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Via E-mail

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Re: Comment in Support of Appeal of Initial Study/Mitigated Negative Declaration for the 3440 Wilshire Project; CPC-2016-3692-VZC-MCUP-SPR-1A; ENV-2016-3693-MND; VTT-74602-2A

Dear Chair Harris-Dawson and Honorable Members of the Los Angeles Planning and Land Use Management Committee:

I am writing on behalf of Supporters Alliance for Environmental Responsibility and its members living in and around the City of Los Angeles ("SAFER") regarding the 3440 Wilshire Project, a mixed use development proposed for a 7.3-acre lot area located at 3432-3470 Wilshire Boulevard in Los Angeles, and the related project approvals (the "Project"). This letter is in support of SAFER's appeal of the Planning Commission's decision to adopt an initial study/mitigated negative declaration ("IS/MND") and mitigation monitoring plan ("MMP") for the Project, and sustaining the Advisory Agency's determination approving Vesting Tentative Tract Map NO. VTT-74602. The IS/MND fails to analyze all environmental impacts and to implement all necessary mitigation measures. As a result, SAFER respectfully requests that the City of Los Angeles ("City") grant our appeal and require staff to prepare an Environmental Impact Report ("EIR") in order to incorporate our concerns discussed below.

SAFER provided detailed comments on the IS/MND on May 1, 2020. Those comments included the expert comments of Certified Industrial Hygienist, Francis "Bud" Offermann, PE, CIH, Soil/Water/Air Protection Enterprise ("SWAPE"), ecologist Shawn Smallwood, and environmental consulting firm Soil/Water/Air Protection Enterprise ("SWAPE").

The Applicant submitted a report by CAJA Environmental Services, LLC dated May 12, 2020 responding to the issues raised in our May 1, 2020 Comment ("CAJA Report").

This comment supplements and incorporates by reference our May 1, 2020 comments, and responds to the CAJA Report's response to our previous comments. This comment has been prepared with the assistance of traffic engineer Dan Smith, P.E. Mr. Smith's original comments and curriculum vitae are attached hereto as Exhibit A, while his supplemental comments are attached hereto as Exhibit B. This comment was also prepared with the assistance of the environmental consulting firm Soil/Water/Air Protection Enterprise ("SWAPE"). SWAPE's supplemental comments are attached hereto as Exhibit C. Finally, this comment was prepared with the assistance of the acoustical consulting firm Accentech, whose comments are attached hereto as Exhibit D. Each of these comments are incorporated herein by reference in their entirety.

As explained below nothing in the CAJA Report, or anywhere else in the record, changes the fact that an EIR must be prepared for this Project. "[I]f there is a disagreement among experts over the significance of an effect, the agency is to treat the effect as significant and prepare an EIR." *Sierra Club v. County of Sonoma,* 6 Cal.App.4th at pp. 1316–1317; *Moss v. Cty. of Humboldt* (2008) 162 Cal. App. 4th 1041, 1049.

I. PROJECT DESCRIPTION

The Project proposes to develop a mixed-use project on a 7.3-acre site consisting: 1) 640 apartment units; 2) 10,738 square feet ("sq. ft.") of commercial floor area; and 2) 1,921 vehicle parking spaces. The Project site is currently developed with four commercial office buildings with ground floor retail uses that front West Wilshire Boulevard and South Irolo Street (the "Existing Office Buildings"), a three-story parking garage, a five-story parking structure, two vehicle driveways, and internal private roadways. The Project involves demolishing the existing three-story parking structure, constructing two commercial kiosks, and constructing a 23-story mixed-use building and a 28-story mixed-use building on top of a podium that is four stories above grade and two stories subterranean. The commercial space will consist of 5,538 sq. ft. of retail area and 5,200 sq. ft. of restaurant area. The restaurant area will consist of 3,700 sq. ft. with 138 indoor and outdoor patio seats of high-turnover restaurant and 1,500 sq. ft. with 68 indoor and outdoor patio seats of fast-food restaurant.

II. LEGAL STANDARD

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an environmental impact report ("EIR") except in certain limited circumstances. *See, e.g.,* Pub. Res. Code § 21100. The EIR is the very *heart* of CEQA. *Dunn-Edwards v. BAAQMD* (1992) 9 Cal.App.4th 644, 652. Since "[t]he adoption of a negative declaration . . . has a terminal effect on the environmental review process," by allowing the agency "to dispense with the duty [to prepare an EIR]," negative declarations are allowed only in cases where "the proposed project will not affect the environment at all." *Citizens of Lake*

Murray v. City Council of San Diego (1982) 129 Cal.App.3d 436, 440. A negative declaration may be prepared instead of an EIR when, after preparing an initial study, a lead agency determines that a project "would not have a significant effect on the environment." *Quail Botanical Gardens v. City of Encinitas* (1994) 29 Cal.App.4th 1597; § 21080(c). Such a determination may be made, however, only if "[t]here is *no* substantial evidence in light of the whole record before the lead agency" that such an impact *may* occur. *Id.*, § 21080(c)(1) (emphasis added).

A negative declaration is improper, and an EIR is required, whenever substantial evidence in the record supports a "fair argument" that significant impacts may occur. Pub. Res. Code § 21082.2. This is true even if other substantial evidence in the record supports the opposite conclusion. *Stanislaus Audubon v. County of Stanislaus* (1995) 33 Cal.App.4th 144, 150-151; *Quail Botanical Gardens*, 29 Cal.App.4th 1597. The "fair argument" standard creates a "low threshold" favoring environmental review through an EIR rather than through issuance of negative declarations or notices of exemption from CEQA. *Citizens Action to Serve All Students v. Thornley* (1990) 222 Cal.App.3d 748, 754. As a matter of law, "substantial evidence includes . . . expert opinion." Pub. Res. Code § 21080(e)(1); 14 Cal Code Regs § 15064(f)(5). An agency's decision not to require an EIR can be upheld only when there is no credible evidence to the contrary. *Sierra Club v. County of Sonoma*, (1992) 6 Cal.App.4th, 1307, 1318.

Here, substantial evidence presented in this comment letter, and the supporting technical comments, supports a fair argument that the Project will have significant environmental impacts on indoor air quality, noise, air quality, human health, and greenhouse gas emissions. For these reasons, the City should grant the Appeal, withdraw the MND, and prepare an EIR for the Project.

III. AN EIR IS REQUIRED BECAUSE SUBSTANTIAL EVIDENCE SUPPORTS A FAIR ARGUMENT THAT THE PROJECT WILL HAVE SIGNIFICANT EFFECTS ON THE ENVIRONMENT.

A. There is Substantial Evidence of a Fair Argument that the Project Will Have a Significant Health Risk Impact from its Indoor Air Quality Impacts.

As explained in SAFER's May 1, 2020 Comments, the expert comments of Certified Industrial Hygienist, Francis "Bud" Offermann, PE, CIH, constitute substantial evidence that the Project may have significant impacts related to indoor air quality, and in particular, emissions of the cancer-causing chemical formaldehyde.

The record contains a document dated September 24, 2020 entitled "Responses #3 to Appeal on 3440 Wilshire Project," prepared by CAJA Environmental Services, LLC on behalf of the Project Applicant ("CAJA Report"). The CAJA Report responds to the issues raised in SAFER's May 1, 2020 comments, as well as Mr. Offermann's comments. CAJA Report, pp. 6-10. However, the CAJA Report does not sufficiently address the issues raised.

The CAJA Report claims that health risk impacts from indoor air quality issues do not

need to be addressed because "[t]here are no requirements or guidance from SCAQMD or relevant agencies to evaluate such risk and the Project does not represent a unique or special development that needs addressing in CEQA." CAJA Report, p. 8. This explanation is inconsistent with CEQA. The fact that SCAQMD has not provided guidelines does not alleviate the City of its mandatory duty to analyze this potentially significant impact.

Moreover, under both CEQA and the CEQA Guidelines, an EIR must be prepared when certain specified impacts result from a Project. PRC § 21083(b); 14 CCR § 15065(a). Specifically, an agency must find that a Project may have a significant effect on the environment and must prepare an EIR if the Project has environmental effects that will cause substantial adverse effects on human beings, directly or indirectly. PRC § 21083(b)(3); 14 CCR § 15065(a)(4).

The CAJA Report then claims that no indoor air quality analysis is needed because the Project will comply with various existing laws. CAJA Report, p. 8. Compliance with laws is not evidence that the Project will not have a significant impact. *Kings Co v. Hanford* (1990)221 CA3d 692, 712-718. In addition, Mr. Offermann's comments explain that even assuming all materials are compliant with California Air Resources Board's formaldehyde airborne toxics control measure, uture residents of the Project will be exposed to a cancer risk from formaldehyde of approximately 112 per million.

The CAJA Report also claims that no analysis is needed of the Project's indoor air quality because SAFER "provides no credible evidence that the Project will be constructed with building materials with significant amounts of formaldehyde." CAJA Report, p. 9. This is both incorrect and fails to understand the City's duty to investigate environmental impact under CEQA. Newly constructed residential buildings, such as the Project, regularly use materials and products containing and releasing formaldehyde. Offermann Comment, pp. 2-3. "The primary source of formaldehyde indoors is composite wood products manufactured with urea-formaldehyde resins, such as plywood, medium density fiberboard, and particleboard. These materials are commonly used in building construction for flooring, cabinetry, baseboards, window shades, interior doors, and window and door trims." *Id*. In addition, the City has a duty to investigate issues relating to a project's potential environmental impacts, especially those issues raised by an expert's comments. *See Cty. Sanitation Dist. No. 2 v. Cty. of Kern*, (2005) 127 Cal.App.4th 1544, 1597–98 ("under CEQA, the lead agency bears a burden to investigate potential environmental impacts"). The IS/MND should disclose the types of materials that will be used in construction so that the public and decision makers and fully assess the Project's impacts.

Finally, the CAJA Report states that "We are not aware of credible or peer reviewed studies which assessed long-term indoor concentrations and associated lifetime exposure to formaldehyde in new homes and commercial spaces in California that suggest the existing rules and regulations on formaldehyde in building materials is a concern." CAJA Report, p. 9. However, the California New Home Study, referenced in Mr. Offermann's comments, is a peer-reviewed study assessing that exact topic. Mr. Offermann's comments provide a link to that study, which is available here: https://www.arb.ca.gov/research/apr/past/04-310.pdf. See also

Exhibit E, "Indoor Air Quality in New California Homes with Mechanical Ventilation," by Chan, et al.

Because Mr. Offermann's expert review is substantial evidence of a fair argument of a significant environmental impact to future users of the project, an EIR must be prepared to disclose and mitigate those impacts.

B. The IS/MND's Traffic Analysis is Not Supported by Substantial Evidence and Fails to Disclose that the Project may have a Significant Traffic Impact.

A significant transportation impact would occur if roadways and intersections that would carry project-generated traffic would exceed adopted City of Los Angeles Department of Transportation thresholds of significance. IS/MND, B-215. The IS/MND's conclusion that the Project will not result in significant transportation impacts is not supported by substantial evidence.

Attached hereto as Exhibit A are the expert comments of traffic engineer Dan Smith, dated April 20, 2020. These comments were referenced and described in SAFER's May 1, 2020, but were inadvertently left out of the comments as an exhibit. In addition to Mr. Smith's April 20, 2020 comments, attached hereto as Exhibit B are the supplemental comments of Mr. Smith, dated November 2, 2020 (Smith Nov. 2 Comment). In his November 2 Comment, Mr. Smith responds to the CAJA Report.

As described in our May 1, 2020 comments, and explained further below, the IS/MND greatly underestimates the vehicle trips generated by the Project. Mr. Smith concludes that there is "overwhelming evidence that there is fair argument that demonstrates that the Project's impacts are not fully disclosed and mitigated in the IS/MND. Consequently, the Project cannot be approved under a mitigated negative declaration and a full EIR must be prepared." Smith April 20 Comment, p. 5.

1. <u>The IS/MND underestimates traffic generated from the retail component of the Project.</u>

The Project includes 5,538 square feet of commercial retail space. The IS/MND estimates the gross number of trips generated from this retail space based on *Trip Generation, 10th Edition's* <u>average</u> rates for Land Use Category 820, which is the land use category for "Shopping Center." Smith April 20 Comment, p. 2. But Traffic Engineer Dan Smith explains in his expert comments, that this land use is inapplicable to the Project because 5,538 square feet of retail space is not a shopping center. *Id*. To generate the average trip rates used for the Shopping Center land use category requires approximately 400,000 square feet of floor area. *Id*. Mr. Smith determined that a convenience market would be a much more accurate land use category to use. *Id*. Using the *Trip Generation, 10th Edition*, shopping centers generate daily vehicle trips at an average rate of 37.75 trips per thousand square feet of floor area, where as convenience markets generate 762.28 trips per thousand square feet. *Id.* This amounts to <u>20 times more traffic generated from the retail space than was disclosed in the IS/MND</u>. The same

flaw is reflected in the IS/MND's peak hour trip analysis.

In Response to SAFER-9, CAJA deceptively presents only a partial quote of SAFER's May 1, 2020 Comment, so that it appears SAFER argued that a retail complex must be at or above 400,000 square feet of floor area to be analyzed as a Category 820 Shopping Center based on ITE *Trip Generation, 10th Edition*. CAJA, p. 17. CAJA goes on to note that the majority of data entries for this category in the ITE *Trip Generation, 10th Edition* for Category 820 are less than 400,000 square feet, and many are less than 50,000. *Id*. As a result, CAJA concludes this is the correct land use category.

Dan Smith explains in his November 2 comment why CAJA is wrong. *Trip Generation, 10th Edition* average trip rates for Category 820 lump all leasable floor area sizes of retail as one category – from very small like the Project which is only 5,538 square feet, to retail spaces with more than 2 million square feet. Smith Nov. 2 Comment, p. 2. Mr. Smith explains that the plot of each of these data points used in the "Category 820 data base shows that, considering data entries for centers about the same size, the number and amplitude of those falling above and below the average rate line only becomes about equal when retail centers are at or above about 250,000 square feet. For daily trips, the fitted curve equation for the data set coincides with the average rate line at a retail center size of about 400,000 square feet. This can be seen in Figures 1 and 2 below, which show the data plots from *Trip Generation, 10th Edition* Category 820 daily and PM peak hour trips. *Id*. For projects less than 200,000 square feet, nearly all of the actual trip data falls "above to well above the average rate line." *Id*.

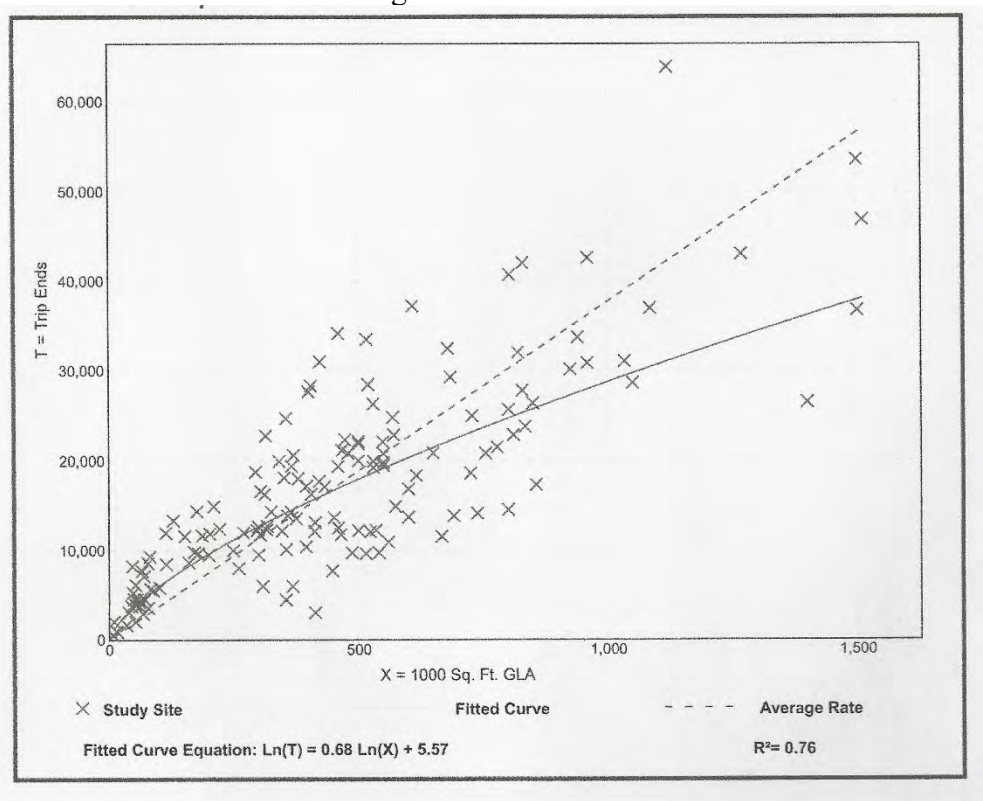
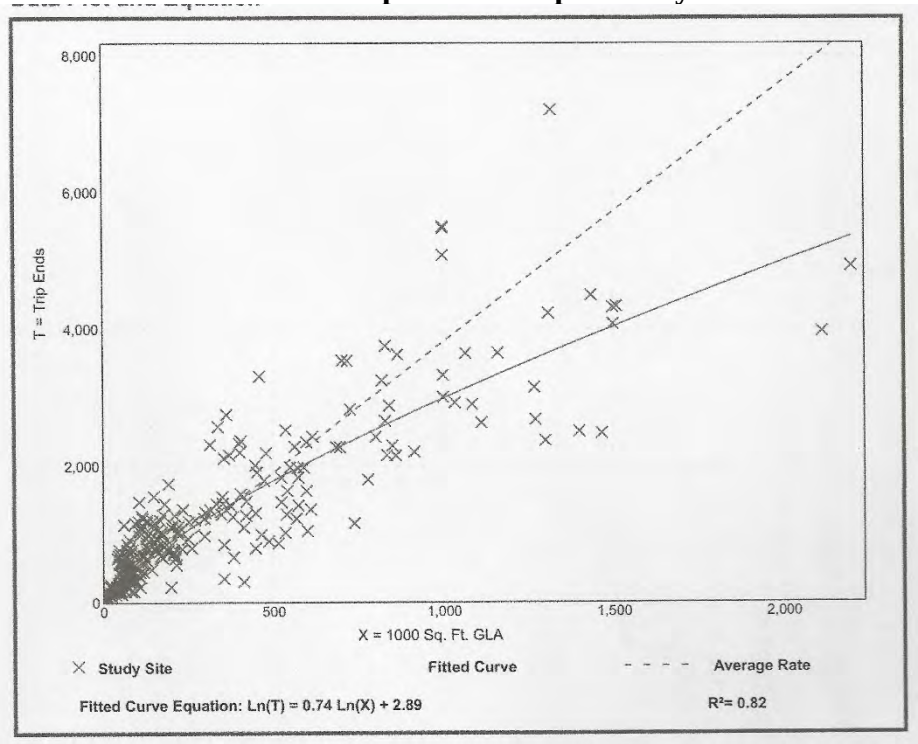


FIGURE 1: Daily Shopping Center Trip Data By Leasable Area

FIGURE 2: PM Peak Shop Center Trip Data By Leasable Area



Since the tenant is unknown, in order to disclose the Project's full potential traffic impact, the IS/MND should have used the fitted curve rather than the average rate for Category 820, or it should have assumed the most likely occupant of a 5,538 square foot retail space, which would be a Convenience Market (ITE Category 851) or a single or combination fast food establishment (ITE Category 933). Smith Nov. 2 Comment, p. 2. Under any of these scenarios, gross trip generation from the retail component would far exceed what the IS/MND discloses. *Id*.

Mr. Smith explains that many other authoritative trip generation data sources reflect the fact that *Trip Generation, 10th Edition* average retail trip rates are not representative of retail spaces with small square footage. *Id*. For example, the City of San Diego trip generation manual and the City of San Jose Traffic Impact Analysis Manual both subdivide trip generation rates by size of the retail center. *Id*. The San Diego Trip Generation Manual splits retail uses into Regional Shopping Centers (greater than 300,000 square feet), Community Shopping Centers (100,000 to 300,000 square feet) and Neighborhood Shopping Centers (30,000 to 100,000 square feet) with smaller retail uses assumed to be a specific known use or combination of the known or logical uses of the space involved. *Id*. Similarly, the San Jose Traffic Impact Analysis Manual subdivides retail uses by size category, with categories including "Super Regional Shopping Centers" (over 600,000 square feet), "Regional Shopping Centers (300,000 to 600,000 square feet), "Community Shopping" Centers (100,000 to 300,000 square feet) and "Neighborhood Shopping" Centers (less than 100,000 square feet). Smith Nov. 2 Comment, pp. 2-3. In each of these documents, "the smaller the retail square footage, the higher the trip rate."

Id. at 3.

In addition to using an incorrect trip generation rate for this small retail space, the IS/MND also dramatically discounts gross trip generation by 68 percent. *Id*. at 3. This reduction is based on 15 percent for trips internal to the Project, 25 percent as transit trips, and 50 percent as trips attached to passerby traffic. *Id*. As Mr. Smith explains, these reductions do not hold up to scrutiny.

Looking at the passerby attraction rate, Mr. Smith said that "the notion that the convenience retail would attract 50 percent of its patronage from existing passerby vehicle traffic is absurd." Smith April 20 Comment, p. 2. Mr. Smith explains that these types of passerby attraction rates are normally attained by convenience markets on busy urban or suburban streets and where the retail store has its own surface parking lot. *Id*. Here, in contrast, the retail space is contained within a larger building, where the passerby is forced to enter and leave a large parking garage. *Id.* Moreover, the retail space is not visible from either Wilshire Boulevard or Irolo. It is only visible form S. Mariposa Avenue and/or W. 7th Street. *Id*. The IS/MND discloses that S. Mariposa carries only 680 vehicles past the Project site in the A.M. peak hour and 672 in the P.M. peak hour, while W. 7th Street carries only 349 vehicles past the Project site in the A.M. peak hour and 542 in the P.M. peak hour. IS/MND Appendix K-1, Figure 1. Mr. Smith concludes that "These totals are insufficient to support the claimed passerby attraction discount, particularly where the on-street parking spaces are usually occupied and passers-by would be forced to enter and leave a parking garage." *Id*.

CAJA responded that the passer-by discount is a "surrogate" measure for visits at the retail by people walking to/from nearby buildings. Mr. Smith agrees that there is some expectation of walk-in retail trade in this area, but "nowhere has the City or the analysts documented through observation that it would achieve levels similar to suburban passerby *vehicle* trip attraction." Smith Nov. 2 Comment, p. 3.

Looking at the 25% transit discount, Mr. Smith notes that "The notion that 25 percent of the people visiting a convenience market would make purposeful transit trips to reach that market is similarly implausible. This is likely to be true only of a handful of employees of the market." Smith April 20 Comment, p. 2. "The only way the transit discount is applicable is where people make a transit trip for the specific purpose of visiting the subject retail use. And virtually nobody will make a specific transit trip for the purpose of patronizing a 5,538 square foot convenience market or fast food complex." *Id*. Moreover, any stops at the retail space made by someone who lives or works at the Project on their way to or from transit would have already been accounted for in the internalization discount. *Id*.

The CAJA Response notes that a 25% credit is appropriate because it is allowed by the LADOT Transportation Impact Study Guidelines when a project is located near a rail transit station, like this Project is. CAJA Report, p. 17. But Mr. Smith says this response is not consistent with CEQA's requirements to disclose a Project's environmental impacts. Just because such a credit is allowed "does not empower analysts and City reviewers to abandon reason and logic in applying the credit." *Id*. Moreover, just because it is "allowed" for purposes

of traffic analysis does not mean that it should be discounted in calculating the Project's air quality and greenhouse gas emissions.

2. The IS/MND underestimates traffic generated from the fast-casual restaurant component of the Project.

Like the retail space, the IS/MND assumes again that 68 percent of the fast casual restaurant's gross trip generation will not add to traffic except at Project driveways. Just as with the retail space, the IS/MND reduces traffic by 68 percent, with 50 percent attracted from passer-by traffic, 25 percent from transit, and 15 percent internal. Smith April 20 Comment, p. 3. "All of the discussion above with respect to the discounting of trips to a convenience market is similarly applicable to the fast causal restaurant." *Id*. Mr. Smith explains that "few persons would make a transit trip for the purpose of patronizing a specific fast casual restaurant." Smith Nov. 2 Comment, p. 5. Moreover, as mentioned above, residents or employees in the Project buildings who stop at the restaurant on their way to or from public transit have already been accounted for in the internalization discount. *Id*.

3. The IS/MND underestimates traffic generated from the high-turnover sit-down restaurant component of the Project.

The Project also includes a high-turnover sit-down restaurant. For this component of the Project, the IS/MND discounts 49 percent of the trip generation, which includes 25 percent for transit, 20 percent passer-by attraction, and 15 percent internal. *Id.* But Mr. Smith points out that "[e]xcept for negligible numbers of restaurant employees, few if any people would take transit in a purposeful trip to reach or depart from a restaurant of this type. Certainly, patrons of the restaurant will include persons who arrived and will depart the area via transit but these comprise part if not most of the attracted passer-by category." Smith April 20 Comment, p. 3. The need for drivers to park inside a parking garage and the fact that the restaurant will only be visible from the lightly trafficked S. Mariposa and W. 7th street further minimizes the patrons that will be attracted from street traffic. *Id.*

In Response to SAFER-11, CAJA claims that SAFER does not provide substantial evidence that the restaurant minimizes the amount of traffic generated because will would only be visible from the lightly trafficked streets. CAJA, p. 18. This misrepresents the comment. What SAFER and Mr. Smith are arguing is that "the restaurant would be unlikely to attract this percentage of its trips from passerby traffic because it would only be visible from the lightly trafficked streets and the substantial evidence of this is the floor plan presented in the IS/MND." Smith Nov. 2 Comment, p. 6.

CAJA also states that "trip generation adjustments are supported by LADOT, which concurred with the analysis." CAJA, p. 18. But there is no evidence that LADOT did anything other than provide a general approval of the analysis, which included the trip generation, because the trip discounts taken fell within the general LADOT guidelines. Smith Nov. 2 Comment, p. 6. For example, "[t]here is no evidence whether, for instance, LADOT staff applied reasoned thought to the matter of whether the full 25 percent transit discount should be applied to the high

turnover sit-down restaurant component, given that people who live or work in the Project who happen to patronize the restaurant while leaving to or coming from transit are already accounted for in the internalization discount, that hardly anyone would make transit trips for the specific purpose of getting to and departing a particular high turnover, sit-down restaurant except the restaurant staff and that restaurant staff generally travel outside of peak hours." *Id*.

4. The IS/MND fails to account for trips by transportation network company services.

Mr. Smith explains that the rise of transportation network companies ("TNCs") (also known as ride hailing services) like Uber and Lyft, has substantially changed the nature of transportation in urban areas. Smith April 20 Comment, p. 4. Recent research has shown that TNCs are problematic because: "a) a large part of the transportation demand they serve is drawn from trips that would otherwise been carried out by walking, bicycling or transit, b) a large share of the trips they serve are induced trips – trips that would not be made at all were the service not available or trips to distant destinations that would have been satisfied locally by walking absent the service and c) each passenger service trip actually involves 2 vehicle trips – the trip from where the vehicle is circulating or waiting to the point of call and the trip from the point of call to the actual destination." *Id*. Despite the major impact of TNCs on transportation in Los Angeles and elsewhere, the IS/MND makes no effort to estimate the transportation impacts of TNC services related to the Project. Without counting any trips generated by TNCs, the IS/MND underestimates the Project's transportation impact.

CAJA claims in Response to SAFER-13, that the IS/MND was not required to analyze potential impacts of TNC services because the impact is too speculative. CAJA, pp. 19-20. But Mr. Smith explains that the City has been relying on this same excuse for years, despite a now extensive body of research on the topic. Smith Nov. 2 Comment, p. 6.

Then, despite claiming the impact is too speculative, CAJA notes that even if the Project's restaurant and retail trips were increased by 10% and residential by 5% to account for TNC trips, the transportation impact conclusions would not change. CAJA, p. 19. There are a number of problems with this. First, these numbers are completely made up and not based on any evidence. Second, according to Mr. Smith, research suggests that TNC companies have a much larger impact. Smith Nov. 2 Comment, p. 6. For example, in San Francisco research documents that roughly half of all VMT growth between 2010 and 2016 was caused by TNCs, virtually the same as all VMT caused by population and employment growth and transportation network changes." *Id*. (citing *TNCs and Congestion*, San Francisco County Transportation Authority, October, 2018, attached hereto as Exhibit F). Finally, this issue has to be considered together with the other deficiencies noted by Mr. Smith, not just in isolation. *Id*.

Mr. Smith's comments constitute substantial evidence that the Project's traffic impact have been significantly underestimated and that the Project may have a significant transportation impact. An EIR must be prepared to analyze and mitigate this impact.

C. The IS/MND Relied on Unsubstantiated Input Parameters to Estimate Project

Emissions and Thus Failed to Adequately Analyze the Project's Air Quality Impacts.

The IS/MND for the Project relies on emissions calculated from the California Emissions Estimator Model Version CalEEMod.2016.3.2 ("CalEEMod"). This model relies on recommended default values for on-site specific information related to a number of factors. The model is used to generate a project's construction and operational emissions. As explained in SAFER's May 1, 2020 Comment, SWAPE reviewed the Project's CalEEMod output files and found that the values input into the model were unsubstantiated or inconsistent with information provided in the IS/MND. This resulted in an underestimation of the Project's emissions. In the Applicant's Response, CAJA provides explanations for the issues raised by SWAPE. CAJA, pp. 22-27. SWAPE prepared supplemental Comments, attached hereto as Exhibit C, explaining why CAJA's responses do not sufficiently address the issues.

D. The IS/MND Failed to Adequately Evaluate Health Risks from Diesel Particulate Matter Emissions

SAFER's May 1, 2020 Comment also notes that the IS/MND lacks substantial evidence to support its finding that the Project's emissions will not cause a significant health impact because a health risk assessment ("HRA") was not conducted. In addition, based on SWAPE's expert analysis, SAFER explained that there is substantial evidence that the Project will have a significant health risk impact. In the Applicant's Response, CAJA responds to each of these claims as well. However, nothing in the CAJA Report or elsewhere change the fact that record contains SWAPE's expert comments that the Project will have a significant and unmitigated impact on human health.

E. Contrary to the IS/MND's Conclusion, the Project Will Have a Significant GHG Impact.

Nothing in the CAJA Report changes SAFER's May 1, 2020 Comments that the IS/MND's greenhouse gas ("GHG") analysis violates CEQA and the Project will have a significant greenhouse gas impact. SWAPE's supplemental comments provide a details response to each point raised in the CAJA Report. See Exhibit C.

F. There is Substantial Evidence that the Project may have a Significant Noise Impact that was not Disclosed or Mitigated.

There are a myriad of problems with the IS/MND's analysis of potential noise impacts including the failure to conduct a construction noise analysis, failure to accurately evaluate ambient noise, and failure to address the LA CEQA Threshold Guide, among others. The end result is that there is no evidence to conclude that the Project will not have a significant noise impact on surrounding residential uses. In contrast, the expert evidence of the acoustical firm Acentech, attached hereto as Exhibit D (the "Acentech Report"), constitutes substantial evidence that the Project may have a significant noise impact that has not been mitigated. As a result, an EIR must be prepared.

1. The MND did not use LA's CEQA Thresholds Guide.

Without explanation, the IS/MND never mentions the Los Angeles CEQA Thresholds Guide ("LA CEQA Guide")[1]. This Guide is intended to provide "screening and significance criteria" for projects being evaluated under CEQA in Los Angeles. LA CEQA Guide, p. 3. "The significance thresholds assist in determining whether a project's impacts would be presumed significant under normal circumstances and, therefore, require mitigation to be identified." *Id*. at vii. According to the LA CEQA Guide, a project has a significant noise impacts if it will result in construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use. LA CEQA Guide, p. I.1-3. This criteria in the LA CEQA Guide should have been used to determine the significance of the Project's noise impact.

Rather than determine the significance of the Project's construction noise impact based on the City's own adopted CEQA threshold, the IS/MND dismisses the potential for a significant noise impact to occur based on the unsupported claim that the Project will comply with Los Angeles Municipal Code ("LAMC") Section 112.05, which limits noise levels from construction equipment to 75 dBA. IS/MND, p. B-188.

Failure to apply the City's own CEQA threshold and instead rely solely on compliance with municipal code provisions is an abuse of discretion. Compliance with laws is not evidence that the Project will not have a significant impact. *Kings Co v. Hanford* (1990)221 CA3d 692, 712-718. The Municipal Code sections cited prohibit construction during certain hours or above certain noise levels. They do not provide any guidance on the significance of noise impacts under CEQA.

When there is substantial evidence that the Project may have a significant noise impact, an EIR is required even if evidence shows that the Project will not generate noise in excess of a local agency's noise ordinance. *Keep Our Mountains Quiet v. County of Santa Clara* (2015) 236 Cal.App.4th 714, 732. As discussed below, the expert comments of the acoustic firm Accentech, attached hereto as Exhibit D, is substantial evidence that the Project will have a significant noise impact that requires preparation of an EIR.

2. The IS/MND does not contain sufficient evidence to conclude the Project will not have a significant noise impact.

Basic information needed for the public and decision makers to determine the significance of the Project's noise impacts are omitted, and basic best practices and the City's own requirements were not complied with in analyzing the Project's noise impact. For example, the IS/MND does not include a construction schedule, and traffic noise evaluations were not done for Wilshire Boulevard or Irolo Street, and a basic construction noise analysis was never conducted. Acentech, p. 5.

[1]Available at https://planning.lacity.org/eir/CrossroadsHwd/deir/files/references/A07.pdf

Moreover, insufficient sound measurements were conducted to accurately evaluate ambient noise levels. Acentech, p. 6. The IS/MND relies on "Equivalent Noise Level" or "Leq" to evaluate ambient noise. *See* IS/MND, p. B-181. According to section 111.01(a) of the LAMC, ambient noise must "be averaged over a period of at least 15 minutes at a location and time of day comparable to that during which the measurement is taken of the particular noise source being measured" The Acentech Report points out that Project construction will occur between 7:00 AM and 9:00 PM Monday through Friday and between 8:00 AM and 6:00 PM on Saturdays, yet the only measurements taken for and reported in the IS/MND were taken during a weekday afternoon. Acentech, p. 3. "These measurements are not sufficient to be considered 'time of day comparable to that during which the measurement is taken of the particular noise source being measured.'" *Id*. In order to comply with the City's own standards, the City must take additional ambient noise measurements on a Saturday and in the evening, when less traffic is expected, to evaluate the Project's impact on nearby sensitive receptors. *Id*. Moreover, the duration of "measurement 2" used to determine ambient noise on Wilshire Boulevard was only 13 minutes, which does not meet the minimum duration for a measurement to evaluate ambient noise levels under Section 111.01(a) of the LAMC.

Without additional information, the City's lacks substantial evidence to conclude that Project construction will not result in a significant noise impact.

3. Construction sound levels referenced in the IS/MND do not match the sound levels used in the referenced Federal Highway Administrative model.

Table B.13-4 on page B-188 of the IS/MND purports to list maximum noise levels for various pieces of construction equipment. According to this table, the noise levels listed are "derived from the Federal Highway Administration's Roadway Construction Noise Model, version 1.1 (FHWA RCNM 1.1)." But the sound levels listed do not match the cited source. *Compare* IS/MND, p. B-188 *to* Federal Highway Administration's ("FHA") Roadway Construction Noise Model, p. 3, Table 1 (available at https://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf). For each piece of equipment listed, the IS/MND significantly understates the noise levels of the construction equipment. Acentech, p. 3. For example, the IS/MND claims that at 50 feet, the maximum noise level for an Auger Drill Rig is 74.4 dBA, while the Federal Highway Administration's model lists the maximum noise level at 50 feet as 85 dBA. *Compare* IS/MND, p. B-188 *to* Federal Highway Administration's ("FHA") Roadway Construction Noise Model, p. 3, Table 1. The IS/MND lists the maximum noise for a backhoe at 50 feet as 64.6 dBA, while the Federal Highway Administration's model lists the maximum noise level at 50 feet as 80 dBA. Moreover, the noise levels listed in the IS/MND for maximum construction noise at 50 feet is also significantly less than the noise level ranges provided in Exhibit I.1-1 to the LA CEQA Guide. LA CEQA Guide, p. I.1-8. The below table compares the noise levels listed in the IS/MND to those listed in the Federal Highway Administration's model. See Acentech, p. 4.

Table 1: Comparison of Construction Noise Levels Reported in IS/MND to Construction Noise Levels listed in Federal Highway Administration Roadway Construction Noise Model and Los Angeles CEQA Threshold Guide

Noise Source	Noise Level at 50 feet (dBA, Lmax)		
	Reported in IS/MND	Reported in FHA Model	Reported in LA CEQA Guide
Auger Drill Rig	74.4	85	-*
Backhoe	64.6	80	73-95
Crane	72.6	85	75-89
Dozer	68.7	85	-*
Drill Rig Truck	69.1	84	82-95
Excavator	67.7	85	-*
Front-End Loader	66.1	80	73-86
Gradall (Back Hoe)	70.4	85	73-95
Grader	72.0	85	80-93
Scraper	70.6	85	80-93

*The LA CEQA Guide did not provide a specific noise level for this piece of equipment.

The IS/MND provides no explanation for this severe discrepancy. Without any explanation of what the IS/MND's artificially low noise levels are based on, there is no evidence to support the IS/MND's construction-related noise analysis, since it is based on these inaccurate numbers.

4. Noise mitigation measures violate CEQA because they are not adequately described, are not mandatory, and there is no evidence of their feasibility.

The IS/MND states that:

> Standard, industry-wide "best practices" for construction in urban or otherwise noise-sensitive areas would ensure the Project's construction noise stays below the City's 75 dBA threshold of significance. "Best practices" utilized by the Project would include equipping heavy equipment with noise-reducing mufflers and warming-up or staging equipment away from sensitive receptors. Additionally, temporary noise barriers would be erected between the Project Site and nearby residences located along 7th Street and Mariposa Avenue

IS/MND, p. B-188.

There are a number of problems with these statements. First, the MND does not provide any details regarding how, where, when, or how effective any of these measures will be. In addition, none of these measures are included as Conditions of Approval for the Project, and therefore should not be included as part of the Project's impact analysis.

As for the mufflers, Acentech notes in its comments that California air quality laws exclude the ability to use mufflers on heavy construction equipment because of the static pressure introduced by the air quality restrictions. Acentech, p. 3. As a result, "[i]mplying mufflers will be used is misleading." *Id*.

Finally, the barrier mitigation referenced in the MND "will not provide any acoustical attenuation to a number of the Noise Sensitive Receptors and is misleading." *Id*. The IS/MND does not specify the height of any barrier that would be used for noise attenuation purposes. In order to have any noise attenuation impact, a noise barrier must block the line of site to the noise source. *Id.* The residences across 7th Street range from 3 to 8 stories. *Id*. While no site line study is included in the IS/MND, a preliminary study indicates that the barrier would need to be between 32 and 45 feet tall. *Id*. There is no evidence that the Project includes a 45 foot tall sound wall on the southern side of the Project. While a sound barrier may reduce noise levels for the Mariposa Avenue Residences because they are only two-story buildings, they will not benefit sensitive receptors at the Piccadilly Apartments and the 7th Street Residences because of the height of those buildings. *Id*. at 4.

6. <u>There is substantial evidence that the Project will have a significant noise impact that has not been mitigated.</u>

While the IS/MND does not provide sufficient detail about the Project's construction schedule and equipment that will be used, Acentech was able to perform a general analysis, based on the LA CEQA Thresholds Guide. Acentech, pp. 5-6.

According to the LA CEQA Guide, the Project would have a significant noise impact if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use; or
- Construction activities lasting more than 10 days in a three month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use; or

LA CEQA Thresholds Guide, p. I.1-3. These criteria are never mentioned in the IS/MND.

Since Project construction will last more than 10 days in a three month period, the Project will have a significant impact if it would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use. *Id*.; Acentech, p. 4. Acentech analyzed the Project's construction-related noise based on the method described in the LA CEQA Guide assuming construction noise levels listed in the LA CEQA Guide, and assuming mufflers are used. *Id*.

Acentech concluded that the Project will have a significant construction noise impact at Piccadilly Apartments, Mariposa Avenue Residence, an the 7th Street Residences because Project construction will exceed existing ambient exterior noise levels by 5 dBA or more at each of these locations. Acentech, pp. 4-5. The Acentech Report constitutes substantial evidence that

the Project will have a significant noise impact that must be fully analyzed and mitigated in an EIR.

G. The Project Lacks Sufficient Affordable Housing in Conflict with Ballot Measure JJJ.

Only 5% (32 units) of the Project's 640 units will be set aside for affordable housing. IS/MND, p. B-174. All 32 of the affordable housing units will be considered Moderate Income housing, using the State's level of affordability and Los Angeles Housing Community Investment Department's schedule of rents. Not a single unit being made available for Low Income, Very Low Income, or Extremely Low-Income tenants. This lack of affordable housing units violates t Measure JJJ.

Measure JJJ, as codified at Los Angeles Municipal Code ("LAMC") section 11.5.11, was approved by Los Angeles voters on November 8, 2016 and became effective on December 13, 2016. The residential affordability requirements of Measure JJJ apply to projects with ten or more residential units which seek: (1) a discretionary General Plan Amendment; (2) any zone change or height-district change that results in increased allowable residential floor area, density, or height; or (3) a residential use where such use was not allowed previously. (LAMC § 11.5.11(a).)

Pursuant to Measure JJJ, "Rental Projects" which satisfy at least one of the above provisions must provide the following:

(i) No less than the affordability percentage corresponding to the level of density increase as provided in California Government Code Section 65915(f), inclusive of any Replacement Units; or

(ii) If the General Plan amendment, zone change or height district change results in a residential density increase greater than 35%, then the Project shall provide no less than 5% of the total units at rents affordable to Extremely Low Income households, and either 6% of the total units at rents affordable to Very Low Income households or 15% of the total units at rents affordable to Lower Income households, inclusive of any Replacement Units; or

(iii) If the General Plan amendment, zone change or height district change allows a residential use where not previously allowed, then the Project shall provide no less than 5% of the total units at rents affordable to Extremely Low Income households, and either 11% of the total units at rents affordable to Very Low Income households or 20% of the total units at rents affordable to Lower Income households, inclusive of any Replacement Units. (LAMC § 11.5.11(a)(1).)

Measure JJJ also contains alternative compliance options under which a project can satisfy Measure JJJ's affordability provisions without providing affordable units on-site. These alternative compliance options are (1) construction of affordable units off-site, (2) acquiring

property containing "At-Risk Affordable Units," or (3) payment of an in-lieu fee. (LAMC § 11.5.11(b).)

The Project site's General Plan land use designation is currently Regional Center Commercial. The lots that make up the Project site are zoned PB-2, and P-2, which are for parking buildings and surface or underground parking. Residential units are not permitted in PB-2 or P-2 zones. The Project proposes to rezone the entire Project site to C4, which is a commercial zone that may include R4 uses, which include multiple dwelling residential uses. Since the Project will have ten or more residential units and is seeking a zone change that results in increased allowable residential floor area, Measure JJJ applies. LAMC § 11.5.11(a). Specifically, the zone change will allow a residential use where not previously allowed. As a result, "the Project shall provide no less than 5% of the total units at rents affordable to Extremely Low Income households, and either 11% of the total units at rents affordable to Very Low Income households or 20% of the total units at rents affordable to Lower Income households, inclusive of any Replacement Units." LAMC § 11.5.11(a)(1). The Project does not meet the requirements of Measure JJJ because it will only provide 5% of total units at rents affordable to Moderate Income households. The Project must be revised to comply with the affordable housing requirements of Measure JJJ.

H. The Project Lacks Sufficient Affordable Housing in Conflict with General Plan.

As discussed above, the Project does not include sufficient affordable housing units, in disregard of the applicable General Plan policies. Gen Plan Housing Element Policy 4.1.1 states that the City should "[p]rovide sufficient land use and density to accommodate an adequate supply of housing units by type and cost within each City subregion to meet the 20-year projections of housing needs." Policies of note include Policy 1.1.3, which states the City should "[f]acilitate new construction and preservation of a range of housing types that address the particular needs of the city's households."

Chapter 1, Housing Needs Assessment, identifies Los Angeles's share of the housing needs established in the Regional Housing Needs Assessment. In particular, Table 1.29, City of Los Angeles Regional Housing Needs Assessment Allocation for the period of 2014–2021, indicates that Los Angeles' needs assessment allocation includes 82,002 housing units, of which 35,412 units, or 43.2 percent, would be for above moderate-income households. The remaining 56.8 percent of the needed housing units consisting of 13,728 moderate-income units (16.8 percent), 12,435 low-income units (15.2 percent), 10,213 very low-income units (12.5 percent), and 10,213 extremely low-income units (12.5 percent).

The Sustainable City pLAn of April 8, 2015 provides a roadmap achieving sustainability through short-term (by 2017) results and setting long-term (by 2025 and 2035) goals for a cleaner environment and stronger economy. The pLAn sets forth a goal of transforming Los Angeles into an environmentally healthy, economically prosperous, and equitable City over the next 20 years. Key visions for long-term aspirations by 2035 regarding the preferred development in the Project vicinity include the following:

- Housing and Development: We address LA's housing shortage, ensure that most new units are accessible to high-quality transit, and close the gap between incomes and rents.

The Housing & Development chapter of the Sustainable City pLAn includes the following goals:

- Start constructing 17,000 new units of housing within 1,500 feet of transit by 2017.
- Provide 100,000 new housing units by 2021, leading to 150,000 new housing units by 2025.
- Reduce the number of rent-burdened households by at least 15 percentage points by 2035.

It is well-established that urban decay is a CEQA issue. The lack of affordable housing has led to an increase in homelessness, which is a prime contributor to urban decay. In *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, the court expressly held that an EIR must analyze a project's potential to cause urban decay if there is substantial evidence showing that the project may lead to such impacts. The court pointed out that CEQA requires the project proponent to discuss the project's economic and social impacts where "[a]n EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic and social changes." CEQA Guidelines §§ 15131(a) and 15064(f).

Where a local or regional policy of general applicability, such as an ordinance, is adopted in order to avoid or mitigate environmental effects, a conflict with that policy in itself indicates a potentially significant impact on the environment. *Pocket Protectors v. Sacramento* (2005) 124 Cal.App.4th 903. Indeed, any inconsistencies between a proposed project and applicable plans must be discussed in an EIR. 14 CCR § 15125(d); *City of Long Beach v. Los Angeles Unif. School Dist*. (2009) 176 Cal. App. 4th 889, 918; *Friends of the Eel River v. Sonoma County Water Agency* (2003) 108 Cal. App. 4th 859, 874 (EIR inadequate when Lead Agency failed to identify relationship of project to relevant local plans). A Project's inconsistencies with local plans and policies constitute significant impacts under CEQA. *Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 783-4, 32 Cal.Rptr.3d 177; see also, *County of El Dorado v. Dept. of Transp*. (2005) 133 Cal.App.4th 1376 (fact that a project may be consistent with a plan, such as an air plan, does not necessarily mean that it does not have significant impacts).

CEQA requires the lead agency to determine whether the "environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly," (PRC § 21083(b)(3), (d)), and to "take immediate steps to identify any critical thresholds for the health and safety of the people of the state and take all coordinated actions necessary to prevent such thresholds being reached." See PRC §21000 et seq.

Furthermore, CEQA Guidelines Appendix G, Section XII provides that a project will have significant impacts where it will:

- Induce substantial population growth or concentration of population in an area, either directly (for example, by proposing new housing or businesses), or indirectly (for example, through extension of roads or other infrastructure);
- Displace substantial numbers of existing housing necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere. See CEQA Guidelines Appendix G, Section XII.

Here, the Project is likely to lead to gentrification of the area, which will displace local low-income residents, who will be forced to move elsewhere. See Kalama D. Harris, Attorney General, "Environmental Justice at the Local and Regional Level," May 8, 2012, available at http://oag.ca.gov/sites/all/files/pdfs/environment/ej_fact_sheet_final_050712.pdf.

An EIR must be prepared to analyze the impacts of the Project's failure to comply with the general plan because of the lack of affordable housing and the impact on urban decay. It should propose feasible mitigation measures, such as requiring more affordable housing in the Project, contributions to low-income housing funding, etc.

IV. CONCLUSION

In light of the above comments, the City must prepare an EIR for the Project and the draft EIR should be circulated for public review and comment in accordance with CEQA. Thank you for considering these comments.

Sincerely,

Rebecca L. Davis
Lozeau | Drury LLP

EXHIBIT A

SMITH ENGINEERING & MANAGEMENT

April 20, 2020

Mr. Richard Drury
Lozeau Drury
1939 Harrison Street, Suite 150
Oakland, CA 94612

Subject: 3440 Wilshire Boulevard, Los Angeles P20006

Dear Mr. Drury:

At your request, I have reviewed the Initial Study / Mitigated Negative Declaration (the "IS/MND") for the 3440 Wilshire Project (the "Project") in the City of Los Angeles. My review is specific to the Traffic and Circulation.

My qualifications to perform this review include registration as a Civil and Traffic Engineer in California and over 50 years professional consulting engineering practice in the traffic and transportation industry. I have both prepared and performed adequacy reviews of numerous transportation and circulation sections of environmental impact reports prepared under the California Environmental Quality Act. My professional resume is attached. Findings of my review are summarized below.

Overview

The IS/MND discloses that in the existing condition all 14 study intersections functioned at acceptable levels of service with most at LOS A, B, or C and just one intersection at LOS D in just one peak period. It also discloses that by 2026, just 6 years hence, the Project plus 134 other concurrent projects in the area will result in operations at 7 of these same intersections being degraded to LOS E or F in one or both peak periods and 2 others being degraded to LOS D. Yet despite all the degradation, because of the structure of the impact thresholds the City has adopted and because a complaisant staff is unwilling to challenge misfit land use categories

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assumed in the trip generation analysis or implausible claims of the maximum trip discounts allowable for transit use, internalization and passerby attraction, the Project is found not to have contributed sufficiently to the degradation to be regarded as significantly impactful. In fact, the Project would have to respectively contribute roughly 15 percent and 30 percent more traffic to the two intersections where its contribution to LOS degradation (V/C ratio increase) is closest to surpassing thresholds for cumulative significance to be found significantly impactful.

Illustrative of the uncritical thoughtlessness of how transportation impacts are evaluated, consider how the IS/MND analyzes the components of the subject Project.

The Retail Component

There is 5,538 square feet of retail commercial proposed in the Project. The IS/MND estimates the gross trip generation of this based on *Trip Generation, 10th Edition's* average rates for Land Use Category 820, Shopping Center. But 5,538 square feet of retail commercial is not a shopping center (which takes about 400,000 square feet of floor area to generate trips at average rates). At best, it is Land Use Category 851, a convenience market. Per *Trip Generation, 10th* Edition, shopping centers generate daily vehicle trips at an average rate of 37.75 trips per thousand square feet of floor area; convenience markets generate daily vehicle trips at a rate of 762.28 trips per thousand square feet. The rates for peak hour trips are similarly disproportionate.

Moreover, the IS/MND analysis discounts fully 90 percent of the gross trip generation of this small square footage of retail, 15 percent for trips internal to the project, 25 percent as transit trips and 50 percent as trips attracted from passerby traffic. Consider each in order of the scale of the deductions claimed. First, the notion that the convenience retail would attract 50 percent of its patronage from existing passerby vehicle traffic is absurd. Such rates of passerby attraction are normally only attained by convenience markets on busy urban/suburban streets with their own visible surface parking supply; not where the market is encased in a larger building where the passerby is forced to enter and leave a parking garage. Further, there is no street visibility of the proposed retail space from either Wilshire Boulevard or Irolo; the only street visibility is from S. Mariposa Avenue and/or W. 7th Street. Per IS/MND Appendix K-1, Figure 1, S. Mariposa carries only 680 vehicles past the Project site in the A.M. peak hour and 672 in the P.M. peak hour. Per the same source, W. 7th carries only 349 vehicles past the Project site in the A.M. peak hour and 542 in the P.M. peak hour. These totals are insufficient to support the claimed passerby attraction discount, particularly where the on-street parking spaces are usually occupied and passers-by would be forced to enter and leave a parking garage.

The notion that 25 percent of the people visiting a convenience market would make purposeful transit trips to reach that market is similarly implausible. This is likely to be true only of a handful of employees of the market. What is true is that the market

is likely to attract numbers of passers-by who are going to or coming from transit. But these should be reflected in the passerby percentage, not in the transit deduction. And since there is no street visibility of the proposed retail space from either Wilshire Boulevard or Irolo; the only street visibility is from S. Mariposa Avenue and/or W. 7th Street, the number of on-foot passers-by traveling to or from transit would be relatively limited.

Admittedly, a convenience market offering an attractive variety of goods and services would attract a substantial number of internal trips. However, are the residents of 640 units in the building sufficient to generate the bulk of a sustaining patronage for even a good convenience market?

Fast Casual Restaurant

A fast casual restaurant (Land Use Category 930) is a sit down restaurant with no wait staff or table service. Customers typically order off a menu board, pay for food before the food is prepared and seat themselves and are called by name or order number when their food is ready. The IS/MND analysis assumes that fully 90 percent of the fast casual restaurant's gross trip generation will not add to traffic except at Project driveways (50 percent attracted from passer-by traffic, 25 percent by transit and 15 percent internal}. All of the discussion above with respect to the discounting of trips to a convenience market is similarly applicable to the fast casual restaurant.

High Turnover Sit Down Restaurant

The IS/MND also assumes that a high-turnover sit-down restaurant will be a component of the Project. The IS/MND discounts 60 percent of the trip generation for the high-turnover sit-down restaurant comprised of 25 percent transit, 20 percent passer-by attraction and 15 percent internal. Except for negligible numbers of restaurant employees, few if any people would take transit in a purposeful trip to reach or depart from a restaurant of this type. Certainly, patrons of the restaurant will include persons who arrived and will depart the area via transit but these comprise part if not most of the attracted passer-by category. Also, the need for those coming from private motor vehicles to park inside a parking structure and the fact that the proposed restaurant will only be visible from lightly the lightly trafficed S. Mariposa and W. 7th frontages will tend to minimize those patrons attracted from street traffic.

Residential Component

The IS/MND analysis of traffic generated by the Project's residential component assumes a 15 percent internalization deduction but does not apply a 25 percent transit deduction to the peak hour trip generation because the basic trip generation rate was derived from surveys of similar local area residential high rises where the transit utilization was already reflected in the observed vehicle

trip generation rate. This begs the question of whether or not those surveyed buildings had comparable trip internalization that would have already been reflected in the observed vehicle trip rates. We also note that the non-residential uses within the Project only account for 203 internal trip ends. The IS/MND applies a 15 percent off-the-top internalization deduction to the residential trip ends, resulting in a total deduction of 427 trips which is more than double the internalized trips justified by the other uses in the proposed Project. The internalization assumed for the residential component should be limited to the number of internalized trips justified by the other uses in the Project.

A possible counter-argument is that there would be further internalization of trips due to employment in the existing office building that shares the Project's Wilshire Boulevard address. However, this office building has an established work force that has existing places of residence. Places of employment and of residence turn over slowly over time. It is ridiculous to assume that this existing occupied building could suddenly provide places of employment for large numbers of residents of the proposed Project as soon as it opens in 2026. There is also inference that walk trips to other nearby buildings could be considered as internalization. Again, this ignores the fact that such walk trips would already be reflected in the vehicle trip rates observed in the surveys of other local buildings.

Failure to Account for Trips by Transportation Network Company Services

In recent years the rise of transportation network company services ("TNCs" – otherwise known as ride hailing services like Uber and Lyft) has substantially changed the complexion of transportation in urban areas. TNCs are problematic because recent research has shown a) a large part of the transportation demand they serve is drawn from trips that would otherwise been carried out by walking, bicycling or transit, b) a large share of the trips they serve are induced trips – trips that would not be made at all were the service not available or trips to distant destinations that would have been satisfied locally by walking absent the service and c) each passenger service trip actually involves 2 vehicle trips – the trip from where the vehicle is circulating or waiting to the point of call and the trip from the point of call to the actual destination. The problem with this current IS/MND and other environmental studies in Los Angeles is that there has been no effort to estimate the transportation impacts of TNC services.

Significant Cumulative Transportation Impacts Are Unlikely to be Disclosed or Mitigated

As noted above, a number of projects concurrently constructed through 2026 in combination with the subject Project result in 7 of the 14 study intersections deteriorating from existing acceptable LOS to LOS E or F and 2 others deteriorating to LOS D. Yet because of the minimum volume to capacity ratio contributions required for this or any other project to be found significantly

impactful cumulatively under the City's TIA guidelines, neither this nor most of the 134 other projects considered relevant in this IS/MND are responsible for contribution to mitigation for clearly significant cumulative impacts disclosed.

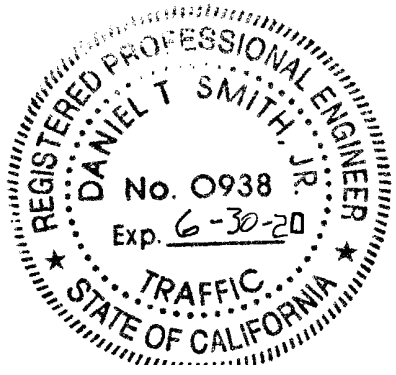
Illustrative of this is the fact that the total daily trip generation of the subject Project and the 134 other concurrent projects considered by the IS/MND to be cumulatively relevant generate a total of approximately 150,000 net new daily vehicle trips. Judged purely on net trip generation based on IS/MND Table B.17-4 and Appendix K-1, Table 5, only 12 of the 134 relevant projects identified on K-1, Table 5 are of a scale where they *might* contribute sufficient trips to the seriously impacted intersections (LOS E or F) identified in this IS/MND to be found cumulatively responsible for impact and mitigation at *some of them* and, considering separation distances, most of their shares of responsibility would be minimal. An objective reviewer can well conclude that the City's TIA process, whether by design or unintended happenstance, gives the impression of a thorough analysis but minimize findings where a development project is disclosed to have significant transportation impacts.

Conclusion

In the above review, we have not attempted to do the City's job of disclosing and mitigating the Project's significant traffic impacts. However, we present overwhelming evidence that there is fair argument that demonstrates that the Project's impacts are not fully disclosed and mitigated in the IS/MND. Consequently, the Project cannot be approved under a mitigated negative declaration and a full EIR must be prepared.

Sincerely,

Smith Engineering & Management
A California Corporation



Daniel T. Smith Jr., P.E.
President

Attachment 1

Resume of Daniel T. Smith Jr., P.E.

SMITH ENGINEERING & MANAGEMENT

DANIEL T. SMITH, Jr.
President

EDUCATION

Bachelor of Science, Engineering and Applied Science, Yale University, 1967
Master of Science, Transportation Planning, University of California, Berkeley, 1968

PROFESSIONAL REGISTRATION

California No. 21913 (Civil)
California No. 938 (Traffic)
Nevada No. 7969 (Civil)
Washington No. 29337 (Civil)
Arizona No. 22131 (Civil)

PROFESSIONAL EXPERIENCE

Smith Engineering & Management, 1993 to present. President.
DKS Associates, 1979 to 1993. Founder, Vice President, Principal Transportation Engineer.
De Leuw, Cather & Company, 1968 to 1979. Senior Transportation Planner.
Personal specialties and project experience include:

Litigation Consulting. Provides consultation, investigations and expert witness testimony in highway design, transit design and traffic engineering matters including condemnations involving transportation access issues; traffic accidents involving highway design or traffic engineering factors; land use and development matters involving access and transportation impacts; parking and other traffic and transportation matters.

Urban Corridor Studies/Alternatives Analysis. Principal-in-charge for State Route (SR) 102 Feasibility Study, a 35-mile freeway alignment study north of Sacramento. Consultant on I-280 Interstate Transfer Concept Program, San Francisco, an AA/EIS for completion of I-280, demolition of Embarcadero freeway, substitute light rail and commuter rail projects. Principal-in-charge, SR 238 corridor freeway/expressway design/environmental study, Hayward (Calif.) Project manager, Sacramento Northeast Area multi-modal transportation corridor study. Transportation planner for I-80N West Terminal Study, and Harbor Drive Traffic Study, Portland, Oregon. Project manager for design of surface segment of Woodward Corridor LRT, Detroit, Michigan. Directed staff on I-80 National Strategic Corridor Study (Sacramento-San Francisco), US 101-Sonoma freeway operations study, SR 92 freeway operations study, I-880 freeway operations study, SR 152 alignment studies, Sacramento RTD light rail systems study, Tasman Corridor LRT AA/EIS, Fremont-Warm Springs BART extension plan/EIR, SRs 70/99 freeway alternatives study, and Richmond Parkway (SR 93) design study.

Area Transportation Plans. Principal-in charge for transportation element of City of Los Angeles General Plan Framework, shaping nations largest city two decades into 21'st century. Project manager for the transportation element of 300-acre Mission Bay development in downtown San Francisco. Mission Bay involves 7 million gsf office/commercial space, 8,500 dwelling units, and community facilities. Transportation features include relocation of commuter rail station; extension of MUNI-Metro LRT; a multi-modal terminal for LRT, commuter rail and local bus; removal of a quarter mile elevated freeway; replacement by new ramps and a boulevard; an internal roadway network overcoming constraints imposed by an internal tidal basin; freeway structures and rail facilities; and concept plans for 20,000 structured parking spaces. Principal-in-charge for circulation plan to accommodate 9 million gsf of office/commercial growth in downtown Bellevue (Wash.). Principal-in-charge for 64 acre, 2 million gsf multi-use complex for FMC adjacent to San Jose International Airport. Project manager for transportation element of Sacramento Capitol Area Plan for the state governmental complex, and for Downtown Sacramento Redevelopment Plan. Project manager for Napa (Calif.) General Plan Circulation Element and Downtown Riverfront Redevelopment Plan, on parking program for downtown Walnut Creek, on downtown transportation plan for San Mateo and redevelopment plan for downtown Mountain View (Calif.), for traffic circulation and safety plans for California cities of Davis, Pleasant Hill and Hayward, and for Salem, Oregon.

Transportation Centers. Project manager for Daly City Intermodal Study which developed a $7 million surface bus terminal, traffic access, parking and pedestrian circulation improvements at the Daly City BART station plus development of functional plans for a new BART station at Colma. Project manager for design of multi-modal terminal (commuter rail, light rail, bus) at Mission Bay, San Francisco. In Santa Clarita Long Range Transit Development Program, responsible for plan to relocate system's existing timed-transfer hub and development of three satellite transfer hubs. Performed airport ground transportation system evaluations for San Francisco International, Oakland International, Sea-Tac International, Oakland International, Los Angeles International, and San Diego Lindberg.

Campus Transportation. Campus transportation planning assignments for UC Davis, UC Berkeley, UC Santa Cruz and UC San Francisco Medical Center campuses; San Francisco State University; University of San Francisco; and the University of Alaska and others. Also developed master plans for institutional campuses including medical centers, headquarters complexes and research & development facilities.

Special Event Facilities. Evaluations and design studies for football/baseball stadiums, indoor sports arenas, horse and motor racing facilities, theme parks, fairgrounds and convention centers, ski complexes and destination resorts throughout western United States.

Parking. Parking programs and facilities for large area plans and individual sites including downtowns, special event facilities, university and institutional campuses and other large site developments; numerous parking feasibility and operations studies for parking structures and surface facilities; also, resident preferential parking .

Transportation System Management & Traffic Restraint. Project manager on FHWA program to develop techniques and guidelines for neighborhood street traffic limitation. Project manager for Berkeley, (Calif.), Neighborhood Traffic Study, pioneered application of traffic restraint techniques in the U.S. Developed residential traffic plans for Menlo Park, Santa Monica, Santa Cruz, Mill Valley, Oakland, Palo Alto, Piedmont, San Mateo County, Pasadena, Santa Ana and others. Participated in development of photo/radar speed enforcement device and experimented with speed humps. Co-author of Institute of Transportation Engineers reference publication on neighborhood traffic control.

Bicycle Facilities. Project manager to develop an FHWA manual for bicycle facility design and planning, on bikeway plans for Del Mar, (Calif.), the UC Davis and the City of Davis. Consultant to bikeway plans for Eugene, Oregon, Washington, D.C., Buffalo, New York, and Skokie, Illinois. Consultant to U.S. Bureau of Reclamation for development of hydraulically efficient, bicycle safe drainage inlets. Consultant on FHWA research on effective retrofits of undercrossing and overcrossing structures for bicyclists, pedestrians, and handicapped.

MEMBERSHIPS

Institute of Transportation Engineers Transportation Research Board

PUBLICATIONS AND AWARDS

Residential Street Design and Traffic Control, with W. Homburger *et al*. Prentice Hall, 1989.

Co-recipient, Progressive Architecture Citation, *Mission Bay Master Plan*, with I.M. Pei WRT Associated, 1984.

Residential Traffic Management, State of the Art Report, U.S. Department of Transportation, 1979.

Improving The Residential Street Environment, with Donald Appleyard et al., U.S. Department of Transportation, 1979.

Strategic Concepts in Residential Neighborhood Traffic Control, International Symposium on Traffic Control Systems, Berkeley, California, 1979.

Planning and Design of Bicycle Facilities: Pitfalls and New Directions, Transportation Research Board, Research Record 570, 1976.

Co-recipient, Progressive Architecture Award, *Livable Urban Streets, San Francisco Bay Area and London*, with Donald Appleyard, 1979.

EXHIBIT B

SMITH ENGINEERING & MANAGEMENT

November 2, 2020

Ms. Rebecca Davis
Lozeau Drury
1939 Harrison Street, Suite 150
Oakland, CA 94612

Subject: 3440 Wilshire Boulevard, Los Angeles P20006

Dear Ms. Davis:

At your request, I have reviewed the Applicants Responses to Lozeau Drury comments on the above referenced Project submitted in April, 2020 on behalf of Supporters Alliance for Environmental Responsibility (SAFER) and Katelyn Scanlan. Those comments on the subject Project's Initial Study / Mitigated Negative Declaration (the "IS/MND") included summarizations of Smith Engineering & Managements comments on that IS/MND made in a letter dated April 20, 2020. Unfortunately, that letter was inadvertently not attached to the Lozeau Drury letter. It is attached hereto to complete the record. My current review is specific to the Applicants responses to the Lozeau Drury summarizations of the original Smith Engineering and Management comments of April 20 now labeled Response to SAFER-9 through Response to SAFER-13.

My qualifications to perform this review are thoroughly documented in the April 20, 2020 letter.

Response to SAFER-9

The initial part of this response deceptively presents a partial quotation of the Lozeau Drury summarization to misconstrue it to state that a retail complex must be at or above 400,000 square feet floor area to be analyzed as a Category 820 Shopping Center based on ITE *Trip Generation, 10th Edition's* data. It goes on to correctly note that the majority of data entries for this category in the referenced

document are less than 400,000 square feet and that many are less than 50,000 square feet.

The actual premises of the comment are as follows:

- The Project's retail component is an extremely small floor area, reportedly 5,538 square feet in size.
- The IS/MND analyzes traffic from the Project's Retail Component at ITE *Trip Generation, 10th Edition's* Category 820 weighted average rates.
- Data points in the data base for *Trip Generation, 10th Edition's* Category 820 come from retail uses ranging in size from perhaps as small as the Project's 5,538 square feet to over 2,000,000 square feet.
- The plot of data points in the Category 820 data base shows that, considering data entries for centers about the same size, the number and amplitude of those falling above and below the average rate line only becomes about equal when retail centers are at or above about 250,000 square feet. For daily trips, the fitted curve equation for the data set coincides with the average rate line at a retail center size of about 400,000 square feet. To illustrate this, the data plots from *Trip Generation, 10th Edition* Category 820 daily and PM peak hour trips are reproduced here as Figures 1 and 2 respectively.
- For retail centers of less than 200,000 square feet, the plots show almost invariably the actual trip data falling above to well above the average rate line.

From this, it is obvious that, in order to conform to CEQA's requirement for a good faith effort to disclose impact, that the IS/MND should have analyzed the retail component by the fitted curve for *Trip Generation, 10th Edition's* Category 820 rather than the average rate or by assuming the most likely occupation for the 5,538 square feet of generate retail that is designed in the Project. The obvious answers to the most likely use of such a tiny retail space internal to a large mixed use building are a Convenience Market (ITE Category 851) or a single or combination of Fast Food establishments (ITE Category 933). Any of these approaches would result in a gross trip generation estimation far in excess of that in the IS/MND. As the cited document indicates, trip generation rates for these uses are vastly higher than the average rate for Category 820 Shopping Centers.

The fact that *Trip Generation, 10th Edition* average trip rates that lump all leasable floor area sizes of retail as one category are non-representative of small retail square footages is reflected in other authoritative trip generation data sources such as the City of San Diego trip generation manual and the City of San Jose Traffic Impact Analysis Manual that subdivide trip generation rates by size of the retail center. The San Diego document splits retail uses into Regional Shopping Centers (greater than 300,000 square feet), Community Shopping Centers (100,000 to 300,000 square feet) and Neighborhood Shopping Centers (30,000 to 100,000 square feet) with smaller retail uses assumed to be a specific known use or combination of the known or logical uses of the space involved. The San Jose document further subdivides retail uses by size category, with categories including

"Super Regional Shopping Centers" (over 600,000 square feet), "Regional Shopping Centers (300,000 to 600,000 square feet), "Community Shopping" Centers (100,000 to 300,000 square feet) and "Neighborhood Shopping" Centers (less than 100,000 square feet). In both documents, the smaller the retail square footage, the higher the trip rate.

The second part of Response To SAFER-9 correctly points out that while it is true that discounts of 15 percent for internal capture, 25 percent for transit and 50 percent for passer-by attraction were taken, that although these add up to 90 percent, they were applied sequentially to the net resultant trips after any prior discounts were taken, not each as a direct percentage of the gross trip estimate using ITE Category 820 rates. This sequential (the response calls it multiplicative) application of discounts is the correct manner in which discounts should be applied. However, the documentation does not make the fact that the sequential process was employed obvious. Consider Table 4 of IS/MND Appendix K-1 (the Transportation Analysis). Unless representatives of the public actually check the math, there is no indication that sequential application of discounts was made.

Moreover, even with sequential application of discounts the net result is still a tremendous 68 percent discounting of the gross trip generation estimate. The comment presents cogent reasons why the transit discounts and attracted passer-by discounts, even if sequentially applied, are grossly overblown. With respect to the 25 percent transit discount, the comment noted that if a person who lives or works in the Project stops at the retail component on their way to or from transit, that trip has already been accounted-for in the internalization discount. The only way the transit discount is applicable is where people make a transit trip for the specific purpose of visiting the subject retail use. And virtually nobody will make a specific transit trip for the purpose of patronizing a 5,538 square foot convenience market or fast food complex. The response states that LADOT procedures allow a 25 percent credit for projects located adjacent to a rail transit station, the Metro Purple Line Wilshire/Normandie Station is right there and they took the credit. This response is ridiculous. The fact that City procedures allow such a credit does relieve the analysts and the City of the CEQA requirement of a good faith effort to disclose impact; it does not empower analysts and City reviewers to abandon reason and logic in applying the credit.

Finally, the comment noted that the 50 percent passer-by attraction is characteristic of retail with available surface parking supply along a suburban arterial but unlikely where a tiny square footage of retail embedded in a large building and where the passers-by would have to park inside a parking garage. The response states that the passer-by discount is a "surrogate" measure for visits at the retail by people walking to/from nearby buildings. While we agree that there is some expectation of walk-in retail trade in dense areas like this, nowhere has the City or the analysts documented through observation that it would achieve levels similar to suburban passerby *vehicle* trip attraction.

The response is inadequate.

FIGURE 1: Daily Shopping Center Trip Data By Leasable Area

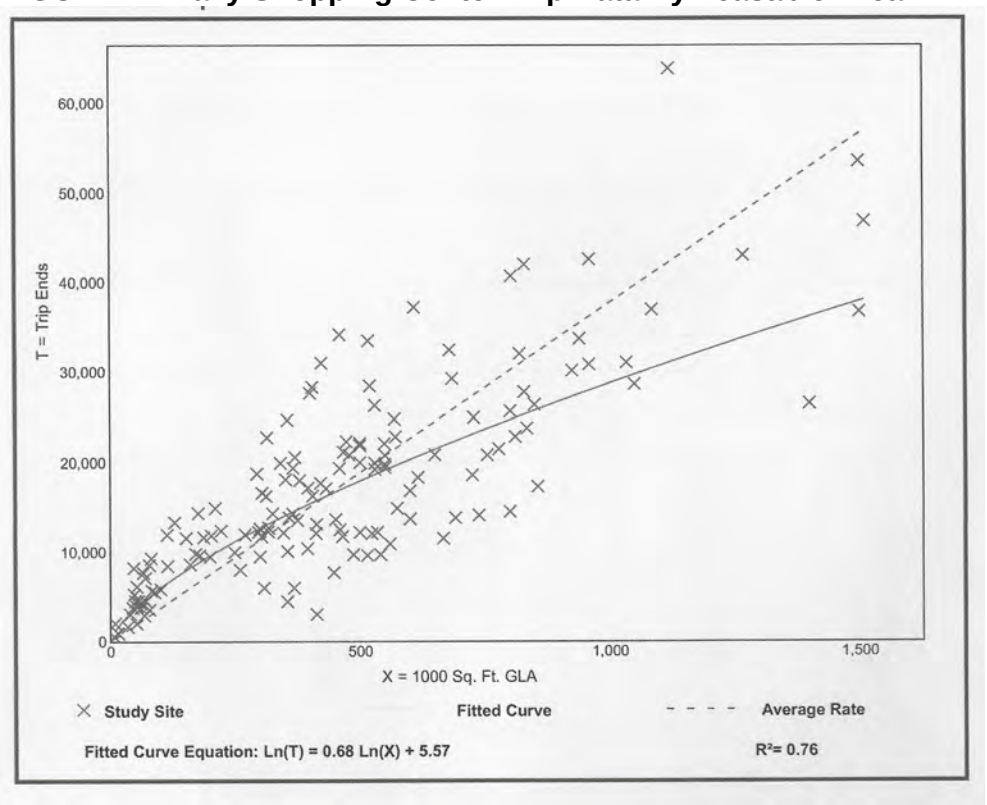
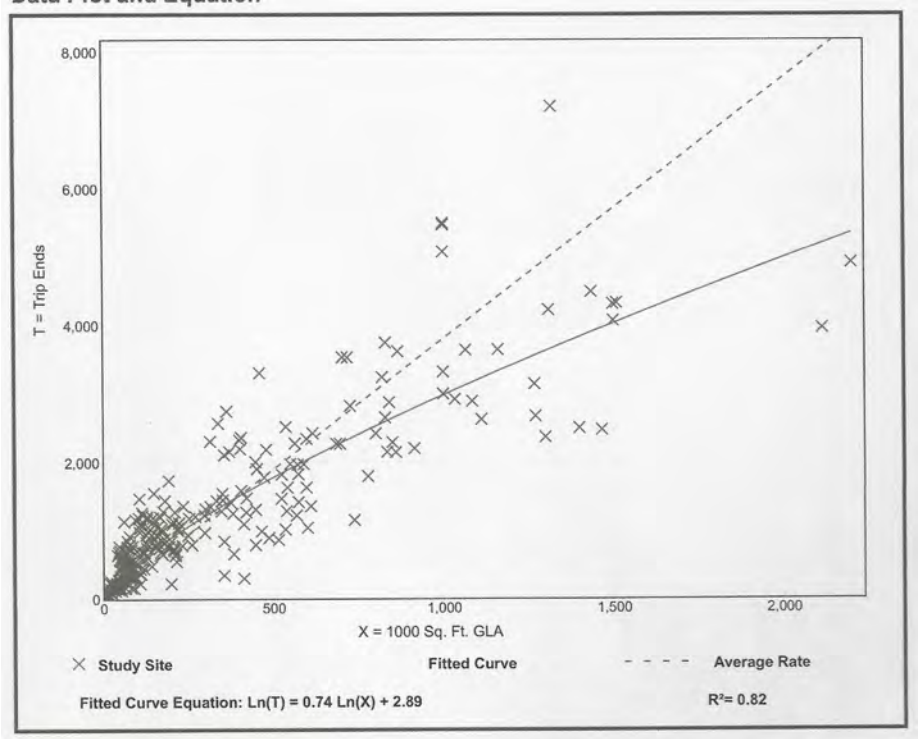


FIGURE 2: PM Peak Shop Center Trip Data By Leasable Area



"

Response to SAFER-10

The issues in this comment are similar to those in SAFER-9 except they are with respect to excessive discounting of trips associated with the "fast casual" restaurant component. The matter of sequential application of discounts is acknowledged. Still, the net 68 percent trip discount is excessive for reasons stated. In particular, few persons would make a transit trip for the purpose of patronizing a specific fast casual restaurant. The restaurant employees might but their travel tends to be outside the peak hours. We reiterate that residents or employees in the building who stop at the restaurant on their way to or from transit are already accounted for in the internalization discount. And we reiterate that use of suburban restaurant with surface parking supply vehicle passer-by attraction rates as a surrogate for urban pedestrian passerby attraction rates is an unsupported assumption.

The response is inadequate.

Response to SAFER-11

This comment involves the same type of issues as SAFER 9 and SAFER-10 except it relates to the Project's high turnover Sit-down restaurant component. The response points out that the trip credits taken, 15 percent for internalization, 25 percent for transit and 20 percent for pass-by trips are sequential resulting in a net of 49 percent trip reduction of the initial gross trip estimate. This is acknowledged. However, the response's assertion that the "comment does not provide substantial evidence that the restaurant minimizes the amount of traffic generated because it would only be visible from lightly trafficked streets" misrepresents the comment and denies the obvious. What the comment says is that the restaurant would be unlikely to attract this percentage of its trips from passerby traffic because it would only be visible from the lightly trafficked streets and the substantial evidence of this is the floor plan presented in the IS/MND. Also, the statement that the "trip generation adjustments are supported by LADOT, which concurred in the analysis" is misleading. There is no evidence that LADOT did anything but make rote approval of the transportation analysis including the trip generation because the trip discounts taken fall within the generalized guidelines of LADOT. There is no evidence whether, for instance, LADOT staff applied reasoned thought to the matter of whether the full 25 percent transit discount should be applied to the high turnover sit-down restaurant component, given that people who live or work in the Project who happen to patronize the restaurant while leaving to or coming from transit are already accounted for in the internalization discount, that hardly anyone would make transit trips for the specific purpose of getting to and departing a particular high turnover, sit-down restaurant except the restaurant staff and that restaurant staff generally travel outside of peak hours.

The response is inadequate.

Response to SAFER-12

This comment concerned the internalization credit applied to the residential component of the Project. The question was, since this part of the trip generation analysis relied on local surveys of trip generation from residential high-rises, whether the observed trips already reflected internalization, in which case the 15 percent internalization reduction would be a double-discounting. The first part of the response concerns the transit trip deduction, a point not challenged in the comment. The second part of the response clarifies that virtually all the buildings surveyed were single-use residential buildings. Hence, the question is satisfactorily answered.

Response to SAFER-13

This comment concerns the IS/MND's failure to consider the traffic generated through use of transportation network company (TNC) services.

The Response repeats an excuse the City and its consultants have been relying on for several years: that the City has not yet figured out how to quantify the traffic generated by TNC use despite emergence of an extensive body of research on the topic. Despite this pleading of ignorance, the consultants do opine that even if the Projects restaurant and retail trips were increased by 10 percent and its residential trips increased by 5 percent to account for TNC trips, the conclusions of the transportation study would not be changed. However, there are three problems with this. First, these percentages are speculative rather than research driven. Second, the research suggests they understates the problem. For instance, in San Francisco research documents that roughly half of all VMT growth between 2010 and 2016 was caused by TNCs, virtually the same as all VMT caused by population and employment growth and transportation network changes[1]. Finally, this issue cannot be considered in isolation. It compounds the other flaws in trip estimation described above and must be considered in joint context.

Conclusion

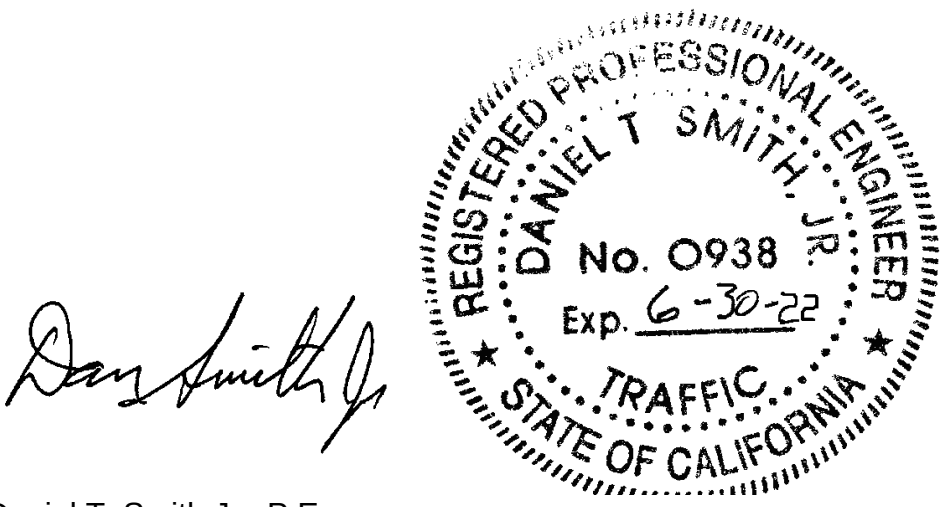
The IS/MND discloses that in the existing condition all 14 study intersections functioned at acceptable levels of service with most at LOS A, B, or C and just one intersection at LOS D in just one peak period. It also discloses that by 2026, just 6 years hence, the Project plus 134 other concurrent projects in the area will result in operations at 7 of these same intersections being degraded to LOS E or F in one or both peak periods and 2 others being degraded to LOS D. Yet despite all the degradation, because of the structure of the impact thresholds the City has adopted and because a complaisant staff is unwilling to challenge misfit land use categories assumed in the trip generation analysis or implausible claims of the maximum trip discounts allowable for transit use, internalization and passerby attraction, the Project is found not to have contributed sufficiently to the degradation to be regarded as significantly impactful. In the paragraphs above we present overwhelming evidence that there is fair argument that demonstrates that the Project's impacts are not fully disclosed and mitigated in the IS/MND. Consequently, the Project

[1] *TNCs and Congestion*, San Francisco County Transportation Authority, October, 2018.

cannot be approved under a mitigated negative declaration and a full EIR must be prepared.

Sincerely,

Smith Engineering & Management
A California Corporation



Daniel T. Smith Jr., P.E.
President

EXHIBIT C

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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November 18, 2020

Rebecca Davis
Lozeau | Drury LLP
1939 Harrison Street, Suite 150
Oakland, CA 94618

Subject: Comments on the 3440 Wilshire Project (Case No. ENV-2016-3693-MND)

Dear Ms. Davis,

We have reviewed the May 2020 Responses to SAFER Appeal on the 3440 Wilshire Project (Project) ("Response") for the 3440 Wilshire Project ("Project") located in the City of Los Angeles ("City"). After our review of the Response, we find that the Response is insufficient in addressing our concerns regarding the Project's air quality, health risk, and greenhouse gas impacts. As we asserted in our April 21st comment letter, a Project-specific EIR should be prepared to adequately evaluate the Project's potential impacts.

Air Quality

Unsubstantiated Reductions to Number of Daily Trips

As discussed in our April 21st comment letter, the IS/MND included a 25% "transit credit" for both retail and multifamily housing trip generation based on the 2016 Los Angeles Department of Transportation's ("LADOT") *Traffic Study Policies and Procedures*, which was superseded by the LADOT's 2019 *Transportation Assessment Guidelines*. Review of the Response demonstrates that the Project again fails to adequately justify this reduction. As discussed below, we find the IS/MND and Response to be inadequate and maintain that the IS/MND's air quality significance determination is unsupported.

Regarding the unsubstantiated trip reduction, the Response states:

> "The traffic study was conducted according to LADOT's guidelines and methodologies in place at the time of the analysis in 2018, and confirmed in the August 2018 Memorandum of

> Understanding (MOU). LADOT concurred with the analysis and assumptions in its October 25, 2018 letter. An addendum to the traffic study was prepared in August 2019 to account for a reduction in the residential units and commercial space. LADOT again concurred with the addendum in its October 22, 2019 letter. LADOT released new guidelines in July 2019. During this transition, projects that already have a signed MOU with LADOT and have filed an application with DCP may continue analyzing transportation impacts under the former guidelines, *as long as the project will be adopted and through any appeal period prior to the State deadline of July 1, 2020*. On April 17, 2020, LADOT issued a memo updating its VMT direction in response to the coronavirus pandemic. Due to delays in project hearing and decision dates, LADOT offers an extension to the July 1, 2020 deadline for applicants processing LOS-based analyses if it can be *demonstrated that their projects were delay from receiving their final entitlements because of the pandemic*" (p. 27).

As you can see in the excerpt above, the Response claims that the IS/MND's reliance on the 2016 LADOT guidelines was justified, as projects that have a signed Memorandum of Understanding ("MOU") with LADOT may continue to analyze transportation impacts under the 2016 LADOT guidelines, "*as long as the project will be adopted and through any appeal period prior to the State deadline of July 1, 2020*." However, as it is already November of 2020 and the Project has yet to be approved, we know that the Project will not be "adopted and through any appeal period prior to the State deadline of July 1, 2020." Furthermore, while the Response claims that LADOT provides an extension for projects that were delayed from receiving final entitlements because of the pandemic, the Response fails to demonstrate that the proposed Project was delayed from receiving final entitlements by the pandemic. As such, we cannot verify that the proposed Project is eligible for the extension, and we reiterate our April 21st comment that the IS/MND's reliance on the 2016 LADOT guidelines, as well as the resulting transit credit reduction, was incorrect.

Unsubstantiated Input Parameters Used to Estimate Project Emissions

In our April 21st comment letter, we identified several issues with the IS/MND's air model (California Emissions Estimator Model, "CalEEMod")[1] that artificially reduced the Project's construction and operational emissions. After review of the Response, we found that the Response fails to address all of our concerns and maintain that the IS/MND's CalEEMod model is flawed and fails to accurately estimate the Project's criteria air pollutant emissions. As such, we find the IS/MND and Response to be inadequate and maintain our April 21st comment that an EIR should be prepared to adequately evaluate the Project's local and regional air quality impacts. Until a proper air quality analysis is conducted, the Project should not be approved.

Use of an Incorrect Construction Schedule

As discussed in our April 21st comment letter, the Project's CalEEMod model included a construction schedule that was inconsistent with the information provided by the IS/MND. Review of the Response demonstrates that the Project again fails to justify or correct this modeling error. As discussed below,

[1] http://caleemod.com/

we find the IS/MND and Response to be inadequate and maintain that the IS/MND's air quality significance determination is unsupported.

Regarding the Project's incorrect construction schedule, the Response states:

> "*Construction schedule, including start, end, and duration dates are estimates only*. As discussed on Page B-40 of the MND, the air quality modeling recognizes the potential phasing of the two towers, but conservatively assumes that both towers would be built concurrently to maximize protection of public health. This means that emissions from each phase of constructing each tower are assumed to occur at the same time. The analysis conservatively assumes construction of the entire Project Site at once and compares total emissions against the SCAQMD's significance thresholds (assumes activities across the subset of the property to be redeveloped with the Project, (2.3 acres). As such, the MND overstates construction-related emissions, the opposite of what the comment claims" (emphasis added) (p. 22-23).

As you can see in the excerpt above, the Response claims that the construction schedule included in the IS/MND's CalEEMod model is justified because the construction schedule provided are "estimates only," and the schedule utilized in the CalEEMod model overestimates emissions. However, this justification is insufficient for two reasons.

First, if the construction schedule provided is an estimate, the model should instead rely upon the CalEEMod default construction schedule. According to the CalEEMod User's Guide:

> "*CalEEMod was designed with default assumptions supported by substantial evidence to the extent available at the time of programming*. The functionality and content of CalEEMod is based on fully adopted methods and data. However, CalEEMod was also designed to allow the user to change the defaults to reflect site- or project-specific information, when available, *provided that the information is supported by substantial evidence as required by CEQA*" (emphasis added).[2]

As you can see in the excerpt above, CalEEMod default assumptions are based on fully adopted methods and data and should only be changed if project-specific information, supported by substantial evidence, is provided. Here, as the construction schedule provided in the IS/MND is an estimate only, the Project's CalEEMod model should instead rely upon the default construction schedule.

Second, the Response's claim that the construction schedule included in the IS/MND's CalEEMod model provides a more conservative analysis is incorrect. As previously stated in our April 21st comment letter, the IS/MND's CalEEMod model assumed that construction emissions would occur over a 48-month period, rather than the 43-month period indicated by the IS/MND. This presents an issue, as *improperly spreading out construction emissions over a longer period of time results in an* ***underestimation*** *of peak*

[2] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 12.

daily emissions. As such, the Response's claim is incorrect and we reiterate our April 21st comment that the IS/MND's CalEEMod model may underestimate the Project's criteria air pollutant emissions.

Underestimated Number of Hauling Truck Trips

As discussed in our April 21st comment letter, the IS/MND's CalEEMod model included unsubstantiated reductions to the number of hauling trips required for Project construction. Review of the Response demonstrates that the Project again fails to justify or correct this modeling error. As discussed below, we find the IS/MND and Response to be inadequate and maintain that the IS/MND's air quality significance determination is unsupported.

Regarding the unsubstantiated reductions to the Project's hauling trips, the Response states:

> "As noted, the CalEEMod model includes default assumptions when project-specific information is not available. For example, the model assumes that the number of construction workers is 1.25 times the number of pieces of equipment for all phases (except Building Construction and Architectural Coatings). In this case, more specific input assumptions were available that justified refining the model's default assumptions. While the air quality analysis assumed that hauling of soil does not occur during the building construction phase, the one daily haul trip can be assumed to be part of the 20 vendor trips that are made to serve the daily construction activities of building the Project. During the construction phase, soil hauling is generally not a necessary activity; instead, vendor trips delivering material are more common. Both soil hauling and vendor trips involve heavy-duty diesel-powered trucks, so the vendor assumptions would cover any occasional soil haul trip. The CalEEMod air quality model user guide (page 33) also recognizes this, stating that: "[I]f the trucks are driven on road, the user can account for the on-road emissions by entering this information as Additional Vendor Trips on the Trips and VMT screen.'" (p. 23-34).

As you can see in the excerpt above, the Response claims that the hauling trip reductions are based on Projects-specific information and that the hauling trips required for building construction would be accounted for as vendor trips. However, this justification is incorrect for two reasons.

First, while the Response discusses the hauling trips required for building construction, it fails to mention or justify the reduced number of hauling trips required for grading whatsoever. Furthermore, as previously stated in our April 21st comment letter, while the Traffic Study includes estimates of *peak daily* trips for each construction phase, this fails to substantiate the changes to the *total* numbers of hauling trips (Appendix K-1, p. 45, Table 13). As a result, we cannot verify the revised number of hauling trips required for grading, and the IS/MND's CalEEMod model should not be relied upon.

Second, the Response's claim that the hauling trips required for building construction would be accounted for in the vendor trips for building construction is incorrect. Review of the IS/MND's CalEEMod output files demonstrates that vendor trips have a length of 6.90 miles, while hauling trips have a length of 20 miles (Appendix C, pp. 8, 39, 73). Furthermore, the IS/MND's CalEEMod model

included a manual reduction to the number of building construction trips from 196 to 20 trips (Appendix C, pp. 3, 33, 68). As the Traffic Study estimates that building construction would require 20 vendor trips and 1 hauling trip per day, we know that the hauling trips required for building construction are not accounted for in the vendor trips modeled for building construction (Appendix K-1, p. 45, Table 13). As such, the Project cannot assume that the hauling trips required for building construction would be accounted for as vendor trips. Therefore, we reiterate our April 21st comment that the IS/MND's CalEEMod model may underestimate the Project's criteria air pollutant emissions, and the subsequent air quality significance determination should not be relied upon.

Unsubstantiated Changes to Acres of Grading

As discussed in our April 21st comment letter, the IS/MND's CalEEMod model included unsubstantiated reductions to the anticipated acres of grading values. Review of the Response demonstrates that the Project again fails to justify or correct these modeling errors. As discussed below, we find the IS/MND and Response to be inadequate and maintain that the IS/MND's air quality significance determination is unsupported.

Regarding the Project's unsubstantiated reductions to the acres of grading values, the Response states:

> "The assumption about the amount of grading was based on the portion of the Project Site that would be graded (during the single grading phase), as well as the amount of grading that can be traversed in an eight-hour workday. The assumption about 0 acres of grading in the site preparation phase is based on the assumption that there is de minimis grading associated with preparing the site for excavation once the existing above-ground parking garage is demolished and hauled away, leaving a relatively flat site" (p. 24).

As you can see in the excerpt above, the Response claims that the revised acres of grading value was based on "the portion of the Project Site that would be graded" and the "amount of grading that can be traversed." However, this is incorrect, as the size of the grading site and amount of grading do not determine the acres of grading value, as explained in the CalEEMod User's Guide. According to the CalEEMod User's Guide:

> "*[T]he dimensions (e.g., length and width) of the grading site have no impact on the calculation*, only the total area to be graded. In order to properly grade a piece of land multiple passes with equipment may be required. The acres is based on the equipment list and days in grading or site preparation phase according to the anticipated maximum number of acres a given piece of equipment can pass over in an 8-hour workday" (emphasis added).[3]

As the above excerpt demonstrates, the acres of grading values are not based on the dimensions of the Project site or the amount of grading, as claimed by the Response. Rather, the acres of grading values are determined based on the equipment list and days in grading or site preparation. Thus, the Response's justification fails to provide substantial evidence to support the revised acres of grading

[3] "Appendix A Calculation Details for CalEEMod", *available at:* http://www.caleemod.com/, p. 9

values. As such, we reiterate our April 21st comment that the IS/MND's CalEEMod model may underestimate the Project's criteria air pollutant emissions, and the subsequent air quality significance determination should not be relied upon.

Unsubstantiated Application of Construction Mitigation Measures

As discussed in our April 21st comment letter, the IS/MND's CalEEMod model included several unsubstantiated construction-related mitigation measures. Specifically, the model included the following construction-related mitigation measures: "Replace Ground Cover," "Water Exposed Area," as well as a 46% reduction of particulate matter emissions as a result of the "Clean Paved Roads" mitigation measure. Review of the Response demonstrates that the Project again fails to justify or correct these modeling errors. As discussed below, we find the IS/MND and Response to be inadequate and maintain that the IS/MND's air quality significance determination is unsupported.

Regarding the Project's unsubstantiated construction-related mitigation measures, the Response claims that the "fugitive dust strategies assumed during the grading phase are consistent with the control measures in Rule 403" (p. 25). Furthermore, the Response includes SCAQMD efficacy assumptions for best practice measures (p. 26). However, these justifications are insufficient for three reasons.

First, while the 46% reduction of particulate matter emissions as a result of the "Clean Paved Roads" mitigation measure is consistent with the SCAQMD efficacy assumptions, this does not justify the inclusion of the measure in the model. Rather, review of the SCAQMD efficiency assumptions demonstrates that the measures included are simply *examples* of mitigation measures that *could be* implemented (see excerpt below) (p. 26).

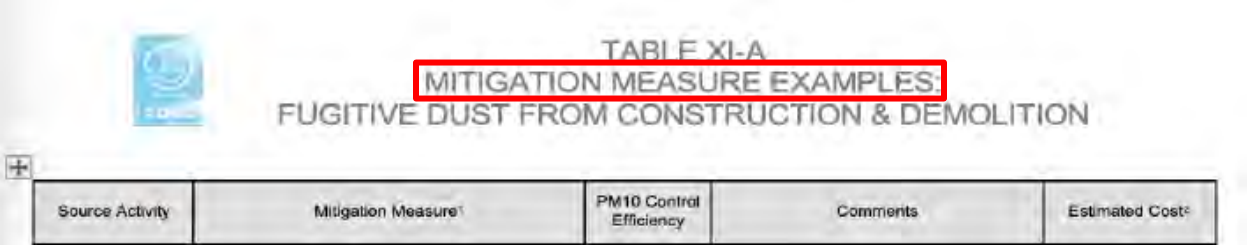

TABLE XI-A
MITIGATION MEASURE EXAMPLES
FUGITIVE DUST FROM CONSTRUCTION & DEMOLITION

Source Activity	Mitigation Measure[1]	PM10 Control Efficiency	Comments	Estimated Cost[2]

Thus, the construction dust control measures included in the Response are *examples* of measures that *could be* implemented; they are not explicitly required by the SCAQMD. As such, the inclusion of these measures in the model is unsubstantiated until an EIR is prepared, committing to the implementation, monitoring, and enforcement of the above-mentioned construction-related mitigation measures.

Second, according to SCAQMD Rule 403, Projects can *either* water unpaved roads 3 times per day, water unpaved roads 1 time per day and limit vehicle speeds to 15 mph, *or* apply a chemical stabilizer (see excerpt below) (p. 403-21, Table 2). [4]

[4] "RULE 403. FUGITIVE DUST." SCAQMD, June 2005, *available at:* http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf.

Table 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.

As you can see in the above excerpt, to simply comply with SCAQMD Rule 403, the Project may *either* water unpaved roads 3 times per day, water unpaved roads 1 time per day and limit vehicle speeds to 15 mph, *or* apply a chemical stabilizer. This further supports that the measures included in the IS/MND's CalEEMod model are explicitly required by SCAQMD Rule 403. By including construction-related mitigation measures without properly committing to their implementation, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance.

Third, according to the Association of Environmental Professionals ("AEP") *CEQA Portal Topic Paper* on mitigation measures:

> "By definition, *mitigation measures are not part of the original project design*. Rather, mitigation measures are actions taken by the lead agency to reduce impacts to the environment resulting from the original project design. Mitigation measures are identified by the lead agency after the project has undergone environmental review and are *above-and-beyond existing laws, regulations, and requirements* that would reduce environmental impacts" (emphasis added).[5]

As you can see in the excerpt above, mitigation measures are not included in the original Project design and should go "*above-and-beyond existing requirements*." As such, the inclusion of these measures, based on the Project's compliance with SCAQMD Rule 403 alone, is incorrect. As such, we reiterate our April 21st comment that the IS/MND's CalEEMod model may underestimate the Project's criteria air pollutant emissions, and the subsequent air quality significance determination should not be relied upon.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

As discussed in our April 21st comment letter, the IS/MND failed to adequately evaluate the proposed Project's potential health risk impacts. Review of the Response demonstrates that the Project again fails to justify the omission of a quantified construction and operational health risk assessment ("HRA"). For the four reasons discussed below, we maintain our April 21st comment that the IS/MND and Response

[5] "CEQA Portal Topic Paper Mitigation Measures." AEP, February 2020, *available at:* https://ceqaportal.org/tp/CEQA%20Mitigation%202020.pdf, p. 5.

are inadequate and recommend that the Project not be approved until an EIR be prepared to adequately evaluate the Project's potential health risk impacts on nearby sensitive receptors.

First, the Response relies upon a localized significance threshold ("LST") analysis to evaluate the Project's health risk impacts, stating:

> "[T]he MND determined that the Project's construction and operational emissions would be below the localized significant thresholds and that the Project's activities (and the Project's associated land uses) are not considered land uses that generate substantial Toxic Air Contaminants (TACs) emissions. The commenter correctly notes that the MND analyzed the Project's maximum localized (on-site) emissions for construction and operation activities. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard and are based on the most recent background ambient air quality monitoring data for the Project area. As shown in the MND, the Project would not produce emissions that exceed the SCAQMD's recommended localized standards of significance for NO2, CO, PM10 and/or PM2.5. Thus, the MND correctly concluded that construction impacts to the localized air quality would be less than significant" (p. 29).

As you can see in the excerpt above, the Response claims that the Project's localized air quality impacts would be less than significant, because "the Project would not produce emissions that exceed the SCAQMD's recommended localized standards of significance for NO_2, CO, PM_{10} and/or $PM_{2.5}$." However, while an LST analysis is adequate for addressing localized air quality impacts, it is not intended to address health risk impacts posed to sensitive receptors as a result of toxic air contaminants ("TACs"). As previously stated in our April 21st comment letter, the Final Localized Significance Threshold Methodology document prepared by the SCAQMD indicates that the LST analysis is only applicable to NO_x, CO, PM_{10}, and $PM_{2.5}$ emissions, which are collectively referred to as criteria air pollutants.[6] Because the LST method can only be applied to criteria air pollutants, this method cannot be used to determine whether emissions from TACs, specifically diesel particulate matter ("DPM"), a known human carcinogen, will result in a significant health risk impact to nearby sensitive receptors. Finally, SCAQMD guidance states:

> "Projects that emit toxic air contaminants (TAC) typically undergo an analysis of localized air quality impacts *relative to cancer and non-cancer health risks*" (emphasis added).[7]

Here, however, health impacts from exposure to TACs, including DPM, associated with Project construction and operation were not analyzed relative to cancer health risks, thus leaving a gap in the IS/MND and Response's analysis. As such, we maintain our April 21st comment that the Project's health

[6] "Final Localized Significance Threshold Methodology." SCAQMD, Revised July 2008, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/final-lst-methodology-document.pdf.

[7] "Fact Sheet: Localized Significance Thresholds." SCAQMD, *available at:* file:///C:/Users/SWAPE/Downloads/SCAQMD%20LST%20Fact%20Sheet.pdf, p. 2.

risk impacts were inadequately evaluated and that an EIR should be prepared to adequately evaluate the Project's health risk impacts.

Second, regarding the omission of a quantified construction HRA, the Response states:

> "[T]he MND did analyze the Project's construction and operation TAC emissions and determined that the Project would not result in significant impacts to nearby sensitive receptors. The primary TAC that would be generated by construction activities is DPM, which would be released from the exhaust stacks of construction equipment. The construction emissions modeling conservatively assumed that all equipment present on the Project Site would be operating simultaneously and continuously throughout most of the day, while, in all likelihood, this would rarely be the case. Average daily emissions of DPM would be less than one pound per day throughout the course of Project construction. Therefore, the magnitude of daily DPM emissions would not be sufficient to result in substantial pollutant concentrations at off-site sensitive receptors" (p. 29).

As you can see in the excerpt above, the Response claims that the Project's construction-related TAC emissions would be less than significant, because the IS/MND previously analyzed construction-related TACs, construction equipment would not operate continuously throughout the day, and average daily emissions of DPM would not exceed one pound per day ("lb/day"). However, these ***qualitative*** justifications for the omission of a ***quantified*** construction HRA are incorrect for three reasons. First, as discussed above, the IS/MND did not analyze the Project's construction-related TACs, as claimed by the Response. Rather, the IS/MND included an LST analysis evaluating the significance of localized ***criteria air pollutant*** emissions, which fail to include DPM. Second, the IS/MND and Response fail to provide any evidence that construction equipment would not occur continuously and simultaneously throughout the day, as indicated by the IS/MND's CalEEMod model. As such, we cannot verify this claim. Third, the IS/MND and Response fail to provide any evidence that the Project's daily construction-related DPM emissions would not exceed 1 lb/day. The IS/MND's CalEEMod output files estimate that the Project would result in daily construction-related exhaust PM_{10} and $PM_{2.5}$ emissions of 1.4191- and 1.3375-lbs/day, respectively (Appendix C, pp. 70). As such, we cannot verify the Response's claim that daily emission of DPM would not exceed 1 lb/day and maintain that the omission of a quantified construction HRA is incorrect. This omission presents an issue, as construction of the Project will produce emissions of DPM through the exhaust stacks of construction equipment over a construction period of approximately 43-months, as stated by the IS/MND (p. A-15, Table A-8). By failing to provide a quantified HRA for Project construction, the IS/MND and Response fail to adequately evaluate the potential health risk impacts posed to nearby, existing sensitive receptors. As such, we reiterate our April 21st comment that an EIR should be prepared, making a reasonable effort to connect the Project's construction-related DPM emissions and the potential health risk impacts posed to nearby receptors.

Third, regarding the omission of a quantified operational HRA, the Response states:

> "The primary operation TACs would include DPM from delivery trucks and to a lesser extent, facility operations (e.g., natural gas fired boilers). SCAQMD recommends that HRAs be

> conducted for substantial individual sources of DPM (e.g., truck stops and warehouse distribution facilities that generate more than 100 trucks per day or more than 40 trucks with operating transport refrigeration units) and has provided guidance for analyzing mobile source diesel emissions.15 Based on this guidance, the Project would not include these types of land uses and is not considered to be a substantial source of DPM warranting a refined HRA since daily truck trips to the Project Site would not exceed 100 trucks per day or more than 40 trucks with operating transport refrigeration units. In addition, the CARB-mandated ATCM limits diesel-fueled commercial vehicles (delivery trucks) to idle for no more than 5 minutes at any given time, which would further limit diesel particulate emissions. Thus, compliance with CARB and SCAQMD guidelines, the MND correctly concluded that the Project operational emissions would not result in the exposure of off-site sensitive receptors to TACs." (p. 29-30).

However, this justification is incorrect for two reasons. First, the Response's claim that "daily truck trips to the Project Site would not exceed 100 trucks per day" is incorrect. Review of the IS/MND's CalEEMod fleet mix demonstrates that approximately 7%[8] of the Project's daily vehicle trips would be truck trips (Appendix C, pp. 26, 57, 91). When multiplying the total number of daily vehicle trips of 2,349.38, as indicated by the IS/MND's CalEEMod model, by a truck fleet mix percentage of 7%, we estimate that the Project would result in approximately 175 daily truck trips[9] (Appendix C, pp. 26, 57, 91). As such, the Response's claim that the Project would not generate more than 100 truck trips per day is incorrect, and we cannot verify that the Project would not be a substantial source of DPM. Second, simply because the Project would not involve ***common*** sources of TACs, such as truck stops and warehouse distribution facilities, does not provide any detailed or meaningful information which correlates the Project's operational air emissions with the resulting health impacts of Project operations. Nor does this unsupported conclusion justify the omission of a quantified operational HRA whatsoever. Thus, by failing to provide a quantified HRA for Project operation, the IS/MND and Response fail to adequately evaluate the potential health risk impacts posed to nearby, existing sensitive receptors. As such, we reiterate our April 21st comment that an EIR should be prepared, making a reasonable effort to connect the Project's operational DPM emissions and the potential health risk impacts posed to nearby receptors.

Fourth, the Response claims:

> "The Project would not result in the exposure of off-site sensitive receptors to carcinogenic or toxic air contaminants that exceed the maximum incremental cancer risk of 10 in one million or an acute or chronic hazard index of 1.0, and potential TAC impacts would be less than significant" (p. 30).

However, this justification is incorrect, as both the IS/MND and Response fail to quantify the proposed Project's construction-related or operational cancer risk. As such, the IS/MND and Response fail to provide any evidence demonstrating that the Project would result in a maximum incremental cancer risk

[8] Calculated: 1.4456% LHD1 + 0.6301% LHD2 + 2.0907% MHD + 3.2661% HHD = 7.4325% truck fleet mix.
[9] Calculated: 7.4325% * 2,349.38 total daily vehicle trips = 174.62 daily truck trips.

less than 10 in one million. As discussed in our April 21st comment letter, by claiming a less than significant impact without conducting a quantified HRA to nearby, existing sensitive receptors as a result of Project construction, the IS/MND fails to compare the Project's estimated excess health risk to the SCAQMD's specific numeric threshold of 10 in one million.[10] Thus, the IS/MND should not conclude less than significant health risk impacts resulting from Project construction and operation without conducting an HRA to *quantify emissions* to compare to the proper threshold. As such, we maintain our April 21st comment that the Project's health risk impacts were inadequately evaluated and that an EIR should be prepared to adequately evaluate the Project's health risk impacts.

Screening-Level Assessment Indicates Significant Impact

In our April 21st comment letter, we prepared a construction and operational HRA utilizing SWAPE's updated modeling, and concluded that the Project would result in a construction-related and operational cancer risk of 160 in one million, with age sensitivity factors, and 49 in one million, without age sensitivity factors. As discussed below, we find the IS/MND and Response to be inadequate and maintain that the Project's health risk significance determination is unsubstantiated.

Regarding SWAPE's screening-level HRA, the Response reiterates that relevant SCAQMD, OEHHA, and CARB guidance do not require the Project to conduct a quantified HRA evaluating the health risk impacts associated with Project construction and operation (p. 31-33). As a result, the Response elects to ignore our screening-level HRA. However, as discussed above, we reiterate the need for a quantified analysis of the Project's health risk impacts. As stated in our April 21st comment letter, our screening-level HRA relied upon AERSCREEN, which is a screening level air quality dispersion model. [11] The model replaced SCREEN3, and AERSCREEN is included in the OEHHA[12] and the California Air Pollution Control Officers Associated (CAPCOA)[13] guidance as the appropriate air dispersion model for Level 2 health risk screening assessments ("HRSAs"). *If an unacceptable air quality hazard is determined to be possible using AERSCREEN, a more refined modeling approach should be utilized prior to approval of the Project*. Thus, as our screening-level HRA indicated a *potentially* significant health risk impact, further analysis should be conducted to identify the health risk associated with the Project and mitigation should be implemented, if necessary. Here, however, the Response elects to ignore our screening-level HRA and fails to conduct a more specific analysis including Project construction and operation. As such, we find the IS/MND and Response to be inadequate in addressing our screening-level HRA and maintain our April 21st comment that the Project's health risk significance determination is unsubstantiated.

[10] "South Coast AQMD Air Quality Significance Thresholds." SCAQMD, April 2019, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

[11] "AERSCREEN Released as the EPA Recommended Screening Model," USEPA, April 11, 2011, *available at:* http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf

[12] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

[13] "Health Risk Assessments for Proposed Land Use Projects," CAPCOA, July 2009, *available at:* http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf

Greenhouse Gas

Failure to Adequately Evaluate Greenhouse Gas Impacts

As discussed in our April 21st comment letter, the IS/MND concluded that the Project's construction and operation would result in annual greenhouse gas ("GHG") emissions of 8,698 metric tons of CO_2 equivalent per year (MT CO_2e/year), based on an incorrect and unsubstantiated air model (p. B-112, B-113, Table B.8-4). In addition, the IS/MND incorrectly relied upon the Project's consistency with CARB's *Climate Change Scoping Plan*, SCAG's 2016–2040 *RTP/SCS*, the *LA Green Plan*, and the *Sustainable City pLAn* in order to determine the significance of the Project's GHG impact (p. B-111). Finally, the IS/MND incorrectly claimed that there are no SCAQMD-established significance thresholds, and as a result, relied upon the Project's consistency with applicable plans, policies, and regulations to determine significance.

Review of the Response demonstrates that the Project again fails to adequately evaluate the anticipated GHG impacts. As discussed below, we maintain that the IS/MND and Response's GHG analyses, as well as the subsequent less-than-significant impact conclusion, are incorrect for five reasons.

1) Incorrect Reliance on the *Sustainable City pLAn* and *LA Green Plan*;
2) Failure to demonstrate consistency with CARB's *Climate Change Scoping Plan* and SCAG's 2016–2040 *RTP/SCS*;
3) Failure to consider performance-based standards under CARB's *Climate Change Scoping Plan* and SCAG's 2016–2040 *RTP/SCS*;
4) Failure to apply the relevant SCAQMD threshold; and
5) GHG emissions demonstrate a potentially significant GHG impact.

1) Incorrect Reliance on the Sustainable City pLAn and LA Green Plan

Regarding the Project's continued reliance on the *Sustainable City pLAn*, the Response states:

> "[T]he City has adopted a number of plans to help reduce GHG emissions, including the LA Green Plan, City of LA Sustainable City pLAn (Sustainable City pLAn), and Green Building Code, which encourage and require applicable projects to implement energy efficiency measures" (p. 39).

Furthermore, the Response states:

> "While the City does not have a programmatic mitigation plan that the Project can tier from, such as a Greenhouse Gas Emissions Reduction Plan as recommended in the relevant amendments to the State CEQA Guidelines,139 the City has adopted the Green New Deal (Sustainable City pLAn 2019) and LA Green Building Code, which encourage or require applicable projects such as the Project to implement energy efficiency measures and the City has determined to assess the significance of the Project's net GHG emissions with respect to these plans" (p. 36).

As you can see in the excerpts above, the Response continues to rely upon the *Sustainable City pLAn* and the *LA Green Plan* to determine the significance of the Project's GHG impact. However, this justification is insufficient for three reasons.

First, the Response fails to address our April 21st comment that the both the *Sustainable City pLAn* and the *LA Green Plan* fail to contain project-level measures. As such, we reiterate our April 21st comment that these plans should not be relied upon to determine Project significance.

Second, as discussed in our April 21st comment letter, the April 2015 *Sustainable City pLAn* referenced by the IS/MND is outdated and superseded by the L.A. Green New Deal. According to the L.A. Green New Deal:

> "When the Mayor released the first Sustainable City pLAn in 2015 he committed to annual progress reports and a major update to the pLAn every four years…This report is the first four-year update to the 2015 pLAn. It augments, expands, and elaborates in even more detail L.A.'s vision for a sustainable future and it tackles the climate emergency with accelerated targets and new aggressive goals. This is L.A.'s Green New Deal."[14]

As you can see in the excerpt above, the *Sustainable City pLAn* requires a major update every 4 years and has been since replaced by the *LA Green New Deal*. As such, the IS/MND's reliance on the Sustainable *City pLAn* and GHG significance determination is incorrect. While the Response mentions the *LA Green New Deal*, the Response fails to provide any detailed or meaningful information regarding the Project's consistency with the *LA Green New Deal*. As such, we reiterate our April 21st comment that the Project's consistency with the *Sustainable City pLAn*, which was superseded by the *LA Green New Deal*, should not be relied upon to determine Project significance.

Third, review of the City's *LA Green Plan* demonstrates that the plan is similarly inapplicable to the proposed Project. Specifically, the plan was adopted in 2007 and its implementation program, *ClimateLA*, was adopted in 2008.[15] However, *ClimateLA* is no longer available on the City's website, and thus, we are unable to verify the source. As such, we reiterate our April 21st comment that the IS/MND's reliance on the *Sustainable City pLAn* and *LA Green Plan* to conclude that the Project would result in a less-than-significant GHG impact is incorrect.

2) Failure to Demonstrate Consistency with CARB's Scoping Plan and SCAG's 2016–2040 RTP/SCS

Regarding the Project's continued reliance upon CARB's 2017 *Climate Change Scoping Plan* and SCAG's 2016 *RTP/SCS*, the Response states:

> "[T]he City has determined to assess the significance of the Project's net GHG emissions by assessing the Project's consistency with applicable State and regional plans and regulations intended to reduce GHG emissions to meet the statewide targets set forth in AB 32 and SB 32,

[14] "L.A.'s Green New Deal." 2019, available at: http://plan.lamayor.org/sites/default/files/pLAn_2019_final.pdf, p. 8.

[15] "ClimateLA (Los Angeles, California)." Adaptation Clearinghouse, *available at*: https://www.adaptationclearinghouse.org/resources/climatela-los-angeles-california.html#:~:text=ClimateLA%20is%20an%20implementation%20program,Los%20Angeles%20in%20May%202007.&text=Information%20about%20proposed%20and%2For,provided%20for%20each%20action%20item.

including CARB's 2017 Climate Change Scoping Plan and SCAG's 2016 RTP/SCS, both of which are the currently approved versions of these plans. If a project is designed in accordance with these policies and regulations, it would result in a less than significant impact, because it would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs" (p. 35-36).

However, this justification is incorrect, as the Response fails to address our April 21st consistency evaluations, which demonstrated that *the Project would conflict with CARB's 2017 Climate Change Scoping Plan and SCAG's 2016 RTP/SCS*. As such, we reiterate our April 21st comment that the IS/MND's reliance on the CARB's 2017 *Climate Change Scoping Plan* and the SCAG's 2016 *RTP/SCS* to conclude that the Project would result in a less-than-significant GHG impact is incorrect.

3) *Failure to Consider Performance-Based Standards Under CARB's 2017 Climate Change Scoping Plan and SCAG's 2016 RTP/SCS*

Regarding the Project's continued reliance upon CARB's 2017 *Climate Change Scoping Plan* and SCAG's 2016 *RTP/SCS*, the Response states:

> "[T]he Climate Change Scoping Plan *provides measures to achieve AB 32 targets*. On a regional level, the SCAG 2016-2040 RTP/SCS *contains measures to achieve VMT reductions required under SB 375*. Thus, if the Project complies with these plans, policies, regulations, and requirements, the Project would result in a less than significant impact because it would be consistent with the overarching state, regional, and local plans for GHG reduction" (p. 35).

Here, the Response is correct in stating that CARB's 2017 *Climate Change Scoping Plan* and SCAG's 2016-2040 *RTP/SCS* contain performance-based measures to achieve GHG reductions. However, both the IS/MND and Response fail to consider the performance-based measures, as described below, to evaluate the Project's consistency with CARB's 2017 *Climate Change Scoping Plan* and SCAG's 2016-2040 *RTP/SCS*.

i. Passenger & Light Duty VMT Per Capita Benchmarks per SB 375

In reaching the State's long-term GHG emission reduction goals, CARB's 2017 *Scoping Plan* explicitly cites to SB 375 and the VMT reductions anticipated under the implementation of Sustainable Community Strategies.[16] CARB has identified the population and daily VMT from passenger autos and light-duty vehicles at the state and county level for each year between 2010 to 2050 under a "baseline scenario" that includes "current projections of VMT included in the existing Regional Transportation Plans/Sustainable Communities Strategies (RTP/SCSs) adopted by the State's 18 Metropolitan Planning Organizations (MPOs) pursuant to SB 375 as of 2015."[17] By dividing the projected daily VMT by the

[16] CARB (Nov. 2017) 2017 Scoping Plan, p. 25, 98, 101-103, https://ww3.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.
[17] CARB (Jan. 2019) 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals ("Supporting Calculations for 2017 Scoping Plan-Identified VMT Reductions"), Excel Sheet "Readme", https://ww2.arb.ca.gov/sites/default/files/2019-01/sp_mss_vmt_calculations_jan19_0.xlsx.

population, we calculated the daily VMT per capita for each year at the state and county level for 2010 (baseline year), 2026 (Project operational year), and 2030 (target years under SB 32) (see table below).

2017 *Scoping Plan* Daily VMT Per Capita						
	Los Angeles County			**State**		
Year	**Population**	**LDV VMT Baseline**	**VMT Per Capita**	**Population**	**LDV VMT Baseline**	**VMT Per Capita**
2010	9,838,771	216,979,221.64	22.05	37,335,085	836,463,980.50	22.40
2026	10,714,109	217,309,804.92	20.28	42,655,695	935,625,476.00	21.93
2030	10,868,614	215,539,586.12	19.83	43,939,250	957,178,153.20	21.78

Here, however, the IS/MND fails to evaluate the Project's daily VMT per capita. As a result, we cannot verify that the Project would comply with CARB's 2017 *Scoping Plan* and SB 375. As such, an EIR should be prepared to provide additional information and analysis to support the IS/MND's less-than-significant GHG impact conclusion based on the Project's consistency with CARB's 2017 *Scoping Plan*.

i. SB 375 Per Capita GHG Emission Goals

SB 375 was signed into law in September 2008 to enhance the state's ability to reach AB 32 goals by directing CARB to develop regional 2020 and 2035 GHG emission reduction targets for passenger vehicles (autos and light-duty trucks). In September 2010, CARB adopted regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035, assigning SCAG the targets of an eight percent reduction by 2020 and a 13 percent reduction by 2035. This goal is reflected in SCAG's 2016-2040 *RTP/SCS*,[18] in which the 2016 *RTP/SCS* Program EIR ("PEIR") determined that the per capita emissions were 23.8 pounds per day ("lbs/day") in 2005, and that SCAG's 2016-2040 *RTP/SCS* plan would achieve per capita emissions of 21.4 lbs/day in 2020 (i.e., a reduction of 8 percent from 2005 levels) and 19.5 lbs/day in 2035 (i.e., a reduction of 18 percent from 2005 levels) (*see* excerpt below).[19]

[18] SCAG (Apr. 2016) 2016 RTP/SCS, p. 8, 15, 153, 166, http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf.
[19] SCAG (11/24/15) 2016 RTP/SCS Draft PEIR, p. 3.8-37 – 3.8-38, http://scagrtpscs.net/Documents/2016/peir/draft/2016dPEIR_Complete.pdf.

TABLE 3.8.4-3
SB 375 ANALYSIS

	2005 (Baseline)	2020 (Plan)	2035 (Plan)	2040 (Plan)
Resident population (per 1,000)	17,161	19,060	21,475	22,116
CO_2 emissions (per 1,000 tons)	204.0*	203.6**	206.0**	203.0**
Per capita emissions (pounds/day)	23.8	21.4	19.5	18.7
% difference from Plan (2020) to Baseline (2005)				–8%*
% difference from Plan (2035) to Baseline (2005)				–18%***
% difference from Plan (2040) to Baseline (2005)				–22%***

NOTE:
* Based on EMFAC2007
** Based on EMFAC2014
***Included off-model adjustments for 2035 and 2040
SOURCE:
SCAG modeling, 2015
Southern California Association of Governments. 5 November 2015. *Item No. 1 Staff Report: 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) – Proposed Major Components*. Available at: http://www.scag.ca.gov/committees/CommitteeDocLibrary/jointRCPC110515fullagn.pdf

In March 2018, CARB adopted updated targets requiring a 19 percent decrease in VMT for the SCAG region by 2035. This goal is reflected in SCAG's Draft 2020 *RTP/SCS*,[20] in which the 2020 *RTP/SCS* Draft PEIR updates the per capita emissions to 21.3 lbs/day in 2020 and 18.8 lbs/day in 2035 (*see* excerpt below).[21]

Table 3.8-10
SB 375 Analysis

	2005 (Baseline)	2020 (Plan)	2035 (Plan)
Resident population (per 1,000)	17,161	19,194	21,110
CO2 emissions (per 1,000 tons)	204.0/a/	204.5/a/	198.6/b/
Per capita emissions (pounds/day)	23.8	21.3	18.8
% difference from Plan (2020) to Baseline (2005)			–8%
% difference from Plan (2035) to Baseline (2005)			–19%/c/

Note:
/a/ Based on EMFAC2007
/b/Based on EMFAC2014 and SCAG modeling, 2019.
/c/ Includes off-model adjustments for 2035 and 2045
Source: SCAG modeling, 2019.
http://www.scag.ca.gov/committees/CommitteeDocLibrary/jointRCPC110515fullagn.pdf

Here, however, the IS/MND fails to evaluate the Project's per capita emissions. As a result, we cannot verify that the Project would not conflict with SCAG's *RTP/SCS*. An EIR should be prepared to provide additional information and analysis to support the IS/MND's less-than-significant GHG impact conclusion based on the Project's consistency with SCAG's *RTP/SCS*.

[20] SCAG (11/7/19) Draft 2020 RTP/SCS, p. 9, 48, 138, https://www.connectsocal.org/Documents/Draft/dConnectSoCal_Draft-Plan.pdf.
[21] SCAG (Nov. 2019) 2020 RTP/SCS Draft PEIR, p. 3.8-73 – 3.8-74, https://www.connectsocal.org/Documents/PEIR/draft/dPEIR_ConnectSoCal_Complete.pdf.

ii. SB 375 RTP/SCS Daily VMT Per Capita Target

A "significant metric since the passage of SB 375" has been the reduction of vehicle miles traveled ("VMT") from automobiles and light trucks per capita.[22] According to the SCAG, the land use strategies outlined in the *RTP/SCS* are designed to reduce GHGs and VMTs both regionally and county-wide, and provides projected VMT targets in the form of performance-based objectives.[23] Under the SCAG's 2016-2040 *RTP/SCS*, daily VMT per capita should decrease from 22.8 VMT in 2012 to 20.5 VMT by 2040 for the entire SCAG region.[24] For Los Angeles County specifically, the location of the Project site, daily VMT per capita should drop from 21.5 to 18.4 VMT during that same period.[25] Under the SCAG's Draft 2020-2045 *RTP/SCS*, daily VMT per capita in the SCAG region should decrease from 23.2 VMT in 2016 to 21.0 VMT by 2045, and daily VMT per capita in Los Angeles County should decrease from 22.2 to 19.6 VMT during that same period.[26] Here, however, the IS/MND fails to consider any of the abovementioned performance-based VMT targets. As such, we cannot verify that the Project would not conflict with the performance-based standards under SCAG's *RTP/SCS*. An EIR should be prepared to provide additional information and analysis to support the IS/MND's less-than-significant GHG impact conclusion based on the Project's consistency with SCAG's *RTP/SCS*.

4) Inconsistent with Evolving Scientific Knowledge and Regulatory Schemes

Regarding the SCAQMD's interim GHG thresholds, the Response states:

> "Within its October 2008 document, the SCAQMD proposed the use of a percent emission reduction target to determine significance for residential/commercial projects that emit greater than 3,000 MTCO2e per year. Under this proposal, residential/commercial projects that emit fewer than 3,000 MTCO2e per year would be assumed to have a less than significant impact on climate change. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold of 10,000 MTCO2e per year for stationary source/industrial projects where the SCAQMD is the lead agency. However, in the twelve years since, the SCAQMD chose not to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects); therefore, the residential/commercial thresholds have no formal standing as a means of judging the significance of development projects for CEQA purposes. Further, this SCAQMD interim GHG significance threshold is not applicable to the Project as the Project is a residential/commercial project and the City of Los Angeles is the Lead Agency. In addition, CARB and the City of Los Angeles have yet to adopt project-level significance thresholds for GHG emissions that would be applicable to the Project.

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[22] "2016 RTP/SCS Appendix Performance Measures." SCAG, April 2016, available at: http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_PerformanceMeasures.pdf, pp. 14.
[23] "2016-2040 RTP/SCS." SCAG, April 2016, *available at:* http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf, pp. 167.
[24] "2016-2040 RTP/SCS." SCAG, April 2016, *available at:* http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf, pp. 167.
[25] "2016-2040 RTP/SCS." SCAG, April 2016, *available at:* http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf, pp. 167.
[26] "Draft 2020 RTP/SCS." SCAG, November 2019, *available at:* https://www.connectsocal.org/Documents/Draft/dConnectSoCal_Draft-Plan.pdf, pp. 132.

> Thus, the commenter's suggestion that the Project rely on a draft interim threshold of significance that was adopted by a SCAQMD Working Group over a decade ago and was never approved or sanctioned for CEQA analyses is irrelevant. The SCAQMD has suspended development of any GHG thresholds" (p. 37).

However, this justification is insufficient. As described in our April 21st comment letter, while the IS/MND and Response are correct in stating that the SCAQMD *Interim Thresholds* were never officially adopted, this does not mean, however, that they are inapplicable to the proposed Project or otherwise can be ignored. As previously stated, the SCAQMD *Interim Thresholds* are consistent with the methods of analysis that is regularly practiced by other air districts and furthers CEQA's demand for "'conservative analysis' to afford 'fullest possible protection of the environment.'"[27] Hence, we reiterate that the IS/MND and Response's GHG analysis is not consistent with evolving standards, nor is the conclusion that the Project would have a less than significant GHG impact supported by substantial evidence. Furthermore, the SCAQMD *Interim Thresholds* are routinely utilized by SCAQMD land use development projects.[28] As a result, we can maintain our comment that the IS/MND and Response should not ignore the SCAQMD *Interim Thresholds* and conclude that the Project still fails to conduct an adequate analysis of the Project's GHG emissions.

5) Greenhouse Gas Emissions Indicate a Potentially Significant GHG Impact

As previously discussed in our April 21st comment letter, both the IS/MND's underestimated GHG emissions and SWAPE's updated GHG emissions estimates exceed the SCAQMD bright-line threshold of 3,000 MT CO_2e/year, as well as the 2020 and 2035 SCAQMD service population efficiency targets of 4.8- and 3.0-MT CO_2e/SP/year, respectively. Regarding the Project's exceedance of the SCAQMD bright-line threshold of 3,000 MT CO_2e/year, the Response states:

> "[T]he SCAQMD proposed the use of a percent emission reduction target to determine significance for residential/commercial projects that emit greater than 3,000 MTCO2e per year.

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[27] "Warehouse Truck Trip Study Data Results and Usage Presentation: Inland Empire Logistics Council." SCAQMD, June 2014, http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/final-ielc_6-19-2014.pdf?sfvrsn=2, p. 3; *see also Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 390 ("The foremost principle under CEQA is that the Legislature intended the act to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.") (internal citations omitted).

[28] See examples: "The Residences at Nohl Ranch Draft EIR." City of Anaheim, July 2019, *available at:* http://anaheim.net/DocumentCenter/View/27059/57-Greenhouse-Gas-Emissions, p. 5.7-23; See also "Beach Boulevard Specific Plan Draft EIR." City of Anaheim, August 2018, *available at:* https://www.anaheim.net/DocumentCenter/View/22680/Ch_05-05-GHG, p. 5.5-24; See also "Museum Square Office Building Draft EIR." City of Los Angeles, February 2014, *available at:* https://planning.lacity.org/eir/MuseumSquare/DEIR/DEIR%20Sections/IV.E.%20Greenhouse%20Gases_Global%20Climate%20Change.pdf, p. IV.E-19; See also "Whole Foods and the Park Shopping Center Project Draft EIR." City of Malibu, February 2015, *available at:* https://www.malibucity.org/DocumentCenter/View/11428/Subsection-36-Greenhouse-Gas-Emissions?bidId=, p. 3.6-20; See also "Fountain Valley Crossings Specific Plan Project Partial Recirculated Draft EIR." City of Fountain Valley, October 2017, *available at:* https://www.fountainvalley.org/DocumentCenter/View/6445/34_FV-XRoads_GHG_Recirc-DEIR?bidId=, p. 3.4-16.

> Under this proposal, residential/commercial projects that emit fewer than 3,000 MTCO2e per year would be assumed to have a less than significant impact on climate change. On December 5, 2008, the SCAQMD Governing Board adopted the staff proposal for an interim GHG significance threshold of 10,000 MTCO2e per year for stationary source/industrial projects where the SCAQMD is the lead agency. However, in the twelve years since, the SCAQMD chose not to adopt a GHG significance threshold for land use development projects (e.g., residential/commercial projects); therefore, the residential/commercial thresholds have no formal standing as a means of judging the significance of development projects for CEQA purposes. Further, this SCAQMD interim GHG significance threshold is not applicable to the Project as the Project is a residential/commercial project and the City of Los Angeles is the Lead Agency. In addition, CARB and the City of Los Angeles have yet to adopt project-level significance thresholds for GHG emissions that would be applicable to the Project. Thus, the commenter's suggestion that the Project rely on a draft interim threshold of significance that was adopted by a SCAQMD Working Group over a decade ago and was never approved or sanctioned for CEQA analyses is irrelevant. The SCAQMD has suspended development of any GHG thresholds" (p. 37).

As you can see in the excerpt above, the Response claims that the SCAQMD bright-line efficiency threshold of 3,000 MT CO_2e/year is inapplicable to the proposed Project, claiming that the SCAQMD has not adopted a significance threshold for mixed-use projects in 12 years, the City of Los Angeles is the lead agency for the Project, and the threshold was never adopted.

Furthermore, regarding the Project's exceedance of the SCAQMD bright-line threshold of 3,000 MT CO_2e/year, the Response states:

> "The commenter's reference to the per capita objective is inappropriate for a project-level EIR. Specifically, this goal per service population per year is "…not for specific individual projects because they include all emissions sectors in the State." This includes emissions from wastewater treatment plants, public utilities, and emission source categories that are not applicable to the emission profile or control of development projects. Instead, that target is intended for "the plan level" (city, county, subregion, or regional level, as appropriate). As such, the commenter's assertion that the Project's GHG emissions are significant because they exceed 4.8 MTCO2e per service population per year is not appropriate. The MND is consistent with the Scoping Plan, which does not establish a project-level threshold of significance or target" (p. 38).

However, these justifications are insufficient for three reasons.

First, as previously described, while the IS/MND and Response are correct in stating that the SCAQMD *Interim Thresholds* were never officially adopted, this does not mean, however, that they are inapplicable to the proposed Project or otherwise can be ignored. As previously stated, the SCAQMD *Interim Thresholds* are consistent with the methods of analysis that is regularly practiced by other air districts and furthers CEQA's demand for "'conservative analysis' to afford 'fullest possible protection of

the environment.'"[29] Hence, we reiterate that the IS/MND and Response's GHG analysis is not consistent with evolving standards, nor is the conclusion that the Project would have a less than significant GHG impact supported by substantial evidence. Furthermore, the SCAQMD *Interim Thresholds* are routinely utilized by SCAQMD land use development projects.[30] As a result, we can maintain our comment that the IS/MND and Response should not ignore the SCAQMD *Interim Thresholds* and conclude that the Project still fails to conduct an adequate analysis of the Project's GHG emissions.

Second, the Response is incorrect in stating that the service population efficiency target of 4.8 MT CO_2e/SP/year is only applicable at the plan-level. According to the SCAQMD's *Minutes for the GHG CEQA Significance Threshold*:

> "[S]taff agrees with the methodology for establishing the *efficiency threshold value of 6.6 MTCO2/yr for plans* because this number is based on statewide service population (SP) in 2020. With regard to the project level efficiency threshold SCAQMD staff took a slightly different approach than BAAQMD. To derive the project level efficiency threshold of 4.6, it appears that BAAQMD took the 2020 statewide GHG reduction target for land use only (295,530,000 MTCO2e/yr) and divided it by the total 2020 statewide SP (population plus employment) (44,135,923 + 20,194,661), i.e., (295,530,000 MTCO2e/yr)/(44,135,923 + 20,194,661) = 4.6 MTCO2e/yr. SCAQMD staff believes that instead of using total 2020 statewide employment for all sectors, this approach should have used total 2020 statewide employment for the land use sectors only (17,064,489). If you use total 2020 statewide employment for land use sectors instead of total 2020 statewide employment for all sectors as BAAQMD did, *your local project*

[29] "Warehouse Truck Trip Study Data Results and Usage Presentation: Inland Empire Logistics Council." SCAQMD, June 2014, http://www.aqmd.gov/docs/default-source/ceqa/handbook/high-cube-warehouse-trip-rate-study-for-air-quality-analysis/final-ielc_6-19-2014.pdf?sfvrsn=2, p. 3; *see also Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 390 ("The foremost principle under CEQA is that the Legislature intended the act to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.") (internal citations omitted).

[30] See examples: "The Residences at Nohl Ranch Draft EIR." City of Anaheim, July 2019, *available at:* http://anaheim.net/DocumentCenter/View/27059/57-Greenhouse-Gas-Emissions, p. 5.7-23; See also "Beach Boulevard Specific Plan Draft EIR." City of Anaheim, August 2018, *available at:* https://www.anaheim.net/DocumentCenter/View/22680/Ch_05-05-GHG, p. 5.5-24; See also "Museum Square Office Building Draft EIR." City of Los Angeles, February 2014, *available at:* https://planning.lacity.org/eir/MuseumSquare/DEIR/DEIR%20Sections/IV.E.%20Greenhouse%20Gases_Global%20Climate%20Change.pdf, p. IV.E-19; See also "Whole Foods and the Park Shopping Center Project Draft EIR." City of Malibu, February 2015, *available at:* https://www.malibucity.org/DocumentCenter/View/11428/Subsection-36-Greenhouse-Gas-Emissions?bidId=, p. 3.6-20; See also "Fountain Valley Crossings Specific Plan Project Partial Recirculated Draft EIR." City of Fountain Valley, October 2017, *available at:* https://www.fountainvalley.org/DocumentCenter/View/6445/34_FV-XRoads_GHG_Recirc-DEIR?bidId=, p. 3.4-16.

efficiency threshold becomes: (295,530,000 MTCO2e/yr)/(44,135,923 + 17,064,489) = 4.8 MTCO2e/yr" (emphasis added).[31]

As you can see in the excerpt above, SCAQMD staff clearly indicates a *plan-level* efficiency target of 6.6 MT CO_2e/SP/year and a *project-level* service population efficiency target of 4.8 MT CO_2e/SP/year. Thus, the Response is incorrect, and we maintain our April 21st comment that the Project's GHG emissions should have been evaluated using the SCAQMD quantitative service population efficiency target for local land use projects.

Third, as previously stated in our April 21st comment letter, the IS/MND's CalEEMod output files demonstrate that the Project's mitigated emissions would exceed the SCAQMD bright-line threshold of 3,000 MT CO2e/year as well as 2020 and 2035 service population efficiency targets of 3.0- and 4.8- MT CO_2e/SP/year, respectively. According to CEQA Guidelines § 15064.4(b), if there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, a full CEQA analysis must be prepared for the project. Therefore, an EIR must be prepared for the Project, and mitigation should be implemented where necessary, per CEQA Guidelines.

Feasible Mitigation Measures Available to Reduce Construction Emissions

In our April 21st comment letter, we identified several applicable mitigation measures in an effort to reduce the Project's air quality, health risk, and GHG impacts less-than-significant levels. Here, however, the Response fails to address these additional mitigation measures whatsoever. As discussed above, the Response is inadequate in addressing our comments regarding the Project's air quality, health risk, and GHG impacts. As such, the IS/MND's air quality, health risk, and GHG impact determinations should not be relied upon, and we reiterate the applicability of the mitigation measures proposed in our April 21st comment letter.

Disclaimer

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

[31] "Minutes for the GHG CEQA Significance Threshold Stakeholder Working Group #15." SCAQMD, September 2010, available at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf, p. 2.

Sincerely,

Matt Hagemann, P.G., C.Hg.

Paul E. Rosenfeld, Ph.D.

EXHIBIT D

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November 17, 2020

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Subject 3432 West Wilshire Boulevard
Mitigated Negative Declaration Noise Section
ENV-2016-3693-I

Rebecca:

Acentech offers this letter as an evaluation of the Noise Section of the Mitigated Negative Declaration Case Number ENV-2016-3693-MND

EXECUTIVE SUMMARY

There are serious deficiencies in the Noise Section of Mitigated Negative Declaration (MND) Case Number ENV-2016-3693-MND.

- The LA CEQA Thresholds Guide was not used to as criteria for Significant Impacts from the project to the surrounding Noise Sensitive Receptors.
- The construction sound levels referenced in the MND do not match the sound levels used in the Federal Highway Administration Roadway Construction Noise Model, which is referenced as the source in the MND.
- The MND references acoustical mitigation including noise barriers, mufflers and other best practices, but does not provide any specific details of how these will be implemented.
    - Mufflers are not a realistic mitigation option. The static pressure on diesel construction equipment to address air quality requirements of California generally exclude the ability to include mufflers on construction equipment.
    - Barriers are not a realistic mitigation option. As indicated in the MND, barriers are an ineffective mitigation measure if they do not block line of site to the noise source. Without having extremely tall barriers, sound barriers will not be effective for the evaluated Noise Sensitive Receptors.
        - Piccadilly Apartments is an 18-story building.
        - The apartments to the south of the project site are 3 to 8-story apartments.
- Noise measurements used to document the existing ambient environment do not comply with City document requirements.
    - The Noise Element of the City General Plan uses a 24-hour metric, Community Noise Equivalent Level (CNEL) to evaluate appropriate land uses.
    - The Noise Ordinance of the City Municipal Code defines ambient noise as noise averaged over a period of at least 15-minutes.
- Noise measurements used to evaluate the ambient noise levels do not accurately define all anticipated hours of construction activity. The MND indicates traffic is the controlling noise source and documents construction activity is anticipated to occur on Saturday, and as late as 9:00 PM. Traffic is anticipated to be significantly different under these conditions compared to 1:14 PM on a Tuesday, which was when the ambient noise levels were documented for the Piccadilly Apartments.

- Noise measurements at Piccadilly Apartments was done on the street. The ambient noise level for the windows facing the construction is off the street and blocked by street noise from buildings. Ambient noise measurements should be conducted at the back of the apartment complex, off the street where the ambient noise levels are quieter to accurately reflect the existing ambient noise environment.
- The construction noise evaluation does not account for accumulative noise of multiple pieces of equipment operating at the same time.
    - No anticipated schedule of operation or specific equipment and usage is identified in the MND.

DISCUSSION

Initial Study Screening Process

The Los Angeles CEQA Thresholds Guide (Thresholds Guide) has a screening process question that was not answered in the MND Noise Section.

XI.a): Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

This question is not addressed in the MND. A review of the zoning map shows this area is zoned as commercial. However, the Project indicates the building will include residences. Because of the change in land use, it is necessary to evaluate the existing ambient noise levels at the project site and make a determination if they are consistent with the goals of the Noise Element in the City of Los Angeles's General Plan. No evaluation has been provided to determine if the Project will result in exposure of noise to persons "in excess of standards established in the local general plan…" as required by the Thresholds Guide.

Criteria

The criteria documented in the Noise Section of the Mitigated Negative Declaration does not reference the Los Angeles CEQA Thresholds Guide (Thresholds Guide). The Thresholds Guide is intended to be used as "screening and significance criteria. The screening criteria provide assistance in responding to the questions in the State's Initial Study Checklist and, thus, determine the appropriate environmental document to prepare (e.g., negative declaration, mitigation negative declaration, or environmental impact report). The significance thresholds assist in determining whether a project's impacts would be presumed significant under normal circumstances and, therefore, require mitigation to be identified." Thus, the criteria identified in the Thresholds Guide should be used to evaluate Significant Impact to the Noise Sensitive Receptors.

The Thresholds Guide indicates "A project would normally have a significant impact on noise levels from construction if:

- Construction activities lasting more than one day would exceed existing ambient exterior noise levels by construction activities lasting more than one day would exceed existing ambient exterior noise levels by 10 dBA or more at a noise sensitive use;
- Construction activities lasting more than 10 days in a three-month period would exceed existing ambient exterior noise levels by 5 dBA or more at a noise sensitive use; or
- Construction activities would exceed the ambient noise level by 5 dBA at a noise sensitive use between the hours of 9:00 p.m. and 7:00 a.m. Monday through Friday, before 8:00 a.m. or after 6:00 p.m. on Saturday, or at any time on Sunday."

These criteria are not identified in the Mitigated Negative Declaration.

The Noise Element of the City of Los Angeles indicates in Chapter IV "Implementation", P16, the City intends to "Use as appropriate, the "Guidelines for Noise Compatible Land Use" (Exhibit I), or other measures that are acceptable to the city, to guide land use and zoning reclassification, subdivision, conditional use, and use variance determinations and environmental assessment considerations…"

No evaluation of the existing and future ambient noise levels and its impact on the proposed change in land use and the prosed Project has been provided.

Sound Measurements

The two metrics used for evaluating noise by the City of Los Angeles are CNEL, a 24-hour metric, and Leq, which evaluates "ambient noise" as defined in Section 111.01(a) "Ambient noise shall be averaged over a period of at least 15 minutes at a location and time of day comparable to that during which the measurement is taken of the particular noise source being measured."

Page B-188 indicates: "During all construction phases, noise-generating activities could occur at the Project Site between the hours of 7:00 AM and 9:00 PM Monday through Friday, in accordance with Section 41.40(a) of the LAMC. On Saturdays, construction would be permitted to occur between 8:00 AM and 6:00 PM.

The measurements reported in the MND are only taken during a weekday afternoon. The MND reports the Project will have construction on Saturdays and in the evening hours, until 9PM. These measurements are not sufficient to be considered "time of day comparable to that during which the measurement is taken of the particular noise source being measured." Noise measurements during Saturday, and the evening, when less traffic is anticipated should be conducted to appropriately evaluate impact to the Noise Sensitive Receptors.

The duration for measurement 2, Wilshire Boulevard is only 13 minutes. The minimum duration for a measurement to evaluate Ambient Noise levels is 15 minutes, as defined by Section 111.01(a) of the Municipal Code.

Construction Noise Evaluation

Page B-188 incorrectly indicates the City's threshold for Significant Impact for construction noise is 75 dBA. As indicated in the Criteria section of this report, the Thresholds Guide indicates construction activities over more than 1 day that increase the existing ambient noise level more than 10 dB, and construction activities that last more than 10 days in a three-month period that increase the ambient by 5 dBA or more at noise sensitive receptors are considered a Significant Impact.

Page B-188 indicates the Project will including "noise-reducing mufflers" on heavy equipment. California air quality laws exclude the ability to use mufflers on heavy construction equipment due to the static pressure introduced by the air quality restrictions. Implying mufflers will be used is misleading.

The barrier mitigation measure implied in the MND will not provide any acoustical attenuation to a number of the Noise Sensitive Receptors and is misleading. Page B-188 indicates "…temporary noise barriers would be erected between the Project Site and nearby residences located along 7th Street and Mariposa. No barrier height is identified. The residences across 7th street range from 3 to 8-story residences. No sightline study is identified to indicate the barrier will block line of site. A preliminary study indicates the barrier would need to be between 32' and 45' tall to block the line of site to the noise sensitive receptors to the south. Blocking the line of site to the noise source is necessary to have any acoustical attenuation from a sound barrier. Is a 45' tall sound wall on the southern side of the project a realistic mitigation measure?

Page B-188, Table B.13-4 "Construction Noise Levels" does not accurately reflect the noise levels identified in FHWA RCNM 1.1, which is referenced. In all cases it significantly understates the noise levels of the construction equipment. It also does not accurately reflect the construction equipment noise levels identified in Exhibit I1-1 "Noise Level Ranges of Typical Construction Equipment" included in the Thresholds Guide. A comparison of the construction equipment noise identified in the MND, and the levels reported in FHWA RCNM 1.1 and the Thresholds Guide is included below.

Table 1 Inconsistencies with Sound Levels Reported in MND

Noise Source	Noise Level at 50 feet (dBA, Lmax)		
	Reported in MND	Reported by FHWA	Reported by Thresholds Guide
Auger Drill Rig	74.4	84	
Backhoe	64.6	78	73-95
Crane	72.6	81	75-89
Dozer	68.7	82	
Drill Rig Truck	69.1	78	
Excavator	67.7	81	
Front-End Loader	66.1	79	73-86
Gradall (Back Hoe)	70.4	83	73-95
Grader	72.0	85	80-93
Scraper	70.6	84	80-93

The MND does not clearly define anticipated equipment, or anticipated schedules of the construction activities. All anticipated equipment needs to be documented in the noise analysis. Is the project not intended to use Generators, Impact equipment, Jackhammers, Concrete Mixers, etc?

There is no analysis of the construction noise provided. Is each piece of equipment intended to operate on its own, with no other equipment operating simultaneously?

Without specific anticipated construction equipment identified it is not possible to generate a noise model using FHWA's RCNM. The Thresholds Guide does provide a table identifying general Outdoor Construction Noise Levels, taken from EPA, "Noise from construction Equipment and Operations, Building Equipment and Home Appliances". This table is reiterated below for convince.

Table 2 – Thresholds Guide "Outdoor Construction Noise Levels; Exhibit I.1-2"

Construction Phase	Noise Level (dBA, Leq)	
	50 feet	50 feet with mufflers
Ground Clearing	84	82
Excavation, Grading	89	86
Foundations	78	77
Structural	85	83
Finishing	89	86

The MND does not clearly identify the anticipated duration of each construction activity. Considering the size of the project, Acentech assumes each construction phase will last longer than 10 days in a three-month period. Thus, the criteria limiting construction noise to 5 dBA above the ambient noise level applies to the construction limits. Assuming the general construction levels reported above, assuming mufflers (which are typically not possible due to California Air Quality requirements) the noise levels reported in Table 3 can be anticipated for each phase at each Noise Sensitive Receptor. These values are calculated using the based on the Thresholds Guide's instructions.

As can be seen a Significant Impact is triggered during construction for the Piccadilly Apartments, Mariposa Avenue Residences, and the 7th Street Residences.

As stated above, while a sound barrier will reduce noise levels to the Mariposa Avenue Residences because they are only two-story buildings. Sound barriers will not benefit all the Noise Sensitive Receptors at Piccadilly Apartments and the 7th Street Residences because of the heights of the buildings. Thus, a Significant Impact is triggered as a result of the Project.

Table 3 – General Construction Noise Calculations per Thresholds Guide

Construction Phase	Noise Level During Construction Phase at Noise Sensitive Receptor (using noise levels with mufflers) Leq (dBA)			
	Piccadilly Apartments	Oasis Church	Mariposa Avenue Residences	7th Street Residences
Noise Level Measured Tuesday Afternoon	68	71	62	62
Criteria Assuming Daytime Measurements are Accurate (Ambient + 5 dB per Thresholds Guide)	**73**	**76**	**67**	**67**
Ground Clearing	71	67	**75**	**75**
Excavation, Grading	**75**	71	**79**	**79**
Foundations	66	62	**70**	**70**
Structural	72	68	**76**	**76**
Finishing	**75**	71	**79**	**79**

Traffic noise evaluations were not done for Wilshire Boulevard, or Irolo street. Will there be no change in traffic due to the Project on these segments?

Incorrect Statements

Page B-180 states "The "A-weighted scale," abbreviated dBA, reflects the normal hearing sensitivity range of the human ear." This is not factual. Humans react to frequency range differently depending on the amplitude. Harvey Fletcher and Wilden A. Munson documented "Loudness Curves" in their 1933 paper "Loudness, it's definition, measurement, and calculation". The A-weighting is appropriate to use when noise levels are quieter, around the 40-phon Fletcher-Munson curve. As the noise levels become louder, B, and C weightings more accurately reflect normal hearing sensitivity.

Page B-181 states "Noise generated by mobile sources decrease by approximately 3 dBA over hard surfaces and 4.5 dBA over soft surfaces for each doubling of distance." This statement is incorrect. It appears to be discussing a line source, such as freeway traffic, compared to a point source, such as a speaker. A mobile speaker does not attenuate at 3 dB per doubling of distance.

Page B-190 states "The City's noise ordinance would provide a means to address nuisances related to residential noises, including LAMC Section 112.01, which governs noise from amplified noises." The NMD includes "human conversation and activities" in their evaluation of "residential land uses". Human conversation is not limited in the City of Los Angeles Noise Ordinance.

Page B-184 states "…the Noise Element contains no quantitative or other thresholds of significance for evaluating a proposed project's noise impacts. Instead it adopts the State's guidance on noise and land use compatibility." These two statements are conflicting. By adopting the State's guidance, the City of Los Angeles has adopted a quantitative threshold of significance for evaluating the project's noise impacts. The Noise Element also requires the proposed project evaluate its appropriateness based on the existing and future ambient noise levels at the project. The MND does not include this evaluation.

CONCLUSION

There are serious deficiencies in the noise section of the MND developed for the proposed project at 3432 West Wilshire Boulevard, Los Angeles CA. Insufficient sound measurements have been conducted to

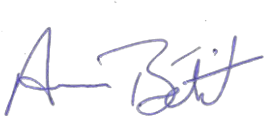
accurately evaluate the ambient noise level at the project site, a construction noise analysis was not developed, the LA CEQA Thresholds Guide was not used to evaluate construction noise impact, and unrealistic mitigation measures are proposed, with no anticipated benefit to these measures being included in the analysis.

Without a detailed construction schedule, it is not possible to perform a project specific analysis of the anticipated construction noise impacts. Performing a general analysis as prescribed by the Thresholds Guide shows impacts are to be anticipated at three of the four evaluated Noise Sensitive Receptors. Without additional information, it is necessary to conclude these impacts are Significant and unmitigable.

This summarizes our evaluation of the noise section of the MND. Please feel free to call with any questions.

If you have any questions, please do not hesitate to contact us.

Sincerely,
ACENTECH



Aaron Bétit
Principal

ACENTECH
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Aaron Bétit

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EDUCATION

BS, Engineering with an emphasis in Acoustics and Music, University of Hartford, 1997

PROFESSIONAL POSITIONS

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Veneklasen Associates, 1998-2011
Shen Milson & Wilke, Inc., 1997-1998

EXPERIENCE AND RESPONSIBILITIES

Aaron Bétit's consulting experience encompasses project management and acoustical recommendations for a variety of projects including theaters, studios, education facilities, performance spaces, as well as healthcare, commercial, public, and residential construction. His acoustical experience includes consulting during ground-up design as well as providing diagnostic advice for existing facilities and structures with acoustical complications. His environmental noise expertise includes acoustical design and computer modeling of power plants, roadways, warning sirens, and water treatment plants.

PUBLICATIONS

- "Performance Details of Metal Stud Partitions". Sound and Vibration. March 2010
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REPRESENTATIVE CONSULTING PROJECTS

- Amphitheater Impact Analysis, San Diego, CA
- Fox Sound Stage, Century City, CA
- Hollywood Bowl Event Noise Monitoring, Los Angeles, CA
- LPA Architecture, Rooftop Noise Evaluation, San Antonio, TX
- MTA Los Angeles Regional Connector Construction Noise Monitoring, Los Angeles, CA
- NBC Universal Vision Plan, Universal City, CA
- Southern California Edison Substation Uprgrade Noise Technical Reports: Colton, Hesperia, Santa Monica, Malibu, Mira Loma, Jefferson, Romoland, Long Beach, Hemet, Rancho Mirage, Universal City, CA
- South Bentley Avenue, Impact Sound Rating Analysis, Los Angeles, CA
- Southern California Edison Peaker Unit Noise Technical Report, five locations in CA
- Universal Metro Station, Universal City, CA
- Universal Studios Theme Park, Event Noise Analysis, Universal City, CA
- University of Riverside, MRB1 Peer Review Vibration Evaluation, Riverside, CA
- Ventura County Hospital, Noise and Vibration Peer Review, Ventura, CA
- Whitney Peak Hotel, Noise Impact Analysis, Reno, NV

EXHIBIT E

Indoor Air Quality in New California Homes with Mechanical Ventilation

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SUMMARY
The Healthy Efficient New Gas Homes (HENGH) study measured indoor air quality and mechanical ventilation use in 70 new California homes. This paper summarizes preliminary results collected from 42 homes. In addition to measurements of formaldehyde, nitrogen dioxide (NO_2), and $PM_{2.5}$ that are discussed here, HENGH also monitored other indoor environmental parameters (e.g., CO_2) and indoor activities (e.g., cooking, fan use) using sensors and occupant logs. Each home was monitored for one week. Diagnostic tests were performed to characterize building envelope and duct leakage, and mechanical system airflow. Comparisons of indoor formaldehyde, NO_2, and $PM_{2.5}$ with a prior California New Home Study (CNHS) (Offermann, 2009) suggest that contaminant levels are lower than measured from about 10 years ago. The role of mechanical ventilation on indoor contaminant levels will be evaluated.

KEYWORDS
Formaldehyde; nitrogen dioxide; particles; home performance; field study

1 INTRODUCTION

The HENGH field study (2016–2018) aimed to measure indoor air quality in 70 new California homes that have mechanical ventilation. Eligible houses were built in 2011 or later; had an operable whole-dwelling mechanical ventilation system; used natural gas for space heating, water heating, and/or cooking; and had no smoking in the home. Study participants were asked to rely on mechanical ventilation and avoid window use during the one-week monitoring period. All homes had a venting kitchen range hood or over the range microwave and bathroom exhaust fans. This paper presents summary results of formaldehyde, NO_2, and $PM_{2.5}$ measurements in 42 homes. The full dataset is expected to be available in summer 2018.

2 METHODS

Integrated one-week concentrations of formaldehyde and NO_x were measured using SKC UMEx-100 and Ogawa passive samplers. Formaldehyde samplers were deployed in the main living space, master bedroom, and outdoors. $PM_{2.5}$ were measured using a pair of photometers (ES-642/BT-645, MetOne Instruments) indoor in the main living space and outdoors. $PM_{2.5}$ filter samples were collected using a co-located pDR-1500 (ThermoFisher) in a subset of the homes and time-resolved photometer data were adjusted using the gravimetric measurements. Results are compared with a prior field study CNHS (2007–2008) (Offermann, 2009) that monitored for contaminant concentrations over a 24-hour period in 108 homes built between 2002 and 2004, including a subset of 26 homes with whole-dwelling mechanical ventilation.

3 RESULTS

Figure 1 compares the indoor concentrations of formaldehyde, NO_2, and $PM_{2.5}$ measured by the two studies. Results of HENGH are one-week averaged concentrations, whereas CHNS are 24-hour averages. HENGH measured lower indoor concentrations of formaldehyde and $PM_{2.5}$, compared to CNHS. For NO_2, the indoor concentrations measured by the two studies

are similar. Summary statistics of indoor and outdoor contaminant concentrations (mean and median concentrations; N=number of homes with available data) are presented in Table 1.

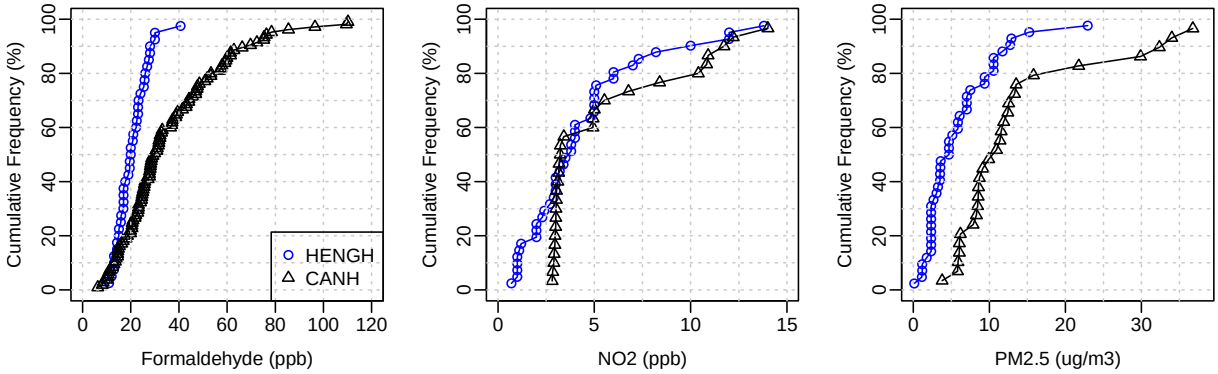


Figure 1. Comparisons of indoor contaminant concentrations measured by two studies.

Table 1. Summary statistics of indoor and outdoor contaminant concentrations.

	HENGH - Indoor			CNHS - Indoor			HENGH - Outdoor			CNHS - Outdoor		
	N	Median	Mean	N	Median	Mean	N	Median	Mean	N	Median	Mean
Formaldehyde (ppb)	39	20.0	20.6	104	29.5	36.3	38	2.0	2.0	43	1.8	2.8
NO_2 (ppb)	40	3.7	4.4	29	3.2	5.4	40	3.0	3.1	11	3.1	3.5
$PM_{2.5}$ (ug/m^3)	41	4.7	5.8	28	10.4	13.3	42	5.9	7.7	11	8.7	7.9

4 DISCUSSION

The lower formaldehyde concentrations measured by HENGH in comparison to CNHS may be attributable to California's regulation to limit formaldehyde emissions from composite wood products that came into effect between the two studies. Gas cooking is a significant source of indoor NO_2 (Mullen et al., 2016). Even though NO_2 concentrations measured by HENGH are similar to levels found in CNHS, the two studies differed in that HENGH homes all use gas for cooking, whereas almost all homes (98%) from the prior study used electric ranges. More analysis is needed to determine the effectiveness of source control, such as range hood use during cooking, on indoor concentrations of cooking emissions such as NO_2 and $PM_{2.5}$. Lower $PM_{2.5}$ indoors measured by HENGH compared to CNHS may be explained from a combination of lower outdoor $PM_{2.5}$ levels, reduced particle penetration due to tighter building envelopes (Stephens and Siegel, 2012) combined with exhaust ventilation, and use of medium efficiency air filter (MERV 11 or better) in some HENGH homes. Further analysis of the data will evaluate the role of mechanical ventilation, including local exhaust and whole-dwelling ventilation system, on measured indoor contaminant levels.

5 CONCLUSIONS

New California homes now have lower indoor formaldehyde levels than previously measured, likely as a result of California's formaldehyde emission standards. Indoor concentrations of NO_2 and $PM_{2.5}$ measured are also low compared to a prior study of new homes in California.

ACKNOWLEDGEMENT

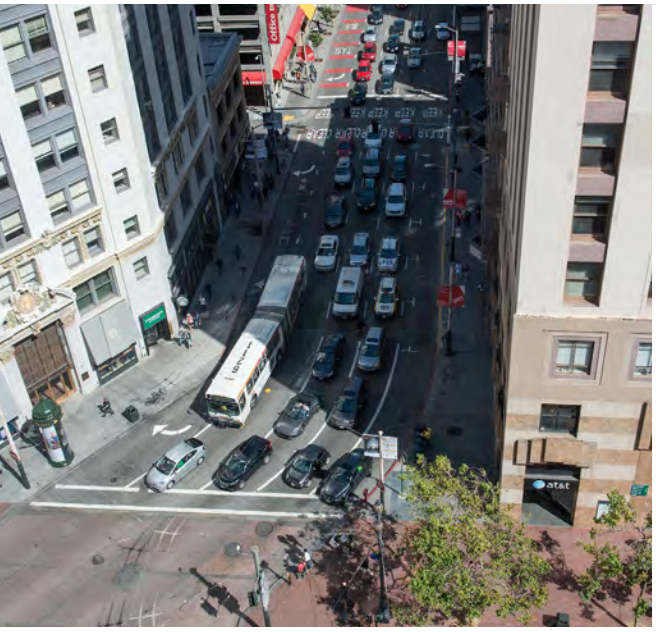
LBNL work on the project was supported by the California Energy Commission. Field data collection was performed by the Gas Technology Institute. Support for field teams was provided by Pacific Gas & Electric and the Southern California Gas Company.

6 REFERENCES

Mullen NA et al. 2016 *Indoor Air* 26(2):231–245.

Offermann FJ. 2009. California Air Resource Board and California Energy Commission Report CEC-500-2009-085.
Stephens B, Siegel JA. 2012 *Indoor Air* 22(6):501–513.

EXHIBIT F



SAN FRANCISCO COUNTY TRANSPORTATION AUTHORITY

TNCs & Congestion

FINAL REPORT I OCTOBER 2018

CONTENTS

ACKNOWLEDGEMENTS

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PHOTO CREDITS

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Executive Summary

Congestion in San Francisco worsened between 2010 and 2016. The Transportation Authority's Congestion Management Program monitoring indicates that average AM peak arterial travel speeds decreased since 2009 by -26%, while PM peak arterial speeds have decreased by -27% during this same time period. Vehicle hours of delay on the major roadways increased by 40,000 hours on a typical weekday, while vehicle miles travelled on major roadways increased by over 630,000 miles on a typical weekday.

During this period significant changes occurred in San Francisco. Roadway and transit networks changed, including the implementation of transit red carpet lanes, the expansion of the bicycle network, and the opening of the Presidio Parkway (rebuilt Doyle Drive). San Francisco added 70,000 new residents and over 150,000 new jobs, and these new residents and workers added more trips to the City's transportation network. Finally, new mobility alternatives emerged, most visibly TNCs.

In recent years, the vehicles of transportation network companies (TNCs) such as Uber and Lyft have become ubiquitous in San Francisco and many other major cities. Worldwide, the total number of rides on Uber and Lyft grew from an estimated 190 million in 2014 to over 2 billion by mid-2016 (1). In San Francisco, this agency (the San Francisco County Transportation Authority or SFCTA) estimated approximately 62 million TNC trips in late 2016, comprising about 15% of all intra-San Francisco vehicle trips and 9% of all intra-San Francisco person trips that fall (2).

The rapid growth of TNCs is attributable to the numerous advantages and conveniences that TNCs provide over other modes of transportation, including point-to-point service, ease of reserving rides, shorter wait times, lower fares (relative to taxis), ease of payment, and real-time communication with drivers. The availability of this new travel alternative provides improved mobility for some San Francisco residents, workers and visitors, who make over one million TNC trips in San Francisco every week, though these TNC trips may conflict with other City goals and policies.

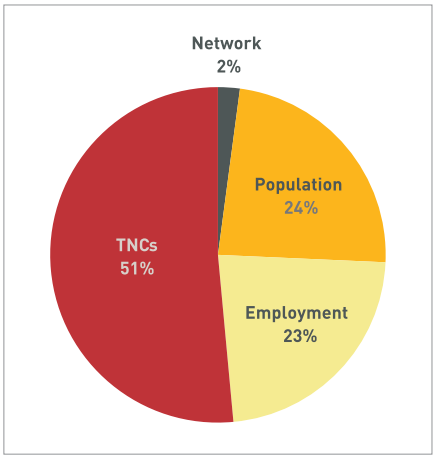
The purpose of this report is to identify the extent to which TNCs contributed to increased roadway congestion in San Francisco between 2010 and 2016, relative to other potential contributing factors including employment growth, population growth, and changes to the transportation system. This information is needed to help the Transportation Authority fulfill our role as the county Congestion Management Agency and inform our policy and planning work. As the Congestion Management Agency for San Francisco, the Transportation Authority is required by state law to monitor congestion and adopt plans for mitigating traffic congestion that falls below certain

thresholds. The report is also intended to inform the Transportation Authority board which is comprised of the members of the San Francisco Board of Supervisors, as well as other state and local policy-makers, and the general public, on the relationship between TNCs and congestion in San Francisco.

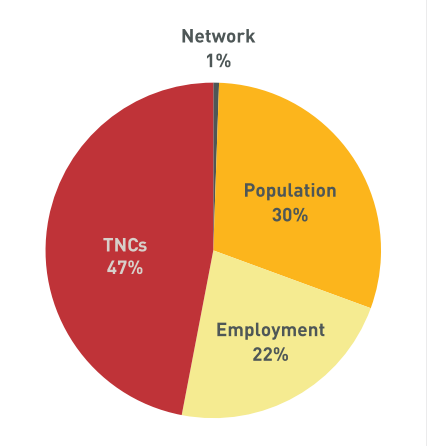
This document:

- Identifies common measures of roadway congestion;
- Discusses factors that contribute to roadway to congestion; and
- Quantifies the relative contributions of different factors, including population, employment, road network changes and TNCs, to observed changes in congestion in San Francisco between 2010 and 2016, by location and time of day.

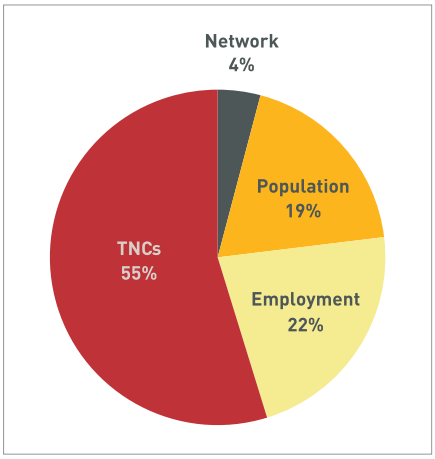
The report utilizes a unique TNC trip dataset provided to the Transportation Authority by researchers from Northeastern University in late 2016, as well as INRIX data, a commercial dataset which combines several real-time GPS monitoring sources with data from highway performance monitoring systems. These data are augmented with information on network changes, population changes, and employment changes provided by local and regional planning agencies, which are used as input to the Transportation Authority's activity-based regional travel demand model SF-CHAMP.



SHARE OF CHANGE IN DELAY BY FACTOR



SHARE OF CHANGE IN VMT BY FACTOR



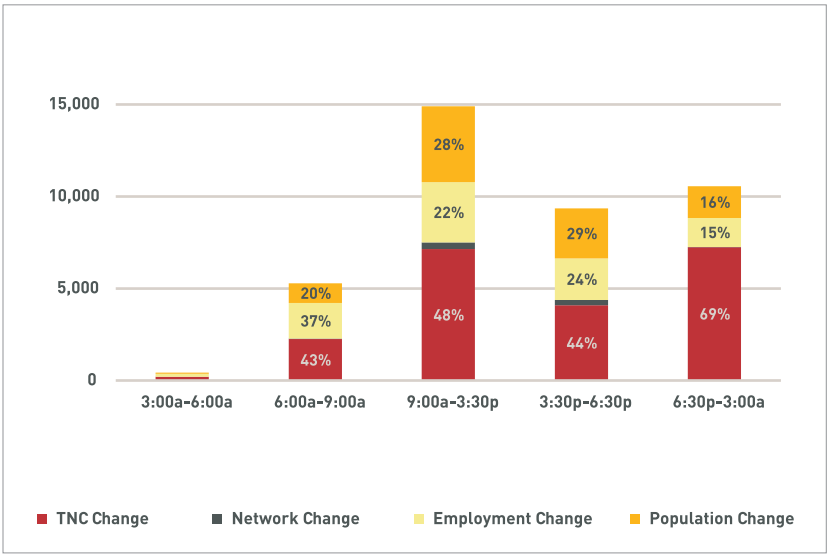
SHARE OF CHANGE IN SPEED BY FACTOR

DO TNCs AFFECT CONGESTION?

Yes. When compared to employment and population growth and network capacity shifts (such as for a bus or bicycle lane), TNCs accounted for approximately 50% of the change in congestion in San Francisco between 2010 and 2016, as indicated by three congestion measures: vehicle hours of delay, vehicle miles travelled, and average speeds. Employment and population growth—encompassing citywide non-TNC driving activity by residents, local and regional workers, and visitors—are primarily responsible for the remainder of the change in congestion.

- Daily vehicle hours of delay (VHD) on the roadways studied increased by about 40,000 hours during the study period. We estimate TNCs account for 51% of this increase in delay, and for about 25% of the total delay on San Francisco roadways and about 36% of total delay in the downtown core in 2016, with employment and population growth accounting for most of the balance of the increased in delay.
- Daily vehicle miles travelled (VMT) on study roadways increased by over 630,000 miles. We estimate TNCs account for 47% of this increase in VMT, and for about 5% of total VMT on study roadways in 2016.
- Average speeds on study roadways declined by about 3.1 miles per hour. We estimate TNCs account for 55% of this decline.

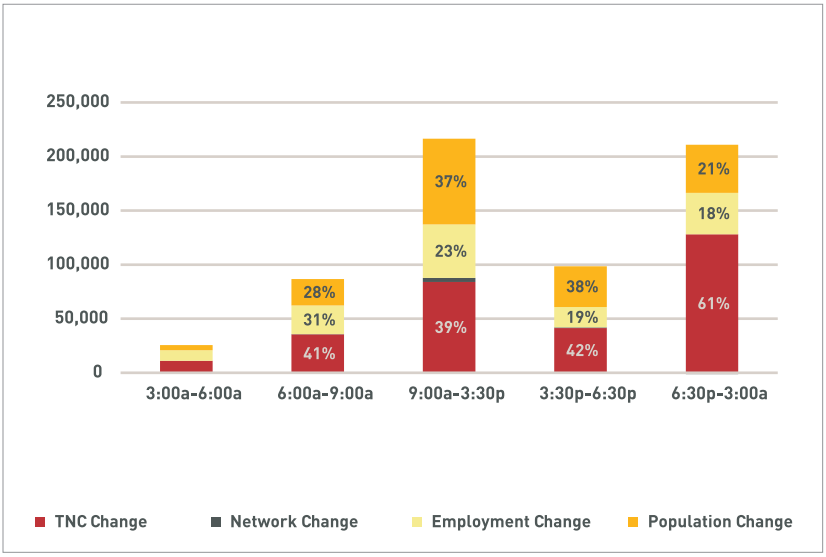
FIGURE 1. CHANGE IN VEHICLE HOURS OF DELAY BY TIME PERIOD BY FACTOR



WHEN DO TNCS AFFECT CONGESTION?

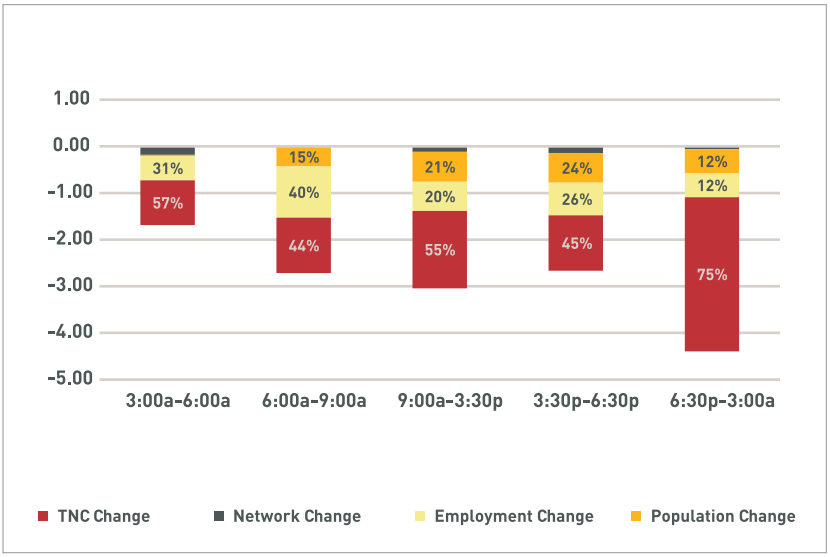
During the AM peak, midday, and PM peak periods, TNCs cause between 43% and 48% of the increased delay and account for about 20% of total delay during these time periods. Employment growth and population growth combined account for just over half of the increased delay. In the evening time period, TNCs are responsible for 69% of the increased delay, and for about 40% of the total delay.

FIGURE 2. CHANGE IN VEHICLE MILES TRAVELED BY TIME PERIOD BY FACTOR



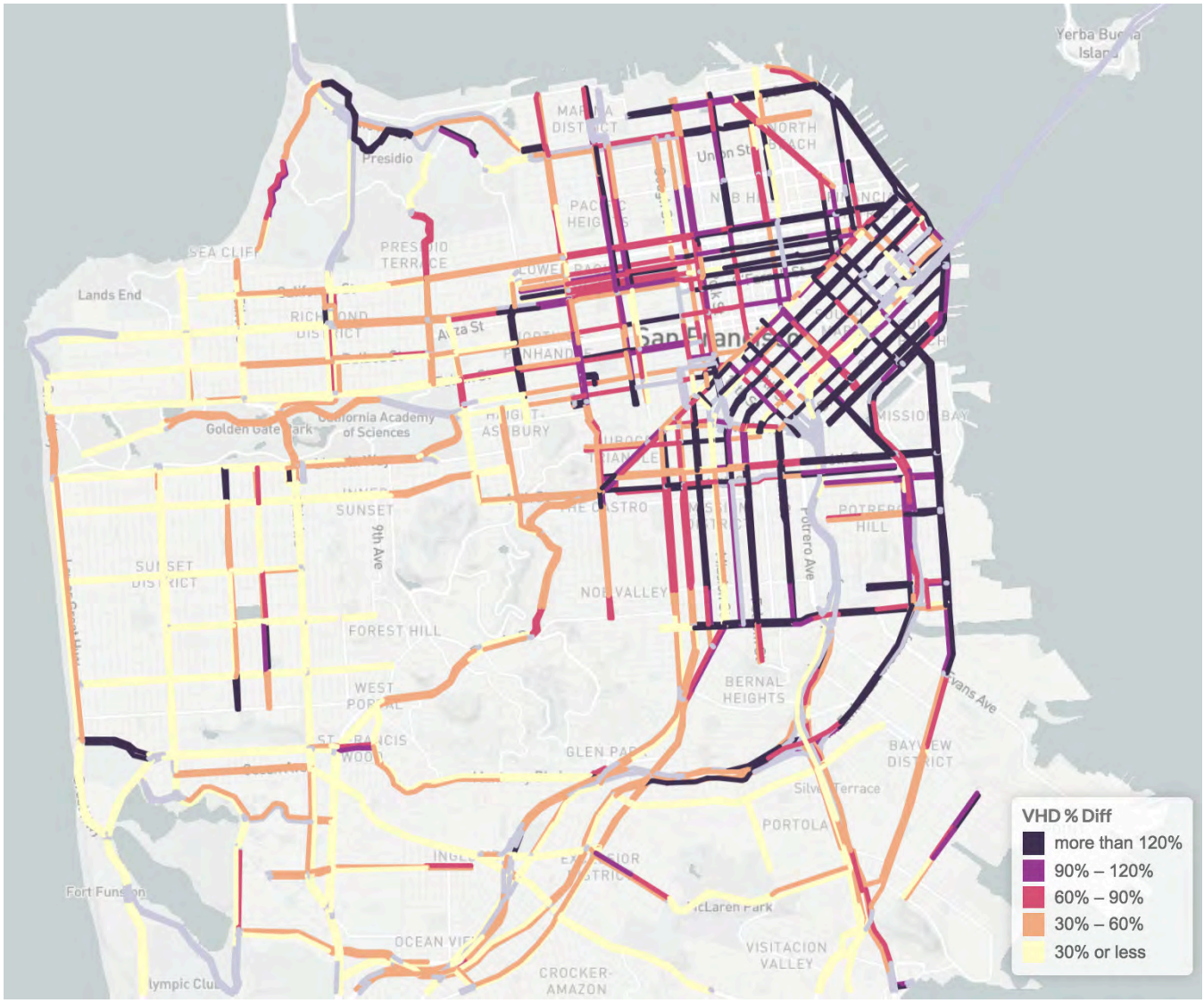
Similarly, during the AM peak, midday, and PM peak periods, TNCs cause about 40% of the increased vehicle miles travelled, while employment and population growth combined are responsible for about 60% of the increased VMT. However, in the evening time period, TNCs are responsible for over 61% of the increased VMT and for about 9% of total VMT.

FIGURE 3. CHANGE IN SPEED (MILES PER HOUR) BY TIME PERIOD BY FACTOR



TNCs are responsible for about 45%-55% of the decline in average speed during most times of day, and are responsible for 75% of the declines in speed during the evening time period.

FIGURE 4. % CHANGE IN VEHICLE HOURS OF DELAY



WHERE DO TNCS AFFECT CONGESTION?

TNCs increase congestion throughout the city, but their effects are concentrated in the densest parts of the city, and along many of the city's busiest corridors, as shown in **Figure 4**. In Supervisorial District 6, TNCs add almost 6,000 daily hours of delay, accounting for about 45% of the increased delay, and 30% of total weekday delay. In District 3, TNCs add almost 5,000 daily hours of delay, accounting for almost 75% of the increased delay and about 50% of total delay. TNCs are responsible for approximately 40%-60% of increases in VMT in many areas of the city. District 6 and District 10 have experienced the greatest increases in VMT between 2010 and 2016, and TNCs account for 41% and 32% of the increases in these districts, respectively.

FIGURE 5. CHANGE IN VEHICLE HOURS OF DELAY BY SUPERVISOR DISTRICT BY FACTOR

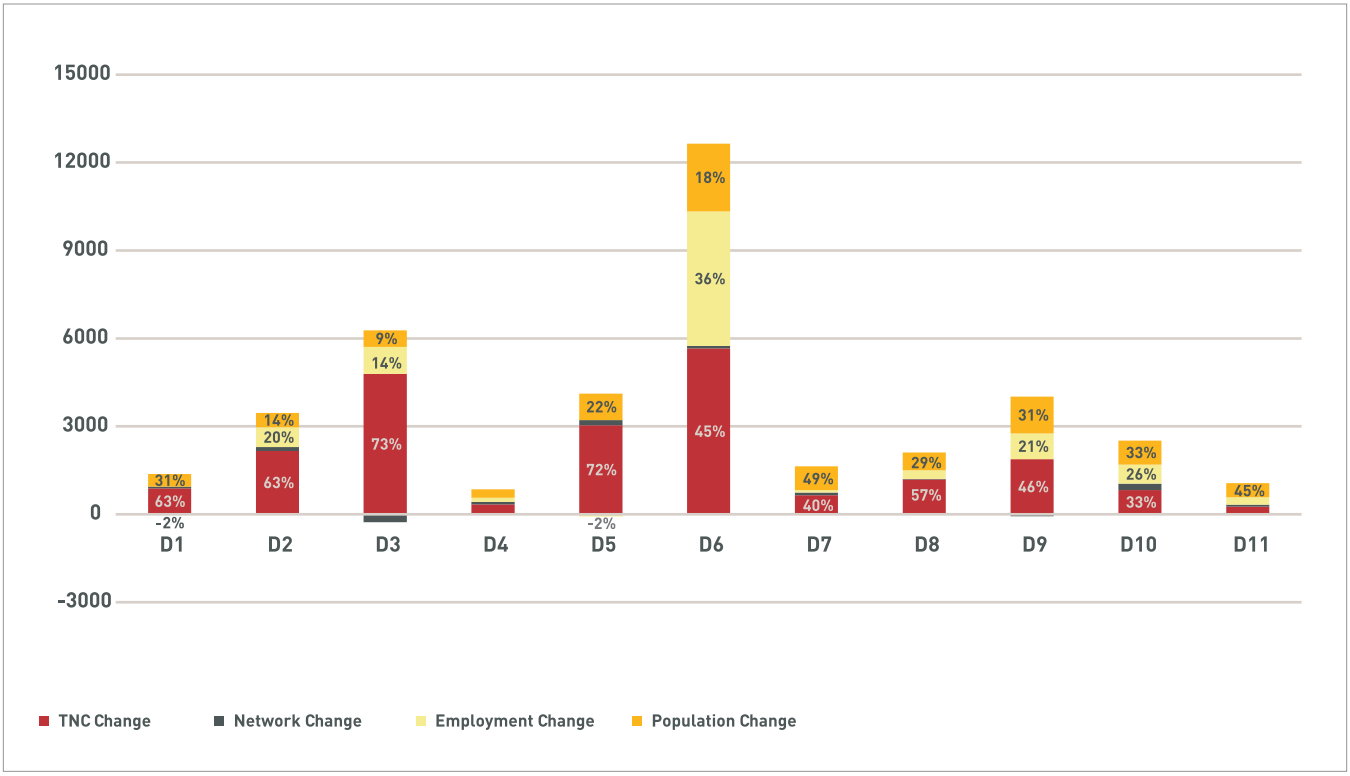
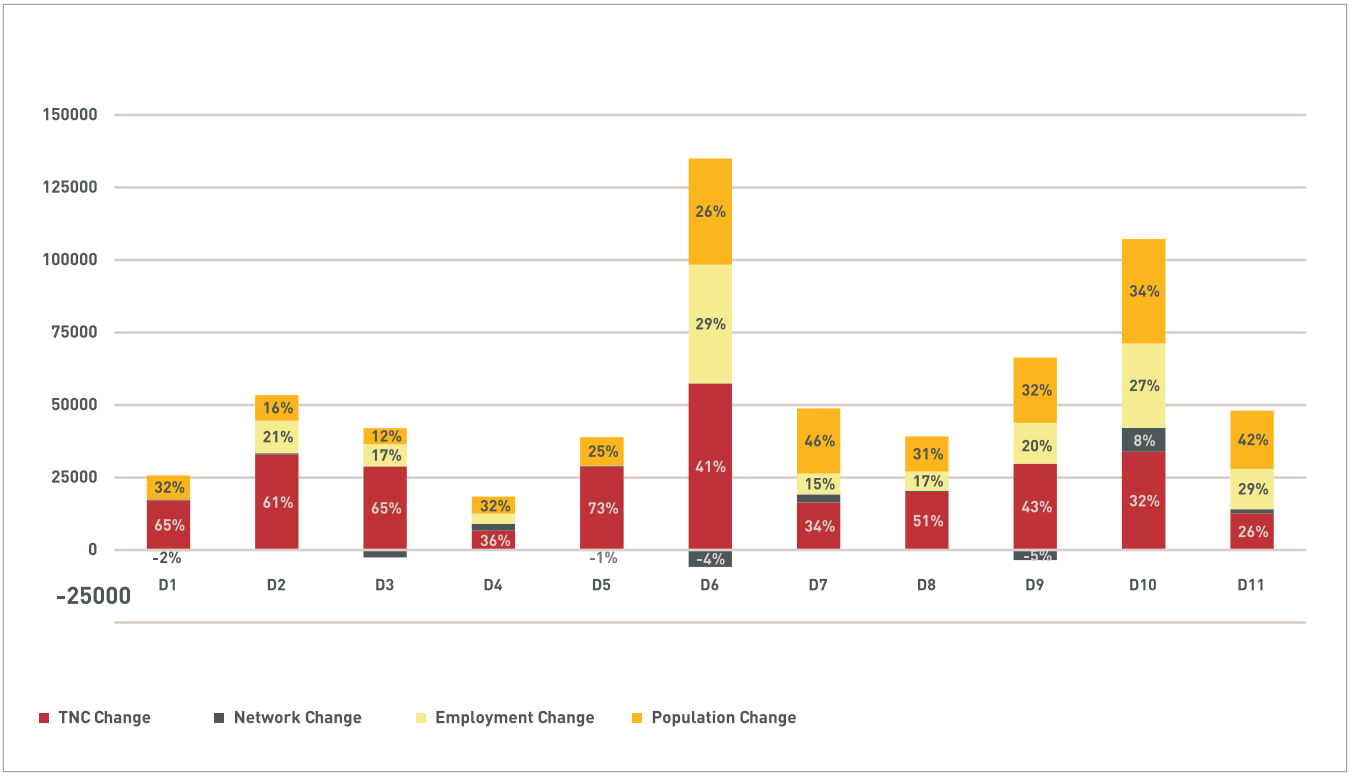
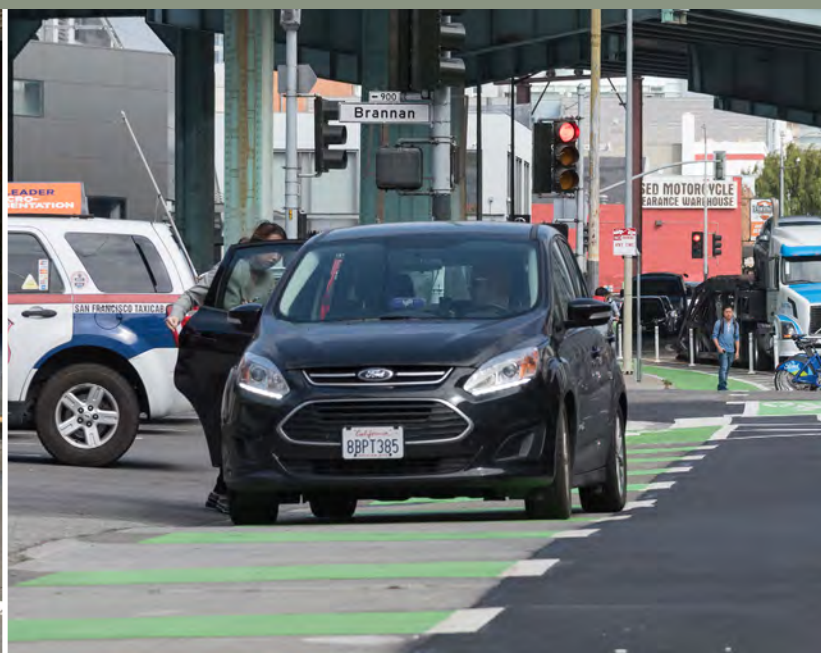


FIGURE 6. CHANGE IN VEHICLE MILES TRAVELED BY SUPERVISOR DISTRICT BY FACTOR





Introduction

In recent years, the vehicles of transportation network companies (TNCs) such as Uber and Lyft have become ubiquitous in San Francisco and many other cities. TNCs are charter party carriers as defined by the California Public Utilities Commission that provide transportation services, facilitated by smartphone apps that allow people to request and pay for rides sourced from a pool of available drivers. It is estimated that the worldwide total number of rides on Uber and Lyft grew from 190 million in 2014 to over 2 billion by mid-2016 (1). In San Francisco, TNC trips were estimated to comprise about 15% of all intra-San Francisco vehicle trips and 9% of all intra-San Francisco person trips in 2016, as documented in the San Francisco County Transportation Authority's 2017 report "TNCs Today."(2)

The rapid growth of TNCs is attributable to the numerous advantages and conveniences that TNCs provide over other modes of transportation, including point-to-point services, ease of reserving rides, shorter wait times, lower fares, ease of payment, and real-time communication with drivers. Some of these advantages are the product of the technical innovations such as directly connecting travelers and drivers, and using the location-enabled features of smartphones. Other advantages derive from the relatively light regulatory requirements under which TNCs operate compared to taxis and other for-hire vehicles. Unlike the taxi fleet, which is capped by the number of taxi medallions, there is no limit to the number of TNCs that can operate in the city, and TNCs are not subject to price controls, geographic service area requirements, disabled access obligations, vehicle emissions requirements, or other taxi requirements. The availability of this new travel alternative provides improved mobility for some San Francisco residents, workers and visitors, who make over one million TNC trips in San Francisco every week. These TNC trips may also contribute to increased congestion.

In last year's "TNCs Today" report, the Transportation Authority provided information about the number, timing, and location of intra-San Francisco TNC trips. The report also included estimates of the number of TNC drivers and vehicles on the road and reported important measures such as the number of vehicle miles travelled (VMT) generated by TNCs. However, the TNCs Today report did not address the implications of these trips on transportation network performance, such as roadway congestion. If all TNC trips simply replace private vehicle trips, then TNC trips may have a limited impact on roadway congestion. But if TNC trips replace walk, bike, and transit trips, or if they induce entirely new vehicle trips, TNC trips may have a more significant effect on congestion. In addition, the timing and location of TNC trips is important. TNC trips that occur during peak periods in the densest parts of the city likely have a greater effect on congestion than TNC trips that occur during off peak periods in less dense areas.

Purpose

The purpose of this report is to identify how TNCs have affected roadway congestion in San Francisco between 2010 and 2016. This information is needed to help the San Francisco County Transportation Authority fulfill its role as the Congestion Management Agency for San Francisco County. As the Congestion Management Agency, the Transportation Authority is required by state law to monitor congestion and adopt plans for mitigating traffic congestion that falls below certain thresholds. The report is also intended to inform the Transportation Authority board which is comprised of the members of the San Francisco Board of Supervisors, as well as other state and local policy-makers, the general public, and TNCs themselves on the relationship between TNCs and congestion in San Francisco.

This document:

- **Identifies common measures of roadway congestion;**
- **Discusses factors that contribute roadway congestion; and**
- **Quantifies the relative contributions of different factors, including population, employment, road network changes, and TNCs, to observed changes in congestion in San Francisco between 2010 and 2016, by location and time of day.**

This report shows how congestion has changed in San Francisco between 2010 and 2016 using well-established metrics such as vehicle hours of delay (VHD), vehicle miles travelled (VMT), and average speeds. It also estimates how much different factors, including TNCs, employment growth, population growth, and changes to the transportation system such as the addition of bike lanes and transit red carpet lanes, contribute to these changes in congestion.

The data used to develop this report comes from several sources. Changes in measures of congestion are based on INRIX data, a commercial dataset which combines several real-time GPS monitoring sources with data from highway performance monitoring systems. TNC information is based on the profile of local TNC usage in San Francisco documented in the TNCs Today report. The original TNC data was gathered by researchers at Northeastern University from the Application Programming Interfaces (APIs) of Uber and Lyft, and subsequently processed into imputed in-service and out-of-service trips by Transportation Authority staff. Changes in population, employment and network configurations are based on detailed information developed by the San Francisco Planning Department, Metropolitan Transportation Commission, and the San Francisco Municipal Transportation Agency (SFMTA).

Panel regression models, which are statistical models used to evaluate changes over time, were used to estimate the relationship between TNCs and congestion. Travel demand models, which simulate travel based on observed behavior, provide the ability to control for changes in population, employment, network capacities and other factors independently, and network supply models which estimate changes in speeds based on network capacities and demand, were used to control for changes in population, employment, network capacities and other factors independently. Panel regression models, travel demand models, and network supply models are well established in practice.

The report builds upon the TNCs Today report by answering the question of whether TNCs contribute to congestion in San Francisco, and by how much relative to other factors. However, it does not address other key questions, such as the effects of TNCs on safety, transit ridership, or other potential longer-term effects such as changes in vehicle ownership or residential and employment location. Subsequent reports by the Transportation Authority and the SFMTA will seek to address these important analytic and policy questions in depth and will be complemented through the larger Emerging Mobility Services and Technology (EMST) policy framework. The development of the countywide plan (the San Francisco Transportation Plan) within the ConnectSF long-range planning program, being undertaken by the Transportation Authority in coordination with other City agencies, will also make use of this report's findings. This report is research-oriented and does not include policy recommendations, but rather seeks to provide knowledge needed by the Transportation Authority board, other policy-makers, and the general public to make informed decisions.

How Do We Measure Congestion?

Congestion means different things to different people. Some people may perceive congestion based on travel speeds, while others may consider travel time delays or vehicle miles traveled as a more meaningful indicators of congestion. This report uses three common measures of roadway congestion:

VEHICLE HOURS OF DELAY

Vehicle Hours of Delay (VHD) is a measure of the overall amount of excess time vehicles spend in congestion. It is the difference between congested travel time and freeflow travel time on a given link, weighted by the number of vehicle trips on that link. For example, if during a given time period the congested travel time on a link is 1 minute greater than the freeflow time on that link, and 60 vehicles traverse that link during this time period, it will result in one hour of VHD (1 minute of delay per vehicle * 60 vehicles = 60 minutes of delay).

VEHICLE MILES TRAVELLED

Vehicle Miles Traveled (VMT) is a measure of the overall amount of motor vehicle travel, as measured in distance, that occurs on the network. It is the length of network links, weighted by the number of vehicle trips on these links. VMT is a key metric used in San Francisco, the Bay Area region (via Plan Bay Area) and the state, to evaluate transportation system performance. San Francisco additionally utilizes VMT to evaluate environmental impacts of land development projects.

SPEED

Speed is simply the average speed of vehicles on a given link during a given time period.

What Factors Affect Congestion San Francisco?

POPULATION AND EMPLOYMENT

Population and employment changes can directly affect roadway congestion. Increases in population will lead to increases in trip-making as people seek to participate in activities such as working, shopping, and going to school. Depending on travelers' choices of travel modes (such as walking, biking, taking transit, or driving), roadway motor vehicle congestion may be affected. Between 2010 and 2016, the population of San Francisco increased 8.8% from approximately 805,000 people to 876,000 (3). While about half of San Francisco trips are by walking, transit, and biking, a significant share of trips involve private vehicles, likely leading to increased congestion. Similarly, increases in employment lead to total travel as more people go to work. Between 2010 and 2016, employment in San Francisco increased significantly (28.4%) from approximately 545,000 jobs to over 700,000 jobs (4). According to the Census, approximately 48% of commute trips to, from or within San Francisco were by automobile.

NETWORK CAPACITY

Changes to network capacities affect roadway congestion. Increases in roadway capacity may alleviate motor vehicle congestion, at least in the short term, while decreases in roadway capacity may increase congestion. The analyses in this paper capture capacity changes between 2010 and 2016 and therefore encompass network capacity changes such as the rebuilding of Doyle Drive and medium-term changes such as the reallocation of right-of-way to transit red carpet lanes and bicycle lanes. To a more limited extent, the analyses could reflect short-term changes in capacity, for example the effect on congestion of construction-related, permitted lane closures that may temporarily reduce capacity for a number of days or hours. However, there is no data on unpermitted short-term capacity reductions associated with construction, delivery or other activities, and thus they are not considered in this analysis. In addition to roadway network changes, changes to transit network capacities may influence roadway congestion by inducing people to shift modes or take new trips, and are included in this analysis.

TNCS

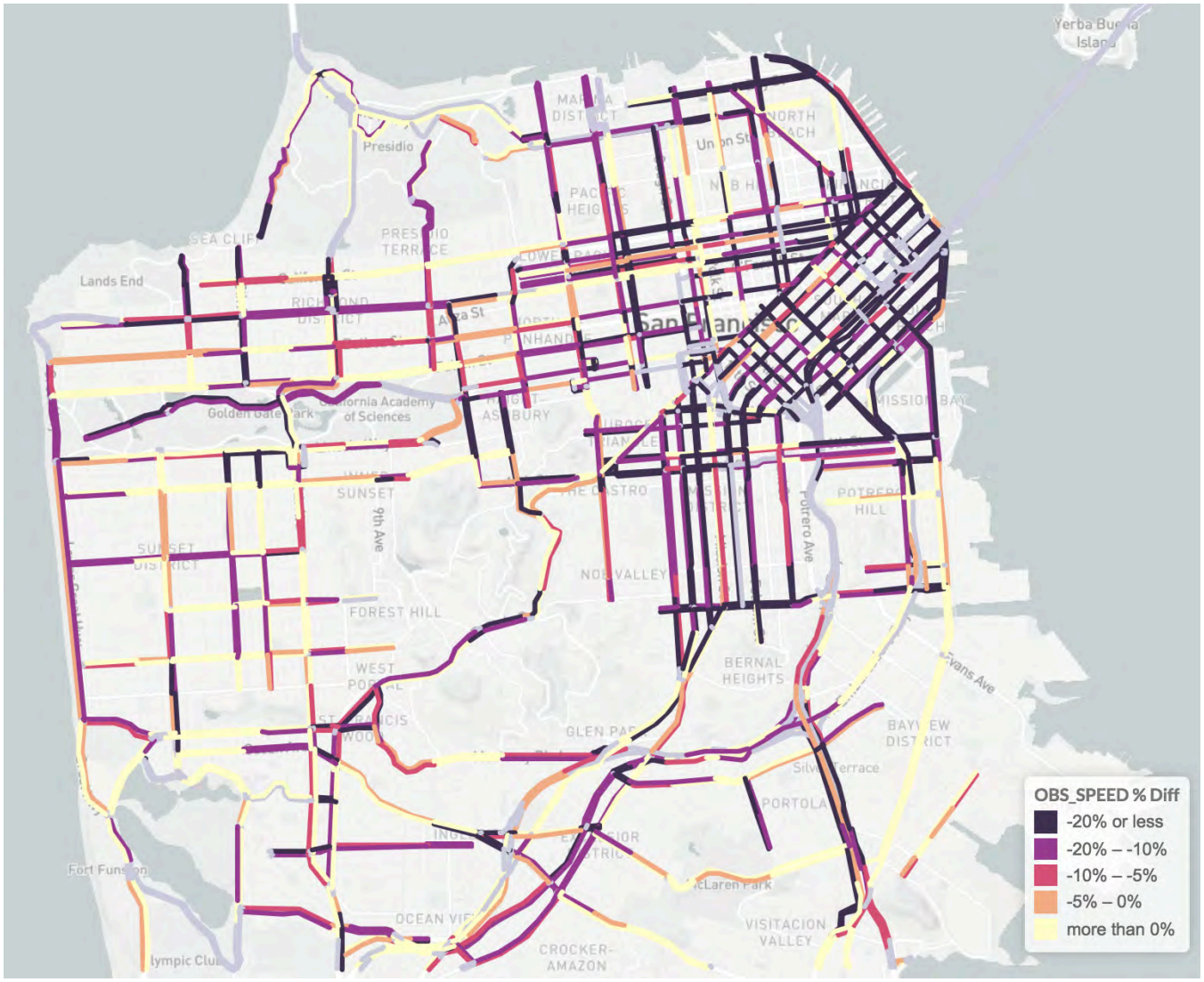
As the TNCs Today report documents, TNCs comprise a significant share of intra-San Francisco travel. TNCs may decrease congestion by inducing mode shifts to more sustainable modes by providing first- and last-mile connections to transit services, or by reducing auto ownership levels and thus incentivizing people to make more transit, bike and walk trips. In addition, higher TNC

vehicle passenger occupancies resulting from "ridesplitting" where TNCs are shared concurrently could, in theory, reduce the number of vehicles trips if they are replacing a trip that would otherwise be in a vehicle with fewer occupants. Conversely, TNCs may increase congestion if their convenience causes a walk, transit, or bike trip to shift to a TNC vehicle trip. According to recent studies, between 43% and 61% of TNC trips substitute for transit, walk, or bike travel or would not have been made at all (5,6,7,8). TNC passenger pick up and drop off activity may also result in increased congestion by disturbing the flow in curb lanes or traffic lanes. Finally, out-of-service miles (or "deadhead" miles) resulting from TNCs repositioning themselves to more optimal locations for getting new passengers, or from driving to pick up passengers who have reserved rides (whether single passenger or shared), also increases the amount of vehicular traffic and congestion.

OTHER FACTORS

Given the rapid pace of technological change in the transportation sector, other factors may also be contributing to changes in congestion. For example, increased use of online shopping and delivery services might exacerbate roadway congestion due to an increase in delivery vehicle trips and loading durations. Conversely, if these deliveries are in place of multiple vehicle trips that would have been made by individuals, they may reduce roadway congestion. New emerging mobility alternatives such as dockless shared bikes and scooters may reduce congestion if they induce mode shifts away from vehicle trips, though if these trips are shifted from transit, walk, or bike their effect on congestion would likely be minimal.

FIGURE 7. PERCENT CHANGE IN OBSERVED PM PEAK SPEEDS (2010-2016)

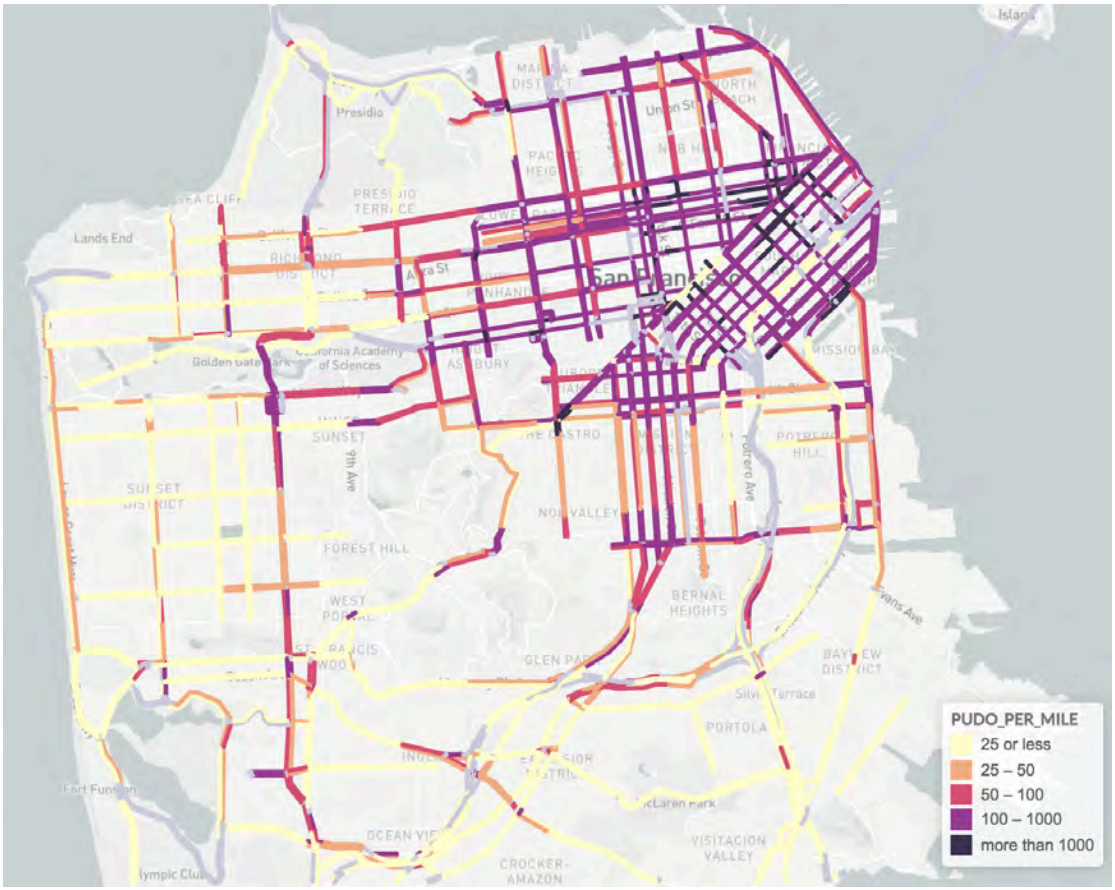


What Data is Available to Understand Congestion?

CONGESTION

Measures of roadway congestion (VHD, VMT, Speed) were calculated from observed roadway conditions in both November-December 2010 (before) and November-December 2016 (after), consistent with the TNC data, which was collected in November-December 2016. The observed roadway conditions are derived using the GPS- and fleet-based speed data licensed from INRIX. The analysis was conducted using directional segments known as Traffic Messaging Channels (TMCs), which average about 0.3 miles long. For each analysis year, data was aggregated to these TMCs and averaged across days to represent average weekday conditions for five times-of-day (TODs). **Figure 7** illustrates the percent change in observed PM peak speeds for all TMCs.

FIGURE 8. PICKUPS AND DROPOFFS PER MILE



BACKGROUND GROWTH

Background growth data was derived from San Francisco's travel demand model, SF-CHAMP. SF-CHAMP produces estimates of traffic volumes on all roads in San Francisco and requires inputs describing factors such as population, employment, and multi-modal transportation network capacity and performance. For this analysis, each one of these factors was individually controlled for in SF-CHAMP, which provides the ability to understand the relative contributions of these factors to overall changes in congestion. The version of SF-CHAMP used in this study was calibrated to 2010 conditions and does not account for TNCs. This means that when the model is run for 2016 inputs, it provides a "counterfactual" estimate of congestion if TNCs did not exist.

TNCS

TNC information was based on data originally gathered by researchers at Northeastern University from the Application Programming Interfaces (APIs) of Uber and Lyft that show the locations of available vehicles to mobile apps, and then was shared with the Transportation Authority. The data was collected from mid-November to mid-December of 2016, excluding dates around the Thanksgiving 2016 holiday. Transportation Authority staff then processed the data to impute estimates of out-of-service TNC volumes, in-service volumes, and pickups and dropoffs by directional link and time-of-day. This information was the basis for the TNCs Today, which is the only detailed profile of local TNC usage in San Francisco. **Figure 8** shows the average number of pickups and dropoffs per mile on TMC segments. Detailed descriptions of the data preparation process can be found here (2) and here (20). Note that, due to the data collection methodology, estimates of TNC volumes and pickups and dropoff reflect only intra-SF TNC trips, and are thus an underestimate of total TNC activity.

OTHER FACTORS AND LIMITATIONS

It was not possible to incorporate all the potential factors contributing to changes in congestion into this analysis, primarily because there is little available data describing these factors. For example, there is no source for comprehensive citywide information on how freight and commercial delivery and loading volumes and durations have changed between 2010 and 2016. The SF-CHAMP model data does incorporate some information on background growth in freight and commercial vehicle volumes through its commercial vehicle model. While the SF-CHAMP model is insensitive to increased levels of home shopping such as Amazon, as well as use of more recent emerging delivery services, in the most congested parts of San Francisco, commercial and freight deliveries typically use commercial vehicle loading zones (both on-street and off-street) in order to minimize the interruption of traffic flow. In fact, recent data from the San Francisco Police Department indicates that TNCs account for over 75% of citations downtown for blocking lanes of traffic (22).

Visitor travel in San Francisco has also increased significantly between 2010 and 2016. However, visitor travel is estimated to represent less than 5% of travel in San Francisco, and recent survey data indicates that TNCs are used less frequently by visitors than Muni and BART, although this is likely changing as TNCs become more ubiquitous. Increases in pedestrian travel might also impede traffic flow due to turning movements or other conflicts, but there is no data available to indicate whether increases in pedestrians in San Francisco have reduced auto speeds. Changing demographics may also contribute to increased TNC usage, as the National Household Travel Survey indicates that people with higher incomes appear to make more TNC trips. Finally, while this research does address changes in network capacity resulting from major transportation and land use projects, due to a lack of data it could not incorporate temporary unpermitted disruptions in traffic resulting, for example, from short-term construction activities.

How Do We Determine the Causes of Changes in Congestion?

In order to identify how TNCs and other factors may have affected roadway congestion in San Francisco between 2010 and 2016, two stages of analysis were performed. The first stage quantifies the contribution of TNCs to changes in congestion in San Francisco between 2010 and 2016 by estimating a statistical fixed-effect panel regression model and then applying this model to identify the relationship between the change in TNC activity and the change in roadway congestion measures between 2010 and 2016, assuming zero TNCs in 2010 and observed TNC levels (from TNCs Today study) in 2016. Observed TNC levels includes in-service TNC volumes, out-of-service TNC volumes, and TNC pick up and drop off activity. Estimates of the combined effect of the growth of non-TNC factors such as population, employment, and network changes are derived from the SF-CHAMP activity-based model system. Because the estimated model relies on the transformation of the observed speed data as the dependent variable in the regression analysis, we refer to this stage as the empirical analysis.

In the second stage, a scenario analysis, the SF-CHAMP activity-based demand model was again used, this time to systematically estimate the individual contributions to changes in roadway congestion of the factors of transportation network supply change, population change, employment change, and TNCs.

A distinguishing feature of both stages of the analysis was that it they were performed at a disaggregate level, using the previously described 1400 INRIX "Traffic Messaging Channels" (TMCs) or directional roadway segments, and across five times of day. The TMCs are approximately 0.3 miles long in San Francisco, on average. The spatial and temporal detail is important because adding vehicles does not always have the same effect on travel speeds: an additional vehicle on an uncongested segment in the early AM has a very different effect on delay than an additional vehicle on a downtown segment during the PM peak.

EMPIRICAL ANALYSIS

This study is structured as a before-and-after assessment between 2010 conditions when TNC activity was negligible and 2016 conditions when it was significant. We derived measures of roadway conditions in both years from GPS-based speed data licensed from INRIX as previously described. We estimated the relationship between the change in TNC activity and the change in roadway travel time, assuming zero TNCs in 2010, and incorporating a 2016 "counterfactual" scenario in which TNCs do not exist.

We do this using a fixed-effects panel data regression model (9). The fixed-effects models estimate coefficients based on the change between 2010 and 2016 conditions. There is precedent for using both before-and-after analysis and panel data models in transportation analysis, including to study changes in congestion (10), TNC growth (11), and the effects of new technology (12).

We converted the observed travel times to implied volumes using volume-delay functions (VDFs). This time-implied volume is the model's dependent variable, and the conversion ensures that it is linearly related to the background volumes and TNC volumes. There is one observation for each directional roadway segment, for each time-of-day, with data in 2010 and in 2016 for each observation. To control for road and transit network changes, as well as changes in socioeconomic conditions, the model includes the background traffic volume as a variable, as estimated by SF-CHAMP version 5.2. Because SF-CHAMP version 5.2 does not account for TNCs, this background traffic reflects the expected traffic volume change with no TNCs. The model also includes measures of TNC activity for each observation, with those measures set to zero in 2010. **Table 1** shows the model estimation results.

The estimated parameter on the SF-CHAMP background volume is approximately 0.92, not significantly different than 1. This is logical, because we expect that each vehicle added in background traffic should have an effect on congestion of adding about 1 vehicle to the implied volume. The Presidio Parkway scaling factor accounts for major construction that was underway on those links in 2010 but not 2016.

We include two measures of time and location-specific TNC activity. The TNC volume parameter measures net effect of TNCs. If TNCs purely substitute for other car trips, the estimated TNC parameter should be 0 as they substitute for other vehicles already counted in the background volumes. Negative values would be consistent with TNCs reducing traffic, while a value of positive 1 would be consistent with TNCs purely adding itself to background traffic. The estimated coefficient of 0.69 can be interpreted as meaning that TNCs do not purely add to traffic through induced travel or shifts from non-vehicular modes.

TABLE 1 FIXED-EFFECTS PANEL ESTIMATION RESULTS

PARAMETER ESTIMATES			
Variable	Parameter	Standard Error	T-statistic
SF-CHAMP background volume	0.9172	0.0541	16.952
Presidio Parkway scaling factor	-0.3648	0.0189	-19.327
TNC Volume	0.6864	0.0720	9.5387
Average impact duration of TNC PUDO on major arterials (s)	144.75	7.7195	18.751
Average impact duration of TNC PUDO on minor arterials (s)	79.486	12.114	6.5617

MODEL STATISTICS	
Number of Entities	7081
Number of Time Periods	2
R-squared between groups	0.5819
R-squared within groups	0.2985

The pick-up and drop-off (PUDO) parameters represent the average number of seconds that a pick-up or drop-off disrupts traffic in the curb lane. Details of the PUDO specification are documented elsewhere (13). Locally collected data show that the average time needed for a passenger to board or alight from passenger vehicles such as TNCs and taxis is about 1 minute. The higher average impact durations estimated in these models suggest that the traffic disruption persists after the stopped vehicle departs because additional time is needed for traffic flow to recover to its pre-PUDO condition.

We applied the estimated model to assess network-wide performance metrics for three scenarios:

- **2010:** reflecting observed 2010 conditions, when no TNCs were present;
- **2016 Counterfactual:** represents a counterfactual scenario of what 2016 conditions would be if there were no TNCs;
- **2016 TNC:** the full application of the model to 2016 conditions

The first and last scenarios are directly comparable to the observed speed data. The 2016 counterfactual scenario is derived by including the 2016 SF-CHAMP background traffic growth and Presidio Parkway scaling factor, but setting the TNC variables to zero.

SCENARIO ANALYSIS

While the empirical analysis allows us to quantify the contribution of TNCs to changes in congestion in San Francisco between 2010 and 2016, it does not provide insights into the relative contributions of other potential causes of change in roadway performance. To decompose these other factors, the SF-CHAMP model was used to perform a series of systematic scenario analyses.

We test each scenario using San Francisco's SF-CHAMP travel demand model. SF-CHAMP is an activity-based travel demand model that simulates the daily movements of individual travelers for a synthetic population in the 9-county San Francisco Bay Area (14,15,16). It has a long history of being successfully used to evaluate a range of policy and planning scenarios (17,18). We use version 5.2.0, which was calibrated to 2010 conditions and does not, on its own, include TNCs as a mode. Observed TNC travel flows and volumes based on the TNCs Today data set are used to account for TNCs. The remaining inputs, including transportation networks, population and employment data are not forecasts, but have been updated to reflect actual 2010 and 2016 conditions.

- **2010:** Conditions in year 2010, assuming the effect of TNCs is negligible. This is just the 2010 base SF-CHAMP model run, which was calibrated to observed 2010 conditions.
- **2016 Network Changes:** A hypothetical scenario that shows what 2016 system performance would look like if changes to the transportation networks (both roadway and transit) were the only things that changed between 2010 and 2016.
- **2016 Network and Population Changes:** A hypothetical scenario that shows what 2016 system conditions would look like if both the transportation network and population changed between 2010 and 2016.
- **2016 Network, Population and Employment Changes:** Also referred to as the "2016 Counterfactual" this is a hypothetical scenario that shows what 2016 would look like if all the observed network, population and employment changes occurred, but if TNCs had not been introduced in San Francisco.
- **2016 TNC:** This scenario incorporates all the assumed growth in population and employment between 2010 and 2016, changes to the roadway and transit networks, and also includes the effect of TNC in-service volumes, TNC out-of-service volumes, and TNC pick up and drop off activity. This scenario also accounts for mode shifts to TNCs from other travel modes.

With these scenarios, it was possible to estimate the incremental effects on congestion of network change, population change, employment change, and the introduction of TNCs in San Francisco. Additional technical details related to these scenarios are documented in other reports (19).

COMBINED ANALYSIS

These two stages of analysis result in network performance metrics for a total of five scenarios, three of which are available in both stages of analysis: 2010 Base, 2016 Counterfactual, and 2016 with TNCs. For the three overlapping scenarios, the relative contribution of TNCs to the change in congestion is similar in direction and magnitude, with the empirical analysis (which directly reflects observed speed changes) showing a somewhat greater share of the increase in congestion attributable to TNCs. **Table 2** shows the relative contribution of TNCs to each of the congestion metrics for the two stages of the analysis.

TABLE 2. CONTRIBUTION OF TNCS TO CHANGE IN CONGESTION BY ANALYSIS STAGE

METRIC	Empirical Analysis	Scenario Analysis
Vehicle Hours of Delay	64%	51%
Vehicle Miles of Travel	44%	47%
Speed	65%	55%

For the results presented here, the shares from the scenario analysis are applied to the total change in congestion from the empirical analysis to obtain a best estimate of the specific contribution of each factor to changes in network performance. This represents a lower-bound estimate of the effects of TNCs on congestion, relative to the estimated effect of TNCs on congestion as estimated in the empirical analysis.

How has Congestion Changed in San Francisco?

Traffic congestion has been getting worse since 2009. The Transportation Authority's Congestion Management Program (CMP) monitoring indicates that average AM peak arterial travel speeds have decreased since 2009 by -26%, while PM peak arterial speeds have decreased by -27% during this same time period. On freeways, average AM peak speeds have decreased by -30%, while average PM peak freeway speeds have decreased by almost -16% (21).

FIGURE 9. SAN FRANCISCO ARTERIAL AND FREEWAY SPEEDS (2009-2017)

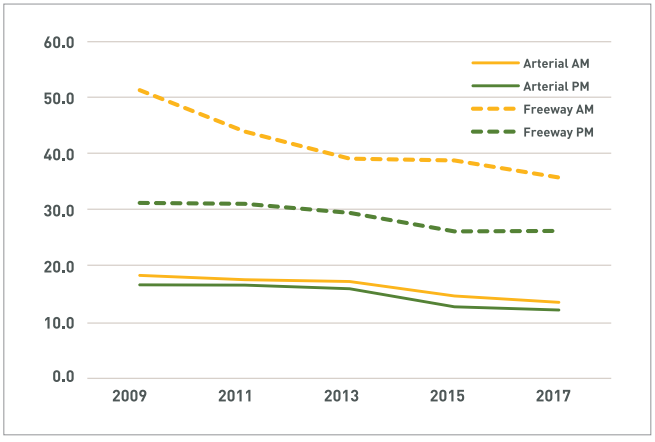


FIGURE 10. 2009 PM PEAK LEVEL OF SERVICE

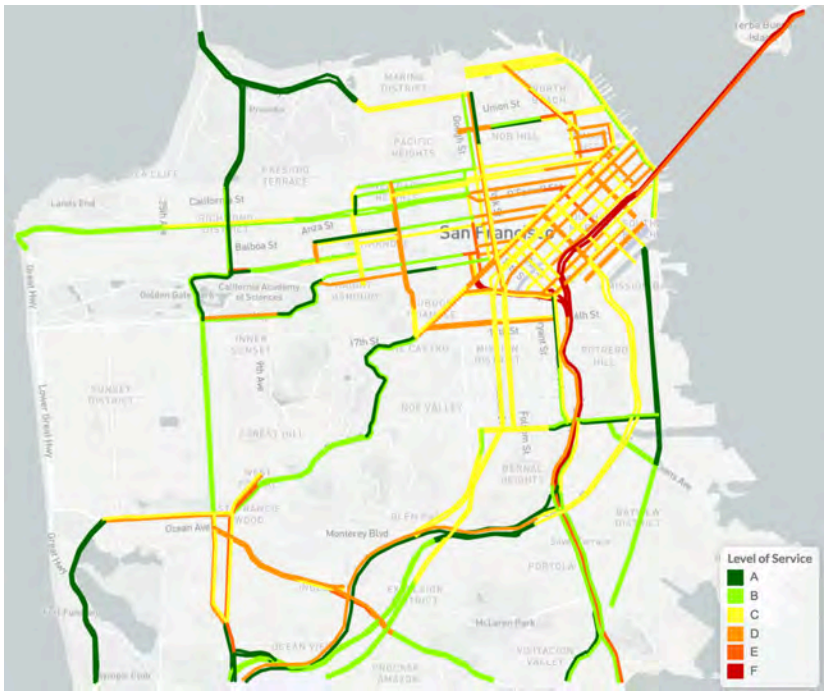
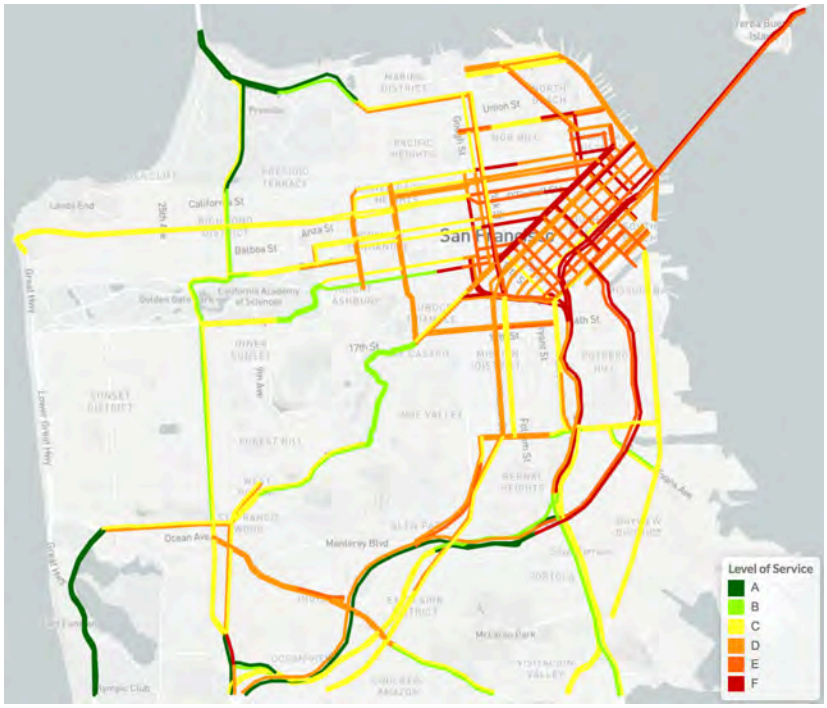


Figure 10 and **11** shows this change visually by mapping the PM peak roadway level-of-service (LOS) in 2009 and 2017, with the data showing lower level-of-service in 2017. LOS is a traffic engineering concept, based on volume to capacity (v/c) relationships of a given roadway facility, used to evaluate the operating conditions on a roadway. LOS describes operating conditions on a scale of A to F, with "A" describing free flow, and "F" describing bumper-to-bumper conditions. This corresponds to the period in which TNCs emerged.

FIGURE 11. 2017 PM PEAK LEVEL OF SERVICE



Do TNCs Affect Congestion?

Given the significant worsening of congestion in San Francisco in recent years, a critical question is whether, and to what degree, TNCs have affected congestion. Using the congestion measures, data, and methods previously described, it appears that TNCs contributed approximately 50% of the overall increases in congestion in San Francisco between 2010 and 2016, although this varies widely by neighborhood and time-of-day. Employment and population growth—an expression of greater economic activity in the city that encompasses the driving activity of all non-TNC travelers/motorists—account for the other half of the increase in congestion.

FIGURE 12. TOTAL DELAY AND CHANGE IN DELAY

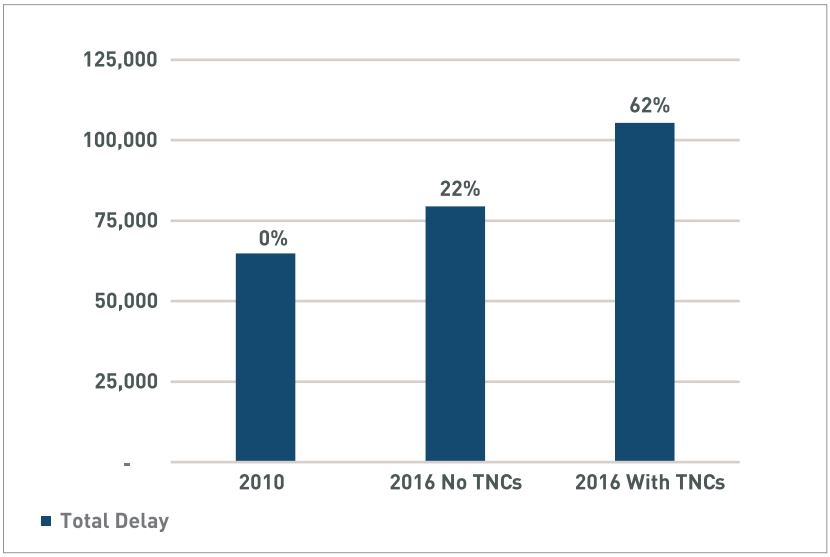
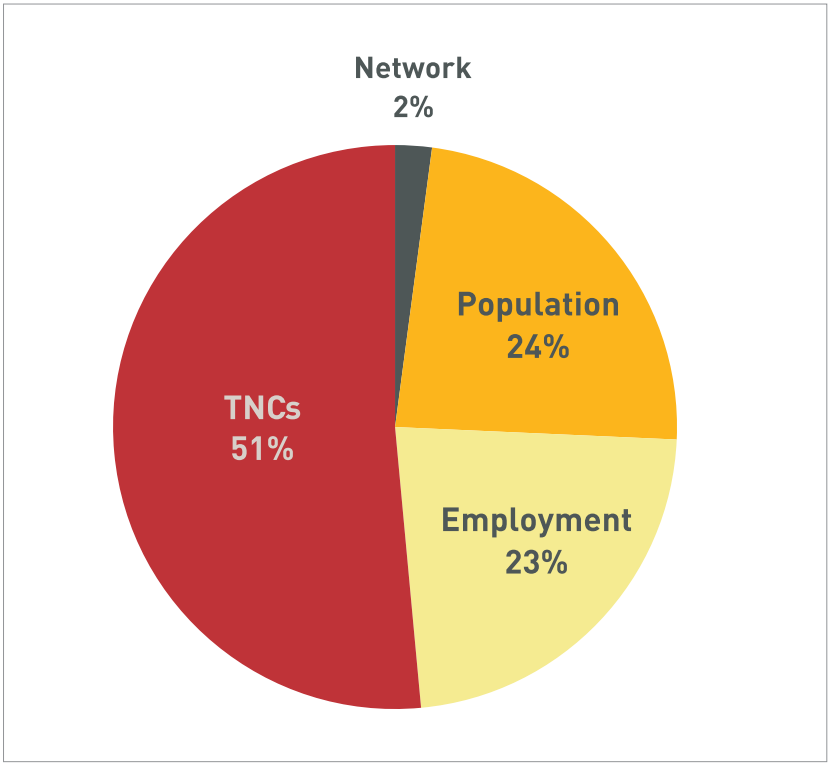


FIGURE 13. SHARE OF CHANGE IN DELAY BY FACTOR



VEHICLE HOURS OF DELAY

Vehicle Hours of Delay (VHD) is the number of extra hours that vehicles are in traffic beyond what they would have experienced under uncongested "free flow" conditions. **Figure 12** indicates that daily vehicle hours of delay increased on study roadways from approximately 65,000 hours in 2010 to over 105,000 hours in 2016 with TNCs, an increase of 62%. In the counterfactual 2016 scenario, where TNCs are unavailable and travelers use other modes, the daily vehicle hours of delay are approximately 79,000, an increase of 22% over 2010. This suggests that TNCs are responsible for about 25% of the total delay on monitored streets (the difference between 105,000 hours and 79,000 hours of delay in 2016).

Figure 13 illustrates how much each of the factors contributes to changes in delay between 2010 and 2016. TNCs account for 51% of the increase in delay. Population change and employment change are responsible for just under 47% of the increase in delay, and network changes account for only about 2% of additional delay.

VEHICLE MILES TRAVELED

The amount of vehicle miles traveled, or VMT, that is generated is a fundamental measure of transportation system performance. Higher levels of VMT are associated with greater levels of emissions of greenhouse gases such as CO2 as well as other pollutants. In addition, higher levels of VMT are also associated with greater roadway congestion. The VMT estimates in this report include both in-service and out-of-service VMT generated by TNCs on San Francisco roadway segments for which INRIX speed monitoring data is available. In-service VMT refers to the vehicle miles traveled when transporting a passenger. Out-of-service VMT refers to the vehicle miles traveled while circulating to pickup a passenger.

FIGURE 14. TOTAL VMT AND CHANGE IN VMT

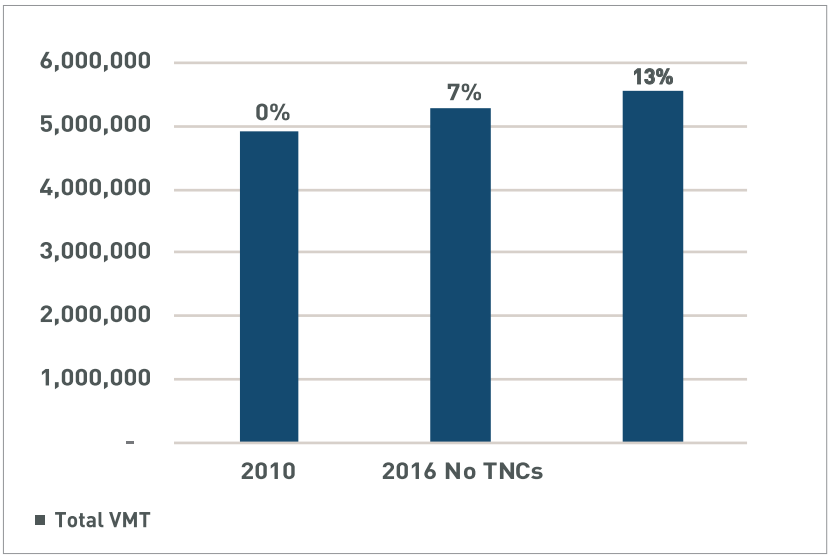


FIGURE 15. SHARE OF CHANGE IN VMT BY FACTOR

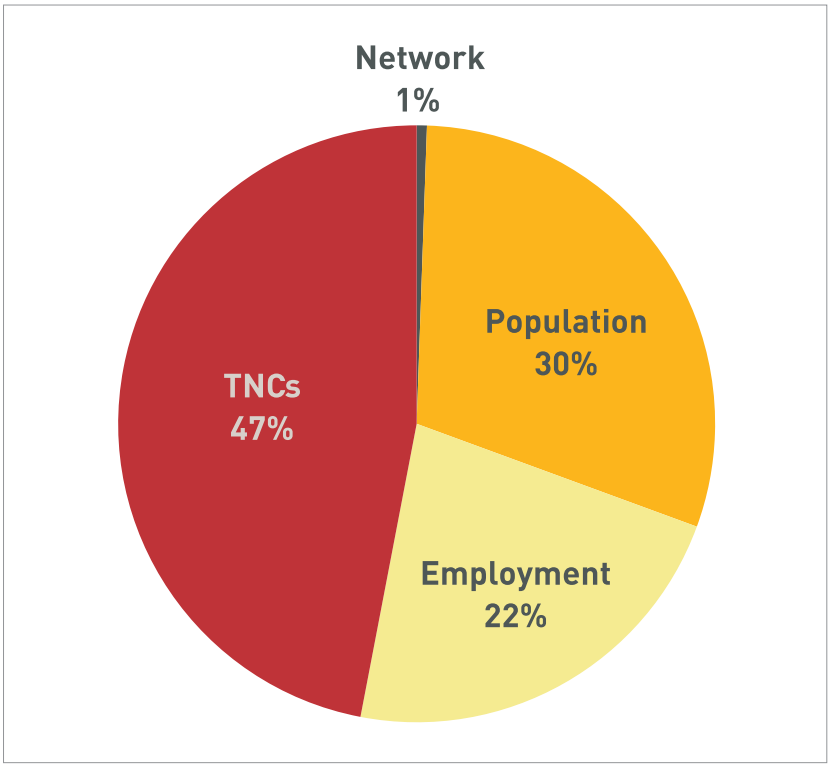
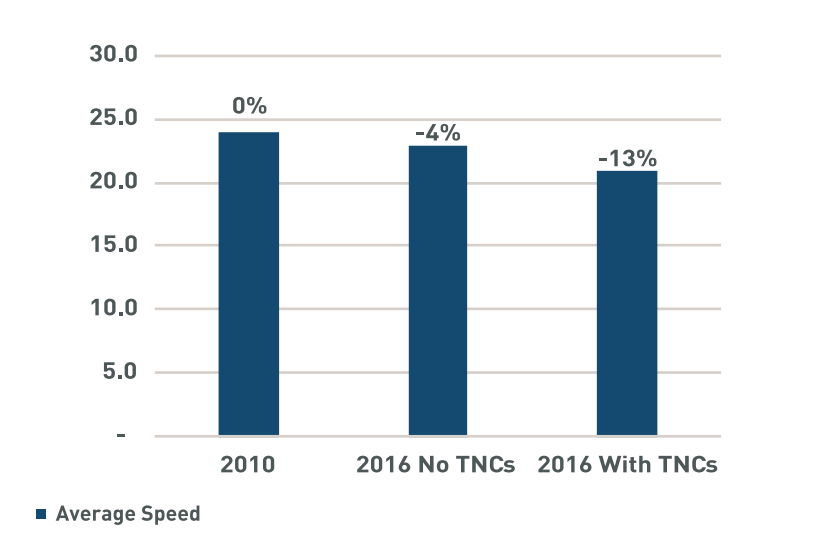


Figure 14 indicates that daily VMT on study roadways increased from approximately 4.9 million miles in 2010 to 5.6 million miles in 2016 on study roadways on a typical weekday, an increase of 13%. In the counterfactual 2016 scenario, where TNCs are unavailable and travelers used other modes, daily VMT increases to 5.3 million miles, an increase of approximately 7%. The relative increases in VMT are lower than the relative increases in hours of delay due to the non-linear relationship between traffic and delay. One additional VMT in congested conditions increases delay more than one additional VMT in uncongested conditions. TNCs also contribute relatively more to delay than to VMT because of the additional delay associated with TNC pick up and drop off activity does not result in additional VMT.

Figure 15 illustrates the sources for the changes in VMT between 2010 and 2016. TNCs are estimated to account for 47% of the increase in VMT, and about 5% of total VMT in 2016. Population change and employment change are responsible for just over 52% of the increase in VMT, and network changes account for about 1% of changes in VMT.

AVERAGE SPEED

FIGURE 16. AVERAGE SPEEDS AND CHANGE IN SPEEDS



The average speed captures a length-weighted estimate of the speeds on all study roadways. **Figure 16** indicates that average speeds decreased from just over 24.0 miles per hour (mph) in 2010 to approximately 20.9 mph in 2016, a decline of 13%. In the counterfactual 2016 scenario, where TNCs are unavailable and travelers used other modes, average speeds decline by only 4%.

FIGURE 17. SHARE OF CHANGE IN SPEED BY FACTOR

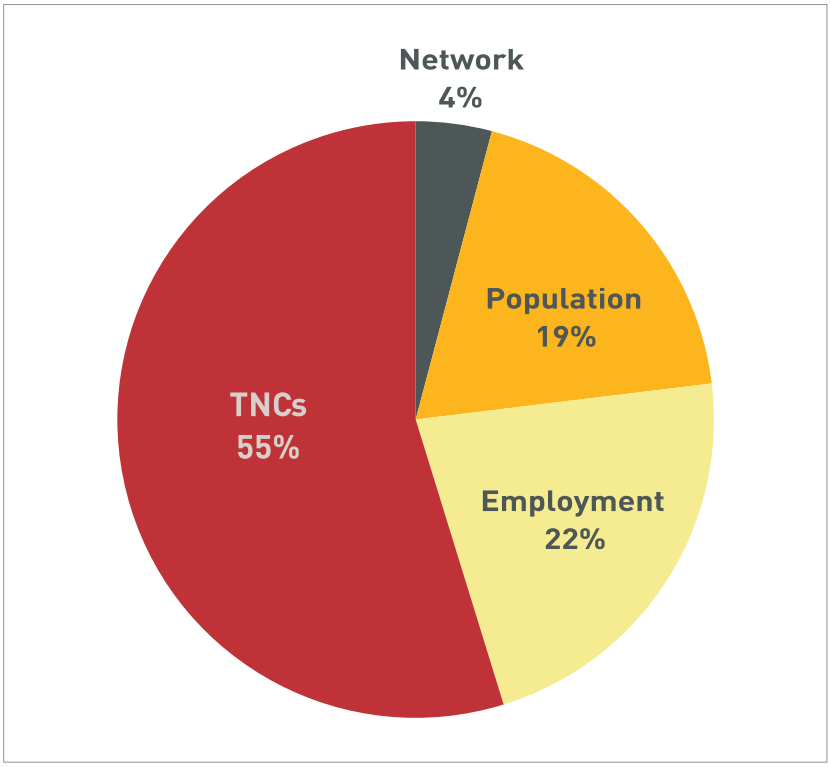


Figure 17 illustrates the sources for the changes in speed between 2010 and 2016. TNCs account for 55% of the decrease in speeds. Population change and employment change are responsible for just over 41% of the decrease in speeds, and network changes decrease speeds by approximately 4%.

When do TNCs Affect Congestion?

TNC usage varies by time-of-day, and thus affects congestion differently at different times of day. An additional vehicle on the roadway during congested time periods results in more congestion than an additional vehicle during uncongested time periods. The following summaries use five times of day derived from the SF-CHAMP model, which vary in length: the AM peak, PM peak, and early AM periods are 3 hours long, while the midday and evening periods are 6.5 and 8.5 hours long, respectively. The figures below demonstrate that TNCs significantly contribute to increased congestion across all times of day, especially in the evening, but during the AM and PM peaks and the midday as well.

VEHICLE HOURS OF DELAY

FIGURE 18. DELAY BY TIME PERIOD

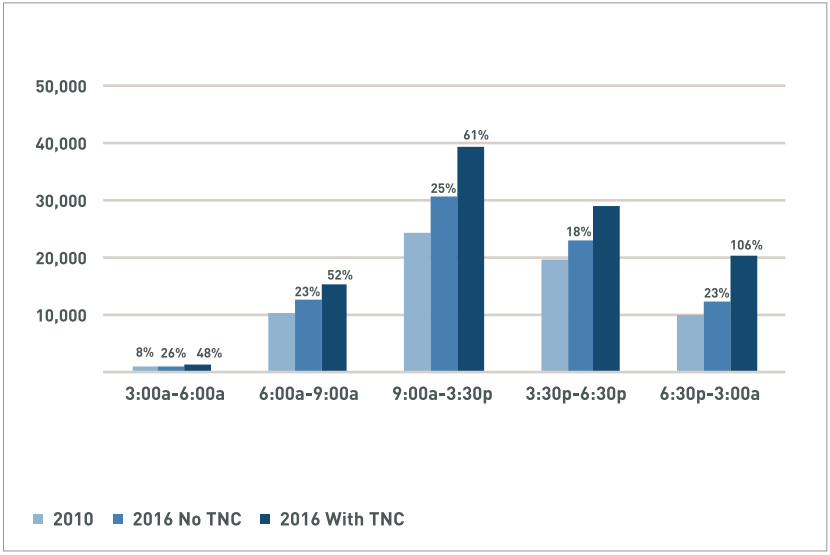


Figure 18 compares the VHD from 2010 to the 2016 No TNC scenario in which TNCs don't exist, and to the 2016 with TNC scenario. This figure shows that TNCs increased VHD in all time periods relative to 2016 No TNC scenario. The greatest total increases in delay occurred during the midday and evening period. TNCs increase delay in the evening from 23% without TNCs to 106% in reality, and increase the delay in the midday from 25% without TNCs to over 60%, and also increase delay significantly in the PM and AM peak periods.

FIGURE 19. CHANGE IN DELAY BY TIME PERIOD BY FACTOR

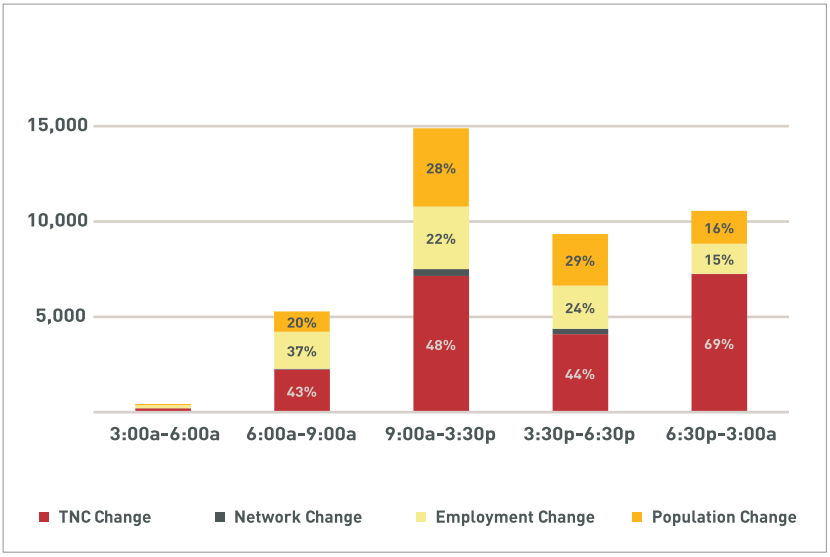


Figure 19 illustrates the total increase in delay between 2010 and 2016, as well as the share of this delay caused by TNCs, network changes, population changes and employment changes. During the AM peak, midday, and PM peak periods, TNCs cause between 43% and 48% of the increased delay and about 20% of total delay. Employment growth and population growth combined account for just over half of the increased delay. In the evening time period, TNCs are responsible for almost 70% of the increased delay, and for about 40% of the total delay.

VEHICLE MILES TRAVELED

FIGURE 20. VMT BY TIME PERIOD

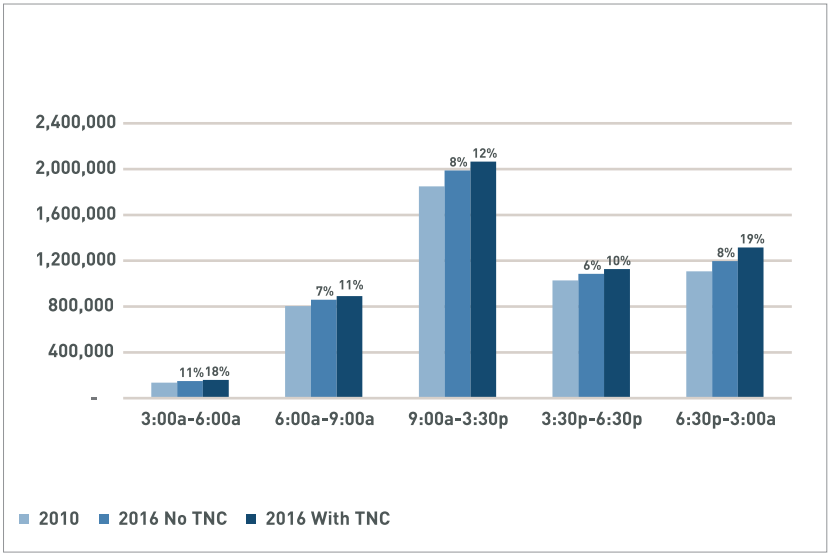


Figure 20 compares the VMT from 2010 to the 2016 No TNC scenario in which TNCs don't exist, and to the 2016 with TNC scenario. This figure shows that TNCs increased VMT in all time periods relative to 2016 No TNC scenario, with the greatest increases occurring during the midday and evening period.

FIGURE 21. CHANGE IN VMT BY TIME PERIOD BY FACTOR

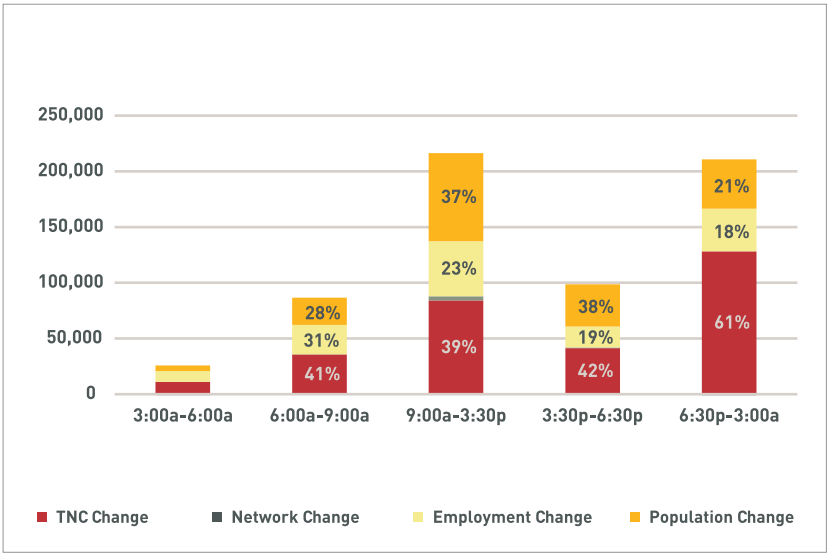


Figure 21 illustrates the total increase in VMT between 2010 and 2016, as well as the share of this delay caused by TNCs, network changes, population changes and employment changes. TNCs contribution to increased VMT varies by time period. During the AM peak, midday, and PM peak periods, TNCs cause about 40% of the increased vehicle miles travelled, while employment and population growth combined are responsible for about 60% of the increased VMT. However, in the evening time period, TNCs are responsible for over 61% of the increased VMT and for about 9% of total VMT.

AVERAGE SPEED

FIGURE 22. SPEED BY TIME PERIOD

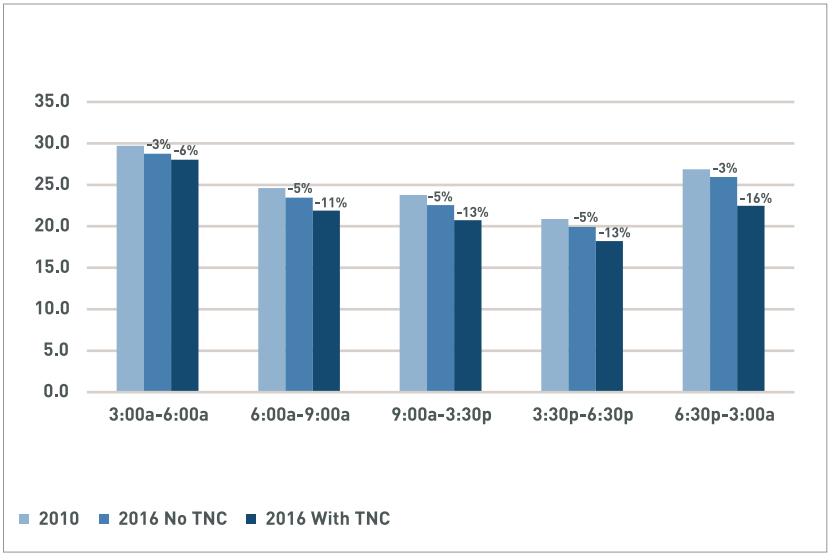


Figure 22 compares speeds from 2010 to the 2016 No TNC scenario in which TNCs don't exist, and to the 2016 with TNC scenario. This figure shows that average speeds have declined across all time periods, but that this decline has been exacerbated by TNCs.

FIGURE 23. CHANGE IN SPEED BY TIME PERIOD BY FACTOR

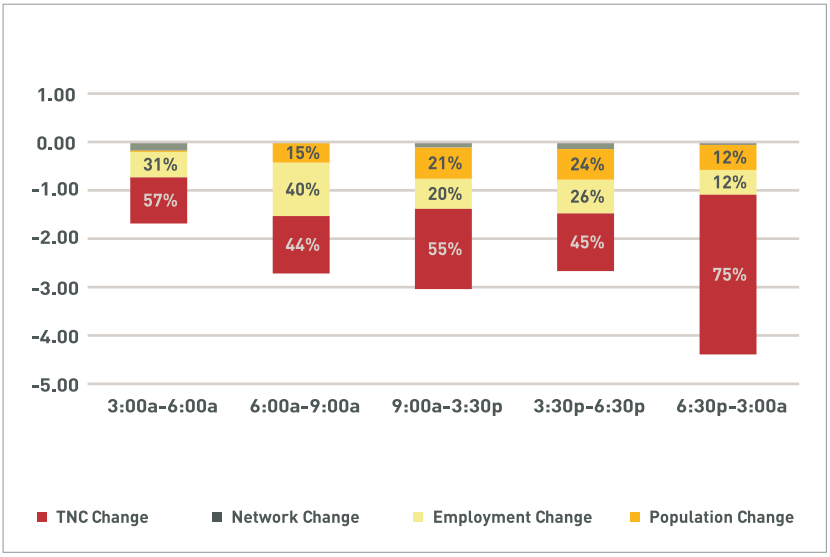
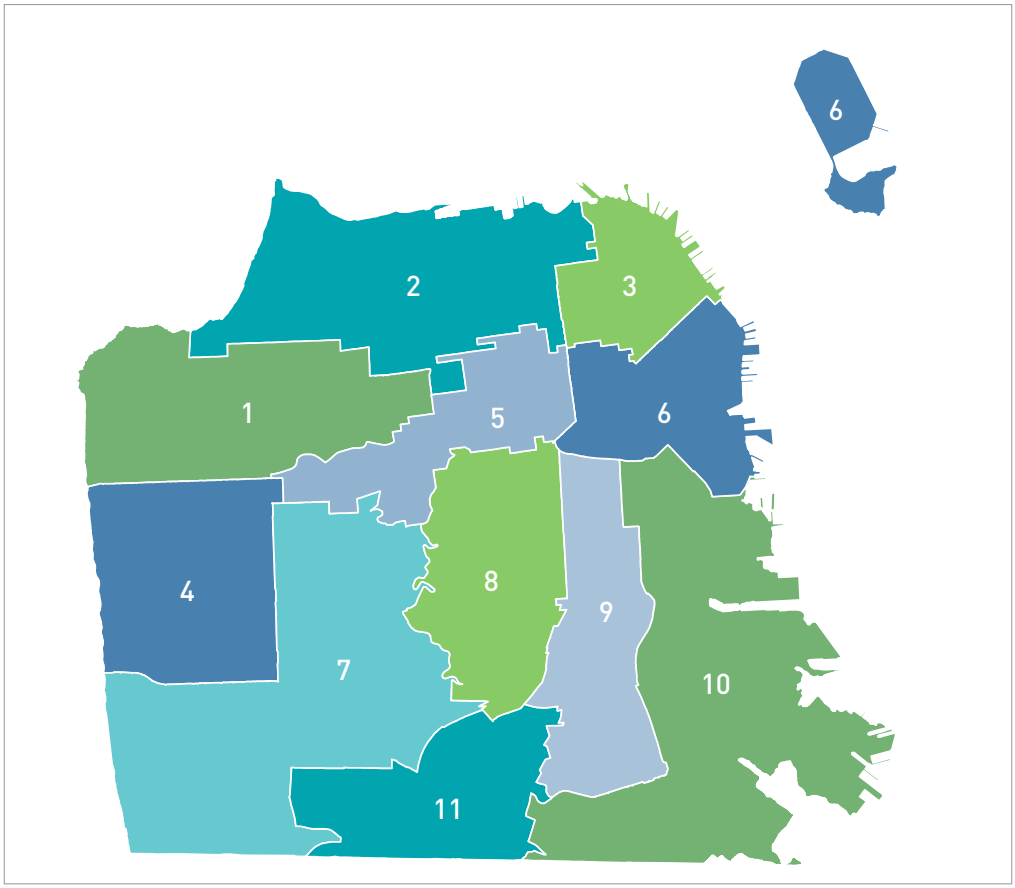


Figure 23 shows the decrease in average speeds between 2010 and 2016, as well as the share of this delay caused by different factors. The decline in average evening speeds has been most precipitous, dropping over 4 miles per hour, with almost 75% of this change attributable to TNCs. Speed decreases during the other time periods were about 3 miles per hour, with about 45%-55% of this decrease caused by TNCs.

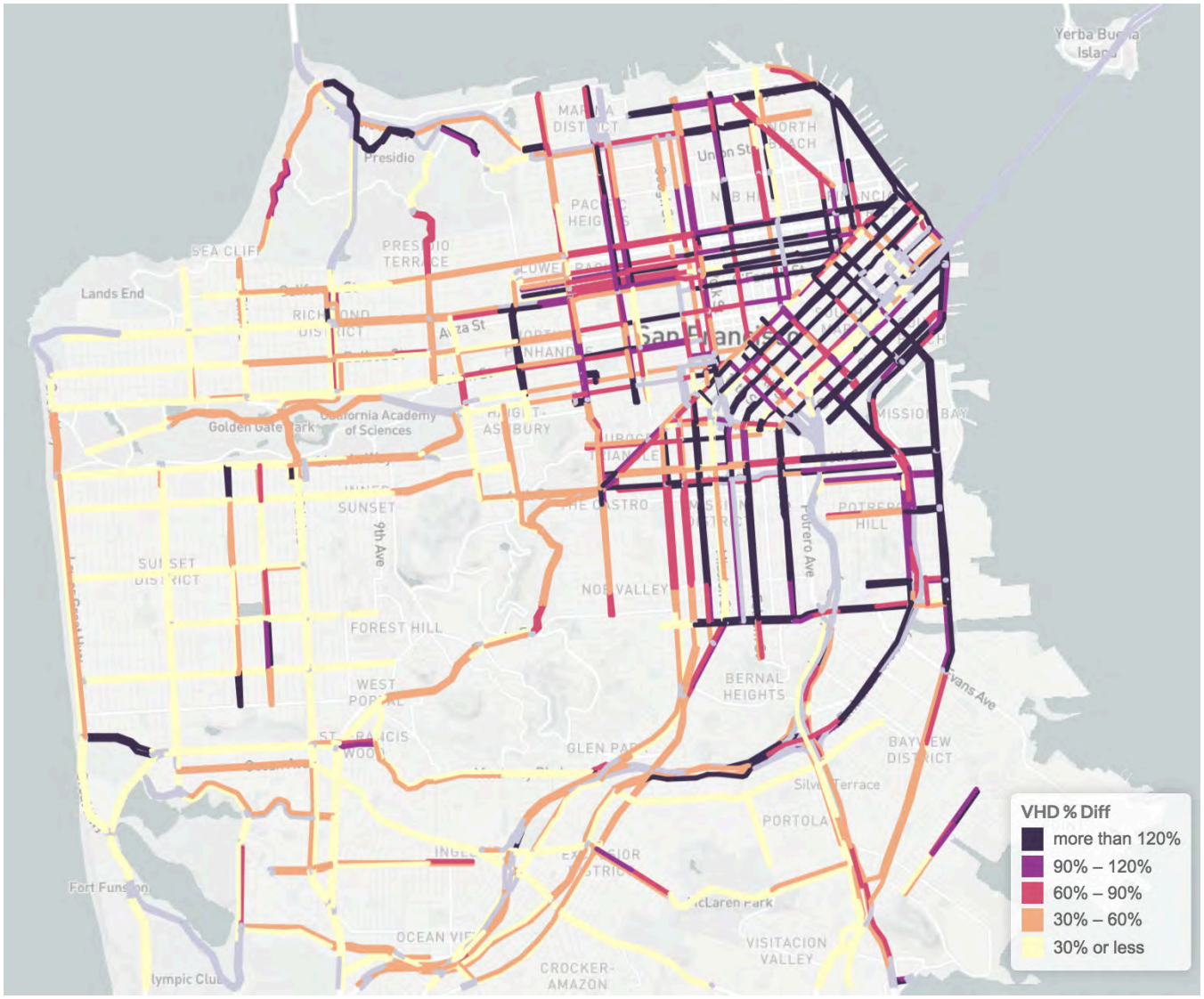
FIGURE 24. SAN FRANCISCO SUPERVISOR DISTRICTS



Where do TNCs Affect Congestion?

TNC usage varies across the city, and thus affects congestion differently in different neighborhoods. An additional vehicle on the roadway in more congested areas results in more congestion than an additional vehicle in less congested areas. The following sections first use maps to illustrate overall changes in the congestion measures on the INRIX segments, followed by supervisorial district-level charts. **Figure 24** illustrates the San Francisco Supervisor districts. The subsequent figures demonstrate that TNCs significantly contribute to increased congestion, especially in the densest parts of the city.

FIGURE 25. % CHANGE IN DELAY INRIX SEGMENT



VEHICLE HOURS OF DELAY

Figure 25 shows the percent increase in VHD between the 2016 No TNC scenario in which TNCs don't exist, and to the 2016 with TNC scenario. It indicates that the greatest increases in delay occurred in the core northeastern quadrant, as well as along key corridors such the Mission corridor.

FIGURE 26. DELAY BY SUPERVISOR DISTRICT

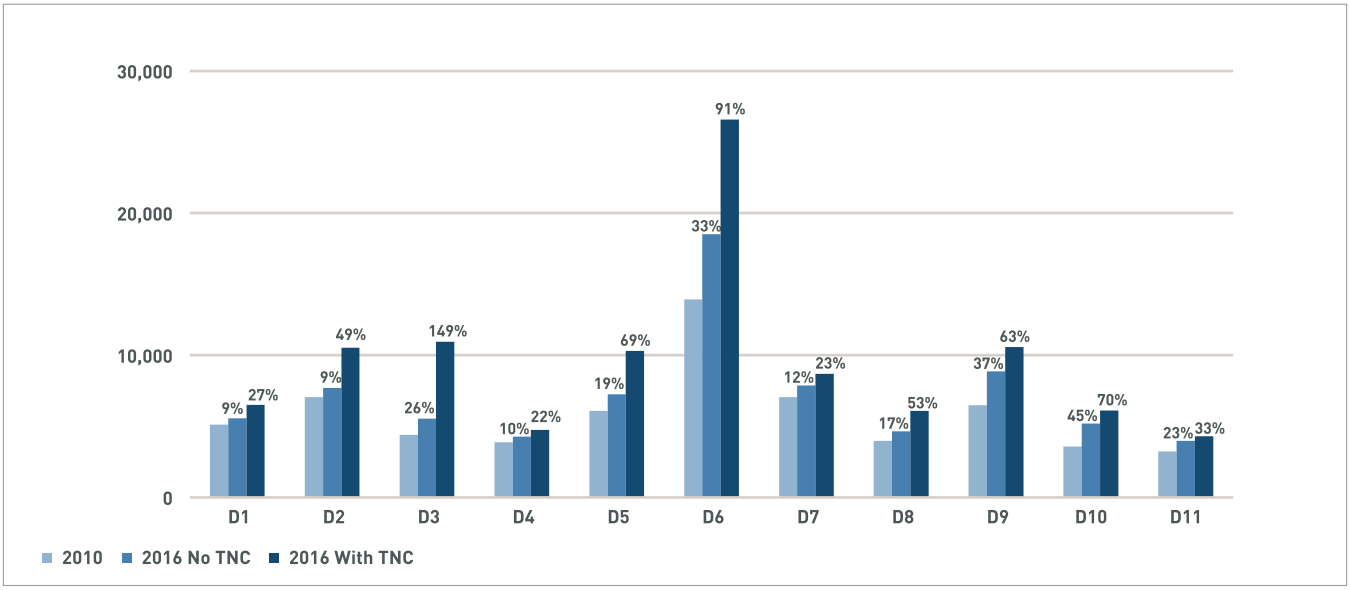


Figure 26 compares the delay from 2010 to the 2016 No TNC scenario in which TNCs don't exist, and to the 2016 with TNC scenario. This figure shows that TNCs increased delay in all districts relative to 2016 No TNC scenario. The greatest total increases in delay occurred in District 3 and District 6. The greatest relative increase in delay occurred in District 3, while the greatest total amount of delay occurred in District 6.

FIGURE 27. HOURS OF DELAY BY SUPERVISOR DISTRICT

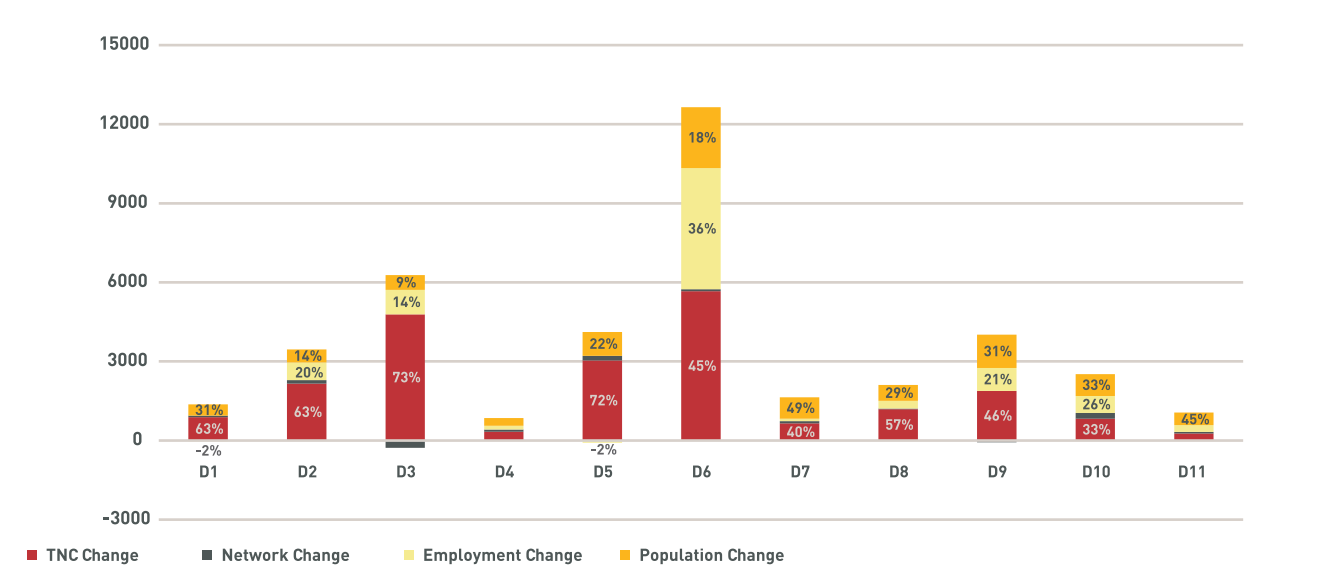


Figure 27 illustrates the total increase in delay between 2010 and 2016, as well as the share of this delay caused by TNCs, network changes, population changes and employment changes. The greatest increases in delay occurred in Districts 3 and 6, with approximately 73% of the increase in delay in District 3 due to TNCs, and about 45% of the increase in delay in District 6 due to TNCs. We estimate that approximately 36% of total delay in District 3 and District 6 combined is due to TNCs.

FIGURE 28. % CHANGE IN VMT BY INRIX SEGMENT

VEHICLE MILES TRAVELED

Figure 28 shows the percent increase in VMT between the 2016 No TNC scenario in which TNCs don't exist, and to the 2016 with TNC scenario. It indicates that the greatest increases in vehicle miles travelled occurred along key corridors, and with general increases in the northeast quadrant.

FIGURE 29. VMT BY SUPERVISOR DISTRICT

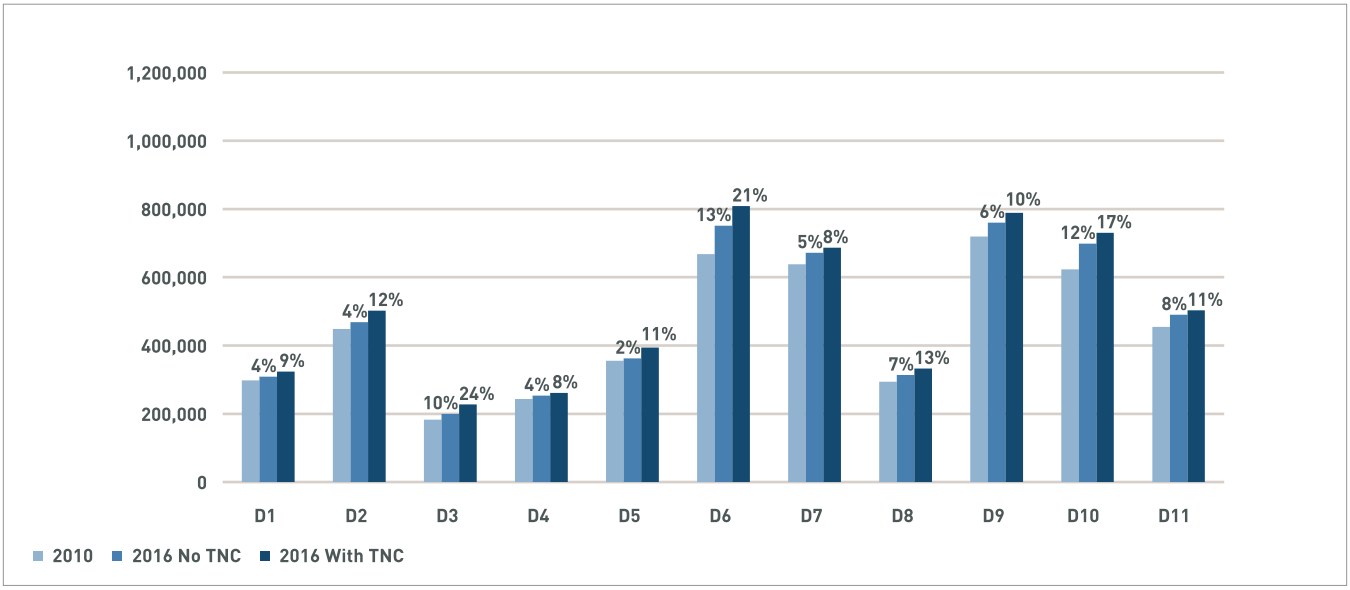


Figure 29 compares the VMT from 2010 to the 2016 No TNC scenario in which TNCs don't exist, and to the 2016 with TNC scenario. The percentage change shown is relative to the 2010 Base scenario. This figure shows that TNCs increased VMT in all districts relative to 2016 No TNC scenario, with the greatest total increases occurring in Districts 6 and District 10, and the greatest relative increase occurring in District 3.

FIGURE 30. CHANGE IN VMT BY SUPERVISOR DISTRICT BY FACTOR

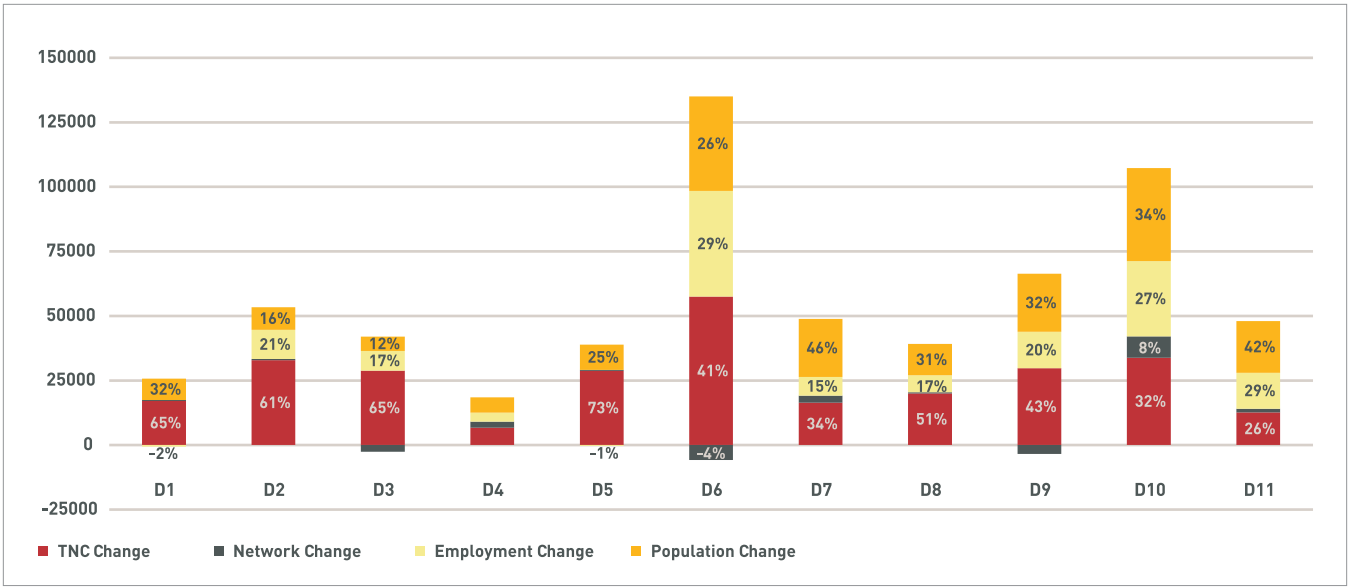
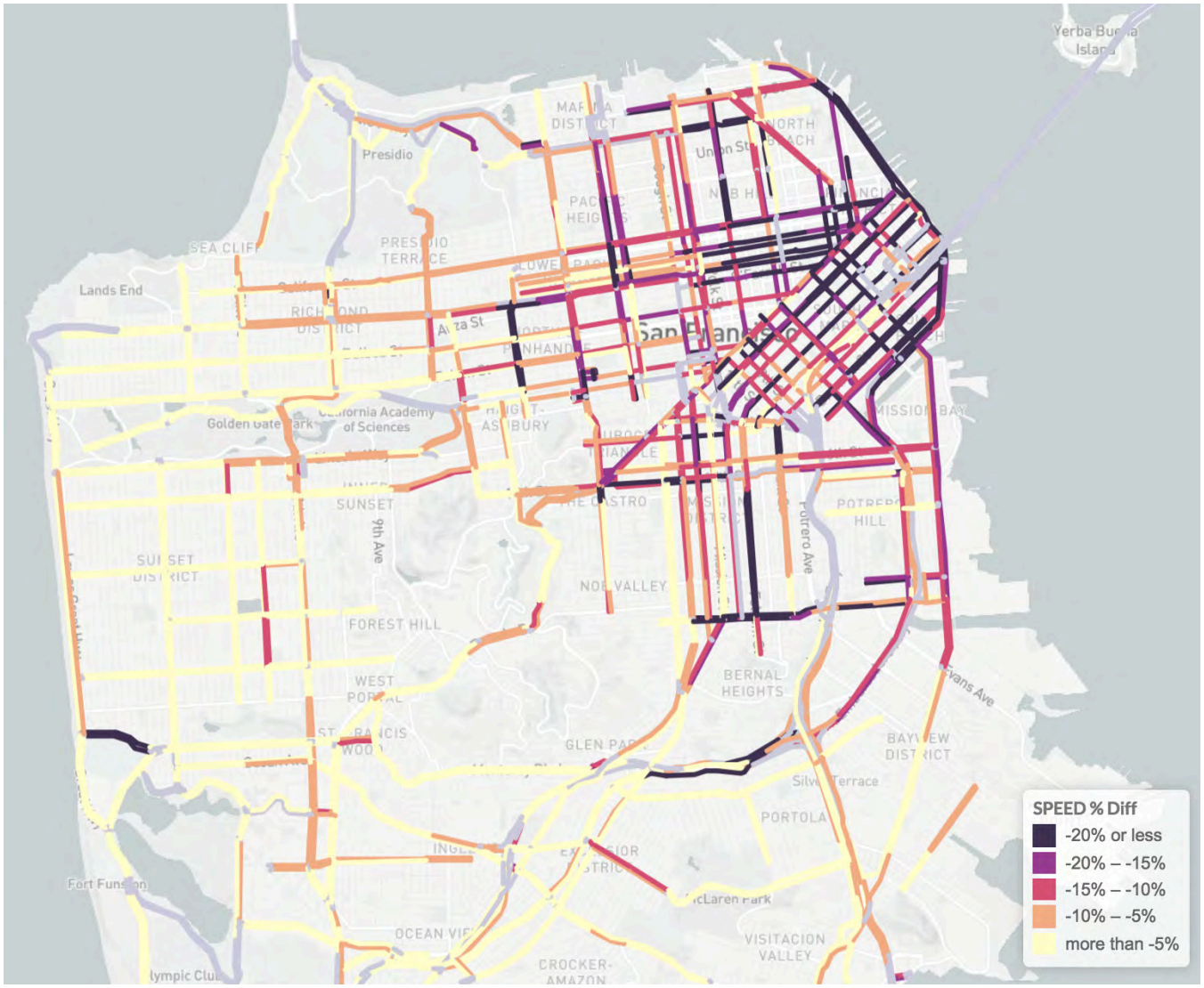


Figure 30 illustrates the total increase in VMT between 2010 and 2016, as well as the share of this delay caused by TNCs, network changes, population changes and employment changes. As noted, the greatest total increases occurred in Districts 6 and 10. TNCs accounted for 44% and 35% the increased VMT in these districts, respectively. While the total increase in VMT in Districts 3 and 5 were less than observed in other districts, the share of this increase attributable to TNCs in these districts was over 70%, the highest in the city.

FIGURE 31. % CHANGE IN SPEED BY INRIX SEGMENT



AVERAGE SPEED

Figure 31 shows the percent decrease in speed between the 2016 No TNC scenario in which TNCs don't exist, and to the 2016 with TNC scenario. It indicates that the greatest decreases in speeds occurred South of Market, Downtown, and along the Embarcadero and with general increases in the northeast quadrant.

FIGURE 32. SPEED (MILES PER HOUR) BY SUPERVISOR DISTRICT

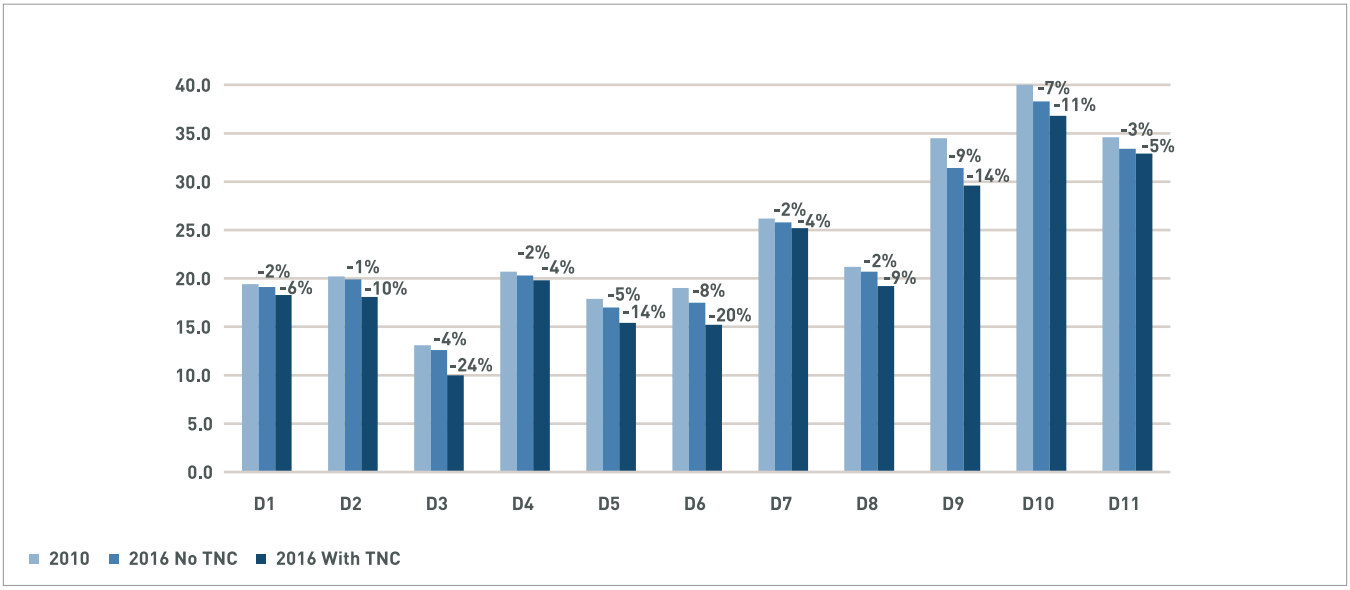


Figure 32 compares speeds from 2010 to the 2016 No TNC scenario in which TNCs don't exist, and to the 2016 with TNC scenario. The percentage change shown is relative to the 2010 Base scenario. This figure shows that average speeds have declined in all districts, with the greatest relative declines between the 2016 No TNC and 2016 With TNC scenarios occurring in Districts 3, 6, 5 and 9. Overall speeds were lowest in District 3 and highest in District 10.

FIGURE 33. CHANGE IN SPEED BY SUPERVISOR DISTRICT BY FACTOR

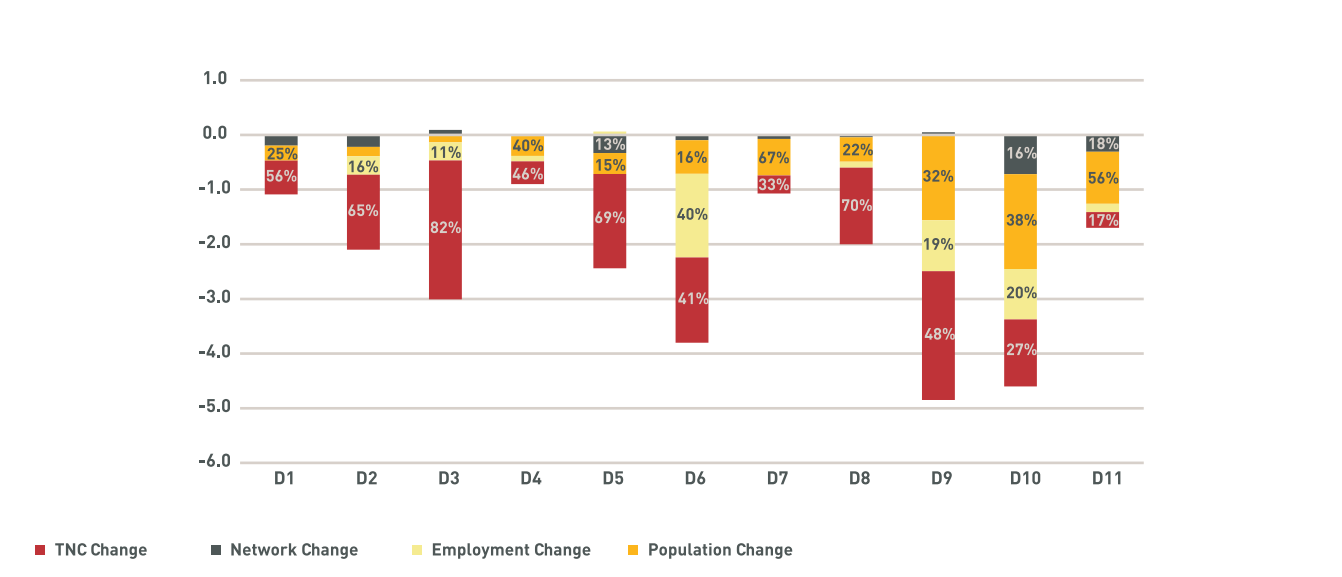


Figure 33 shows the decrease in average speeds in each District between 2010 and 2016, as well as the share of this delay caused by different factors. The greatest declines in speed occurred in Districts 9 and 10. While almost 50% of this decline was due to TNCs in District 9, only 27% of the decline in District 10 was due to TNCs. Districts 3 and 6 also experienced notable declines in speed, with 82% of the decline in speed in District 3 attributable to TNCs. Note that the more than half of the decline in speeds in District 6 is attributable to employment and population growth.

Conclusion

Congestion in San Francisco worsened between 2010 and 2016. The Transportation Authority's Congestion Management Program monitoring indicates that average AM peak arterial travel speeds decreased since 2009 by -26%, while PM peak arterial speeds have decreased by -27% during this same time period. Vehicle hours of delay on the study roadways increased by 40,000 hours on a typical weekday, while vehicle miles travelled on study roadways increased by over 600,000 miles on a typical weekday. In addition, travel times have become less reliable.

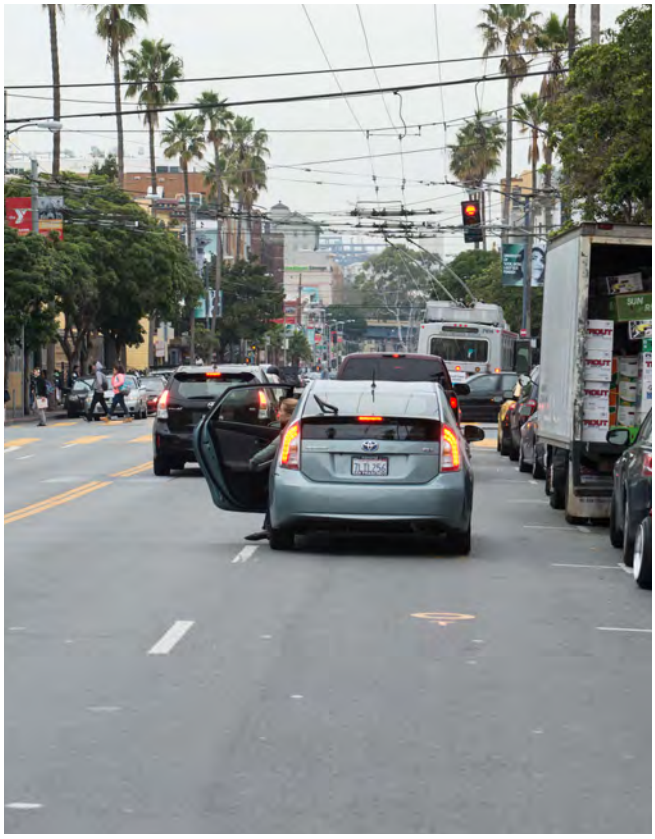
During this period significant changes occurred in San Francisco. Roadway and transit networks changed, including the rebuilding of Doyle Drive, the implementation of transit red carpet lanes, and the expansion of the bicycle network. San Francisco added 70,000 new residents and over 150,000 new jobs, and these new residents and workers add more trips to the city's transportation network. Finally, new mobility alternatives emerged, most visibly TNCs. TNCs have become an important travel option in San Francisco.

By late 2016, TNCs were estimated to generate over one million intra-San Francisco vehicle trips in a typical week, representing approximately 15% of all intra-SF vehicle trips, and the number and share of TNC trips in San Francisco has undoubtedly increased since 2016. The rapid growth of TNCs is attributable to the numerous advantages and conveniences that TNCs provide over other modes of transportation, and the availability of this new travel alternative has undeniably provided improved mobility for many San Francisco residents and workers.

TNC vehicle trips contribute significantly to increased congestion. After accounting for the effects of increased employment, increased population, and transportation network changes, TNCs are estimated to cause 51% of the increase in vehicle hours of delay, 47% of the increase in vehicle miles traveled, and 55% of the decline in speeds citywide between 2010 and 2016.

It is important to note that the effect of TNCs on congestion varies considerably by time-of-day. During most of the day, approximately 40% to 50% of the increase in vehicle hours of delay is attributable to TNCs, but in the evening, almost 70% of the increase in vehicle delay is due to TNCs. Similarly, during most of the day approximately 40% on the increase in vehicle miles traveled is due to TNCs, but in the evening TNCs account over 60% of increased VMT. Speeds declined by about 2 to 3 miles per hour during most of the day, with TNCs accounting for about 45% to 55% of this decrease. However, evening speeds declined by almost 4.5 miles per hour on study roadways, and TNCs are estimated to cause 75% of this decrease.

The effects of TNCs on congestion also varies significantly by location. The greatest increases in vehicle hours of delay occurred in Supervisorial Districts 3, 5 and 6, with over 70% of the increase in delay in Districts 3 and 5 due to TNCs, and about 45% of the increase in delay in District 6 due to TNCs. Vehicle miles traveled increased most significantly in Districts 6 and 10, with TNCs accounting for 41% and 32% of the increased VMT in these districts, respectively. While the total increase in VMT in Districts 3 and 5 were less than observed in other districts, the share of this increase attributable to TNCs in these districts was between 65% and 75%, the highest in the city. Average speeds have declined in all districts, with the greatest relative declines occurring in Districts 3, 6, 5 and 9.



Future Research

The report identifies the extent to which TNCs contributed to roadway congestion in San Francisco between 2010 and 2016, relative to other potential contributing factors including employment growth, population growth, and transportation network changes. The report does not include policy recommendations, but rather seeks to provide knowledge needed by the Transportation Authority board, other policy-makers, the general public, and TNCs themselves to make informed decisions.

Subsequent reports by the Transportation Authority and others will address additional important analytic and policy questions in depth, including:

- **TNCs and Street Safety (SFMTA).** How do TNCs affect the safety of people who use the roads, including public transit riders, bicyclists and pedestrians?
- **TNCs and Transit Ridership (SFCTA).** How do TNCs affect public transit ridership and mode share?
- **TNCs and Public Transit Operations (SFMTA)** How do TNCs affect public transit service operations?
- **TNCs and Disabled Access (SFMTA).** To what extent do TNCs serve people with disabilities?
- **TNCs and Equity (SFCTA).** Can TNCs be accessed by all San Francisco residents including communities of concern and those without smartphones or credit cards? Are all neighborhoods served equitably?
- **TNCs and Land Use.** What effects do TNCs have on trip generation? How does TNC demand vary by land use type and intensity? How do TNCs affect parking and loading demand?

Additional data collection will be necessary in order to help answer these questions. We welcome research collaborations to obtain further information, including data to validate or enhance these findings, TNC vehicle occupancy information, traveler demographics and travel purposes, travel costs, TNC fleet composition data, and a range of other data items.

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