

APPENDIX M

Transportation Data

Unique Inputs
Unique Outputs (shown in calculation tabs)

Light Gold Tab - Commuter Daily and VMT	Populations (1)	LRDP Project Description (1)			Campus Travel Survey (CTS)					Commuter Residence GIS Database
		Total Population	Resident Population	Commuter Population	Commute Frequency (% of population on campus daily)	Drive-alone mode split	Carpool mode split	Carpool occupancy	TNC Mode Split	Worker Trip lengths
DAILY_COM_STAFF DAILY_COM_FACULTY DAILY_COM_GRAD DAILY_COM_UNDERGRAD	Staff Faculty Graduate Students Undergraduate Students	LRDP Project Description	"Total Beds" from Project Description	Total Population minus Total Beds	% of population on campus Sun-Sat	% of population that answered "Drive Alone" in CTS	% of population that answered "Carpool" in CTS	Sourced from California Household Travel Survey Info	% of population that answered "Ride-hail (Lyft, Uber)" in CTS	Network distance to campus from address location data set

Gold Tab - Commuter Annual VMT	Populations (1)	From UCB 2020 - 2021 Calendar Work days per year	From Campus Travel Survey "Weekend Mode Split" tab See calculations in N:\Projects\2019\OK19-0321.00_UC_Berkeley_LRDP_and_CMP\Analysis\Survey
ANN_COM_STAFF ANN_COM_FACULTY ANN_COM_GRAD ANN_COM_UNDERGRAD	Staff Faculty Graduate Students Undergraduate Students	See calculations in OK19-0321.00/Data Collection/Project Description/Project Description--10/6/20'	

Light Blue Tab - Resident Weekday VMT	Campus Residents	LRDP Project Description	Model (fac) and ITE/ACS (students)	Model
		Number	Daily Trip Rate -- Weekday	Resident Trip Lengths
WEEKDAY_RES_FACULTY	Faculty	LRDP Project Description	Use VMT Rate direct from model TAZ 88, adjusted for faculty housing: 7.6 VMT/unit	See left
WEEKDAY_RES_GRAD	Graduate Students	LRDP Project Description	ITE MF Housing=1.84; ACS Driving mode share=0.16. 1.84X0.16=0.30.	Model trip length for zones around campus = 2.0
WEEKDAY_RES_UNDERGRAD	Undergraduate Students	LRDP Project Description	Same as Grads	Model trip length for zones around campus = 2.0

TNC Counts	TNC Trip Rate	Owned Car Trips
27	0.020	242

Dark Blue Tab - Resident Annual VMT	Campus Residents	LRDP Project Description	Assume same as weekday (2)	Assume same as weekday (2)	From 2020-2021 Academic Calendar
		Number	Daily Trip Rate -- Weekend	Average Daily Trip Lengths - Weekend	# Resident Days/Year
ANNUAL_RES_FACULTY	Faculty	LRDP Project Description	Use VMT Rate direct from model TAZ 88, adjusted for faculty housing: 7.6 VMT/unit	See left	See calculations in OK19-0321.00/Data Collection/Project Description/Project Description--10-6-20'.
ANNUAL_RES_GRAD	Graduate Students	LRDP Project Description	ITE MF Housing=1.84; ACS Driving mode share=0.16. 1.84X0.16=0.30.	Model trip length for zones around campus = 2.0	
ANNUAL_RES_UNDERGRAD	Undergraduate Students	LRDP Project Description	Same as Grads	Model trip length for zones around campus = 2.0	

Worksheet Input Data

Unique Inputs
 Unique Outputs (shown in calculation tabs)

Light Gold Tab - Commuter Daily VMT	Populations (1)	LRDP Project Description (1)			Campus Travel Survey					Commuter Residence GIS Database
		Total Population	Resident Population	Commuter Population	Commute Frequency (% of population on campus daily)	Drive-alone mode split	Carpool mode split	Carpool occupancy	TNC Mode Split	Worker Trip lengths
DAILY_COM_STAFF	Staff	12,145	-	12,145	92.9%	51%	7%	2.4	1%	14.2
DAILY_COM_FACULTY	Faculty	3,276	32	3,244	90.5%	46%	5%	2.4	1%	6.6
DAILY_COM_GRAD	Graduate Students	9,776	250	9,526	91.9%	7%	1%	2.4	1%	13.7
DAILY_COM_UNDERGRAD	Undergraduate Students	29,932	8,722	21,210	97.0%	4%	0%	2.4	1%	15.1

Gold Tab - Commuter Annual VMT	Populations (1)	LRDP Project Description	Weekend Travel to Campus Compared to Weekday
ANN_COM_STAFF	Staff	12,145	10%
ANN_COM_FACULTY	Faculty	3,244	21%
ANN_COM_GRAD	Graduate Students	9,526	35%
ANN_COM_UNDERGRAD	Undergraduate Students	21,210	68%

Note: Commute days/year is directly entered in the calculation tabs, and is not pulled from this tab.

Light Blue Tab - Resident Weekday VMT	Campus Residents	LRDP PD	ITE and CHTS	Alameda CTC Model	Alameda CTC Model
		Number	Daily Trip Rate -- Weekday	Resident Trip Lengths	VMT/Unit
WEEKDAY_RES_FACULTY	Faculty	32			7.6
WEEKDAY_RES_GRAD	Graduate Students	250	0.3	2.0	
WEEKDAY_RES_UNDERGRAD	Undergraduate Students	8722	0.3	2.0	

TNC Counts	TNC Trip Rate	Owned Car Trips	Owned Car Trip Rate	Combined Trip Rate
27	0.020	242	0.027	0.047

Dark Blue Tab - Resident Annual VMT	Campus Residents	LRDP PD	Assume same as weekday (2)	Assume same as weekday (2)	Alameda CTC Model
		Number	Daily Trip Rate -- Weekend	Average Daily Trip Lengths - Weekend	VMT/Unit
ANNUAL_RES_FACULTY	Faculty	32	0	0	7.6
ANNUAL_RES_GRAD	Graduate Students	250	0.3	2	
ANNUAL_RES_UNDERGRAD	Undergraduate Students	8,722	0.3	2	

Note: Resident days/year is directly entered in the calculation tabs, and is not pulled from this tab.

Commuter Daily VMT
Home-Work trips

VL
DAILY_COM_STAFF
DAILY_COM_FACULTY
DAILY_COM_GRAD
DAILY_COM_UNDERGRAD

	Commuter Population	Commute Frequency (% of population on campus daily)	Drive-alone mode split	Carpool mode split	Carpool occupancy	TNC Mode Split	Worker trip lengths	Daily VMT	Daily VMT/Commuter
Staff	12,145	92.95%	0.51	0.07	2.4	0.01	14.2	176,062	14.50
Commuting Faculty	3,244	90.45%	0.46	0.05	2.4	0.01	6.6	19,011	5.86
Commuting Graduate Students	9,526	91.92%	0.07	0.01	2.4	0.01	13.7	20,193	2.12
Commuting Undergraduate Students	21,210	97.02%	0.04	0	2.4	0.01	15.1	31,071	1.46
Total								246,338	

Residential Daily VMT

All Home-Based Trips

VL
WEEKDAY_RES_FACULTY
WEEKDAY_RES_GRAD
WEEKDAY_RES_UNDERGRAD

	Number	Daily Trip Rate -- Weekday	Resident Trip Lengths	VMT/Faculty Unit Rate	VMT	VMT/Resident
Resident Faculty	32	0	0	7.6	243	7.60
Resident Graduate Students	250	0.3	2		150	0.60
Resident Undergraduate Students	8,722	0.3	2		5,233	0.60
Existing apartments on HP #1 Site	8	10.4	2.1		175	21.84
Total					5,801	

VMT Generated by Students, Faculty and Staff
VMT Metrics

Population	Number	Daily VMT Rate	Rate per	VMT Type	Baseline Daily VMT
Commuters					
Staff	12,145	14.50	Commuter	Home based - work trips	176,062
Faculty	3,244	5.86	Commuter	Home based - work trips	19,011
Graduate Students	9,526	2.12	Commuter	Home based - work trips	20,193
Undergraduate Students	21,210	1.46	Commuter	Home based - work trips	31,071
Total	46,125				246,338
Residents					
Faculty	32	7.6	Residential Unit	Home based trips	243
Graduate Students	250	0.60	Bed	Home based trips	150
Undergraduate Students	8,722	0.60	Bed	Home based trips	5,233
Total Residential VMT	9,004				5,626
Total VMT					251,964

	Existing Campus Metrics					
	Metric 1 Daily Home-Work VMT per Faculty, Staff and Student Population	Metric 2 Daily Home Based VMT per Resident Student	Metric 3 Daily Home Based VMT per Resident Faculty	Metric 4 Daily VMT per all Students	Metric 5 Daily VMT per all Staff and Faculty	Metric 6 Daily VMT per all Students, Staff and Faculty
VMT	246,338	5,383	243	56,647	195,317	251,964
Population	46,125	8,972	32	39,708	15,421	55,129
VMT/Population	5.34	0.60	7.60	1.43	12.67	4.57
Regional Average VMT/Population	18.1	19.8	19.8	The regional baseline thresholds do not apply to Metrics 4 - 6		
Threshold: 15% Below Regional Average	15.4	16.9	16.9			
Threshold met under Existing Conditions?	Yes (5.34 < 15.4)	Yes (0.60 < 16.9)	Yes (7.60 < 16.9)			
Campus Baseline VMT/Population Threshold: No Worse than Baseline	The campus baseline thresholds do not apply to Metrics 1 - 3			Campus baseline thresholds apply only to the Baseline With Project and Cumulative With Project impact assessments		

Unique Inputs
Unique Outputs (shown in calculation tabs)

Light Gold Tab - Commuter Daily and VMT	Populations (1)	LRDP Project Description (1)			Campus Travel Survey (CTS)					Commuter Residence GIS Database
		Total Population	Resident Population	Commuter Population	Commute Frequency (% of population on campus daily)	Drive-alone mode split	Carpool mode split	Carpool occupancy	TNC Mode Split	Worker Trip lengths
DAILY_COM_STAFF DAILY_COM_FACULTY DAILY_COM_GRAD DAILY_COM_UNDERGRAD	Staff Faculty Graduate Students Undergraduate Students	LRDP Project Description	"Total Beds" from Project Description	Total Population minus Total Beds	% of population on campus Sun-Sat	% of population that answered "Drive Alone" in CTS	% of population that answered "Carpool" in CTS	Sourced from California Household Travel Survey Info	% of population that answered "Ride-hail (Lyft, Uber)" in CTS	Network distance to campus from address location data set

Gold Tab - Commuter Annual VMT	Populations (1)	From UCB 2020 - 2021 Calendar
		Work days per year
ANN_COM_STAFF ANN_COM_FACULTY ANN_COM_GRAD ANN_COM_UNDERGRAD	Staff Faculty Graduate Students Undergraduate Students	See calculations in OK19-0321.00/Data Collection/Project Description/Project Description--10/6/20.

Light Blue Tab - Resident Weekday VMT	Campus Residents	LRDP Project Description	Model (fac) and ITE/ACS (students)	Model
		Number	Daily Trip Rate -- Weekday	Resident Trip Lengths
WEEKDAY_RES_FACULTY	Faculty	LRDP Project Description	Use VMT Rate direct from model TAZ 88, adjusted for faculty housing: 7.6 VMT/unit	See left
WEEKDAY_RES_GRAD	Graduate Students	LRDP Project Description	ITE MF Housing=1.84; ACS Driving mode share=0.16. 1.84X0.16=0.30. Note this applies to partners as well.	Model trip length for zones around campus = 2.0. Note this applies to partners as well.
WEEKDAY_RES_UNDERGRAD	Undergraduate Students	LRDP Project Description	Same as Grads	Model trip length for zones around campus = 2.0

TNC Counts	TNC Trip Rate	Owned Car Trips
27	0.020	242

Dark Blue Tab - Resident Annual VMT	Campus Residents	LRDP Project Description	Assume same as weekday (2)	Assume same as weekday (2)	From 2020-2021 Academic Calendar
		Number	Daily Trip Rate -- Weekend	Average Daily Trip Lengths - Weekend	# Resident Days/Year
ANNUAL_RES_FACULTY	Faculty	LRDP Project Description	Use VMT Rate direct from model TAZ 88, adjusted for faculty housing: 7.6 VMT/unit	See left	See calculations in OK19-0321.00/Data Collection/Project Description/Project Description--10-6-20'.
ANNUAL_RES_GRAD	Graduate Students	LRDP Project Description	ITE MF Housing=1.84; ACS Driving mode share=0.16. 1.84X0.16=0.30. Note this applies to partners as well.	Model trip length for zones around campus = 2.0. Note this applies to partners as well.	
ANNUAL_RES_UNDERGRAD	Undergraduate Students	LRDP Project Description	Same as Grads	Model trip length for zones around campus = 2.0	

Worksheet Input Data

Unique Inputs
 Unique Outputs (shown in calculation tabs)

Light Gold Tab - Commuter Daily and VMT	Populations (1)	LRDP Project Description (1)			Campus Travel Survey					Commuter Residence GIS Database
		Total Population	Resident Population	Commuter Population	Commute Frequency (% of population on campus daily)	Drive-alone mode split	Carpool mode split	Carpool occupancy	TNC Mode Split	Worker Trip lengths
DAILY_COM_STAFF	Staff	14,800	-	14,800	92.9%	51%	7%	2.4	1%	14.2
DAILY_COM_FACULTY	Faculty	4,200	581	3,619	90.5%	46%	5%	2.4	1%	6.6
DAILY_COM_GRAD	Graduate Students	13,200	2,315	10,885	91.9%	7%	1%	2.4	1%	13.7
DAILY_COM_UNDERGRAD	Undergraduate Students	35,000	17,730	17,270	97.0%	4%	0%	2.4	1%	15.1

Gold Tab - Commuter Annual VMT	Populations (1)	LRDP Project Description	Weekend Travel to Campus Compared to Weekday
ANN_COM_STAFF	Staff	14,800	10%
ANN_COM_FACULTY	Faculty	3,619	21%
ANN_COM_GRAD	Graduate Students	10,885	35%
ANN_COM_UNDERGRAD	Undergraduate Students	17,270	68%

Note: Commute days/year is directly entered in the calculation tabs, and is not pulled from this tab.

Light Blue Tab - Resident Weekday VMT	Campus Residents	LRDP PD	ITE and CHTS	Alameda CTC Model	Alameda CTC Model
		Number	Daily Trip Rate -- Weekday	Resident Trip Lengths	VMT/Unit
WEEKDAY_RES_FACULTY	Faculty	581			7.6
WEEKDAY_RES_GRAD	Graduate Students	2315	0.3	2.0	
WEEKDAY_RES_UNDERGRAD	Undergraduate Students	17730	0.3	2.0	

TNC Counts	TNC Trip Rate	Owned Car Trips	Owned Car Trip Rate	Combined Trip Rate
27	0.020	242	0.027	0.047

Dark Blue Tab - Resident Annual VMT	Campus Residents	LRDP PD	Assume same as weekday (2)	Assume same as weekday (2)	Alameda CTC Model
		Number	Daily Trip Rate -- Weekend	Average Daily Trip Lengths - Weekend	VMT/Unit
ANNUAL_RES_FACULTY	Faculty	581	0	0	7.6
ANNUAL_RES_GRAD	Graduate Students	2,315	0.3	2	
ANNUAL_RES_UNDERGRAD	Undergraduate Students	17,730	0.3	2	

Note: Resident days/year is directly entered in the calculation tabs, and is not pulled from this tab.

Commuter Daily VMT
Home-Work trips

VL
DAILY_COM_STAFF
DAILY_COM_FACULTY
DAILY_COM_GRAD
DAILY_COM_UNDERGRAD

	Commuter Population	Commute Frequency (% of population on campus daily)	Drive-alone mode split	Carpool mode split	Carpool occupancy	TNC Mode Split	Worker trip lengths	2040 Factor	Daily VMT	Daily VMT/Commuter
Staff	14,800	92.95%	0.51	0.07	2.4	0.01	14.2	1.00	214,551	14.50
Commuting Faculty	3,619	90.45%	0.46	0.05	2.4	0.01	6.6	1.00	21,209	5.86
Commuting Graduate Students	10,885	91.92%	0.07	0.01	2.4	0.01	13.7	1.00	23,074	2.12
Commuting Undergraduate Students	17,270	97.02%	0.04	0	2.4	0.01	15.1	1.00	25,299	1.46
Total									284,133	

Residential Daily VMT
All Home-Based Trips

VL
WEEKDAY_RES_FACULTY
WEEKDAY_RES_GRAD
WEEKDAY_RES_UNDERGRAD

	Number	Daily Trip Rate -- Weekday	Resident Trip Lengths	VMT/Faculty Unit Rate	2040 Factor	VMT	VMT/Resident or Unit
Resident Faculty	581	0	0	7.6	1.00	4,416	7.60
Resident Graduate Students and Partners*	3,348	0.3	2		1.00	2,009	0.60
Resident Undergraduate Students	17,730	0.3	2		1.00	10,638	0.60
Existing apartments on HP #1 Site	(8)	10.4	2.1		1.00	(175)	21.84
Supportive Housing at HP #2	125	0.3	2		1.00	75	0.6
Total						16,962	

* Incorporates 0.5 partners per new graduate student bed, based on UCB direction.

VMT Generated by Students, Faculty and Staff
LRDP Build-Out

Population	Number	Daily VMT Rate	Rate per	VMT Type	2040 + Project Daily VMT	2019 + Project Daily VMT
Commuters						
Staff	14,800	14.50	Commuter	Home based - work trips	214,551	214,551
Faculty	3,619	5.86	Commuter	Home based - work trips	21,209	21,209
Graduate Students	10,885	2.12	Commuter	Home based - work trips	23,074	23,074
Undergraduate Students	17,270	1.46	Commuter	Home based - work trips	25,299	25,299
Total	46,574				284,133	284,133
Residents						
Faculty	581	7.60	Residential Unit	Home based trips	4,416	4,416
Graduate Students	2,315	0.60	Bed	Home based trips	2,009	2,009
Undergraduate Students	17,730	0.60	Bed	Home based trips	10,638	10,638
Total Residential VMT	20,626				17,062	17,062
Total VMT					301,195	301,195

	Existing (Baseline) With Project Metrics					
	Metric 1 Daily Home-Work VMT per Faculty, Staff and Student Population	Metric 2 Daily Home Based VMT per Resident Student	Metric 3 Daily Home Based VMT per Resident Faculty	Metric 4 Daily VMT per all Students	Metric 5 Daily VMT per all Staff and Faculty	Metric 6 Daily VMT per all Students, Staff and Faculty
VMT	284,133	12,647	4,416	61,020	240,175	301,195
Population	46,574	20,045	581	48,200	19,000	67,200
VMT/Population	6.10	0.63	7.60	1.27	12.64	4.48
Regional Average VMT/Population	18.1	19.8	19.8	The regional baseline thresholds do not apply to Metrics 4 - 6		
Threshold: 15% Below Regional Average	15.4	16.9	16.9			
Threshold met under Baseline With Project Conditions?	Yes (6.10 < 15.4)	Yes (0.63 < 16.9)	Yes (7.60 < 16.9)			
Campus Baseline VMT/Population	The campus baseline thresholds do not apply to Metrics 1 - 3			1.43	12.67	4.57
Threshold: No Worse than Baseline				1.43	12.67	4.57
Threshold Met under Baseline With Project Conditions?				Yes (1.27 < 1.43)	Yes (12.64 < 12.67)	Yes (4.48 < 4.57)

	Cumulative (2040) With Project Metrics					
	Metric 1 Daily Home-Work VMT per Faculty, Staff and Student Population	Metric 2 Daily Home Based VMT per Resident Student	Metric 3 Daily Home Based VMT per Resident Faculty	Metric 4 Daily VMT per all Students	Metric 5 Daily VMT per all Staff and Faculty	Metric 6 Daily VMT per all Students, Staff and Faculty
VMT	284,133	12,647	4,416	61,020	240,175	301,195
Population	46,574	20,045	581	48,200	19,000	67,200
VMT/Population	6.10	0.63	7.60	1.27	12.64	4.48
Regional Average VMT/Population	18.3	19.1	19.1	The regional baseline thresholds do not apply to Metrics 4 - 6		
Threshold: 15% Below Regional Average	15.5	16.2	16.2			
Threshold met under Baseline With Project Conditions?	Yes (6.10 < 15.5)	Yes (0.63 < 16.2)	Yes (7.6 < 16.2)			
Campus Baseline VMT/Population	The campus baseline thresholds do not apply to Metrics 1 - 3			1.43	12.67	4.57
Threshold: No Worse than Baseline				1.43	12.67	4.57
Threshold Met under Baseline With Project Conditions?				Yes (1.27 < 1.43)	Yes (12.64 < 12.67)	Yes (4.48 < 4.57)