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Appendix 2: Collin County Mixed-use Study Development Inventory

Site Name	Area or Building	City	Size in Acres	TOD	Mixed-use Type
Watters Creek	Area	Allen	28	No	Vertically/horizontally integrated (Type 2)
Frisco Square and Mainstreet	Area	Frisco	64.9	No	Conventional small downtown area (Type 4)
The Plaza at Frisco Square	Building	Frisco	2.2	No	Vertically-integrated building (Type 1)
Legacy Commons	Area	Frisco	25.6	No	Vertically/horizontally integrated (Type 2)
Downtown Garland	Area	Garland	81.1	Yes	Conventional small downtown area (Type 4)
Oaks 5th St Crossing at City Station	Building	Garland	2.5	Yes	Vertically-integrated building (Type 1)
Oaks 5th St Crossing at City Center	Building	Garland	2.9	Yes	Vertically-integrated building (Type 1)
Times Square Building	Area	McKinney	5.9	No	Vertically-integrated building (Type 1)
Adriatica	Area	McKinney	37.8	No	Vertically/horizontally integrated (Type 2)
Downtown McKinney	Area	McKinney	52.2	No	Conventional small downtown area (Type 4)
Legacy Town Center	Area	Plano	261.2	No	Vertically/horizontally integrated (Type 2)
MAA Legacy	Building	Plano	2.5	No	Vertically-integrated building (Type 1)
The Grand at Legacy West	Building	Plano	4.8	No	Vertically-integrated building (Type 1)
Downtown Plano	Area	Plano	44.2	Yes	Vertically integrated mixed-use area (Type 3)
Junction 15 Apartments	Building	Plano	2.7	Yes	Vertically-integrated building (Type 1)
Morada Plano	Building	Plano	3.1	Yes	Vertically-integrated building (Type 1)
Bel Air Downtown	Building	Plano	2.8	Yes	Vertically-integrated building (Type 1)
Link at Plano	Building	Plano	3.1	Yes	Vertically-integrated building (Type 1)
Brick Row	Area	Richardson	7.1	Yes	Vertically-integrated building (Type 1)
CityLine	Area	Richardson	104.6	Yes	Vertically/horizontally integrated (Type 2)
SYNC CityLine	Building	Richardson	3	Yes	Vertically-integrated building (Type 1)
Axis110	Building	Richardson	3.3	Yes	Vertically-integrated building (Type 1)
Anthem CityLine	Building	Richardson	2.8	Yes	Vertically-integrated building (Type 1)
The Riley	Building	Richardson	2.5	Yes	Vertically-integrated building (Type 1)

Site Name	Area or Building	City	Size in Acres	TOD	Mixed-use Type
Eastside	Area	Richardson	13	Yes	Vertically/horizontally integrated (Type 2)
MAA Eastide	Building	Richardson	4.2	Yes	Vertically-integrated building (Type 1)
Galatyn Park	Area	Richardson	57.6	Yes	Vertically/horizontally integrated (Type 2)
Galatyn Station	Building	Richardson	3.2	Yes	Vertically-integrated building (Type 1)
Teel Pkwy & Main St	Area	Frisco	215.2	No	Segregated suburban development (Type 5)
Coit Rd & Eldorado Pkwy	Area	Frisco	178.4	No	Segregated suburban development (Type 5)

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http://factfinder2.census.gov/faces/nav/isf/pages/index.xhtml

All shaded cells are inputs Project / Scenario Specific Inputs Default National Factors - Can be changed for project based on site specific data, or regional values from census data, travel demand model, etc...

Section 1 - General Site Information

Site Name Adriatica in McKinney Notes / Instructions Geographic Developed Area (in acres) 37.76 Include streets, ROW, parking lots, pocket parks. Do not include open space, vacant lots. Number of Intersections 3 Count intersections either within or on the perimeter of the MXD. Do not count most unsignalized driveways or alleys, but DO count major entrances to shopping areas or residential developments. Is Transit (bus or rail) present within the site or across the Note: This is only used as a way to zero out the probability of external trips if no transit is present. street? No Land Use - Surrounding Area Answering "Yes" will reduce the HBO and NHB purpose splits for retail use to those found in smaller stores. The nature of No the stores (large vs. small) should be the primary factor in the selection here. Is the site in a Central Business District or TOD? Employment within one mile of the MXD 4,134 Do not include employment within the MXD itself Employment within a 30 minute Transit Trip (Door-to-door) 3,061 Include employment within the MXD itself This can be a difficult number to get - some suggestions are in the instructions tab in "Instructions."

Site Demographics

Conversion Factors

Enter Population Directly?

Yes If "No", will apply average HH size factors (in section 2) to dwelling units below Population 483 Enter Population Here. You still need to enter dwelling units below

The U.S. Census American Community Survey is likely a good source. Go to the link at right, and search "Community Facts" for your community. The vehicles per household data Average Vehicles Owned per Dwelling Unit 1.07 is within the housing statistics of the ACS.

Section 2 - Variable Modeling Parameters

Average Household Size		Source:	What does this input affect?
Single Family	3.2		Directly affects trip internalization and mode
Multi-Family			splits. Also used to compute site population if
High Rise Condo			population isn't entered directly.
	2.5		population isn't entered directly.
Jobs per ksf			
Retail	2.0	ITE Trip Generation Manual	
Office	3.0	ITE Trip Generation Manual	Used to compute site employment for any land
Light Industrial		ITE Trip Generation Manual	uses which are entered in ksf rather than jobs.
Manufacturing		ITE Trip Generation Manual	For retail, if land uses are entered in jobs, it's
Warehousing		ITE Trip Generation Manual	used to convert back to ksf for trip generation
Misc. Uses	2.0	ITE Trip Generation Manual	calculations.
11136. 0363	2.0	The the Generation Manual	calculations.
Jobs from ITE rates per other unit			
JODS HOIT THE TALES PER OTHER UNIT		Source	
Jobs per Hotel Room	0.50	ITE Trip Generation Manual	
Jobs per Hotel Room	4.00	ITE Trip Generation Manual	
•			l land to compute site employment for these
Grade School Jobs per student	0.10	ITE Trip Generation Manual	Used to compute site employment for these
High School / Middle School Jobs per Student	0.10	ITE Trip Generation Manual	land uses which are typically expressed in
College Jobs per student	0.25	ITE Trip Generation Manual	other units

Trip Purpose Splits by Land Use Type

ificantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCd This will affect the final results sig

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab.

If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the total is 100%

NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

			Prod	luctions		Att	ractions			
DAILY	Use NCHRP?	HBW	HBO	NHB	HBW	H	во	NHB	Source (if	not using NCHRP):
Residences	Yes		15%	50%	10%	7%	8%	10%		
Retail	Yes		0%	0%	15%	10%	60%	15%		
Office	Yes		0%	0%	15%	35%	35%	15%		
Other non-residential (excluding schools)	Yes		0%	0%	10%	60%	20%	10%		
Schools	No		0%	0%	2.5%	35%	60%	3%		
AM PEAK HOUR										
Residences	Yes		15%	50%	10%	7%	8%	10%		
Retail	Yes		0%	0%	15%	10%	60%	15%		
Office	Yes		0%	0%	15%	35%	35%	15%		
Other non-residential (excluding schools)	Yes		0%	0%	10%	60%	20%	10%		
Schools	No		0%	0%	2.5%	35%	60%	3%		
PM PEAK HOUR										
Residences	Yes		15%	50%	10%	7%	8%	10%		
Retail	Yes		0%	0%	15%	10%	60%	15%		
Office	Yes		0%	0%	15%	35%	35%	15%		
Other non-residential (excluding schools)	Yes		0%	0%	10%	60%	20%	10%		
Schools	No		0%	0%	2.5%	35%	60%	3%		

NON-HOME BASED TRIPS GENERATED BY PROJECT HOUSEHOLDS

Enter the percent of these that occur		Source for th	is information:	
Completely Within the Project Site	25%			
With one trip end external to the Project Site	15%			This only affects VMT
Completely outside the Project Site	60%	Calculated from other tw	vo percentages	calculations

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

AM Peak PM Peak

NHB

8.36 7.98

Section 3 - Land Use Inputs

Section 5 - Land Ose inputs			Trip Equation	n Method	Trips				ITE Daily P	arameters					AM PEAK	HOUR TRIP	RATES		
Qua	intity	Units	Daily	PM Peak AM Peak Hour Hour	Daily	AM Peak Hour	PM Peak Hour		Code	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
Number of Dwelling Units																			
Single Family Multi-Family High Rise Condo	0 407 0	DU DU	Linear Equation	Linear Equatior Log Equatior or Linear Equatior Linear Equat or Linear Equatior Linear Equat	i 2,590	0 203 0	0 242 0		210 220 232	9.57 6.65 4.18	6.06 3.77	123.56 223.66	0.92	2.71	0.75 0.51 0.34	0.7 0.49 0.29	9.74 3.73 28.86		
Retail (note: if you use job units for retail, the spreadsheet w before applying trip rates, using the rate in section 2 which y																			
	16 0 5.525 2.048 21 1.634 0 0	ksf ksf ksf ksf ksf ksf ksf	Average Rate Average Rate Average Rate Average Rate Average Rate Average Rate	Log Equation Log Equation Average Rate Average Rate Average Rate Average Rate	e 0 e 819 e 67 e 2,723 e 811 e 0	53 0 68 3 247 81 0 0	189 0 143 7 239 55 0 0	Note the formulas are slightly different in this section <====	820 850 912 492 932 934 945 942	42.94 102.24 148.15 32.93 127.15 496.12 1181.07 31.6	66.95	1391.56	0.65	5.83	1 3.59 12.35 1.38 11.52 49.35 79.3 2.94			0.59	2.32
Office									= 10										
Non-Medical Medical	143 1.161			Log Equation Linear Equat Average Rate Average Rate		249 3	239 4		710 720	11.01 36.13			0.77 40.89	3.65 -214.97	1.55 2.3			0.8	1.55
Industrial Light Industrial Manufacturing Warehousing / Self-Storage Hotel (including restaurant, facilities, etc) Motel Movie Theater	36 0 0 0 0	ksf	Average Rate Average Rate Average Rate Average Rate	Average Rate Average Rate Average Rate Average Rate	e 0 e 0 e 0 e 0	16 0 0 0 0	15 0 0 0 0 0	I	110 140 151 310 320 445	3.02 3.82 2.5 8.17 5.63 175.29	2.95 3.88 8.95	30.57 -20.7 -373.16	1.01 0.92	0.82	0.44 0.73 0.15 0.56 0.45 0	0.27 0.83	70.47 -29.52	1.24 0.92	-2 -0.46
School University High School Middle School Elementary	0 0	Students Students Students Students	Average Rate Average Rate	Average Rate Average Rate Average Rate Average Rate Average Rate Average Rate Average Rate Average Rate	e O e O	0 0 0 0	0 0 0 0		550 530 522 520	2.38 1.71 1.62 1.29	2.23	440	0.81	1.86	0.21 0.42 0.54 0.45	0.21	-69.14	1.14	-1.86
Daily Trips from Land uses not covered above ==> Jobs in those Land Uses		-	k 0																

 Daily
 Hour

 Total "Baseline" ITE Trips
 11,009
 922
 1,132

Section 4 - VMT Inputs

 HBW
 HBO

 Average Trip Length in the Region
 12.77
 7.54

 Average Trip Length in the Traffic Analysis Zone
 12.8
 7.94

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01			0.9	0.51
0.62	0.55	17.65		
0.38	0.34	15.47		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84				
97.08				
3.38			0.94	1.33
1.10	4.40	70.04		
1.49 3.46	1.12	78.81	0.00	4 50
3.40			0.88	1.59
0.42	0.29	58.03		
0.42	0.23	-15.97		
0.26	0.70	10.07	1.02	1.49
0.20			1102	
0.59				
0.47			0.94	-0.51
13.64				
0.21	0.19	118.58		
0.13				

0.16 0.15

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	,		
	Yes	Yes	Yes
	Yes	Yes	Yes
	Yes	Yes	Yes
	Tes	162	Tes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
3.0	Yes	Yes	Yes
3.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
0.5	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	163	163	165
0.50	Yes	Yes	Yes
0.50	Yes	Yes	Yes
4.00	Yes	Yes	Yes
0.25	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes

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MODEL APPLICATION - ALL TRIPS

		Dai	ly			AM Pea	k Hour			PM Peak	Hour	
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	1845	6437	2727	11009	398	463	62	922	267	558	307	1132
Internal Capture	4.49%	3.08%	3.45%	3.41%	4.94%	5.54%	3.45%	5.14%	4.49%	3.08%	3.45%	3.51%
Walking External	3.31%	6.32%	0.75%	4.44%	3.97%	8.21%	0.75%	5.87%	3.31%	6.32%	0.75%	4.10%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	83	198	94	375	20	26	2	47	12	17	11	40
Walking External	58	394	20	472	15	36	0	51	8	34	2	45
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
MXD Model # of Vehicle Trips	1704	5844	2613	10161	363	401	59	824	247	507	295	1048
Results	Extern	al Vehicle	Trips						Total Trips	Reduced		
E	Baseline A	Adjusted I	Reduction	%				HBW H	HBO N	IHB 1	Fotal	
Daily	11,009	10,161	8%				Daily	141	592	114	848	
AM Peak Hour	922	824	11%			AM F	Peak Hour	35	62	3	99	
PM Peak Hour	1,132	1,048	7%			PM F	eak Hour	20	51	13	85	

MODEL APPLICATION - TRIP ENDS ASSOCIATED

WITH HOUSES IN THE PROJECT ONLY

		Dai	ly			AM Peal	k Hour			PM Peak	Hour	
	HBW	HBO	NHB '	Total	HBW	HBO	NHB 1	Fotal	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	532	1684	374	2590	91	105	7	203	68	136	38	242
Internal Capture	4.49%	3.08%	3.45%	3.42%	4.94%	5.54%	3.45%	5.20%	4.49%	3.08%	3.45%	3.53%
Walking External	3.31%	6.32%	0.75%	4.90%	3.97%	8.21%	0.75%	6.04%	3.31%	6.32%	0.75%	4.60%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	24	52	13	89	5	6	0	11	3	4	1	9
Walking External	17	103	3	123	3	8	0	12	2	8	0	11
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted # (MXD Model) of Vehicle Trips												
generated by Project Residences	492	1529	358	2379	83	91	7	181	63	123	37	222
	Extern	al Vehicle [.]	Trips									
Results	Baseline /	Adjusted F	Reduction 9	%								
Daily	2,590	2,379	8%									
AM Peak Hour	203	181	11%									
PM Peak Hour	242	222	8%									

Daily VMT Reduced

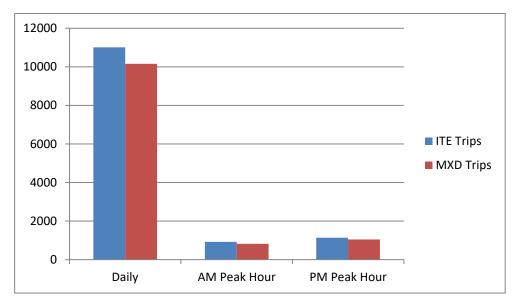
	HBW
ITE Daily VMT	
MXD Daily Adjusted VMT	
MXD Reduction in Daily VMT	
(VMT Reduction from Trip Capture)	
as a percentage	

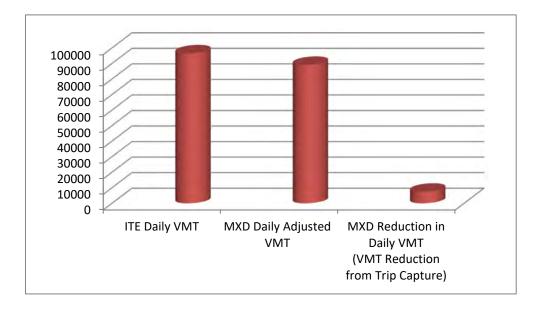
HBW
VMT Reduction from Trip Capture 1,8

VMT Reduction from Shorter Trips Total Daily VMT Avoided

	MXD Peak Hour Factors by Trip Purpose											
Module		AM	PM									
Module	HBW	HBO	NHB	HBW	HBO	NHB						
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00						
Walking External	1.20	1.30	1.00	1.00	1.00	1.00						
Transit External	1.40	1.10	1.00	1.40	1.00	1.00						

1		нво		NHB		Total	
	23,613		51,109		21,763		96,485
	21,808		46,405		20,852		89,065
							7,420 8%
1		нво		NHB		Total	
	1,806		4,704		910		7,420
	(51)		(2,338)		993		(1,396)
	. ,						6,024





Fehr / Peers

All shaded cells are inputs Project / Scenario Specific Inputs Default National Factors - Can be changed for project based on site specific data, or regional values from census data, travel demand model, etc...

Section 1 - General Site Information

Site Name								
	Cityline in Richardson							
Geographic Developed Area (in acres) Number of Intersections s Transit (bus or rail) present within the site or across the street?	26 Count intersections	W, parking lots, pocket parks. Do a seither within or on the perimeter of	not include open space, vacant lots. the MXD. Do not count most unsignalized driveways or alleys, but DO count major entrances to shopping areas or residential developments billty of external trips if no transit is present.					
	·							
Land Use - Surrounding Area Answering "Yes" will reduce the HBO and NHB purpose splits for retail use to those found in smaller stores. The nature of Is the site in a Central Business District or TOD? Yes the stores (large vs. small) should be the primary factor in the selection here. Employment within one mile of the MXD 48,017 Do not include employment within the MXD itself Employment within a 30 minute Transit Trip (Door-to-door) 70,221 Include employment within the MXD itself This can be a difficult number to get - some suggestions are in the instructions tab in "Instructions." This can be a difficult number to get - some suggestions are in the instructions."								
Site Demographics Enter Population Directly? Population		verage HH size factors (in section 2 ere. You still need to enter dwelling						
Average Vehicles Owned per Dwelling Unit	right, and search "	merican Community Survey is likel Community Facts" for your commun ousing statistics of the ACS.						
Section 2 - Variable Modeling Para	<u>meters</u>							
Conversion Factors								
Average Household Size		Source:	What does this input affect?					
- Sii N	ingle Family 3.2 Multi-Family 2.5 Rise Condo 2.5		Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.					
Jobs per ksf								
Ma W	Retail 2.0 Office 3.0 ht Industrial 1.0 anufacturing 0.5 Varehousing 2.0 Misc. Uses 2.0	ITE Trip Generation Manual ITE Trip Generation Manual	Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.					
Ligt Ma W	Office 3.0 ht Industrial 1.0 anufacturing 0.5 Varehousing 2.0	ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual	land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip					

Trip Purpose Splits by Land Use Type This will affect the final results significantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCc

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab. If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the

total is 100% NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

			Productions		Attractions			
DAILY	Use NCHRP?	HBW H	BO NHB	HBW	H	IBO	NHB	Source (if not using NCI
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
AM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
PM PEAK HOUR								
esidences	Yes	15%	50%	10%	7%	8%	10%	
etail	Yes	0%	0%	15%	10%	60%	15%	
office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	

NON-HOME BASED TRIPS GENERATED BY PROJECT HOUSEHOLDS
Enter the percent of these that occur

25%
15%
60% 0

This only affects VMT calculations 15% 60% Calculated from other two percentages

Source for this information:

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

Section 3 - Land Use Inputs

		Trip Equation Me	ethod	Trips				ITE Daily F	Parameters					AM PEA	K HOUR TRIF	RATES			PM PEAK	HOUR TRIF	RATES
	Quantity Units	Daily Al	PM Peak M Peak Hour Hour	Daily		k PM Peak Hour		Code	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	e Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	Linear Multiplier	Linear Log Constant Multip
Number of Dwelling Units																					
Single Fam			near Equatior Log Equation	0	0	0		210				0.92	2.71	0.7					1.01		
Multi-Fam			near Equatior Linear Equation					220			123.56			0.5					0.62	0.55	
High Rise Con	do <mark>0</mark> DU	Linear Equatior Li	near Equatior Linear Equation	0	0	0		232	4.18	3.77	223.66			0.3	4 0.29	28.86			0.38	0.34	15.47
Retail (note: if you use job units for retail, the spreads	sheet will convert																				
before applying trip rates, using the rate in section 2 v																					
General Retail other than those listed belo		Log Equation Lo	og Equation Log Equation	6,791	154	636	Note the	820	42.94			0.65	5.83		1		0.59	2.32	3.73		0
Supermark		Average Rate Av	verage Rate Average Rate	4,192	147	431	formulas	850	102.24	66.95	1391.56			3.5					10.5		0
Ba			verage Rate Average Rate		31	65	are	912						12.3					25.82		
Health Cl			verage Rate Average Rate		8	21	slightly	492						1.3					3.53		0
Restaurant (non-fast foo			verage Rate Average Rate		1,210		different	932						11.5					11.15		
Fast-Food Restaura			verage Rate Average Rate		99	68	in this	934						49.3					33.84		
Gas Statio			verage Rate Average Rate		0	0	section	945						79.					97.08		
Auto Repa	air <mark>0ksf</mark>	Average Rate Av	verage Rate Average Rate	0	0	0	<====	942	31.6					2.9	4				3.38		0
Office Non-Media	cal 2095 ksf	Log Equation Lo	og Equation Linear Equation	13,883	2,138	2,425		710	11.01			0.77	3.65	1.5	5		0.8	1.55	1.49	1.12	78.81
Media			verage Rate Average Rate		150	2,425		710				40.89	-214.97	2.			0.0	1.55	3.46		0.01
Industrial		Average Nate A	verage itale Average itale	2,340	150	225		720	50.15			40.03	-214.31	2.	5				3.40		0
Light Industr	ial 53 jobs	Average Rate Av	verage Rate Average Rate	160	23	22		110	3.02	2.95	30.57			0.4	4 0.27	70.47			0.42	0.29	58.03
Manufacturi			verage Rate Average Rate		0	0		140			-20.7			0.7					0.73	0.78	
Warehousing / Self-Storad			verage Rate Average Rate		0	Ō		151				1.01	0.82	0.1					0.26		1
ů .		Ū	0																		
Hotel (including restaurant, facilities, etc)	148 Rooms		verage Rate Average Rate		83	87		310			-373.16			0.5			1.24	-2	0.59		
Motel	0 Rooms	Average Rate Av	verage Rate Average Rate	0	0	0		320				0.92	2.11	0.4	5		0.92	-0.46	0.47		0
Movie Theater	0 Screens	Average Rate Av	verage Rate Average Rate	0	0	0		445	175.29						0				13.64		
School				_	-	_															
Univers			verage Rate Average Rate		0	0		550			440		4.00	0.2		-69.14			0.21	0.19	118.58
High Scho Middle Scho			verage Rate Average Rate verage Rate Average Rate		0	0		530	1.71 1.62			0.81	1.86	0.4					0.13 0.16		
Elementa			verage Rate Average Rate verage Rate Average Rate		0	0		522 520						0.5 0.4			1.14	-1.86	0.16		
Elementa	ary 0 Students	Average Rate A	verage Rale Average Rale	0	0	0		520	1.29					0.4	5		1.14	-1.00	0.15		
	AM Peak PM Pe	ak																			
	Daily Hour Hour																				
Trips from Land uses not covered above ==>	0 0	0																			
Jobs in those Land Uses	0																				
	AM Peak PM Pe	ak																			
	Daily Hour Hour																				
Total "Baseline" ITE Trips	61,835 5,520	6,821																			
Continu 4 V/MT Investo																					
Section 4 - VMT Inputs																					

Section 4 - VMT Inputs

	HBW	HBO	NHB
Average Trip Length in the Region	12.77	7.54	8.36
Average Trip Length in the Traffic Analysis Zone	7.72	4.51	7.26

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01			0.9	0.51
0.62	0.55	17.65	0.9	0.51
0.02	0.33	17.05		
0.00	0.01	10.11		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84 97.08				
3.38			0.94	1.33
3.30			0.94	1.33
1.49	1.12	78.81		
3.46			0.88	1.59
0.42	0.29	58.03		
0.73	0.78	-15.97		
0.26			1.02	1.49
0.59			0.04	0.54
0.47 13.64			0.94	-0.51
13.64				
	0.40	110 50		

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
2.0 2.0 2.0 2.0 2.0 2.0 2.0	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes
2.0 2.0 3.0	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
3.0	Yes	Yes	Yes
0.5 2.0	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
0.50 0.50 4.00	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
0.25 0.10 0.10 0.10	Yes Yes Yes Yes	Yes Yes Yes Yes	Yes Yes Yes Yes

FEHRPEERS

MODEL APPLICATION - ALL TRIPS

		Daily				AM Peal	k Hour		PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model)	17732	29223	14879	61835	3289	1931	300	5520	2549	2558	1714	6821
% External Trip Reduction												
(predicted by MXD Model)												
Internal Capture	5.04%	7.60%	17.42%	9.23%	5.54%	13.67%	17.42%	9.03%	5.04%	7.60%	17.42%	9.11%
Walking External	11.56%	21.56%	9.03%	15.82%	13.87%	28.03%	9.03%	18.33%	11.56%	21.56%	9.03%	14.79%
Transit External	9.44%	3.36%	2.97%	5.10%	13.22%	3.70%	2.97%	9.55%	13.22%	3.36%	2.97%	7.12%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	894	2220	2592	5706	182	264	52	499	128	194	299	621
Walking External	1947	5821	1110	8878	431	467	22	920	280	510	128	917
Transit External	1590	907	365	2862	411	62	7	480	320	79	42	441
MXD Model # of Vehicle Trips	13302	20275	10813	44389	2265	1138	218	3621	1821	1775	1246	4841
Results	Extern	al Vehicle	Trips						Total Trips	Reduced		
E	Baseline /	Adjusted	Reduction	%				HBW I	HBO N	IHB 1	Fotal	
Daily	61,835	44,389	28%				Daily	4430	8948	4067	17445	
AM Peak Hour	5,520	3,621	34%			AM F	eak Hour	1024	793	82	1899	
PM Peak Hour	6,821	4,841	29%			PM F	eak Hour	728	783	469	1980	

MODEL APPLICATION - TRIP ENDS ASSOCIATED

WITH HOUSES IN THE PROJECT ONLY

		Dai	ly			AM Peal	k Hour			PM Peak	Hour	
	HBW	HBO	NHB 1	Fotal	HBW	HBO	NHB	Total	HBW	HBO	NHB .	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	3770	11923	2648	18340	663	762	51	1477	469	938	264	1671
Internal Capture	5.04%	7.60%	17.42%	8.49%	5.54%	13.67%	17.42%	10.15%	5.04%	7.60%	17.42%	8.43%
Walking External	11.56%	21.56%	9.03%	17.79%	13.87%	28.03%	9.03%	20.74%	11.56%	21.56%	9.03%	16.86%
Transit External	9.44%	3.36%	2.97%	4.61%	13.22%	3.70%	2.97%	8.17%	13.22%	3.36%	2.97%	6.17%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	190	906	461	1557	37	104	9	150	24	71	46	141
Walking External	414	2375	197	2986	87	184	4	275	52	187	20	258
Transit External	338	370	65	773	83	24	1	108	59	29	6	94
Adjusted # (MXD Model) of Vehicle Trips												
generated by Project Residences	2828	8272	1924	13024	457	449	37	943	335	651	192	1178
	Extern	al Vehicle	Trips									
Results	Baseline .	Adjusted F	Reduction %	6								
Daily	18,340	13,024	29%									
AM Peak Hour	1,477	943	36%									
PM Peak Hour	1,671	1,178	30%									

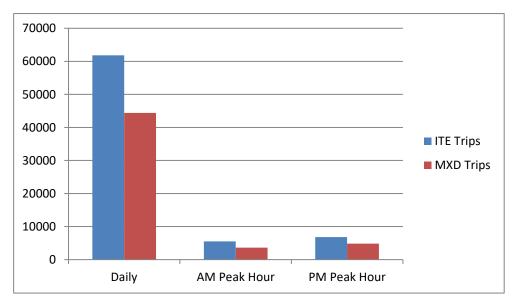
Daily VMT Reduced

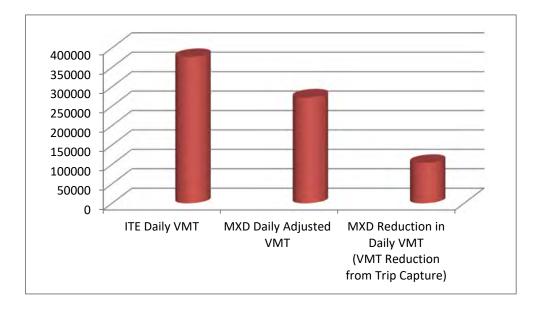
	HBW
ITE Daily VMT	1
MXD Daily Adjusted VMT	1
MXD Reduction in Daily VMT	
(VMT Reduction from Trip Capt	ure)
as a percentage	

HBW VMT Reduction from Trip Capture 34, VMT Reduction from Shorter Trips 67, Total Daily VMT Avoided

MXD Peak Hour Factors by Trip Purpose											
Module		AM	PM								
Module	HBW		NHB	HBW	HBO	NHB					
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00					
Walking External	1.20	1.30	1.00	1.00	1.00	1.00					
Transit External	1.40	1.10	1.00	1.40	1.00	1.00					

	136,891 102,690	НВО	131,797 91,441	NHB	108,023 78,500	Total	376,711 272,630
							104,081 28%
W	34,200 67,174	НВО	40,357 61,433	NHB	29,524 11,894		104,081 140,502 244,583





Fehr / Peers

All shaded cells are inputs Project / Scenario Specific Inputs Default National Factors - Can be changed for project based on site specific data, or regional values from census data, travel demand model, etc...

Section 1 - General Site Information

Site Name	Coit Rd and Eldorado Pkwy	(Frisco)	
Geographic Developed Area (in acres) Number of Intersections		ROW, parking lots, pocket parks. Do	not include open space, vacant lots. f the MXD. Do not count most unsignalized driveways or alleys, but DO count major entrances to shopping areas or residential development
Is Transit (bus or rail) present within the site or across the street?	No Note: This is only	used as a way to zero out the proba	ability of external trips if no transit is present.
Land Use - Surrounding Area			
Is the site in a Central Business District or TOD? Employment within one mile of the MXD Employment within a 30 minute Transit Trip (Door-to-door)	No the stores (large 6,197 Do not include er 3,195 Include employm	vs. small) should be the primary fact nployment within the MXD itself ent within the MXD itself	use splits for retail use to those found in smaller stores. The nature of or in the selection here.
Site Demographics Enter Population Directly? Population		average HH size factors (in section Here. You still need to enter dwellir	
Average Vehicles Owned per Dwelling Unit	right, and search	American Community Survey is like "Community Facts" for your commu housing statistics of the ACS.	
Section 2 - Variable Modeling Parar	neters		
Conversion Factors			
		Source:	What does this input affect?
N	ngle Family 3.2 Aulti-Family 2.5 Rise Condo 2.5		Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
Jobs per ksf			
Mar Wa	Retail2.0Office3.0at Industrial1.0nufacturing0.5arehousing2.0Misc. Uses2.0	ITE Trip Generation Manual ITE Trip Generation Manual	Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.
Jobs from ITE rates per other unit		Source	

Trip Purpose Splits by Land Use Type This will affect the final results significantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCc

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab. If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the

total is 100% NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

	Productions Attractions									
DAILY	Use NCHRP?	HBW H	BO NHB	HBW	H	IBO	NHB	Source (if not using NCI		
Residences	Yes	15%	50%	10%	7%	8%	10%			
Retail	Yes	0%	0%	15%	10%	60%	15%			
Office	Yes	0%	0%	15%	35%	35%	15%			
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%			
Schools	No	0%	0%	2.5%	35%	60%	3%			
AM PEAK HOUR										
Residences	Yes	15%	50%	10%	7%	8%	10%			
Retail	Yes	0%	0%	15%	10%	60%	15%			
Office	Yes	0%	0%	15%	35%	35%	15%			
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%			
Schools	No	0%	0%	2.5%	35%	60%	3%			
PM PEAK HOUR										
esidences	Yes	15%	50%	10%	7%	8%	10%			
etail	Yes	0%	0%	15%	10%	60%	15%			
office	Yes	0%	0%	15%	35%	35%	15%			
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%			
Schools	No	0%	0%	2.5%	35%	60%	3%			

NON-HOME BASED TRIPS GENERATED BY PROJECT HOUSEHOLDS	
Enter the percent of these that occur	

		o miornation.
Completely Within the Project Site	25%	
With one trip end external to the Project Site	15%	
Completely outside the Project Site	60% Calculated from other tw	o percentages

Source for this information: This only affects VMT calculations

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

Section 3 - Land Use Inputs

antity Units 496 DU	Daily	PM Peak AM Peak Hour Hour	Daily	AM Peak Hour	PM Peak			Average	Linear	Linear	Log	1.00	Average	Linear	Linear	Log		
496 DU					noui		Code	Rate I		Constant		Log Constant	Rate			Multipler	Log Constan	
496 DU																		
		Linear Equatior Log Equation		357	444	_	210	9.57			0.92	2.71	0.75	0.7	9.74			
0 DU		r Linear Equatior Linear Equa		0	0		220	6.65	6.06	123.56			0.51	0.49	3.73			
0 DU	Linear Equation	r Linear Equatior Linear Equa	tic O	0	0		232	4.18	3.77	223.66			0.34	0.29	28.86			
ill convert																		
											0.65	5.83	1			0.59	2.32	
					-				66.95	1391.56								
						in this												
						section												
72.61 ksf	Average Rate	Average Rate Average Ra	te 2,294	213	245	<====	942	31.6					2.94					
																0.8	1.55	
181.44 ksf	Average Rate	Average Rate Average Ra	te 6,555	417	628	_	720	36.13			40.89	-214.97	2.3					
									3.88	-20.7				0.83	-29.52			
0 ksf	Average Rate	Average Rate Average Ra	te 0	0	0		151	2.5			1.01	0.82	0.15					
0 Rooms	Average Rate	Average Rate Average Ra	te 0	0	0		310	8.17	8.95	-373.16			0.56			1.24	-2	
0 Rooms	Average Rate	Average Rate Average Ra	te 0	0	0		320	5.63			0.92	2.11	0.45			0.92	-0.46	
0 Screens	Average Rate	Average Rate Average Ra	te 0	0	0		445	175.29					0					
0 Students	Average Rate	Average Rate Average Ra	te 0	0	0		550	2.38	2.23	440			0.21	0.21	-69.14			
0 Students	Average Rate	Average Rate Average Ra	te 0	0	0		530	1.71			0.81	1.86	0.42					
0 Students	Average Rate	Average Rate Average Ra	te 0	0	0		522	1.62					0.54					
0 Students	Average Rate	Average Rate Average Ra	te 0	0	0		520	1.29					0.45			1.14	-1.86	
	276 ksf 0 ksf 1 ksf 24.6 jobs 0 ksf 0 ksf 24.6 jobs 0 ksf 0 ksf 0 ksf 0 ksf 0 ksf 0 Students 0 Students 0 Students 0 Students	276 ksf Log Equation 00 ksf Average Rate 0 ksf Average Rate 49 ksf Average Rate 1 ksf Average Rate 0 Rooms Average Rate 0 Screens Average Rate 0 Students Average Rate 0 Students Average Rate	276 ksf Log Equation Log Equation Log Equation Log Equation Log Equation Average Rate Average Rate	276 ksf Log Equation Log Equation Log Equation 13,131 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 ksf Average Rate Average Rate Average Rate 2,294 49 ksf Log Equation Log Equation Linear Equati 768 81.44 ksf Average Rate Average Rate Average Rate Average Rate 0 0 ksf Average Rate Average Rate Average Rate 0 6,555 24.6 jobs Average Rate	276 ksf Log Equation Log Equation Log Equation 13,131 280 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 0 ksf Average Rate Average Rate Average Rate 0 0 0 ksf Average Rate Average Rate Average Rate 0 0 0 ksf Average Rate Average Rate Average Rate 0 0 0 ksf Average Rate Average Rate Average Rate 0 0 49 ksf Log Equation Log Equation Linear Equati 768 106 81.44 ksf Average Rate Average Rate Average Rate Average Rate 0 0 81.44 ksf Average Rate Average Rate Average Rate 0 0	276 ksf Log Equation Log Equation Log Equation 13,131 280 1,255 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 0 0 ksf Average Rate Average Rate Average Rate 0	276 ksf Log Equation Log Equation Log Equation 13,131 280 1,255 Note the 0 ksf Average Rate Average Rate Average Rate 0 0 0 are 0 ksf Average Rate Average Rate Average Rate 0 0 0 are 0 ksf Average Rate Average Rate Average Rate 0 0 0 are 0 ksf Average Rate Average Rate Average Rate 0 0 0 different 0 ksf Average Rate Average Rate Average Rate 0 0 0 in this 0 ksf Average Rate Average Rate Average Rate 0 0 o in this 0 ksf Average Rate Average Rate Average Rate Average Rate Average Rate 2.294 213 245 <====	ill convert ou can change) Log Equation Average Rate Average Ra	ill convert ou can change)276ksfLog EquationLog EquationLog Equation13,1312801,255Note the 85082042,940ksfAverage RateAverage RateAverage Rate000formulas850102,240ksfAverage RateAverage RateAverage Rate000are912148,150ksfAverage RateAverage RateAverage Rate000slightly49232,930ksfAverage RateAverage RateAverage RateAverage RateAverage Rate00oslightly49232,930ksfAverage RateAverage RateAverage RateAverage Rate00ointhis934496,120ksfAverage RateAverage RateAverage RateAverage Rate00osection9451181,0772.61ksfLog EquationLog EquationLog EquationLog EquationLog Equation101103.0249ksfLog EquationLog EquationLog EquationLog Equation16,55541762872036.1314.14ksfAverage RateAverage RateAverage RateAverage Rate7411101103.0224.6jobsAverage RateAverage RateAverage Rate001403.820ksf	ill convert ou can change)276 ksf 0 ksfLog Equation Average RateLog Equation Average RateLog Equation 013,13128042.94276 ksf 0 ksfLog Equation Average RateLog Equation Average RateAverage Rate Average RateAverage Rate Average Rate00042.94276 ksf 0 ksfAverage Rate Average R	ill convert ou can change)276ksfLog EquationLog Equation13,1312801,255Note the formulas82042.9466.951391.560ksfAverage RateAverage RateAverage RateAverage Rate000are912148.150ksfAverage RateAverage RateAverage RateAverage Rate0000sightly49232.930ksfAverage RateAverage RateAverage RateAverage Rate000in this932127.150ksfAverage RateAverage RateAverage RateAverage RateAverage Rate00in this934496.120ksfAverage RateAverage RateAverage RateAverage RateAverage Rate00section9451181.0772.61ksfAverage RateAverage RateAverage RateAverage Rate2,294213245<====	Ill convert ou can change)276kst <th co<="" td=""><td>Ide convert ou can change) 276 ksf Log Equation <th< td=""><td>Id convert ou can change) Log Equation Log Equation 13,131 280 1,255 Note the BSD 820 42.94 0.65 5.83 1 276 ksf Average Rate Average Rate Average Rate 0 0 are 912 148.15 1.235 1.235 0 ksf Average Rate Average Rate Average Rate 0 0 are 912 148.15 1.235 0 ksf Average Rate Average Rate Average Rate Average Rate Average Rate 1.235 0 ksf Average Rate Average Rate Average Rate Average Rate 1.235 1.152 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 in this 932 127.15 1.52 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 section 942 31.6 2.94 1.55 1.55 1.55 <td< td=""><td>Ide can change) Z76 ksf Log Equation Log Equation 13,131 280 1,255 Note the formulas 850 42.94 0.65 5.83 1 0 ksf Average Rate <td< td=""><td>Ill convert ou can change) 276 kst Log Equation Log Equ</td><td>Ill convert ou can change) Log Equation Log Equation Log Equation Log Equation 13,131 280 1,255 Note the 850 62.24 66.95 5.83 1 0.59 0 kst Average Rate Average Rate</td></td<></td></td<></br></td></th<></td></th>	<td>Ide convert ou can change) 276 ksf Log Equation <th< td=""><td>Id convert ou can change) Log Equation Log Equation 13,131 280 1,255 Note the BSD 820 42.94 0.65 5.83 1 276 ksf Average Rate Average Rate Average Rate 0 0 are 912 148.15 1.235 1.235 0 ksf Average Rate Average Rate Average Rate 0 0 are 912 148.15 1.235 0 ksf Average Rate Average Rate Average Rate Average Rate Average Rate 1.235 0 ksf Average Rate Average Rate Average Rate Average Rate 1.235 1.152 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 in this 932 127.15 1.52 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 section 942 31.6 2.94 1.55 1.55 1.55 <td< td=""><td>Ide can change) Z76 ksf Log Equation Log Equation 13,131 280 1,255 Note the formulas 850 42.94 0.65 5.83 1 0 ksf Average Rate <td< td=""><td>Ill convert ou can change) 276 kst Log Equation Log Equ</td><td>Ill convert ou can change) Log Equation Log Equation Log Equation Log Equation 13,131 280 1,255 Note the 850 62.24 66.95 5.83 1 0.59 0 kst Average Rate Average Rate</td></td<></td></td<></br></td></th<></td>	Ide convert ou can change) 276 ksf Log Equation Log Equation <th< td=""><td>Id convert ou can change) Log Equation Log Equation 13,131 280 1,255 Note the BSD 820 42.94 0.65 5.83 1 276 ksf Average Rate Average Rate Average Rate 0 0 are 912 148.15 1.235 1.235 0 ksf Average Rate Average Rate Average Rate 0 0 are 912 148.15 1.235 0 ksf Average Rate Average Rate Average Rate Average Rate Average Rate 1.235 0 ksf Average Rate Average Rate Average Rate Average Rate 1.235 1.152 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 in this 932 127.15 1.52 0 ksf Average Rate Average Rate Average Rate Average Rate 0 0 section 942 31.6 2.94 1.55 1.55 1.55 <td< td=""><td>Ide can change) Z76 ksf Log Equation Log Equation 13,131 280 1,255 Note the formulas 850 42.94 0.65 5.83 1 0 ksf Average Rate <td< td=""><td>Ill convert ou can change) 276 kst Log Equation Log Equ</td><td>Ill convert ou can change) Log Equation Log Equation Log Equation Log Equation 13,131 280 1,255 Note the 850 62.24 66.95 5.83 1 0.59 0 kst Average Rate Average Rate</td></td<></td></td<></br></td></th<>	Id convert ou can change) Log Equation Log Equation 13,131 280 1,255 Note the 	Ide can change) Z76 ksf Log Equation Log Equation 13,131 280 1,255 Note the formulas 850 42.94 0.65 5.83 1 0 ksf Average Rate Average Rate <td< td=""><td>Ill convert ou can change) 276 kst Log Equation Log Equ</td><td>Ill convert ou can change) Log Equation Log Equation Log Equation Log Equation 13,131 280 1,255 Note the 850 62.24 66.95 5.83 1 0.59 0 kst Average Rate Average Rate</td></td<>	Ill convert ou can change) 276 kst Log Equation Log Equ	Ill convert ou can change) Log Equation Log Equation Log Equation Log Equation 13,131 280 1,255 Note the 850 62.24 66.95 5.83 1 0.59 0 kst Average Rate Average Rate

Section 4 - VMT Inputs

	HBW	HBO	NHB
Average Trip Length in the Region	12.77	7.54	8.36
Average Trip Length in the Traffic Analysis Zone	11.3	9.39	9.83

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01			0.0	0.54
	0.55	47.05	0.9	0.51
0.62 0.38	0.55 0.34	17.65 15.47		
0.36	0.34	15.47		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84				
97.08				
3.38			0.94	1.33
1.49	1.12	78.81		
3.46			0.88	1.59
0.42	0.29	58.03		
0.73	0.78	-15.97		
0.26			1.02	1.49
0.59				
0.47			0.94	-0.51
13.64				
0.21	0.19	118.58		
0.21	0.19	118.58		
0.13				
0.16				
0.15				

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
2.0 2.0 2.0 2.0 2.0 2.0 2.0	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes
2.0 2.0 3.0	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
3.0	Yes	Yes	Yes
0.5 2.0	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
0.50 0.50 4.00	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
0.25 0.10 0.10 0.10	Yes Yes Yes Yes	Yes Yes Yes Yes	Yes Yes Yes Yes

FEHRPEERS

MODEL APPLICATION - ALL TRIPS

		Daily AM Pea					k Hour		PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction	4955	15368	7037	27360	653	645	87	1384	657	1304	755	2716
(predicted by MXD Model)	40.400/	04.000/	40.050/	00.050/	40.400/	00.000/	40.050/	07.040/	40.400/	04.000/	40.050/	40 700/
Internal Capture	16.48%	21.29%	19.85%	20.05%	18.12%	38.32%	19.85%		16.48%	21.29%	19.85%	
Walking External	36.97%	10.03%	3.05%	13.33%	44.36%	13.04%	3.05%		36.97%	10.03%	3.05%	
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model	I)											
Internal Capture	816	3272	1397	5485	118	247	17	383	108	278	150	536
Walking External	1530	1213	172	2915	237	52	2	291	203	103	18	324
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
MXD Model # of Vehicle Trips	2609	10883	5468	18960	297	346	68	711	346	924	587	1856
Results	Extern	al Vehicle	Trips						Total Trips	Reduced		
1	Baseline /	Adjusted	Reduction	%							Fotal	
Daily	27,360	18,960	31%				Daily	2346	4485	1569	8400	
AM Peak Hour	1.384	711	49%			AM F	Peak Hour		299	19	674	
	,									-	-	
PM Peak Hour	2,716	1,856	32%			PM F	Peak Hour	311	381	168	860	

MODEL APPLICATION - TRIP ENDS ASSOCIATED

WITH HOUSES IN THE PROJECT ONLY

		Dail	ly			AM Peal	k Hour		PM Peak Hour				
	HBW	HBO	NHB -	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB 1	Fotal	
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	933	2950	655	4537	160	184	12	357	125	249	70	444	
Internal Capture	16.48%	21.29%	19.85%	20.09%	18.12%	38.32%	19.85%	28.61%	16.48%	21.29%	19.85%	19.71%	
Walking External	36.97%	10.03%	3.05%	14.81%	44.36%	13.04%	3.05%	28.79%	36.97%	10.03%	3.05%	16.80%	
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
# of Trips Reduced (predicted by MXD Mode))												
Internal Capture	154	628	130	912	29	71	2	102	21	53	14	88	
Walking External	288	233	16	537	58	15	0	73	39	20	2	60	
Transit External	0	0	0	0	0	0	0	0	0	0	0	0	
Adjusted # (MXD Model) of Vehicle Trips													
generated by Project Residences	491	2089	509	3089	73	99	10	181	66	176	55	297	
	Extern	al Vehicle ⁻	Trips										
Results	Baseline /	Adjusted F	Reduction 9	6									
Daily	4,537	3,089	32%										
AM Peak Hour	357	181	49%										
PM Peak Hour	444	297	33%										

Daily VMT Reduced

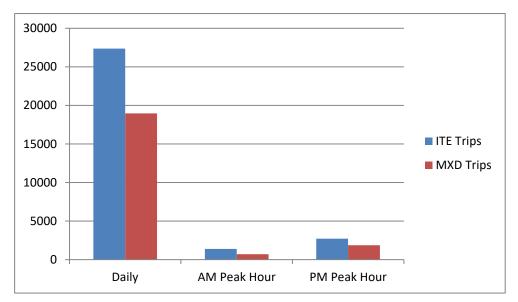
	HBW
ITE Daily VMT	
MXD Daily Adjusted VMT	
MXD Reduction in Daily VMT	
(VMT Reduction from Trip Capt	ure)
as a percentage	

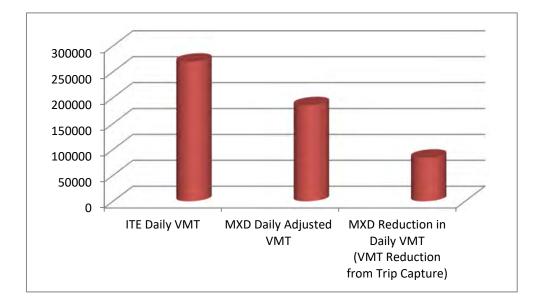
HBW VMT Reduction from Trip Capture 26,

VMT Reduction from Shorter Trips 3,8 Total Daily VMT Avoided

MXD Peak Hour Factors by Trip Purpose										
Module		AM	PM							
Module	HBW	HBO	NHB	HBW	HBO	NHB				
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00				
Walking External	1.20	1.30	1.00	1.00	1.00	1.00				
Transit External	1.40	1.10	1.00	1.40	1.00	1.00				

1		нво		NHB		Total	
	55,990		144,308		69,175		269,473
	29,477		102,193		53,752		185,422
							84,051
							31%
1		нво		NHB		Total	
	26,513		42,116		15,423		84,051
	3,835		(20,134)		(8,038)		(24,337) 59,714





Fehr / Peers

All shaded cells are inputs Project / Scenario Specific Inputs Default National Factors - Can be changed for project based on site specific data, or regional values from census data, travel demand model, etc...

Section 1 - General Site Information

	Downtown G	arland		
Geographic		otes / Instructions		
Developed Area (in acres)				not include open space, vacant lots.
Number of Intersections		ount intersections either	within or on the perimeter of	f the MXD. Do not count most unsignalized driveways or alleys, but DO count major entrances to shopping areas or residential developmer
Is Transit (bus or rail) present within the site or ac				
street?	Yes N	ote: This is only used as	a way to zero out the proba	ability of external trips if no transit is present.
Land Use - Surrounding Area				
				se splits for retail use to those found in smaller stores. The nature of
Is the site in a Central Business District or TOD?			should be the primary fact	or in the selection here.
Employment within one mile of the MXD		o not include employmen		
Employment within a 30 minute Transit Trip (Doo		clude employment within		
	Т	his can be a difficult num	ber to get - some suggestic	ns are in the instructions tab in "Instructions."
Site Demographics				
Enter Population Directly?			HH size factors (in section	
	Population 741 E	nter Population Here. Yo	ou still need to enter dwellin	g units below.
				ly a good source. Go to the link at
				nity. The vehicles per household
Average Vehicles Owned per Dwelling Unit	0.92 da	ata is within the housing	statistics of the ACS.	http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml
Section 2 - Variable Modeling	q Parameters			
Conversion Factors				
Conversion Factors		Si	ource:	What does this input affect?
	Single Family		ource:	
	Single Family	3.2	ource:	Directly affects trip internalization and mode
	Multi-Family	3.2 2.5	ource:	Directly affects trip internalization and mode splits. Also used to compute site population if
		3.2	ource:	Directly affects trip internalization and mode
Average Household Size	Multi-Family High Rise Condo	3.2 2.5 2.5		Directly affects trip internalization and mode splits. Also used to compute site population if
Average Household Size	Multi-Family High Rise Condo Retail	3.2 2.5 2.5 2.0 IT	'E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
Average Household Size	Multi-Family High Rise Condo Retail Office	3.2 2.5 2.5 2.0 IT 3.0 IT	E Trip Generation Manual E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any
Average Household Size	Multi-Family High Rise Condo Retail Office Light Industrial	3.2 2.5 2.5 2.0 IT 3.0 IT 1.0 IT	E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than
Conversion Factors Average Household Size Jobs per ksf	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing	3.2 2.5 2.5 2.0 IT 3.0 IT 0.5 IT	E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in
Average Household Size	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 3.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 2.0	E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip
Average Household Size	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing	3.2 2.5 2.5 3.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 2.0	E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in
Average Household Size Jobs per ksf	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 3.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 2.0 1.0 2.0 1.0 2.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	E Trip Generation Manual E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip
Average Household Size Jobs per ksf Jobs from ITE rates per other unit	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 2.0 10 1.0 17 2.0 17 2.0 17 2.0 5 5	E Trip Generation Manual E Trip Generation Manual ource	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip
Average Household Size Jobs per ksf Jobs from ITE rates per other unit Jobs per Hotel Room	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 2.5 2.5 7 2.0 10 10 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 5 10 5 17 5 17 5 17 10 17 17 10 17 17 10 17 17 10 17 17 10 17 17 10 17 17 10 17 17 10 17 17 10 17 17 10 17 10 17 17 10 10 17 10 17 10 10 17 10 17 10 10 17 10 10 17 10 10 10 10 10 10 10 10 10 10 10 10 10	E Trip Generation Manual E Trip Generation Manual ource E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip
Average Household Size Jobs per ksf Jobs from ITE rates per other unit Jobs per Hotel Room Jobs per Hotel Screen	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 2.5 7.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 2.0 1.7 2.0 1.7 2.0 1.7 2.0 1.7 2.0 1.7 2.0 1.7 2.0 1.7 3.0 1.7 1.7 3.0 1.7 1.7 3.0 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7	E Trip Generation Manual E Trip Generation Manual Ource E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.
Average Household Size Jobs per ksf Jobs from ITE rates per other unit Jobs per Hotel Room Jobs per Movie Screen Grade School Jobs per student	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 2.5 2.0 11.0 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 0.5 17 2.0 17 0.5 17 0.0 17 0.5 17 0.0 17 0.5 17 0.0 17 0.0 17 0.5 17 0.0 17 0.0 17 0.5 17 0.0 17 0.5 17 0.5 17 0.0 17 0.5 17 0.0 17 0.5 17 0.0 17 0.5 17 0.0 17 0.5 17 0.5 17 0.5 17 0.0 17 0.5 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 0.0 17 17 0.0 17 17 0.0 17 17 17 17 17 17 17 17 17 17 17 17 17	E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual Trip Generation Manual Ource E Trip Generation Manual E Trip Generation Manual E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.
Average Household Size	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.5 7 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 2.0 17 1.0 17 2.0 17 2.0 17 1.0 17 2.0 17 1.0 17 2.0 17 1.0 17 2.0 17 1.0 17 2.0 17 1.0 17 2.0 17 1.0 17 2.0 17 1.0 17 2.0 17 1.0 17 2.0 17 1.0 17 2.0 17 1.0 17 1.0 17 1.0 17 1.0 17 1.0 17 1.0 17 1.0 17 1.0 17 1.0 1.0 17 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	E Trip Generation Manual E Trip Generation Manual Ource E Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.

Trip Purpose Splits by Land Use Type This will affect the final results significantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCc

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab. If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the

total is 100% NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

	Productions Attractions							
DAILY	Use NCHRP?	HBW HBC) NHB	HBW	1	нво	NHB	Source (if not using NCH
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
AM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%		
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%		
Schools	No	0%	0%	2.5%	35%	60%	3%	
PM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	

NON-HOME BASED TRIPS GENERATED	BY PROJECT HOUSEHOLDS
Enter the percent of these that occur	

Completely Within the Project Site	25%	
With one trip end external to the Project Site	15%	
Completely outside the Project Site	60% Calculated from other two percentage	es

This only affects VMT calculations

Source for this information:

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

Section 3 - Land Use Inputs

	Trip Equation Method	Trips				ITE Daily P	arameters					AM PEAK H	IOUR TRIP	RATES		
Quantity Units	PM Peak Daily AM Peak Hour Hour	Daily	AM Peak PM Hour Ho			Code	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
Number of Dwelling Units					1											
Single Family DU	Log Equation Linear Equatior Log Equation		0	0	-	210	9.57			0.92	2.71	0.75	0.7	9.74		
Multi-Family 467 DU	Linear Equatior Linear Equatior Linear Equa			275		220	6.65	6.06				0.51	0.49	3.73		
High Rise Condo DU	Linear Equatior Linear Equatior Linear Equa	tic O	0	0		232	4.18	3.77	223.66			0.34	0.29	28.86		
Retail (note: if you use job units for retail, the spreadsheet will convert																
before applying trip rates, using the rate in section 2 which you can change)																
General Retail other than those listed below 105 ksf	Log Equation Log Equation Log Equatio			659	Note the	820	42.94			0.65	5.83	1			0.59	2.32
Supermarket 0 ksf	Average Rate Average Rate Average Rate		0	0	formulas	850	102.24	66.95	1391.56			3.59				
Bank 6.122 ksf	Average Rate Average Rate Average Rate		76	158	are	912	148.15					12.35				
Health Club 3.026 ksf	Average Rate Average Rate Average Ra		4	11	slightly	492	32.93					1.38				
Restaurant (non-fast food) 45 ksf Fast-Food Restaurant 0 ksf	Average Rate Avera		516 0	500 0	different in this	932 934	127.15 496.12					11.52 49.35				
Gas Station 0 ksf	Average Rate Average Rate Average Ra		0	0	section	934 945	496.12 1181.07					49.35				
Auto Repair 12.037 ksf	Average Rate Average Rate Average Rate		35	41	<====	942	31.6					2.94				
Office	stronago nato stronago nato stronago na			- 11 - L		012	01.0					2.01				
Non-Medical 201 ksf	Log Equation Log Equation Linear Equa	tic 2,286	328	304	-	710	11.01			0.77	3.65	1.55			0.8	1.55
Medical 0 ksf	Average Rate Average Rate Average Ra	te 0	0	0		720	36.13			40.89	-214.97	2.3				
Industrial																
Light Industrial 14.6 ksf	Average Rate Average Rate Average Rate		13	14		110	6.97	7.47				0.92	1.18	-89.28		
Manufacturing 0 ksf	Average Rate Average Rate Average Rate		0	0		140	3.82	3.88	-20.7			0.73	0.83	-29.52		
Warehousing / Self-Storage 0.448 ksf	Average Rate Average Rate Average Ra	te 1	0	0		151	2.5			1.01	0.82	0.15				
Hotel (including restaurant, facilities, etc) 0 Rooms	Average Rate Average Rate Average Ra	te 0	0	0		310	8.17	8.95	-373.16			0.56			1.24	-2
Motel 0 Rooms	Average Rate Average Rate Average Ra		õ	õ		320	5.63	0.00	0/0.10	0.92	2.11	0.45			0.92	-0.46
Movie Theater 1 Screens	Average Rate Average Rate Average Rate		0	14		445	175.29					0				
School	5 5 5															
University 860 Students	Average Rate Average Rate Average Rate		181	181	_	550	2.38	2.23	440			0.21	0.21	-69.14		
High School 0 Students	Average Rate Average Rate Average Rate		0	0		530	1.71			0.81	1.86	0.42				
Middle School 0 Students	Average Rate Average Rate Average Ra		0	0		522	1.62					0.54				
Elementary 0 Students	Average Rate Average Rate Average Ra	te 0	0	0		520	1.29					0.45			1.14	-1.86
AM Peak PM Pe	ak															
Daily Hour Hour																
Trips from Land uses not covered above ==> 0 0	0															
Jobs in those Land Uses 0																
AM Peak PM Pe	eak															
Daily Hour Hour	2.456															
Total "Baseline" ITE Trips 21,679 1,545	2,156															

Section 4 - VMT Inputs

	HBW	HBO	NHB
Average Trip Length in the Region	12.77	7.54	8.36
Average Trip Length in the Traffic Analysis Zone	10.1	5.33	7.81

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01			0.0	0.54
	0.55	47.05	0.9	0.51
0.62 0.38	0.55 0.34	17.65 15.47		
0.36	0.34	15.47		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84				
97.08				
3.38			0.94	1.33
1.49	1.12	78.81		
3.46			0.88	1.59
0.97	1.43	-157.36		
0.73	0.78	-15.97		
0.26			1.02	1.49
0.59				
0.47			0.94	-0.51
13.64				
0.01	0.40	440.50		
0.21	0.19	118.58		
0.13				
0.16				
0.15				

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	Yes	Yes	Yes
	Yes	Yes	Yes
	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
3.0	Yes	Yes	Yes
3.0	Yes	Yes	Yes
3.0	res	res	res
1.0	Yes	Yes	Yes
0.5	Yes	Yes	Yes
2.0	Yes	Yes	Yes
0.50	Yes	Yes	Yes
0.50	Yes	Yes	Yes
4.00	Yes	Yes	Yes
0.25	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes

FEHRPEERS

MODEL APPLICATION - ALL TRIPS

		Dai	ly			AM Pea	k Hour			PM Peak	Hour	
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	6470	9919	5291	21679	887	569	89	1545	803	811	542	2156
Internal Capture	4.64%	6.62%	11.50%	7.22%	5.11%	11.91%	11.50%	7.98%	4.64%	6.62%	11.50%	7.11%
Walking External	6.33%	7.34%	3.21%	6.07%	7.60%	9.54%	3.21%	8.04%	6.33%	7.34%	3.21%	5.97%
Transit External	5.77%	3.25%	3.09%	3.98%	8.08%	3.57%	3.09%	6.22%	8.08%	3.25%	3.09%	5.06%
# of Trips Reduced (predicted by MXD Model	I)											
Internal Capture	300	656	608	1565	45	68	10	123	37	54	62	153
Walking External	391	680	150	1221	64	48	3	114	48	56	15	119
Transit External	356	301	145	801	68	18	2	88	62	25	15	101
MXD Model # of Vehicle Trips	5423	8282	4388	18093	710	435	74	1219	655	677	449	1782
Results	Extern	al Vehicle	Trips						Total Trips	Reduced		
	Baseline /	Adjusted I	Reduction	%				HBW H	IBO N	IHB -	Fotal	
Daily	21,679	18,093	17%				Daily	1047	1637	903	3587	
AM Peak Hour	1,545	1,219	21%			AM F	Peak Hour	· 177	133	15	326	
PM Peak Hour	2,156	1,782	17%			PM F	Peak Hour	· 148	134	92	374	

MODEL APPLICATION - TRIP ENDS ASSOCIATED

WITH HOUSES IN THE PROJECT ONLY

		Dai	ly			AM Peal	k Hour		PM Peak Hour				
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	607	1920	426	2954	104	120	8	233	77	154	43	275	
Internal Capture	4.64%	6.62%	11.50%	6.91%	5.11%	11.91%	11.50%	8.84%	4.64%	6.62%	11.50%	6.83%	
Walking External	6.33%	7.34%	3.21%	6.56%	7.60%	9.54%	3.21%	8.42%	6.33%	7.34%	3.21%	6.43%	
Transit External	5.77%	3.25%	3.09%	3.76%	8.08%	3.57%	3.09%	5.66%	8.08%	3.25%	3.09%	4.61%	
of Trips Reduced (predicted by MXD Model)												
Internal Capture	28	127	49	204	5	14	1	21	4	10	5	1	
Walking External	37	132	12	180	8	10	0	18	5	11	1	1	
Transit External	33	58	12	103	8	4	0	12	6	5	1	1	
Adjusted # (MXD Model) of Vehicle Trips													
generated by Project Residences	509	1603	354	2466	84	92	7	182	63	129	36	22	
	Extern	al Vehicle	Trips										
Results	Baseline A	Adjusted F	Reduction 9	%									
Daily	2,954	2,466	17%										
AM Peak Hour	233	182	22%										
PM Peak Hour	275	228	17%										

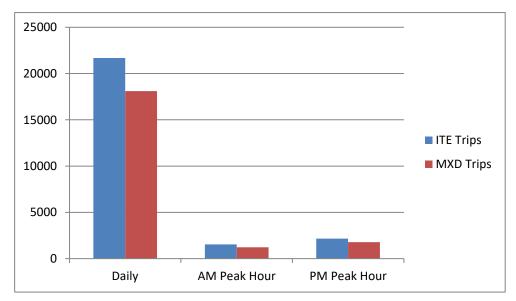
Daily VMT Reduced

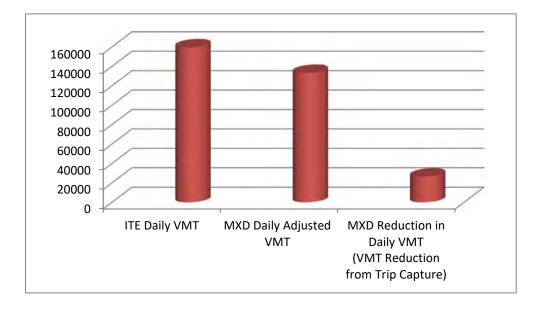
HBW
ure)

HBW VMT Reduction from Trip Capture 10,4 VMT Reduction from Shorter Trips 14,4 Total Daily VMT Avoided

MXD Peak Hour Factors by Trip Purpose										
Module		AM	PM							
Module	HBW	HBO	NHB	HBW	HBO	NHB				
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00				
Walking External	1.20	1.30	1.00	1.00	1.00	1.00				
Transit External	1.40	1.10	1.00	1.40	1.00	1.00				

1		HBO		NHB		Total	
	65,347		52,868		41,319		159,534
	54,771		44,144		34,267		133,182
							26,351 17%
1		нво		NHB		Total	
	10,576		8,723		7,052		26,351
	14,479		18,304		2,413		35,196
							61,547





Fehr / Peers

All shaded cells are inputs Project / Scenario Specific Inputs Default National Factors - Can be changed for project based on site specific data, or regional values from census data, travel demand model, etc...

Section 1 - General Site Information

Site Name				
Sile Name	Downtown Pla	no		
Geographic Developed Area (in acres) Number of Intersections	44.16 Incl 14 Co			not include open space, vacant lots. the MXD. Do not count most unsignalized driveways or alleys, but DO count major entrances to shopping areas or residential developments
Is Transit (bus or rail) present within the site or ac street?		e: This is only used as a	way to zero out the proba	bility of external trips if no transit is present.
Land Use - Surrounding Area	1			
s the site in a Central Business District or TOD? Employment within one mile of the MXD Employment within a 30 minute Transit Trip (Doo	Yes the 35,168 Do or-to-door) 44,829 Incl	stores (large vs. small) s not include employment ude employment within t	should be the primary factor within the MXD itself the MXD itself	e splits for retail use to those found in smaller stores. The nature of r in the selection here. ns are in the instructions tab in "Instructions."
Site Demographics Inter Population Directly?			H size factors (in section 2 still need to enter dwelling	
Average Vehicles Owned per Dwelling Unit	righ		ity Facts" for your commun	y a good source. Go to the link at ity. The vehicles per household http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml_
Section 2 - Variable Modeling	q Parameters			
Conversion Factors		So	urce:	What does this input affect?
Conversion Factors	Single Family Multi-Family High Rise Condo	3.2 2.5 2.5	urce:	What does this input affect? Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
conversion Factors	Single Family Multi-Family High Rise Condo	3.2 2.5 2.5		Directly affects trip internalization and mode splits. Also used to compute site population if
Conversion Factors Average Household Size Jobs per ksf	Single Family Multi-Family	3.2 2.5 2.5 2.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if
Conversion Factors	Single Family Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing	3.2 2.5 2.5 3.0 ITE 3.0 ITE 0.5 ITE 2.0 ITE	Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in
Conversion Factors Average Household Size Jobs per ksf	Single Family Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 3.0 1.0 1.5 1.0 1.5 1.0 1.2.0 1.6 1.0 1.7 2.0 1.7 2.0 1.7 2.0 1.7 2.0 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7	Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip
Conversion Factors Average Household Size Jobs per ksf Jobs from ITE rates per other unit Jobs per Hotel Room	Single Family Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 2.5 2.0 100 17E 2.0 17E 2.0 17E 2.0 17E 2.0 17E 2.0 17E 2.0 17E 2.0 17E 2.0 17E 2.0 17E 17E 2.0 17E 2.0 17E 3.0 17E 17E 3.0 17E 2 17E 2 17 17E 2 17E 17E 2 17E 2 17E 17E 2 17E 2 17E 2 17E 2 17E 1	Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual Urce	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip
Conversion Factors Average Household Size Jobs per ksf Jobs from ITE rates per other unit Jobs per Hotel Room Jobs per Hotel Room Jobs per Hotel Screen	Single Family Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 3.0 1.0 1.0 1.0 1.0 1.0 2.0 1.0 1.0 2.0 1.0 2.0 1.0 2.0 1.0 2.0 1.0 2.0 1.0 5 1.0 1.0 5 5 0.5 1.5 5 2.0 1.5 5 5 7 5 7 5 7 5 7 5 7 5 7 7 5 7 5 7	Trip Generation Manual Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.
Conversion Factors Average Household Size Jobs per ksf Jobs from ITE rates per other unit Jobs per Hotel Room	Single Family Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 2.5 2.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual Urce	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip

Trip Purpose Splits by Land Use Type This will affect the final results significantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCc

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab. If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the

total is 100% NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

·····,···,···				oductions		Att	ractions			
DAILY	Use NCHRP?	HBW	нво	NHB	HBW	H	IBO	NHB	Source (if	not using NCHRP
Residences	Yes		15%	50%	10%	7%	8%	10%		
Retail	Yes		0%	0%	15%	10%	60%	15%		
Office	Yes		0%	0%	15%	35%	35%	15%		
Other non-residential (excluding schools)	Yes		0%	0%	10%	60%	20%	10%		
Schools	No		0%	0%	2.5%	35%	60%	3%		
AM PEAK HOUR										
Residences	Yes		15%	50%	10%	7%	8%	10%		
Retail	Yes		0%	0%	15%	10%	60%	15%		
Office	Yes		0%	0%	15%	35%	35%	15%		
Other non-residential (excluding schools)	Yes		0%	0%	10%	60%	20%	10%		
Schools	No		0%	0%	2.5%	35%	60%	3%		
PM PEAK HOUR										
Residences	Yes		15%	50%	10%	7%	8%	10%		
Retail	Yes		0%	0%	15%	10%	60%	15%		
Office	Yes		0%	0%	15%	35%	35%	15%		
Other non-residential (excluding schools)	Yes		0%	0%	10%	60%	20%	10%		
Schools	No		0%	0%	2.5%	35%	60%	3%		
	110		0,0	070	2.070	0070	0070	070		
NON-HOME BASED TRIPS GENERATED BY PROJECT										

Source for this information:

NON-HOME BASED TRIPS GENERATED BY PROJECT HOUSEHOLDS	
Enter the percent of these that occur	

Completely Within the Project Site	25%			
With one trip end external to the Project Site	15%			
Completely outside the Project Site	60%	Calculated	from other tw	vo percentages

This only affects VMT calculations

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

Section 3 - Land Use Inputs

<u></u>		Trip Equation Method	Tri	ips				ITE Daily P	arameters					AM PEAK	HOUR TRIF	RATES			PM PEAK I	IOUR
	Quantity Units	Daily AM Peak Ho	PM Peak ur Hour		AM Peak Hour	PM Peak Hour		Code	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	Lin Multi
Number of Dwelling Units							ĺ													
Single Family		Log Equation Linear Equat		0	0	0		210	9.57			0.92	2.71	0.75					1.01	
Multi-Family		Linear Equatior Linear Equat Linear Equatior Linear Equat		8,735 0	700 0	799 0		220	6.65 4.18	6.06 3.77	123.56 223.66			0.51	0.49 0.29				0.62 0.38	
High Rise Condo		Linear Equation Linear Equat	Ior Linear Equation	0	0	0		232	4.18	3.77	223.66			0.34	0.29	28.86			0.38	
Retail (note: if you use job units for retail, the spreadshe	eet will convert																			
before applying trip rates, using the rate in section 2 wh																				
General Retail other than those listed below		Log Equation Log Equation		1,607	251	1,105	Note the	820	42.94			0.65	5.83	1			0.59	2.32	3.73	
Supermarket		Average Rate Average Rate		0	0	0	formulas	850	102.24	66.95	1391.56			3.59					10.5	
Bank		Average Rate Average Rate		0	0	0	are	912	148.15					12.35					25.82	
Health Club		Average Rate Average Rate		0	0	0	slightly	492	32.93					1.38					3.53	
Restaurant (non-fast food) Fast-Food Restaurant		Average Rate Average Rate Average Rate Average Rate		2,957	1,174 0	1,136 0	different in this	932 934	127.15 496.12					11.52 49.35					11.15 33.84	
Gas Station		Average Rate Average Rate		0	0	0	section	934 945	496.12 1181.07					49.35					97.08	
Auto Repair		Average Rate Average Rate		2,288	213	245	<====	942						2.94					3.38	
Office	12.4 101	Werage Rate Werage Rate	o Average Nate	2,200	210	240	<	542	01.0					2:04					0.00	
Non-Medica	al 456 ksf	Log Equation Log Equation	Linear Equation	4,294	632	590		710	11.01			0.77	3.65	1.55			0.8	1.55	1.49	
Medica	al <u>0 jobs</u>	Average Rate Average Rate		0	0	0		720	8.91			0.67	3.76	0.53					1.06	
Industrial		5 5	0																	
Light Industrial		Average Rate Average Rate	 Average Rate 	247	36	34		110	3.02	2.95	30.57			0.44	0.27	70.47			0.42	
Manufacturing		Average Rate Average Rate		0	0	0		140	2.13	1.75	245.96			0.4			0.85	0.07	0.36	
Warehousing / Self-Storage	e <mark>0</mark> ksf	Average Rate Average Rate	e Average Rate	0	0	0		151	2.5			1.01	0.82	0.15					0.26	
Hotel (including restaurant, facilities, etc)	0 Rooms	Average Rate Average Rate		0	0	0		310	8.17	8.95	-373.16			0.56			1.24	-2	0.59	
Motel		Average Rate Average Rate		0	0	0		310	5.63	0.95	-3/3.10	0.92	2.11	0.56			0.92	-0.46	0.59	
Movie Theater	0 Screens	Average Rate Average Rate		0	0	0		445	175.29			0.92	2.11	0.45			0.92	-0.40	13.64	
School	- OCIECTIA	Average Nate Average Nate	e Avelage Nale	0	0	0		443	175.25					0					13.04	
University	v 0 Students	Average Rate Average Rate	e Average Rate	0	0	0		550	2.38	2.23	440			0.21	0.21	-69.14			0.21	
High School		Average Rate Average Rate		0	0	0		530	1.71			0.81	1.86	0.42					0.13	
Middle School	ol 0 Students	Average Rate Average Rate	e Average Rate	0	0	0		522	1.62					0.54					0.16	
Elementary	y 0 Students	Average Rate Average Rate	e Average Rate	0	0	0		520	1.29					0.45			1.14	-1.86	0.15	
	AM Peak PM Peak Daily Hour Hour																			
Trips from Land uses not covered above ==>		0																		
Jobs in those Land Uses	0	0																		
Coss in those Land Caes	0																			
	AM Peak PM Peak																			
	Daily Hour Hour																			
Total "Baseline" ITE Trips	40,127 3,005 3,	910																		
·																				

Section 4 - VMT Inputs

	HBW	HBO	NHB
Average Trip Length in the Region	12.77	7.54	8.36
Average Trip Length in the Traffic Analysis Zone	7.91	4.38	7.21

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01			0.9	0.51
0.62 0.38	0.55 0.34	17.65 15.47		
0.00	0.01	10.11		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84				
97.08				
3.38			0.94	1.33
1.49	1.12	78.81		
1.06			1.06	-0.32
0.42	0.29	58.03		
0.36			0.78	0.48
0.26			1.02	1.49
0.59				
0.59			0.94	-0.51
13.64			0.94	-0.51
10.04				

0.19 118.58

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	Yes	Yes	Yes
	Yes	Yes	Yes
	Yes	Yes	Yes
2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes
3.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
0.50	Yes	Yes	Yes
0.50	Yes	Yes	Yes
4.00	Yes	Yes	Yes
0.25	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes

FEHRPEERS

MODEL APPLICATION - ALL TRIPS

		Dai	ly			AM Peal	k Hour			PM Peak	Hour	
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model)	11401	18480	10247	40127	1781	1053	171	3005	1433	1454	1022	3910
% External Trip Reduction (predicted by MXD Model)												
Internal Capture	5.60%	5.82%	11.77%	7.28%	6.16%	10.47%	11.77%	7.99%	5.60%	5.82%	11.77%	7.29%
Walking External	13.39%	20.09%	8.79%	15.41%	16.07%	26.12%	8.79%	19.10%	13.39%	20.09%	8.79%	14.78%
Transit External	11.99%	3.54%	2.79%	5.80%	16.79%	3.89%	2.79%	11.62%	16.79%	3.54%	2.79%	8.30%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	639	1075	1206	2920	110	110	20	240	80	85	120	285
Walking External	1441	3497	794	5732	269	246	13	528	181	275	79	536
Transit External	1290	615	253	2158	281	37	4	321	227	48	25	301
MXD Model # of Vehicle Trips	8030	13293	7994	29317	1122	660	133	1916	944	1046	798	2788
Results	Extern	al Vehicle	Trips						Total Trips	Reduced		
	Baseline /	Adjusted I	Reduction	%				HBW H	HBO N	IHB ⁻	Fotal	
Daily	40,127	29,317	27%				Daily	3370	5187	2253	10810	
AM Peak Hour	3,005	1,916	36%			AM F	eak Hour	659	393	38	1090	
PM Peak Hour	3,910	2,788	29%			PM F	Peak Hour	488	408	225	1121	

MODEL APPLICATION - TRIP ENDS ASSOCIATED

799

569

29%

WITH HOUSES IN THE PROJECT ONLY

PM Peak Hour

		Dai	ly			AM Pea	k Hour		PM Peak Hour				
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	
Baseline # of External Trips (ITE Model)	1795	5678	1261	8735	314	361	24	700	224	448	126	799	
% External Trip Reduction													
predicted by MXD Model)													
Internal Capture	5.60%	5.82%	11.77%	6.63%	6.16%	10.47%	11.77%	8.58%	5.60%	5.82%	11.77%	6.70%	
Walking External	13.39%	20.09%	8.79%	17.16%	16.07%	26.12%	8.79%	20.91%	13.39%	20.09%	8.79%	16.50%	
Transit External	11.99%	3.54%	2.79%	5.19%	16.79%	3.89%	2.79%	9.80%	16.79%	3.54%	2.79%	7.19%	
# of Trips Reduced (predicted by MXD Model)												
Internal Capture	101	330	148	579	19	38	3	60	13	26	15	54	
Walking External	227	1074	98	1399	47	85	2	134	28	85	10	123	
Transit External	203	189	31	423	50	13	1	63	36	15	3	54	
Adjusted # (MXD Model) of Vehicle Trips													
generated by Project Residences	1265	4085	984	6333	198	226	19	443	148	323	99	569	
	Extern	al Vehicle	Trips										
Results			Reduction	%									
Daily	8,735	6,333	27%										
AM Peak Hour	700	443	37%										

Daily VMT Reduced

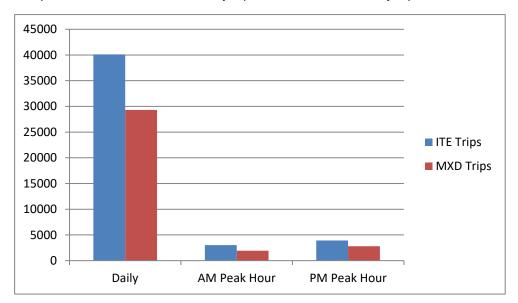
	HBW
ITE Daily VMT	
MXD Daily Adjusted VMT	
MXD Reduction in Daily VMT	
(VMT Reduction from Trip Captu	ure)
as a percentage	

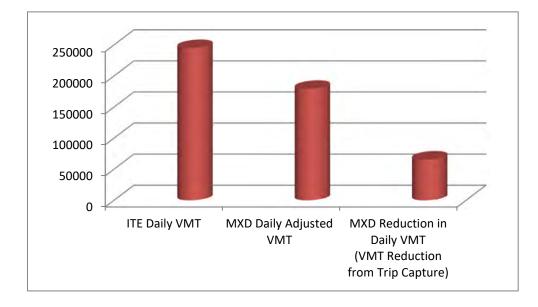
HBW VMT Reduction from Trip Capture 26,

VMT Reduction from Shorter Trips 39, Total Daily VMT Avoided

MXD Peak Hour Factors by Trip Purpose										
Module		AM	PM							
Module	HBW	HBO	NHB	HBW	HBO	NHB				
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00				
Walking External	1.20	1.30	1.00	1.00	1.00	1.00				
Transit External	1.40	1.10	1.00	1.40	1.00	1.00				

1		нво		NHB		Total	
	90,179		80,941		73,880		245,000
	63,521		58,221		57,639		179,381
							65,619 27%
/		нво		NHB		Total	
	26,658		22,720		16,241		65,619
	39,028		42,004		9,193		90,226
							155,845





Fehr / Peers

All shaded cells are inputs Project / Scenario Specific Inputs			R) PEERS
Default National Factors - Can be changed for project	based on site specific data, or	regional values from census da	ta, travel demand model, etc
Section 1 - General Site Informati	<u>on</u>		
Site Name	Frisco Square		
Geographic Developed Area (in acres) Number of Intersections Is Transit (bus or rail) present within the site or across the street?	19 Count intersections	DW, parking lots, pocket parks. Do seither within or on the perimeter	o not include open space, vacant lots. of the MXD. Do not count most unsignalized driveways or alleys, but DO count major entrances to shopping areas or residential development ability of external trips if no transit is present.
Land Use - Surrounding Area			
Is the site in a Central Business District or TOD? Employment within one mile of the MXD Employment within a 30 minute Transit Trip (Door-to-doo	Yes the stores (large vs 12,380 Do not include emp 10,969 Include employme	s. small) should be the primary fac bloyment within the MXD itself nt within the MXD itself	ose splits for retail use to those found in smaller stores. The nature of tor in the selection here. ons are in the instructions tab in "Instructions."
Site Demographics Enter Population Directly? Populati		verage HH size factors (in section ere. You still need to enter dwelli	
Average Vehicles Owned per Dwelling Unit	right, and search " 1.05 data is within the h	American Community Survey is like Community Facts" for your commu ousing statistics of the ACS.	aly a good source. Go to the link at inity. The vehicles per household <u>http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml</u>
Section 2 - Variable Modeling Par	ameters		
Conversion Factors			
Average Household Size		Source:	What does this input affect?
-	Single Family3.2Multi-Family2.5h Rise Condo2.5		Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
	Retail2.0Office3.0.ight Industrial1.0Manufacturing0.5Warehousing2.0Misc. Uses2.0	ITE Trip Generation Manual ITE Trip Generation Manual	Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip generation calculations.
Jobs from ITE rates per other unit			
Jobs per Hotel Room Jobs per Movie Screen Grade School Jobs per student High School / Middle School Jobs per Student College Jobs per student	0.50 4.00 0.10 0.10 0.25	Source ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual	Used to compute site employment for these land uses which are typically expressed in other units
Trip Purpose Splits by Land Use Type			

Trip Purpose Splits by Land Use Type This will affect the final results significantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCc

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab. If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the

total is 100% NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

NOTE. There is no Normal spin defined for schools, s			Productions Attractions						
DAILY	Use NCHRP?	HBW HBO	NHB	HBW	HB	30	NHB	Source (if n	ot using NCHRP)
Residences	Yes	15%	50%	10%	7%	8%	10%		
Retail	Yes	0%	0%	15%	10%	60%			
Office	Yes	0%	0%	15%	35%	35%			
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%		
Schools	No	0%	0%	2.5%	35%	60%	3%		
AM PEAK HOUR Residences	Yes	15%	50%	10%	7%	8%	10%		
Retail	Yes	0%	0%	15%					
					10%	60%			
Office	Yes	0%	0%	15%	35%	35%			
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%			
Schools	No	0%	0%	2.5%	35%	60%	3%		
PM PEAK HOUR									
Residences	Yes	15%	50%	10%	7%	8%	10%		
Retail	Yes	0%	0%	15%	10%	60%	15%		
Office	Yes	0%	0%	15%	35%	35%	15%		
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%		
Schools	No	0%	0%	2.5%	35%	60%	3%		
NON-HOME BASED TRIPS GENERATED BY PROJE	ECT HOUSEHOLDS								

Source for this information:

NON-HOME BASED TRIPS GI	ENERATED BY PROJECT HOUSEHOLDS
Enter the percent of these that	occur

rcent of these that occur	Source for this mornation.	
Completely Within the Project Site	25%	
With one trip end external to the Project Site	15%	
Completely outside the Project Site	60% Calculated from other two percentages	

This only affects VMT calculations

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

Section 3 - Land Use Inputs

<u></u>	Trip Equation Method	Trips				ITE Daily F	Parameters					AM PEA	K HOUR TRI	P RATES			PM PEAK	HOUR TRIF	RATES	
Quantity Units	PM Peak Daily AM Peak Hour Hour	Daily	AM Peak Hour	PM Peak Hour		Code	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Averag Rate	e Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	Linear Multiplier	Linear Constant	Log Multiple
Number of Dwelling Units																				
Single Family 0 DL			0	0		210				0.92	2.71	0.7					1.01			0
Multi-Family 114 DU			60	80		220		6.06				0.5					0.62	0.55	17.65	
High Rise Condo 0 DL	U Linear Equatior Linear Equatior Linear Equa	itic O	0	0		232	4.18	3.77	223.66			0.3	34 0.29	28.86	5		0.38	0.34	15.47	
Retail (note: if you use job units for retail, the spreadsheet will convert																				
before applying trip rates, using the rate in section 2 which you can chan																				
General Retail other than those listed below 134 ks			183	776	Note the	820				0.65	5.83		1		0.59	2.32	3.73			0.6
Supermarket 0 ks Bank 41.92 ks			0	0	formulas	850		66.95	1391.56			3.5					10.5			0.6
Bank 41.92 ks Health Club 0 ks			518 0	1,082 0	are slightly	912 492						12.3 1.3					25.82 3.53			0.9
Restaurant (non-fast food) 2 ks			23	22	different	492 932						11.5					11.15			0.9
Fast-Food Restaurant 15.17 ks			749	513	in this	934						49.3					33.84			
Gas Station 43.12 ks				4,186	section	945						79					97.08			
Auto Repair 0 ks			0	0	<====	942						2.9					3.38			0.9
Office																				
Non-Medical 143 ks			249	239		710				0.77	3.65	1.5			0.8	1.55	1.49		78.81	
Medical 699.56 ks	sf Average Rate Average Rate Average Ra	te 25,275	1,609	2,420		720	36.13			40.89	-214.97	2	.3				3.46			0.8
Industrial								0.05	00.57						-				50.00	
Light Industrial 107.91 job			47	45		110		2.95				0.4					0.42		58.03	
Manufacturing 0 ks Warehousing / Self-Storage 0 ks			0	0		140 151		3.88	-20.7	1.01	0.82	0.7 0.1		3 -29.52	2		0.73 0.26	0.78	-15.97	/ 1.0
Warehousing / Seir-Storage	Average Rate Average Rate Average Ra	ue 0	0	0		101	2.0			1.01	0.82	0.	15				0.20			1.0
Hotel (including restaurant, facilities, etc) 0 Room	Average Rate Average Rate Average Rate	te 0	0	0		310	8.17	8.95	-373.16			0.5	56		1.24	-2	0.59			
Motel 0 Room	oms Average Rate Average Rate Average Ra	te 0	0	0		320	5.63			0.92	2.11	0.4	45		0.92	-0.46	0.47			0.9
Movie Theater 12 Scree	eens Average Rate Average Rate Average Ra	te 2,104	0	164		445	175.29						0				13.64			
School																				
University 0 Stude			0	0		550		2.23	440			0.2		1 -69.14	1		0.21	0.19	118.58	ن
High School 0 Stude			0	0		530				0.81	1.86	0.4					0.13			
Middle School 0 Stude Elementary 0 Stude			0	0		522 520	1.62 1.29					0.5 0.4			1.14	-1.86	0.16 0.15			
AM Pe Trips from Land uses not covered above ==> Jobs in those Land Uses AM Pe 0 0 0 AM Pe 0 0 0 0 0 0 0 0 0 0	Peak PM Peak Hour 0 0																			

Section 4 - VMT Inputs

<u>.</u>	HBW	HBO	NHB
Average Trip Length in the Region	12.77	7.54	8.36
Average Trip Length in the Traffic Analysis Zone	9.53	6.55	7.78

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01			0.9	0.51
0.62	0.55	17.65	0.9	0.51
0.02	0.33	17.05		
0.00	0.01	10.11		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84 97.08				
3.38			0.94	1.33
3.30			0.94	1.33
1.49	1.12	78.81		
3.46			0.88	1.59
0.42	0.29	58.03		
0.73	0.78	-15.97		
0.26			1.02	1.49
0.59			0.04	0.54
0.47 13.64			0.94	-0.51
13.64				
	0.40	110 50		

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
2.0 2.0 2.0 2.0 2.0 2.0 2.0	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes
2.0 2.0 3.0	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
3.0	Yes	Yes	Yes
0.5 2.0	Yes Yes Yes	Yes Yes	Yes Yes Yes
0.50 0.50 4.00	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
0.25 0.10 0.10 0.10	Yes Yes Yes Yes	Yes Yes Yes Yes	Yes Yes Yes Yes

FEHRPEERS

318

479

473

1270

PM Peak Hour

MODEL APPLICATION - ALL TRIPS

		Dai	ly			AM Peal	k Hour			PM Peak	Hour	
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction	32484	41753	29185	103421	4337	2084	437	6857	3756	3063	2709	9528
(predicted by MXD Model)												
Internal Capture	3.96%	5.62%	13.19%	7.24%	4.36%	10.11%	13.19%	6.67%	3.96%	5.62%	13.19%	7.12%
Walking External	4.68%	10.63%	4.91%	7.19%	5.62%	13.82%	4.91%	7.98%	4.68%	10.63%	4.91%	6.69%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model)												
Internal Capture	1287	2345	3850	7483	189	211	58	457	149	172	357	678
Walking External	1461	4188	1244	6893	233	259	19	511	169	307	115	592
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
MXD Model # of Vehicle Trips	29735	35219	24091	89045	3915	1614	361	5890	3439	2583	2236	8258
Results	Extern	al Vehicle ⁻	Trips						Total Trips	Reduced		
Ε	Baseline A	Adjusted F	Reduction	%				HBW F	HBO N	IHB 1	Fotal	
Daily	103,421	89,045	14%				Daily	2749	6533	5094	14376	
AM Peak Hour	6,857	5,890	14%			AM F	Peak Hour	422	469	76	968	

MODEL APPLICATION - TRIP ENDS ASSOCIATED WITH HOUSES IN THE PROJECT ONLY

PM Peak Hour

9,528

8,258

13%

		Dai	ly			AM Peal	k Hour			PM Peak	Hour	
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	167	529	118	814	27	31	2	60	23	45	13	80
Internal Capture	3.96%	5.62%	13.19%	6.37%	4.36%	10.11%	13.19%	7.63%	3.96%	5.62%	13.19%	6.35%
Walking External	4.68%	10.63%	4.91%	8.61%	5.62%	13.82%	4.91%	9.72%	4.68%	10.63%	4.91%	8.08%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model)												
Internal Capture	7	30	16	52	1	3	0	5	1	3	2	5
Walking External	8	53	5	66	1	4	0	5	1	5	1	6
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted # (MXD Model) of Vehicle Trips generated by Project Residences	153	447	97	697	24	24	2	50	21	38	10	69
	Extern	al Vehicle ⁻	Trips									
Results	Baseline /	Adjusted F	Reduction	%								
Daily	814	697	14%									
AM Peak Hour	60	50	17%									
PM Peak Hour	80	69	14%									

Daily VMT Reduced

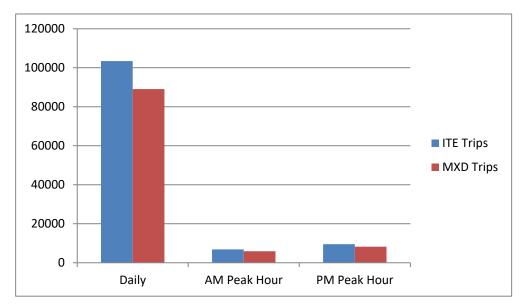
	HBW	ŀ
ITE Daily VMT	309,572	2
MXD Daily Adjusted VMT	283,374	ŀ
MXD Reduction in Daily VMT		
(VMT Reduction from Trip Capture)		
as a percentage		
	HBW	H

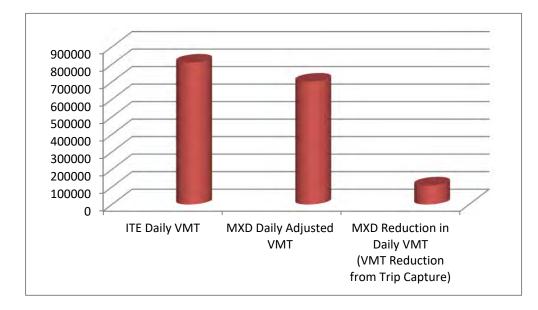
VMT Reduction from Trip Capture 26,198 VMT Reduction from Shorter Trips 96,341 Total Daily VMT Avoided

	MXD Pea	ak Hour Factor	s by Trip Purpo	ose				
Module		AM	PM					
Module	HBW	HBO	NHB	HBW	HBO	NHB		
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00		
Walking External	1.20	1.30	1.00	1.00	1.00	1.00		
Transit External	1.40	1.10	1.00	1.40	1.00	1.00		

'2 '4	HBO	273,479 230,686	NHB	227,056 187,425	Total	810,108 701,485
						108,623 13%
8 1	НВО	42,793 34,867	NHB	39,632 13,973		108,623 145,181 253,803

391.4537





Fehr / Peers

All shaded cells are inputs Project / Scenario Specific Inputs Default National Factors - Can be changed for project based on site specific data, or regional values from census data, travel demand model, etc...

Section 1 - General Site Information

	-				
Site Name	Legacy Commons				
Geographic Developed Area (in acres) Number of Intersections Is Transit (bus or rail) present within the site or across the		, parking lots, pocket parks. Do	not include open space, vacant lots. the MXD. Do not count most unsign	alized driveways or alleys, but DO count major entranc	es to shopping areas or residential developments.
street?	No Note: This is only use	d as a way to zero out the proba	bility of external trips if no transit is pre	esent.	
Land Use - Surrounding Area					
Is the site in a Central Business District or TOD? Employment within one mile of the MXD Employment within a 30 minute Transit Trip (Door-to-door)	No the stores (large vs. si 32,534 Do not include employ 31,117 Include employment v	mall) should be the primary facto yment within the MXD itself within the MXD itself	se splits for retail use to those found in or in the selection here. Ins are in the instructions tab in "Instru		
Site Demographics Enter Population Directly? Population		rage HH size factors (in section 2 e. You still need to enter dwelling			
Average Vehicles Owned per Dwelling Unit		mmunity Facts" for your commun	y a good source. Go to the link at ity. The vehicles per household	http://factfinder2.census.gov/faces/nav/jsf/pages/index	<u>x.xhtml</u>
Section 2 - Variable Modeling Para	meters				
Conversion Factors					
		Source:	What does this input affect?		
Ν	ingle Family 3.2 Multi-Family 2.5 Rise Condo 2.5		Directly affects trip internalization a splits. Also used to compute site po population isn't entered direct	opulation if	
Jobs per ksf					
Ma W	Retail2.0Office3.0ht Industrial1.0anufacturing0.5/arehousing2.0Misc. Uses2.0	ITE Trip Generation Manual ITE Trip Generation Manual	Used to compute site employmen land uses which are entered in ksf jobs. For retail, if land uses are e jobs, it's used to convert back to k generation calculations.	rather than ntered in	
Jobs from ITE rates per other unit		0			
Jobs per Hotel Room Jobs per Movie Screen Grade School Jobs per student High School / Middle School Jobs per Student	0.50 4.00 0.10 0.10	ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual	Used to compute site employment land uses which are training which are		
Jobs per Hotel Room Jobs per Movie Screen Grade School Jobs per student	4.00 0.10	ITE Trip Generation Manual ITE Trip Generation Manual			

Trip Purpose Splits by Land Use Type This will affect the final results significantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCc

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab. If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the

total is 100% NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

			Productions		Att	ractions		
DAILY	Use NCHRP?	HBW H	BO NHB	HBW	H	IBO	NHB	Source (if not using NCI
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
AM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
PM PEAK HOUR								
esidences	Yes	15%	50%	10%	7%	8%	10%	
etail	Yes	0%	0%	15%	10%	60%	15%	
office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	

NON-H	OME BASED TRIPS GENERATED BY PROJECT HOUSEHOLDS	
Enter th	e percent of these that occur	

cent of these that occur		Source for this information:
Completely Within the Project Site	25%	

	20/0
With one trip end external to the Project Site	15%
Completely outside the Project Site	60% Calculated from other two percentages

This only affects VMT calculations

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

Section 3 - Land Use Inputs

Single panily Multi-Panily High Rise Condo 0<	<u> </u>				Trip Equatior	n Method		Trips				ITE Daily P	Parameters					AM PEAK	HOUR TRIP	RATES		
Single Family 0 DU Log Equation Log Equation Log Equation Log Equation 0 0 0 0 200 9.7 0.92 2.71 0.75 0.7 0.74 0.57 0.7 0.74 0.57 0.75 0.7 0.74 0.51 0.45 0.		Quantity	Units		Daily	AM Peak Ho		Daily				Code										
Multi-ray 011 DU Under Equator Linear Equator Line	Number of Dwelling Units																					
High Rise Condort 0 0 0 0 0 232 4.18 3.77 223.68 0.34 0.29 2.88 Lall (noise: if you use job units forted). It was path for the in section 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use have path for the information 2 MM/ you use																	2.71					
Image: construction of the special backet will convert for a pything the rate in section 2 which you can change frame where a field where the special backet will convert for a pything the rate in section 2 which you can change frame where a field where the special backet where the special back where a field where the special backet where the spec																						
Tore applying thr rates, using the rate in section 2 which you can change Sovermale Relation that the througe Relation 2 which you can change Sovermale Relation that the rot should be applying the rates in the rot should be applying the rate in the rot should be applying the rates in the rot should be applying the rate in the rot should be applying the rat	High Rise Condo	(DU DU		Linear Equation	or Linear Equat	ior Linear Equation	0	0	0		232	4.18	3.77	223.66			0.34	0.29	28.86		
General Retail other than those listed below 583 t 0.59 5.83 1 0.59 2.32 Bank 0 kit Average Rate Average Rate Average Rate 0 <	Retail (note: if you use job units for retail, the spreadshe	et will co	nvert																			
Supermarket																						
Bank O Karl Average Rate Average Rate O O o are P12 14315 12.35 13.3 Besturaria O Karl Average Rate Average Rate Average Rate O O O o <																	5.83				0.59	2.32
Height Club 0 kar Average Rate										•				66.95	1391.56							
Restaurant (non-fast (bod) Marting Marting Average Rate										•												
Fast-Food Restaurant 0 kst Average Rate Average Rate 0																						
Case Station 0 str Average Rate Average Rate 0																						
Auto Repair 0 kst Average Rate Average Rate 0 0 c== 942 316 U 2.94 U 1.55 U 1.55 U 1.55 U 1.55 U 1.55 U 1.55 0.53 1.55 0.53 1.55 0.53 0.53 1.55 0.53 </td <td></td>																						
Tice Image: Control of the control										-												
Non-Medical 56 ket Medical Log Equation Log Equation Log Equation Log Equation Log Equation Mark	Office	,	у <u>ка</u>		Average Nate	Average Nat	e Avelage Nate	U	0	0	<	342	51.0					2.34				
Medical 0 jobs Average Rate Average Rate 0 0 0 720 8.91 0.67 3.76 0.53 Light Industrial 7.96 jobs Average Rate Average Rate Average Rate 0 0 0 720 8.91 0.67 3.76 0.53 Manufacturing 0 0 Average Rate Average Rate <t< td=""><td></td><td>56</td><td>6 ksf</td><td></td><td>Log Equation</td><td>Log Equation</td><td>Linear Equation</td><td>857</td><td>118</td><td>142</td><td></td><td>710</td><td>11.01</td><td></td><td></td><td>0.77</td><td>3.65</td><td>1.55</td><td></td><td></td><td>0.8</td><td>1.55</td></t<>		56	6 ksf		Log Equation	Log Equation	Linear Equation	857	118	142		710	11.01			0.77	3.65	1.55			0.8	1.55
Light Industrial 7.96 jobs Average Rate Average Rat										0												
Manufacturing Warehousing / Self-Storage 0 jobs Average Rate Average Rate Average Rate 0 0 0 140 2.13 1.75 245.96 0.4 0.85 0.07 tel (including restaurant, facilities, etc) tel (including restaurant, facilities, etc) 220 Rooms Average Rate Average Rate 1.797 123 130 310 8.17 3.55 -373.16 0.92 2.11 0.45 0.85 0.92 0.15 0.92 0.15 0.92 0.15 0.92 0.15 0.92 0.92 0.15 0.92 0.92 0.15 0	Industrial				0	5	0															
Warehousing / Self-Storage 0 kst Average Rate Average Rate Average Rate 0 0 0 151 2.5 1.01 0.82 0.15 tel (including restaurant, facilities, etc) tel 220 Note Theater Rooms Average Rate Average Rate Average Rate 0 0 0 151 2.5 1.01 0.82 0.15 tel (including restaurant, facilities, etc) totel 220 Note Theater Rooms Average Rate Average Rate Average Rate 0 0 0 310 8.17 8.95 -373.16 0.56 1.24 -2	Light Industrial								4	3		110						0.44	0.27	70.47		
Average Rate										-				1.75	245.96						0.85	0.07
Average Rate Average Rate <th< td=""><td>Warehousing / Self-Storage</td><td>0</td><td>) ksf</td><td></td><td>Average Rate</td><td>Average Rate</td><td>e Average Rate</td><td>0</td><td>0</td><td>0</td><td></td><td>151</td><td>2.5</td><td></td><td></td><td>1.01</td><td>0.82</td><td>0.15</td><td></td><td></td><td></td><td></td></th<>	Warehousing / Self-Storage	0) ksf		Average Rate	Average Rate	e Average Rate	0	0	0		151	2.5			1.01	0.82	0.15				
Average Rate Average Rate <th< td=""><td>Hotel (including restaurant, facilities, etc)</td><td>220</td><td>Rooms</td><td></td><td>Average Rate</td><td>Average Rate</td><td>e Average Rate</td><td>1.797</td><td>123</td><td>130</td><td></td><td>310</td><td>8.17</td><td>8.95</td><td>-373.16</td><td></td><td></td><td>0.56</td><td></td><td></td><td>1.24</td><td>-2</td></th<>	Hotel (including restaurant, facilities, etc)	220	Rooms		Average Rate	Average Rate	e Average Rate	1.797	123	130		310	8.17	8.95	-373.16			0.56			1.24	-2
with Theater Screens Average Rate Average Rate Average Rate Average Rate Average Rate 0 0 0 445 175.29 0.21 1.14 1.86 0.21	Motel																2.11					
hool Average Rate Average Rate Average Rate Average Rate 0 0 0 550 2.23 440 0.21 0.21 -69.14 High School Middle School Elementary Students Average Rate Average Rate 0 0 0 550 1.71 0.81 1.86 0.42 Middle School Elementary Students Average Rate Average Rate 0 0 0 520 1.71 0.81 1.86 0.42 pis from Land uses not covered above =>> bis in those Land Uses AM Average Rate Average Rate 0 0 0 0 520 1.29 0.45 1.14 -1.86 Midel School Elementary AM Paily AM Paily Average Rate Average Rate 0 0 0 520 1.29 0.45 1.14 -1.86	Movie Theater									0												
High School High School Students Studen	School					-	-															
Middle School Students Average Rate Average Rate Average Rate 0 0 0 522 1.62 0.54 Lementary Students AM Peak PM Peak Average Rate Average Rate 0 0 0 520 1.29 0.45 1.14 -1.86										•				2.23	440					-69.14		
Elementary Students Average Rate Average Rate Average Rate 0 0 520 1.29 0.45 1.14 -1.86										-						0.81	1.86					
AM Peak PM Peak Daily Hour Hour bs in those Land Uses AM Peak PM Peak Daily Hour Hour										-												
ps from Land uses not covered above ==> Daily Hour Hour Daily Hour Hour Daily Hour Hour Daily Hour Hour	Elementary		Students		Average Rate	Average Rate	e Average Rate	0	0	0		520	1.29					0.45			1.14	-1.86
bs in those Land Uses 0 AM Peak Daily Hour Hour			Hour H	Hour																		
Daily Hour Hour	Trips from Land uses not covered above ==> Jobs in those Land Uses	-		(0																	
tal "Baseline" ITE Trips 45,746 2,697 4,254																						
	i otal "Baseline" ITE Trips	45,746	5 2,697	4,254	4																	

Section 4 - VMT Inputs

	HBW	HBO	NHB
Average Trip Length in the Region	12.77	7.54	8.36
Average Trip Length in the Traffic Analysis Zone	8.12	5.79	8.06

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01			0.9	0.51
0.62	0.55	17.65		
0.38	0.34	15.47		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84				
97.08				
3.38			0.94	1.33
1.49	1.12	78.81		
1.06			1.06	-0.32
0.42	0.29	58.03		
0.36			0.78	0.48
0.26			1.02	1.49
0.59				
0.47			0.94	-0.51
13.64				
0.21	0.19	118.58		
0.13				
0.16				
0.15				

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	Yes	Yes	Yes
	Yes	Yes	Yes
	Yes	Yes	Yes
2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes
3.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
0.50	Yes	Yes	Yes
0.50	Yes	Yes	Yes
4.00	Yes	Yes	Yes
0.25	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes

FEHRPEERS

MODEL APPLICATION - ALL TRIPS

		Daily			AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model)	6061	27467	12218	45746	926	1563	208	2697	752	2240	1262	4254
% External Trip Reduction												
(predicted by MXD Model)												
Internal Capture	6.64%	5.05%	8.95%	6.31%	7.31%	9.10%	8.95%	8.47%	6.64%	5.05%	8.95%	6.49%
Walking External	16.80%	24.13%	9.54%	19.38%	20.15%	31.37%	9.54%	25.79%	16.80%	24.13%	9.54%	18.62%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	403	1388	1094	2884	68	142	19	228	50	113	113	276
Walking External	950	6293	1062	8306	173	446	18	637	118	513	110	741
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
MXD Model # of Vehicle Trips	4708	19786	10063	34556	685	975	172	1832	584	1613	1040	3237
Results	Extern	al Vehicle	Trips						Total Trips	Reduced		
E	Baseline /	Adjusted I	Reduction	%				HBW H	HBO N	IHB 1	Total	
Daily	45,746	34,556	24%				Daily	1353	7681	2156	11190	
AM Peak Hour	2,697	1,832	32%			AM F	eak Hour	241	588	37	865	
PM Peak Hour	4,254	3,237	24%			PM F	eak Hour	168	626	223	1017	

MODEL APPLICATION - TRIP ENDS ASSOCIATED

WITH HOUSES IN THE PROJECT ONLY

		Dai	ly		AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB T	otal	HBW	HBO	NHB .	Total	HBW	HBO	NHB ⁻	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	786	2487	552	3826	136	156	10	303	99	198	56	354
Internal Capture	6.64%	5.05%	8.95%	5.94%	7.31%	9.10%	8.95%	8.29%	6.64%	5.05%	8.95%	6.12%
Walking External	16.80%	24.13%	9.54%	20.60%	20.15%	31.37%	9.54%	25.53%	16.80%	24.13%	9.54%	19.85%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	52	126	49	227	10	14	1	25	7	10	5	22
Walking External	123	570	48	741	25	45	1	71	16	45	5	66
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted # (MXD Model) of Vehicle Trips												
generated by Project Residences	611	1792	455	2858	101	98	9	207	77	143	46	266
	Extern	al Vehicle	Trips									
Results	Baseline /	Adjusted F	Reduction %	6								
Daily	3,826	2,858	25%									
AM Peak Hour	303	207	32%									
PM Peak Hour	354	266	25%									

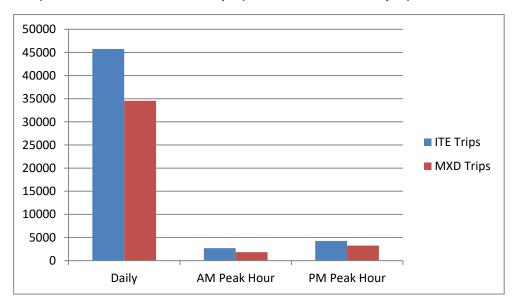
Daily VMT Reduced

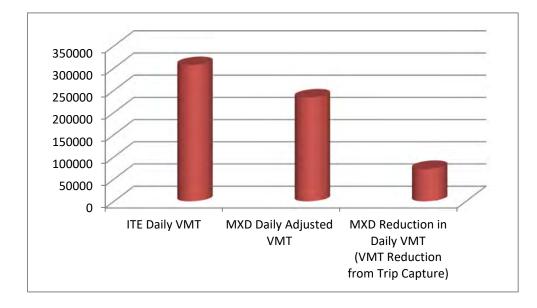
	HBW
ITE Daily VMT	
MXD Daily Adjusted VMT	
MXD Reduction in Daily VMT	
(VMT Reduction from Trip Captu	ure)
as a percentage	

HBW VMT Reduction from Trip Capture 10,9 VMT Reduction from Shorter Trips 21,8 Total Daily VMT Avoided

MXD Peak Hour Factors by Trip Purpose							
Module		AM	PM				
Module	HBW	HBO	NHB	HBW	HBO	NHB	
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00	
Walking External	1.20	1.30	1.00	1.00	1.00	1.00	
Transit External	1.40	1.10	1.00	1.40	1.00	1.00	

1		нво		NHB		Total	
	49,214		159,035		98,479		306,728
	38,228		114,559		81,105		233,892
							72,836 24%
/		нво		NHB		Total	
	10,986		44,476		17,374		72,836
	21,892		34,625		3,019		59,535
							132,371





MIXED USE TRIP GENERATION MODEL V4 - INPUT

Fehr / Peers

All shaded cells are inputs
Project / Scenario Specific Inputs
Default National Factors - Can be changed for project based on site specific data, or regional values from census data, travel demand model, etc...

Section 1 - General Site Information

	Legacy Town	00.001		
Geographic Developed Area (in acres) Number of Intersections Is Transit (bus or rail) present within the site o	261.21 In 62 Co			not include open space, vacant lots. f the MXD. Do not count most unsignalized driveways or alleys, but DO count major entrances to shopping areas or residential developments.
street?		ote: This is only used as a	way to zero out the proba	bility of external trips if no transit is present.
Land Use - Surrounding Area				
Is the site in a Central Business District or TOI Employment within one mile of the MXD Employment within a 30 minute Transit Trip (D	D? No th 96,714 Do Door-to-door) 77,114 In	e stores (large vs. small) s o not include employment clude employment within t	should be the primary factor within the MXD itself the MXD itself	se splits for retail use to those found in smaller stores. The nature of or in the selection here.
Site Demographics Enter Population Directly?			IH size factors (in section 2 still need to enter dwellin	
Average Vehicles Owned per Dwelling Unit	rig		ity Facts" for your commur	y a good source. Go to the link at http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml
Section 2 - Variable Modeli	ing Parameters			
Conversion Factors				
		So	urce:	What does this input affect?
Conversion Factors Average Household Size	Single Family Multi-Family High Rise Condo	3.2 2.5 2.5	urce:	What does this input affect? Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
	Multi-Family	3.2 2.5	urce:	Directly affects trip internalization and mode splits. Also used to compute site population if
Average Household Size	Multi-Family	3.2 2.5 2.5 2.0 1.0 1.0 1.0 1.0 1.0 2.0 1.0	Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if
Average Household Size	Multi-Family High Rise Condo Retail Office Light Industrial Manufacturing Warehousing	3.2 2.5 2.5 2.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	Trip Generation Manual Trip Generation Manual Trip Generation Manual Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksl rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksl for trip

Trip Purpose Splits by Land Use Type This will affect the final results significantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCc

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab. If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the

total is 100% NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

		P	roductions		At	tractions		
DAILY	Use NCHRP?	HBW HB	O NHB	HBW	H	IBO	NHB	Source (if not using NCHR
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
AM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
PM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	

Source for this information:

NON-HOME BASED TRIPS GENERATED BY PROJECT HOUSEHOLDS	
Enter the percent of these that occur	

Completely Within the Project Site	25%	
With one trip end external to the Project Site	15%	
Completely outside the Project Site	60% Calculated from other two percentages	

This only affects VMT calculations

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

Section 3 - Land Use Inputs

			Trip E	quatior	Method		Trips				ITE Daily P	arameters					AM PEAK	HOUR TRIP	RATES		
	Quantity	Units	D	aily	AM Peak He	PM Peak our Hour	Daily	AM Peak Hour	PM Peak Hour		Code	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Lo Constar
nber of Dwelling Units										1											
Single Family		DU				atior Log Equation		0	0		210	9.57			0.92	2.71	0.75		9.74		
Multi-Family						atior Linear Equati		2,341 0	2,641		220	6.65	6.06 3.77	123.56 223.66			0.51	0.49	3.73 28.86		
High Rise Condo	0	DU	Linear	Equation	or Linear Equa	atior Linear Equati	0	0	0	1	232	4.18	3.77	223.66			0.34	0.29	28.86		
ail (note: if you use job units for retail, the spreadshe	et will cor	vert																			
ore applying trip rates, using the rate in section 2 wh	ich you ca	n change)																			
General Retail other than those listed below	2910					on Log Equation			6,086	Note the	820	42.94			0.65	5.83	1			0.59	2.3
Supermarket						te Average Rate		0	0	formulas	850	102.24	66.95	1391.56			3.59				
Bank						te Average Rate		0	0	are	912	148.15					12.35				
Health Club Restaurant (non-fast food)	0					te Average Rate		0	0	slightly different	492 932	32.93 127.15					1.38 11.52				
Fast-Food Restaurant		ksf				ite Average Rate		0	0	in this	932 934	496.12					49.35				
Gas Station		ksf				ite Average Rate		0	0	section	945	1181.07					49.33				
Auto Repair		ksf				te Average Rate		ő	ő	<====	942	31.6					2.94				
e			11010	jo riato	/ tronago r ta		· ·	, in the second s	Ŭ	·	012	0110					2.01				
Non-Medical	2698	ksf	Log Ed	uation	Log Equation	n Linear Equati	16,867	2,618	3,100		710	11.01			0.77	3.65	1.55			0.8	1.5
Medical	0	jobs	Averag	e Rate	Average Ra	te Average Rate	0	0	0		720	8.91			0.67	3.76	0.53				
strial																					
Light Industrial						te Average Rate		1,017	970		110	3.02	2.95				0.44	0.27	70.47		
Manufacturing						te Average Rate		0	0		140	2.13	1.75	245.96			0.4			0.85	0.0
Warehousing / Self-Storage	0	ksf	Averag	je Rate	Average Ra	te Average Rate	0	0	0	1	151	2.5			1.01	0.82	0.15				
el (including restaurant, facilities, etc)	124.6	Rooms	Avera	e Rate	Average Ra	te Average Rate	1.018	70	74		310	8.17	8.95	-373.16			0.56			1.24	-:
el	0					te Average Rate		0	0		320	5.63			0.92	2.11	0.45			0.92	
ie Theater	0	Screens	Averag	e Rate	Average Ra	te Average Rate	0	0	0		445	175.29					0				
ool																					
University		Students				te Average Rate		0	0		550	2.38	2.23	440			0.21	0.21	-69.14		
High School		Students				te Average Rate		0	0		530	1.71			0.81	1.86	0.42				
Middle School		Students Students				te Average Rate		0	0		522 520	1.62 1.29					0.54 0.45			1.14	-1.8

Section 4 - VMT Inputs

	HBW	HBO	NHB
Average Trip Length in the Region	12.77	7.54	8.36
Average Trip Length in the Traffic Analysis Zone	7.11	4.92	7.47

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01			0.9	0.51
0.62	0.55	17.65		
0.38	0.34	15.47		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84				
97.08				
3.38			0.94	1.33
1.49	1.12	78.81		
1.06			1.06	-0.32
0.42	0.29	58.03		
0.36			0.78	0.48
0.26			1.02	1.49
0.59				
0.47			0.94	-0.51
13.64				
0.21	0.19	118.58		
0.13				
0.16				
0.15				

Valid Trip Gen Calc Choice?

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	Yes	Yes	Yes
	Yes	Yes	Yes
	Yes	Yes	Yes
2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes
3.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
0.50	Yes	Yes	Yes
0.50	Yes	Yes	Yes
4.00	Yes	Yes	Yes
0.25	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes

MIXED USE TRIP GENERATION MODEL V4 - RESULTS

FEHRPEERS

MODEL APPLICATION - ALL TRIPS

		Dai	ly			AM Peak	k Hour			PM Peak	Hour	
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	22374	64663	27590	114627	4027	2773	371	7170	3577	5910	3384	12871
Internal Capture	3.58%	8.75%	26.48%	12.01%	3.94%	15.76%	26.48%	9.67%	3.58%	8.75%	26.48%	11.98%
Walking External	9.50%	12.69%	10.22%	11.51%	11.40%	16.50%	10.22%		9.50%	12.69%	10.22%	11.18%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	
# of Trips Reduced (predicted by MXD Mode)											
Internal Capture	801	5661	7305	13767	159	437	98	694	128	517	896	1541
Walking External	2050	7489	2073	11612	441	385	28	854	328	685	254	1267
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
MXD Model # of Vehicle Trips	19523	51513	18211	89247	3428	1950	245	5622	3121	4708	2234	10063
Results	Extern	al Vehicle	Trips						Total Trips	Reduced		
	Baseline /	Adjusted F	Reduction 9	%				HBW F	IBO N	IHB ⁻	Fotal	
Daily	114,627	89,247	22%				Daily	2851	13150	9379	25380	
AM Peak Hour	7,170	5,622	22%			AM P	eak Hour	600	822	126	1548	
PM Peak Hour	12,871	10,063	22%			PM P	eak Hour	456	1202	1150	2808	

MODEL APPLICATION - TRIP ENDS ASSOCIATED

2,641 2,103

20%

WITH HOUSES IN THE PROJECT ONLY

PM Peak Hour

		Dai	ly			AM Peal	k Hour		PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB .	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model)	5967	18872	4191	29030	1052	1208	81	2341	742	1482	417	264 ⁻
% External Trip Reduction												
predicted by MXD Model)												
Internal Capture	3.58%	8.75%	26.48%	10.25%	3.94%	15.76%	26.48%	10.82%	3.58%	8.75%	26.48%	10.10%
Walking External	9.50%	12.69%	10.22%	11.70%	11.40%	16.50%	10.22%	13.85%	9.50%	12.69%	10.22%	11.41%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
f of Trips Reduced (predicted by MXD Model)											
Internal Capture	214	1652	1110	2975	41	190	21	253	27	130	111	26
Walking External	547	2186	315	3047	115	168	6	289	68	172	31	27
Transit External	0	0	0	0	0	0	0	0	0	0	0	(
Adjusted # (MXD Model) of Vehicle Trips												
generated by Project Residences	5207	15034	2766	23007	895	850	53	1798	647	1181	275	210
	Extern	al Vehicle	Trips									
Results			Reduction	%								
Daily	29,030	23,007	21%									
AM Peak Hour	2,341	1,798	23%									

Daily VMT Reduced

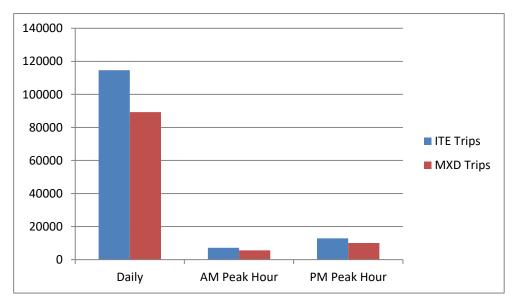
HBW
1
1
ure)

HBW 20,

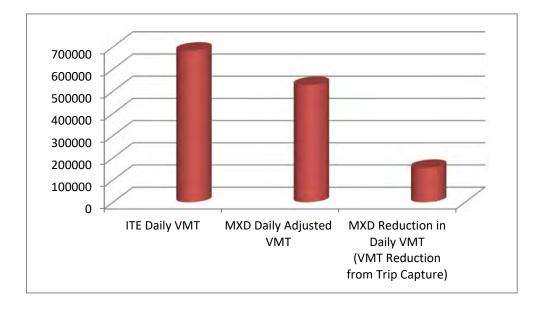
VMT Reduction from Trip Capture VMT Reduction from Shorter Trips 110, Total Daily VMT Avoided

	MXD Peak Hour Factors by Trip Purpose												
Module		AM	PM										
Module	HBW	HBO	NHB	HBW	HBO	NHB							
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00							
Walking External	1.20	1.30	1.00	1.00	1.00	1.00							
Transit External	1.40	1.10	1.00	1.40	1.00	1.00							

W 159,076 138,808	HBO 318,144 253,444	NHB	206,096 136,038	Total	683,316 528,290
					155,026 23%
W 20,268 110,500	HBO 64,700 134,964	NHB	70,058 16,208		155,026 261,672
				4	416,698



Comparison of MXD forecasted daily trips to ITE forecasted daily trips



MIXED USE TRIP GENERATION MODEL V4 - INPUT

Fehr / Peers

All shaded cells are inputs Project / Scenario Specific Inputs Default National Factors - Can be changed for project based on site specific data, or regional values from census data, travel demand model, etc...

Section 1 - General Site Information

Site Name			
	Teel Pkwy & Main St (Friso	co)	
Geographic Developed Area (in acres) Number of Intersections		ROW, parking lots, pocket parks. Do	not include open space, vacant lots. i the MXD. Do not count most unsignalized driveways or alleys, but DO count major entrances to shopping areas or residential developments
Is Transit (bus or rail) present within the site or across the street?	No Note: This is on	ly used as a way to zero out the proba	bility of external trips if no transit is present.
Land Use - Surrounding Area			
s the site in a Central Business District or TOD? Employment within one mile of the MXD Employment within a 30 minute Transit Trip (Door-to-door)	No the stores (large 1,799 Do not include 523 Include employ	e vs. small) should be the primary factor employment within the MXD itself ment within the MXD itself	se splits for retail use to those found in smaller stores. The nature of r in the selection here. ns are in the instructions tab in "Instructions."
Site Demographics Enter Population Directly? Population		ly average HH size factors (in section 2 n Here. You still need to enter dwellin	
Average Vehicles Owned per Dwelling Unit	right, and searc	us American Community Survey is like h "Community Facts" for your commun e housing statistics of the ACS.	
Section 2 - Variable Modeling Para	meters		
Conversion Factors			
		Source:	What does this input affect?
Average Household Size Si	ingle Family 3.2 Multi-Family 2.5 Rise Condo 2.5	Source:	What does this input affect? Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
Average Household Size Si H High	Multi-Family 2.5 Rise Condo 2.5		Directly affects trip internalization and mode splits. Also used to compute site population if
r High J <u>obs per ksf</u> Lig Ma Wa	Multi-Family 2.5	Source:	Directly affects trip internalization and mode splits. Also used to compute site population if
Average Household Size Si High Jobs per ksf Ligg Ma Wa Wa	Multi-Family 2.5 Rise Condo 2.5 Retail 2.0 Office 3.0 ht Industrial 1.0 anufacturing 0.5 Varehousing 2.0	ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual ITE Trip Generation Manual	Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly. Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip

Trip Purpose Splits by Land Use Type This will affect the final results significantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCc

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab. If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the

total is 100% NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

			Productions			ractions		
DAILY	Use NCHRP?	HBW H	BO NHB	HBW	H	IBO	NHB	Source (if not using NCI
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
AM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
PM PEAK HOUR								
esidences	Yes	15%	50%	10%	7%	8%	10%	
etail	Yes	0%	0%	15%	10%	60%	15%	
office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	

Enter the percent of these that occur... Source for this informatio Source for this information:

Completely within the Project Site	25%
With one trip end external to the Project Site	15%
Completely outside the Project Site	60% Calculated from other two percentages

This only affects VMT calculations

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

Section 3 - Land Use Inputs

		Trip Equation	on Method	Trips				ITE Daily F	Parameters					AM PEAK I	HOUR TRIP	RATES		
	Quantity Units	Daily	PM Peak AM Peak Hour Hour	Daily		PM Peak Hour		Code	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
Number of Dwelling Units																		
Single Fam			 Linear Equatior Log Equati 		479	583		210	9.57			0.92	2.71	0.75	0.7			
Multi-Fam			tior Linear Equatior Linear Equ		0	0		220	6.65	6.06				0.51	0.49	3.73		
High Rise Cond	do 0 DU	Linear Equat	tior Linear Equatior Linear Equ	atic 0	0	0		232	4.18	3.77	223.66			0.34	0.29	28.86		
Retail (note: if you use job units for retail, the spreads before applying trip rates, using the rate in section 2 w																		
General Retail other than those listed belo		Log Equation	n Log Equation Log Equati	on 25.759	517	2.514	Note the	820	42.94			0.65	5.83	1			0.59	2.32
Supermark			e Average Rate Average R		0	0	formulas	850	102.24	66.95	1391.56			3.59				
Bar			e Average Rate Average Rate		697	1,458	are	912	148.15					12.35				
Health Clu			e Average Rate Average Rate		0	0	slightly	492	32.93					1.38				
Restaurant (non-fast foo			e Average Rate Average R		0	0	different	932	127.15					11.52				
Fast-Food Restaura			e Average Rate Average R		0	0	in this	934	496.12					49.35				
Gas Statio Auto Repa			e Average Rate Ave		0 473	0 543	section	945 942	1181.07 31.6					79.3 2.94				
Office Auto Repa	air 160.72 KSt	Average Rat	e Average Rate Average R	ate 5,079	473	543	<====	942	31.0					2.94				
Non-Medic	al 17 ksf	Log Equation	n Log Equation Linear Equ	atic 344	46	98		710	11.01			0.77	3.65	1.55			0.8	1.55
Medic			e Average Rate Average R			112		720	36.13			40.89	-214.97	2.3			0.0	
Industrial				.,														
Light Industri	ial 2.6 jobs	Average Rat	e Average Rate Average Rate	ate 8	1	1		110	3.02	2.95	30.57			0.44	0.27	70.47		
Manufacturir			e Average Rate Average Rate		0	0		140	3.82	3.88	-20.7			0.73	0.83	-29.52		
Warehousing / Self-Storag	ge <mark>0</mark> ksf	Average Rat	e Average Rate Average Rate	ate 0	0	0		151	2.5			1.01	0.82	0.15				
Hotel (including restaurant, facilities, etc)	0 Rooms	Average Bot	e Average Rate Average Rate	ate 0	0	0		310	8.17	8.95	-373.16			0.56			1.24	-2
Motel	0 Rooms		e Average Rate Average R		0	0		320	5.63	0.90	-373.10	0.92	2.11	0.45			0.92	-0.46
Movie Theater	0 Screens		e Average Rate Average Rate		0	0		445				0.32	2.11	0.45			0.32	-0.40
School		ritolago ital	o morago nato morago na		Ŭ	0		110	110.20					Ŭ				
Universi			e Average Rate Average Rate		0	0		550	2.38	2.23	440			0.21	0.21	-69.14		
High Scho			e Average Rate Average Rate		0	0		530	1.71			0.81	1.86	0.42				
Middle Scho			e Average Rate Average Rate			151		522	1.62					0.54				
Elementa	ry 0 Students AM Peak PM F	5	e Average Rate Average Rate	ate 0	0	0		520	1.29					0.45			1.14	-1.86
Trips from Land uses not covered above ==>	Daily Hour Hour 0 0	0																
Jobs in those Land Uses	0																	
	AM Peak PM F	Peak																
	Daily Hour Hour	can																
Total "Baseline" ITE Trips	48,243 2,797	5,460																
	-0,2-10 2,131	0,700																

Section 4 - VMT Inputs

	HBW	HBO	NHB
Average Trip Length in the Region	12.77	7.54	8.36
Average Trip Length in the Traffic Analysis Zone	13.31	11.3	10.26

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01			0.0	0.54
	0.55	47.05	0.9	0.51
0.62 0.38	0.55 0.34	17.65 15.47		
0.36	0.34	15.47		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84				
97.08				
3.38			0.94	1.33
1.49	1.12	78.81		
3.46			0.88	1.59
0.42	0.29	58.03		
0.73	0.78	-15.97		
0.26			1.02	1.49
0.59				
0.47			0.94	-0.51
13.64				
0.21	0.19	118.58		
0.21	0.19	118.58		
0.13				
0.16				
0.15				

Valid Trip Gen Calc Choice?

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
2.0 2.0 2.0 2.0 2.0 2.0 2.0	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes
2.0 2.0 3.0	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
3.0	Yes	Yes	Yes
0.5 2.0	Yes Yes Yes	Yes Yes	Yes Yes Yes
0.50 0.50 4.00	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
0.25 0.10 0.10 0.10	Yes Yes Yes Yes	Yes Yes Yes Yes	Yes Yes Yes Yes

MIXED USE TRIP GENERATION MODEL V4 - RESULTS

FEHRPEERS

MODEL APPLICATION - ALL TRIPS

		Daily				AM Pea	k Hour		PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	6182	29654	12407	48243	947	1654	196	2797	933	2946	1581	5460
Internal Capture	2.19%	6.50%	15.96%	8.38%	2.41%	11.71%	15.96%	8.85%	2.19%	6.50%	15.96%	8.50%
Walking External	0.81%	1.00%	0.93%	0.96%	0.97%	1.30%	0.93%	1.15%	0.81%	1.00%	0.93%	0.95%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	135	1928	1980	4044	23	194	31	248	20	192	252	464
Walking External	49	277	97	423	9	19	2	29	7	27	12	47
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
MXD Model # of Vehicle Trips	5998	27449	10330	43777	915	1441	163	2520	905	2727	1316	4949
Results	Externa	al Vehicle	Trips						Total Trips	Reduced		
E	Baseline A	Adjusted	Reduction	%				HBW F	IBO N	IHB ⁻	Fotal	
Daily	48,243	43,777	9%				Daily	184	2205	2078	4466	
AM Peak Hour	2,797	2,520	10%			AM F	Peak Hour	32	213	33	277	
PM Peak Hour	5,460	4,949	9%			PM F	Peak Hour	28	219	265	512	

MODEL APPLICATION - TRIP ENDS ASSOCIATED

WITH HOUSES IN THE PROJECT ONLY

	Daily					AM Peal	k Hour		PM Peak Hour			
	HBW	HBO	NHB 1	Fotal	HBW	HBO	NHB 1	Fotal	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	1231	3895	865	5991	215	247	17	479	164	327	92	583
Internal Capture	2.19%	6.50%	15.96%	6.98%	2.41%	11.71%	15.96%	7.68%	2.19%	6.50%	15.96%	6.79%
Walking External	0.81%	1.00%	0.93%	0.95%	0.97%	1.30%	0.93%	1.13%	0.81%	1.00%	0.93%	0.93%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	27	253	138	418	5	29	3	37	4	21	15	40
Walking External	10	36	7	53	2	3	0	5	1	3	1	5
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
Adjusted # (MXD Model) of Vehicle Trips												
generated by Project Residences	1195	3605	720	5520	208	216	14	438	159	303	77	538
	Extern	al Vehicle [.]	Trips									
Results	Baseline /	Adjusted F	Reduction %	6								
Daily	5,991	5,520	8%									
AM Peak Hour	479	438	9%									
PM Peak Hour	583	538	8%									

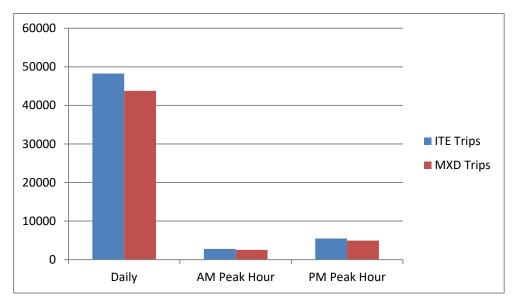
Daily VMT Reduced

	HBW
ITE Daily VMT	82
MXD Daily Adjusted VMT	79
MXD Reduction in Daily VMT	
(VMT Reduction from Trip Captur	e)
as a percentage	

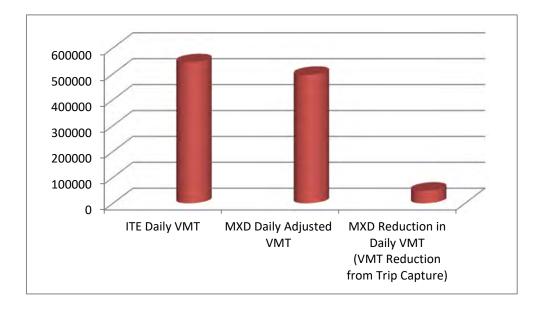
HBW VMT Reduction from Trip Capture 2,4 VMT Reduction from Shorter Trips (3,2 Total Daily VMT Avoided

MXD Peak Hour Factors by Trip Purpose											
Module		AM	PM								
Module	HBW	HBO	NHB	HBW	HBO	NHB					
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00					
Walking External	1.20	1.30	1.00	1.00	1.00	1.00					
Transit External	1.40	1.10	1.00	1.40	1.00	1.00					

1		HBO	NHB		Total	
	82,282	335,089		127,299		544,670
	79,833	310,174		105,983		495,990
						48,680
						9%
1		НВО	NHB		Total	
	2,449	24,915		21,315		48,680
	(3,239)	(103,208)		(19,627)	`	126,074)
						(77,394)



Comparison of MXD forecasted daily trips to ITE forecasted daily trips



MIXED USE TRIP GENERATION MODEL V4 - INPUT

Fehr / Peers

All shaded cells are inputs Project / Scenario Specific Inputs Default National Factors - Can be changed for project based on site specific data, or regional values from census data, travel demand model, etc...

Section 1 - General Site Information

Site Name	Watters Creek in Allen		
Geographic Developed Area (in acres) Number of Intersections Is Transit (bus or rail) present within the site or across the street?	7 Count interse	ts, ROW, parking lots, pocket parks. D actions either within or on the perimeter	o not include open space, vacant lots. of the MXD. Do not count most unsignalized driveways or alleys, but DO count major entrances to shopping areas or residential developments ability of external trips if no transit is present.
Land Use - Surrounding Area Is the site in a Central Business District or TOD? Employment within one mile of the MXD Employment within a 30 minute Transit Trip (Door-to-door)	No the stores (la 19,718 Do not includ 12,891 Include empl	rge vs. small) should be the primary fac the employment within the MXD itself oyment within the MXD itself	ose splits for retail use to those found in smaller stores. The nature of tor in the selection here. ions are in the instructions tab in "Instructions."
Site Demographics Enter Population Directly? Population		pply average HH size factors (in sectior tion Here. You still need to enter dwelli	
Average Vehicles Owned per Dwelling Unit	right, and sea	nsus American Community Survey is lik arch "Community Facts" for your comm the housing statistics of the ACS.	
Section 2 - Variable Modeling Para	meters		
		Source:	What does this input affect?
	ingle Family 3.2 Multi-Family 2.5 Rise Condo 2.5		Directly affects trip internalization and mode splits. Also used to compute site population if population isn't entered directly.
Jobs per ksf			
Ma	Retail2.0Office3.0Int Industrial1.0anufacturing0.5/arehousing2.0Misc. Uses2.0	ITE Trip Generation Manua ITE Trip Generation Manua	Used to compute site employment for any land uses which are entered in ksf rather than jobs. For retail, if land uses are entered in jobs, it's used to convert back to ksf for trip
Jobs from ITE rates per other unit			
Jobs per Hotel Room Jobs per Movie Screen Grade School Jobs per student High School / Middle School Jobs per Student	0.50 4.00 0.10 0.10	Source ITE Trip Generation Manua ITE Trip Generation Manua ITE Trip Generation Manua ITE Trip Generation Manua	I Used to compute site employment for these

Trip Purpose Splits by Land Use Type This will affect the final results significantly. Keep "Use NCHRP" on "Yes" unless you have reliable splits which have been QA/QCc

For each land use type, choose whether to use NCHRP 365 splits as outlined on the Mode Parameters tab. If "Yes" is chosen, the percentages will not affect the results. If "No," then enter the splits.

NOTE: For residences, the NHB Attractions are automatically calculated as the remainder to ensure the total is 100% NOTE: For all other purposes, the NHB attractions are automatically set equal to the NHB productions, and the HBO attractions are automatically calculated as the remainder to ensure the

total is 100% NOTE: There is no NCHRP split defined for schools, so the split has to be entered below.

			Productions		At	tractions		
DAILY	Use NCHRP?	HBW H	IBO NHE	B HB	sw i	нво	NHB	Source (if not using NCH
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
AM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	
PM PEAK HOUR								
Residences	Yes	15%	50%	10%	7%	8%	10%	
Retail	Yes	0%	0%	15%	10%	60%	15%	
Office	Yes	0%	0%	15%	35%	35%	15%	
Other non-residential (excluding schools)	Yes	0%	0%	10%	60%	20%	10%	
Schools	No	0%	0%	2.5%	35%	60%	3%	

NON-HOME BASED TRIPS GENERATED	BY PROJECT HOUSEHOLDS
Enter the percent of these that occur	

		o miornation.
Completely Within the Project Site	25%	
With one trip end external to the Project Site	15%	
Completely outside the Project Site	60% Calculated from other tw	o percentages

This only affects VMT calculations

Source for this information:

SITE-SPECIFIC INTERNALIZATION

This should only be used in unique situations such as if the project is isolated from surrounding communities or contains a school that primarily serves local residents

This section of input is for when you have specific trips you want to EXCLUDE from the MXD process. These trips will be counted as internal, and subtracted from the "baseline" trips before applying the model. The overall trip reduction percentage will still take these trips into account, and thus be a higher reduction than if you were just letting the model work on all the "baseline" trips. An experienced transportation engineer or planner should be consulted to determine the appropriate assumptions and calculations.

Section 3 - Land Use Inputs

<u> </u>				Trip Equati	on Method	1	Trips				ITE Daily P	arameters					AM PEAK I	HOUR TRIP	RATES		
	Quantit	y Units		Daily	AM Pe	PM Peak ak Hour Hour	Daily	AM Peak Hour	PM Peak Hour		Code	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant	Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
Number of Dwelling Units																					
Single Family		0 DI				Equatior Log Equatior		0	0		210				0.92	2.71	0.75	0.7			
Multi-Family		33 DI				Equatior Linear Equat		118	146		220	6.65	6.06				0.51	0.49			
High Rise Condo		0 DI	J	Linear Equa	itior Linear	Equatior Linear Equat	ic O	0	0		232	4.18	3.77	223.66			0.34	0.29	28.86		
Retail (note: if you use job units for retail, the spreadshe	et will c	onvert																			
before applying trip rates, using the rate in section 2 whi	ich you	can char	ige)																		
General Retail other than those listed below	1	20 ks	f	Log Equation	n Log Eq	uation Log Equation	n 7,631	171	717	Note the	820	42.94			0.65	5.83	1			0.59	2.32
Supermarket	73.					e Rate Average Rat		264	773	formulas	850	102.24	66.95	1391.56			3.59				
Bank	4.					e Rate Average Rat		50	104	are	912	148.15					12.35				
Health Club	8.8					e Rate Average Rat		12	31	slightly	492	32.93					1.38				
Restaurant (non-fast food)		0 ks				e Rate Average Rat		0	0	different	932	127.15					11.52				
Fast-Food Restaurant		0 ks				e Rate Average Rat		0	0	in this	934	496.12					49.35				
Gas Station		0 ks				e Rate Average Rat		0	0	section	945	1181.07					79.3				
Auto Repair		0 ks	t	Average Ra	te Averag	e Rate Average Rat	e O	0	0	<====	942	31.6					2.94				
Office New Mediael	4	00 :		Les Essetia		unting Linear Envet	450		00		74.0	0.00			0.04	0.00	0.40			0.00	0.04
Non-Medical		03 job				uation Linear Equat		68 2	98		710	3.32 8.91			0.84 0.67	2.23	0.48 0.53			0.86	0.24
Industrial		4 job	S	Average Ra	te Averag	e Rate Average Rat	8 36	2	4		720	8.91			0.67	3.76	0.53				
Light Industrial		12 job	~	Average De		e Rate Average Rat	e 36	5	5		110	3.02	2.95	30.57			0.44	0.27	70.47		
Manufacturing		0 job				e Rate Average Rat		0	5 0		140	2.13	2.95				0.44	0.27	70.47	0.85	0.07
Warehousing / Self-Storage		0 jot				e Rate Average Rat		0	0		140	2.13	1.75	245.96	1.01	0.82	0.4			0.65	0.07
Wateriousing / Self-Storage		U Ra		Average Na	te Avelag	e Nate Average Nat	0	0	0		101	2.5			1.01	0.02	0.15				
Hotel (including restaurant, facilities, etc)		0 Roo	ms	Average Ra	te Averag	e Rate Average Rat	e 0	0	0		310	8.17	8.95	-373.16			0.56			1.24	-2
Motel		0 Roo	ms	Average Ra	te Averag	e Rate Average Rat	e 0	0	0		320	5.63			0.92	2.11	0.45			0.92	-0.46
Movie Theater		0 Scre	ens	Average Ra	te Averag	e Rate Average Rat	e 0	0	0		445	175.29					0				
School								_	_												
University		0 Stud				e Rate Average Rat		0	0		550	2.38	2.23	440		4.00	0.21	0.21	-69.14		
High School		0 Stud				e Rate Average Rat		0	0		530	1.71 1.62			0.81	1.86	0.42				
Middle School		0 Stud				e Rate Average Rat		0	0		522						0.54				1.00
Elementary	Daily	0 Stude AM P Hour	ents eak PM Peak Hour	_	te Averag	e Rate Average Rat	e O	0	0		520	1.29					0.45			1.14	-1.86
Jobs in those Land Uses		0 AM P	eak PM Peak																		
Total "Baseline" ITE Trips	Daily 18,1	Hour 08	Hour 691 1,	,879																	

Section 4 - VMT Inputs

	HBW	HBO	NHB
Average Trip Length in the Region	12.77	7.54	8.36
Average Trip Length in the Traffic Analysis Zone	11.68	8.26	7.98

Source:

region's Metropolitan Planning Organization

PM PEAK HOUR TRIP RATES

Average Rate	Linear Multiplier	Linear Constant	Log Multipler	Log Constant
1.01		17.05	0.9	0.51
0.62 0.38	0.55 0.34	17.65 15.47		
0.36	0.34	15.47		
3.73			0.67	3.37
10.5			0.61	3.95
25.82				
3.53			0.95	1.43
11.15				
33.84				
97.08				
3.38			0.94	1.33
0.40	0.07			
0.46	0.37	60.08		
1.06			1.06	-0.32
0.42	0.29	58.03		
0.42	0.29	56.05	0.78	0.48
0.36			1.02	1.49
0.20			1.02	1.49
0.59				
0.00			0.94	-0.51
13.64			0.04	0.01
10.04				
0.21	0.19	118.58		
0.13	2.10			
0.16				
0.15				

Valid Trip Gen Calc Choice?

Jobs Per Input Unit (if Applicable)	Daily	AM Peak Hour	PM Peak Hour
	Yes	Yes	Yes
	Yes	Yes	Yes
	Yes	Yes	Yes
2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes
1.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
1.0	Yes	Yes	Yes
2.0	Yes	Yes	Yes
0.50	Yes	Yes	Yes
0.50	Yes	Yes	Yes
4.00	Yes	Yes	Yes
0.25	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes
0.10	Yes	Yes	Yes

MIXED USE TRIP GENERATION MODEL V4 - RESULTS

FEHRPEERS

MODEL APPLICATION - ALL TRIPS

		Dai	ly			AM Pea	k Hour			PM Peak	Hour	
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	2100	11122	4886	18108	244	396	52	691	313	1001	565	1879
Internal Capture	3.10%	3.35%	5.61%	3.93%	3.41%	6.04%	5.61%	5.08%	3.10%	3.35%	5.61%	3.99%
Walking External	2.79%	8.57%	3.71%	6.61%	3.35%	11.15%	3.71%	7.80%	2.79%	8.57%	3.71%	6.16%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Mode))											
Internal Capture	65	373	274	712	8	24	3	35	10	34	32	75
Walking External	57	922	171	1149	8	41	2	51	8	83	20	111
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
MXD Model # of Vehicle Trips	1978	9828	4441	16246	227	331	47	605	295	885	513	1693
Results	Externa	al Vehicle [·]	Trips						Total Trips	Reduced		
E	Baseline A	Adjusted F	Reduction	%				HBW F	IBO N	IHB 1	Fotal	
Daily	18,108	16,246	10%				Daily	122	1295	445	1862	
AM Peak Hour	691	605	12%			AM F	Peak Hour	16	65	5	86	
PM Peak Hour	1,879	1,693	10%			PM F	Peak Hour	18	117	51	186	

MODEL APPLICATION - TRIP ENDS ASSOCIATED

WITH HOUSES IN THE PROJECT ONLY

		Dai	ly			AM Pea	k Hour			PM Peak	Hour	
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Baseline # of External Trips (ITE Model) % External Trip Reduction (predicted by MXD Model)	316	998	222	1536	53	61	4	118	41	82	23	146
Internal Capture	3.10%	3.35%	5.61%	3.63%	3.41%	6.04%	5.61%	4.84%	3.10%	3.35%	5.61%	3.64%
Walking External	2.79%	8.57%	3.71%	6.69%	3.35%	11.15%	3.71%	7.33%	2.79%	8.57%	3.71%	6.19%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
# of Trips Reduced (predicted by MXD Model)											
Internal Capture	10	33	12	56	2	4	0	6	1	3	1	5
Walking External	9	83	8	99	2	6	0	8	1	7	1	g
Transit External	0	0	0	0	0	0	0	0	0	0	0	C
Adjusted # (MXD Model) of Vehicle Trips												
generated by Project Residences	297	882	201	1381	49	51	4	104	39	72	21	132
	Extern	al Vehicle ⁻	Trips									
Results	Baseline A	Adjusted F	Reduction	%								
Daily	1,536	1,381	10%									
AM Peak Hour	118	104	12%									
PM Peak Hour	146	132	10%									

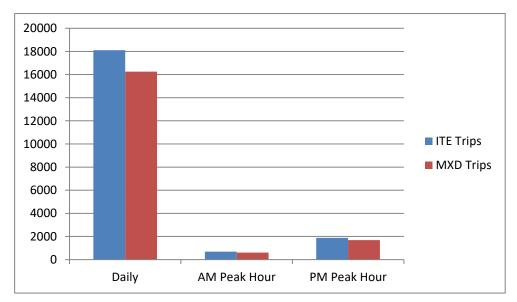
Daily VMT Reduced

	HBW	
ITE Daily VMT		2
MXD Daily Adjusted VMT		2
MXD Reduction in Daily VMT		
(VMT Reduction from Trip Capture)		
as a percentage		

HBW VMT Reduction from Trip Capture 1, VMT Reduction from Shorter Trips 2, Total Daily VMT Avoided

	MXD Peak Hour Factors by Trip Purpose						
Module	AM			PM			
Module	HBW	HBO	NHB	HBW	HBO	NHB	
Internal Capture	1.10	1.80	1.00	1.00	1.00	1.00	
Walking External	1.20	1.30	1.00	1.00	1.00	1.00	
Transit External	1.40	1.10	1.00	1.40	1.00	1.00	

1		нво		NHB		Total	
	24,528		91,870		38,989		155,387
	23,105		81,176		35,436		139,716
							15,671 10%
1		нво		NHB		Total	
	1,423		10,694		3,554		15,671
	2,156		(7,076)		1,687		(3,232)
							12,439



Comparison of MXD forecasted daily trips to ITE forecasted daily trips

