Intelligent Cities

Long Beach, California

AI for Good

FOUNDATION

Table of Contents

Introduction

Facing drastic changes from the workforce to climate change, municipalities around the world have sought to create Smart Cities, using data-enabled sciences to improve the livelihood of their constituents sustainably and innovatively. We seek to take this concept a step further to look at how AI can reimagine urban centers globally, with sustainability and equity as defining principles. **It is our mission to make cities not only smart, but Intelligent.**

This report was completed through a multi-stage process, with the central philosophy of providing recommendations that are rooted in local concerns and infrastructure. To accomplish this, we began with an initial intake survey in which we learned from the City of Long Beach's Technology & Innovation Department, namely the Smart Cities Program Manager Ryan Kurtzman, the central issues that were of primary concern for the city. We then held a series of meetings with stakeholders in Long Beach, honing our recommendations to cater to their interests and needs.

For each recommendation, we focused our initial research on the sentiments and previous work done within the city to meet their goals. While the AI for Good Foundation is an international nonprofit, we believe that effective policy is only possible with a developed understanding of the local environment. **The resulting document provides the most feasible, efficient, and necessary technological solutions for the City of Long Beach.**

Summary of Recommendations

1. Building an Ethical Intelligent City

1a. Bolster and improve current Data Privacy Guidelines with additional considerations including Requirements from Providers and Algorithmic Transparency

1b. Expand the Digital Inclusion Initiative past basic computer literacy programs and offer data privacy training to citizens. Increase access and transparency of data pertaining to systemic racial and class inequalities

1c. Encourage the halting of FRT technology until strict guidelines and standards are established. Additionally, consider adopting a surveillance technology oversight ordinance

2. Addressing Housing with Innovation

2a. Implement technologies to streamline intake and case management of those experiencing homelessness and housing inequities

2b. Increase affordable housing availability by encouraging the construction of Accessory Dwelling Units (ADUs) among home-owning residents, leveraging GIS technologies to optimize housing density where possible

2c. Move to a "Housing First" approach in which all those experiencing homelessness are guaranteed safe and permanent housing, and establish Community Land Trusts (CLTs) to increase homeownership

3. Increasing Electric Vehicle Capacity

3a. Support existing electric vehicle owners and encourage new growth in EV adoption through co-opting a data-centered approach to optimize the placement of new EV infrastructure. Key insights can then be applied to inform decision-making and accelerate the city's EV transition

4. Expanding Economic Opportunity

4a. Integrate Big Interview into its suite of available services in Pacific Gateway, the city's workforce development board, to increase accessible employment and hiring training for low-income and reentering workers

4b+c. Create a Local and Targeted Hiring Program complete with a city-wide job board and apprenticeship opportunities. Expand equitable hiring and procurement efforts, beginning with implementing a local hiring requirement through the PlanetBids vendor platform

4d. Prepare for the increase in e-banking and cashless societies by exploring alternative banking options for low-income communities and communities of color

4e. Increase availability of general business health and viability data by implementing an opt-in receipt scanning program for consumers

1. Building an Ethical Intelligent City

Recommendation

1a. Bolster and improve current Data Privacy Guidelines with additional considerations including Requirements from Providers and Algorithmic Transparency

1b. Expand the Digital Inclusion Initiative past basic computer literacy programs and offer data privacy training to citizens. Increase access and transparency of data pertaining to systemic racial and class inequalities

1c. Encourage the halting of FRT technology until strict guidelines and standards are established. Additionally, consider adopting a surveillance technology oversight ordinance

Data Privacy and AI Ethics

The City of Long Beach has made progressive strides in not only adopting technological applications to improve their city, but also in ensuring best practices for their safe and ethical adoption. As seen in *The Smart City Initiative Strategy*, Long Beach promotes the use of emerging technologies in advancing solutions to civic challenges. One of the guiding principles in the strategy that aids in aligning the City's technology initiatives is the earning of public trust, which calls for "building public confidence through excellence in data privacy, data transparency, and community engagement."[1] In this value, it is clear that the City wants to altruistically advance its systems. While Long Beach has made notable strides, we offer a series of recommendations to ensure a holistic set of best practices, especially in the subfield of artificial intelligence.

The City's concern with data privacy and ethics is founded and shown in their constituency. In a 2020 community survey, feedback from residents of Long Beach showed that while they do believe in the importance of smart tools, they are very concerned that this could entail less personal privacy.[2] Following this, Long Beach successfully placed Data Privacy Guidelines which were approved by the city council in

---

[1]"A Strategic Plan for Exploring and Implementing Emerging Technology Smart City Initiative Prepared by the City of Long Beach Technology & Innovation Department." 2022. Accessed February 11.
https://longbeach.gov/globalassets/smart-city/media-library/documents/smart-city-initiative-strategy---approved.
[2] "Data Privacy." 2021.City of Long Beach. https://longbeach.gov/smartcity/guiding-principles/data-privacy/.

March 2021. The guidelines aim to provide a framework that the city and its partners can use to incorporate privacy by design in the deployment of services in Long Beach.[3] While these guidelines are a substantial policy step, our recommendations outline areas for further improvement.

The city is committed to being an open, honest, and effective government and in line with that has in place an Open Data Policy.[4] Essentially, the policy states that the data Long Beach collects and generates will be open and accessible to the public by default. Long Beach further makes its data available to the public through its LBData GeoSpatial & Open Data Portal that enables the exploring, visualizing, and downloading of available data.[5]

1a. Recommendation: Data Privacy and AI Ethics

Data Privacy

The Long Beach Data Privacy Guidelines are a significant first step to adequate data privacy. However, we suggest the following specific implementations to bolster the legitimacy and transparency of data privacy in Long Beach:

- Mandatory notification of breaches to affected citizens or parties of Long Beach
- Rights for residents to opt for data portability, the right to be forgotten, the right to object to automated processing of their information, etc.
- Requirements for companies to set the highest levels of confidentiality as their default settings, without the intervention of any persons concerned
- In all new projects, the City of Long Beach and its partners should undergo a public Data Privacy Impact Assessment (DPIA). Templates can be easily found, such as that offered by the Information Commissioner Office of the United Kingdom.[6] The DPIA should be adapted to the City's framework and ideally independently audited.
  - The AI for Good Foundation is capable of working with Long Beach to create a DPIA and provide independent audits. Any impact assessment must be developed with all stakeholders to ensure it is in line with The

[3]"Data Privacy Guidelines." 2021. City of Long Beach. https://www.longbeach.gov/globalassets/smart-city/media-library/documents/final_data-privacy-guidelines?_t_id=1B2M2Y8 AsgTpgAmY7PhCfg%3D%3D&_t_q=450&_t_tags=language:en%2Csiteid:94954c0f-e16a-468a-820a-a11809373f86&_t_ip=66.24 9.68.17&_t_hit.id=CLB_Web_Models_Media_FileBlock/_c9880637-e1db-4043-b3e8-f954961abc1c&_t_hit.pos=40
[4]"Administrative Regulations Number AR8-38 Issue 1 Subject: Open Data Policy." 2022. Accessed February 11. https://www.longbeach.gov/globalassets/hr/media-library/documents/policies-and-procedures/administrative-regulations/s ection--8---general/8-38-open-data-policy.
[5] https://datalb.longbeach.gov/
[6]"When Do We Need to Do a DPIA?" 2021. Ico.org.uk. ICO. December 23. https://ico.org.uk/for-organisations/guide-to-data-protection/guide-to-the-general-data-protection-regulation-gdpr/data-pr otection-impact-assessments-dpias/when-do-we-need-to-do-a-dpia/.

Framework for Racial Reconciliation, as well as the Office of Equity according to its Equity Toolkit (below).

In addition to setting up policies to guide the governance of data from the city, it is recommended that the city encourage the use of privacy-preserving solutions wherever possible to safeguard data as well as build trust. The city may wish to consider using privacy-preserving approaches, such as:

- federated learning or secure multi-party computation – training AI models using local data but without sending the data out of the provider's cloud;
- differential privacy – injecting noise into computations on datasets in such a way that the output cannot be tied back to the presence or absence of any individual in the dataset;
- homomorphic encryption – keeping the data encrypted during computation;
- zero-knowledge proofs – verifying information without revealing the information itself;
- private information retrieval – retrieving an item from a database without revealing which item is retrieved

Requirements from Providers

In addition to the establishment of a framework, means of incentivizing and/or enforcing responsible use should be put in place to ensure adherence to the framework, including possible disciplinary vehicles for abuse of data and violation of data privacy laws. **Furthermore, city partners and any organizations making use of data from the City of Long Beach should commit to the responsible use of AI including adhering to responsible AI frameworks set by the city to become a city partner and/or provide services and/or make use of city data.** This includes being transparent about informed consent as well as being transparent about the use of the data. The city may wish to consider a combination of requirements for solution providers, such as:

- certification and auditing standards (e.g., obtaining recommended certifications or submitting to auditing and testing standards)
- accountability measures (e.g., being liable for the damage caused by their technologies). Such measures could include fines, termination of projects, or banning further data usage

Algorithmic Transparency

While the City of Long Beach does ensure human review of AI projects in its Data Privacy guidelines, further frameworks should be detailed and applied to all AI projects. The city and any contracted partners should aim for the highest degree of explainability in their algorithms as possible. Such measures include:

- A required Algorithmic Impact Assessment (AIA) for all new AI projects undergone by the city or its partners. An AIA is essentially a questionnaire designed to assess the potential risks and impacts of deploying an AI system. We recommend that any AIA is independently audited.
- The AI for Good Foundation provides customized AIAs, as well as audits of new ML projects, which can be contracted for service by the City of Long Beach.[7] Audits for individual projects are offered at a cost of $5k by the AI for Good Foundation, and the cost of developing an AIA would be determined in a consulting capacity.
- Any impact assessment must be developed with communities of color to ensure it is in line with The Framework for Racial Reconciliation, as well as the Office of Equity toolkit (below)
- Tools to detect and eliminate bias in ML models, such as IBM AI Fairness 360, an open-source toolkit donated to the Linux Foundation to detect bias according to 70 fairness metrics and 10 bias mitigation algorithms[8]
- AI or algorithmic register that provides residents with information about where and how the city is making use of AI and algorithms. The register can provide details such as how they were built, which data and algorithms they use, as well as the decisions, assumptions, and ethical principles used to design them. Contact details can also be provided to elicit feedback and allow residents to seek further information. This can be built out within the DataLB platform

Bias and Discrimination

The City of Long Beach is one of many cities that have historically been plagued with discrimination. Fortunately, the city places great emphasis on curbing existing discriminatory practices as seen by its efforts to curb the disparities that arose as a result of discrimination

---

[7]"Ethics - AI for Good Foundation." 2022. AI for Good Foundation. February. https://ai4good.org/ethics/.
[8]"AI Fairness 360." 2022. Mybluemix.net. https://aif360.mybluemix.net/.

and prevent repetition of the same. The city has been recognized as a "Digital Inclusion Trailblazer" by the National Digital Inclusion Alliance (NDIA).[9]

Long Beach's Smart City Initiative Strategy calls for the use of data-informed decision-making in improving the capacity to respond efficiently and effectively to the most-pressing civic challenges so as to build civic resilience. Two challenges closely related to this have been listed as priorities for the city in its Smart City Initiative Strategy: narrowing the digital divide along racial and class lines, and more broadly ending systemic racism and reducing racial wealth gaps.[10]

In addition to the Smart City Initiative Strategy incorporating measures to curb disparities, the city established an Office of Equity designed to build racial and health equity capacity across city government. The Office of Equity released the Equity Toolkit to educate city staff and thus promote inclusiveness in decision-making.[11]

In the Racial Equity and Reconciliation Initiative Initial Report, responses from a community survey aimed at collecting feedback included suggestions to curb disparities arising from systemic racial biases. While many of the suggestions have already been completed by the City of Long Beach, remaining goals pertaining to data include increasing the quality, use, transparency, and public availability of data to inform institutional decisions and actions that improve outcomes in Black communities and communities of color, creating public access to data that are appropriately disaggregated by race and have personal information removed for confidentiality; and providing data to show and understand inequities in housing.[12]

The AI for Good Foundation echoes these recommendations. The Racial Equity and Reconciliation Initiative also pays specific credence to the need to close the Digital Divide, meaning the disparate lack of access to technology, WiFi, and online learning opportunities to communities of color.

---

[9]"Digital Inclusion Trailblazers - National Digital Inclusion Alliance." 2021. National Digital Inclusion Alliance. July 14. https://www.digitalinclusion.org/digital-inclusion-trailblazers/.

[10]"A Strategic Plan for Exploring and Implementing Emerging Technology Smart City Initiative Prepared by the City of Long Beach Technology & Innovation Department." n.d. https://longbeach.gov/globalassets/smart-city/media-library/documents/smart-city-initiative-strategy---approved.

[11]"Long Beach Equity Toolkit for City Leaders and Staff." Long Beach Office of Equity. https://www.longbeach.gov/globalassets/health/media-library/documents/healthy-living/office-of-equity/city-of-long-beach-office-of-equity-toolkit

[12]"Racial Equity and Inclusion Initiative Initial Report." City of Long Beach. https://longbeach.gov/globalassets/health/media-library/documents/healthy-living/office-of-equity/reconciliation/report-racial-equity-and-reconciliation-intiative

1b. Recommendation: Bias and Discrimination: Empowerment of Citizens and Expanding Digital Literacy

The efforts already undertaken by the City of Long Beach, outlined in the Digital Inclusion Roadmap, are expansive. Until the Digital Divide is closed, we recommend continuing the initiatives of the Digital Inclusion Resources Hotline, Digital Inclusion Community Outreach Program, Free Internet Services and Computing Devices Program, Multilingual Resource Guides, and the Virtual Digital Literacy Training Course.[13] While funding for these programs was covered by the CARES Act, the city should prioritize seeking permanent funding for these programs.

While the Digital Inclusion Roadmap underlines the needs and currently available resources to the community, **the AI for Good Foundation finds the Digital Inclusion Initiative should expand past basic computer literacy programs and offer data privacy training to its citizens.** Topics included should be personal data privacy, outlining the current and future data privacy efforts of Long Beach, and most importantly, offering a community town hall for each new AI/ML project or any data project that utilizes PII. Such events and learning opportunities should prioritize the involvement of communities of color and the Office of Equity, and follow guidance from The Framework for Racial Reconciliation. The AI for Good Foundation is available for contracting to help develop a Data Privacy Curriculum for the residents of Long Beach.

> While the Digital Inclusion Roadmap underlines the needs and currently available resources to the community, the AI for Good Foundation finds the Digital Inclusion Initiative should expand past basic computer literacy programs and offer data privacy training to its citizens.

Additionally, further effort should be made by the City to increase access and transparency of data pertaining to systemic racial and class inequalities. To achieve this, we recommend expanding the DataLB open data portal to house datasets according to issue areas, specifically housing, economic development, and policing. Such an initiative should also include community outreach to ensure awareness, possible through

---

[13]"Digital Inclusion Roadmap." City of Long Beach.
https://www.longbeach.gov/globalassets/ti/media-library/documents/digital-inclusion/resources/long-beach-digital-inclusion-roadmap-july-2021

a similar partnership to community-based organizations as the Digital Inclusion Community Outreach Program.

Surveillance and Facial Recognition Technologies (FRT)

The use of facial recognition technologies (FRT), systems that are capable of identifying faces using biometric landmarks, in Long Beach's police department has been in effect since 2010.[14] Since then, LBPD has associated law enforcement operations with facial recognition technology using their access to three unique facial recognition databases, Vigilant Solutions FaceSearch, the highly controversial Clearview AI, and Los Angeles County Regional Identification System (LACRIS).[1]

LACRIS, which has been made available to Los Angeles law enforcement agencies, has set down key points that inform and guide the usage of the database. It stresses that facial recognition is not identification and that the use case of LACRIS is for generating leads in which potential candidates that match the search image are flagged.[15] This was once again reiterated by LBPD Assistant Chief Wally Hebeish, who spoke in favor of the use of facial recognition technology at a public safety committee meeting in July, 2021, that had been convened to discuss the software being used in law enforcement.[16] The same document outlining the key points of LACRIS also mentioned that prior to gaining access to the LACRIS system, users must undergo training centered around operating the system and the policies governing LACRIS.[2]

Despite the usage of facial recognition technology in Long Beach law enforcement, with newly uncovered data that demonstrates the bias that is often perpetuated by these systems,[17] many residents of the city question implementation of FRT when they pose potential harm to the community. The extent of Long Beach residents' criticism of the Long Beach police department's affiliations with facial recognition and other surveillance technologies are self-evident with initiatives such as CheckLBPD, a site that aims to generate more

---

[14]Buhl, Greg. 2020. "The Surveillance Architecture of Long Beach: A Decade of LBPD Facial Recognition Technology Use with Inadequate Policy, Oversight, and Transparency (Full Report) - Check LBPD." Check LBPD. November 14. https://checklbpd.org/facial-recognition-part-one/.

[15] "FACIAL RECOGNITION in LOS ANGELES COUNTY." 2022. Accessed February 11. https://lacris.org/LACRIS%20Facial%20Recognition%20System%20Guide_FINAL.pdf.

[16] Dobruck, Jeremiah. 2021. "LBPD Already Uses Facial Recognition Technology, but a Fight's Brewing over Whether It Should • Long Beach Post News." News. July 24. https://lbpost.com/news/facial-recognition-technology-long-beach-police.

[17]Castelvecchi, Davide. 2020. "Is Facial Recognition Too Biased to Be Let Loose?" Nature 587 (7834): 347–49. doi:10.1038/d41586-020-03186-4.

transparency and accountability surrounding the use of surveillance technology and LBPD operations at large.[18]

In response to concerns over surveillance technologies, a Technology and Innovation Commission Ad Hoc subcommittee was formed in Long Beach to assess facial recognition technology and its impacts on Black people and people of color. After further initial research, the subcommittee concluded that the assertion that facial recognition technology is an "...innately biased technology lacking sufficient built-in or external safeguards or mitigations to protect civil liberties and civil rights"[19] was widely supported. In light of this, starting March 2021, the subcommittee began to explore approaches and best practices surrounding the use of facial recognition technology from other cities; these cities included Seattle, Portland, and Oakland. These cities varied in approach with Portland implementing an outright ban (with some exceptions) on facial recognition technology, Seattle choosing to opt for a surveillance ordinance safeguard but foregoing a ban though it was reported that the city was still considering the potential of one by the end of 2021, and Oakland establishing a citizen-led Privacy Commission that would oversee the use of surveillance technology.[5]

> "Current facial recognition technologies are not only insufficiently accurate but pose substantive and unequal risk to Black residents and residents of color due to inherent algorithmic biases that have not been effectively addressed in software design."

Taking into consideration the research that was conducted, the subcommittee concluded that "...current facial recognition technologies are not only insufficiently accurate but pose substantive and unequal risk to Black residents and residents of color due to inherent algorithmic biases that have not been effectively addressed in software design. Further, the subcommittee is concerned by the absence of independent auditing entities to certify that facial recognition technology is free of racial and other bias..."[5] Along with this finding, the subcommittee recommended banning the usage of facial recognition technology with the potential for certain exceptions to be made in the short term, and adopting a surveillance vetting ordinance in the future.[5]

---

[18] Check LBPD. 2021. "Check LBPD - Check LBPD." Check LBPD. October 3. https://checklbpd.org/.
[19]"Overview of Transmitted Communications: Ad Hoc TIC Subcommittee on Facial Recognition Technology (City of Long Beach)." 2021. http://longbeach.legistar.com/View.ashx?M=F&ID=9670002&GUID=D4C78C12-B5C2-47A4-94DC-D97E89115CCB.

1c. Recommendation: Surveillance and FRT

The soundness of facial recognition technologies must be verified prior to deployment at the community level. A means to this would be vetting FRT systems through the Facial Recognition Vendor Test (FRVT)[20], a program that conducts large-scale independent evaluations on facial recognition systems to gauge accuracy, which is certified by the National Institute of Standards and Technology (NIST).[21] Furthermore, the introduction of submitting facial recognition technologies to third-party evaluators such as the NIST for scrutinizing underlying biases may also alleviate negative public perceptions and sentiment around the use of these systems in law enforcement if the assessment, backed by scientific evidence, is proven to be a reliable tool. **Until strict guidelines and standards are established, we support the recommendation that Long Beach halts its usage of FRTs.** Guidelines should be approved by the Office of Equity and be subject to a town hall with specific prioritization of communities of color prior to the reimplementation of FRTs.

Additionally, Long Beach should adopt a surveillance technology oversight ordinance. Transparency behind the use cases of the facial recognition technologies that are acquired, the applications of these systems, and the impact they have on residents, is critical to holding the agencies that use them accountable. Especially in the case of LBPD where the absence of an ordinance (that would otherwise require them to disclose the surveillance technologies they are using to the public), is resulting in an awareness disconnect between residents and the facial recognition systems implemented in Long Beach.[22] Several cities including San Francisco, Oakland, Berkeley, Davis, Palo Alto, and Seattle have already established their own versions of a surveillance technology oversight ordinance.[23]

Components of surveillance technology oversight ordinance from these cities typically follow a structure that initially defines in clear language what surveillance technology is, what agencies the ordinance applies to, proposes the involvement of impact assessments, policies, and annual reports for surveillance technologies, highlights the possibility of an elected body to govern the coordination of said assessments, policies, and reports, and lays out what steps will be taken to ensure the enforcement of the

---

[20]"Face Recognition Vendor Test (FRVT)." NIST. July 8. https://www.nist.gov/programs-projects/face-recognition-vendor-test-frvt.
[21]"National Institute of Standards and Technology | NIST." 2022. NIST. February 7. https://www.nist.gov/.
[22]"The Surveillance Architecture of Long Beach: Advanced Cameras." 2020. FORTHE. September 21. https://forthe.org/journalism/surveillance-architecture-cameras/.
[23]2016. Oakland Privacy. July 23. https://oaklandprivacy.org/campaigns/.

ordinance.[24] The city is encouraged to review the ordinance principles that govern the aforementioned cities and co-opt or adapt where appropriate.

The AI for Good Foundation is an available resource to develop a strategy for surveillance and FRTs. Should this occur, our organization would collaborate with the Office of Equity, Check LBPD, and concerned members of the community.

---

[24]Crump, Catherine, and Juliana Devries. 2021. "Local Surveillance Oversight Ordinances."
https://www.law.berkeley.edu/wp-content/uploads/2021/02/Local-Surveillance-Ordinances-White-Paper.pdf.

2. Addressing Housing with Innovation

Recommendation

2a. Implement technologies to streamline intake and case management of those experiencing homelessness and housing inequities

2b. Increase affordable housing availability by encouraging the construction of Accessory Dwelling Units (ADUs) among home-owning residents, leveraging GIS technologies to optimize housing density where possible
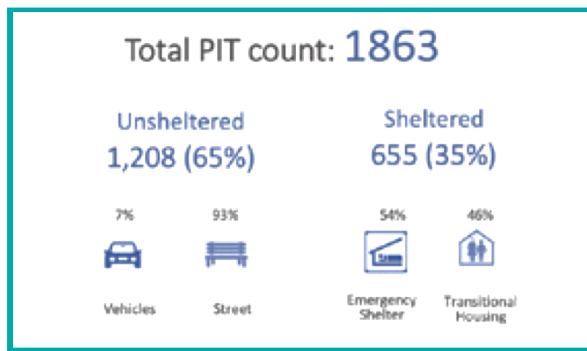
2c. Move to a "Housing First" approach in which all those experiencing homelessness are guaranteed safe and permanent housing, and establish Community Land Trusts (CLTs) to increase homeownership

A Disclaimer

The Housing Crisis, especially in Southern California, is a notoriously complex issue, and one that will likely take decades to overcome. Factors such as housing affordability, availability, and the individual circumstances of those experiencing homelessness ensure that the issue cannot be treated as a monolith; what works in one area of the world might not work in another. The AI for Good Foundation has taken notable care in understanding the work that the City of Long Beach, as well as its nonprofit organizations and activists, have already done. This recommendation will not solve the housing crisis, but rather offer opportunities for the city to maximize its impact with limited resources, and eventually find a path towards systemic solutions, through the lens of technological capability.

Overview of Housing in Long Beach

In 2018, the City of Long Beach developed the Everyone Home Long Beach Task Force's recommendations, leveraging their most current data on homelessness to provide insight on how to most accurately address the issue. This data is acquired every two years in a Point in Time (PIT) survey, in which 400-500 volunteers count and survey those experiencing homelessness throughout the municipality. The 2017 PIT survey analyzed by the task force saw a decrease in persons experiencing homelessness by 41 percent over the previous 6 years, with a total homeless population of 1,863 in 2017. Amongst this population, 35% were sheltered in either transitional housing or emergency shelters, while

Total PIT count: 1863

Unsheltered
1,208 (65%)

Sheltered
655 (35%)

7%   93%   54%   46%

Vehicles   Street   Emergency   Transitional
   Shelter   Housing

the remainder were unsheltered, such as in cars or tents. Families and veterans were overrepresented amongst the sheltered according to their population, while individuals and chronically homeless persons were underrepresented. More than half (53%) of those experiencing homelessness had a disabling condition, which includes mental illness (31%), substance abuse (21%), and HIV/AIDS (3%). Finally, while Black residents of Long Beach account for 13% of the population, they are overrepresented in those experiencing homelessness at 32%.[25]

The Everyone Home Long Beach report contends that the PIT survey is by nature only a fraction of the true issue of homelessness in Long Beach, and that approximately 4,000 people experience homelessness per year. At the time of this survey, the most common cause of homelessness was the loss of a job (35%), followed by insufficient wages, behavioral health and health issues, abuse, family breakdown, and incarceration.[26]

Not only does the Everyone Home Long Beach report address those actively experiencing homelessness, but also points to at-risk populations. In 2018, 23.6% (37,941) of households received an income of $25,000 or less, and 20,000 households were overcrowded including over 9,000 severely overcrowded. These populations are considered "one step" away from homelessness and speak to the need for a greater capacity of affordable housing.[27]

23.6%

of households received an income of $25,000 or less in 2018
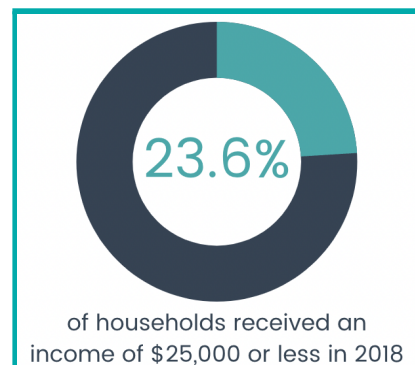
COVID-19 and Homelessness

As the Everyone Home Long Beach report was completed in 2018, it did not speak to the housing and economic crises caused by the COVID-19 pandemic. The last most recent Point in Time survey was taken in January 2020, before the first traces of the event had occurred in Long Beach. At this time, 2,034 persons experiencing homelessness were

---

[25]"Everyone Home Long Beach Task Force Recommendations" 2022. City of Long Beach.
https://www.longbeach.gov/globalassets/everyone-home-lb/media-library/documents/news/everyone-home-lb-task-force--recommendations-sm-file.
[26]Ibid
[27]Ibid

counted, totaling a 9% increase from the data shared in the EHLB report.[28] PIT data was not gathered in 2019, though it is plausible that the number of those experiencing homelessness has increased considerably, despite several programs designed to protect economically vulnerable populations during the pandemic. Paul Duncan, Long Beach homelessness officer, stated that there "appears to be a significant increase" in homelessness as well as persons seeking services.[29] Long Beach shelters saw 200 more people in 2021 than in 2020, and the larger Los Angeles County saw a 35% increase in shelter stays in the same period.[30] This percentage does not include Long Beach, but is notable as it includes the border as well as surrounding cities.

> Long Beach shelters saw 200 more people in 2021 than in 2020, and the larger Los Angeles County saw a 35% increase in shelter stays in the same period.

Many factors led to the increase in homelessness during the COVID-19 pandemic. According to the 2020 Greater Los Angeles Homelessness Count, it was nearly half of people's first time experiencing homelessness, and 59% cited economic hardships as the primary cause. Additionally, jails and prisons released many nonviolent offenders through 2020 and 2021, increasing the demand for low-income housing and services.[31]

Meeting Homeless Needs in the Wake of COVID-19

Before the pandemic, Long Beach's only walk-in shelter closed. In the early months of 2020, Homeless Services of Long Beach worked towards the operation of 11 permanent and temporary sites, such as the Atlantic Farms Bridge Housing Community (125 beds), Project Homekey (102 beds), Project Roomkey (44 beds), Safe Parking Site (15 spots), and the Multi-Service Center. While this is a notable increase in beds, the city faced issues of needing

Atlantic Farms Bridge Housing Community
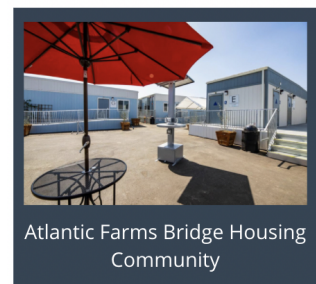
[28]"BIENNIAL HOMELESS COUNT COMPARISON HOMELESSNESS DATA EXCHANGE (HDX)." DEPARTMENT OF HEALTH AND HUMAN SERVICES HOMELESS SERVICES DIVISION. 2020. https://www.longbeach.gov/globalassets/health/homeless-services-divsion/homeless-count/a_homeless-data-exchange--hdx-_final-20200611

[29]Saltzgaver, Harry. 2021. "Most Long Beach Beds for Homeless People Taken, City Officials Say." Press Telegram. Press Telegram. August 24. https://www.presstelegram.com/2021/08/24/most-long-beach-beds-for-homeless-people-taken-city-officials-say/.

[30] Echeverry, Sebastian. 2021. "Has Homelessness Increased in Long Beach? Most Agree, Yes • Long Beach Post News." News. September 2021. https://lbpost.com/news/has-homelessness-increased-in-long-beach-most-agree-yes.

[31] "2020 Greater Los Angeles Homeless Count Results." 2020. Lahsa.org. https://www.lahsa.org/news?article=726-2020-greater-los-angeles-homeless-count-results.

to limit capacity to prevent the spread of COVID-19. For example, the Atlantic Bridge Community reduced its capacity from 125 beds to 84.[3233]

The pandemic has greatly affected the homeless and housing crisis in Long Beach; however, a silver lining may be found in the reprioritization of homelessness in both policy and funding. As of June 15th, 2021, the Homelessness Services Division became the Homelessness Services Bureau, and the Bureau has experienced a 500% funding increase from Fiscal Year (FY) 2018, from $10.5 million in 2018 to a total of $69 million in FY2021. The political realignment to tackle affordable housing and homelessness is promising. Our recommendations offer paths to optimize this opportunity, catalyzing progress in Long Beach and creating resiliency for future crises.[34]

> The political realignment to tackle affordable housing and homelessness is promising. Our recommendations offer paths to optimize this opportunity, catalyzing progress in Long Beach and creating resiliency for future crises.

The Housing Crisis During COVID-19

In the past 2 years of the COVID-19 pandemic, eviction and housing affordability have become chief concerns. 83 evictions occurred in the second half of 2020 in Long Beach, and another 138 in the first three months of 2021.[35] Despite an eviction moratorium in this period, essentially preventing landlords from eviction due to an ability to pay, housing rights activists and organizations in Long Beach assert evictions continued due to a loophole in which tenants can be removed for serious renovations. According to The Long Beach Housing Justice Coalition, "Substantial remodel evictions are a serious issue that can detrimentally impact the lives of renters in the City and should be addressed" through the removal of substantial remodels as just cause for eviction.[36] In July 2021, Long Beach City Council instituted a moratorium on these evictions until a long-term solution is codified.[37]

---

[32]cheverry, Sebastian. 2021. "Has Homelessness Increased in Long Beach? Most Agree, Yes • Long Beach Post News." News. September 2021. https://lbpost.com/news/has-homelessness-increased-in-long-beach-most-agree-yes

[33] Photo: "New Atlantic Farms Bridge Housing Community Opens in North Long Beach to Provide Year-Round Housing and Services for People Experiencing Homelessness." 2020. Long Beach Branch NAACP. October 5. https://lbcanaacp.org/new-atlantic-farms-bridge-housing-community-opens-in-north-long-beach-to-provide-year-round-housing-and-services-for-people-experiencing-homelessness/.

[34]"Homeless Services Bureau Transition. " City of Long Beach. 2020. https://www.longbeach.gov/globalassets/city-manager/media-library/documents/memos-to-the-mayor-tabbed-file-list-folders/2021/homeless-services-bureau-transition

[35]Duara, Nigel. "A Quiet Crisis: Tenants Fall through Safety Net into Eviction Cluster in Long Beach." LAist. August 2. 2021. https://laist.com/news/housing-homelessness/a-quiet-crisis-tenants-fall-through-safety-net-into-eviction-cluster-in-long-beach.

[36]"Substantial Remodel Evictions & Renovation Administration Program." Long Beach Housing Justice Coalition. 2021. "https://longbeach.gov/globalassets/lbds/media-library/documents/housing--neighborhood-services/substantial-remodel-related-tenant-displacement-srtd/long-beach-housing-justice-coalition-letter-to-city

[37]Ruiz, Jason. 2021. "Long Beach Will Make It Harder, More Expensive to Evict Tenants to Remodel Units. "Long Beach Post News. December 8. https://lbpost.com/news/long-beach-will-make-it-harder-more-expensive-to-evict-tenants-to-remodel-units.

Reports state that Long Beach evicted more tenants than surrounding areas, largely due to the unique housing issues of the area. In Long Beach, 82% of residential units are more than 30 years old and 71% of Long Beach residential units are more than 50 years old, allowing for the argument of the need for serious renovations. Additionally, renters comprise 62% of Long Beach residents, which is higher than the surrounding areas of Los Angeles County (54%) or Orange County (43%). Overall, the main cited reasons for higher eviction rates in the city are high unemployment, the number of renters, and the age of the houses.[38]

The eviction issues plaguing Long Beach disproportionately affect people of color, especially when considering the systemic disparities. Of the 61% of Long Beach residents who are renters, the majority are people of color. In 2016, 61% of Black renters and 59% of

Poverty Rate by Race/Ethnicity, 2000 and 2016
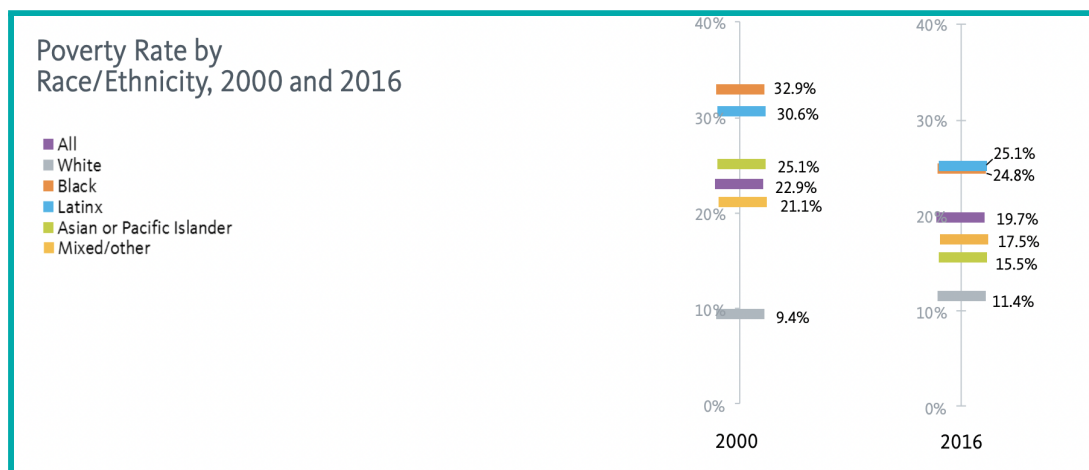
Latinx renters spent more than 30% of their income on housing. The most affected demographic for rent-burden in Long Beach is Black women. As the cost of rent has gone up by 20% over the past 10 years, people of color are becoming more at-risk of housing insecurity each year.[39] **The City of Long Beach is notably diverse; Latinx residents are the most populous (43%), followed by White (28%), and Black residents (13%).** Across all education levels, White workers earn a higher median hourly wage than people of color. And, while the poverty rate has decreased overall in the City of Long Beach, White populations are underrepresented in poverty, while Black and Latinx populations are overrepresented.

In addition to the removal of substantial remodels as a just cause for eviction in Long Beach, The Long Beach Housing Justice Coalition seeks a program in which landlords

---

[38]Duara, Nigel. "A Quiet Crisis: Tenants Fall through Safety Net into Eviction Cluster in Long Beach." LAist. August 2. 2021. https://laist.com/news/housing-homelessness/a-quiet-crisis-tenants-fall-through-safety-net-into-eviction-cluster-in-long-beach.

[39]"6th Cycle Housing Element." City of Long Beach. 2022. https://www.longbeach.gov/globalassets/lbds/media-library/documents/planning/housing-element-update/proposed-2021-2029-housing-element-january-2022

would be required to submit a plan for renovation with clear descriptions and scope and reasoning for temporary relocation of tenants. Additionally, activists seek the creation of a city division dedicated to the evaluation and approval of renovation plans, as well as the requirement by landlords to provide tenants with alternative housing during renovation. These policy items are modeled after the City of Los Angeles's Tenant Habitability Program and would apply to the desired creation of a Renovation Administration Program (RAP) in Long Beach.[40]

Recommendations

2a. Immediate Adoption: Increasing Data Usage and Capabilities to Understand Housing Need

The Everyone Home Long Beach Plan recommended that Long Beach "design and utilize a common client consent form across the system, and implement a technology solution (or expand the Homeless Management Information System–HMIS) to include all partners in the homeless services system."[41] **The AI for Good Foundation echoes this need, especially due to the numerous partners involved in addressing homelessness in Long Beach.** However, the COVID-19 pandemic has shown that this goal must also consider how to improve Point In Time Data so services are not stopped amidst crisis. It is for this reason that we recommend that Long Beach expands to have a data-driven platform for homelessness data management that includes Point In Time interactions.

One partner that can provide these services is Outreach Grid.[42] Designed in Irvine and deployed in Orange County, Outreach Grid is an end-to-end HMIS

Potential Partners

---

[40]"Substantial Remodel Evictions & Renovation Administration Program." Long Beach Housing Justice Coalition. 2021.
"https://longbeach.gov/globalassets/lbds/media-library/documents/housing--neighborhood-services/substantial-remodel-related-tenant-displacement-srtd/long-beach-housing-justice-coalition-letter-to-city
[41]"Everyone Home Long Beach Task Force Recommendations" 2022. City of Long Beach.
https://www.longbeach.gov/globalassets/everyone-home-lb/media-library/documents/news/everyone-home-lb-task-force--recommendations-sm-file.
[42]"Outreach Grid: Ending Homelessness Together.". Outreachgrid.com. https://outreachgrid.com/.

solution. Including tools for outreach, case management, immediate shelter, long-term housing, and PIT management, solutions such as this allow the city to seamlessly track and manage homelessness data to ensure people do not fall through the cracks. With so many citizens on the cusp of homelessness, this tool is especially beneficial because it allows individuals to intake themselves and find the available resources to prevent homelessness from arising. This solution also addresses low-income housing availability in providing a space for property owners to directly list their properties. Finally, Outreach Grid addresses some of the systemic issues with PIT surveys in that it allows citizens to directly signal a need for homelessness services any time of year. In communities in which Outreach Grid has already been deployed, it has been received positively as "turning a process that sometimes used to drag on for days or even weeks into something closer to 15 minutes." **Ranging from $12k/year to $100k/year, this data-enabled solution is recommended as a cost-effective way to streamline service delivery and understand the true scope of the homelessness issue.**

Preview of Outreach Grid PIT Management Tool
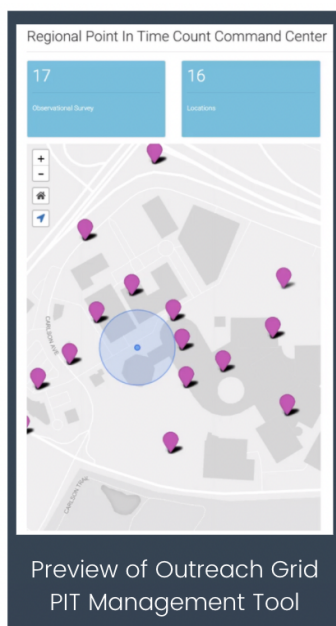
Given that tools such as Outreach Grid are designed to also aid those who are near experiencing homelessness, we recommend this system be expanded to include the necessary technologies for a Renovation Administration Program and a "one-stop-shop" for rental housing information. Outreach Grid can connect renters and property managers with a marketplace for affordable housing. This platform can be expanded to include a marketplace of temporary housing for low-income renters should relocation for renovation prove to be necessary.

Should the City of Long Beach desire to create its own platform with similar or expanded services to that of Outreach Grid, we recommend Wovenware, an artificial intelligence and software development firm specializing in digitalization in government. This company could be optimal for a custom platform solution for Long Beach because they offer end-to-end services including mobile apps and service design.[43] Additionally, Wovenware does not crowdsource their data labeling or general software development, ensuring the highest data privacy standards for governments. Another available solution to Long Beach that can be deployed to the homelessness crisis is Everest Effect. Similar to the intake tool in Outreach Grid, Everest Effect calculates a Crisis Score of those in need, taking into account factors such as

---

[43] https://www.wovenware.com/services/

income, dependents, and degree of housing insecurity. Everest Effect also connects those in need with the appropriate resources in the network of service providers.[44]

Finally, an auxiliary solution to consider specifically for renovation management is Bob.AI by BoodsKapper. Based in Texas, this solution has been deployed by the Dallas and Houston Housing Authorities, the City of Lafayette, and others that serves both renters and landlords in an online marketplace. Functionalities include video HQS (housing quality standards)

inspections, case management, and an affordable housing search tool.[45] Premium access to this platform is priced at $5/Housing Unit for PHAs (Public Housing Authorities).[46] Bob.AI can be of notable importance to understand and manage the renovation eviction crisis that Long Beach is experiencing, such as by requiring a failed HQS video inspection to prove need for renovation evictions.
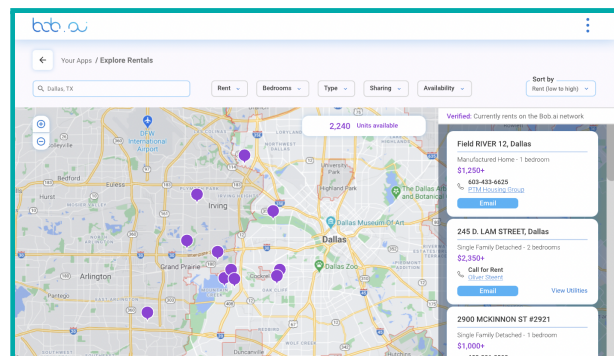
Operational Considerations

According to a survey conducted by activist group Khmer Girls in Action, 59% of voters did not know where to go for housing resources.[47] Should the City of Long Beach undergo a technological solution to homelessness and affordable housing, it will need to be coupled with an aggressive outreach strategy to ensure that residents are aware of the program's existence. Another concern could be data privacy, especially for those experiencing homelessness. We recommend that the City of Long Beach follow its Guidelines for Data Privacy and ensure especially that no PII (Personally Identifiable Data) of those seeking resources is available publicly. Moreover, we recommend that this recommendation adheres to the privacy recommendations outlined in our Data Privacy and AI Ethics recommendation.

2b. Longer-Term Adoption: Increasing Low-Income and Affordable Housing Options through Accessory Dwelling Units

Although the City is making moves toward housing solutions, there is serious pushback from those disproportionately affected, particularly in implementation. The Housing

---

[44]"Everest Effect." https://www.everesteffect.com/
[45]"Bob.ai- SaaS Applications for Businesses." 2022. Bob.ai. https://bob.ai/.
[46]"Bob.ai- SaaS Applications for Businesses." 2022. Bob.ai. https://bob.ai/.
[47]"The Fight to Stay Housed in Long Beach." Long Beach Forward. Long Beach Forward. November 16. https://www.lbforward.org/post/the-fight-to-stay-housed-in-long-beach.
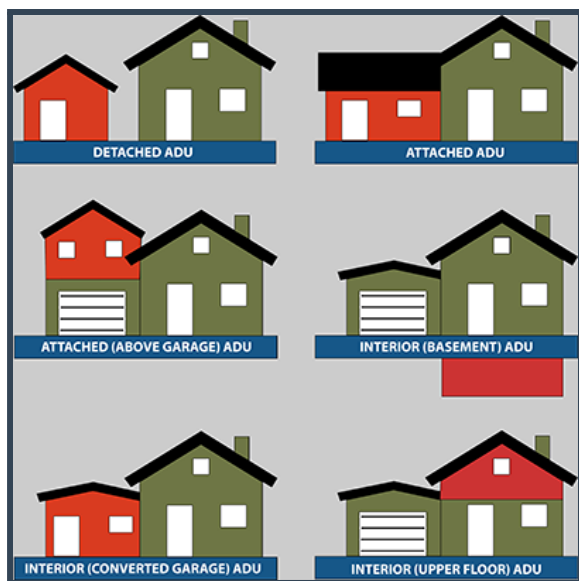
Element 2021-2029, has been under staunch fire from concerned activists in the city. Deemed "Redlining 2.0," housing advocates state that East Long Beach is predominately white and intentionally excluded from new affordable housing plans, placing most of the density burden on the western half of Long Beach.[48] This is especially concerning due to the calculated need of 26,502 units over the next eight years in Long Beach, with nearly 60% of which needing to be affordable.[49] City leaders such as Councilman Austin states there is a "clear disparity" in development, and accessory dwelling units could provide opportunities for housing amidst the crisis.[50][51]

Geospatial analysis and census tract data can be leveraged to find optimal locations for Accessory Dwelling Units (ADUs) throughout the City of Long Beach, increasing affordable housing and urban density equitably throughout the municipality. Ranging in additions to homes such as garage apartments, additions to houses, or independently-standing developments, ADUs allow homeowners to increase their incomes by providing affordable housing to renters. Companies like Wovenware can leverage city data to develop custom software to find the homes most suitable for ADU development, including a racial lens to work towards equitable distribution of density, accessibility of affordable and appropriate services, and target these homeowners for information regarding the benefits and resources available to them.[52]

As stated in the Everyone Home Long Beach Plan, we recommend a joint "Yes In My Backyard" campaign destigmatizing affordable housing near homeowners, and actively advocating for ADUs. The Greater Los Angeles County has already begun work towards this with the "Los Angeles County: Yes

[48]Ibid

[49]Ruiz, Jason. 2021. "Long Beach Has Room for Projected Housing Needs, but Current Zoning Shields Wealthier Areas from Density • Long Beach Post News." News. April 7. https://lbpost.com/news/long-beach-has-room-for-projected-housing-needs-but-current-zoning-shields-wealthier-areas-from-density.

[50]Ibid

[51]Photo"Accessory Dwelling Units." 2020. American Planning Association. https://www.planning.org/knowledgebase/accessorydwellings/.

[52]2021. Everesteffect.com. https://www.everesteffect.com/.

to ADU" campaign, as well as an Accessory Dwelling Unit Loan Pilot Program.[53] We recommend the City of Long Beach uplift these resources and expand them specifically in the municipality.

Similar data-enabled solutions have been modeled in housing-scarce cities. Seattle's Office of Planning and Community Development (OPCD) created "ADUniverse," using GIS to locate where ADUs are permitted. This website helps residents learn more about ADUs to provide diverse housing options in Seattle.[54] Costs for such a resource are dependent on time and resources required, as well as the degree to which the project is outsourced.

Operational Considerations

Homeowners may not find affordable housing to be favorable in their areas, contributing to the existing geographic disparities in the city. To combat this, an aggressive outreach and de-stigmatization campaign is necessary to politically neutralize affordable housing solutions. ADUs are notably more salient to other housing solutions as they intrinsically increase value and income to homeowners, which should be leveraged and emphasized in any campaign. GIS may prompt privacy concerns from some stakeholders. However, this program would exclusively rely on public data, and would by necessity be included in the Long Beach Open Data Portal, helping to address such concerns.

> Homeowners may not find affordable housing to be favorable in their areas, contributing to the existing redlining in the city. To combat this, an aggressive outreach and destigmatization campaign is necessary to politically neutralize affordable housing solutions.

In order for homeowners to participate in creating a large flexible pool of new housing, and especially if equitable distribution is the goal, then new landlords must not be locked into renting their ADU indefinitely, since this would prevent many otherwise willing homeowners from taking this step and increasing capacity. We recommend that this solution function as a short-term solution to a lack of affordable housing; more systemic changes are necessary.

2c. Systemic Solution: Community Land Trusts and a Housing First Model

Housing activists in Long Beach have called for a systemic approach to end the housing crisis, specifically calling for paths to homeownership. One proposed solution is

---

[53] "Official Guide to ADUs across LA County |." 2022. Laadu.org. https://www.laadu.org/.
[54] "Seattle Implements Accessory Dwelling Unit Strategy with GIS to Expand Housing Choices." 2019. Esri.com. https://www.esri.com/en-us/lg/industry/government/stories/seattle-implements-accessory-dwelling-unit-strategy-with-gis.

Community Land Trusts, in which a nonprofit organization owns land and rents it out to homebuyers. Buyers own the home that sits upon CLT land but rents the land itself.[55] This is a permanent affordability solution as buyers only purchase the house (and not the land), and are required to agree to sell the home at a restricted price to keep it affordable.[56]
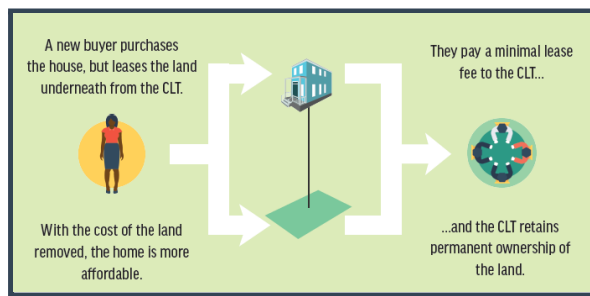
A new buyer purchases the house, but leases the land underneath from the CLT.

They pay a minimal lease fee to the CLT...

With the cost of the land removed, the home is more affordable.

...and the CLT retains permanent ownership of the land.

These land trusts can be founded by the City of Long Beach, such as the Chicago Community Land Trust (CCLT). Founded in 2006, the CCLT is a nonprofit corporation and is staffed by the City's Dept. of Planning and Development. Units available in the land trust are generated through the City's affordable housing minimum requirements for new developments and are placed in the CCLT if the affordable price is at least $25,000 below market value. This solution may be optimal as the city has expressed concern that there is not currently enough available space for CLTs. A model such as Chicago's would allow individual units to be offered in a path to homeownership.[57] This policy recommendation is informed and approved by the proposed People's Budget 2021 in the City of Long Beach, put forward by Long Beach Forward.[58] The People's Budget was among the top 5 reforms to Government and Infrastructure in Long Beach's Racial Equity and Reconciliation Initiative Report.[59]

Another systemic solution to the housing crisis, specifically homelessness, is a Housing First approach. By codifying housing as a human right, international cities have shown that the most cost-effective way to eliminate homelessness is by providing unequivocal access to housing first, before dealing with further issues such as mental health or substance abuse. This approach would require a large up-front cost in greatly bolstering Long

> By codifying housing as a human right, international cities have shown that the most cost effective way to eliminate homelessness is by providing unequivocal access to housing first, before dealing with further issues such as mental health or substance abuse.

Beach's stock of temporary and permanent housing. However, in cities that have

---

[55]Long Beach Forward. 2021. "Recommendations for Equitable Inclusion in the Long Beach Recovery Act." March 8. https://www.lbforward.org/post/Ibra2021.

[56] Photo: 2018. "Organizing and the Community Land Trust Model." Strong Towns. April 4. https://www.strongtowns.org/journal/2018/4/4/organizing-and-the-community-land-trust-model.

[57] Metropolitan Planning Council. 2014. "Home Grown - Metropolitan Planning Council." Metropolitan Planning Council. https://www.metroplanning.org/homegrown/case.aspx?case=cclt.

[58] "The Long Beach People's Budget- FY 2022." Long Beach Forward. https://www.lbforward.org/_files/ugd/500a96_db41c289409e437e864d4ddca4f031a4.pdf

[59]"Racial Equity and Inclusion Initiative Initial Report." City of Long Beach. https://longbeach.gov/globalassets/health/media-library/documents/healthy-living/office-of-equity/reconciliation/report-racial-equity-and-reconciliation-intiative

committed to Housing First such as Helsinki, permanent housing for a homeless individual including additional support cost savings is 15,000 Euros per person per year.[60]

Across All Solutions: AI for Measures of Effectiveness

Along with the implementation of any solution, it is necessary to track which interventions are having the greatest impact over time, across all targeted populations. To ensure Long Beach deploys its limited resources as strategically as possible, an AI-enabled survey and assessment company such as Makor Analytics can provide critical analysis around which of LIC's initiatives are having the greatest impact on shifting people out of homelessness, and which interventions are most effective at preventing homelessness before it occurs. Makor Analytics is particularly well-positioned to provide city leaders with insights for each segment of the population, whether they be homeless, at-risk, or underhoused. Surveys would be subject to human review for insurance and ethical viability (following the AI for Good Foundation's Ethical AI Framework), but an augmented AI system would allow city leaders to lessen their initial load in survey intake, broaden the population of those who are surveyed, and provide key metrics and insights about the measures of effectiveness for each of Long Beach's initiatives.

The Bigger Picture

As will be noted in our Economic Development recommendation, housing issues do not exist in a vacuum. Issues concerning homelessness, affordability, and poverty are intrinsically linked, and one area cannot be solved without the other. The perspective of the AI for Good Foundation in this report is to offer solutions and organizations that can aid progress and fill in the gaps.

[60]"Housing Is a Human Right: How Finland Is Eradicating Homelessness." 2020. CBC. August 19. https://www.cbc.ca/radio/sunday/the-sunday-edition-for-january-26-2020-1.5429251/housing-is-a-human-right-how-finland-is-eradicating-homelessness-1.5437402.

3. Increasing Electric Vehicle Capacity

Recommendation

3a. Support existing electric vehicle owners and encourage new growth in EV adoption through co-opting a data-centered approach to optimize the placement of new EV infrastructure. Key insights can then be applied to inform decision-making and accelerate the city's EV transition

Overview of Progress Towards EV Capacity

Since 2018 the City of Long Beach has made strides to further develop public electric vehicle infrastructure. In doing so, this simultaneously advances the city's goal of reducing greenhouse gas emissions and supporting electric vehicle infrastructure development. This consists of the expansion of city-owned and maintained electric vehicle hubs charging low rates to further incentivize EV adoption. Additionally, profits accumulated from charging stations are allocated to invest in other beneficial energy-efficient projects led by the city.[2]

As with everywhere else, Long Beach charging ports are tiered. Charging stations are categorized into different levels to indicate the speed at which an electric vehicle's battery will be charged. A higher level charging station will result in a faster charging process as more power is supplied to the vehicle.[61] City-owned charging station rates fluctuate seasonally and differ according to the level of the station; at the time of writing, the City of Long Beach operates two levels of charging, level two and three.[62]

The City of Long Beach has opted to further expand city-owned charging stations and has also taken a collaborative approach to strengthen the electric vehicle ecosystem.[2] The City announced plans to launch partnerships for further development of electric vehicle

---

[61]Moloughney, Tom. 2021. "What Are the Different Levels of Electric Vehicle Charging?" Forbes, October 4. https://www.forbes.com/wheels/advice/ev-charging-levels/.
[62] "Electric Vehicle Charging." 2018. Longbeach.gov. https://www.longbeach.gov/pw/projects/energy-efficiency-infrastructure-projects/evcharging/.

infrastructure in 2018; this announcement was accompanied by the introduction of several partners in varying stages of project maturity. The most mature of which was a collaboration between the City of Long Beach and Southern California Edison (SCE) to install electric vehicle charging stations throughout the city.[3] Several days before the publication of this announcement, the City Council had voted unanimously in favor of implementing the Charge Ready program, an initiative to install up to 300 charging stations at designated locations, 200 of which would be allocated towards public use and 100 for city-owned vehicles, which would be fulfilled by SCE.[63]

As of December 6th, 2018, the city was in the process of exploring a partnership with the Los Angeles Cleantech Incubator (LACI), a non-profit that supports the growth of start-ups developing clean technologies, that revolved around piloting shared electric vehicles.[3]

As of November 17th, 2021, the City has 203 public charging stations. Of these 203 stations, 11 are free EV charging stations.[64] Long Beach possesses 14 DC Fast chargers, which are significantly faster than regular AC chargers.[65] 2 of those DC Fast chargers are Tesla Superchargers. Accelerating the adoption of electric vehicles is a productive civic pursuit to reduce greenhouse gasses especially in a state such as California where energy consumption is still dominated by fossil fuel sources. According to the US Energy Information Agency, as recently as 2019, natural gas exceeded all other California energy consumption sources with an estimate of 2218.7 trillion BTU, dwarfing renewable sources such as nuclear electric, hydroelectric, and other renewables in comparison which had estimates of 168.8 trillion, 341.5 trillion, and 627.3 trillion BTU respectively.[66]

In the future, the need for cities, domestically and globally, to embrace electric vehicles will become increasingly apparent as sustainable transportation becomes more commonplace in smart cities around the world. **The city has demonstrated through embracing the electric vehicle transition, a future where Long Beach is a front-runner in sustainable transportation is realizable.**

[63]"City of Long Beach Launches Partnerships for Electric Vehicle Infrastructure." 2018. Longbeach.gov. https://longbeach.gov/press-releases/city-of-long-beach-launches-partnerships-for-electric-vehicle-infrastructure/.
[64]"Long Beach, California EV Charging Stations | PlugShare." 2022. Plugshare.com. https://www.plugshare.com/directory/us/california/long-beach.
[65]"DC Fast Charging Stations for Electric Vehicles (EV) | EVBox." 2022. Evbox.com. https://evbox.com/en/ev-chargers/fast-charger.
[66]"California - State Energy Profile Overview - U.S. Energy Information Administration (EIA)." 2019. Eia.gov. https://www.eia.gov/state/?sid=CA#tabs-1.

3a. AI for EV Adoption Recommendation

We propose the city co-opt a data-centric solution originally piloted by the London Data Commission to encourage electric vehicle adoption in the city of London, UK. The pilot united data from private and public sources to identify optimal locations for the development of electric vehicle charging stations through mapping layers of data such as power capacity data and available publicly-owned land plots on a geographic map. These merged geographic maps were overlapped creating an interactive heatmap of the Greater London Area which revealed ideal land parcel candidates that should be further explored for electric vehicle infrastructure development.[67]

Due to the replicable nature of this pilot and the suitability of its core outcomes to Long Beach's vision of developing its electric vehicle ecosystem, we encourage the adoption of this solution with adaptations made as needed. This recommendation would work in tandem with the city's intent to develop a city-wide electric vehicle infrastructure plan. Building upon the progress that the city has already made, this proposal aligns neatly with Long Beach's objective to support existing electric vehicle adopters and encourage new growth in electric vehicle ownership in Long Beach by

> Previously city-driven EV initiatives have much synergy with this recommendation as the pilot we are proposing is actionable and feasible in advancing the existing commitment that Long Beach has made to electric vehicle infrastructure.

supplying the infrastructure needed for reliable mobility. These previously city-driven EV initiatives have much synergy with this recommendation as the pilot we are proposing is actionable and feasible in advancing the existing commitment that Long Beach has made to electric vehicle infrastructure.

Detailed Recommendation

Through the unification of open and private data sources, EV adoption barriers can be overcome. This intervention explores how tapping into available data can contribute to decision-making on where to roll out electric vehicle infrastructure. Through analyzing factors that influence the desirability of parcels of land for building Electric Vehicle charging stations, such as preexisting EV infrastructure and EV infrastructure demand, findings from that analysis can then be applied to evaluate

Source: LondonFirst

---
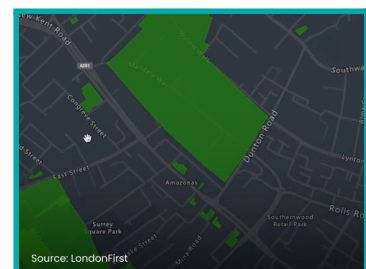
[67]"London Data Commission - Data Sharing Pilots | London First." 2022. Londonfirst.co.uk.
https://www.londonfirst.co.uk/what-we-do/competitiveness/london-data-commission-the-pilots#ev.

which land parcel candidates are best suited for new infrastructure development.[7]

The initial phase of this recommendation is accumulating datasets from a diverse variety of open and private sources such as power capacity, EV charging demand, etc. These datasets may look like any of the following: traffic data (to determine EV charger demand), a database on the locations of preexisting charging stations, or a dataset with records of EV charging patterns at specific charging hubs.[7]

Branching out from the original pilot's datasets, the city can introduce air quality and health data to prioritize the introduction of emission-free infrastructure and data that spotlights equity within granular populations to incentivize low-income and marginalized communities to take advantage of infrastructure.

The datasets will vary but the intention is to glean insight into the suitability of land sites or ensure that the electric vehicle transition is clean and accessible to all. As a starting point, a sample data catalog has been curated and can be referred to in the cited resource.[68]

Source: LondonFirst

The datasets will then be individually translated into geographical heat maps and then overlaid to identify the areas of overlap. A spatial model that is aware of both geographic and economic trade-offs can then be applied to identify candidate networks within budgetary constraints and the availability of existing infrastructure. Following this, a list of the most suitable locations for new EV infrastructure development will be derived and will need to be validated through further analysis.[7]

Case Studies

The usage of spatial optimization to augment decision-making in Electric Vehicle charging hub sites isn't a completely novel use-case. There is a healthy amount of real-world applications, academic papers, and research surrounding this intervention. The most notable of real-world applications would be the Electric Vehicle Charging Infrastructure Pilot[69], a solution to inform EV infrastructure decision-making to accelerate electric vehicle adoption.

---

[68] AI for Good Foundation.. "Long Beach Environmental Recommendation Data Catalog." Google Docs. https://docs.google.com/document/d/1FCMWt7uCMkDxSoYHtq7iJFgsH4NWIv--zA5KjNYK0ws/edit.
[69]"Open Data Campaign: Year One in Review." 2021. https://news.microsoft.com/wp-content/uploads/prod/sites/560/2021/04/Microsoft-Open-Data-Campaign-Report_PDF_FINAL-1.pdf

The Electric Vehicle Charging Infrastructure pilot was one of four data-driven schemes explored by the London Data Commission[70], a task force consisting of London First, Arup, Microsoft, and the Oliver Wyman Foundation that was united in hopes of cultivating data-led solutions that address some of the city of London's biggest challenges. Amongst informing decision-making on where to build electric vehicle infrastructure, three other challenges were also identified as high impact on the lives of Londoners. The London Data Commission also explored data-centric pilots for digital inclusion, smart neighborhoods, and COVID-19 recovery.[71]

While these pilots were diverse in their challenges posed and the intervention administered, **the ultimate outcome was to understand how fostering a collaborative data-sharing ecosystem can lead to cultivating solutions that have a net positive impact on the lives of Londoners.** This was an important detail to make mention of because the Electric Vehicle Charging Infrastructure pilot is very much dependent on the cooperation of institutions in lending data from both public and private sectors.

The Electric Vehicle Charging Infrastructure pilot that was delivered by partners Oliver Wyman, Microsoft, (both of which were already engaged as stakeholders in the London Data Commission) UK Power Networks, BP, and Kainos aimed to support the growth of electric vehicle ownership in London, UK. The initial stages of this pilot are believed to have closely followed Microsoft's launch of their Open Data Campaign in April 2020.[72] The pilot assessed parcels of lands of various scales for their suitability through analyzing land area data such as available power capacity, proximity to popular traffic routes, and remoteness from existing charging hubs. This resulted in finding 2,270 land parcels within the Greater London area that met the criteria for potential

---

[70] "London Data Commission | London First." 2022. Londonfirst.co.uk.
https://www.londonfirst.co.uk/what-we-do/competitiveness/london-data-commission.
[71]"Summary of the London Data Commission Recommendations." 2022. Accessed February 11.
https://www.londonfirst.co.uk/sites/default/files/documents/2020-09/LDC%20Infographic.pdf.
[72]"London Will Only Realise Its True Potential If It Unlocks the Power of Data, Says Key Report." 2020. Microsoft News Centre UK.
September 10.
https://news.microsoft.com/en-gb/2020/09/10/london-will-only-realise-its-true-potential-if-it-unlocks-the-power-of-data-says-key-report/.

development. According to the Oliver Wyman Forum, "Even if only 10 percent of those locations were developed, that would create more than 3,600 additional charging points that could charge as many as 15,000 large goods vehicles per day."[73]

The key outcomes that the pilot brought to life were;[7]

- Proved that through leveraging open data, infrastructure-related challenges hindering EV adoption could be overcome;
- Elevated data transparency;
- Pinpointed gaps in datasets hampering high-quality analysis;
- Identified potential locations for EV infrastructure based on factors such as demand, land availability, etc;
- Initiated potential implementation of the pilot by sending analysis results to GLA for continued consideration.

Potential Partners
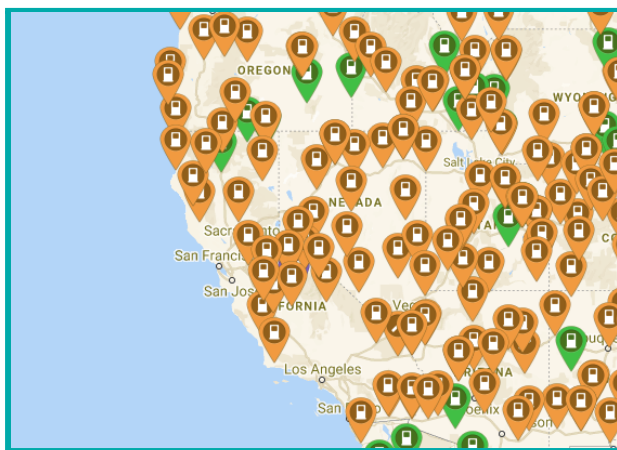
To carry out this proposal, we recommend that the City of Long Beach convene with partners that previously participated in the delivery of the London Electric Vehicle Infrastructure placement pilot. Namely, we encourage the city to establish contact with Microsoft to support the development of the pilot. We also recommend enlisting the help of Kainos to appoint them with the same charge that they were engaged within the London pilot: designing the dashboard that maps the identified parcels of land suitable for development.[7] Furthermore, we would also encourage establishing contacts with the following organizations to explore the possibility of data sharing:

- Southern California Edison
- Chargepoint
- Alternative Fuels Data Center
- PlugShare

---

[73]Wyman, Oliver. 2020. "Supporting Plans for EV Charging Infrastructure." Oliver Wyman Forum.
https://www.oliverwymanforum.com/future-of-data/2020/sep/supporting-plans-for-ev-charging-infrastructure.html.

It is worth mentioning that this is not an exhaustive list but instead serves as a jumping-off point to begin the process of data collection.

Operational Considerations

We would cite privacy concerns as a prime consideration as the sharing of data to generate insights is at the crux of this pilot. It is imperative that sensitive data; information that may identify residents such as mobility or charging hub usage patterns are handled with data stewardship principles and that the privacy of individuals is respected. The City of Long Beach is encouraged to reference the London Data Charter[74], a policy base that was the backbone of the London Data Commission's pilot's ethical considerations. The charter consists of seven principles; Deliver benefit for Londoners; Drive inclusive innovation; Protect privacy and security; Promote trust; Share learnings with others; Create scalable and sustainable solutions; and Be as open as possible.[13] Through establishing a high level of standards for the protection of the privacy and security of residents, the city will be able to demonstrate the positive impact that data sharing pilots have on smart cities without privacy concerns dampening the value they deliver.

> Through establishing a high level of standards for the protection of the privacy and security of residents, the city will be able to demonstrate the positive impact that data sharing pilots have on smart cities without privacy concerns dampening the value they deliver.

The following operational considerations are lessons learned that have been derived from the London Data Commission's Electric Vehicle pilot and may apply to the City of Long Beach should the city choose to replicate this pilot, specifically data limitations and analysis limitations.[7] Data limitations may arise from common issues faced when working with real-world data: disorder and incompleteness while the latter is a direct consequence of data limitations. For example, in the London Data Commission's pilot, while traffic counts that provided insight into traffic flows was a dataset used in the analysis, getting access to driving and charging pattern statistics was named as a potential next step in elevating the quality of the analysis.[7]

Other key takeaways from the London Data Commission that we encourage the city to consider are the creation of a data-sharing template prior to convening with partners to streamline the planning process and ensuring that corporate strategies are aligned with the objectives of the pilot to facilitate long term participation.[7]

---

[74]"The London Data Charter - the Principles | London First." 2022. Londonfirst.co.uk.
https://www.londonfirst.co.uk/what-we-do/competitiveness/london-data-charter/principles.

Envisioned Impact

More informed decision-making around charging hubs for electric vehicles is a catalyst to adopting sustainable transportation in smart cities. **Through leveraging the power of big data, optimization of the placements of electric vehicle infrastructure is a productive tool to ensure that resources are distributed to be accessible everywhere.** Furthermore, once the intervention has been brought to fruition, the City of Long Beach can realize a future where residents live, work, and play in an environment that has not been compromised by the unremitting need for transportation. Finally, the distribution of resources should adhere to the Office of Equity's Toolkit[75] to ensure equal access.

---

[75]"Long Beach Equity Toolkit for City Leaders and Staff." n.d.
https://www.longbeach.gov/globalassets/health/media-library/documents/healthy-living/office-of-equity/city-of-long-beach-office-of-equity-toolkit.

4. Expanding Economic Opportunity

The City of Long Beach has taken notable strides towards increasing economic opportunity and equity; our recommendations serve to show where technology can fill in the gaps. The following recommendations to augment the City's extensive efforts are for both short term and long term implementation:

Recommendation

4a. Integrate Big Interview into its suite of available services in Pacific Gateway, the city's workforce development board, to increase accessible employment and hiring training for low-income and reentering workers

4b+c. Create a Local and Targeted Hiring Program complete with a city-wide job board and apprenticeship opportunities. Expand equitable hiring and procurement efforts, beginning with implementing a local hiring requirement through the PlanetBids vendor platform

4d. Prepare for the increase in e-banking and cashless societies by exploring alternative banking options for low-income communities and communities of color

4e. Increase availability of general business health and viability data by implementing an opt-in receipt scanning program for consumers

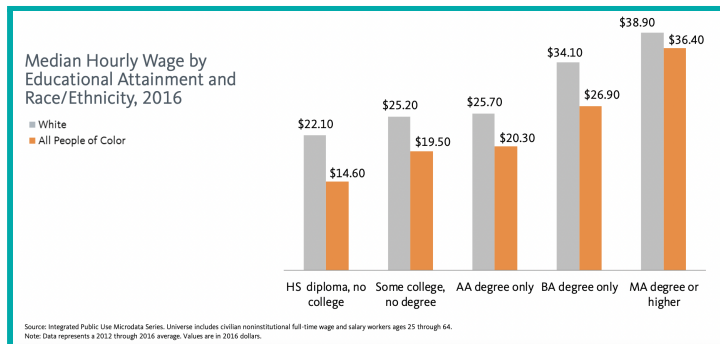## Current State of Economic Opportunity

The City of Long Beach faces multiple factors contributing to its need for equitable economic opportunities, chief among them available housing opportunities. According to the Racial Equity and Reconciliation Initiative, the most important reform needed for economic opportunity amongst the surveyed community is to "increase affordable housing and legal protections for Black people and people of color."[76] While the Economic Opportunity section of this report will focus on other areas of growth aside from housing, it is of utmost importance that our housing recommendation is not only considered in its own right, but intrinsically tied to economic development as well.

Poverty and the risk of homelessness go hand-in-hand. Over one-half of individuals falling into homelessness cite a loss of their job or insufficient income as the driving force.

---

[76]"Racial Equity and Inclusion Initiative Initial Report." City of Long Beach. https://longbeach.gov/globalassets/health/media-library/documents/healthy-living/office-of-equity/reconciliation/report-racial-equity-and-reconciliation-intiative

Much like cited gentrification issues, rates of unemployment and poverty are geographically stratified. The city's unemployment rate is 4.3% overall, but over 30% in
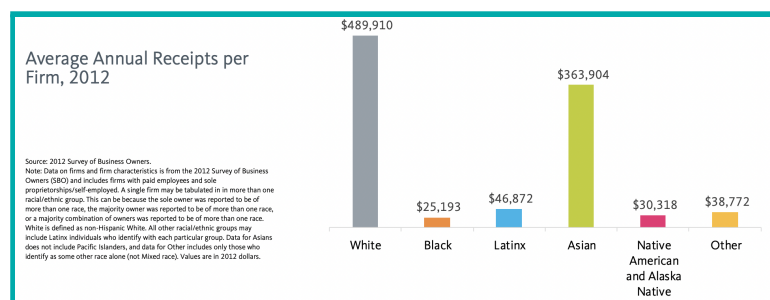

Median Hourly Wage by Educational Attainment and Race/Ethnicity, 2016

■ White
■ All People of Color

	HS diploma, no college	Some college, no degree	AA degree only	BA degree only	MA degree or higher
White	$22.10	$25.20	$25.70	$34.10	$38.90
All People of Color	$14.60	$19.50	$20.30	$26.90	$36.40

Source: Integrated Public Use Microdata Series. Universe includes civilian noninstitutional full-time wage and salary workers ages 25 through 64.
Note: Data represents a 2012 through 2016 average. Values are in 2016 dollars.

pockets within city lines.[77] Not only are these issues geographically dependent, but racially as well. The Black unemployment rate in Long Beach is 12.2%, and Black residents face higher unemployment rates regardless of education level.[78] 33% of Black residents live in poverty, and they are the demographic with the highest rate of rent burden.[79] Echoing national disparity numbers, Black women specifically, are the most rent-burdened group in Long Beach, paying an average of 63% of their income on rent.[80] Given the disparate statistics of unemployment and income inequality amongst communities of color in Long Beach, the second-most cited reform in the Racial Equity and Reconciliation Initiative report was to increase jobs, job training, and skilled training for underserved populations.[81]

The third-most cited reform in the Racial Equity and Reconciliation Initiative report was to streamline, support, and encourage local minority-owned businesses.[82] This call for action is rooted in the realities of the business

Average Annual Receipts per Firm, 2012

Source: 2012 Survey of Business Owners.
Note: Data on firms and firm characteristics is from the 2012 Survey of Business Owners (SBO) and includes firms with paid employees and sole proprietorships/self-employed. A single firm may be tabulated in in more than one racial/ethnic group. This can be because the sole owner was reported to be of more than one race, the majority owner was reported to be of more than one race, or a majority combination of owners was reported to be of more than one race. White is defined as non-Hispanic White. All other racial/ethnic groups may include Latinx individuals who identify with each particular group. Data for Asians does not include Pacific Islanders, and data for Other includes only those who identify as some other race alone (not Mixed race). Values are in 2012 dollars.

White	Black	Latinx	Asian	Native American and Alaska Native	Other
$489,910	$25,193	$46,872	$363,904	$30,318	$38,772

sector; retiring baby boomers own approximately 50% of businesses that employ people in the US, but less than a fifth of these businesses have a succession plan.[83] Not only is age an issue facing the business community, but race as well. While there is no recent data available, a survey from 2012 in Long Beach found that White businesses' average annual receipts per firm totaled nearly $500,000, those of Black and Latinx Firms totaled $25k and

[77]Ibid
[78] "Equitable Growth Profile of the City of Long Beach" 2019.
https://www.policylink.org/sites/default/files/Long_Beach_Equitable_Growth_Profile_FINAL_v4.pdf.
[79] Ibid
[80] "Equitable Growth Profile of the City of Long Beach" 2019.
https://www.policylink.org/sites/default/files/Long_Beach_Equitable_Growth_Profile_FINAL_v4.pdf.
[81]"Racial Equity and Inclusion Initiative Initial Report." City of Long Beach.
https://longbeach.gov/globalassets/health/media-library/documents/healthy-living/office-of-equity/reconciliation/report-racial-equity-and-reconciliation-intiative
[82]Ibid
[83]"Project Equity Long Beach CA Small Business Closure Crisis." Project Equity. 2019.
https://project-equity.org/wp-content/uploads/2019/05/Project-Equity-Long-Beach-CA-Small-Business-Closure-Crisis.pdf

$46k, respectively.[84] As the retirement of older populations creates a chasm in businesses, communities of color should be equipped to fill the gap.

The Digital Divide and Economic Opportunity

Another chief concern found in the Racial Equity and Reconciliation Initiative was to narrow the digital divide and increase internet access amongst communities of color. According to the Technology and Innovation Commission (TIC) report analyzing the impact of the digital divide

1 in 4 households that earn $20k or less lack any access to the internet.
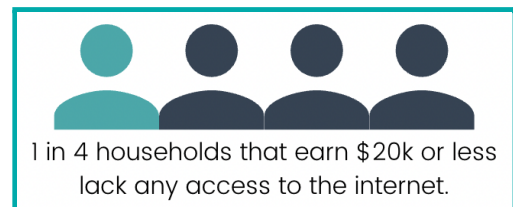
in Long Beach, roughly 28% of households lack access to a broadband internet connection, and 16% lack internet access altogether.[85] According to a 2018 American Community Survey (ACS), 10.6% of Long Beach residents can only access the internet by cell phone.[86] Households of color in Long Beach lack internet access at twice the rate of white households in Long Beach, and 8% of Black individuals are without computer access, compared to 3.6% of white residents. Internet and computer access is also stratified by income; 1 in 4 households that earn $20k or less lack any access to the internet.[87]

In addition to the intrinsic need for equity amongst internet access and the right to information, the digital divide is especially harmful towards equitable economic development.

In addition to the intrinsic need for equity amongst internet access and the right to information, the digital divide is especially harmful towards equitable economic development. This is due to several factors, including a lack of access to online applications, available job openings, and employment and career services.

The Digital Divide is also projected to have impacts across the financial sector, especially as cashless business becomes more prevalent. Over the past 20 years, the US has seen a 47% reduction in brick and mortar bank branches.[88] The lack of banks is especially prevalent in low-income neighborhoods in Long Beach, as well as an overconcentration of check-cashing locations.[89] Across the U.S. in 2019, 5.4% of Americans lacked a checking or savings account, though Black and Latino populations had higher unbanked rates at 13.8%

[84] "Equitable Growth Profile of the City of Long Beach" 2019.
https://www.policylink.org/sites/default/files/Long_Beach_Equitable_Growth_Profile_FINAL_v4.pdf.
[85]"Analysis and Recommendations for Advancing Digital Inclusion in Long Beach." 2022. Accessed February 11.
https://www.digitalinclusion.org/wp-content/uploads/2020/06/Analysis-and-Recommendations-for-Advancing-Digital-Inclusion-in-Long-Beach.pdf.
[86]"An Exploration of the Digital Divide." 2020.
https://nextcenturycities.org/wp-content/uploads/12.16.20-NCC-Case-Study-Long-Beach-CA-FINAL.pdf.
[87] Ibid
[88]"'EVERYONE IN' ECONOMIC INCLUSION INITIATIVE Phase I Summary".Long Beach Economic Development.
https://www.lisc.org/media/filer_public/24/f3/24f31830-ef7e-473b-a205-8abe36e203ef/everyone_in_phase_1_report.pdf
[89]Ibid

and 12.2%, respectively.[90] California specifically faces an unbanked and underbanked crisis amongst communities of color. This is partially due to a large population of undocumented individuals in the state, comprising 6% of the population.[91] Cited reasons for unbanking include distrust in big banks and federal government, the latter especially prevalent in undocumented communities.[92] High bank fees are a commonly reported prohibitor of banking in low-income communities, and Black and Hispanic Americans were found to pay twice the rate in bank fees as compared to White Americans.[93]

> While cashless payments have been helpful to business owners for sanitation, efficiency, and trackable data on their performance, the shift away from cash can cause negative racial and economic effects due to the existing banking disparities.

The COVID-19 pandemic has been a catalyst for disparity in banking. Since the beginning of the pandemic, small business owners believe that society will become cashless six years sooner than when asked before, predicting a full shift in 13 years in 2020 as opposed to the prediction of 19 years in 2019.[94] While cashless payments have been helpful to business owners for sanitation, efficiency, and trackable data on their performance, the shift away from cash can cause negative racial and economic effects due to the existing banking disparities. For this reason, San Francisco and Philadelphia have banned cashless stores.[95] While we do not recommend a complete ban on fully-cashless enterprise, the City of Long Beach should brace for an increasing shift away from cash in coming years, especially for communities of color.

Efforts Undertaken by Long Beach to Improve Economic Opportunity

The Racial Equity and Reconciliation Initiative, the Everyone In Long Beach report, the People's Budget, and other policy reports on Long Beach have all called for a narrowing of the digital divide. Towards these goals, the City of Long Beach has instituted a Digital Inclusion Roadmap, as well as a series of programs to meet its defined goals. Under their

---

[90]"How America Banks: Household Use of Banking and Financial Services." 2019. FDIC. https://www.fdic.gov/analysis/household-survey/2019execsum.pdf
[91]"Undocumented Immigrants in California." 2017. Public Policy Institute of California. Public Policy Institute of California. March 9. https://www.ppic.org/publication/undocumented-immigrants-in-california/.
[92]Masunaga, Samantha, and Jackeline Luna. 2021. "Big Banks Want Black, Latino Communities to Trust Them." Los Angeles Times. Los Angeles Times. June 19. https://www.latimes.com/business/story/2021-06-19/big-banks-banks-community-people-of-color-trust.
[93]Fox, Michelle. 2021. "Black and Hispanic Americans Pay Twice as Much in Bank Fees as Whites, Survey Finds." CNBC. January 13. https://www.cnbc.com/2021/01/13/black-and-hispanics-paying-twice-amount-banking-fees-than-whites-survey.html.
[94]"Making Change: Cashless Payments & the Pandemic." 2020. Square. https://squareup.com/us/en/making-change/2020/1.
[95]Smith, Erika D. 2020. "Coronavirus: Stores Are Going Cashless. The Cost Is Racism." Los Angeles Times. Los Angeles Times. June 27. https://www.latimes.com/california/story/2020-06-27/coronavirus-cashless-business-racism-inequity-square.

Digital Inclusion program, Long Beach has partnered with Human-I-T, a local nonprofit organization that provides:

- affordable internet access to low-income individuals
- free Chromebooks to applicable zip codes. Outside of these zip codes, Human-I-T provides computers to individuals and nonprofit organizations for as low as $100
- free, self-paced computer literacy program on skills such as mouse and keyboard use, internet safety, and opening an email account.[96]

Finally, the City of Long Beach's Digital Inclusion Initiative holds an annual Digital Inclusion Week, in which the municipality hosts a series of Facebook Live on topics including available technology resources and Census count information.[97]

During the COVID-19 pandemic, Long Beach has also made notable strides towards economic inclusion in its BizCare Initiative. In which, the city utilizes geographic information system (GIS) data to prioritize high-need businesses, with the goals of aiding these businesses
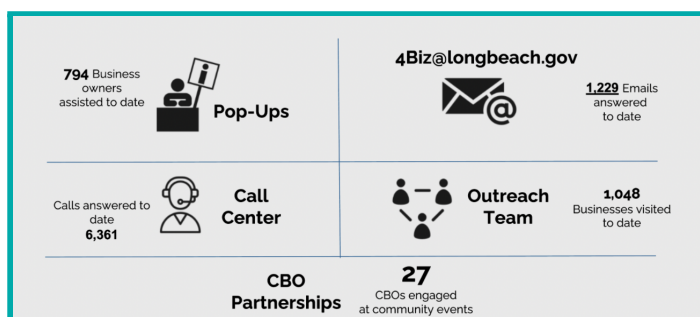
and garnering trust within the community. BizCare popups were placed throughout the city, and by word-of-mouth 795 business owners were connected with resources and collectively granted $760,750 in relief funds. Street engagement totaled 1,048 businesses, and the call center outreach totaled 6,361 calls. Through BizCare, access to grant funding amongst non-English-speaking businesses owners increased more than 40%. Not only was this program beneficial to businesses, but those seeking employment as well. BizCare partnered with the Long Beach Pacific Gateway Workforce Innovation Network to fund employment opportunities amongst the BizCare team.[98]

In 2018, Long Beach became a "Kiva City," a program that provides nontraditional access to credit for small businesses with zero-percent interest and no-fee loans. Specifically geared towards individuals with bad credit or a lack of assets, the program is especially helpful for low-income communities. Through the program, 24 businesses have benefited from a total capital deployment of $202k to date.[99] This initiative is explicitly advocated for

[96]"Digital Inclusion Community Resources." 2022. Longbeach.gov. https://www.longbeach.gov/ti/digital-inclusion/resources/.
[97]"Digital Inclusion Week." 2021. Longbeach.gov. https://www.longbeach.gov/ti/digital-inclusion/digital-inclusion-week/.
[98] "BizCare Program." 2020. Longbeach.gov.
https://www.longbeach.gov/economicdevelopment/business-development/bizcare-program/.
[99]"Kiva Long Beach." 2019. Longbeach.gov.
https://www.longbeach.gov/economicdevelopment/business-development/kiva-long-beach/.

in the Equitable Growth Profile of Long Beach report, as well as an increase in microlending opportunities.[100]

Recommendations

4a. Immediate Action: Integration of Job Training and Hiring Resources into Pacific Gateway

According to the Racial Equity and Reconciliation Initiative report, the surveyed community seeks an increase in job training and skilled training for underserved communities, as well as skilled job opportunities for those transitioning out of prison.[101] One immediate aid that could begin to meet these goals is the integration of a job readiness platform into Pacific Gateway.

Spotlight: Big Interview

Big Interview offers a variety of resources to job seekers, including courses on searching for jobs, building resumes, negotiations, and interview preparation. Big Interview also has augmented tools, including a resume builder and templates for thousands of job types, and an AI-powered interview practice software that allows job-seekers to receive immediate feedback on their interview performance, with specific practice interviews according to job type, sector, and difficulty. All of the resources are available in both English and Spanish. Finally, Big Interview has programs for specific underserved populations seeking employment, including Adult Reentry, English as a Second Language (ESL), Disabilities, LGBTQIA+, Military transition, and more. This solution has been deployed to thousands of universities and workforce development boards and is currently in negotiations with the Los Angeles County workforce development board.[102] Overall, Big Interview found that individuals using the software found employment within 4.43 weeks. This is significantly less time compared to the national average of unemployment which is 19.8 weeks. We recommend that the Pacific Gateway workforce development board

[100]"Equitable Growth Profile of the City of Long Beach" 2019.
https://www.policylink.org/sites/default/files/Long_Beach_Equitable_Growth_Profile_FINAL_v4.pdf.
[101]"Racial Equity and Inclusion Initiative Initial Report." City of Long Beach.
https://longbeach.gov/globalassets/health/media-library/documents/healthy-living/office-of-equity/reconciliation/report-racial-equity-and-reconciliation-intiative
[102]2022. Big Interview. https://biginterview.com/.

work with Los Angeles County to be included in the purchase of this resource. Should Pacific Gateway seek an independent contract, the annual costs of Big Interview are estimated to be $32,400.

4b. Longer-Term Recommendation: Local and Targeted Hiring for Disadvantaged Workers Through a Universal Job Board

The AI for Good Foundation recommends that the City of Long Beach create an internal Local and Targeted Hiring program, as well as an extended requirement of local and targeted hiring to businesses that are contracted by the City of Long Beach.

City Spotlight: Los Angeles	City Spotlight: San Francisco
The Los Angeles Target Local Hire program offers full-time employment at least $15/hr to disadvantaged communities, including specific zip codes, formerly homeless populations, and formerly incarcerated individuals.[103] In an analysis of this program, success was found in the program creating approximately $1.02 billion in wages for Los Angeles residents between 2004 and 2011.[104]	Local and Targeted hiring programs can also be implemented for city improvement projects, such as in San Francisco. The city enforces a mandatory local hiring requirement for 30% of work hours on public work or improvement projects in excess of $600,000. Since implementation, the city boasts more than 40% local hiring for contracted projects.[105]

We recommend creating a city-wide job board that offers all postings from a Local and Targeted Hiring program within the City of Long Beach, as well as job postings for external public works projects subject to targeted hiring, such as in San Francisco. This centralized platform should make clear the requirements of candidates, offer job training and readiness resources such as Big Interview, and convey all of the available opportunities for local and targeted hiring within the city government and its approved external projects. The City of Long Beach could expand this platform by incentivising or even mandating local businesses to contract local and targeted new hires, offering grants to businesses that meet the city's standards, and broadcasting their employment opportunities on the job board.

---

[103]"Target Local Hire | LA Local Hire." 2021. Lacity.org. https://lalocalhire.lacity.org/target-local-hire.
[104]"EXPLORING TARGETED HIRE an Assessment of Best Practices in the Construction Industry." 2014.
http://www.seattle.gov/contracting/docs/labor/TargetedHire.pdf.
[105]Francisco, San. 2017. "LOCAL HIRING POLICY for c Annual Report Background Photo by Dave Rauenbuehler,Port of SF."
https://oewd.org/sites/default/files/Workforce/Workforce%20Collateral/2018%20Local%20Hiring%20Policy%20Annual%20Report%206.22.18.pdf.

Implementation and Operational Considerations

Should the city seek partners to create such an online platform, we recommend Wovenware, a software development firm that creates custom solutions for government entities. Based in Puerto Rico, Wovenware has diverse, end-to-end capabilities including design, data analytics, and mobile application consulting. Should Long Beach choose to undergo this policy route, AI for Good recommends working with the community and the Los Angeles local and targeted hiring program to define terms and expectations.

Potential Partner

4c. Longer-Term Recommendation: Equitable Hiring and Procurement of Contracts for Minority Businesses

Similar to equitable hiring of individual workers, the City of Long Beach can improve the economic development of minority businesses by codifying equitable hiring and procurement of businesses for city contracts. An example of this is in St. Paul, Minnesota, where the city's online bidding platform allows vendors to become registered as an MBE (minority-owned), a woman-owned business enterprise (WBE), or a small business enterprise (SBE) through one-day community workshops that are hosted monthly.[106] By making these designations apparent on bidding platforms and accessible to obtain through workshops, MBEs are more likely to be noticed and chosen for city works projects. We recommend expanding or supplementing the Planetbids bidding platform to offer resources on how businesses can receive MBE, WBE, or SBE designations. Ideally, Long Beach can also offer monthly workshops on such topics to amplify program success.

Implementation and Operational Considerations

> Specifically prioritizing businesses in need, local and targeted hiring opportunities can bolster annual receipts to disadvantaged local businesses.

Specifically prioritizing businesses in need, local and targeted hiring opportunities can bolster annual receipts to disadvantaged local businesses. We recommend working with the PlanetBids platform to ensure that resources can be immediately available to the specified business groups. Finally, we recommend that any entrepreneur that is interacted with completes a survey outlining the state of their business and the resources that would help their outcomes. One such AI-enabled survey provider is Makor Analytics, which offers nuanced, accurate, and granular insights on the health of businesses. In addition to providing unique survey insights, Makor Analytics also specializes in establishing customized metrics for measuring the effectiveness of interventions over time (this capability is also referenced in the Housing Recommendation section).

---

[106]"All-in Cities Policy Toolkit | Allincities.org." 2022. Allincities.org. https://allincities.org/toolkit.

4d. Longer-Term Recommendation: Diversified and Expanded Banking Opportunities for Communities of Color

Cashless societies have several benefits when working equitably. They can virtually eliminate theft of individuals and businesses, as well as fraud in financial systems, government services, and unlock a wealth of information on the needs of the most vulnerable groups. The data gathered by exclusively cashless interactions can be leveraged with Artificial Intelligence to closely monitor the flow of funds to ensure integrity and efficiency, to understand the effect of government programs and benefits, and to better understand the local economy at the most detailed level. However, we cannot ethically reach these ideals without closing the banking divide.

> As cashless businesses become more prevalent, new solutions are necessary to bridge the financial divide. We recommend that the City of Long Beach create its own cashless options for citizens who do not want to use banks, and incentivise banking in the next generation.

As cashless businesses become more prevalent, new solutions are necessary to bridge the financial divide. We recommend that the City of Long Beach create its own cashless options for citizens who do not want to use banks and incentivise banking in the next generation.

One such transitional cashless option is the ID NYC program. New York City has created a program in which every resident, regardless of immigration status or income including homelessness, can register for identification that is approved for police interactions, functions as a library card, and provides benefits such as discounted prescriptions and museums in the City.[107] Most importantly, it functions as necessary identification to open a bank account at select banks.[108] While the IDNYC program is not perfect, specifically in that the largest banks such as Bank of America do not yet accept the card as primary identification, it is a progressive step towards equitable banking access with 670,000 users as of 2015.[109]

We recommend that the City of Long Beach implement a similar program to IDNYC, and partner with banks already noted in the Los Angeles County Bank On Initiative, a

[107] Photo: "How to Apply - IDNYC." 2022. Nyc.gov. https://www1.nyc.gov/site/idnyc/card/how-to-apply.page.
[108]"About - IDNYC." 2015. Nyc.gov. https://www1.nyc.gov/site/idnyc/about/about.page.
[109]The New York Times. 2022. "Banks Reject New York City IDs, Leaving 'Unbanked' on Sidelines (Published 2015)."
https://www.nytimes.com/2015/12/24/business/dealbook/banks-reject-new-york-city-ids-leaving-unbanked-on-sidelines.html.

national movement to serve unbanked and underbanked communities by providing alternative identification options.[110] The City of Long Beach may want to expand upon this list with credit unions or banks closer to the in-need populations within the city.

For the next generation of citizens, AI for Good recommends the creation of incentivized savings accounts. Such an example is the Office of Financial Empowerment's Kindergarten to College (K2C) program in San Francisco, which provides a $50 seed deposit to all kindergarten students and a $50 bonus to students enrolled in the National School Lunch program. Additional areas of the program are philanthropic dollar-for-dollar matching, as well as bonuses for families that save consistently. By 2015, this program had benefited 21,000 students with accounts totaling $3.4 million.[111] Such a program in Long Beach could garner trust amongst the community in banking and savings, while also providing a path for low-income students to go to college. A similar program was launched in 2021, entitled Opportunity L.A.[112]

Operational Considerations

Long Beach can use GIS, as well as census and income data, to identify the neighborhoods that are the most severely underbanked, and set up information booths

Recommendation for Banking

Alternative Identification and Connection to Screened Banks

Incentivised savings accounts for students

around the city. In alignment with the City's stance on AI Ethics and Data Privacy, any identification program would also have to have strict and transparent privacy guidelines. Additionally, the IDNYC program has had challenges due to the lack of large banks accepting the identification to open accounts.[113] The City of Long Beach has the opportunity to implement a similar program and address these challenges before rollout. To optimize a seed college savings program, Long Beach could consider a phased rollout, such as that deployed in Opportunity L.A., where the first round of students was chosen by the district's Student Equity Needs Index that measures and tracks the percentage of students who may need additional support.[114]

[110]"What Is Bank on – Consumer & Business." 2022. Los Angeles County Department of Consumer & Business Affairs. Consumer & Business. https://dcba.lacounty.gov/bankon/.

[111]"All-in Cities Policy Toolkit | Allincities.org." 2022. Allincities.org. https://allincities.org/toolkit.

[112]"Opportunity L.A. – LAHD." Lacity.org. https://housing.lacity.org/community-resources/opportunity-la.

[113]The New York Times. 2022. "Banks Reject New York City IDs, Leaving 'Unbanked' on Sidelines (Published 2015)." https://www.nytimes.com/2015/12/24/business/dealbook/banks-reject-new-york-city-ids-leaving-unbanked-on-sidelines.html.

[114]Betty Márquez Rosales. 2021. "L.A. Unified to Launch Nation's Largest District College Savings Account Program." EdSource. EdSource. May 20. https://edsource.org/2021/l-a-unified-to-launch-nations-largest-college-savings-account-program/655207.

4e. Increasing General Data of Economic Activity in Long Beach Through Receipt Scanning Apps

The City of Long Beach has expressed interest in gathering information on the viability and overall health of businesses within Long Beach, specifically small businesses, to be able to aid enterprises in need of support. Our research has found that there is not enough publicly available data to track the health of businesses without action taken by the businesses themselves to provide it. One technological solution to fill this gap is an incentivized receipt program powered by consumers. Moneo[115], a Fintech startup based in Mexico, creates a mutually beneficial platform for businesses and consumers. Buyers scan their receipts into the app, and in return receive savings on groceries and other rewards.[116] The receipts provide opted-in data, which can be utilized by both the individual businesses and the larger City of Long Beach to track consumer spending trends. This is a mutually-beneficial solution to the City of Long Beach, enabling the acquisition of data on spending and business health while also providing additional benefits to consumers.

Implementation and Operational Considerations

To provide such a solution, the City of Long Beach could partner with existing platforms, such as Moneo, or domestic receipt platforms that could be expanded to meet the specific needs of Long Beach. Consumers may have privacy concerns with the aggregation of their spending data. This solution should be supplemented with the informed consent of users, as well as the option to revoke their data at any time. For further data privacy recommendations for partners, please refer to the Data Privacy section of this report. Finally, this solution is prone to selection bias, and will likely not provide a full understanding of business activity throughout Long Beach. However, this technology would be best deployed strategically, with specific consumers and business areas or sectors in mind. We recommend that the City define its goals and desired clients to benefit from this resource and build their outreach campaign around their goals to ensure success.

> **Operational Consideration Across Recommendations: Ensuring Awareness and Access**
>
> The success of an online resource, especially one that caters to underserved populations, is inextricably linked to the narrowing of the digital divide and increased

---

[115]"Moneo." 2020. Moneo.mx. https://www.moneo.mx/.

[116]"Moneo One of 15 Companies Selected to Participate in IBM Hyper Protect Accelerator – British Chamber of Commerce in Mexico." 2021. Britchamexico.com. October 8. https://www.britchamexico.com/en/nuevos-socios/moneo-one-of-15-companies-selected-to-participate-in-ibm-hyper-protect-accelerator/.

financial literacy. To maximize city investment in the space, we suggest an outreach campaign to coincide with implementation. We recommend that the City of Long Beach undergo a similar targeted outreach campaign to BizCare, using GIS analysis to identify the most underserved populations for internet and computer access and connect them with resources. Additionally, the Digital Inclusion Team should provide and promote free and COVID-safe locations to connect populations with resources exclusively available online such as Big Interview and the online job platform. **The need for an outreach campaign exists in our Big Interview, Local and Targeted Hiring, Equitable Hiring and Procurement, and Diversified Banking recommendations.** Overall, the AI for Good Foundation echoes the concerns and recommendations of the Digital Inclusion Roadmap of the City of Long Beach, and advocates for its progress to be of utmost priority to ensure the success of all recommendations in this report.

About the AI for Good Foundation

AI for Good pursues the creation of technical capabilities, infrastructure, research communities, policy frameworks, and implementation to ensure Artificial Intelligence is used in the right place at the right time to accelerate progress towards the United Nations' Sustainable Development Goals. The Foundation was created in 2015 and operates globally, with public charity registrations in the United States (501c3) and Europe. For further information, please visit https://ai4good.org or email info@ai4good.org.

We suggest companies throughout this report that we are confident have the technological and professional capabilities to deploy the solutions we recommend. We are not formally affiliated with, nor receive any compensation whatsoever, from the suggested partners we provide. By no means is the City of Long Beach required to implement our recommendations with the named companies; we simply offer one path towards implementation.

AI for Good Foundation Policy Committee Points of Contact

- **James Hodson** (CEO)
  - hodson@ai4good.org
- **Tia Christopher** (Chief Operations Officer)
  - tia@ai4good.org
- **Lindsey Asis** (Senior Project Manager)
  - lindsey@ai4good.org

This work would not have been possible without the work of our Summer 2021 Fellows:

- Tenzin Migmar
- Alex Talbott
- Jose Garcia
- Christine Mwase
- Mario de Jesus