

Appendix FEIR-20

Mobility Hub Memo



MEMORANDUM

TO: Stephanie Eyestone-Jones, Eyestone Environmental

FROM: Patrick A. Gibson, P.E., PTOE, and Jonathan Chambers, P.E.

DATE: March 8, 2023

RE: TVC 2050 Project Mobility Hub Usage Patterns **Ref:** J1750a

This memorandum summarizes the projected usage patterns for the proposed Mobility Hub to be constructed and operated as part of the TVC 2050 Project, outlines the mode split assumptions that form the basis of the travel projections to be served by the Mobility Hub, details the travel components that will utilize the Mobility Hub, and outlines the overall vehicular trip and VMT effects of the Mobility Hub trips.

Tables 1 through 3 summarize the discussion below.

MODE SPLIT

Table 1 summarizes the modal split assumed to utilize the Mobility Hub. The top portion of Table 1 shows the employee, visitor, and audience populations that would use the Project Site on a busy weekday. These populations were then converted to person-trips per day.

As shown in Table 1, there would be a weekday average of approximately 427 audience members visiting the Project Site, which results in approximately 854 audience member person-trips per day on a typical stage shooting day.

Mode split percentages were then applied to each category of trip by mode. The various choices were estimated at 0%, 5%, or 10% of the daily trips for each trip category for each mode split choice. Though pedestrian and bicycle trips may also utilize the Mobility Hub, their overall effect on automobile trips is already accounted for in the Project trip generation estimates so, to avoid double counting, they are not repeated here.

The lower portion of Table 1 shows the number of person-trips per day that would be served by the Mobility Hub. A total of approximately 4,325 daily trips represents 25% of the total trips to/from the Project site. The total mode split for the overall Project would be slightly higher because, as mentioned above, the estimates in Table 1 do not include pedestrian and bicycle trips nor do they include transit trips by Los Angeles County Metropolitan Transportation Authority (Metro) buses.

MOBILITY HUB ACTIVITY

Table 2 shows the data for the individual modes that would utilize the Mobility Hub.

The most active component of the Mobility Hub would be the shuttle buses to/from the planned Metro D (Purple) Line station at Wilshire Boulevard & Fairfax Avenue. The morning and afternoon peak periods (four hours each spanning 6-10 am in the morning and 2-6 pm in the evening) would provide 10- to 15-minute headways between the Metro station and the Mobility Hub. The four-hour midday period of 10 am to 2 pm would provide 30-minute headways. With this level of service, the Project shuttle buses can be expected to carry approximately 1,616 passengers per day.

The approximately 164 visitors and audience members per day that would utilize rideshare vehicles for their trips would be expected to arrive and depart in approximately 149 rideshare vehicles each way, with each vehicle making one inbound and one outbound trip for each pick-up or drop-off. The visitor and audience members that use the pick-up/drop-off area of the Mobility Hub would also be served by 149 vehicles that would each make one inbound and one outbound trip for each pick-up and each drop off.

An active vanpool program serving 5% (approximately 783) of the Project employee daily person-trips would utilize 98 van trips carrying eight employees each.

Finally, though the increase in carpools would not necessarily utilize the Mobility Hub for each trip, they are included in Table 2 so that the overall trip and VMT reduction of the additional carpool activity could be tracked. A total of approximately 1,566 additional employee trips would travel to the Project site via the increased carpools.

TRIP AND VMT DISPLACEMENT BY MOBILITY HUB

Table 3 shows the effects of the Mobility Hub and the transportation demand management (TDM) program on the overall number of vehicle trips and the overall VMT totals for the Project.

The last row in Table 2 shows that approximately 4,293 person trips per day are expected to travel to/from the Project site via a mode of travel other than the single occupant automobile. With the increased carpool activity and the facilities and programs supported by both the Mobility Hub and the TDM program, both the number of automobile trips per day and the VMT to/from the Project Site will be decreased over the levels analyzed in the Project's Draft Environmental Impact Report.

**TABLE 1
MOBILITY HUB MODE SPLIT**

Category	Daily Total	Trips per Person per Day	Person-Trips Per Day	Mode Split Percentages [a]					Total	Non-Auto Mode Split
				Shuttle	Uber / Lyft	Pick-up / Drop-off	Vanpool	Carpool		
Employee	7,832	2	15,664	10%			5%	10%		
Visitor [b]		5%	783	5%	10%	10%				
Audience	427	2	854	5%	10%	10%				
			17,301							
				Mode Split Trips / Day						
				Shuttle	Uber / Lyft	Pick-up / Drop-off	Vanpool	Carpool	Total	Non-Auto Mode Split
Employee				1,566			783	1,566	3,915	25%
Visitor				39	78	78			195	25%
Audience				43	86	86			215	25%
			Total	1,648	164	164	783	1,566	4,325	25%

NOTES

[a] See Table 10 in Section A, TDM Effects on Trip Generation in Topical Response No. 11, Transportation Demand Management for a discussion of the range of mode splits by type of TDM Program.

[b] See Response to Comment No. 106-2 for a discussion of the total person trips by category for the Project. The Urban Land Institute and National Parking Association in Shared Parking, Third Edition, 2020 estimate office visitors generate 5-10% of the total office trips per day. This analysis chose the lower end of the range to be conservative. This estimate includes visitors to the General Office, Production Office, and Production Support spaces on the Project Site.

**TABLE 2
MOBILITY HUB ACTIVITY FORECASTS**

		Passenger Trips per day
Shuttle [a]	Daily Operations: 4 hrs AM, 4 hrs PM, 4 hrs mid-day	
	4-6 trips per hour AM and PM peaks, 2 trips per hour mid-day hours	
	100% occupancy for 3 AM and 3 PM hours	6 trips per hour x 36 persons per trip x 6 hours
	50% occupancy for 1 AM and 1 PM hours	4 trips per hour x 20 persons per trip x 2 hours
	50% occupancy for 8 mid-day trips	2 trips per hour x 20 persons per trip x 4 hours
	Shuttle Subtotal	1,616
Uber/Lyft [b]	164 passengers/day @ 1.1 passengers/vehicle = 149 daily cars in and out of Mobility Hub for pick-up and 149 daily cars in and out of Mobility Hub for drop-off	164
Pick-up / Drop-off [b]	164 passengers/day @ 1.1 passengers/veh = 149 daily cars in and out of Mobility Hub for pick-up and 149 daily cars in and out of Mobility Hub for drop-off	164
Vanpool [c]	783 passengers/day @ 8 passengers/vehicle = 49 van trips in and 49 van trips out/day	783
Carpool [d]	1,566 passenger trips/day are made with an employee who was already coming to the site	1,566
	Total	4,293

NOTES:

[a] It was assumed that the Project shuttle buses would operate for 12 hours per day:

6 - 10 am for the morning peak period

10 am - 2 pm for the mid-day period

2 - 6 pm for the afternoon peak period

These hours may be adjusted depending on actual demand.

Bus occupancy levels in each hour of the day were estimated based on typical employee shuttles from transit to office.

[b] Average vehicle occupancy of 1.1 persons/vehicle based on U.S. Census Data, American Community Survey (<https://map.myneighborhooddata.org>)

[c] Vanpool capacity of 8 persons per vehicle represents a medium-sized van.

[d] An increase of 1,566 passenger trips using carpools represents a 10% increase in the number of employees forming carpools.

**TABLE 3
MOBILITY HUB TRIP AND VMT DISPLACEMENT**

		Displacement of Trips	Displacement of VMT
Shuttle	4 buses at 40 passenger capacity will make 52 round trips per day between the Mobility Hub and the Wilshire/Fairfax station [a] 52 trips x 1.7 mile round trip = 88.4 bus VMT per day	+104	+88
	These 52 bus trips would replace 1,616 passengers/1.1 passengers/veh = 1,469 auto trips [b] 1,469 auto trips x 6.7 miles per trip = 9,842 auto VMT per day [c]	(1,469)	(9,842)
Uber / Lyft and Pick-up / Drop-off	These 328 people coming to/from the site could generate up to 1,192 auto trips/day (one arrival and one departure for each trip, assuming 1.1 passengers per vehicle) [d]	+1,192	+7,986
	If self-driven, these people would have made 596 auto trips/day to and from the site [e]	(596)	(3,993)
Vanpool	783 passengers per day would come in 98 vans (98 in + 98 out in terms of trips) 98 + 98 = 196 van trips x 6.7 miles per trip = 1,313 VMT for the van fleet	+196	+1,313
	783 passengers driving themselves would generate 783 @ 1.1 people per car = (712 vehicles in + 712 out) 1,424 auto trips x 6.7 miles per trip = 9,541 VMT if they all came by car	(1,424)	(9,541)
Carpool	In this scenario, 1,566 employees choose to carpool instead of drive to work. 1,550 @ 1.1 persons per vehicle = 1,424 vehicles taken off the roadway x 6.7 miles per trip 1,424 trips x 6.7 miles per trip = 9,541 carpool VMT per day	(1,424)	(9,541)
		Displacement by Mobility Hub	
		Trips	VMT
		Increase	+1,492
		Decrease	(4,913)
		Net	(3,421)
			(23,529)

NOTES

- [a] See Table 2 for a description of shuttle bus activity levels.
- [b] See Table 2 for the calculation of shuttle bus passenger levels.
- [c] 6.7 miles/ trip represents the calculated work VMT per employee for the Project. See Transportation Assessment, Appendix M.1 of the Draft EIR, page 119 and Table 13, VMT Summary on page 123.
- [d] (328 people inbound + 328 people outbound) x (2 inbound trips + 2 outbound trips) / 1.1 persons/veh = 1,192 veh trips
- [e] (328 people / 1.1 persons/car) x (1 trip in + 1 trip out) = 596 veh trips