Can Smartness Fail? The Charisma of High Tech as Class Politics

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ABSTRACT

This paper analyzes how smart city infrastructures are planned, implemented, and scaled, even when they fail. Understanding how these processes unfold is critical for technology researchers committed to creating equitable public infrastructures. In this paper, we focus on an urban smart mobility solution called FRED, put in place to increase connectivity within downtown San Diego. We analyze it through a decade of public meetings, contract renewals, planning documents, and media coverage. Our findings show that FRED's intervention was a cover for scaling neoliberal transit privatization in San Diego. This is facilitated by the "charisma" of smart mobility technology – framed as clean and green, app-based, algorithmically optimized, and innovative – to upper-class actors like tech entrepreneurs, property developers, business leaders, and city officials. Reflecting on these insights, we explore alternative strategies that could have produced different outcomes and discuss how our case study informs new design sensibilities in civic contexts.

CCS CONCEPTS

• **Human-centered computing** → **HCI theory, concepts and models**; • **General and reference** → **Empirical studies**.

KEYWORDS

smart cities, smart mobility, class, politics, charisma, neoliberalism

ACM Reference Format:
Udayan Tandon, Lilly Irani, Sarah E. Fox, and Vera Khovanskaya. 2025. Can Smartness Fail? The Charisma of High Tech as Class Politics. In *Proceedings of ACM Designing Interactive Systems Conference (DIS '25).* ACM, New York, NY, USA, 17 pages. https://doi.org/10.1145/nnnnnnn.nnnnnnn

1 INTRODUCTION: WHOSE SMART CITY?

"Smart city" initiatives promise convenience for users and efficiency for providers, are framed as democratic and inclusive for all, and are rapidly expanding. A key focus of the smart city project has been to reimagine how we move through urban spaces. But reimagine for whose benefit? Champions of the smart city tout various solutions to the interlocking challenges of traffic congestion, emissions, energy crises, housing crises, and limited public transit. But critical scholarship has pointed to the ways that these efforts primarily serve to make cities appear invest-able and attractive to high-capital actors rather than solve urban problems [58, 64, 130].

In this paper, we focus on "smart" or "new mobility" initiatives, such as on-demand shuttles, autonomous vehicles, and electric scooters. These initiatives have rapidly gained prominence in urban development efforts across the United States, relying on technologies such as sensors, data analytics, artificial intelligence, and smartphones to function. Contemporary implementations of smart mobility claim to build toward a future where *all citizens* will have access to clean, green, efficient, and flexible transportation that meets their diverse needs [36, 72, 91, 124, 129]. However, studies of existing smart mobility initiatives illustrate their shortcomings for cities seeking to create inclusive, equitable transit futures. Smart mobility transit solutions often rely on smartphone apps for booking, scheduling, and payments, excluding those without access to smartphones or mobile banking. They fail to accommodate people with disabilities, older adults, and children, making these systems less effective than traditional public transit [10]. Moreover, mobility initiatives exacerbate existing inequalities by operating under deregulated labor conditions, which can limit workers' access to the same benefits and labor protections as those in traditional unionized public transportation jobs [32, 61, 119, 119]. Nevertheless, cities and other public institutions continue to invest in smart mobility initiatives, even as these systems routinely exclude and exploit marginalized and working-class populations. Who, then, are these systems really for?

As we interrogate in this paper, transit decisions are political [48, 86]; they establish key conditions of collective shared life, dictating who has the freedom to move, where they can go, and how they get there. Some urban stakeholders committed to sustainability, justice, and equity – including HCI and CSCW designers – seek to address what they perceive as the shortcomings of public transportation through technological interventions [2, 47]. Meanwhile, others view urban revitalization efforts, like smart city initiatives, as part of broader agendas to remake urban space for profitable uses and profit itself [54, 92]. These opposing commitments, of equity and capital gain, clash in the public realm and are embodied in urban infrastructure, defining who gets access to mobility and under what conditions. This paper contributes to ongoing conversations on civic design [8, 33, 34, 62, 82–84] and design justice [26, 38] by offering insights drawn from a case study of smart city technology design to help designers recognize and contend with the class politics embedded in institutional, civic, and public-facing design settings. By foregrounding redistribution, accountability,

DIS '25, July 05–09, 2025, Funchal, Madeira
2025. ACM ISBN 978-1-4503-XXXX-X/18/06
https://doi.org/10.1145/nnnnnnn.nnnnnnn

and solidarity, the paper invites the design community to expand its approaches to civic design and engage more deeply with the institutional politics that shape how public services are imagined, designed, and contested.

Our case study takes place in San Diego, California, where smart city initiatives have been a prominent part of the city's development strategy. These initiatives mirror urban redevelopment initiatives in many large cities, which have transformed industrial zones and low-income housing in urban cores into spaces for retail, tourism, and residential development aimed at higher-income groups. In San Diego, city officials have specifically transformed the city center from an area dense with government offices, state services, and mixed-income retail into a hub for banks, finance, tech companies, tourists, and luxury housing. In 2015, the National Geographic Channel featured San Diego in its "World's Smart Cities" series [107, 120], highlighting a revitalized downtown described as a hub for "talented innovators" and "cutting-edge inventors." In this redevelopment, clean energy grids and electric vehicles signified the city's commitment to innovation and its effort to attract "innovators." For example, the deployment of "smart streetlights" was promoted to generate data to fuel sustainable planning and civic app development, or so the city government promised [68, 69, 126]. These narratives pose smart cities as common sense: technology-driven growth that "works for everybody."

Against this backdrop, we have been collaborating with a worker collective in San Diego, where driving workers have been excluded from key decisions about public transportation development. These workers posed the initial questions around how public resources were being allocated for transit development in the city that led us to examine one smart city deployment: a fleet of on-demand, app-hailed electric shuttles to circulate people within San Diego's downtown. The pilot project was a partnership between San Diego's downtown business association and Civic San Diego (CivicSD), a nonprofit established by the city government to streamline urban development processes. They hired Circuit, a private company, to provide the shuttles, and branded the project FRED: Free Rides Everywhere Downtown. FRED was initially promoted as a self-sustaining service, with the goal of (eventually) paying for itself through ad revenue generated by billboards posted on the vehicles. However, years later, FRED could only be sustained with millions of dollars in public funds. Further, FRED only served people already within the city's downtown, rather than connecting people from the sprawling metropolis to downtown – a need identified through community workshops with a wide range of city residents prior to the FRED deployment. Finally, FRED consistently fell short of the ridership projections made by Circuit and its champions. When FRED missed its ridership targets yet still requested additional funding, government and private partners mobilized new narratives around FRED's public benefits to justify further investment. These narratives framed FRED as a public transit benefit: clean and green, app-based, algorithmically optimized, and innovative. These narratives traveled far and wide, promoting the project as a model of smart mobility. Why was this smart mobility project, over-budget and under-subscribed, able to survive? What does this reveal about the role "smartness," as a set of culturally significant technical and product design features, plays in legitimizing projects that only serve a narrow constituency as if they are everyone's interests?

We demonstrate how FRED's proponents articulated and shifted project goals, benchmarks, costs, and beneficiaries during three key moments in which the project overcame public challenges to its legitimacy. We argue that technological charisma – the promise of technology grounded in extant, well-understood discourses – facilitated FRED's continuation of moneyed class interests in the name of the common good. Even as FRED failed its benchmarks, it succeeded in making downtown an attractive site for capital investment for the real estate and tourism industries, aligning the urban landscape with the aesthetics and preferences of middle- and upper-class visitors, residents, and workers. Our analysis employs historical research methods to trace and analyze the trajectory of this smart mobility project, from its conception a decade ago through seven years of expansion. We base our analysis on a combination of publicly accessible documents, including public records, recordings of public meetings, and journalistic reporting, as well as oral history interviews. Analytically, we draw on theories of technological charisma formulated by information scholar Morgan Ames, power geometries as developed by feminist geographer Doreen Massey, neoliberalism by a wide range of urban studies scholars, and theories of class and ideology primarily through the work of Erik Olin Wright.

Through this research, we make several contributions to the HCI literature. First, we contribute to ongoing discussions in DIS, HCI, and Participatory Design calling for attention to institutional forces that create or foreclose technological pathways. By examining the development of a smart city initiative over the past decade, we account for these institutional mechanisms within their historical context. In sharing this understanding, we aim to inform design practitioners seeking to better navigate and influence public institutions deploying technologies. Second, in arguing that "smartness" charismatically forwards moneyed class interests as the interests of everyone, we wish to heighten information and design scholars and practitioners' capacities to identify hidden class projects in the innovation agendas we are often called upon to labor toward. Finally, we conclude with a provocation to extend class analysis to the growing body of literature concerned with social justice approaches to technology design [13, 34, 37, 39, 53, 71, 126, 127].

2 APPROACHING "SMART" INFRASTRUCTURES: INSTITUTIONS, PLACE, AND POWER IN THE CITY

Infrastructural development is "always a contested process, tied as it is to questions of access, power, and the life chances of groups and individuals" [44]. This contestation is especially evident in the design, planning, and implementation of public technology infrastructures. Critical scholarship in HCI on infrastructures focusing on sustainability [20, 62], transit [2], and algorithmic decision-making [106] often examines who participates in their design and who stands to benefit from their implementation. Technology designers, researchers, and those trained in user-centered design and design thinking approaches bring a specific set of tools that can play a role in shaping design in the public sphere. Public institutions employ practices like co-design and participatory design (PD) workshops

[62, 79, 83, 116], civic hackathons [12, 65, 84], prototyping [35, 62], and art installations [28] to craft the intimacies of technology infrastructure and urban life. These methods often rely on practices such as building empathy, conducting needs assessments, and promoting public engagement [43, 99].

Building on Henri Lefebvre's conceptualization of the collective right to shape urban process [81], some design researchers have called for a "right to the smart city" [17, 109]. This perspective argues that citizens should not only ''participate" in the design of urban infrastructures but also co-determine how digital infrastructures operate and what ends they serve. Proposals for this deeper form of participation frame it not just as a design strategy, but as a right, often under the banner of technological sovereignty [9, 15, 75, 95]. Proponents of this form of participation seek to move beyond resident "tokenism" [7], advocating instead for actual citizen power to decide the smart city's form [4, 30, 95]. Gaining rights over smart infrastructures, however, requires political struggle at multiple scales. Scholars in participatory design (PD) have illuminated how institutions frame and constrain participation through policies, funding schemes, and ideological commitments [67, 83, 116]. At the intersection of participatory design, and smart cities, scholars develop the concept of institutional constraints that make the impacts of PD in the public realm ephemeral [83], co-optable [116], or impossible[41]. For designers and technology scholars to contribute to this ongoing struggle, it is essential to first understand how urban systems and infrastructures are designed, implemented, and maintained.

Researchers working in urban computing, urban informatics, and public design emphasize the importance of understanding the city not just as a spatial container for technologies but as a *place* shaped by citizens' experiences and interactions [43, 49, 99, 115]. Drawing from humanistic geography, the concept of place suggests that urban spaces are dynamic and continually produced through ongoing social relations and practices [27]. For urban technology initiatives to take root, they must engage with the existing constellations of institutional structures that shape and govern these social relations. This paper builds on these insights to offer a place-sensitive analysis of how public institutions assemble a smart infrastructure project.

As many scholars in HCI have long highlighted, the types of solutions that get designed, deployed, and scaled depend on who participates and is empowered to make decisions [11, 34, 50, 57]. Thus, we begin by asking: Whose ways of seeing, knowing, and understanding the city shape its attachments, connections, and experiences of place, and how? Following the program of inquiry laid out by urban geography scholar Doreen Massey, we approach these ontological and epistemological questions – about how cities are continuously produced as places – not as abstract or theoretical, but as deeply sited and entangled with power [90]. Massey argues that the process of producing spaces for living and working is utterly imbued with power relations, where disparities in economic, political, or cultural influence manifest as spatial inequalities in the distribution of resources [87–89]. For Massey, places are networks of social relations, and she uses the term power geometry to emphasize how groups and individuals are differently positioned in these networks, and in relation to each other. Urban geographers attentive to power geometries analyze key actors and institutions in the design of cities. Through an analysis of Sydney's power geometry, for example, Acuto shows that much of the administrative and policy functions are constitutionally devolved to the state level, advantaging corporate lobbying groups who push for the neoliberal development of a small portion of the city to center the needs of tourists, highly skilled immigrants, and the global capitalist class [1]. Likewise, attending to place and power geometries in New York, Sharon Zukin shows how the city invests in buildings and smart infrastructures ("innovation complexes") to attract investors, real estate developers, and innovators, positioning itself to be the next "Silicon Valley" [130].

In this paper, we attend to place and power geometries of San Diego to illuminate the role of influential urban stakeholders who seek and sustain a smart mobility infrastructure to increase the desirability of city-center properties. We unpack how powerful actors in urban power geometries construct narratives of success around an experimental smart infrastructure even when it fails to meet its goals by a wide margin. By leveraging public funds and processes, these actors assemble smart infrastructures, raising critical questions about whose interests these infrastructures ultimately serve.

3 APPROACH & METHODS

This research employs a case-study methodology to understand the role "smartness" – as culturally significant technical and product design features – plays in legitimizing projects that only serve a narrow constituency. Our research began through collaboration with a San Diego taxi worker center, where we had supported their applications for municipal transit grants. This engagement led us to examine the broader landscape of public funding for smart city and transit innovation projects, ultimately raising the question: how had FRED gained (and maintained) such traction in Downtown San Diego and surrounding areas?

3.1 Approach

In keeping with community-based participatory research (CBPR) principles [93], our inquiry responded to questions raised by community members – specifically taxi workers and their advocates. The taxi worker community sought to understand how public resources were being allocated and how they, as publicly regulated transit workers and citizens of San Diego, could secure a meaningful role in shaping future planning decisions. Our shared concerns for taking a closer look at how FRED was put in place stemmed from the systemic constraining, blocking, and outright exclusion of working-class perspectives from public decision-making processes about technology infrastructure.

Our positionality as researchers reflects a commitment to centering the perspectives of working-class communities in urban and transit planning [2, 114]. We approach this work with the understanding that public transit systems should prioritize the needs of those who rely on them, yet they are too often shaped by the interests of powerful actors with little accountability to those most affected. Through this research, we aim to interrogate the underpinnings of how these systems of decision-making operate and to contribute to efforts that promote meaningful participation for working-class communities in shaping equitable technology futures.

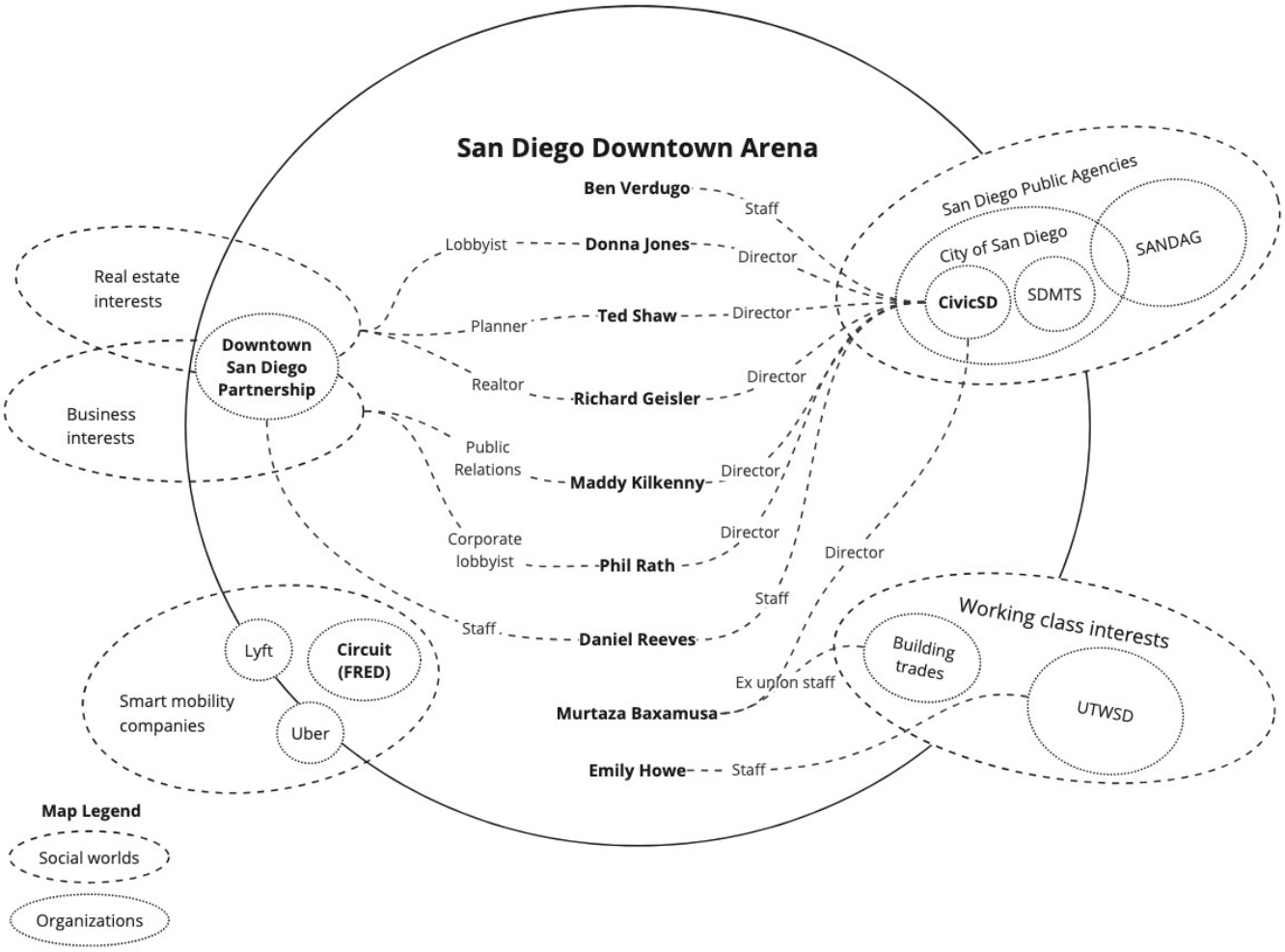

Figure 1: A social worlds and organizations map showing the main actors and their associations that were involved in our case study of FRED.

3.2 Data Collection

The data for this study included public documents, meetings minutes, and transcriptions, interviews with a set of key actors, and tracking of media and marketing materials. The research team first conducted a comprehensive review and analysis of public documents, including materials in public archives and obtained through requests filed under the California Public Records Act (PRA). These documents provided crucial insights into the planning, implementation, and outcomes of the mobility pilot. First, we downloaded the public archive of agendas, meeting minutes, and audio and video recordings from relevant public agencies. We identified close to 200 public meetings held over a span of 10 years that could contain details about planning and implementing FRED. Next, we sifted through agenda documents for all these meetings identifying about 20 meetings where FRED or the "downtown circulator shuttle" was discussed. After a closer reading of meeting minutes for the identified meetings we turned to PRAs to fill in the gaps of missing documents and information. The first PRA gathered all correspondences and documents (emails, memos, reports, and other relevant materials) exchanged among stakeholders within the municipal institution pertaining to the planning and deployment phases of the "downtown circulator shuttle". The second PRA focused on the proliferation of FRED-like shuttles in other municipalities of San Diego county. This involved acquiring records detailing the dissemination of the mobility pilot model, including discussions, agreements, and negotiations with external entities. A third, final PRA gathered details on the current contractual agreements between FRED and San Diego's regional transit agency. This resulted in close to 150 documents that we closely read, annotated, and discussed.

Next, we transcribed and analyzed over 6 hours of relevant audio and video recordings of public meetings where the project was discussed, gaining insights into the internal deliberations and decision-making processes. We also conducted targeted interviews with three actors involved in the project. We were unable to utilize

interviews as the main source of data for this study primarily due to our own involvement in pushing for progressive transit policy in San Diego. We mainly used them as background data to guide our analysis of archival materials. The three interviews we were successful in conducting were carefully selected to be spread across three diverse institutional contexts, a pro-mass transit policymaker, a resident of San Diego downtown who felt deeply invested in FRED, and a government staff person. Finally, we assembled planning materials and proposals featuring FRED's parent company, as well those for similar mobility pilots and projects from other cities. This provided context and broader insight into FRED's positioning and comparable initiatives over time.

3.3 Analysis

We used situational analysis [22] to analyze our data. In developing situational analysis (SA) Clarke articulates several shortcomings with grounded theory including its positivist tendencies, and its lack of ability to account for power and differences [23]. SA extends grounded theory by shifting the focus from actions of social actors to the situation or social ecology as the unit of analysis. Drawing on social worlds theory, SA roots its analysis of a situation in the assumption that multiple collective actors or social worlds are engaged in negotiations in broad and often contentious arenas. SA proceeds by mapping and memoing to examine the relationalities between sets of human/nonhuman actors, social worlds, and the various historical, symbolic, political, and discursive elements from an ecological perspective. One of SA's key strengths is that it moves beyond the classic "knowing subject" of interview research to focus on discursive formations at the meso/organizational level. Another key strength of SA is its focus on analyzing implicated actors who are silenced, ignored, invisibilised, or excluded by those in power. These strengths combine to bring a strong critical and social justice-focused edge to qualitative inquiry.

We drew on methods of analysis from SA in order to situate FRED in the San Diego downtown arena by drawing on multiple intersecting data sources, including interviews, historical, visual, and other discursive materials. We began our analysis by organizing our data into a detailed timeline. Next, we mapped out actors and actants, their social worlds, and their positions within them (See Fig. 1). We used a combination of our timeline, our social worlds map, and our field notes to identify key actors whose interests were prioritized and whose interests were ignored. We then wrote memos about the discourses that shaped these decisions and iteratively revised them into what became the case study for this paper. By systematically examining the institutional processes, power imbalances, relationships, language, narratives, and discursive strategies employed in our materials, this study seeks to uncover underlying logic, aspirational visions, and rhetorical strategies used to assemble and sustain FRED, particularly as they changed over time.

4 BACKGROUND: RACE, CLASS, AND URBAN REDEVELOPMENT

Following Erik Olin Wright, we understand class as a way of explaining the relationship between individualized attributes and material resources, which are organized in societies both through gatekeeping of opportunities through mechanisms via education and money, as well as exploitation and domination by controlling others' labor and ideas [128]. In the United States, issues of class are always entangled with racialization as well [102]. Class-segmented identities are formed through cultural activities, but these activities are shaped by material conditions people find themselves in [117]. Therefore, class is not just an economic position, but a dynamic, lived experience shaped by social relations, cultural practices, and collective consciousness. In the United States, specific regional histories of the politics of exclusion in automobility and transit have played a significant role in shaping class struggles [66, 111, 131].

Unequal power relations in everyday and institutionalized forms have led to the accretion of an unjust, classist, and racialized transportation system. In the nineteenth century, streetcar companies' owners and operators used segregation policies to keep racial minorities off the streetcars [131]. In the mid-20th century, property, oil, and automotive interests promoted the development of suburban areas, creating a zone of "white flight", where working- and middle-class whites could segregate themselves from non-white people [63, 66]. In the late 1980s, near our case study location in Southern California, the Los Angeles Transit Agency (LACMTA) proposed raising bus fares and cutting bus service to fund the development of new rail lines [112]. The implementation plan was aimed at wooing drivers from affluent suburbs off their cars at the cost of degrading the bus service used heavily by low-income and marginalized people. In response, grassroots organizations mobilized a campaign against LACMTA's "transit racism," ultimately succeeding in blocking the cuts through a lawsuit brought under Title VI of the Civil Rights Act [111].

Microtransit is a modality of transportation growing in prominence to fill gaps in the transit system. It is typically shared transportation significantly smaller than the size of a bus (e.g. sedans, vans, or cutaway buses), which can offer flexible routes and on-demand scheduling in a small area of the city [108]. This modality began as dial-a-ride programs operated by public transit agencies, but tech industries have developed privatized, mobile app-enabled versions of these services, re-branding them as microtransit [118]. When venture capital-backed startups first introduced microtransit services, transit experts raised concerns that these new offerings might compete with existing public transit, potentially creating a two-tiered system: on-demand, low-occupancy vehicles for high-income passengers, and infrequent and sparse bus and rail services for everyone else [113]. The concern was that microtransit would divert resources and ridership away from traditional public transit, ultimately leading to reduced service quality and accessibility for lower-income communities. Though microtransit can be helpful in sparsely populated places where mass transit truly is not viable [122], it is now increasingly competing with city bus and rail systems for state and federal transit grants.

Downtown San Diego seems an especially odd place for microtransit, as it is already densely packed with trolley, bus, and rail lines – publicly operated, unionized, and well-utilized by the region's working-class communities. FRED (The Free Ride Everywhere Downtown) arrived at a time, however, when city leaders, investors, and promoters were working to transform downtown into a tech industry hub and "ideas district." FRED's image, as we will show, aligned with this city branding effort. FRED arrived in downtown through an alliance between two organizations: Civic San

Diego (CivicSD), a government-formed nonprofit, and Downtown San Diego Partnership (DSDP), a nonprofit primarily representing San Diego businesses.

CivicSD was responsible for purchasing land and permitting construction on behalf of the city. The nonprofit emerged from the restructuring of the Center City Development Corporation (CCDC), a property tax-funded infrastructure development agency responsible for downtown San Diego [29]. Throughout its institutional lifetime, CivicSD operated in alignment with downtown property and business developers to inflate property values, and intensify the housing crisis downtown in ways that analysts have critiqued as both racist and classist [103] contributing to the affordability and housing crisis in downtown [94]. CivicSD also managed downtown parking meter revenue, which was initially used to fund the FRED program. Consequently, their board and staff were responsible for evaluating and approving the program.

DSDP, the second organization that brought FRED into being, is another non profit organization mostly known for its role of advocating for downtown businesses, which constitute its membership, under the broad mandate of economic development. DSDP was initially contracted by CivicSD to oversee the management of the downtown shuttle system. DSDP has a long history of partnering with CivicSD, including as a contractor to maintain public spaces and manage the presence of unhoused people in the area through security measures and support services [56, 94]. CivicSD and DSDP are powerful brokers of downtown redevelopment and the power geometries that emerge as they work to increase property value and attract corporate investments [73].

5 CASE STUDY: FRED'S BROKEN PROMISES AND PUBLIC BAILOUTS

To understand the work of building FRED's constituency, we begin with why FRED was *not* attractive to some.

> [P]lease consider the who, what, when and how? First who does [FRED] harm? This proposal significantly undercuts local businesses particularly those of low income transportation workers who recently received the opportunity to apply for taxi permits. Second, who does [FRED] benefit? Our understanding is that the proposal purportedly attracts tourists. How many of us have traveled to a city based on the promise of a free shuttle? The targeted market still has to pay for transportation to downtown and parking in downtown. Third, what is the [return on investment]? Perhaps nominal, there is a myriad of transportation options in downtown, buses, Uber, Lyft, pedicabs, taxis, trolleys...As such the better question is where could this money be better placed? Perhaps access to public transportation for low income communities and improve public transportation for all.

This was public testimony given by Emily Howe, a San Diego resident and attorney working at United Taxi Workers San Diego, a worker organization, at a meeting urging decision makers to not approve the FRED program. It lays bare the core contradictions behind the FRED program's use of public resources and whose benefit they ought to be used for. This section will cover the histories and concerns of the key actors who mobilized FRED from a short pilot project to a smart mobility future. The first vignette is from the planning stages leading up to the initial contract; we show how workshops articulating a need for cross-city, fixed-route buses were actively forgotten to prioritize FRED as an on-demand, downtown only rideshare service. The second vignette describes how FRED missed its performance benchmarks; we show the symbolic work to refigure FRED's value to win more financial investment with reduced performance requirements. The third vignette describes how FRED transformed its brand from a "quick ride" to a green solution, leveraging its struggling downtown deployment into much larger public grants and contracts across the region, and across cities in the US.

5.1 2014: How the need for public buses became a mandate for an untried microtransit circulator

The focus of this section is to show how powerful downtown stakeholders justified choosing an unproven technology-driven solution by arguing for its low cost, imagined uses, and speculative benefits, over expanding the bus system. They were able to co-opt public participation and sideline the interests and concerns of workers in the process.

There had been a decades-long push to improve mobility and reduce parking demand in downtown San Diego through the provision of short and frequent bus routes connecting various parts of San Diego to downtown. At least three separate transit planning documents between the mid-2000s and the early 2010s articulated designs for multiple new bus routes to address mobility demand and alleviate parking issues [24, 25, 104].

The last of these was in 2014 when Civic San Diego (CivicSD) and Downtown San Diego Partnership (DSDP), with the help of a contractor, conducted extensive broad stakeholder engagement through workshops and townhalls to design a bus system. The system had stated goals of increasing connectivity to downtown and reducing parking demand. The design workshops included staff from CivicSD and DSDP, staff from government and private planning agencies, and downtown property developers and business representatives, who reviewed implementation details. Thirty-eight townhalls with residents evaluated support for the final design. The final plan proposed bus expansion funded through downtown parking meter revenue: two bus loops connecting three major city areas to downtown and one bus loop rapidly circulating within downtown, with a stated capacity to provide over a million rides annually.

CivicSD and DSDP abandoned their bus plan when they found that parking meter revenues wouldn't cover its cost. Instead of committing to fundraising for the solution that emerged from extensive public workshops, CivicSD and DSDP representatives pivoted. In an October 2014 board meeting, they discussed an on-demand rideshare solution operating within the confines of downtown. Staff had determined that it would offer a higher level of service compared to a bus system, at a fraction of the cost. This new concept would not reduce parking demand since people could only ride once they arrived in downtown, that concern, however, was not

raised in discussions. Instead speculative benefits of a demand responsive system like flexibility, and its ability to match a bus system at a fraction of the cost were centered without much supporting evidence. Moreover, directors representing real estate and business interests on the CivicSD board preferred not to negotiate the deployment of a public bus service when they could contract with an existing business. In 2014, when Uber and Lyft were rapidly expanding and openly challenging to replace public transit [80] the future, to upper-class urban actors, looked like demand responsive app-based hailing. The board voted to pursue the concept, with one member calling it "intriguing and millennial."

We join FRED's journey on June 24, 2015, at the CivicSD board meeting, where Item 13, the downtown shuttle system, is being discussed. A market search to implement the downtown shuttle system, issued before the meeting, asked for "an on-demand mobility option and parking management tool for dowtown San Diego visitors, workers, and residents". It had received seven proposals in response. Circuit, a young startup running small fleets of 5 seater electric shuttles near beaches, had been chosen as the preferred proposal by a selection committee composed primarily of CivicSD and DSDP members and staff. Circuit's pitch centered around offering app hailed free rides and covering the operating costs fully using ad revenue. CivicSD staff summarized the planning process and explained their choice, noting that Circuit, already operating in San Diego, were proposing an expansion for their fleet from 4 to 50 cars over 4 years utilizing a loan from CivicSD. Circuit's proposal projected that expanding to 50 cars would enable them to provide rides to over a million passengers annually, matching earlier bus service projections. The cars would be spread across downtown and available to passengers for free either via street hails or an app with a maximum response time of 7-8 minutes. Circuit projected in their finances that revenue would exceed operating costs three years into operations through ad sales alone, calling the figures "conservative" to demonstrate their confidence.

The voices of impacted workers were missing throughout the bus system design and the pivot to on-demand rideshare. Neither bus drivers nor downtown taxi drivers had been consulted[1]. The United Taxi Workers San Diego attorney appealing to the board, opening this section, was the first instance where representatives of any potentially impacted workers appeared in the public records of deliberations on FRED. UTWSD representatives urged the board to reject the proposal, not just on the basis of how it would affect taxi drivers–primarily low-income African immigrants who relied on downtown for their income–but also because it would offer little benefit to most working-class people. They argued that since many working-class people live outside downtown and rely on buses or cars to commute, they would not find much use from this system. UTWSD instead proposed redirecting the available funds toward improving existing public transportation infrastructure and providing fare subsidies, arguing that this would better maximize public benefit.

Director Baxamusa, one of the only CivicSD directors with a background of working with labor unions picked up on the concerns of taxi worker advocates and grilled CivicSD staff. His most pointed line of questioning revolved around the target user of this on-demand rideshare concept. He argued that the concept was built on hypothetical use-cases with no evidence. He demanded a publicly-workshopped implementation plan similar to the existing bus system concept before he could consider approving this system. The only consolation that CivicSD staff offered in response to Director Baxamusa was committing to set a requirement that FRED maintain certain levels of ridership service. We will unpack results of this in the next section.

UTWSD's appeal and Director Baxamusa's pointed questioning had little impact on the rest of room, full of people representing the interests of downtown businesses, property owners, and affluent residents. Proponents of the on-demand concept and Circuit's proposal argued for it through imagined personal use and optimism about what investment in technology innovation could do in the near-future. Gary Smith, president of Downtown San Diego residents group, implored the board in his public comment to approve Circuit's proposal since there was a mobility gap in downtown for distances between 1 to 2 miles. He reasoned from personal experience that taxis refused to take short trips and one had to walk a few blocks to use the bus. Director Jones, a land development attorney, expressed her enthusiasm for the proposal through imagined personal uses:

> [T]here is something about having a vision of a system that is more easily circulating...and you can catch a quick ride if you are in high heels and you don't like walking or if it starts raining or whatever the deal is.

Director Shaw, a land use planner, expressed support through his own perceived car dependence:

> As someone who lived downtown a couple of times and had to work downtown a couple of times I agree the short trips are a challenge. You get to park 2 blocks away – well, okay I could have walked from my house. Take less time to find a place to park. There is place for a system like this.

Finally, the discussion moved to a conclusion. Acting Chair Geisler, another law professional, called for a positive vote on the proposal despite admitting there were issues with it, explaining "to me, this is innovative...we not only help downtown...with economic development, but...trying to help people move around." FRED meant innovation and economic development. Director Baxamusa was the sole "no" vote.

On February 24th 2016 the CivicSD board voted to finalize the finer details of the FRED program. The meeting minutes showed that property developers, downtown business representatives, and affluent residents showed up in numbers to ensure the FRED program was approved. While in earlier meetings there had been less than a handful of public speakers in this meeting there were close to 15 with all but one speaking in favor of FRED.

None of the people in the room except those representing workers and unions could imagine the societal benefits of investing in expanding the bus system to connect the wider city to downtown. Upper class car dependent sensibilities of downtown business and property developers, and affluent residents favored investing in a technology powered door to door rideshare business because it promised to be innovative, flexible, and would help them in a pinch.

[1]This is based on public documents available to us, there may have been undocumented informal engagement but those were not explicitly mentioned in public documents.

Of particular note in these board meetings, is the fact that representatives for Circuit barely participated apart from answering factual questions. It was public officials, downtown business, and property interests who pitched, argued for, and chose FRED over a bus system despite no supporting research establishing wider public need. This not only facilitated the neoliberal restructuring of the downtown shuttle system but also sowed the early seeds of Circuit's charismatic narrative – free, flexible, and innovative.

5.2 2017: How FRED failed its benchmarks, but survived by transforming its meanings

The board called FRED's first year an experiment in its contract. By the end of its first year, the service failed to meet its service goals. What was its reward? Support and more investment, as this section shows. We trace how program champions legitimated this rhetorically by recasting FRED from a self sufficient paragon service into a clean, green, and innovative service in need of investment, helping bolster its charisma in the process.

Figure 2: San Diego's mayor at the time, Kevin Faulconer, waving at the crowd while riding FRED's electric cart at its launch event.

On August 9th, 2016, San Diego Mayor Kevin Faulconer unveiled the Free Ride Everywhere Dowtown (FRED) program, describing it as a "new, innovative, free ride downtown service" [52]. Faulconer highlighted the convenience of requesting a ride with ''just a few taps on a smartphone". Mayor Faulconer, along with Civic San Diego (CivicSD) president Reese A. Jarrett and Downtown San Diego Partnership (DSDP) president and CEO Kris Michell, arrived at the press conference in FRED vehicles (See Fig. 2). An official press release from the city emphasized FRED's all-electric fleet reducing the carbon footprint, and described it as a "public-private partnership" with "[i]nitial funding for the program com[ing] from $500,000 in downtown parking meter revenues. The goal for the FRED program is to become fully self-sustainable via private sponsorship dollars in the next few years, with public funds being phased out" [21].

In the first year of operation, Circuit's operating expenses were $1,144,383 but the program only generated $212,000 in advertising revenue. However, to be financially sustainable with their 17-vehicle fleet and the contract they had, they would have needed to generate an estimated $844,383 in external revenue annually, leaving a significant shortfall of roughly 75% below the necessary revenue. On the ridership front, the initial contract set a benchmark for weekly ridership at 5,000 to meet their first level of service (LOS1). However, Circuit averaged only 2,301 riders per week, less than half of the contractual goal, with their highest recorded weekly ridership reaching just 3,200 [2].

Facing financial strain, Circuit and CivicSD staff submitted a proposal to the CivicSD Board of Directors 15 months into operation to amend the contract. The amendment had two goals: first, reduce the initially-proposed Level of Service (LOS) benchmarks in light of usage data collected during the first 14 months of the program; second, FRED sought $3,700,000 in funding granted from the city. FRED's original contract specified a *loan* amount not-to-exceed $2,000,000 where the city would front the cost using downtown parking meter revenues and Circuit would pay it back as they started to turn a profit. Now, FRED sought *full public subsidy*.

This bold, costly proposal moved through two subcommittees and finally to the CivicSD board when it passed in November 2017.

To unpack the repair and renewal of FRED's charismatic narrative, we analyze its presentation by CivicSD project manager Ben Verdugo and Circuit founder James Mirras to the Real Estate and Budget/Finance Joint Committee. In a 10-minute presentation, Verdugo constructed a narrative of success around FRED through selectively highlighting three key strengths. First, they framed FRED as a green innovation, based on its electric vehicle fleet, sometimes shared passenger rides, and the perception that it kept people out of their gas cars. They claimed to the board that FRED had reduced 107 tons of GHG emissions, although they did not clarify if they had assumed all riders would otherwise have used cars. Second, they framed FRED as growing rapidly. It had a "44% increase in rides per day compared from last September to this September" and "12% increase in rides following an app update." These metrics are presented without addressing the failure to meet the minimum performance levels stipulated in the contract, which is only discussed when pressed by committee members. Third, they framed FRED as innovative and efficient. They cast FRED as a data-driven on-demand service capable of "learning on itself." It can use ridership data to improve its own operations through recent and near-future updates to its app and back-end systems, with increases in ridership attributed to technical tweaks such as the redesign of the "ride request engine" and the introduction of more sophisticated data collection methods.

The presenters attributed under-performance to anticipated advertising delays, assuring the committee that this slow start was expected and discussed during contract negotiations. To the extent that FRED proponents acknowledged under-performance in ridership, they projected that promised levels of service could be attained through technical fixes. A combination of upgrades to the app and back-end, and, crucially the adoption of new lithium

[2]Operating at the original Level of Service 1 (LOS1) for a full year would have required reaching 260,000 riders. To secure more than $750,000 from CivicSD under the terms of the original contract, SDFR would have been required to operate at Level of Service 2 (LOS2), achieving an annual ridership of 417,143. However, SDFR never reached these targets, with a maximum of 205,000 riders in 2022 – the most recent ridership data available

batteries to extend the driving range of their vehicles were alleged to improve ridership significantly [3].

Finally, FRED's champions leveraged perception of popularity in the press and with the public. Circuit founder Mirras told the board:

> the press has been great. It's a free electric service. So, you know, as expected, it was taken in very well by the community. From what I've seen, and riding in the cars, it's been a big success.

By emphasizing the service's popularity, FRED's champions levied their most powerful rhetorical move, which was re-framing the service's lagging ridership and high wait times as signs of high demand (rather than service inefficiency). This framing had significant buy-in from Committee and Board members. Even when critiquing the program, the meeting participants affirmed the program's popularity and ''public benefit" – citing the service's "innovative and sustainable aspects", or by sharing their personal experiences attempting to use the service.

Despite FRED's advertising revenue falling short of covering the existing fleet, and the fact that adding more cars would raise the operating budget, Committee and Board members, influenced by the perceived "public benefit" of the service were convinced that the viable solution was to increase both funding and the number of vehicles. This perspective, shaped by the narrative of high demand and widespread value, led members of CivicSD to view additional investment as the most logical and necessary step forward.

The committee's support for FRED is seen most clearly when, after discussion, Director Kilkenny proposes to instead amend the contract with only partial funding and build in a 6 month review to release the remaining funds. Kilkenny explained the proposal aimed to incentivize FRED to meet its goals and ensure that "everyone to keep up their end of the bargain" by using financial incentives– "I'm just trying to give a bit of the carrot and the stick"–reflecting accountability for service levels indicated in initial contract, which required FRED to sustain specific ridership levels before receiving additional funding from CivicSD.

The board majority came to FRED's defense, expressing concerns that partial funding could hinder FRED's ability to meet the "growing demand" for its services. Despite clear evidence that the service was financially unsustainable with the current fleet size and ridership levels, and the reality that point-to-point transit generally incurs higher costs as usage increases, committee members persisted in the belief that additional resources would both boost ridership and reduce costs. This belief was reinforced by the program's symbolic success and its alignment with the Committee and Board members' values and political goals. In closing the debate and calling for a vote, Director Rath, a powerful corporate lobbyist in San Diego, was self-congratulatory towards the whole board again re-emphasizing FRED as an innovative alternative to a bus system that *CivicSD* figured out:

> "I would just throw a little sunshine on this. This is a public-private partnership that is very unique. We just started it up. This was supposed to be a fixed route system that was going to cost us probably three or four times this per year. So I totally agree that some things need to be ironed out ... but same time, great work on what we're doing ... Let's just call the vote."

Circuit secured the contract extension with Director Kilkenny as the only one opposed.

The contract renewal was a significant win for FRED, securing favorable conditions, including millions of dollars in further financial investment, tempered advertising expectations, and lower ridership targets. To recap, initially, FRED promised to transport 5,000 passengers weekly with a $300,000 annual city subsidy. After the reform, it had a target of just 1,250 passengers per week, with the city subsidy surpassing $1 million annually. Despite this, the closing remarks in the the committee meeting called the program cost-effective compared to a more expensive bus system. However, we can conclude from the unwillingness by all board members, bar one, to put any substantial limits on further investment that cost effectiveness was almost a non-concern. FRED's real value, as we will detail in the next section, came from its ability to make SD downtown appear clean, green, innovative, and thus an entrepreneurial city, lifting property values and attracting capital investments.

5.3 2024: New mobility futures: not free, but fun and in more cities

Over eight years, public officials repositioned FRED from a self-sustaining circulator to a green transit solution deserving of grants and subsidy. They found its charisma and leveraged it to expand in the region, as we show in this section. Downtown property and business stakeholders and urban technology entrepreneurs symbiotically make one another seem more valuable using smart infrastructures as their charismatic medium, making urban power geometries even more inaccessible to working class people.

FRED's 2017 contract renewal opened up a public debate about the appropriate use of public funds in the media. Shortly after the contract renewal, an investigative article by a journalism non-profit *Voice of San Diego* weighed in on FRED's value as a transit service in comparison to municipal buses [74]. *Voice of San Diego* argued that FRED was a poor investment, costing three times more per passenger than the city's bus system, with an efficiency gap that widens significantly when comparing FRED to dense urban bus routes. Jarret Walker, a transit planning expert, details in his work that a frequent urban bus carries at least 10 times more passengers per service hour when compared to something like FRED [121]. He articulates that solutions like FRED are fundamentally flawed in dense urban areas, because as demand grows investment in the forms of more cars and drivers also needs to grow proportionally. Colin Parent, a local elected official and transit advocate, builds on Walker's argument to suggest that offering free bus passes or investment in expanding the city bus system as a more effective use of public resources, echoing worker advocates' call from before.

Champions of FRED pushed back on the critique in the *Voice of San Diego* article and elsewhere. Ben Verdugo, the program manager for FRED at CivicSD, contended that comparing FRED to buses was inappropriate due to their fundamentally different purposes [74]. According to Verdugo, FRED was not designed to transport

[3]The claim by FRED's founders that new batteries doubling the range would also allow them to double ridership is dubious, given the nature of urban conditions and maintenance challenges. However, FRED did nearly double their level of service once, in 2019, barely reaching LOS1 from the original contract

passengers between different communities within the region, but rather to serve as a first- and last-mile solution within the confines of specific areas, such as downtown. Betsy Brennan, DSDP's CEO, argued that they were experimenting with new solutions:

> "We can always evaluate and figure out if we can do things more efficiently, but we also need to try things. When FRED started, we didn't have scooters or e-bikes downtown. We need a whole toolbox – fixed rides, point-to-point options, and of course transit is so important for the vitality of downtown."

But why was it necessary to experiment when expanding the bus system in downtown was a well researched need? What kind of vitality did FRED bring to downtown that more and frequent buses would not? We surface a different purpose FRED served in the minds of powerful downtown stakeholders like business and property developers, elected officials, and affluent upper class residents. CivicSD and DSDP prioritize downtown's vitality for the luxury condo residents, office tower professionals, convention center tourists, and sightseers over facilitating San Diego's own working class people coming into downtown to power the tourism, hotel, and service industries. For property developers and hoteliers, this amenity helps boost property value. For working professionals and residents, FRED offers an alternative to driving and parking, walking through, or using the city bus within downtown. For public officials, FRED's charismatic qualities travel well beyond its limited operational area through press coverage, supporting San Diego's narrative of urban innovation and bolsters the city's position as a leader in the smart cities landscape.

FRED's role in boosting San Diego's entrepreneurial image plays an especially important role in its continued sustenance and subsequent expansion. As opposed to critically interrogating the value of a new publicly funded infrastructure, the overwhelming amount of media coverage in popular and trade press highlight it as a smart, green, innovative, tech-powered, and government friendly solution [5, 85, 123]. FastCompany and Forbes, two popular national business publications, feature Circuit and especially FRED in San Diego as the innovative future of urban transit [76, 123]. Circuit's public private partnership model that they figured out with CivicSD is lauded as responsible innovation as opposed to the "disruptive" innovation its rideshare counterparts undertake (See Fig. 3). Several other cities' news sources imagine solving their public transit woes through partnerships with Circuit citing San Diego's case [96, 97, 101, 125]. Public officials from San Diego also keep reinforcing FRED's charismatic media narrative. As FRED is voted on to be renewed for its 7th year of subsidized free service in downtown San Diego, city councilmember Raul Campillo calls for expanding its service to other areas in San Diego:

> What FRED has shown our city is that we can be innovative in the way we address the future of public transportation ... FRED provides more opportunities for people to use transit in a holistic way and their model is something we should expand and emulate through the city,

This narrative of "innovativeness" of FRED and its ability to symbolize a seamless solution to a city's transit woes was transformative for FRED's parent company, Circuit. Until 2017, Circuit had largely

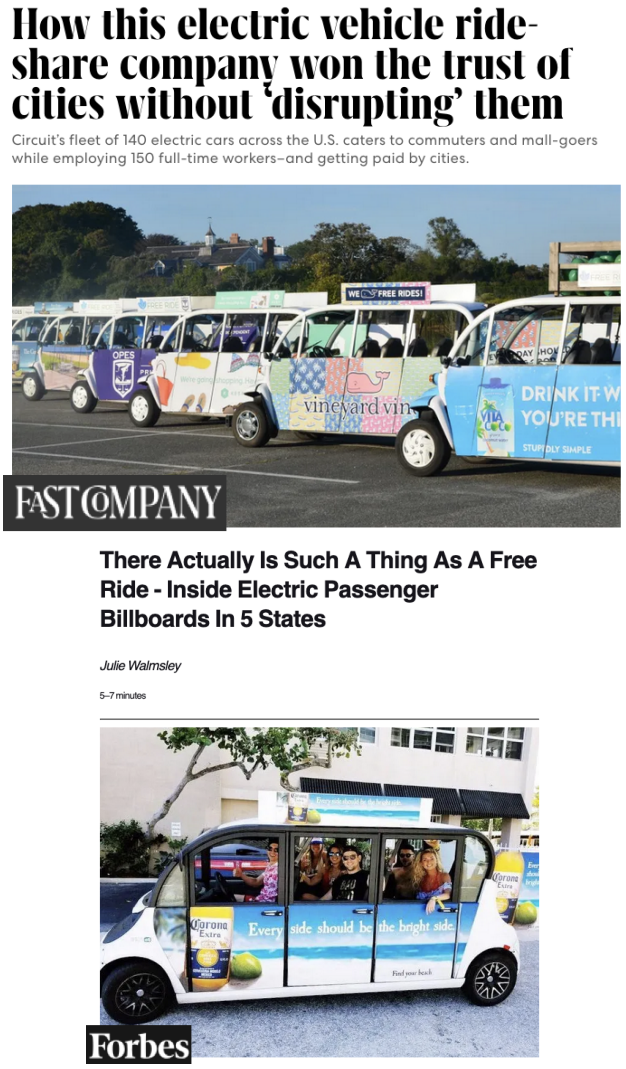

Figure 3: Circuit's media coverage by FastCompany and Forbes showcasing its electric carts wrapped with ads.

focused on promoting its service as a beach and parking shuttle. With the exception of its deployment in San Diego, its service routes had been situated in small beach tourist towns spread across New Jersey, Florida, and California. An archived version of their website highlights the promise of free rides in eco-friendly electric vehicles, with the promise that advertising revenue would make the service self sustaining [6]. The 2016 coverage of FRED's launch in the *Times of San Diego* described the initial goal of the service to be free and eventually self-sustaining through sponsorships [110]. When ads failed to cover the cost of the service, however, they pivoted. Circuits' co-founders and executives pushed the narrative that public officials had crafted to justify funding and expanding FRED to make their case as a first/last-mile public transportation solution as opposed to only a beach and parking solution [76, 78, 96]. This helped Circuit secure many other contracts across the US. One of their significant breakthroughs came when they won a $25 Million

Figure 4: San Diego's mayor in 2024, Todd Gloria, riding in the "Beach Bug" at its launch event as Circuit introduced their electric carts to a beach community in San Diego.

federal transit improvement grant through San Diego's regional planning agency scaling their service to three other locations in San Diego county [105].

In June 2024, after 8 years and ~$10 million in public subsidy, FRED transitioned from a free service to a paid model, with rides costing $2.50 per rider and capped at $5 per ride. A news article introducing this shift FRED's service describes Circuit's new business model: "Circuit often starts up in an area for free (usually with a subsidy), then converts to a fee-based system" [40]. This shift means that a ride on FRED currently costs the same as the city bus system. Behind the scenes, the FRED program transitioned away from being funded through surplus parking meter revenue. Instead, FRED and other similar programs run by Circuit are funded through federal public transportation improvement grants in the San Diego region.

There increasing support for continued funding of Circuit and its competitors, branded under the banner of microtransit, as innovative solutions for transit worldwide. But returning to the main critique of FRED that was raised in San Diego highlights the limitations of experimental market-driven transit reform. Unlike fixed-route services, which benefit from economies of scale as ridership grows, FRED becomes increasingly costly as demand rises, requiring the addition of more shuttles [121], drivers, and operating resources. In other words, while FRED is marketed as a broad "transit solution", its actual impact is modest. It primarily serves wealthier users on low-occupancy, short routes, and as demand increases, it becomes less effective at meeting ridership needs. The limited scalability of FRED sharply contrasts with the bold narrative that has been spun about the FRED deployment in the press. This narrative positions FRED as a transit innovator and Downtown San Diego as a hub of experimentation. The rhetoric surrounding FRED, amplified by launch events with the mayor of San Diego riding around in electric golf carts (See Fig. 4) benefit both Circuit's market position and the city's image. Powerful city stakeholders – such as business and property developers, elected officials, and wealthy residents support these initiatives because they increase their own mobility, raise property values, and attract corporate investments. Urban technology entrepreneurs advocate for micromobility initiatives because they open up new income streams. A symbiotic alliance between city property, capital, and tech entrepreneurs is driving a joint bid for public money, aiming to privatize transit services through microtransit initiatives. But who do these transit solutions exclude?

Working class people are often unable to rely on public transportation due to insufficient service. Public funds being directed towards microtransit interventions are, thus, contributing to entrenching inequities in our transportation systems. This is not to say that microtransit interventions cannot be beneficial to working class riders. Coordination through information technology offers potential to breathe new life into dial-a-ride systems of the past. Elsewhere, in our own work with community transportation advocates in San Diego, we have advocated for microtransit-like interventions to provide service in transit deserts, replace low-utility bus routes, or complement buses during nighttime service [70]. However, the inertia of FRED – with Circuit embodying charismatic qualities bestowed by powerful actors – has set the current course for San Diego's transit future (and other cities followed its example) foreclosing working-class driven alternatives.

6 DISCUSSION

HCI and CSCW researchers recognize the city as a key context, and design in the public realm as an even wider but crucial challenge. The primary focus of this paper has been to detail and critique how powerful actors in urban power geometries push to utilize public resources to translate their ideology of an entrepreneurial city into deploying and sustaining an experimental smart infrastructure. In this section, we operationalize our findings to help HCI designers pursue less charismatic but more democratic forms of innovation

in the public realm. First, we reflect on key details of our case study to help researchers and designers, especially those concerned with civic and public contexts, identify the shifting of resources and design priority away from working-class people towards middle- and upper-classes. Then, we draw on our findings to discuss the role technologies, specifically infrastructures labeled as smart, play in contemporary urban class politics.

6.1 Heuristics for spotting neoliberal agendas

Neoliberalism is a sociopolitical framework that advocates for tapping into the discipline of capitalist markets in order to achieve prosperity for all. It has been widely critiqued, e.g. by Harvey, Peck, Cahill, Edwards, and Stilwell for placing economic prosperity through free market capitalism ahead of all other political goals such as equity, democracy, and social justice [16, 59, 100]. It was first fostered into a political program under politicians Margaret Thatcher in the United Kingdom and Ronald Reagan in the United States in order to solve the crises of economic stagnation and declining profits in the 1980s. As part of its agenda, neoliberalism promoted cuts to social welfare, tax reductions for the wealthy, and the defunding of public infrastructure, in favor of privatization of state services, emphasis on individual responsibility, expanding deregulation, adopting market-based solutions to public problems, and the state running itself like a private enterprise. Critical engagement with neoliberalism in HCI first came through understanding how our design practices are captured by capitalism [77, 98]. Design scholars committed to sustainability, social justice, and democracy have since demonstrated that design work either pursues neoliberal agendas [18, 42] or faces constraints and barriers due to neoliberalism [83, 114, 127]. While neoliberalism is often treated as an immutable constraint, Hall and Harvey explicate through their historiographic research how neoliberalism is just a chaotic and contingent aggregate of policies and practices [55, 60]. As design researchers increasingly focus their attention on public institutions as partners, we must learn to identify, study, and contest neoliberalism in action. Following that agenda, we reflect on the case of FRED in San Diego to offer four heuristics that the design community can use to strengthen our capacities to hold smart infrastructures accountable to the needs of everyday working people, rather than to the machinations of capital accumulation.

6.1.1 Are projects culturally coded as "innovative" foreclosing established but less glamorous solutions? Over decades, the need for increased transit coverage in Downtown San Diego has been reaffirmed, again and again, through multiple urban planning analyses and proposals. Our story began with one such initiative – a multi-stakeholder plan for expanding routes and frequency of buses to serve those living and working in the area. But rather than carry out this collectively held vision, what we saw unfold instead was city officials turning toward a costly experiment in app-driven, on-demand microtransit service that, by its very nature, cannot scale to meet the needs of the broad constituency they represent.

Just as the automotive industry made the personal car a solution to problems of mobility a century ago, the tech industry casts microtransit as the response to an array of transit problems in a quest to secure lucrative government contracts. In San Diego, FRED's proponents positioned the service as a "clean and green" option to reduce car use by efficiently connecting riders through point-to-point on-demand approaches. With an app, passengers are able summon a ride in real-time, simultaneously combining appeals to sustainability and convenience. In doing so, FRED's supporters contribute to a narrative of symbolic progress – creating an image of urban innovation aimed at attracting wealthier professionals and tourists. Downtown then becomes a stage for performing innovation, rather than solving genuine transit needs identified and clearly articulated by residents.

6.1.2 Is the promise that a solution "pays for itself" hiding public costs or subsidies? Recall that FRED's original promise was to provide a service that would cost less than adding bus lines and eventually become self-sustaining through advertising revenue. While this outcome never materialized, the promise of a self-sustaining service helped FRED secure the contract. Such promises are particularly appealing in a context where neoliberal policies have starved cities of tax revenue[14]. In this case, however, the project that was putatively self-sustaining required millions in public subsidy – drawn from San Diego's parking fees – to launch and, eventually, to continue operating. This moment signals the public sector acting like a venture capitalist, one that assumes the risk while leaving the control and profits largely in the hands of the private sector. Yet the funds come from fees paid by everyday people, who receive no financial returns and gain no meaningful control over the service. Despite public investment, the city similarly does not own FRED's fixed capital (e.g. vehicles) or hold any claim to future profits. As of 2024, FRED is no longer even a free ride; it now charges fares, which are privately managed and not subject to public transit equity regulations, such as subsidized pricing. The value FRED creates accrues to the company's private owners. As a secondary effect, the impact FRED has on downtown San Diego's image might elevate the value of properties for real estate developers. This dynamic coheres with another feature of neoliberalism, as geographer David Harvey argues: by unleashing the power of the private sector, neoliberal policies organize public resources and governance mechanisms to transfer wealth from the public to the political and economic elites [59].

6.1.3 Is the project excluding marginalized people, including workers, from design, planning, or accountability processes? Recall that the downtown circulator was approved despite prior consultations with working-class residents, which had produced a report recommending additional bus lines to better connect their neighborhoods to downtown. A budgetary shortfall scuttled those plans, while FRED was charismatically fast-tracked and the report quietly faded from public view. Designers and planners should ask how working-class residents are integrated into and served by smart city projects. Do route enhancements serve working-class people as much as, or more than, wealthier residents who can afford their own means of access? Do the systems under consideration uphold strong labor standards and provide living wages, or do they erode labor power under the guide of innovation?

A recent report from the Amalgamated Transit Union, a union representing over 200,000 transit workers across the US and Canada, evaluated the efficacy of microtransit deployments across North America [119]. Startlingly, the report also highlighted the erosion of labor standards enabled by microtransit deployments. Jobs in the

public transit industry across North America are heavily unionized, providing good wages, health, safety, and training standards, healthcare, and retirement security. Microtransit deployments, even when publicly funded, either utilize independent contractors or employ un-unionized workforces lacking the benefits of a union contract [119].

6.1.4 Is the pilot or trial year truly an evaluation or is it manufacturing consent? FRED was initially proposed as an experimental program with benchmark goals. Yet despite failing to meet those benchmarks, it became an entrenched vendor, buoyed by municipal champions who continued to support it. Around the same time, San Diego implemented a network of "smart streetlights" with extensive surveillance capabilities, justified by promises of generating planning data and civic technology applications, though such functionalities had not materialized during the smart streetlights pilot period [126].

HCI practitioners and other design communities might readily view pilots and other experimental trials as rational approaches to testing and refining system and policy designs. However, empirical research on real-world policy and private-public partnership pilots reveals that such initiatives are often deployed to advance political agendas, secure stakeholder buy-in, or deliver reputational gains for policymakers – delivering benefits to insitutional actors irrespective of long-term outcomes [19, 45, 46]. Drawing on this research, as well as our case study, we suggest that pilot projects often function as instruments for manufacturing consent, legitimizing pre-determined decisions and defusing conflict, rather than serving as methods of refining design and policy.

6.2 Technology as charismatic medium for class politics

Charismatic technologies, a concept advanced by Morgan Ames, highlight the narratives that technology can mobilize to organize key actors into action by promising certain futures that align with their values, aspirations, and ideologies [3]. More specifically, Ames demonstrates how charismatic technologies derive their power "through the possibility or promise of action: what is important is not what the object is but what it promises to do" with a "magic" element of persistence even when an object's actions do not match its promises. This "magic" element also functions to smooth over political fissures, convincing actors that progress toward the future is just a matter of depoliticized technology adoption. This charisma also sustains support for a new technology despite its failure to meet its goals. Ames argues that charismatic technologies affirm actors' existing worldviews, stereotypes, and ideologies, projecting the status quo into the future with "unchallenging familiarity" [3]. "Analyzing a technology's charisma," Ames writes, "helps us recognize ideologies that may otherwise be as invisible as water is to the proverbial fish" [3].

Our findings show how downtown property and business developers, along with urban tech entrepreneurs, co-constructed FRED's charismatic narrative in meetings and promoted it in the media. These actors cast municipal bus service as the uninnovative past, making room for FRED, or a service like it, to enter the planning discourse. FRED was favored by these actors over a well researched, bus-based solution, due to claims of equivalent performance at a fraction of the cost. When these claims were challenged by labor voices in the room, such as representatives of San Diego's largely immigrant-run taxis, they were dismissed. CivicSD board members rejected concerns about the need for more research on the untested, experimental solution, not through rational argumentation, but through board members' own personal imagination and desire for the service. Simply put, CivicSD board members and staff approved FRED because they imagined a municipally operated, free, app-hailed service that would solve urban transit woes with minimal public investment (remember, FRED was meant to pay for itself through ads). By approving FRED and publicizing their belief in it, they enrolled the support of other powerful urban actors who shared in their imagination.

Once FRED missed its ridership numbers and demanded more investment, government and private partners marshaled new narratives to repair FRED's charisma. FRED's gleaming electric carts circulated in the media, projecting an image of San Diego as a clean, green, and innovative city. FRED's champions drew on and further boosted its innovation narrative to justify its value. Whenever FRED came up for contract renewal, proponents cited these charismatic elements – such as smartness, flexibility, and eco-friendliness, while its performance and cost were left unquestioned. FRED was no longer a cheaper alternative to the bus, it had become a signifier for downtown San Diego's "innovation" prowess. San Diego's image as innovative is important for those who own property downtown, because as Zukin demonstrates in her study of New York [130], it holds the promise of bringing in more investment capital. Here, we are not arguing that this project only appealed to investor and property owning classes, but rather that it served the needs of investor and property owning classes more than it did those living in San Diego's working-class neighborhoods. In sum, FRED's charismatic narrative rode on the rails of classed imaginaries. The future was sleek, shiny, and proximate to whiteness, which came at the cost of working-class, immigrant, and racialized workers' needs.

Charismatic technologies, then, are not equally charismatic to all. They can affirm the stereotypes and power relations experienced by different social groups. Through our findings, we highlight the role of upper-class ideologies in shaping these dynamics. Critical HCI projects must work to vet, contextualize, and sometimes counter the knowledge public officials and companies produce to push for "innovative" market reform. We attended to the charisma of technology to understand how technology-enabled infrastructures can act as a charismatic medium for neoliberal urban development ideologies. That said, are there ways designers can marshal charisma to expand rights to the smart city? This is a question for future work.

7 TOWARDS A CLASS CONSCIOUS HCI PRAXIS

Over the course of ten years of deliberation and eight years of renewed contracts we analyzed downtown San Diego's on-demand shuttle program. A coalition of powerful downtown stakeholders including city officials, property and business developers, and tech entrepreneurs brought the initiative to fruition by securing and sustaining support for FRED's transformation from a temporary experiment to a subsidized, privatized transit option. Our case study

of FRED reveals how the designs, meaning-making, and media can make smart mobility initiatives a charismatic vehicle for neoliberal transit privatization. We illustrated how these charismatic programs circulated in public narratives in and beyond San Diego, while criticism from worker advocates and transit experts did not reach beyond city policy players. What we saw along the way were the charismatic common-sense narratives constructed by champions of FRED, building on existing narratives of green technologies and innovation as novel product design that are perpetuated by upper class actors who are the center of urban power geometries. Technologists like the founders of FRED aligned their vision to these narratives and that is how they, and companies like them, have gained a foothold in the move toward privatization of public transit.

In concluding this paper, we highlight the work of No Bus Cuts Denton as an example of the coalitional effort required to fend off charismatic smart mobility initiatives in favor of more equitable infrastructures. While FRED was expanding beyond downtown in San Diego, a coalition in Denton, Texas, was actively trying to halt a microtransit initiative [31]. The Denton transit authority (DCTA) planned to reduce bus service and replace it with microtransit, promoting claims like reduced wait times, expanded service, and low costs in its favor. Transit activists in Denton responded with evidence of microtransit's operational limitations and the anti-worker practices of microtransit providers, who sought to replace higher-paid bus operators with lower-paid microtransit workers. However, activists did not just expose the logical flaws in microtransit promises. They also organized a concerted campaign against the proposal. They formed No Bus Cuts Denton, a coalition of local transit advocates, community organizers, and labor union members. The coalition worked together to mobilize public action, collected petitions, sent calls and emails to the city council, and educated riders about the impacts of the microtransit proposal. The coalition identified key decision-makers on the DCTA board and city council, finding allies among newly elected progressives on the city council who had not been involved in the original proposal. They successfully pushed for the replacement of a pro-microtransit DCTA board member with another more supportive of public transit. As a result, five of the bus lines were preserved, while the microtransit program, though maintained, is being relocated to other areas. This case study shows that countering the microtransit proposal demands more than exposing its flaws.

The work of No Bus Cuts Denton inspires us, as critical HCI researchers to adopt more offensive stances in collaboration with coalitions of workers and marginalized people in our future work. This necessitates praxis, as Paulo Freire defines it in Pedagogy of the Oppressed–"reflection and action directed at the structures to be transformed" [51]. A class conscious HCI praxis involves crafting counter-narratives to illuminate class inequality entrenched through tech solutions, mapping power geometries, and planning where to exert pressure in collaboration with working-class civil society groups. In calling for a class-conscious HCI praxis, we ally with and extend the work of Wolf, Asad, and Dombrowski [127], who, in their inquiry, lay bare the machinations of capitalism with the aim to "open up spaces where plots can be hatched and maneuvers formed that break open, pick apart, dismantle, and ultimately, replace our inhumane, inequitable status quo." Such approaches have the potential to expand our design toolkit, offering new ways to understand and resist the constraints of actually existing neoliberalism in the places we live and work.

ACKNOWLEDGMENTS

We thank members of concerned communities and publics in San Diego, including United Taxi Workers of San Diego (UTWSD), elected representatives and their staff, community members, and transit justice advocates for sharing their time, experiences, and insights throughout this research, as well as the San Diego Office of the City Clerk, for their support in facilitating access to key data sources. We are also grateful to Bobbie Fan and Hunter Akridge, Carl Disalvo and other participants of the 2024 Northeast HCI Conference, as well as the anonymous reviewers for their constructive feedback and suggestions. This work was supported by the Kauffman foundation and by the National Science Foundation through the Computing Innovation Fellows (CIFellows) program, administered by the Computing Research Association and the Computing Community Consortium.

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