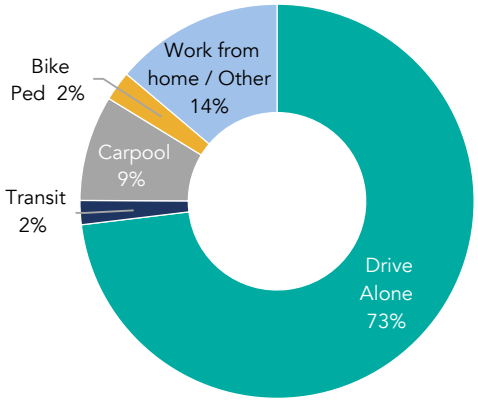

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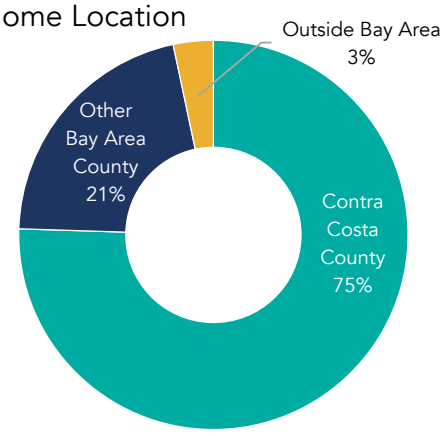

Marin County

45,013

jobs are remote eligible.

39 percent

of countywide jobs are remote eligible.

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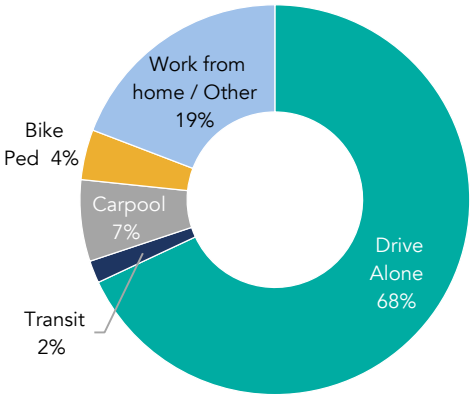

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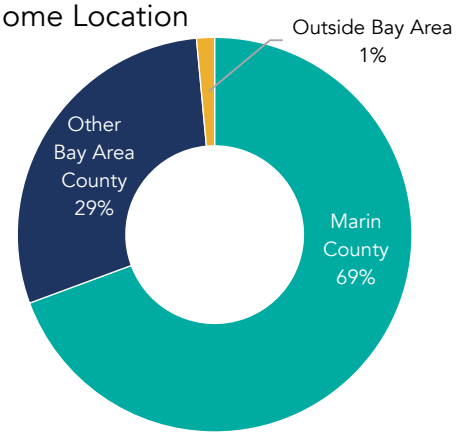

Napa County

20,903

jobs are remote eligible.

26 percent

of countywide jobs are remote eligible.

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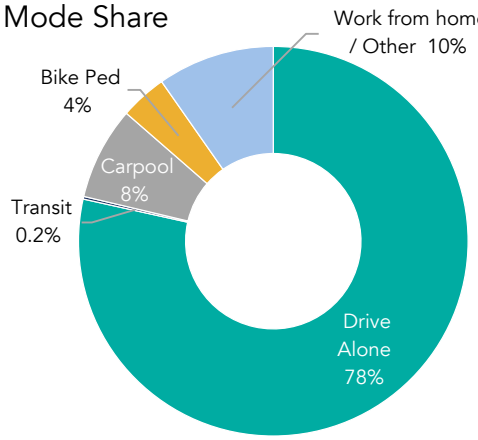

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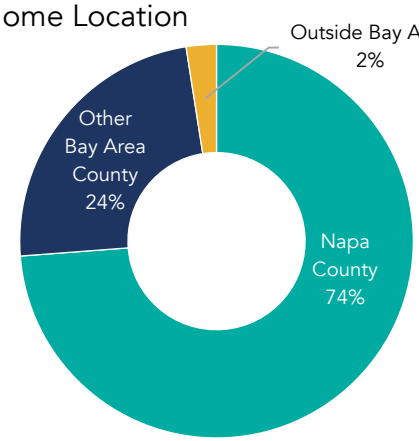

San Francisco County

391,248

jobs are remote eligible.

51 percent

of countywide jobs are remote eligible.

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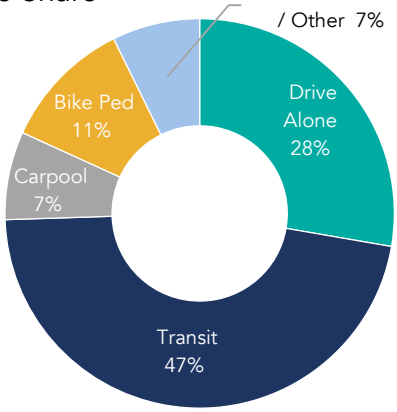

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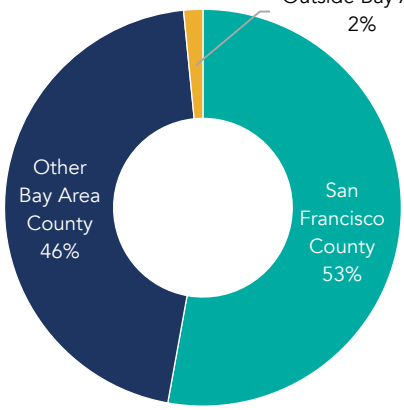


San Mateo County

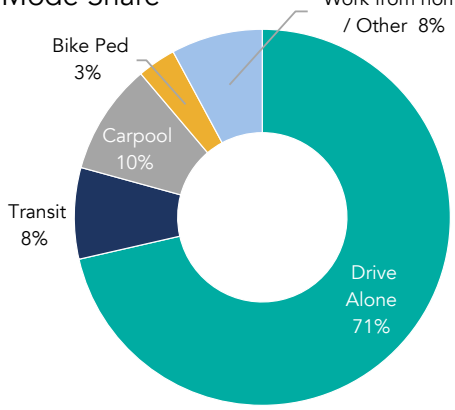
195,218

jobs are remote eligible.

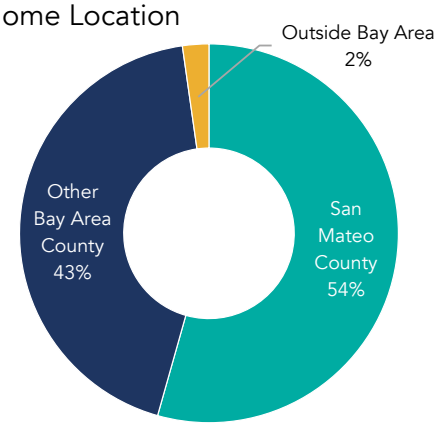
47 percent

of countywide jobs are remote eligible.

Mode Share



Home Location



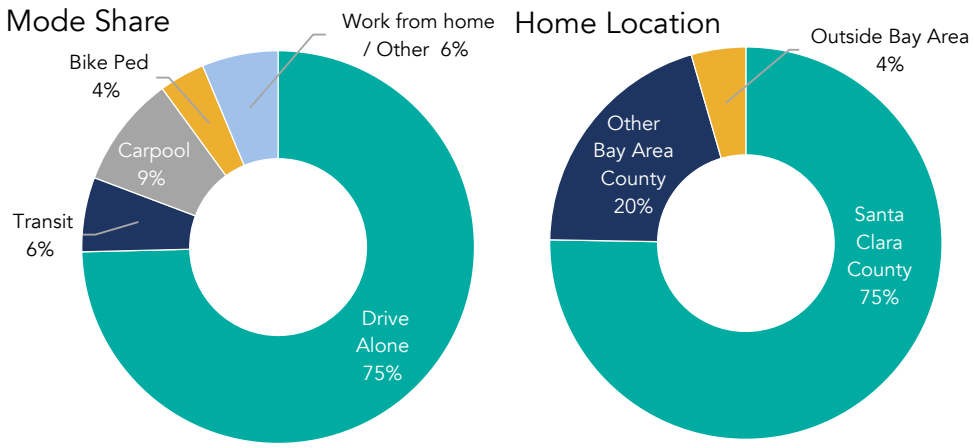
Santa Clara County

569,941

jobs are remote eligible.

51 percent

of countywide jobs are remote eligible.



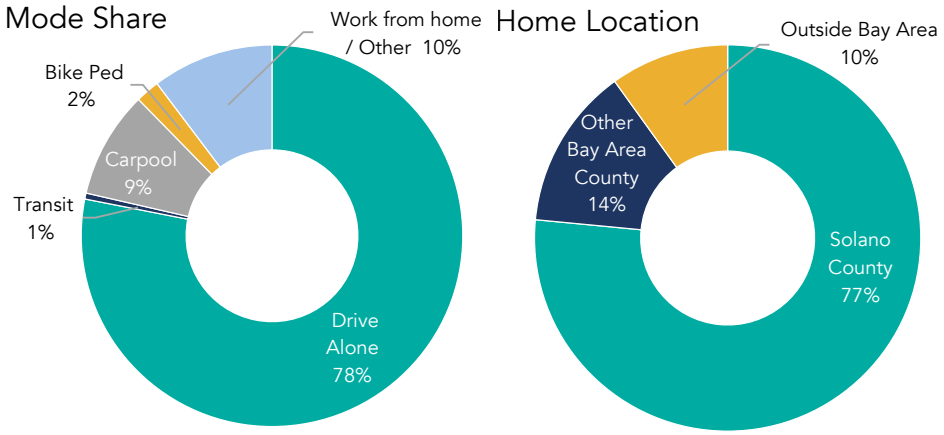
Solano County

40,988

jobs are remote eligible.

29 percent

of countywide jobs are remote eligible.



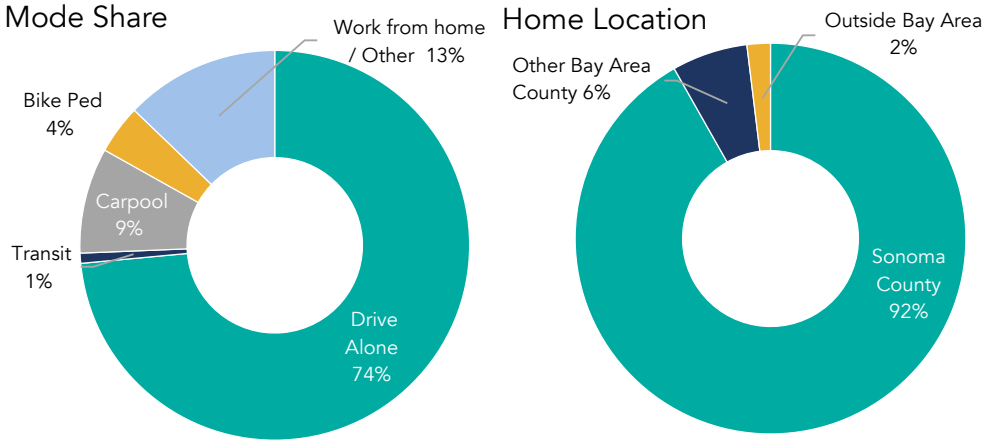
Sonoma County

67,926

jobs are remote eligible.

32 percent

of countywide jobs are remote eligible.



3

Data Insights on the Potential Impacts of Increased Remote Work Adoption

The following section presents additional data that helps shed light on the potential impacts of increased remote work based on varying scales of adoption. The information presented in this section does not predict what the scale of adoption will be among those workers with the ability to perform their occupation from home, but it does focus on changes that have occurred or could occur as a result of increased remote work.

Change in commute travel

A greater prevalence of remote work will cause a reduction of commute travel demand in the region. This reduction will depend on how many and how frequently those employed in eligible jobs choose to work from home and how the region's job makeup in terms of location and occupation changes following the pandemic. If all of the pre-pandemic eligible workers spend 100 percent of their week working remotely, it would result in a 47 percent decrease in regionwide commute travel. However, that scenario of full-time remote work adoption by all who are employed in remote eligible jobs is highly unlikely.

The first chart on the following page shows how much regional commutes will differ from pre-COVID-19 levels based on the frequency of remote work adoption. For example, if everyone who is eligible works at home three days out of the week (or 60 percent of their time) commutes would fall by 28 percent across all modes. Commutes would fall by the same amount if 60 percent of the eligible workforce worked from home every day.

Remote work adoption may also vary by commute mode, and the corresponding reductions in commutes are shown in the table on the following page. For example, if the 1.1 million remote eligible single-occupancy-vehicle commuters all worked from home, it would result in a 47 percent reduction in job-days among people who commuted in single-occupancy-vehicles pre-COVID-19, corresponding to a decrease of 5.6 million in-person job-days among single-occupancy-vehicle commuters each week. Similarly, if all remote eligible transit riders adopted remote work full-time it would result in a 55 percent decrease in transit commuters, corresponding to a decrease of 1.3 million in-person job-days among transit commuters each week.

Pre-COVID travel mode demand by establishment size is unknown; however, the share of overall reduction in job-days attributable to each establishment size category can be determined. For example, of the 47 percent decrease in commutes that would result from all

eligible workers in the region working from home full-time, nearly two-thirds would be a result of employees who work at establishments with over 50 employees not traveling to work. Smaller companies with less than 20 employees would only drive one-quarter of the overall reduction in commutes. The table on the following page shows this calculation at varying levels of remote work adoption and establishment size.

Examining remote work eligibility alongside station ridership shows how remote work could impact transit commute demand in particular. The most popular morning destinations among weekday transit riders are in locations with a high concentration of remote eligible jobs.

Embarcadero and Montgomery Street BART stations together account for 44 percent of systemwide average AM weekday station exits for BART. These two stations are both located in zip codes with a considerably higher share of remote eligible jobs, compared to the region as a whole. In the zip code where Embarcadero station is located, 67 percent of total jobs are remote eligible, while Montgomery Street station is in a zip code where 74 percent of the total jobs are remote eligible. Similarly, the top three morning destinations among Caltrain riders account for 65 percent of the system's total AM ridership, and all three are located in zip codes with a high share of total jobs that are remote eligible.

On a regionwide scale up to 45 percent of jobs are remote eligible, thus these stations are providing access to geographies that have a high concentration of remote eligible jobs. This reveals the importance of these stations to BART and Caltrain's respective systemwide ridership, and the potential for the sustained adoption of remote work to significantly impact the priority destinations across these transit agencies.

Bay Area weekly job-days reduction by mode, based on scale of remote work adoption

Mode	Total Remote Jobs	Weekly Remote Job-Days				
		5 out of 5 days (or 100%)	*4 out of 5 days (or 80%)*	*3 out of 5 days (or 60%)*	*2 out of 5 days (or 40%)*	*1 out of 5 days (or 20%)*
Drive Alone	1,111,800	5,559,000	4,447,200	3,335,400	2,223,600	1,111,800
Transit	265,715	1,328,575	1,062,860	797,145	531,430	265,715
Other	411,157	2,055,785	1,644,628	1,233,471	822,314	411,157
Total	**1,788,672**	**8,943,360**	**7,154,688**	**5,366,016**	**3,577,344**	**1,788,672**
In-person job-days reduction among:						
Single occupancy vehicle commuters	-	-41%	-33%	-25%	-17%	-8%
Transit commuters	-	-55%	-44%	-33%	-22%	-11%
All other mode commuters	-	-63%	-51%	-38%	-25%	-13%
Total reduction in-person job-days ***(Share of weekly pre-COVID in-person job-days lost)***	**-**	**-47%**	**-38%**	**-28%**	**-19%**	**-9%**

Data: Emsi Occupation Data 2019
Note: Pre-COVID in-person job-days calculated using total jobs minus those already working from home pre-COVID based on ACS 2018 1-year estimates.

Bay Area weekly job-days and commute travel reduction by establishment size, based on scale of remote work adoption

Establishment Size	Total Remote Jobs	Weekly Remote Job-Days				
		5 out of 5 days (or 100%)	*4 out of 5 days (or 80%)*	*3 out of 5 days (or 60%)*	*2 out of 5 days (or 40%)*	*1 out of 5 days (or 20%)*
<20 Employees	405,542	2,027,710	1,622,168	1,216,626	811,084	405,542
20-49 Employees	273,347	1,366,735	1,093,388	820,041	546,694	273,347
50+ Employees	1,109,783	5,548,915	4,439,132	3,329,349	2,219,566	1,109,783
Total	**1,788,672**	**8,943,360**	**7,154,688**	**5,366,016**	**3,577,344**	**1,788,672**
Share of in-person job-day reduction at:						
Establishments with <20 employees		-11%	-9%	-6%	-4%	-2%
Establishments with 20-49 employees		-7%	-6%	-4%	-3%	-1%
Establishments with 50+ employees		-29%	-23%	-17%	-12%	-6%
Total reduction in-person job-days ***(Share of weekly pre-COVID in-person job-days lost)***	-	**-47%**	**-38%**	**-28%**	**-19%**	**-9%**

Data: Emsi Occupation Data 2019
Note: Pre-COVID in-person job-days calculated using total jobs minus those already working from home pre-COVID based on ACS 2018 1-year estimates.

Top three rail transit stations by AM exits and remote work eligibility

	Share of jobs in zip code of station that are remote eligible	Average weekday AM station exits	Percent of system's total AM ridership
BART: Top three stations by AM exits			
Embarcadero	67%	35,692	22%
Montgomery Street	74%	34,747	22%
Civic Center	42%	14,770	9%
Caltrain: Top three stations by AM exits			
San Francisco	57%	9,692	37%
Palo Alto	52%	4,854	19%
Mountain View	60%	1,978	8%

Data: Emsi Occupation Data 2019; BART Jan 2020 Average Weekday Exits between 6am and 12pm; Caltrain Average Mid-week Morning Peak Passenger Activity 2019

Remote eligible jobs by establishment size and geographic location

The remote work potential in prominent Bay Area commercial districts varies considerably by city. In San Francisco, the Financial District (67 percent of total jobs are eligible for remote work) and SOMA (61 percent) show higher concentrations in comparison to other areas studied. These two San Francisco locations also top the list in terms of the sheer number of remote eligible jobs, with a combined total of 164,000 eligible jobs. In contrast, smaller commercial districts such as Downtown Napa (25 percent) and Downtown Vallejo (24 percent) have a smaller share of total jobs within remote eligible occupations.

The region's commercial districts also vary in terms of the business sizes most likely to have remote eligible occupations. The top eight selected locations in the chart below with the largest number of remote eligible jobs all have over half of the eligible workforce employed at establishments with 50 or more employees. In less dense locations like Santa Rosa, San Rafael, and Berkeley, the opposite is true and more of the remote eligible jobs are within smaller employers. This difference in the concentration of eligible jobs by establishment size shows that policies enacted by or impacting larger employers only are likely to have the biggest impacts on the daytime population in the region's major urban and commercial areas.

Remote eligible jobs by establishment size in select office worker dependent commercial districts

			Remote eligible jobs by establishment size									
			Number					Percent				
	Total remote eligible jobs	Percent of total jobs remote eligible	<20	20-49	50-99	100-249	250+	<20	20-50	50-99	100-249	250+
SOMA	107,575	67%	13,487	14,225	12,498	20,851	46,514	13%	13%	12%	19%	43%
Financial District	56,923	61%	8,790	8,768	9,768	11,870	17,727	15%	15%	17%	21%	31%
Downtown Oakland	39,998	56%	8,585	7,164	5,659	6,236	12,354	21%	18%	14%	16%	31%
San Ramon	20,043	54%	4,171	2,758	2,245	3,094	7,776	21%	14%	11%	15%	39%
Downtown San Jose	18,838	53%	4,275	3,790	2,751	3,905	4,117	23%	20%	15%	21%	22%
Redwood City	18,060	52%	2,725	2,434	1,630	3,050	8,221	15%	13%	9%	17%	46%
Emeryville	13,539	50%	2,266	2,212	1,811	2,718	4,533	17%	16%	13%	20%	33%
Walnut Creek	12,289	40%	2,854	2,445	2,106	1,971	2,913	23%	20%	17%	16%	24%
Santa Rosa Central Business District	12,073	40%	4,571	2,722	1,951	1,562	1,267	38%	23%	16%	13%	10%
San Rafael	7,938	35%	2,950	2,011	1,396	1,581	-	37%	25%	18%	20%	0%
Berkeley	7,838	42%	3,368	2,270	1,645	555	-	43%	29%	21%	7%	0%
Downtown Napa	3,773	25%	1,233	966	731	844	-	33%	26%	19%	22%	0%
Downtown Vallejo	2,668	24%	923	647	379	290	428	35%	24%	14%	11%	16%
Total Selected Area	**321,555**	**55%**	**60,198**	**52,412**	**44,568**	**58,526**	**105,851**	**19%**	**16%**	**14%**	**18%**	**33%**

Data: Emsi Occupation Data 2019; Census Bureau Zip Code Business Patterns; EDD Size of Business Data

Remote eligible jobs by establishment size in Bay Area counties

			Remote eligible jobs by establishment size									
			Number					Percent				
	Total remote eligible jobs	Percent of countywide jobs remote eligible	<20	20-49	50-99	100-249	250+	<20	20-50	50-99	100-249	250+
Santa Clara	569,941	51%	111,570	77,440	64,330	78,727	237,874	20%	14%	11%	14%	42%
San Francisco	391,248	51%	87,208	53,504	45,906	51,864	152,766	22%	14%	12%	13%	39%
Alameda	316,655	40%	74,111	52,312	40,308	50,995	98,929	23%	17%	13%	16%	31%
San Mateo	195,218	47%	42,145	29,801	24,661	29,006	69,605	22%	15%	13%	15%	36%
Contra Costa	140,781	38%	38,831	25,778	20,564	24,799	30,809	28%	18%	15%	18%	22%
Sonoma	67,926	32%	21,396	14,190	10,650	11,373	10,317	31%	21%	16%	17%	15%
Marin	45,013	39%	14,668	8,829	6,592	6,980	7,944	33%	20%	15%	16%	18%
Solano	40,988	29%	10,267	7,450	6,578	6,702	9,988	25%	18%	16%	16%	24%
Napa	20,903	26%	5,346	4,042	3,762	3,942	3,810	26%	19%	18%	19%	18%
Bay Area	**1,788,672**	**45%**	**405,542**	**273,347**	**223,351**	**264,388**	**622,042**	**23%**	**15%**	**12%**	**15%**	**35%**

Data: Emsi Occupation Data 2019; EDD Size of Business Data

Quantifying the impact of remote work on service industry and security occupations

Remote work's impacts are not just on the people able to work from home; they also affect jobs and businesses reliant on the presence of office workers and their spending. Jobs in occupations such as Food Preparation and Serving, Office and Administrative Support, Building and Grounds Cleaning Maintenance, Personal Care and Service, and Protective Services are vulnerable in the event the daytime population of major commercial districts does not rebound to pre-pandemic levels. In San Francisco, the Financial District has 16,000 jobs in those four occupation categories and SOMA has 19,000 total jobs in those occupations.

The long-term impact of remote work on employment in these occupations across the region is unknown. Employment within Food Preparation and Personal Care and Services could shift to suburban locations that have an increased daytime population as a result of more people working from home. Or spending patterns could shift in general as people work from home, causing a decline in employment within these categories. As these non-remote eligible jobs are disproportionately filled by people of color, loss of employment in these occupation categories could excessively burden communities of color with job losses.

Office and Administrative Support; Building, Grounds Cleaning and Maintenance; and Protective Service jobs do not have the same potential to shift geographically and will likely be less necessary in the event of long-term increased remote work. For example, there are over 3,800 security guards employed across the two San Francisco locations examined, jobs that are unlikely to be supported at that level if there is a permanent and major shift in the number of office workers present in the city.

In commercial districts in other locations across the region, the occupation makeup of non-eligible jobs differs from that of San Francisco. In the selected locations in the East Bay and South Bay, Food Preparation and Serving Related occupations still

Non-remote jobs in office worker dependent locations in San Francisco

	Financial District		SOMA	
	Number of Jobs	Percent of Total Jobs	Number of Jobs	Percent of Total Jobs
Food Preparation and Serving Related Occupations	7,759	8%	7,986	5%
Sales and Related Occupations	4,432	5%	3,069	2%
Transportation and Material Moving Occupations	3,637	4%	11,208	7%
Office and Administrative Support Occupations	2,831	3%	4,221	3%
Construction and Extraction Occupations	2,469	3%	2,991	2%
Building and Grounds Cleaning Maintenance Occupations	2,362	3%	3,678	2%
Protective Service Occupations	1,963	2%	2,564	2%
Installation, Maintenance, and Repair Occupations	1,880	2%	2,656	2%
Personal Care and Service Occupations	1,399	2%	1,055	1%
All Other Occupations	7,269	8%	12,471	8%
Total Non-Eligible Jobs	36,001	39%	51,900	32%

Data: Emsi Occupation Data 2019

account for a considerable share of the non-eligible jobs in the four locations analyzed. However, jobs in other occupations dependent on office workers, such as Office and Administrative Support, Building and Grounds Cleaning and Maintenance, Personal Care and Services, and Protective Services, are not as prominent as in San Francisco.

Non-remote jobs in office worker dependent locations in the East Bay

	Oakland		San Ramon	
	Number of Jobs	Percent of Total Jobs	Number of Jobs	Percent of Total Jobs
Food Preparation and Serving Related Occupations	5,497	8%	2,575	7%
Transportation and Material Moving Occupations	5,451	8%	2,184	6%
Healthcare Support Occupations	3,514	5%	1,764	5%
Sales and Related Occupations	1,920	3%	1,443	4%
Healthcare Practitioners and Technical Occupations	1,776	3%	1,416	4%
Construction and Extraction Occupations	1,563	2%	898	2%
Office and Administrative Support Occupations	1,527	2%	1,428	4%
Installation, Maintenance, and Repair Occupations	1,429	2%	1,332	4%
Production Occupations	1,158	2%	817	2%
All Other Occupations	7,062	10%	3,334	9%
Total Non-Eligible Jobs	30,898	44%	17,192	46%

Data: Emsi Occupation Data 2019

Non-remote jobs in office worker dependent locations in the South Bay

	San Jose		Redwood City	
	Number of Jobs	Percent of Total Jobs	Number of Jobs	Percent of Total Jobs
Food Preparation and Serving Related Occupations	3,726	10%	2,633	8%
Transportation and Material Moving Occupations	1,726	5%	1,811	5%
Healthcare Support Occupations	1,614	4%	833	2%
Healthcare Practitioners and Technical Occupations	1,599	4%	1,089	3%
Sales and Related Occupations	1,190	3%	2,041	6%
Building and Grounds Cleaning Maintenance Occupations	1,175	3%	860	2%
Office and Administrative Support Occupations	925	3%	681	2%
Construction and Extraction Occupations	820	2%	2,650	8%
Protective Service Occupations	760	2%	163	0%
All Other Occupations	3,489	10%	4,140	12%
Total Non-Eligible Jobs	17,023	47%	16,900	48%

Data: Emsi Occupation Data 2019

4

Economic, Equity, and Environmental Considerations Surrounding Remote Work

Economic Considerations

Urban centers vs. suburban areas

The concentration of remote eligible jobs in urban centers suggests that the daytime population of these areas could decline if remote work is sustained among many eligible workers. The daytime population in urban locations could be half of what it was pre-pandemic, with San Francisco, Oakland, San Jose, San Ramon, Redwood City, and Emeryville showing the largest impacts. While 100 percent remote work uptake among all eligible workers is unlikely, remote work policies of large employers in particular have the potential to impact the daytime populations of these areas significantly. Spending by workers will not disappear altogether, however, as suburban areas could benefit from larger daytime populations.

Outmigration

As companies based in the Bay Area begin making decisions on their long-term remote work policies, there may be less of an incentive for people to live in the high-cost region if their job can be performed anywhere. Redfin search data from July 2020 shows out-migration already taking shape in the San Francisco metro area with 24 percent of all resident searches looking outside the metro.[14] This places the San Francisco metro second only to the New York metro area in terms of the portion of local users searching for houses outside their metro.

Within the Bay Area, locations with the most remote eligible jobs are also where rents have fallen the most significantly. Rental prices have fallen by at least 23 percent year-over-year as of December 2020 in San Francisco, Mountain View, and Menlo Park.[15] These significant drops in rental prices in these locations indicate their susceptibility to population decline driven by increased remote work. The parts of the region that could be most significantly impacted by increased adoption of remote work may also indicate which geographies will be at risk of slower recovery post-pandemic.

Housing price and preferences

The scale of remote work eligibility in the Bay Area as compared to other metros could also affect the housing crisis in the region, with potential positive and negative effects. Remote eligible workers could look for homes that better accommodate working from home, thus driving up prices for single-family homes with more space. Alternatively, if high earners move to more dispersed locations and rents continue to fall in urban locations, it could alleviate some of the pressure on urban housing markets in the region. Keeping an eye to the implications that remote work will have on housing preference is a critical consideration for policymaking, but one where long-term answers are elusive as structural shifts in housing markets post-pandemic are unknown.

Equity Considerations

Unequal access to remote work eligible jobs

As remote work is considered by employers, governments, and agencies in the region, understanding the inequity that exists among those who are able to work from home and those who are not is an important consideration. This analysis shows that Black and Latinx populations have less access to higher paying, remote eligible employment opportunities. Additionally, barriers to obtaining remote eligible jobs exist, with many of the occupations concentrated in professional industries where higher-level degrees are often required. A shift toward more prevalent remote work could drive even more inequality in the region, with lower- and middle-income workers forced to pay for transportation while higher-income residents benefit from the flexibility and quality of life benefits of working from home.

Non-remote jobs in urban areas

This study does not analyze the correlation between remote jobs and non-remote jobs, though it is possible that the number of service and security jobs in urban geographies will decline if work from home policies become more widespread. Within the 12 locations analyzed here, there are a total of 265,000 non-remote eligible jobs and a large share of them are in occupations that are directly connected to the size of the workforce employed in the area. This suggests that many service sector jobs in these commercial districts could be at risk if the loss in daytime population is sustained. These jobs could shift to suburban locations with larger daytime populations as a result of remote work or the demand for them could decline.

Environmental Considerations

Reduced congestion

If remote work is widely adopted, commute congestion in the region is likely to be reduced. The extent to which remote work has a positive, negative, or neutral environmental impact is unknown due to uncertain impacts of increased home energy use and changes in non-work travel habits also connected to remote work adoption. However, reduced commute travel has been cited as the main source of environmental benefit that would result from expanded remote work.

Transit priorities

The majority of pre-pandemic commute transit ridership was to urban center destinations—meaning that a decline in the number of job-days spent in these locations would impact the demand in transit trips to these core areas. This could have a significant impact on transit capacity needs, in turn reshaping where priority transit investments are made within the region. If commute trips are less in demand, it could be an opportunity to invest in pedestrian, bike, and local transit infrastructure in suburban environments to support non-commute trips of greater frequency as people spend more time in and near their homes. Investing in sustainable transportation options on a local scale can also contribute to emissions reductions.

Commute mode choices

Individual transportation choices will change if overall commute demand falls. A reduced demand for commute travel can have positive impacts for the remaining commuters, but also have tangential benefits in improving the time spent in traffic for goods movement, delivery, and leisure trips, helping the region meet emissions reductions goals.

Alternatively, reduced congestion could push more commuters who would have taken transit under pre-pandemic levels of congestion into their cars as traffic flows are reduced. Or if people relocate to more dispersed locations in the region as they only need to be in the office a few days a week, more commuters could take to the roads for longer commutes between locations that are not currently connected by transit. In addition, if many households relocate to less transit and pedestrian-friendly locations, there could be a negative impact on the environment as people become more reliant on cars as a primary mode of transportation for commutes, errands, and leisure trips.

5

Areas for Further Research on Remote Work

This study provides an initial understanding of the available data on remote work and highlights where policy could be useful to both optimize its benefits and mitigate its negative effects. Projecting the adoption of remote work and its impacts going forward requires significantly more information (and even more assumptions). The following list highlights areas where further work can be done to better understand trends, preferences, and outcomes as they relate to remote work.

Long-term remote work preferences among business and employees

Surveying employers and remote workers to understand how their productivity, remote work policies, and views on remote work have changed during COVID-19 is an essential next step in the research behind understanding the permanence of remote work in the region. Working at home under COVID-19 conditions—while responsibilities such as child and elder care are also present—is potentially influencing employees' experiences and opinions of remote work. Research differentiating COVID-19 remote work conditions from "normal" remote work conditions is key to understanding which preferences toward remote work will endure. Research that disentangles remote work preferences that are COVID-19 influenced versus remote work preferences that are here to stay is a key input necessary to predict how remote work will take shape in the long-term.

Limitations in technical capacity hindering remote work

A deeper understanding of who has access to broadband infrastructure and technical capacity to support working remotely in different parts of the region is another important factor to consider. Access to the capacity and infrastructure necessary to work from home is not equal across race, age, or class in the region. Researching the geography and demographics of households with these physical limitations (e.g., multi-generational/multi-family homes, broadband access) is an important topic to investigate prior to shaping new policies surrounding remote work expansion.

Remote work and GHG emissions

More conclusive research on how remote work will impact carbon emissions in the region is an important topic of further research. Understanding the localized impact of GHG emissions across the region during this extended period of remote work will provide guidance to planners as to the effectiveness of remote work as a strategy for long-term emissions reductions.

Researching how travel habits have evolved as a result of remote work and the impacts these changed habits have on emissions is a needed input to understand if policies targeting remote work are an effective emissions reduction strategy.

Remote work, the regional job market, and local job quality

While this analysis provides base level insight into the impacts that reduced office work could have on non-eligible service sector employment, a deeper understanding of the wider impacts that remote work could have on occupation and industry makeup in the region is critical. For example, a geographic shift of non-remote eligible jobs to suburban areas could impact wages paid to these employees. Alternatively, if some commercial district service jobs disappear entirely, they could be replaced by even lower-wage positions that cater to the work-from-home population or that add to greenhouse gas emissions (e.g., delivery drivers).

Influence of remote work on interregional migration and outmigration

While early indicators show people may be leaving or moving within the Bay Area, a deeper understanding of how increased access to remote work impacts home location decisions both within the region and outside the region is another important area that needs further research.

Local economic implications of remote work

With the daytime population much lower in many commercial districts across the region and higher in many suburbs, there will be fiscal impacts for cities that collect business taxes based on employee counts. Researching how local tax revenues may rise and fall based on varying remote work levels is another important input to remote work policy decisions.

Appendix A: Detailed Methodology

In order to determine remote work eligibility for jobs in the Bay Area, 756 individual occupations were categorized based on the findings of a study conducted by the University of Chicago that defines occupations as 'teleworkable' or not. The study categorized remote work eligibility for each occupation by assessing results of two surveys administered by the Department of Labor's Occupational Information Network (O*NET). The first survey was the Work Context Questionnaire, which includes questions about the physical and social factors that influence the nature of work. The second was the Generalized Work Activities Questionnaire, which captures information on general types of job behaviors occurring on multiple jobs, such as work outputs and inputs and interactions with others on the job. This categorization system places each occupation as remote work eligible or not remote work eligible, meaning any nuance within occupations that might affect remote work eligibility is not captured. This methodology does not mean that all workers identified as eligible will work remotely 100 percent of the time; it does, however, provide detail on the jobs that could be done remotely.

These remote work categorizations were applied to occupation data from Emsi for the nine-county Bay Area to find what share of the jobs in the region are remote work eligible. The Emsi occupation data includes demographic information, allowing for more detailed understanding of the population in the region that holds occupations that can be done at home. Both Emsi and O*NET use Standard Occupational Classification (SOC) System codes to identify occupations; however, some codes were included in the Emsi data and omitted from the O*NET data and likewise some codes were included in the O*NET data and omitted from the Emsi data. In cases where there was not a work from home eligibility determined by the University of Chicago study, a categorization was assigned. In some cases, the O*NET data included a more detailed breakdown for several occupations that were grouped under one category within the Emsi data, in which case the eligibility of the majority of the sub-categories in the O*NET data was applied to the parent category in the Emsi data. In other cases, the occupation was entirely omitted from the O*NET data and an assignment was made based on the occupation description.

American Community Survey (ACS) data from IPUMS was also analyzed to calculate the mode share and home location percentages for people in each occupation in each Bay Area county. This information was not included in the Emsi data, so the home location and mode percentages by remote eligible and non-remote eligible occupations for each county were determined with the ACS data. These numbers were then applied to the more comprehensive Emsi occupation data to provide a more complete picture of the remote work impacts on regional commute patterns.

To understand the impacts that remote work could have on travel demand depending on the scale of adoption, the number of remote job-days was calculated on a scale of one day of remote work per week to five days of remote work per week for all jobs categorized as remote eligible. Based on the number of remote job-days at varying levels of remote work adoption, the reduction in weekly in-person job-days compared to pre-COVID-19 levels was calculated across mode and establishment size. In-person pre-COVID-19 job-days were calculated based on the total number of jobs that were not already "working from home" as categorized by ACS 2018 1-year estimates.

Zip code business patterns data from the U.S. Census Bureau and California Employment Development Department (EDD) Size of Business data were used to understand remote work eligibility across different company sizes. The zip code level census data was used to understand the impact by business size in commercial districts, while just the EDD data was used to determine eligibility by business size in each county. The census data does not provide the breakdown by number of employees, so to understand the size of workforce by employer size, the number of establishments was multiplied by the average number of employees per establishment in each category based on the EDD data for the county where the zip code is located. These calculations across all nine establishment size categories were used to find percentages of employees within each category for each zip code. These percentages were then applied to the remote eligible workforce in each zip code based on Emsi workforce data.

Endnotes

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