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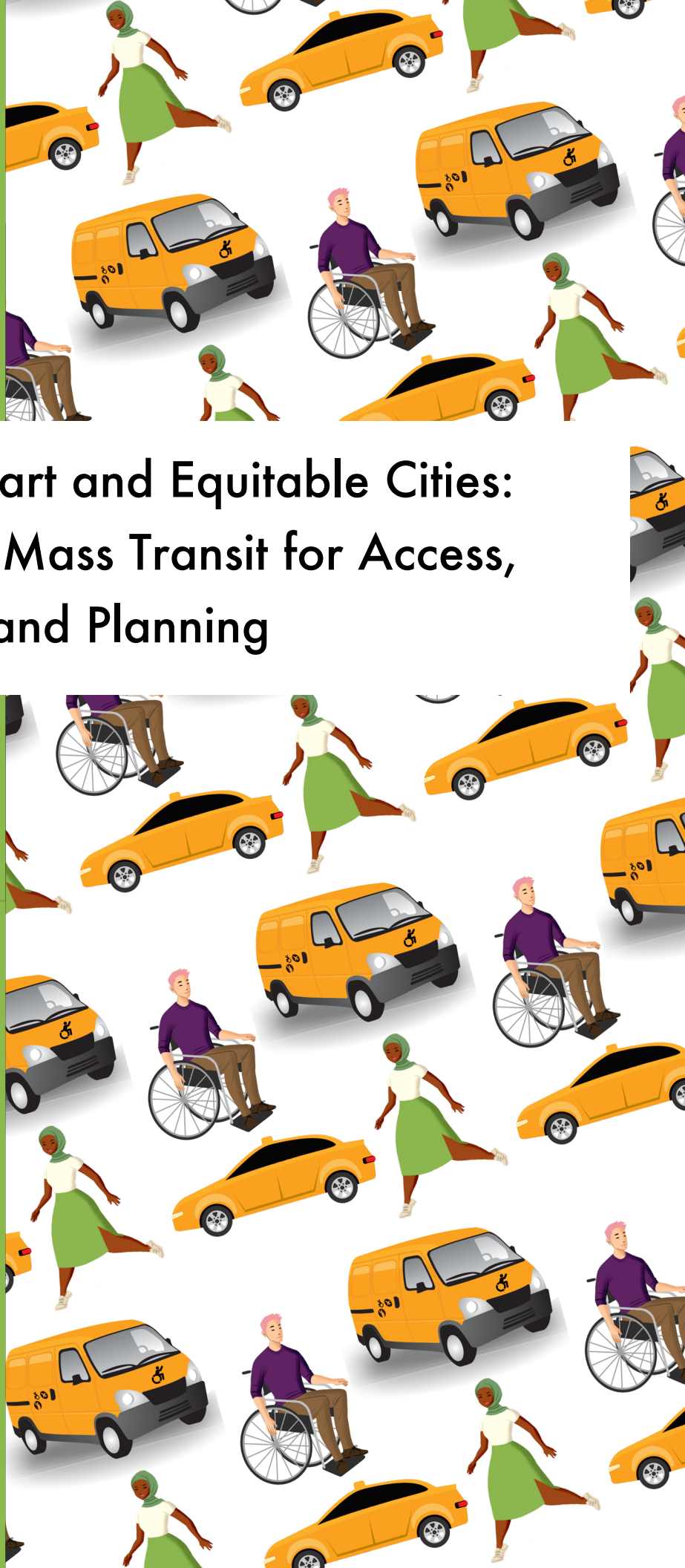
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Transportation for Smart and Equitable Cities: Integrating Taxis and Mass Transit for Access, Emissions Reduction, and Planning

UC San Diego
THE DESIGN LAB



About this Report

This report was produced by the Design Lab at UC San Diego and United Taxi Workers San Diego (UTWSD). Dr. Lilly Irani, Associate Professor in the Design Lab, led the creation of the report from UC San Diego. Mikaiil Hussein and Peter Zschiesche of United Taxi Workers San Diego contributed to the report. The UC San Diego report research team included (in alphabetical order) Enrique Arcilla (Urban Studies and Planning), Montana Goldsmith (Anthropology), Dr. Louise Hickman (London School of Economics), Dr. Vera Khovanskaya (Communication), Simrandeep Singh (Computer Science), and Udayan Tandon (Computer Science).

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Introduction: Achieving Transit and Climate Equity

How can San Diego transit connect a sprawling county, achieving climate goals while improving equity? This report synthesizes independent research on transportation and technology, both to understand the impacts of existing solutions and to offer promising alternative pathways to meet policy goals.

SANDAG’s “5 Big Moves” creates a guiding vision for the future of transportation in San Diego. This is a vision where public transportation plays a central role in an equitable, connected, and sustainable region. As part of this vision, SANDAG has established that “Flexible Fleets” of scooters, bikes, and on-demand vehicles will extend the reach of the network into areas less connected by mass transit. Transportation Network Companies (TNCs) such as Uber and Lyft currently dominate brand awareness and market share for on-demand rides in San Diego. Extensive research on these solutions a decade in, however, reveals the limits and harms of TNCs. These limits include resistance to public regulation, increases in traffic accidents and fatalities, refusals to share valuable planning data, volatile pricing, and failure to offer drivers a livable wage. We also find that venture-capital funded models of digital platforms siphon wealth from the region while competing with public transit options.

San Diego has a chance to innovate in the public interest, creating transportation infrastructures that are safe, equitable, and sustainable. UC San Diego’s Design Lab has partnered with United Taxi Workers San Diego to envision cutting-edge, equitably organized gig platforms to transform “first mile last mile” transportation while providing green economy transportation jobs. This vision can reduce vehicular miles traveled (VMT), reduce commute burden by public transit, and improve access for San Diegans with disabilities.¹ Public support for flexible taxi fleets can also improve social equity for immigrant communities and competitive pricing for riders. This vision, recently awarded a grant by the California Employment Training Panel (ETP) and the Kauffman Foundation, outlines the potential of taxis as a publicly regulated, more inclusive alternative to private rideshare that can extend the reach of San Diego’s expanding public transit system. In the face of the problems of unaccountable tech companies, San Diego has a chance to lead in community driven innovation.

¹ The City of San Diego 2019 Climate Equity Index measures the “access to public transit” indicator as the population weighted average distance to the nearest transit stop. The “Commute burden” indicator measures the percent of population with a commute time over regional average.

This vision also aligns with San Diego’s commitments to climate and racial equity. In 2020, the San Diego City Council committed to end racial disparities in economic opportunity, in environmental justice, and criminal justice. The County Board of Supervisors made parallel efforts. Several initiatives signal these commitments: efforts to improve the County’s Climate Action Plan², the creation of a City of San Diego Climate Equity Index tracking disparities in green economy opportunities,³ and the creation of the City of San Diego Office of Race and Equity to move City operations towards bias mitigation and fair distribution of resources and opportunity.⁴

The next step is for elected representatives to commit to “first mile last mile” transportation in the public interest with equity as its goal.

This report is organized by the following sections:

- **“The limits of TNCs”** explains the limitations of Uber and Lyft as a solution to San Diego’s transportation needs based on a synthesis of independent studies. These limitations include increased congestion, price volatility, dangerous driving, lack of disability access, data hoarding, and loss of local wealth. These problems put TNCs in direct conflict with policy goals: greenhouse gas emissions and VMT reduction,⁵ as well as an end to traffic fatalities and injuries.⁶
- **“Taxis in transition: barriers and opportunities”** explains shifts in the organization of San Diego’s taxi industry. As drivers have gained more rights to independent taxi operation, they have also increased their associational capacity through community organizing and involvement in public governance. We argue that a democratically

² Deborah Sullivan Brennan, “Can San Diego County get ahead of the climate change curve?” *San Diego Union Tribune*. July 14, 2021.

<https://www.sandiegouniontribune.com/news/politics/story/2021-07-14/climate-action-plan>; see also <https://www.sandiegocounty.gov/content/sdc/sustainability/climateactionplan/>

³ <https://www.sandiego.gov/sustainability/social-equity-and-job-creation>

⁴ <https://www.sandiego.gov/sites/default/files/cd4-ore-factsheet200615.pdf>

⁵ California’s SB-743 mandates regions to reduce private vehicular transportation miles in response to climate change. SB 150, passed in 2017, requires regions to align greenhouse emissions targets with state targets and creates accountability mechanisms for greenhouse gas emissions, mobility and congestion measures, and other greenhouse gas indicators. San Diego Forward, the draft 2021 Regional Transit Plan, argues that greenhouse gas emissions cannot be reduced without reducing passenger car and truck vehicular miles traveled.

⁶ <https://www.sandiego.gov/vision-zero>

organized taxi industry is an asset to the region’s transportation network. This shift brings the taxi industry into greater alignment with San Diego’s climate equity goals. It also improves driver capacity to align with transportation planning policy goals.

- **“A public option: taxis as flexible fleet solutions”** explains the benefits of integrating taxis into San Diego’s public transit system as a “first mile last mile” solution. Taxis are an existing, publicly regulated part of San Diego’s transit ecology. The region can cultivate this as an asset, benefiting from existing regulatory infrastructures. We find taxis better aligned with state and regional policy goals as compared to TNCs, including the creation of climate jobs for “communities of concern,”⁷ competitive pricing with TNCs, and expanded transportation access for riders with disabilities.

⁷ <https://www.sandiego.gov/sustainability/social-equity-and-job-creation>

The limits of TNCs

The San Diego Association of Governments (SANDAG) has established a “Transit Leap” to a “complete network of fast, convenient, and reliable transit services” as one of the region’s 5 Big Moves for a more sustainable, equitable, and integrated transit system (SANDAG Draft 2021 RTP). Use of mass transit such as light rail or bus rapid transit is a key part of this move. However, San Diego is a sprawling region where the first and last mile from public transportation to home or work can be miles – too far for many to walk or bike (Elevate 2020 Tech Memo).

To ensure that the San Diego region’s residents have first- and last-mile connections available, SANDAG has established that Flexible Fleets of bikes, scooters, and shuttles are another one of the region’s 5 Big Moves. In its 2021 Draft RTP, rideshare services are briefly referenced as a part of Flexible Fleets. One of the dominant forms of rideshare in San Diego are transportation network companies (TNCs), such as Uber and Lyft.

Policy makers should approach the promise of TNCs with caution. TNCs promise reduced car ownership, coverage for gaps in public transportation, and even innovations such as self-driving cars and automated ride pooling. However, after years of hyping investments in self-driving cars, Lyft and Uber both sold off their investments in these technologies in mid-2021.⁸ As TNCs pitch themselves to cities as partners to public transit, they also report to investors that they see public transit as competitors to be displaced.⁹ TNCs also fall short on public safety, equity, and climate action needs. Below, we analyze TNC impacts on disability access, road congestion, air quality, hazardous driving, and community wealth.

Many riders with disabilities lack access to the network

SANDAG’s 2020 Coordinated Plan finds that TNCs are “plagued with many accessibility challenges,” including higher charges for accessible services, lack of ADA-accessible vehicles, and software inaccessible to screenreaders.¹⁰ Many of these limitations are caused by the TNC employment model. Because TNCs maintain drivers as independent contractors, they cannot require drivers to have specialized training or equipment; to require these would

⁸ Meghan McCarty Carino. “Lyft, Uber back away from autonomous cars.” *Marketplace Morning Report*. May 4, 2021. <https://www.marketplace.org/2021/05/04/lyft-uber-back-away-from-autonomous-cars/>

⁹ Matt McFarland. “Uber wants to compete with public transit.” *CNN.com*. 25 Apr. 2019, <https://www.cnn.com/2019/04/25/tech/uber-public-transportation/index.html>

¹⁰ SANDAG. “*The 2020 Coordinated Plan*,” July 17, 2020, <https://www.sandag.org/index.asp?projectid=318&fuseaction=projects.detail>

make it clear that drivers are employees rather than independent contractors.¹¹ TNCs cannot require drivers to, for example, train to assist disabled passengers, accommodate service animals, or obtain larger cars that can fit non-foldable wheelchairs. Disabled plaintiffs have brought at least five lawsuits against TNCs citing their failures to provide equal services to disabled and able-bodied riders.¹² Uber is currently piloting wheelchair accessible service programs in several US cities including Chicago, DC, New York City, and Philadelphia.¹³ These services, however, rely on volunteer drivers who invest in their own wheelchair accessible vehicles. Public entities contracting with Uber and Lyft should consider whether they would be in compliance with the Americans with Disabilities Act (ADA).

TNCs increase road congestion

Several studies have established that TNC companies have increased congestion on the road. A 2019 study published in *Science Advances* compared traffic conditions in San Francisco across 2010 and 2016.¹⁴ The study controlled for other factors that might have led to increase in vehicle congestion to isolate the impact of TNCs. They controlled for socio-economic factors such as rise in population, as well as rise in employment. The study concluded that compared to the 2010 baseline, three crucial factors that measure congestion went up significantly in 2016. Vehicle Miles Travelled (VMT) – a measure of miles travelled for all vehicles in a geographic region – increased by 13% where it would have only gone up 7% without TNCs. Vehicle Hours Travelled (VHT), calculated using VMT and average speed to measure the efficiency of roads, went up by 30%. It would have only gone up 12% without TNCs. Vehicle Hours of Delay (VHD), defined as the delay between congested travel time and travel time under free flow conditions, increased by 63% where it would have only gone up 22% without TNCs. A public-sector commissioned report

¹¹ Bryan Casey. "Uber's Dilemma: How the ADA May End the On-Demand Economy." U. Mass. L. Rev. 12 (2017): 124.

¹² Access Living v. Uber <https://www.leagle.com/decision/infdco20181217d07>,
Equal Rights Center v. Uber <https://techcrunch.com/2017/06/28/equal-rights-center-sues-uber-for-denying-equal-access-to-people-who-use-wheelchairs/>,
Lowell v. Lyft <https://www.law360.com/cases/59960a85ce25bd216c000001>,
Crawford v. Uber <https://www.courthousenews.com/judge-advances-mens-ada-complaint-against-uber/>,
Namisnak v. Uber <https://www.leagle.com/decision/infdco20180718881>

¹³ <https://www.uber.com/us/en/ride/uberwav/>

¹⁴ Gregory D. Erhardt et al., "Do Transportation Network Companies Decrease or Increase Congestion?," *Science Advances* 5, no. 5 (May 1, 2019): eaau2670, <https://doi.org/10.1126/sciadv.aau2670>.

published in 2017 showed a similar impact of TNCs in New York City, but only measuring VMT.¹⁵

TNCs, primarily Uber and Lyft, have worked to dispute their negative impact on traffic congestion, but a closer look at the data confirms their congestion impact. In their most recent attempt, Uber and Lyft hired a transportation consultancy to produce a report on congestion. The analysis looks at Boston, Chicago, Los Angeles, San Francisco, Seattle, and Washington, DC with data from the month of September 2018. On the surface, findings show that Uber and Lyft account for just 1-3% of the VMT.¹⁶ But those numbers are for the regional area, including the surrounding towns and suburbs. When the report drills down into the “core” county those numbers spike up significantly. In San Francisco County, for example, Uber and Lyft make up as much as 13.4% of all vehicle miles. In Boston, their share is 8 percent; in Washington, DC, it is 7.2%. This finding is in line with rideshare platform design that promotes vehicles to go to high demand areas. The report also measures how much of Uber’s and Lyft’s VMT carried passengers. On average across cities, 38% to 46% of the VMT occurred with no passengers in the backseat – also called deadheading.

Congestion is a product of TNC business models. “Rideshare companies often subsidize drivers to stay on the road,” Economist John Barrios explains, “even when utilization is low, to ensure that supply is quickly available”.¹⁷ The cost of convenience is an oversupply of drivers who are only paid when they have passengers, and the congestion and pollution that these drivers produce for others in the region. TNCs have not taken steps to combat their traffic congestion.

TNCs diminish air quality over private cars and taxis

Alongside congestion, several studies estimate TNCs’ adverse impact on emissions. As required by Senate Bill 1014 (SB 1014, California Clean Miles Standard), California Air Resources Board (CARB) released an emissions report comparing TNCs in California with the statewide passenger fleet for the calendar year 2018.¹⁸ The report estimates that TNCs

¹⁵ Bruce Schaller. “Unsustainable? The Growth of App-Based Ride Services and Traffic, Travel and the Future of New York City,” 27 Feb. 2017, <http://www.schallerconsult.com/rideservices/unsustainable.pdf>.

¹⁶ “What are TNCs’ Share of VMT? - Fehr & Peers.” <https://www.fehrandpeers.com/what-are-TNCs-share-of-vmt/>.

¹⁷ Angie Schmitt. “Study: Uber and Lyft are Increasing Traffic Deaths.” *StreetsBlogUSA*. 24 Oct. 2018, <https://usa.streetsblog.org/2018/10/24/study-uber-and-lyft-are-increasing-traffic-deaths/>.

¹⁸ California Air Resources Board, “2018 Base-year Emissions Inventory Report,” <https://ww2.arb.ca.gov/sites/default/files/2019-12/SB%201014%20-%20Base%20year%20Emissions%20Inventory%20December%202019.pdf>.

produced approximately 50% more grams of CO₂ per passenger-mile traveled (gCO₂/PMT) compared to the average California passenger vehicle. This estimate, while offering a good baseline comparison, is conservative. It fails to take into account the mix of vehicles in the statewide passenger fleet. A better analysis is offered in a report by the Union of Concerned Scientists (UCS).¹⁹ In dense urban areas where ride hailing use is high, passengers often have low carbon alternatives like mass transit, walking and biking. The UCS report estimates the impact of TNCs on emissions by calculating the difference between the modes of transportation TNC rides have replaced. They use as reference data a survey of ride-hailing users across California that asked riders what they would have done if they had not taken a ride-hailing vehicle.²⁰ The survey reports that 24% of non-pooled rides and 36% of pooled rides replaced lower carbon alternatives like mass transit, walking and biking. On average, ride hailing comes out to be 69% worse at carbon emissions than the trips it displaces. TNC champions commonly argue that TNC trips should be compared to personal car trips. Even in that favored scenario, TNCs incur the added overhead of deadheading. As a result, non-pooled TNC trips produce 47% more emissions on average. Pooled TNC trips only break even. Estimates of pooled rides, sourced from the CARB report, suggest pooled rides only account for 20% of all rides.

In San Diego, studies of airport taxi data show that only 15% of TNC vehicles are hybrid, lower emissions vehicles. By contrast, 90% of San Diego's taxis are hybrid.²¹ UTWSD compiled and presented this data as a contribution to the MTS Elevate 2020 campaign. The Elevate 2020 campaign sought to address "first mile last mile" transit connections as well as a wide range of other transit infrastructure needs through a ballot tax initiative. The campaign was cut short with the onset of the COVID-19 pandemic, but the need and community will for a solution remains.

TNCs can incentivize hazardous driving

While rideshare was initially sold as a way of taking hazardous drivers (e.g. drunk drivers) off the road, a 2019 University of Chicago study compared traffic accidents before and after the introduction of TNCs, controlling for contextual factors. The study found that the introduction of rideshare services in U.S. cities to be associated with an increase of 3% in

¹⁹ Union of Concerned Scientists, "Ride-Hailing's Climate Risks: Steering a Growing Industry toward a Clean Transportation Future," <https://www.ucsusa.org/sites/default/files/2020-02/Ride-Hailing%27s-Climate-Risks.pdf>.

²⁰ Giovanni Circella et al., "Panel Study of Emerging Transportation Technologies and Trends in California: Phase 2 Data Collection," 2019, <https://escholarship.org/uc/item/35x894mg>.

²¹ Public records request of 2018 data from San Diego Airport and MTS by Employee Rights Center.

the number of motor vehicle fatalities and fatal accidents.²² The study notes many possible reasons for this. First, TNCs employ less experienced drivers. However, even for those with experience, TNCs encourage drivers to make choices that keep passenger wait times low. TNCs draw on techniques from the science of behavior change, including bonuses, competitions, to manipulate driver behavior. This changes when, where, and how much drivers choose to drive. These techniques can encourage exhausted driving or dangerous speeding to a high-demand zone.²³

Price volatility can harm consumers

Uber and Lyft unilaterally set the price paid by consumers.²⁴ The company uses surge pricing to generate more profit amidst high demand. Surge pricing runs against legal norms prohibiting price discrimination in commodities, but these legal prohibitions on price discrimination do not cover services.²⁵ Volatile pricing, however, causes significant problems for public policy that seeks equity in transportation access across income levels.

TNCs take wealth out of the San Diego community

TNCs channel profits away from the San Diego community. The venture capital investors who fuel and control TNCs prioritize business models that maximize profit for the company or make the company attractive for sale to another company or investors. This means that profits generated from San Diego drivers and passengers do not remain in the San Diego community. They are instead invested in stock dividends, speculative technology research, or costly lobbying and legal actions to ensure or expand TNC market dominance.

²² John M. Barrios, Yael Hochberg, and Hanyi Yi, “The Cost of Convenience: Ridehailing and Traffic Fatalities,” Working Paper, Working Paper Series (National Bureau of Economic Research, February 2020), <https://doi.org/10.3386/w26783>.

²³ “How Uber Uses Psychological Tricks to Push Its Drivers' Buttons.” 2 Apr. 2017, <https://www.nytimes.com/interactive/2017/04/02/technology/uber-drivers-psychological-tricks.html>. Accessed 11 Apr. 2020.

²⁴ Sanjukta M. Paul, “Uber as For-Profit Hiring Hall: A Price-Fixing Paradox and Its Implications,” *Berkeley Journal of Employment and Labor Law* 38, no. 2 (2017): 233–63.

²⁵ Keyawna Griffith, “The Uber Loophole That Protects Surge Pricing,” *Virginia Journal of Social Policy & the Law* 26 (2019): 34.

TNCs hoard data, hindering planning

Municipal planners, regulators, and researchers in many cities report that Uber and Lyft refuse to share their trip data, hindering planning and auditing for public welfare.²⁶ In a recent transit planning briefing, SANDAG planners told our team that because they cannot get TNC data for planning purposes, they rely instead on a one-time California Air Resources Board (CARB) study. San Diego Airport's Ground Transportation Manager reports similar challenges acquiring planning data from TNCs. This has made it difficult for municipalities to plan and coordinate transportation services. It also makes it difficult to independently evaluate and refine transit programs that include a TNC component.²⁷

TNC policies fail to provide drivers a living wage

TNCs like Uber and Lyft typically do not provide their drivers with a livable wage. The UC Berkeley Labor Center reports that Proposition 22 only guarantees a \$5.64 per hour wage for TNC drivers, with \$1.22 per hour of that in a healthcare stipend.²⁸ Working 40 hours per week in San Diego at \$5.64 per hour results in a monthly take-home pay of \$766 after taxes.²⁹ This leaves essential transportation workers short of what Housing and Urban Development (HUD) considers fair market rent in San Diego County. The National Low-Income Housing Coalition (NLIHC) reports that in San Diego County, fair market rent for a single-bedroom apartment is \$1,566 per month.³⁰ This rent is not affordable even to people making full minimum wage: the NLIHC reports that at minimum wage of \$13 per hour, a rent of \$676 would be affordable. However, the situation for post-Proposition 22 TNC drivers is even worse as they are estimated to take home below minimum wage.

²⁶ Torin Monahan, "Monopolizing Mobilities: The Data Politics of Ride-Hailing Platforms in US Cities," *Telematics and Informatics* 55 (December 1, 2020): 101436, <https://doi.org/10.1016/j.tele.2020.101436>.

Laura Bliss, "How 3 Cities Are Measuring the 'Uber Effect,'" *Bloomberg.Com*, January 12, 2018, <https://www.bloomberg.com/news/articles/2018-01-12/uber-and-lyft-s-effects-in-san-francisco-boston-and-chicago>.

²⁷ "The Future of Transit Isn't a \$5 Discount on Uber Trips," *TransitCenter*, 3 Jul. 2019, <https://transitcenter.org/the-future-of-transit-isnt-a-5-discount-on-uber-trips-2/>.

²⁸ Ken Jacobs and Michael Reich, "The Uber/Lyft Ballot Initiative Guarantees Only \$5.64 an Hour," *UC Berkeley Labor Center* 31 (2019). <https://laborcenter.berkeley.edu/the-uber-lyft-ballot-initiative-guarantees-only-5-64-an-hour-2/>

²⁹ Federal Paycheck Calculator. <https://smartasset.com/taxes/paycheck-calculator#uBySnQE3WH>

³⁰ "Out of Reach 2020: California." *National Low Income Housing Coalition*. <https://reports.nlihc.org/oor/california>

Taxis in transition: barriers and opportunities

With the growth of TNCs, the taxi industry is in transition. In this transition, San Diego has an opportunity to support the re-organization of the industry around equity, public welfare, and sustainability.

The taxi industry in San Diego has transformed over the last decade to give drivers a more democratic role in determining working conditions and regulations, with United Taxi Workers San Diego (UTWSD) playing a key role. For decades, San Diego's taxicab industry was regulated in ways that left drivers with low wages and little flexibility. Prior to 2014 the majority of taxi drivers were lease drivers because San Diego city policy restricted the number of taxi permits. These lease drivers paid high weekly fees to permit holders and suffered from low net incomes, long hours of work, and no labor protections. Even drivers with their own cars and medallions faced pages of intersecting and intrusive regulations that denied them the kind of control over equipment and managerial decisions that are a hallmark of independent contractor status.³¹ In 2009, immigrant-led drivers went on strike to protest their poor working conditions. Negotiations followed. A core of strikers decided to create a new organization in 2011: United Taxi Workers San Diego. They did this with help from the Employee Rights Center. UTWSD successfully advocated for secret ballot elections for taxi driver representation on the MTS Taxi Advisory Committee, advocated for committee membership for lease drivers, mediated better relations with City and Harbor police, partnered with UCSD School of Medicine to train drivers on occupational health and safety, and participated in a six-month process to reform airport taxi regulations. In 2014, UTWSD lobbied for and won open permitting of taxis for local cities. They won the same for the airport in 2020. Following the 2014 victory, hundreds of drivers prepared to enter the taxi industry and UTWSD created its own United Dispatch to serve them.

Just as drivers opened the taxi permitting process in 2014, TNCs put unpermitted drivers on the road. Taxi permits declined from about 1,300 at that time to about 550 as of June 2021. Taxi drivers cannot afford to stay in business without new markets. As taxis are regulated in the public interest, we propose that the public sector has an interest in sustaining this modality of transportation.

In November 2019, UC San Diego Design Lab and UTWSD held a workshop with taxi drivers. Workshop participants highlighted the uneven playing field between TNCs and the taxi industry – an imbalance unaddressed by regulators. An experienced driver raised the

³¹ Jill Esbenshade and Elizabeta Shifrin, "The Leased Among Us: Precarious Work, Local Regulation, and the Taxi Industry," *Labor Studies Journal*, April 12, 2018, 0160449X1876804, <https://doi.org/10.1177/0160449X18768047>.

marketing and lobbying practices of TNCs as an example of this imbalance. Drivers voiced frustration with lobbying by Lyft and Uber to get preferential treatment at San Diego airport. Lyft and Uber use venture capital to aggressively market partnerships with public agencies to capture markets, despite the many problems of the industry. These practices siphon riders away from both public transportation and taxis alike.

A public option: taxis as flexible fleet solutions

A high dependence on private rideshare presents risks for any city. TNCs have a business model that cannot ensure ADA accessibility, incentivizes hazardous driving, keeps valuable data from the public sector, and brings externalities including diminished air quality and price volatility. As San Diego moves towards high density transit hubs, TNCs are a problematic solution to take riders the first or last miles from hub to work or home. This section discusses the potential of using taxis as a demand-responsive, publicly regulated first last mile solution, integrated into comprehensive, public transit apps such as the new MTS Pronto system or the ADA-compliant One Bus Away.³² With this concept, we offer San Diego a chance to strengthen public transit to address the climate crisis and lead in innovation for public good.

Imagine a work-bound transit rider pulls up their MTS transit app. The app offers them several transit options, including a trolley to a high-density transit hub followed by a taxi to transport them the last three miles to the job. The rider clicks to accept the route. The app notifies them that a cab will be waiting at the transit hub for them when they arrive. Near the end of the workday, the rider can use the app to schedule a taxi that gets them to their trolley on time. The payments are even handled through the app.

Fueled by the rapid rise of rideshare, many people have grown accustomed to accessing transportation through apps. This envisioned app offers riders mixed-mode transportation, while offering public agencies the chance to experiment with design and pricing models and collect data to plan for better transit outcomes.

MTS San Diego has already taken the first step by building smartphone apps for their public transit riders. The Go MTS app, soon to be transitioned to Pronto, offers a single portal to

³² One Bus Away (OBA) is an open source, ADA-compliant transit planning platform maintained by the Open Transit Software Foundation. It is in use in New York City, San Diego, Seattle, and other cities. MTS directs riders to OBA as the preferred transit planning app. OBA encourages developers to extend the functionality of the software, not only for the individual city but for all cities using the software. San Diego's innovations to One Bus Away could lead the way for other cities.

plan trips across bus, trolley, and regional rail lines. The app also includes safety features such as ride tracking and contact with MTS security. However, commuters still may need help making connections to first or final stops in their journeys. MTS captured this concept as "first mile last mile" in their Elevate 2020 Campaign plan.³³ By making taxis available on-demand to commuters through the MTS app, the city can directly tackle problems of frequency, connectivity to transit hubs, and time.

Building a demand responsive option governed by the city can offer many benefits.

A strengthened public option for transportation

For public agencies, a successful public transit system requires enormous amounts of planning and coordination focused on public interests such as convenience, affordability, efficiency, environmental goals, and social equity. Private sector players such as TNCs have business models in tension with these public interests. TNCs' recent interactions with public agencies, the legislature, and their own drivers show them ready to assert their economic power to challenge public policies that they oppose, as seen in the struggle over Proposition 22. TNCs and their drivers, have no local regulation, no local driver safety checks, no guarantee that they pay local business fees, and a business model that resists regulation by the public sector. By contrast, taxis are regulated in the public interest by MTS and pay yearly permit fees to MTS to help cover the costs of that regulation. Taxi drivers pay local business license fees as independent contractors and submit to the Sheriff's safe driver regulations. Taxis are well-poised to serve as a better regulated, ADA-compliant alternative to TNCs. To streamline the relationship between public agencies and taxis, taxis can be organized under a cooperative model. Cooperatives offer a structure for democratic design making among taxi drivers while offering public agencies a single point of contact and negotiation for contracting with taxi drivers. As a cooperative, taxis can coordinate training and agreements with public agencies while allowing drivers a voice in work conditions.

- **More equitable distribution of transportation resources**

In their pursuit of profit, private ridesharing companies tend to distribute the benefits of a demand responsive option suboptimally for public purposes. They incentivize drivers to flood dense urban areas already well connected by public transportation, increasing congestion and pollution. An alternative run by the city can spread those benefits more equitably to riders who need it the most. The city can utilize taxi or private rideshare services in areas not well serviced by existing public transportation services, eliminate inefficient routes that can be served by a subsidized taxi, or route taxis to provide extra service to transit hubs during peak hours. Taxi drivers have also voiced interest in

³³ Metropolitan Transit System. "Elevate SD 2020." <https://elevatesd2020.com/>

helping to expand access to Flexible Fleets by being stationed at mobility hubs.

- **Sustainable access for riders with disabilities**

The accessibility of public transportation increased nationwide following the Americans With Disabilities Act (ADA) in 1990. Interpreting the 1990 Americans with Disabilities Act (ADA), the U.S. Department of Transportation (DOT) requires that “public entities operating fixed-route transportation service available for the general public also provide complementary paratransit services to persons unable to use the fixed-route system.”³⁴

Cities have looked at a number of ways to provide paratransit services that meet or exceed requirements of the ADA, from dedicated vans to contracting services out to taxi cab providers. While paratransit operators offer pre-planned service, wheelchair accessible vehicles (WAVs) and taxis can potentially serve more spontaneous needs.³⁵

One recent study found taxis in case study cities added transportation flexibility for riders while, in 50% of cities, per ride costs were lower compared to complementary paratransit vans, shuttles, and buses.³⁶ San Diego faces challenges in providing wheelchair accessible transportation. SuperShuttle, one of only two providers of paratransit rides to the airport, closed their operation in San Diego, unable to overcome competition from TNCs.³⁷ Further, San Diego only has three permitted wheelchair accessible vehicle taxis.³⁸ Though SANDAG and, more recently, the California Public Utilities Commission provide grants to support accessible transit operators, the design of incentives, funding, and organizations that can sustain affordable, point-to-point, and flexible paratransit remain a challenge. By partnering with San Diego taxi drivers to upgrade vehicles for wheelchair accessibility, the public sector can create a publicly regulated pathway to wheelchair accessible transit.

³⁴ "Transportation for Individuals With Disabilities - Federal Register." 27 Feb. 2006, <https://www.federalregister.gov/documents/2006/02/27/06-1658/transportation-for-individuals-with-disabilities>.

³⁵ Stephen Nessen, “Commuters With Disabilities Dreading Cap On `Unlimited Ride Experiment,” *Gothamist*, 24 February 2020. <https://gothamist.com/news/commuters-disabilities-dreading-cap-unlimited-ride-experiment>

³⁶ Jon Burkhardt, John Doherty, Joseph Rubino, and Joohee Yum. "A Survey on the Use of Taxis in Paratransit Programs | NADTC," (2008), <https://www.nadtc.org/resources-publications/a-survey-on-the-use-of-taxis-in-paratransit-programs/>.

³⁷ Lori Weisberg, “SuperShuttle leaving San Diego airport at end of year amid steep drop in business,” *San Diego Union Tribune*, 19 Dec. 2019, <https://www.sandiegouniontribune.com/business/story/2019-12-19/super-shuttle-leaving-san-diego-airport-at-end-of-year-amid-steep-drop-in-business>.

³⁸ Leonardo Fewell (MTS). Personal communication, August 3, 2021.

- **Equity for immigrant communities**

Currently over 350 San Diego taxi permit holders are African immigrants seeking entry to the local economy through driving. For decades these have been desirable gateway jobs for recent immigrants who are willing to work hard for long hours to create their own first ladder to economic well-being. Taxis, drivers tell us, promise flexibility and a path into the workforce sometimes blocked by numerous barriers common to many immigrant workers. The integration of taxis into public transit networks creates a steady flow of work for these citizens. This program creates jobs with decent pay for diverse communities while making sure the cut that would be taken by TNCs goes to drivers and to cover program costs.

- **Competitive pricing with TNCs**

Currently, taxis in San Diego can charge a maximum rate near \$2.80 per mile (or they can charge less). TNC pricing varies from about \$2 per mile to enormous surge pricing during high demand times like weekend nights. Drivers in our workshops expressed interest in offering discounted rates to be more competitive with TNCs. A working partnership with public agencies could promote discounting to effectively compete with TNCs for first- and last-mile connections. Because drivers of taxis take a larger cut of the fare than TNCs would allow, they can afford to be flexible on pricing.

- **Innovation and leadership in public software**

By deploying best-in-class multi-model public transit applications, San Diego can lead in sustainable, scalable, and effective civic innovation. This can act as a magnet for civic-minded tech talent. Moreover, public software gives city agencies the ability to experiment with dispatch models, pricing, and design for the public good. For example, designers can design the app to encourage users to less carbon-intensive routes. Public agencies also might subsidize taxi rides for commuters who take mass transit for part of the route. MTS could offer subscription passes that allow a fixed amount of taxi rides in addition to bus rides to attract users to their app platform. These possibilities allow mass transit agencies to effectively compete for riders being lured away by TNCs by maintaining door-to-door, on-demand services for those who need for reasons of ability, geography, or life contingency.

Conclusion: Supporting community-driven solutions

SANDAG's 5 Big Moves create a guiding vision for the future of transportation in San Diego. In the vision, public transportation plays a central role in an equitable, connected,

and sustainable region. As part of this vision, SANDAG has established that Flexible Fleets of scooters, bikes, and on-demand vehicles will help to extend the reach of the network into areas less connected by mass transit. TNCs such as Uber and Lyft currently dominate brand awareness and market share for on-demand rides in San Diego. The extensive research presented here, however, demonstrates the limits and harms of TNCs as a public solution. Dominant TNC companies have resisted public regulation, increased traffic accidents and fatalities, refused to share valuable data, unilaterally set and changed prices, and have not paid their workers a livable wage, among other problems. Without the strategic intervention of public agencies, San Diego commuters may be left with Uber and Lyft as their primary options, entrenching the problems of TNCs into San Diego's transit system.

San Diego has an opportunity to innovate in the public interest, creating a public option for "first mile last mile" transport in a market dominated by Silicon Valley visions and tactics. This report outlines the potential of taxis as a publicly regulated alternative to TNCs, integrated into the San Diego transit system as a public option for the Flexible Fleets strategy's offering of rideshare. A partnership between taxi drivers and MTS could address San Diego's sprawling "first mile last mile" challenges. The taxi fleet is more environment friendly than the TNC fleet. Taxis are regulated under the ADA. Finally, the public sector has an interest in the software and data, both to access planning data and to make sure systems are designed to encourage safe driving. A partnership between taxis and the public sector could provide living wages to immigrant communities and reduce commute burden in Communities of Concern, advancing our region toward climate equity on the path to achieving city and County Climate Action Plans. The next step is for elected representatives to commit to "first mile last mile" transportation in the public interest.