Appendix AQ

Air Quality and Greenhouse Gas Modeling Worksheets and Fuel Consumption Calculations

LRC Project

Marin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Library	77.00	1000sqft	1.70	77,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2022
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	127	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2018 MCE emission factor

Land Use - Lot acerage per Google Earth

Construction Phase - Arch coating starts halfway through building construction

Demolition - Size of existing building

Grading - Assume cut and fill balanced on site

Architectural Coating - BAAQMD reg 8, rule 3

Vehicle Trips - No change in trips from existing conditions

Energy Use - 30% reduction in non-residential energy use reduction per 2019 T-24

Water And Wastewater - 20% reduction indoor water use per 2016 calgreen

Fleet Mix -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	101.00
tblConstructionPhase	PhaseEndDate	5/10/2021	4/12/2021
tblConstructionPhase	PhaseStartDate	4/27/2021	11/23/2020
tblEnergyUse	T24E	1.21	0.85
tblLandUse	LotAcreage	1.77	1.70
tblProjectCharacteristics	CO2IntensityFactor	0	127
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	43.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	52.00	0.00
tblVehicleTrips	DV_TP	44.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PR_TP	44.00	0.00
tblVehicleTrips	ST_TR	46.55	0.00
tblVehicleTrips	SU_TR	25.49	0.00
tblVehicleTrips	WD_TR	56.24	0.00
tblWater	IndoorWaterUseRate	2,409,245.94	1,927,397.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	10.4300	25.4071	16.5040	0.0368	5.8653	1.1681	6.6867	2.9711	1.0910	3.7268	0.0000	3,683.9769	3,683.9769	0.6745	0.0000	3,700.8397
2021	10.1681	16.5462	16.0536	0.0313	0.4001	0.7836	1.1837	0.1081	0.7597	0.8679	0.0000	2,925.2970	2,925.2970	0.4133	0.0000	2,935.3166
Maximum	**10.4300**	**25.4071**	**16.5040**	**0.0368**	**5.8653**	**1.1681**	**6.6867**	**2.9711**	**1.0910**	**3.7268**	**0.0000**	**3,683.9769**	**3,683.9769**	**0.6745**	**0.0000**	**3,700.8397**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	10.4300	25.4071	16.5040	0.0368	5.8653	1.1681	6.6867	2.9711	1.0910	3.7268	0.0000	3,683.9769	3,683.9769	0.6745	0.0000	3,700.8397
2021	10.1681	16.5462	16.0536	0.0313	0.4001	0.7836	1.1837	0.1081	0.7597	0.8679	0.0000	2,925.2970	2,925.2970	0.4133	0.0000	2,935.3166
Maximum	**10.4300**	**25.4071**	**16.5040**	**0.0368**	**5.8653**	**1.1681**	**6.6867**	**2.9711**	**1.0910**	**3.7268**	**0.0000**	**3,683.9769**	**3,683.9769**	**0.6745**	**0.0000**	**3,700.8397**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8685	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Energy	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9249**	**0.5120**	**0.4379**	**3.0700e-003**	**0.0000**	**0.0389**	**0.0389**	**0.0000**	**0.0389**	**0.0389**		**614.2795**	**614.2795**	**0.0118**	**0.0113**	**617.9309**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8685	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Energy	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9249**	**0.5120**	**0.4379**	**3.0700e-003**	**0.0000**	**0.0389**	**0.0389**	**0.0000**	**0.0389**	**0.0389**		**614.2795**	**614.2795**	**0.0118**	**0.0113**	**617.9309**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2020	6/26/2020	5	20	
2	Site Preparation	Site Preparation	6/27/2020	6/30/2020	5	2	
3	Grading	Grading	7/1/2020	7/6/2020	5	4	
4	Building Construction	Building Construction	7/7/2020	4/12/2021	5	200	
5	Paving	Paving	4/13/2021	4/26/2021	5	10	
6	Architectural Coating	Architectural Coating	11/23/2020	4/12/2021	5	101	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 115,500; Non-Residential Outdoor: 38,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	302.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	32.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2678	0.0000	3.2678	0.4948	0.0000	0.4948			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**3.2678**	**1.1525**	**4.4202**	**0.4948**	**1.0761**	**1.5709**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1320	4.4271	1.3171	0.0117	0.2634	0.0149	0.2783	0.0722	0.0142	0.0864		1,261.4845	1,261.4845	0.0752		1,263.3637
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0507	0.0337	0.3162	1.0000e-003	0.1068	7.0000e-004	0.1075	0.0283	6.5000e-004	0.0290		100.1797	100.1797	2.4000e-003		100.2396
Total	**0.1827**	**4.4608**	**1.6333**	**0.0127**	**0.3702**	**0.0156**	**0.3858**	**0.1005**	**0.0149**	**0.1154**		**1,361.6643**	**1,361.6643**	**0.0776**		**1,363.6033**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2678	0.0000	3.2678	0.4948	0.0000	0.4948			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**3.2678**	**1.1525**	**4.4202**	**0.4948**	**1.0761**	**1.5709**	**0.0000**	**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1320	4.4271	1.3171	0.0117	0.2634	0.0149	0.2783	0.0722	0.0142	0.0864		1,261.484 5	1,261.484 5	0.0752		1,263.363 7
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0507	0.0337	0.3162	1.0000e-003	0.1068	7.0000e-004	0.1075	0.0283	6.5000e-004	0.0290		100.1797	100.1797	2.4000e-003		100.2396
Total	**0.1827**	**4.4608**	**1.6333**	**0.0127**	**0.3702**	**0.0156**	**0.3858**	**0.1005**	**0.0149**	**0.1154**		**1,361.664 3**	**1,361.664 3**	**0.0776**		**1,363.603 3**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553		1,667.4119	1,667.411 9	0.5393		1,680.893 7
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**5.7996**	**0.8210**	**6.6205**	**2.9537**	**0.7553**	**3.7090**		**1,667.411 9**	**1,667.411 9**	**0.5393**		**1,680.893 7**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0312	0.0208	0.1946	6.2000e-004	0.0657	4.3000e-004	0.0662	0.0174	4.0000e-004	0.0178		61.6491	61.6491	1.4700e-003		61.6859
Total	**0.0312**	**0.0208**	**0.1946**	**6.2000e-004**	**0.0657**	**4.3000e-004**	**0.0662**	**0.0174**	**4.0000e-004**	**0.0178**		**61.6491**	**61.6491**	**1.4700e-003**		**61.6859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553	0.0000	1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**5.7996**	**0.8210**	**6.6205**	**2.9537**	**0.7553**	**3.7090**	**0.0000**	**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0312	0.0208	0.1946	6.2000e-004	0.0657	4.3000e-004	0.0662	0.0174	4.0000e-004	0.0178		61.6491	61.6491	1.4700e-003		61.6859
Total	**0.0312**	**0.0208**	**0.1946**	**6.2000e-004**	**0.0657**	**4.3000e-004**	**0.0662**	**0.0174**	**4.0000e-004**	**0.0178**		**61.6491**	**61.6491**	**1.4700e-003**		**61.6859**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296		1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**4.9143**	**0.6844**	**5.5986**	**2.5256**	**0.6296**	**3.1552**		**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0312	0.0208	0.1946	6.2000e-004	0.0657	4.3000e-004	0.0662	0.0174	4.0000e-004	0.0178		61.6491	61.6491	1.4700e-003		61.6859
Total	**0.0312**	**0.0208**	**0.1946**	**6.2000e-004**	**0.0657**	**4.3000e-004**	**0.0662**	**0.0174**	**4.0000e-004**	**0.0178**		**61.6491**	**61.6491**	**1.4700e-003**		**61.6859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296	0.0000	1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**4.9143**	**0.6844**	**5.5986**	**2.5256**	**0.6296**	**3.1552**	**0.0000**	**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0312	0.0208	0.1946	6.2000e-004	0.0657	4.3000e-004	0.0662	0.0174	4.0000e-004	0.0178		61.6491	61.6491	1.4700e-003		61.6859
Total	**0.0312**	**0.0208**	**0.1946**	**6.2000e-004**	**0.0657**	**4.3000e-004**	**0.0662**	**0.0174**	**4.0000e-004**	**0.0178**		**61.6491**	**61.6491**	**1.4700e-003**		**61.6859**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0585	1.4328	0.5603	3.4200e-003	0.0879	7.4100e-003	0.0954	0.0253	7.0900e-003	0.0324		363.2136	363.2136	0.0190		363.6875
Worker	0.1248	0.0830	0.7783	2.4700e-003	0.2629	1.7200e-003	0.2646	0.0697	1.5900e-003	0.0713		246.5963	246.5963	5.9000e-003		246.7437
Total	**0.1833**	**1.5158**	**1.3386**	**5.8900e-003**	**0.3508**	**9.1300e-003**	**0.3600**	**0.0950**	**8.6800e-003**	**0.1037**		**609.8098**	**609.8098**	**0.0249**		**610.4313**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0585	1.4328	0.5603	3.4200e-003	0.0879	7.4100e-003	0.0954	0.0253	7.0900e-003	0.0324		363.2136	363.2136	0.0190		363.6875
Worker	0.1248	0.0830	0.7783	2.4700e-003	0.2629	1.7200e-003	0.2646	0.0697	1.5900e-003	0.0713		246.5963	246.5963	5.9000e-003		246.7437
Total	**0.1833**	**1.5158**	**1.3386**	**5.8900e-003**	**0.3508**	**9.1300e-003**	**0.3600**	**0.0950**	**8.6800e-003**	**0.1037**		**609.8098**	**609.8098**	**0.0249**		**610.4313**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0479	1.2952	0.4940	3.3900e-003	0.0879	3.1500e-003	0.0911	0.0253	3.0100e-003	0.0283		360.0266	360.0266	0.0180		360.4752
Worker	0.1164	0.0742	0.7096	2.3900e-003	0.2629	1.6800e-003	0.2646	0.0697	1.5400e-003	0.0713		237.9810	237.9810	5.2700e-003		238.1126
Total	**0.1643**	**1.3694**	**1.2036**	**5.7800e-003**	**0.3508**	**4.8300e-003**	**0.3556**	**0.0950**	**4.5500e-003**	**0.0996**		**598.0076**	**598.0076**	**0.0232**		**598.5879**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0479	1.2952	0.4940	3.3900e-003	0.0879	3.1500e-003	0.0911	0.0253	3.0100e-003	0.0283		360.0266	360.0266	0.0180		360.4752
Worker	0.1164	0.0742	0.7096	2.3900e-003	0.2629	1.6800e-003	0.2646	0.0697	1.5400e-003	0.0713		237.9810	237.9810	5.2700e-003		238.1126
Total	**0.1643**	**1.3694**	**1.2036**	**5.7800e-003**	**0.3508**	**4.8300e-003**	**0.3556**	**0.0950**	**4.5500e-003**	**0.0996**		**598.0076**	**598.0076**	**0.0232**		**598.5879**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0473	0.0302	0.2883	9.7000e-004	0.1068	6.8000e-004	0.1075	0.0283	6.3000e-004	0.0290		96.6798	96.6798	2.1400e-003		96.7333
Total	**0.0473**	**0.0302**	**0.2883**	**9.7000e-004**	**0.1068**	**6.8000e-004**	**0.1075**	**0.0283**	**6.3000e-004**	**0.0290**		**96.6798**	**96.6798**	**2.1400e-003**		**96.7333**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0473	0.0302	0.2883	9.7000e-004	0.1068	6.8000e-004	0.1075	0.0283	6.3000e-004	0.0290		96.6798	96.6798	2.1400e-003		96.7333
Total	**0.0473**	**0.0302**	**0.2883**	**9.7000e-004**	**0.1068**	**6.8000e-004**	**0.1075**	**0.0283**	**6.3000e-004**	**0.0290**		**96.6798**	**96.6798**	**2.1400e-003**		**96.7333**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.9506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**8.1928**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0234	0.0156	0.1459	4.6000e-004	0.0493	3.2000e-004	0.0496	0.0131	3.0000e-004	0.0134		46.2368	46.2368	1.1100e-003		46.2645
Total	**0.0234**	**0.0156**	**0.1459**	**4.6000e-004**	**0.0493**	**3.2000e-004**	**0.0496**	**0.0131**	**3.0000e-004**	**0.0134**		**46.2368**	**46.2368**	**1.1100e-003**		**46.2645**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.9506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**8.1928**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0234	0.0156	0.1459	4.6000e-004	0.0493	3.2000e-004	0.0496	0.0131	3.0000e-004	0.0134		46.2368	46.2368	1.1100e-003		46.2645
Total	**0.0234**	**0.0156**	**0.1459**	**4.6000e-004**	**0.0493**	**3.2000e-004**	**0.0496**	**0.0131**	**3.0000e-004**	**0.0134**		**46.2368**	**46.2368**	**1.1100e-003**		**46.2645**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.9506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**8.1695**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0218	0.0139	0.1330	4.5000e-004	0.0493	3.1000e-004	0.0496	0.0131	2.9000e-004	0.0134		44.6214	44.6214	9.9000e-004		44.6461
Total	**0.0218**	**0.0139**	**0.1330**	**4.5000e-004**	**0.0493**	**3.1000e-004**	**0.0496**	**0.0131**	**2.9000e-004**	**0.0134**		**44.6214**	**44.6214**	**9.9000e-004**		**44.6461**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.9506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**8.1695**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0218	0.0139	0.1330	4.5000e-004	0.0493	3.1000e-004	0.0496	0.0131	2.9000e-004	0.0134		44.6214	44.6214	9.9000e-004		44.6461
Total	**0.0218**	**0.0139**	**0.1330**	**4.5000e-004**	**0.0493**	**3.1000e-004**	**0.0496**	**0.0131**	**2.9000e-004**	**0.0134**		**44.6214**	**44.6214**	**9.9000e-004**		**44.6461**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Library	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Library	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Library	0.592917	0.040807	0.199317	0.111088	0.016573	0.005170	0.010431	0.011175	0.002033	0.003262	0.005795	0.000692	0.000740

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
NaturalGas Unmitigated	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Library	5221.23	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
Total		**0.0563**	**0.5119**	**0.4300**	**3.0700e-003**		**0.0389**	**0.0389**		**0.0389**	**0.0389**		**614.2627**	**614.2627**	**0.0118**	**0.0113**	**617.9130**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Library	5.22123	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
Total		**0.0563**	**0.5119**	**0.4300**	**3.0700e-003**		**0.0389**	**0.0389**		**0.0389**	**0.0389**		**614.2627**	**614.2627**	**0.0118**	**0.0113**	**617.9130**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.8685	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Unmitigated	1.8685	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6478					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3000e-004	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Total	**1.8685**	**7.0000e-005**	**7.8700e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0169**	**0.0169**	**4.0000e-005**		**0.0180**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6478					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3000e-004	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Total	**1.8685**	**7.0000e-005**	**7.8700e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0169**	**0.0169**	**4.0000e-005**		**0.0180**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

LRC Project

Marin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Library	77.00	1000sqft	1.70	77,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2030
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	127	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2018 MCE emission factor

Land Use - Lot acerage per Google Earth

Construction Phase - Arch coating starts halfway through building construction

Demolition - Size of existing building

Grading - Assume cut and fill balanced on site

Architectural Coating - BAAQMD reg 8, rule 3

Vehicle Trips - No change in trips from existing conditions

Energy Use - 30% reduction in non-residential energy use reduction per 2019 T-24

Water And Wastewater - 20% reduction indoor water use per 2016 calgreen

Fleet Mix -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	101.00
tblConstructionPhase	PhaseEndDate	5/10/2021	4/12/2021
tblConstructionPhase	PhaseStartDate	4/27/2021	11/23/2020
tblEnergyUse	T24E	1.21	0.85
tblLandUse	LotAcreage	1.77	1.70
tblProjectCharacteristics	CO2IntensityFactor	0	127
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	43.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	52.00	0.00
tblVehicleTrips	DV_TP	44.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PR_TP	44.00	0.00
tblVehicleTrips	ST_TR	46.55	0.00
tblVehicleTrips	SU_TR	25.49	0.00
tblVehicleTrips	WD_TR	56.24	0.00
tblWater	IndoorWaterUseRate	2,409,245.94	1,927,397.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2872	1.3701	1.1387	2.2600e-003	0.0743	0.0670	0.1413	0.0200	0.0643	0.0843	0.0000	193.9200	193.9200	0.0307	0.0000	194.6871
2021	0.3695	0.6343	0.6219	1.2000e-003	0.0144	0.0303	0.0446	3.8900e-003	0.0293	0.0332	0.0000	102.0547	102.0547	0.0150	0.0000	102.4284
Maximum	**0.3695**	**1.3701**	**1.1387**	**2.2600e-003**	**0.0743**	**0.0670**	**0.1413**	**0.0200**	**0.0643**	**0.0843**	**0.0000**	**193.9200**	**193.9200**	**0.0307**	**0.0000**	**194.6871**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2872	1.3701	1.1387	2.2600e-003	0.0743	0.0670	0.1413	0.0200	0.0643	0.0843	0.0000	193.9198	193.9198	0.0307	0.0000	194.6870
2021	0.3695	0.6343	0.6219	1.2000e-003	0.0144	0.0303	0.0446	3.8900e-003	0.0293	0.0332	0.0000	102.0546	102.0546	0.0150	0.0000	102.4283
Maximum	**0.3695**	**1.3701**	**1.1387**	**2.2600e-003**	**0.0743**	**0.0670**	**0.1413**	**0.0200**	**0.0643**	**0.0843**	**0.0000**	**193.9198**	**193.9198**	**0.0307**	**0.0000**	**194.6870**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-1-2020**	**8-31-2020**	0.6894	0.6894
2	**9-1-2020**	**11-30-2020**	0.6296	0.6296
3	**12-1-2020**	**2-28-2021**	0.8777	0.8777
4	**3-1-2021**	**5-31-2021**	0.4530	0.4530
		Highest	0.8777	0.8777

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3409	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Energy	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	133.6350	133.6350	1.9500e-003	1.8600e-003	134.2393
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	14.3941	0.0000	14.3941	0.8507	0.0000	35.6608
Water						0.0000	0.0000		0.0000	0.0000	0.6115	1.3606	1.9720	0.0628	1.4800e-003	3.9841
Total	**0.3512**	**0.0934**	**0.0792**	**5.6000e-004**	**0.0000**	**7.1000e-003**	**7.1000e-003**	**0.0000**	**7.1000e-003**	**7.1000e-003**	**15.0056**	**134.9969**	**150.0025**	**0.9154**	**3.3400e-003**	**173.8856**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3409	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Energy	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	133.6350	133.6350	1.9500e-003	1.8600e-003	134.2393
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	14.3941	0.0000	14.3941	0.8507	0.0000	35.6608
Water						0.0000	0.0000		0.0000	0.0000	0.6115	1.3606	1.9720	0.0628	1.4800e-003	3.9841
Total	**0.3512**	**0.0934**	**0.0792**	**5.6000e-004**	**0.0000**	**7.1000e-003**	**7.1000e-003**	**0.0000**	**7.1000e-003**	**7.1000e-003**	**15.0056**	**134.9969**	**150.0025**	**0.9154**	**3.3400e-003**	**173.8856**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2020	6/26/2020	5	20	
2	Site Preparation	Site Preparation	6/27/2020	6/30/2020	5	2	
3	Grading	Grading	7/1/2020	7/6/2020	5	4	
4	Building Construction	Building Construction	7/7/2020	4/12/2021	5	200	
5	Architectural Coating	Architectural Coating	11/23/2020	4/12/2021	5	101	
6	Paving	Paving	4/13/2021	4/26/2021	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 115,500; Non-Residential Outdoor: 38,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	302.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	32.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0327	0.0000	0.0327	4.9500e-003	0.0000	4.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0677	21.0677	5.4200e-003	0.0000	21.2031
Total	**0.0213**	**0.2095**	**0.1466**	**2.4000e-004**	**0.0327**	**0.0115**	**0.0442**	**4.9500e-003**	**0.0108**	**0.0157**	**0.0000**	**21.0677**	**21.0677**	**5.4200e-003**	**0.0000**	**21.2031**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-003	0.0441	0.0128	1.2000e-004	2.5400e-003	1.5000e-004	2.6900e-003	7.0000e-004	1.4000e-004	8.4000e-004	0.0000	11.5375	11.5375	6.7000e-004	0.0000	11.5543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.1000e-004	3.0700e-003	1.0000e-005	1.0200e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9133	0.9133	2.0000e-005	0.0000	0.9139
Total	**1.7500e-003**	**0.0444**	**0.0158**	**1.3000e-004**	**3.5600e-003**	**1.6000e-004**	**3.7200e-003**	**9.7000e-004**	**1.5000e-004**	**1.1200e-003**	**0.0000**	**12.4508**	**12.4508**	**6.9000e-004**	**0.0000**	**12.4682**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0327	0.0000	0.0327	4.9500e-003	0.0000	4.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0676	21.0676	5.4200e-003	0.0000	21.2030
Total	**0.0213**	**0.2095**	**0.1466**	**2.4000e-004**	**0.0327**	**0.0115**	**0.0442**	**4.9500e-003**	**0.0108**	**0.0157**	**0.0000**	**21.0676**	**21.0676**	**5.4200e-003**	**0.0000**	**21.2030**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-003	0.0441	0.0128	1.2000e-004	2.5400e-003	1.5000e-004	2.6900e-003	7.0000e-004	1.4000e-004	8.4000e-004	0.0000	11.5375	11.5375	6.7000e-004	0.0000	11.5543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.1000e-004	3.0700e-003	1.0000e-005	1.0200e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9133	0.9133	2.0000e-005	0.0000	0.9139
Total	**1.7500e-003**	**0.0444**	**0.0158**	**1.3000e-004**	**3.5600e-003**	**1.6000e-004**	**3.7200e-003**	**9.7000e-004**	**1.5000e-004**	**1.1200e-003**	**0.0000**	**12.4508**	**12.4508**	**6.9000e-004**	**0.0000**	**12.4682**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0184	7.7100e-003	2.0000e-005		8.2000e-004	8.2000e-004		7.6000e-004	7.6000e-004	0.0000	1.5127	1.5127	4.9000e-004	0.0000	1.5249
Total	**1.6300e-003**	**0.0184**	**7.7100e-003**	**2.0000e-005**	**5.8000e-003**	**8.2000e-004**	**6.6200e-003**	**2.9500e-003**	**7.6000e-004**	**3.7100e-003**	**0.0000**	**1.5127**	**1.5127**	**4.9000e-004**	**0.0000**	**1.5249**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0562	0.0562	0.0000	0.0000	0.0562
Total	**3.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0562**	**0.0562**	**0.0000**	**0.0000**	**0.0562**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0184	7.7100e-003	2.0000e-005		8.2000e-004	8.2000e-004		7.6000e-004	7.6000e-004	0.0000	1.5127	1.5127	4.9000e-004	0.0000	1.5249
Total	**1.6300e-003**	**0.0184**	**7.7100e-003**	**2.0000e-005**	**5.8000e-003**	**8.2000e-004**	**6.6200e-003**	**2.9500e-003**	**7.6000e-004**	**3.7100e-003**	**0.0000**	**1.5127**	**1.5127**	**4.9000e-004**	**0.0000**	**1.5249**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0562	0.0562	0.0000	0.0000	0.0562
Total	**3.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0562**	**0.0562**	**0.0000**	**0.0000**	**0.0562**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-003	0.0302	0.0129	3.0000e-005		1.3700e-003	1.3700e-003		1.2600e-003	1.2600e-003	0.0000	2.4779	2.4779	8.0000e-004	0.0000	2.4980
Total	**2.7000e-003**	**0.0302**	**0.0129**	**3.0000e-005**	**9.8300e-003**	**1.3700e-003**	**0.0112**	**5.0500e-003**	**1.2600e-003**	**6.3100e-003**	**0.0000**	**2.4779**	**2.4779**	**8.0000e-004**	**0.0000**	**2.4980**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1124	0.1124	0.0000	0.0000	0.1125
Total	**6.0000e-005**	**4.0000e-005**	**3.8000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1124**	**0.1124**	**0.0000**	**0.0000**	**0.1125**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-003	0.0302	0.0129	3.0000e-005		1.3700e-003	1.3700e-003		1.2600e-003	1.2600e-003	0.0000	2.4779	2.4779	8.0000e-004	0.0000	2.4980
Total	**2.7000e-003**	**0.0302**	**0.0129**	**3.0000e-005**	**9.8300e-003**	**1.3700e-003**	**0.0112**	**5.0500e-003**	**1.2600e-003**	**6.3100e-003**	**0.0000**	**2.4779**	**2.4779**	**8.0000e-004**	**0.0000**	**2.4980**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1124	0.1124	0.0000	0.0000	0.1125
Total	**6.0000e-005**	**4.0000e-005**	**3.8000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1124**	**0.1124**	**0.0000**	**0.0000**	**0.1125**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1300	0.9465	0.8440	1.4100e-003		0.0509	0.0509		0.0492	0.0492	0.0000	116.1870	116.1870	0.0216	0.0000	116.7262
Total	**0.1300**	**0.9465**	**0.8440**	**1.4100e-003**		**0.0509**	**0.0509**		**0.0492**	**0.0492**	**0.0000**	**116.1870**	**116.1870**	**0.0216**	**0.0000**	**116.7262**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6200e-003	0.0917	0.0340	2.2000e-004	5.4400e-003	4.7000e-004	5.9100e-003	1.5700e-003	4.5000e-004	2.0200e-003	0.0000	21.3535	21.3535	1.0700e-003	0.0000	21.3804
Worker	7.1500e-003	4.9000e-003	0.0484	1.6000e-004	0.0161	1.1000e-004	0.0162	4.2900e-003	1.0000e-004	4.3900e-003	0.0000	14.3883	14.3883	3.4000e-004	0.0000	14.3969
Total	**0.0108**	**0.0966**	**0.0824**	**3.8000e-004**	**0.0216**	**5.8000e-004**	**0.0222**	**5.8600e-003**	**5.5000e-004**	**6.4100e-003**	**0.0000**	**35.7419**	**35.7419**	**1.4100e-003**	**0.0000**	**35.7772**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1300	0.9465	0.8440	1.4100e-003		0.0509	0.0509		0.0492	0.0492	0.0000	116.1868	116.1868	0.0216	0.0000	116.7260
Total	**0.1300**	**0.9465**	**0.8440**	**1.4100e-003**		**0.0509**	**0.0509**		**0.0492**	**0.0492**	**0.0000**	**116.1868**	**116.1868**	**0.0216**	**0.0000**	**116.7260**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6200e-003	0.0917	0.0340	2.2000e-004	5.4400e-003	4.7000e-004	5.9100e-003	1.5700e-003	4.5000e-004	2.0200e-003	0.0000	21.3535	21.3535	1.0700e-003	0.0000	21.3804
Worker	7.1500e-003	4.9000e-003	0.0484	1.6000e-004	0.0161	1.1000e-004	0.0162	4.2900e-003	1.0000e-004	4.3900e-003	0.0000	14.3883	14.3883	3.4000e-004	0.0000	14.3969
Total	**0.0108**	**0.0966**	**0.0824**	**3.8000e-004**	**0.0216**	**5.8000e-004**	**0.0222**	**5.8600e-003**	**5.5000e-004**	**6.4100e-003**	**0.0000**	**35.7419**	**35.7419**	**1.4100e-003**	**0.0000**	**35.7772**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0653	0.4909	0.4644	7.9000e-004		0.0246	0.0246		0.0238	0.0238	0.0000	65.3571	65.3571	0.0117	0.0000	65.6488
Total	**0.0653**	**0.4909**	**0.4644**	**7.9000e-004**		**0.0246**	**0.0246**		**0.0238**	**0.0238**	**0.0000**	**65.3571**	**65.3571**	**0.0117**	**0.0000**	**65.6488**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6600e-003	0.0467	0.0168	1.2000e-004	3.0600e-003	1.1000e-004	3.1700e-003	8.9000e-004	1.1000e-004	9.9000e-004	0.0000	11.9074	11.9074	5.7000e-004	0.0000	11.9217
Worker	3.7500e-003	2.4600e-003	0.0249	9.0000e-005	9.0700e-003	6.0000e-005	9.1400e-003	2.4100e-003	6.0000e-005	2.4700e-003	0.0000	7.8107	7.8107	1.7000e-004	0.0000	7.8150
Total	**5.4100e-003**	**0.0491**	**0.0417**	**2.1000e-004**	**0.0121**	**1.7000e-004**	**0.0123**	**3.3000e-003**	**1.7000e-004**	**3.4600e-003**	**0.0000**	**19.7181**	**19.7181**	**7.4000e-004**	**0.0000**	**19.7367**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0653	0.4909	0.4644	7.9000e-004		0.0246	0.0246		0.0238	0.0238	0.0000	65.3571	65.3571	0.0117	0.0000	65.6488
Total	**0.0653**	**0.4909**	**0.4644**	**7.9000e-004**		**0.0246**	**0.0246**		**0.0238**	**0.0238**	**0.0000**	**65.3571**	**65.3571**	**0.0117**	**0.0000**	**65.6488**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6600e-003	0.0467	0.0168	1.2000e-004	3.0600e-003	1.1000e-004	3.1700e-003	8.9000e-004	1.1000e-004	9.9000e-004	0.0000	11.9074	11.9074	5.7000e-004	0.0000	11.9217
Worker	3.7500e-003	2.4600e-003	0.0249	9.0000e-005	9.0700e-003	6.0000e-005	9.1400e-003	2.4100e-003	6.0000e-005	2.4700e-003	0.0000	7.8107	7.8107	1.7000e-004	0.0000	7.8150
Total	**5.4100e-003**	**0.0491**	**0.0417**	**2.1000e-004**	**0.0121**	**1.7000e-004**	**0.0123**	**3.3000e-003**	**1.7000e-004**	**3.4600e-003**	**0.0000**	**19.7181**	**19.7181**	**7.4000e-004**	**0.0000**	**19.7367**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1153					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5100e-003	0.0244	0.0266	4.0000e-005		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	3.7022	3.7022	2.9000e-004	0.0000	3.7094
Total	**0.1188**	**0.0244**	**0.0266**	**4.0000e-005**		**1.6100e-003**	**1.6100e-003**		**1.6100e-003**	**1.6100e-003**	**0.0000**	**3.7022**	**3.7022**	**2.9000e-004**	**0.0000**	**3.7094**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.1000e-004	2.0600e-003	1.0000e-005	6.9000e-004	0.0000	6.9000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6112	0.6112	1.0000e-005	0.0000	0.6116
Total	**3.0000e-004**	**2.1000e-004**	**2.0600e-003**	**1.0000e-005**	**6.9000e-004**	**0.0000**	**6.9000e-004**	**1.8000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6112**	**0.6112**	**1.0000e-005**	**0.0000**	**0.6116**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1153					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5100e-003	0.0244	0.0266	4.0000e-005		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	3.7022	3.7022	2.9000e-004	0.0000	3.7094
Total	**0.1188**	**0.0244**	**0.0266**	**4.0000e-005**		**1.6100e-003**	**1.6100e-003**		**1.6100e-003**	**1.6100e-003**	**0.0000**	**3.7022**	**3.7022**	**2.9000e-004**	**0.0000**	**3.7094**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.1000e-004	2.0600e-003	1.0000e-005	6.9000e-004	0.0000	6.9000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6112	0.6112	1.0000e-005	0.0000	0.6116
Total	**3.0000e-004**	**2.1000e-004**	**2.0600e-003**	**1.0000e-005**	**6.9000e-004**	**0.0000**	**6.9000e-004**	**1.8000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6112**	**0.6112**	**1.0000e-005**	**0.0000**	**0.6116**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2862					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8800e-003	0.0550	0.0654	1.1000e-004		3.3900e-003	3.3900e-003		3.3900e-003	3.3900e-003	0.0000	9.1917	9.1917	6.3000e-004	0.0000	9.2075
Total	**0.2941**	**0.0550**	**0.0654**	**1.1000e-004**		**3.3900e-003**	**3.3900e-003**		**3.3900e-003**	**3.3900e-003**	**0.0000**	**9.1917**	**9.1917**	**6.3000e-004**	**0.0000**	**9.2075**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-004	4.6000e-004	4.6600e-003	2.0000e-005	1.7000e-003	1.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4645	1.4645	3.0000e-005	0.0000	1.4653
Total	**7.0000e-004**	**4.6000e-004**	**4.6600e-003**	**2.0000e-005**	**1.7000e-003**	**1.0000e-005**	**1.7100e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.4645**	**1.4645**	**3.0000e-005**	**0.0000**	**1.4653**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2862					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8800e-003	0.0550	0.0654	1.1000e-004		3.3900e-003	3.3900e-003		3.3900e-003	3.3900e-003	0.0000	9.1917	9.1917	6.3000e-004	0.0000	9.2075
Total	**0.2941**	**0.0550**	**0.0654**	**1.1000e-004**		**3.3900e-003**	**3.3900e-003**		**3.3900e-003**	**3.3900e-003**	**0.0000**	**9.1917**	**9.1917**	**6.3000e-004**	**0.0000**	**9.2075**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-004	4.6000e-004	4.6600e-003	2.0000e-005	1.7000e-003	1.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4645	1.4645	3.0000e-005	0.0000	1.4653
Total	**7.0000e-004**	**4.6000e-004**	**4.6600e-003**	**2.0000e-005**	**1.7000e-003**	**1.0000e-005**	**1.7100e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.4645**	**1.4645**	**3.0000e-005**	**0.0000**	**1.4653**

3.7 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8700e-003	0.0387	0.0443	7.0000e-005		2.0800e-003	2.0800e-003		1.9100e-003	1.9100e-003	0.0000	5.8825	5.8825	1.8600e-003	0.0000	5.9291
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.8700e-003**	**0.0387**	**0.0443**	**7.0000e-005**		**2.0800e-003**	**2.0800e-003**		**1.9100e-003**	**1.9100e-003**	**0.0000**	**5.8825**	**5.8825**	**1.8600e-003**	**0.0000**	**5.9291**

3.7 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.4000e-004	1.4000e-003	0.0000	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4407	0.4407	1.0000e-005	0.0000	0.4410
Total	**2.1000e-004**	**1.4000e-004**	**1.4000e-003**	**0.0000**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4407**	**0.4407**	**1.0000e-005**	**0.0000**	**0.4410**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8700e-003	0.0387	0.0443	7.0000e-005		2.0800e-003	2.0800e-003		1.9100e-003	1.9100e-003	0.0000	5.8825	5.8825	1.8600e-003	0.0000	5.9291
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.8700e-003**	**0.0387**	**0.0443**	**7.0000e-005**		**2.0800e-003**	**2.0800e-003**		**1.9100e-003**	**1.9100e-003**	**0.0000**	**5.8825**	**5.8825**	**1.8600e-003**	**0.0000**	**5.9291**

3.7 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.4000e-004	1.4000e-003	0.0000	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4407	0.4407	1.0000e-005	0.0000	0.4410
Total	**2.1000e-004**	**1.4000e-004**	**1.4000e-003**	**0.0000**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4407**	**0.4407**	**1.0000e-005**	**0.0000**	**0.4410**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Library	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Library	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Library	0.606659	0.037139	0.196776	0.106073	0.012990	0.005264	0.011080	0.012730	0.002058	0.002288	0.005513	0.000755	0.000673

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	31.9369	31.9369	0.0000	0.0000	31.9369
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	31.9369	31.9369	0.0000	0.0000	31.9369
NaturalGas Mitigated	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	101.6981	101.6981	1.9500e-003	1.8600e-003	102.3024
NaturalGas Unmitigated	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	101.6981	101.6981	1.9500e-003	1.8600e-003	102.3024

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Library	1.90575e+006	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	101.6981	101.6981	1.9500e-003	1.8600e-003	102.3024
Total		**0.0103**	**0.0934**	**0.0785**	**5.6000e-004**		**7.1000e-003**	**7.1000e-003**		**7.1000e-003**	**7.1000e-003**	**0.0000**	**101.6981**	**101.6981**	**1.9500e-003**	**1.8600e-003**	**102.3024**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Library	1.90575e+006	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	101.6981	101.6981	1.9500e-003	1.8600e-003	102.3024
Total		**0.0103**	**0.0934**	**0.0785**	**5.6000e-004**		**7.1000e-003**	**7.1000e-003**		**7.1000e-003**	**7.1000e-003**	**0.0000**	**101.6981**	**101.6981**	**1.9500e-003**	**1.8600e-003**	**102.3024**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Library	554400	31.9369	0.0000	0.0000	31.9369
Total		**31.9369**	**0.0000**	**0.0000**	**31.9369**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Library	554400	31.9369	0.0000	0.0000	31.9369
Total		**31.9369**	**0.0000**	**0.0000**	**31.9369**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3409	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Unmitigated	0.3409	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3007					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Total	**0.3409**	**1.0000e-005**	**7.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3800e-003**	**1.3800e-003**	**0.0000**	**0.0000**	**1.4600e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3007					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Total	**0.3409**	**1.0000e-005**	**7.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3800e-003**	**1.3800e-003**	**0.0000**	**0.0000**	**1.4600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.9720	0.0628	1.4800e-003	3.9841
Unmitigated	1.9720	0.0628	1.4800e-003	3.9841

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Library	1.9274 / 3.76831	1.9720	0.0628	1.4800e-003	3.9841
Total		**1.9720**	**0.0628**	**1.4800e-003**	**3.9841**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Library	1.9274 / 3.76831	1.9720	0.0628	1.4800e-003	3.9841
Total		**1.9720**	**0.0628**	**1.4800e-003**	**3.9841**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	14.3941	0.8507	0.0000	35.6608
Unmitigated	14.3941	0.8507	0.0000	35.6608

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Library	70.91	14.3941	0.8507	0.0000	35.6608
Total		**14.3941**	**0.8507**	**0.0000**	**35.6608**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Library	70.91	14.3941	0.8507	0.0000	35.6608
Total		**14.3941**	**0.8507**	**0.0000**	**35.6608**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

LRC Project

Last Updated: 3/26/20

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]** :

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Rubber Tired Dozer	1	8	247	0.40	Demo	835.59
Tractors/Loaders/Backhoes	3	8	97	0.37	Demo	1,012.34
Concrete/Industrial Saws	1	8	81	0.73	Demo	555.96
Concrete/Industrial Saws	1	8	81	0.73	Site Prep	55.6
Rubber Tired Dozer	1	7	247	0.40	Site Prep	73.1
Graders	1	8	187	0.41	Site Prep	64.8
Graders	1	6	187	0.41	Grading	97.2
Rubber Tired Dozer	1	8	247	0.40	Grading	167.12
Tractors/Loaders/Backhoes	1	7	97	0.37	Grading	59.0
Cranes	1	6	231	0.29	Building	4,249.23
Forklifts	1	6	89	0.20	Building	1,255.20
Generator Sets	1	8	84	0.74	Building	5,844.45
Tractors/Loaders/Backhoes	1	8	97	0.37	Building	3,374.48
Welders	3	8	46	0.45	Building	5,838.81
XXX	0	8	20	0.30	Building	
Air Compressors	1	8	78	0.48	Arch Coating	1,777.71
XXX	0	8	20	0.30	Arch Coating	
Cement and Mortar Mixers	1	6	9	0.56	Paving	17.7
Pavers	1	6	130	0.42	Paving	173.17
Paving Equipment	1	8	132	0.36	Paving	200.95
Rollers	1	7	80	0.38	Paving	125.05
Tractors/Loaders/Backhoes	1	7	97	0.37	Grading	59.0

Total Fuel Used **25,836.76 (Gallons)**

Construction Phase	Days of Operation
Demolition Phase	20
Site Preparation Phase	2
Grading Phase	4
Building Construction Phase	200
Paving Phase	10
Architectural Coating Phase	101
Total Days	337

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition	24.2	13	10.8	116.03
Site Prep Phase	24.2	8	10.8	7.14
Grading Phase	24.2	8	10.8	14.28
Building Phase	24.2	32	10.8	2856.20
Paving Phase	24.2	13	10.8	58.02
Architectural Coating Phase	24.2	6	10.8	270.45
			Total	**3,322.12**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
		HAULING TRIPS		
Demolition	7.4	302	20.0	816.22
Site Prep Phase	7.4	0	20.0	0.00
Grading Phase	7.4	0	20.0	0.00
Building Phase	7.4	0	20.0	0.00
Paving Phase	7.4	0	20.0	0.00

Architectural Coating Phase	7.4	0	20.0	0.00
			Total	**816.22**

VENDOR TRIPS

Demolition	7.4	0	7.3	0.00
Site Prep Phase	7.4	0	7.3	0.00
Grading Phase	7.4	0	7.3	0.00
Building Phase	7.4	13	7.3	2564.86
Paving Phase	7.4	0	7.3	0.00
Architectural Coating Phase	7.4	0	7.3	0.00
			Total	**2,564.86**
				3,381.08

Total Gasoline Consumption (gallons)	**3,322.12**
Total Diesel Consumption (gallons)	**29,217.84**
	32,539.95

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b*. July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018*. Available at: https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf.

Appendix BIO

Special Status Species Potential to Occur

College of Marin Facilities Master Plan Special Status Species List

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur: LRC	Potential to Occur: Kentfield	Potential to Occur: Indian Valley	Potential to Occur: Bolinas Marine Lab	Habitat Suitability/Observations
Plants							
Allium peninsulare var. *franciscanum* Franciscan onion	None/None G5T2/S2 1B.2	Cismontane woodland, Valley and foothill grassland. clay, volcanic, often serpentinite. 52 - 305 m. perennial bulbiferous herb. Blooms (Apr)May-Jun	Not Expected	Not Expected	Low	Not Expected	Suitable valley/foothill grassland habitat occurs at IVC, but there are no known CNDDB occurrences within 5 miles of all campuses.
Amorpha californica var. *napensis* Napa false indigo	None/None G4T2/S2 1B.2	Broadleafed upland forest (openings), Chaparral, Cismontane woodland. 120 - 2000 m. perennial deciduous shrub. Blooms Apr-Jul	Not Expected	Not Expected	Low	Not Expected	Suitable oak/bay woodlands habitat occurs at IVC, but there are no known CNDDB occurrences within 5 miles of all campuses.
Amsinckia lunaris Bent-flowered fiddleneck	None/None G3/S3 1B.2	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland. 3 - 500 m. annual herb. Blooms Mar-Jun	Not Expected	Not Expected	Low	Not Expected	4 occurrences within 5 miles of campuses and suitable woodlands habitat is present on IVC.
Arctostaphylos montana ssp. *montana* Mt. Tamalpais manzanita	None/None G3T3/S3 1B.3	Chaparral, Valley and foothill grassland. serpentinite, rocky. 160 - 760 m. perennial evergreen shrub. Blooms Feb-Apr	Not Expected	Not Expected	Low	Not Expected	11 known occurrences within 5 miles of campuses. This occurrence is farther south near Mt. Tam.
Astragalus pycnostachyus var. *pycnostachyus* Coastal marsh milk-vetch	None/None G2T2/S2 1B.2	Coastal dunes (mesic), Coastal scrub, Marshes and swamps (coastal salt, streamsides). 0 - 30 m. perennial herb. Blooms (Apr)Jun-Oct	Not Expected	Not Expected	Not Expected	Low	Suitable habitat present and 1 known occurrence at Bolinas.
Carex lyngbyei Lyngbye's sedge	None/None G5/S3 2B.2	Marshes and swamps (brackish or freshwater). 0 - 10 m. perennial rhizomatous herb. Blooms Apr-Aug	Not Expected	Low	Not Expected	Not Expected	Potential to occur at Kentfield campus in salt marshes. 1 known occurrence at Bolinas.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	Kentfield	Indian Valley	Bolinas Marine Lab	Habitat Suitability/Observations
Chloropyron maritimum ssp. *palustre* Point Reyes bird's-beak	None/None G4?T2/S2 1B.2	Marshes and swamps (coastal salt). 0 - 10 m. annual herb (hemiparasitic). Blooms Jun-Oct	Not Expected	Low	Not Expected	Not Expected	Suitable salt marsh habitat present at Kentfield. There are 2 known CNDDB occurrences at Kentfield, but these are historical records, 1922 and 1863.
Dirca occidentalis Western leatherwood	None/None G2/S2 1B.2	Broadleafed upland forest, Closed-cone coniferous forest, Chaparral, Cismontane woodland, North Coast coniferous forest, Riparian forest, Riparian woodland. mesic. 25 - 425 m. perennial deciduous shrub. Blooms Jan-Mar (Apr)	Low	Low	Low	Not Expected	Suitable riparian habitat present at Kentfield and 2 known occurrences within 5 miles of campus.
Entosthodon kochii Koch's cord moss	None/None G1/S1 1B.3	Cismontane woodland (soil). 180 - 1000 m. moss. Blooms	Not Expected	Not Expected	Low	Not Expected	Suitable woodland habitat occurs at IVC, and 1 known occurrence within five miles of IVC.
Eriogonum luteolum var. *caninum* Tiburon buckwheat	None/None G5T2/S2 1B.2	Chaparral, Cismontane woodland, Coastal prairie, Valley and foothill grassland. serpentinite, sandy to gravelly. 0 - 700 m. annual herb. Blooms May-Sep	Not Expected	Not Expected	Low	Not Expected	Suitable woodland habitat occurs at IVC, but there are no known occurrences within 5 miles of IVC.
Fritillaria liliacea Fragrant fritillary	None/None G2/S2 1B.2	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland. Often serpentinite. 3 - 410 m. perennial bulbiferous herb. Blooms Feb-Apr	Not Expected	Not Expected	Low	Not Expected	Suitable habitat at IVC and 3 CNDDB occurrences with 5 miles of IVC.
Gilia capitata ssp. *tomentosa* Woolly-headed gilia	None/None G5T1/S1 1B.1	Coastal bluff scrub, Valley and foothill grassland. Serpentinite, rocky, outcrops. 10 - 220 m. annual herb. Blooms May-Jul	Not Expected	Not Expected	Low	Not Expected	Suitable habitat at IVC, but there are no known CNDDB occurrences within 5 miles of IVC.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	Kentfield	Indian Valley	Bolinas Marine Lab	Habitat Suitability/Observations
Helianthella castanea Diablo helianthella	None/None G2/S2 1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland. Usually rocky, axonal soils. Often in partial shade. 60 - 1300 m. perennial herb. Blooms Mar-Jun	Not Expected	Not Expected	Low	Not Expected	Suitable valley/foothill grassland present at IVC, but there are no known CNDDB occurrences at IVC.
Hemizonia congesta ssp. *congesta* Congested-headed hayfield tarplant	None/None G5T2/S2 1B.2	Valley and foothill grassland. sometimes roadsides. 20 - 560 m. annual herb. Blooms Apr-Nov	Low	Low	Low	Low	Suitable ruderal vegetation and grassland habitat within 5 miles of all campuses.
Hesperolinon congestum Marin western flax	FT/ST G1/S1 1B.1	Chaparral, Valley and foothill grassland. serpentinite. 5 - 370 m. annual herb. Blooms Apr-Jul	Not Expected	Not Expected	Low	Not Expected	8 known occurrences at IVC, but there is no suitable serpentinite habitat present at IVC.
Holocarpha macradenia Santa Cruz tarplant	FT/SE G1/S1 1B.1	Coastal prairie, Coastal scrub, Valley and foothill grassland. often clay, sandy. 10 - 220 m. annual herb. Blooms Jun-Oct	Not Expected	Not Expected	Low	Not Expected	Suitable grassland habitat present at IVC, but there are no known occurrences within 5 miles of IVC.
Horkelia tenuiloba Thin-lobed horkelia	None/None G2/S2 1B.2	Broadleafed upland forest, Chaparral, Valley and foothill grassland. mesic openings, sandy. 50 - 500 m. perennial herb. Blooms May-Jul (Aug)	Not Expected	Not Expected	Low	Not Expected	Suitable valley/foothill grassland habitat present at IVC, but there are no known CNDDB occurrences within 5 miles of IVC.
Lasthenia conjugens Contra Costa goldfields	FE/None G1/S1 1B.1	Cismontane woodland, Playas (alkaline), Valley and foothill grassland, Vernal pools. mesic. 0 - 470 m. annual herb. Blooms Mar-Jun	Not Expected	Not Expected	Low	Not Expected	Suitable grassland habitat present at IVC, but there are no known CNDDB occurrences within 5 miles of IVC.
Lessingia micradenia var. *micradenia* Tamalpais lessingia	None/None G2T2/S2 1B.2	Chaparral, Valley and foothill grassland. usually serpentinite, often roadsides. 100 - 500 m. annual herb. Blooms (Jun)Jul-Oct	Not Expected	Not Expected	Low	Not Expected	Suitable grassland habitat present at IVC, and 1 known CNDDB occurrence within 5 miles of IVC.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	Kentfield	Indian Valley	Bolinas Marine Lab	Habitat Suitability/Observations
Microseris paludosa Marsh microseris	None/None G2/S2 1B.2	Closed-cone coniferous forest, Cismontane woodland, Coastal scrub, Valley and foothill grassland. 5 - 355 m. perennial herb. Blooms Apr-Jun (Jul)	Not Expected	Not Expected	Low	Not Expected	Suitable woodlands and grasslands habitat present at IVC, but there are no known occurrences within 5 miles of IVC.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia	None/None G4T2/S2 1B.1	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools. Mesic. 5 - 1740 m. annual herb. Blooms Apr-Jul	Not Expected	Not Expected	Low	Not Expected	1 CNDDB occurrence at IVC, but there is a low potential to occur in cismontane woodland and grasslands at IVC.
Pentachaeta bellidiflora White-rayed pentachaeta	FE/SE G1/S1 1B.1	Cismontane woodland, Valley and foothill grassland (often serpentinite). 35 - 620 m. annual herb. Blooms Mar-May	Not Expected	Not Expected	Low	Not Expected	Suitable cismontane woodland and grassland habitat present at IVC, but there are no known CNDDB occurrences within 5 miles of IVC.
Streptanthus glandulosus ssp. *pulchellus* Mt. Tamalpais bristly jewelflower	None/None G4T2/S2 1B.2	Chaparral, Valley and foothill grassland. serpentinite. 150 - 800 m. annual herb. Blooms May-Jul (Aug)	Not Expected	Not Expected	Low	Not Expected	Suitable foothill grassland habitat at IVC, close to project boundary.
Symphyotrichum lentum Suisun Marsh aster	None/None G2/S2 1B.2	Marshes and swamps (brackish and freshwater). 0 - 3 m. perennial rhizomatous herb. Blooms (Apr)May-Nov	Not Expected	Low	Not Expected	Not Expected	Suitable marsh habitat occurs at Kentfield, but there are no known CNDDB occurrences within 5 miles of Kentfield.
Trifolium amoenum Two-fork clover	FE/None G1/S1 1B.1	Coastal bluff scrub, Valley and foothill grassland (sometimes serpentinite). 5 - 415 m. annual herb. Blooms Apr-Jun	Not Expected	Not Expected	Low	Not Expected	Suitable valley/foothill grasslands occur at IVC, but there are no known CNDDB occurrences within 5 miles of IVC.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	 Kentfield	 Indian Valley	 Bolinas Marine Lab	Habitat Suitability/Observations
Invertebrates							
Bombus occidentalis Western bumble bee	None/SC G2G3/S1	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Low	Low	Low	Low	Unlikely to occur due to extirpation and no recent occurrences in Marin County (bumblebeewatch.org).
Fish							
Acipenser medirostris Green sturgeon	FT/None G3/S1S2 SSCn	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers. Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	Not Expected	Low	Not Expected	Not Expected	Critical spawning habitat extends up Corte Madera Creek and is immediately adjacent to Kentfield campus, but there is no overlap. There is potential for green sturgeon to move from main Corte Madera Creek channel into the side channel that overlaps with campus limits.
Eucyclogobius newberryi Tidewater goby	FE/None G3/S3 SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Not Expected	Not Expected	Not Expected	Low	Critical habitat occurs at Bolinas Lagoon, but there is a recovery plan (USFWS 2005) that states tidewater goby has been extirpated from Tomales Bay south to San Francisco Bay.
Oncorhynchus kisutch pop. 4 Coho salmon - central California coast ESU	FE/SE G4/S2?	Federal listing = pops between Punta Gorda & San Lorenzo River. State listing = pops south of Punta Gorda. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water and sufficient dissolved oxygen.	Not Expected	Not Expected	Not Expected	Low	Potential to occur in Bolinas lagoon, however no record of Coho salmon in Corte Madera since 1980's.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	Kentfield	Indian Valley	Bolinas Marine Lab	Habitat Suitability/Observations
Oncorhynchus mykiss irideus pop. 8 Steelhead - central California coast DPS	FT/None G5T2T3Q/S2S3	DPS includes all naturally spawned populations of steelhead (and their progeny) in streams from the Russian River to Aptos Creek, Santa Cruz County, California (inclusive). Also includes the drainages of San Francisco and San Pablo Bays.	Low	Low	Not Expected	Low	Potential to occur in Bolinas lagoon and Corte Madera Creek at Kentfield.
Oncorhynchus tshawytscha pop. 6 Chinook salmon - Central Valley spring-run ESU	FT/ST G5/S1	Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 C are lethal to adults. Federal listing refers to populations spawning in Sacramento River and tributaries.	Low	Low	Not Expected	Not Expected	Historic sightings in Corte Madera Creek.
Oncorhynchus tshawytscha pop. 7 Chinook salmon - Sacramento River winter-run ESU	FE/SE G5/S1	Sacramento River below Keswick Dam. Spawns in the Sacramento River, but not in tributary streams. Requires clean, cold water over gravel beds with water temperatures between 6 and 14 C for spawning.	Low	Low	Not Expected	Not Expected	Historic sightings in Corte Madera Creek.
Reptiles							
Emys marmorata Western pond turtle	None/None G3G4/S3 SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Not Expected	Not Expected	Low	Not Expected	3 known CNDDB occurrences within 5 miles of IVC. 1 known occurrence 0.1 mile west of IVC.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	 Kentfield	 Indian Valley	 Bolinas Marine Lab	Habitat Suitability/Observations
Birds							
Accipiter cooperii Cooper's hawk	None/None G5/S4 WL	Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river floodplains; also, live oaks.	Moderate	Moderate	Moderate	Moderate	Nesting habitat in trees and near riverine areas, present in area during migration.
Asio flammeus Short-eared owl	None/None G5/S3 SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Not Expected	Low	Not Expected	Not Expected	May hunt in marsh at Kentfield campus, nesting site unlikely – depends on vegetation.
Athene cunicularia Burrowing owl	None/None G4/S3 SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Not Expected	Not Expected	Low	Not Expected	Suitable grassland habitat occurs at IVC and 2 known CNDDB occurrences within 5 miles of IVC, but the prey base is low (Pacific Biology 2017).
Buteo swainsoni Swainson's hawk	None/ST G5/S3	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Low	Low	Low	Low	Foraging habitat possible during migration, nesting habitat is unlikely.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	Kentfield	Indian Valley	Bolinas Marine Lab	Habitat Suitability/Observations
Circus hudsonius Northern harrier	None/None G5/S3 SSC	Coastal salt & freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	Moderate	Moderate	Moderate	Moderate	Potential to forage in grassland/wetland at IVC and Kentfield, respectively.
Elanus leucurus White-tailed kite	None/None G5/S3S4 FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Moderate	Moderate	Moderate	Moderate	Suitable foraging habitat on all campuses, but nesting is less likely. 1 known CNDDB occurrence within 5 miles of IVC. This occurrence is north of IVC.
Falco peregrinus anatum American peregrine falcon	Delisted/Delisted G4T4/S3S4 FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Low	Low	Low	Low	Suitable foraging habitat on all campuses, but nesting is less likely.
Geothlypis trichas sinuosa saltmarsh common Yellowthroat	None/None G5T3/S3 SSC	Resident of the San Francisco Bay region, in fresh and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Not Expected	Moderate	Not Expected	Not Expected	Suitable marsh habitat occurs at Kentfield, but there are no known CNDDB occurrences within 5 miles of Kentfield.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	 Kentfield	 Indian Valley	 Bolinas Marine Lab	Habitat Suitability/Observations
Laterallus jamaicensis coturniculus California black rail	None/ST G3G4T1/S1 FP	Inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	Not Expected	Low	Not Expected	Not Expected	Suitable marsh habitat occurs at Kentfield, and 11 known CNDBB occurrences within 5 miles of Kentfield.
Melospiza melodia pusillula Alameda song sparrow	None/None G5T2/S2S3 SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits Salicornia marshes; nests low in Grindelia bushes (high enough to escape high tides) and in Salicornia.	Not Expected	Low	Not Expected	Not Expected	Suitable marsh habitat occurs at Kentfield, but there are no known CNDDB occurrences within 5 miles of Kentfield.
Melospiza melodia samuelis San Pablo song sparrow	None/None G5T2/S2 SSC	Resident of salt marshes along the north side of San Francisco and San Pablo bays. Inhabits tidal sloughs in the Salicornia marshes; nests in Grindelia bordering slough channels.	Not Expected	Low	Not Expected	Not Expected	Suitable marsh habitat occurs at Kentfield, but slightly outside of subspecies range.
Pandion haliaetus Osprey	None/None G5/S4 WL	Ocean shore, bays, freshwater lakes, and larger streams. Large nests built in treetops within 15 miles of a good fish-producing body of water.	Moderate	Moderate	Not Expected	Moderate	Suitable tidal marsh/estuary habitat present at Bolinas and Kentfield.
Phalacrocorax auritus Double-crested cormorant	None/None G5/S4 WL	Colonial nester on coastal cliffs, offshore islands, and along lake margins in the interior of the state. Nests along coast on sequestered islets, usually on ground with sloping surface, or in tall trees along lake margins.	Not Expected	Not Expected	Not Expected	High	Suitable habitat occurs at Bolinas.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	Kentfield	Indian Valley	Bolinas Marine Lab	Habitat Suitability/Observations
Phoebastria albatrus Short-tailed albatross	FE/None G1/S1 SSC	Pelagic bird that nests on Pacific Islands, but during non-breeding season may forage as far east as the western coast of North America, including California.	Not Expected	Not Expected	Not Expected	Low	Suitable foraging habitat present at Bolinas, but there are no known CNDDB occurrences within 5 miles of Bolinas.
Rallus obsoletus California Ridgway's rail	FE/SE G5T1/S1 FP	Saltwater and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	Not Expected	Low	Not Expected	Not Expected	Suitable marsh habitat occurs at Kentfield and there are 7 known CNDDB occurrences within 5 miles of Kentfield.
Setophaga petechia Yellow warbler	None/None G5/S3S4 SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Low	Low	Low	Low	No known CNDDB occurrences within 5 miles, but multiple eBird sightings.
Sternula antillarum browni California least tern	FE/SE G4T2T3Q/S2 FP	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	Not Expected	Not Expected	Not Expected	Low	Suitable nesting habitat present at Bolinas, but there are no known CNDDB occurrences within 5 miles of Bolinas.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur: LRC	Potential to Occur: Kentfield	Potential to Occur: Indian Valley	Potential to Occur: Bolinas Marine Lab	Habitat Suitability/Observations
Strix occidentalis caurina Northern spotted owl	FT/ST G3T3/S2S3	Old-growth forests or mixed stands of old-growth and mature trees. Occasionally in younger forests with patches of big trees. High, multistory canopy dominated by big trees, many trees with cavities or broken tops, woody debris, and space under canopy.	Not Expected	Not Expected	Not Expected	Low	Suitable forest habitat (low) for CHWR overlaps with Bolinas campus, but there are no CNDDB occurrences within 5 miles of Bolinas.
Mammals							
Antrozous pallidus Pallid bat	None/None G5/S3 SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not Expected	Not Expected	Low	Not Expected	5 known CNDDB occurrences within 5 miles of IVC but most suitable habitat in developed area. Potential to use older buildings.
Arctocephalus townsendi Guadalupe fur-seal	FT/ST G1/S1 FP	Breeds on Isla de Guadalupe off of Mexico, occasionally found on San Miguel, San Nicolas, and San Clemente islands. Prefers shallow, nearshore island water, with cool and sheltered rocky areas for haul-outs.	Not Expected	Not Expected	Not Expected	Low	No suitable habitat present at Bolinas and no known CNDBB occurrences within 5 miles of Bolinas, but stray, stranded seals may occur on beaches.
Corynorhinus townsendii Townsend's big-eared bat	None/None G3G4/S2 SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Not Expected	Not Expected	Low	Low	1 known CNDDB occurrence within 5 miles of IVC and 1 known CNDDB occurrence within 5 miles of Bolinas. Potential to occur in used buildings.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	 Kentfield	 Indian Valley	 Bolinas Marine Lab	Habitat Suitability/Observations
Enhydra lutris nereis Southern sea otter	FT/None G4T2/S2 FP	Nearshore marine environments from about Ano Nuevo, San Mateo Co. to Point Sal, Santa Barbara Co. Needs canopies of giant kelp & bull kelp for rafting & feeding. Prefers rocky substrates with abundant invertebrates.	Not Expected	Not Expected	Not Expected	Low	No suitable habitat present at Bolinas and no known CNDBB occurrences within 5 miles of Bolinas, but stray, stranded seals may occur on beaches.
Lasiurus blossevillii Western red bat	None/None G5/S3 SSC	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Low	Low	Low	Not Expected	No known CNDDB occurrences within 5 miles of Kentfield and IVC and coniferous forests absent.
Reithrodontomys raviventris Salt-marsh harvest mouse	FE/SE G1G2/S1S2 FP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is primary habitat but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow; builds loosely organized nests. Requires higher areas for flood escape.	Not Expected	Low	Not Expected	Not Expected	Suitable salt marsh habitat present at Kentfield, and 7 known CNDDB occurrences within 5 miles of Kentfield.

Scientific Name Common Name	Status	Habitat Requirements	Potential to Occur LRC	 Kentfield	 Indian Valley	 Bolinas Marine Lab	Habitat Suitability/Observations
Taxidea taxus American badger	None/None G5/S3 SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soil. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not Expected	Not Expected	Low	Not Expected	1 known CNDDB occurrence within 5 miles of Bolinas, but no known CNDDB occurrences within 5 miles of IVC.

Regional Vicinity refers to within a 9-quad search radius of site.

FT = Federally Threatened — SE = State Endangered

FC = Federal Candidate Species — SC = State Candidate Species

FE = Federally Endangered — ST = State Threatened

FS=Federally Sensitive — SS=State Sensitive

G-Rank/S-Rank = Global Rank and State Rank as per NatureServe and CDFW's CNDDB RareFind3

SSC = CDFW Species of Special Concern

FP = Fully Protected

WL = Watch List

IV=Indian Valley — LRC=Learning Resources Center

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Appendix CUL

Confidential Cultural Resources Study

CONFIDENTIAL APPENDIX

To protect sensitive information about the location and nature of cultural resources, this appendix is not included in the public draft of this document.

Appendix IS

Initial Study

College of Marin Facilities Master Plan and Learning Resources Center

Initial Study

prepared by

Marin Community College District
1800 Ignacio Boulevard
Novato, California 94949
Contact: Greg Nelson, Assistant Superintendent/Vice President for Administrative Services

prepared with the assistance of

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April 2020

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RINCON CONSULTANTS, INC.
Environmental Scientists | Planners | Engineers
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Tables

Appendices

Acronyms and Abbreviations

AB	Assembly Bill
BAAQMD	Bay Area Air Quality Management District
BACT	Best Available Control Technology
BAU	Business-as-Usual
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Code
Cal/OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
CO_2e	carbon dioxide equivalent
dB	decibels
dBA	A-weighted sound pressure level
DOT	United States Department of Transportation
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
FEMA	Federal Emergency Management Agency
FTA	Federal Transit Administration
GHG	greenhouse gas
GWh	gigawatt hours
Hz	hertz
KFPD	Kentfield Fire Protection Department
LBP	lead-based paint
Ldn	Day-Night Average (noise) Level
Leq	single steady A-weighted (noise) level
Lmax	highest root mean squared sound pressure level
Lmin	lowest root mean squared sound pressure level
LRC	Learning and Resource Center
mgd	million gallons per day

MMBtu/yr	British thermal units per year
MMthm	million U.S. therms
MRP	Municipal Regional Permit
MT	metric tons
NAHC	Native American Heritage Commission
NPDES	National Pollutant Discharge Elimination System
PCB	polychlorinated biphenyls
PG&E	Pacific Gas & Electric Company
PM	particulate matter
PPV	peak particle velocity
PRC	Public Resources Code
RCNM	Roadway Construction Noise Model
RMS	root mean squared
ROG	reactive organic gases
SB	Senate Bill
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SWRCB	State Water Resources Control Board
TAC	Toxic Air Contaminants
U.S.	United States
USEPA	U.S. Environmental Protection Agency
VdB	vibration decibels
VOC	volatile organic compounds

Initial Study

As Lead Agency, the Marin Community College District (District) has prepared this Initial Study for the Facilities Master Plan (FMP) program and Learning Resources Center (LRC) project in compliance with the California Environmental Quality Act (CEQA), the CEQA guidelines (California Code of Regulations Section 15000 et. seq.), and the regulations and policies of the District. The FMP Program is referred to as "the program" and the LRC project is referred to as "the project" in this report. A complete description of the program and the project, including their location, characteristics and objectives, is provided in the accompanying College of Marin Facilities Master Plan and Learning Resources Center Draft Environmental Impact Report, which is referred to as the Draft EIR herein.

This Initial Study contains analysis and discussion of impacts for all CEQA issue areas with the exception of Biological Resources, Cultural Resources and Tribal Cultural Resources, which are analyzed in the Draft EIR. In addition to analysis of potential program and project impacts, cumulative impacts of the program and project are discussed at the end of each issue area section. Refer to EIR Section 3, *Environmental Setting,* for a list of cumulative projects and projections considered in the discussion of program and project cumulative impacts.

Environmental Factors Potentially Affected

This project would potentially affect the environmental factors checked below, involving impacts that are "potentially significant unless mitigation incorporated" as indicated by the checklist on the following pages.

■	Aesthetics	☐	Agriculture and Forestry Resources	■	Air Quality
■	Biological Resources	■	Cultural Resources	☐	Energy
■	Geology and Soils	■	Greenhouse Gas Emissions	☐	Hazards and Hazardous Materials
■	Hydrology and Water Quality	☐	Land Use and Planning	☐	Mineral Resources
■	Noise	☐	Population and Housing	☐	Public Services
☐	Recreation	■	Transportation	■	Tribal Cultural Resources
☐	Utilities and Service Systems	☐	Wildfire	■	Mandatory Findings of Significance

Determination

Based on this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions to the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

■ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potential significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

Date

Printed Name

Title

Environmental Checklist

1 Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	☐	☐	■	☐
b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	■	☐
c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	■	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	■	☐

Setting

The Kentfield Campus is situated on approximately 77 acres in unincorporated Marin County. The visual appearance of the campus is similar to other California community colleges, with dispersed academic buildings, parking areas, landscaping and paved pathways, and sports facilities. A mix of residential, commercial, and other land uses surround the campus. Mount Tamalpais is approximately three miles southwest of the project site and is the defining visual feature in viewsheds from within the campus and from immediately off site. The Kentfield Campus quadrangle is a central organizing element of the campus and it forms a visual corridor oriented towards Mount Tamalpais. Fusselman Hall is another campus point of visual interest. Constructed in 1939, it is the last of the original buildings remaining on the campus (College of Marin 2016).

The Indian Valley Campus covers approximately 333 acres within the city of Novato. Only 87 acres are developed with college facilities, and the remainder of the property is comprised of wooded open space. The campus offers scenic views of rural, forested rolling hillsides both within the campus boundary and beyond.

The Bolinas Site consists of three structures on a 0.41-acre parcel facing Bolinas Lagoon in unincorporated Marin County. The existing structures are considered to be in a state of advanced disrepair. The surrounding visual quality is characterized by features typical of a small, isolated coastal community, with single-story structures on all sides of the property. The Bolinas Site affords scenic views across Wharf Road to the Bolinas Lagoon and the wooded mountains east of State Route (SR) 1.

a. *Would the project have a substantial adverse effect on a scenic vista?*

b. *Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?*

Facilities Master Plan Program Analysis

Viewpoints that provide expansive views of a highly valued landscape for the benefit of the public are considered scenic vistas. Scenic vistas may be informally recognized by a community or officially designated by a public agency. The Kentfield Campus, Indian Valley Campus, and Bolinas Site each provide vantages that could be considered scenic vistas, including various views throughout the Kentfield Campus of Mount Tamalpais; high-quality views of forested rolling hillsides at the Indian Valley Campus; and views across the Bolinas Lagoon from the Bolinas Site.

The FMP buildout would include various repair and retrofit projects and some new construction. However, new structures would be built only on the footprint of existing structures and visual effects of the new structures on the sites would be similar to or improve upon existing conditions. FMP buildout would generally improve the quality of internal and external views at the campus by installing architecture that would be of high visual quality or by improving the visual appearance of older structures through paint, replacing old or worn facade elements, and other similar improvements. New construction would not block or alter the scenic views across or near the campus. Therefore, program impacts on scenic viewpoints or vistas would be less than significant.

No roadways in Marin County are designated as state scenic highways by the California Department of Transportation (Caltrans). Portions of SR 1 and US-101 are designated as “eligible” for scenic highway status within Marin County (Caltrans 2020). The closest eligible portion of US-101 is approximately 2.1 miles east of the Indian Valley Campus; the closest eligible portion of SR 1 to the Kentfield Campus is approximately 4.5 miles south. The distance and intervening topography of these highways from the sites makes it impossible to see them from these highway segments. The Bolinas Site is approximately 1.1 miles from SR 1, across the Bolinas Lagoon. The project would include demolition of existing structures at the Bolinas Site and construction of a new classroom facility on the same site. Building footprint and height would be similar. Therefore, distant views across the Bolinas Lagoon would be similar before and after project buildout. Furthermore, the project would result in improved visual quality of structures along Wharf Road by replacing dilapidated structures with a new building.

There would be a less than significant impact to state-designated scenic resources by program implementation. This impact is therefore not discussed further in the Draft EIR.

Learning Resources Center Project Analysis

The proposed project would be constructed on the College of Marin Kentfield Campus in a fully urbanized area of unincorporated Marin County. As discussed in Chapter 5 of the FMP , scenic vistas on the Kentfield Campus include public views of Mount Tamalpais from and through the central quadrangle, from the pedestrian bridge over Corte Madera Creek, and from parking lots P1, P2, P6, P7, and P9 through P13 (College of Marin 2016). Scenic vistas of Mount Tamalpais are also afforded across the existing LRC site from College Avenue. However, these are partially obstructed by intervening vegetation along College Avenue and Corte Madera Creek.

The project would involve demolition of the existing LRC building and its replacement with a slightly larger building on roughly the same footprint. The project would not substantially alter scenic vistas on the site, and therefore would have a less than significant impact on scenic vistas.

The nearest state-designated scenic highway is SR 1, approximately 4.5 miles from the project site. Due to distance and intervening topography, the project site is not visible from SR 1. Therefore, the project would not damage scenic resources within a state-designated scenic highway and there would be no impact. Therefore, this impact is not discussed further in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

c. *In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?*

Facilities Master Plan Program Analysis

The buildout of the FMP would involve a variety of retrofits, improvements, and some demolition and construction activity on the Kentfield and Indian Valley campuses. New structures would be of similar size or slightly larger than existing structures and would improve the visual quality on all three sites by renovating or replacing structures in disrepair. Renovations would include improvements to Fusselman Hall that would modernize the facility to prolong its functional lifespan while retaining its aesthetic value.

The Bolinas Site would be rebuilt with a single-story classroom structure of an architectural style typical of modern academic and community college land uses. The existing college facilities at the Bolinas Site are in an advanced state of disrepair. Some components of the structures, such as the porches and roof shingles, are severely deteriorated. Replacing structures at the Bolinas Site would add to the visual quality of the surrounding area by replacing the existing dilapidated facilities with new facilities. The new structure would be of a similar overall size and height to those currently in place.

The program would not conflict with applicable zoning or regulations governing scenic quality and would not degrade the existing visual character or public views. Impacts would be less than significant. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

The project is in an urbanized area of unincorporated Marin County, on the Kentfield Campus. As the proposed project would replace an existing building with one of similar height on the same footprint, it would not substantially alter the visual character or scenic quality of the project site. Although the FMP discusses scenic view corridors afforded from and through the Kentfield Campus, it does not include specific policies or regulations governing scenic quality. The new LRC building would be constructed on roughly the same footprint as the existing structure and would be slightly larger than the existing structure. The existing structure is 66,394 square feet, two stories in height with a basement. The proposed structure would be 77,000 square feet and three stories in height.

Although the new structure would be taller than the existing LRC, it would not substantially obstruct views of Mt. Tamalpais from public viewpoints.

In addition, the project would replace an aging structure with a new building of contemporary design, which would add to the visual quality of the site. Therefore, impacts to the existing visual character and quality of the site and its surroundings would be less than significant. Consequently, this impact is not discussed further in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

d. *Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?*

Facilities Master Plan Program Analysis

The College of Marin sites are developed with educational facilities and parking lots. Moderate light levels occur throughout the developed portions of the campuses. These include headlights from vehicles entering and exiting the college, wall-mounted security lights, streetlights, pole-mounted lights in the surface parking lots, and interior lighting emanating from building windows. Existing sources of glare include the exterior windows of campus buildings and windshields of cars parked in the lots during the day. Transient glare can also occur from the sun shining on moving vehicles, but this source is very temporary and dependent on the location of the vehicle.

Buildout of the FMP would not result in increased student enrollment at the college and would not substantially alter the overall footprint of the built environment throughout the Kentfield Campus, Indian Valley Campus, or the Bolinas Site. Lighting levels after FMP buildout would be similar to those under existing conditions. However, the replacement of existing light fixtures and the addition of new light fixtures could result in a significant impact on nighttime views. Therefore, Mitigation Measure AES-1 is required to ensure that the effect of new lighting on nighttime views is less than significant.

AES-1 Lighting Specifications

Any exterior lighting installed for the project shall be of low intensity and low glare design, and shall be hooded to direct light downward onto the subject parcel and prevent spill-over onto adjacent parcels and shall otherwise meet dark night sky requirements. Exterior lighting fixtures shall be kept to the minimum number and intensity needed to ensure public safety. Upward-directed exterior lighting is prohibited.

Significance After Mitigation

Program impacts related to lighting would be less than significant with mitigation incorporated. This impact is not discussed further in the Draft EIR. This mitigation measure is listed in the Draft EIR's executive summary and included in the Mitigation Monitoring and Reporting Program.

Learning Resource Center Project Analysis

The project site is in an urban area with moderate levels of existing lighting. Sources include headlights from vehicles entering and exiting the project site, wall-mounted security lights, streetlights along College Avenue, and pole-mounted lights in the surface parking lots. Lighting sources at the surrounding properties include parking lot and exterior structure lighting at the nearby commercial uses and streetlights and vehicle lights along College Avenue. The primary glare source in the area is sunlight reflected off light-colored and reflective building materials and finishes, and off the metallic and glass surfaces of vehicles parked in the lots on campus.

The project's exterior windows could generate glare from reflected sunlight during certain times of the day, but the level of glare would be comparable to that occurring from the existing building and from the surrounding commercial areas and residences. The distance between the proposed new LRC and the nearest structures across College Avenue, and the vegetation along College Avenue, prevent significant glare effects from the LRC.

The project would not increase student enrollment above existing conditions. Thus, light generated from headlights of vehicles entering and exiting the project site at night would be comparable to existing conditions and would not affect nearby light-sensitive receptors more than currently. The project design would incorporate exterior lighting in the form of building-mounted safety lights. Exterior lighting would be similar before and after demolition/construction activity at the site. Mitigation Measure AES-1, described above, is required to ensure that new lighting would not result in a significant impact on nighttime views.

The project site is in an urban environment with existing sources of light and glare. With implementation of Mitigation Measure AES-1, the project would not substantially alter existing conditions. Therefore, impacts related to project light and glare would be less than significant with mitigation incorporated. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

Cumulative Impacts

In addition to development associated with the FMP, the Sir Francis Drake Boulevard (SFDB) Rehabilitation and Jonas Center Pedestrian Bridge projects would occur in the immediate vicinity of the Kentfield and Indian Valley campuses, respectively. However, these projects would not involve the construction of new structures and would not substantially change the appearance or visual character of the surrounding area. Although additional off-site cumulative development could occur in the vicinity of the sites, program buildout represents a small portion of development projected by the Marin Countywide and City of Novato General Plans. Therefore, the visual impacts of the proposed projects would not combine with other planned or recently approved projects off-site to substantially impact scenic vistas, scenic resources, and the existing visual character of Kentfield, Novato or Bolinas. Furthermore, program and project impacts related to light and glare would be less than significant with implementation of Mitigation Measure AES-1. Program and project impacts would not combine with other off-site cumulative development to create new sources of substantial light or glare that may adversely affect day or nighttime views in the area. The project's contribution to impacts to aesthetics and visual resources would not be cumulatively considerable.

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2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	■
b. Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	■
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)); timberland (as defined by Public Resources Code Section 4526); or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	■
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	■
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	■

Setting

The California Department of Conservation (DOC) manages the Farmland Mapping and Monitoring Program (FMMP) to assess and record suitability of land for agricultural purposes. In each county, the land is analyzed for soil and irrigation quality and the highest quality land is designated as Prime Farmland. The Kentfield Campus and Bolinas Site are developed on what the FMMP designates as Urban and Built Up Land (DOC 2016). The Indian Valley Campus is developed on Urban and Built Up Land with a small portion on the southwest of the site categorized by FMMP as Other Land, which is defined as land not included in any other category.

Regulatory Setting

The Public Resources Code (PRC) Section 12220(g) defines forest land as land that can support 10 percent native cover of any tree species under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

PRC Section 4526 defines timberland as land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis.

Government Code Section 51104(g) defines a timberland production zone as an area which has been zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses, as defined in subdivision (h).

Impact Analysis

a. *Would the project convert Prime Farmland, Unique Farmland, Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?*

b. *Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?*

c. *Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?*

d. *Would the project result in the loss of forest land or conversion of forest land to non-forest use?*

e. *Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?*

Facilities Master Plan Program Analysis

The FMP would include capital improvements and repairs, retrofits, and new facilities or possible future development to be built on existing campus land located on urban or built up land and other land. Program implementation would not expand the physical footprint of the sites and would not involve development in areas that have not previously been disturbed. The Bolinas Site is located adjacent to important farmland (DOC 2016). However, construction associated with the program would be confined to the existing campuses and would not expand or develop on agricultural or forest land. No agricultural or forest land uses occur on campus. Program implementation would not convert agricultural land to non-agricultural use, conflict with the existing zoning of forest land or timberland, result in the loss or conversion of forest land to non-forest uses, or interrupt ongoing agricultural activity. Therefore, the program would not impact agriculture or forestry resources. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

The project site is located entirely on the existing College of Marin Kentfield Campus, and the campus is adjacent to residential, commercial, educational, and government uses and existing county streets. The College of Marin Kentfield Campus is in an urbanized area of Marin County. No agricultural or forest land uses occur on campus or next to campus. The project would not convert agricultural land to a non-agricultural use, conflict with the existing zoning of forest land or timberland, result in the loss or conversion of forest land to non-forest uses, or interrupt ongoing agricultural activity. The proposed project would not impact agriculture or forestry resources. This impact is not discussed in the Draft EIR.

NO IMPACT

Cumulative Impacts

The SFDB Rehabilitation and Jonas Center Pedestrian Bridge projects would not occur in areas designated as farmland or forest land. Other off-site cumulative developments would be required to comply with existing zoning requirements and other regulations that pertain to the conservation of farmland and forestry resources. All sites included in the program and project are urban in nature, do not contain designated farmland or forestland. Although the Indian Valley Campus is adjacent to forested open space and the Bolinas Site is adjacent to important farmland, program and project implementation would only occur in the existing physical footprint of each site. Therefore, implementation of the program and project would not combine with off-site development in Kentfield, Novato or Bolinas to convert farmland or forestland. There would be no cumulative impact related to agriculture and forestry resources.

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3 Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	□	■	□	□
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	□	□	■	□
c. Expose sensitive receptors to substantial pollutant concentrations?	□	□	■	□
d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	□	□	■	□

Air Quality Standards and Attainment

The Kentfield Campus, Indian Valley Campus and Bolinas Site are all in the San Francisco Bay Area Air Basin (the Basin), which is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). As the local air quality management agency, the BAAQMD is required to monitor air pollutant levels to ensure federal and state air quality standards are met and, if they are not met, to develop strategies to meet the standards.

Depending on whether air quality standards are met or exceeded, the Basin is classified as being in "attainment" or "nonattainment." Under state law, air districts are required to prepare a plan for air quality improvement concerning pollutants for which the district is in non-compliance. The BAAQMD is in nonattainment for the state and federal ozone standards, the state and federal particulate matter ($PM_{2.5}$) (particulate matter up to 2.5 microns in size) standards, and the state PM_{10} (particulate matter up to 10 microns in size) standards and is required to prepare a plan for improvement (BAAQMD 2017a). Table 1 presents the health effects associated with criteria pollutants for which the Basin is in non-attainment.

Table 1 Health Effects Associated with Non-Attainment Criteria Pollutants

Pollutant	Adverse Effects
Ozone	(1) Short-term exposures: (a) pulmonary function decrements and localized lung edema in humans and animals and (b) risk to public health implied by alterations in pulmonary morphology and host defense in animals; (2) long-term exposures: risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (3) vegetation damage; and (4) property damage.
Suspended particulate matter (PM_{10})	(1) Excess deaths from short-term and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease (including asthma).[1]
Suspended particulate matter ($PM_{2.5}$)	(1) Excess deaths from short- and long-term exposures; (2) excess seasonal declines in pulmonary function, especially in children; (3) asthma exacerbation and possibly induction; (4) adverse birth outcomes, including low birth weight; (5) increased infant mortality; (6) increased respiratory symptoms in children, such as cough and bronchitis; and (7) increased hospitalization for both cardiovascular and respiratory disease, including asthma.[a]

[1] More detailed discussion on the health effects associated with exposure to suspended particulate matter can be found in the following documents: United States Environmental Protection Agency (USEPA), Air Quality Criteria for Particulate Matter, October 2004.

Source: USEPA 2018

Air Quality Management

The Bay Area 2017 Clean Air Plan (2017 Plan) provides a strategy to improve air quality in the Basin and protect public health as well as the climate. The legal impetus is to update the most recent ozone plan to comply with state air quality planning requirements codified in the California Health and Safety Code. Steady progress in reducing ozone levels in the Bay Area has been made, but the region continues to be designated as nonattainment for both the one-hour and eight-hour state ozone standards (BAAQMD 2017a). Emissions of ozone precursors in the Bay Area contribute to air quality problems in neighboring air basins as well. Under these circumstances, state law requires the Clean Air Plan to include all feasible measures to reduce emissions of ozone precursors and reduce transport of ozone precursors to neighboring air basins (BAAQMD 2017b).

In 2006, the USEPA tightened the national 24-hour $PM_{2.5}$ standard regarding short-term exposure to fine particulate matter from 65 $\mu g/m^3$ (micro-grams per cubic meter) to 35 $\mu g/m^3$ (USEPA 2006). Air quality monitoring data for years 2006 through 2008 show that the region was slightly above the standard, and USEPA designated the Bay Area as nonattainment for the 24-hour national standard in December 2008. This triggered the requirement for the BAAQMD to prepare a State Implementation Plan (SIP) to demonstrate how the region would attain the standard, but data for both the 2008-2010 and the 2009-2011 cycles showed Bay Area $PM_{2.5}$ levels meet the standard. On October 29, 2012, the USEPA issued a proposed ruling that the Bay Area now attains the 24-hour $PM_{2.5}$ national standard. Based on this, BAAQMD is required to prepare an abbreviated SIP that includes an emission inventory for primary $PM_{2.5}$ (directly emitted), precursor pollutants that contribute to formation of secondary PM in the atmosphere, and amendments to the BAAQMD

New Source Review to address $PM_{2.5}$ (adopted December 2012).[1] However, key SIP requirements to demonstrate how a region will achieve the standard (i.e., the requirement to develop a plan to attain the standard) will be suspended as long as monitoring data continues to show the Basin attains the standard.

In addition to preparing the “abbreviated” SIP, the BAAQMD prepared a report entitled *Understanding Particulate Matter: Protecting Public Health in the San Francisco Bay Area* (BAAQMD 2012). The report helps to guide the BAAQMD’s ongoing efforts to analyze and reduce PM in the Bay Area to better protect public health. The Basin will continue to be designated as nonattainment for the national 24-hour $PM_{2.5}$ standard until the BAAQMD elects to submit a “redesignation request” and a “maintenance plan” to the USEPA, and the USEPA approves the proposed redesignation.

Air Emission Thresholds

This analysis uses the BAAQMD’s May 2017 *CEQA Air Quality Guidelines* to evaluate air quality, including the numeric thresholds provided therein, for this analysis to determine whether project impacts would exceed the thresholds identified in CEQA Guidelines Appendix G.

Table 2 presents the significance thresholds for construction and operation-related criteria air pollutant and precursor emissions used for this analysis. These represent the levels at which a project’s individual emissions of criteria air pollutants or precursors would result in a cumulatively considerable contribution to the Basin’s existing air quality conditions. For this analysis, the proposed program and project would result in a significant impact if construction or operational emissions would exceed any of the thresholds shown in Table 2.[2]

Table 2 Air Quality Thresholds of Significance

	Construction-Related Thresholds	Operation-Related Thresholds	
Pollutant/ Precursor	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tpy)	Average Daily Emissions (lbs/day)
ROG	54	10	54
NO_X	54	10	54
PM_{10}	82 (exhaust)	15	82
$PM_{2.5}$	54 (exhaust)	10	54

Notes: tpy = tons per year; lbs/day = pounds per day; ROG = reactive organic gases; NO_X = oxides of nitrogen; $PM_{2.5}$ = fine particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less; PM_{10} = respirable particulate matter with an aerodynamic resistance diameter of 10 micrometers or less.

Source: BAAQMD 2017c, Table 2-1

[1] PM is made up of particles that are emitted directly, such as soot and fugitive dust, as well as secondary particles that are formed in the atmosphere from chemical reactions involving precursor pollutants such as oxides of nitrogen (NO_x), sulfur oxides (SO_x), volatile organic compounds (VOC), and ammonia (NH_3).

[2] Note the thresholds for PM_{10} and $PM_{2.5}$ apply to construction exhaust emissions only.

Screening Criteria

Construction

The BAAQMD has developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether project construction could result in potentially significant air quality impacts. If all the screening criteria are met by a project, then the lead agency or applicant does not need to perform a detailed air quality assessment of their project's air pollutant emissions. The BAAQMD's construction-related screening levels for junior college land uses are 227,000 square feet of new buildings or an increase in enrollment of 3,012 students or more. According to BAAQMD guidance, if all the following screening criteria are met, the construction of the proposed project would result in a less than significant impact from criteria air pollutant emissions (BAAQMD 2017c).

1. The project is below the applicable screening level size (227,000 square feet of new buildings or an increase in enrollment of 3,012 students or more)
2. All Basic Construction Mitigation Measures would be included in the project design and implemented during construction
3. Construction-related activities would not include any of the following:
   a. Demolition
   b. Simultaneous occurrence of more than two construction phases (e.g., paving and building construction would occur simultaneously)
   c. Simultaneous construction of more than one land use type (e.g., project would develop residential and commercial uses on the same site) (not applicable to high density infill development)
   d. Extensive site preparation (i.e., greater than default assumptions used by the Urban Land Use Emissions Model for grading, cut/fill, or earth movement)
   e. Extensive material transport (e.g., greater than 10,000 cubic yards of soil import/export) requiring a considerable amount of haul truck activity

Operation

The BAAQMD has also developed screening criteria to provide lead agencies and project applicants with a conservative indication of whether project operation could result in potentially significant air quality impacts. These screening levels are generally representative of new development on vacant sites without any form of mitigation measures taken into consideration. If the project meets BAAQMD operational screening criteria, the project would not result in the generation of operational criteria air pollutants that would exceed the operation-related thresholds shown in Table 2 (BAAQMD 2017c).

The BAAQMD's operational-related screening levels for junior college land uses are 152,000 square feet of new buildings or an increase in enrollment of 2,815 students or more (BAAQMD 2017c). According to BAAQMD, if both screening criteria are met by a proposed project, then the lead agency or applicant does not need to perform a detailed air quality assessment of their project's operational air pollutant emissions.

a. *Would the project conflict with or obstruct implementation of the applicable air quality plan?*

Facilities Master Plan Program Analysis

The program would conflict with or obstruct implementation of the 2017 Plan if it would result in either population or employment growth that exceeds growth estimates included in the 2017 Plan. Such growth would generate emissions not accounted for in the applicable air quality plan emissions budget. Therefore, under the 2017 Plan projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the applicable air quality plan, the 2017 Plan. Since the FMP would not generate population and employment growth, it has not been evaluated under this criterion.

Program implementation would involve a capital repairs and retrofits of existing buildings and construction of new facilities at the Kentfield, Indian Valley, and Bolinas campuses. Emission of air pollutants during projects limited to capital repairs and retrofits would be minor, as these types of projects would not involve substantial use of heavy machinery. Air pollutants generated by more intensive activities such as demolition, grading, and construction of new buildings would be temporary. All construction activities would be subject to existing BAAQMD regulations that pertain to air quality.

Program implementation would not result in an increase in the enrollment capacity at any the College of Marin's campuses or Bolinas Site. Program implementation would also not be associated directly with population growth in Kentfield, Novato, Bolinas or the surrounding vicinity. As described in Section 17, *Transportation*, no increase in vehicle trips associated with the program would occur at the Kentfield Campus. Furthermore, the increase in vehicle trips associated with the program at the Indian Valley Campus would be minor and impacts would be less than significant.

Vehicle trips to the Bolinas Site would increase, the increase would be minimal with implementation of Mitigation Measure TRA-2. Therefore, the program would not conflict with or obstruct with implementation of the 2017 Plan and program impacts would be less than significant with mitigation incorporated. This impact is not discussed in the Draft EIR.

Learning Resources Center Project Analysis

The project would not increase overall enrollment at the Kentfield Campus. The project would replace the existing LRC with a slightly larger building that would occupy the same footprint. The proposed project would not result in an increase in population, employment, or vehicle trips. Therefore, the project would not conflict with or obstruct the implementation of the 2017 Plan and project impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?*

Facilities Master Plan Program Analysis

Program implementation would generate temporary construction-related emissions (direct emissions) and long-term operational emissions (indirect emissions). The following discussion identifies potential short- and long-term impacts that would result from implementation of the program.

Construction Emissions

As described in Section 2 of the Draft EIR, *Project Description*, program implementation would involve a combination of projects categorized as capital repair and improvement, retrofit, other and new facility projects at the Kentfield Campus, Indian Valley Campus, and Bolinas Site. These projects would result in temporary emissions of pollutants during construction generated by truck hauling trips and worker trips to and from project sites, operation of construction machinery, and the use of certain materials associated with building construction, such as architectural coatings. Potential impacts are discussed by project category.

CAPITAL REPAIR AND IMPROVEMENT PROJECTS

Capital repair and improvement projects would involve minor improvements to existing facilities. Specific activities include but are not limited to replacement of windows and flooring, painting, replacement of electrical, fire, and HVAC (heating, ventilation and air conditioning) systems, and landscape improvements. Heavy machinery would not be used during these activities. No demolition, grading, or new construction would be required. Therefore, none of the capital repair and improvement projects would exceed the BAAQMD's construction screening criteria nor would they result in a cumulatively considerable emission of criteria pollutants during construction. Impacts would be less than significant.

RETROFIT PROJECTS

Retrofit projects would involve renovations to modernize and repurpose existing facilities. Examples of specific activities associated with retrofit projects include but are not limited to replacement of roofs, structural upgrades, and reconfiguration of interior spaces to accommodate new uses. No demolition, grading or new construction would be required. Therefore, retrofit projects would not exceed the BAAQMD's construction screening criteria and would not result in a cumulatively considerable emission of criteria pollutants during construction. Impacts would be less than significant.

OTHER PROJECTS

Other projects would involve minor work to improve and modernize existing facilities and campus grounds. Heavy machinery would not be used during these activities. No demolition, grading, or new construction would be required. Therefore, all other projects would not exceed the BAAQMD's construction screening criteria and would not result in a cumulatively considerable emission of criteria pollutants during construction. Impacts would be less than significant.

NEW FACILITY PROJECTS

Detailed plans are not currently available for all new facility projects; therefore, compliance with BAAQMD screening criteria cannot be assessed at this time.[3] However, new facility projects would entail the construction of new facilities and would involve demolition and grading that would use heavy machinery substantially. Therefore, new facility projects could lead to a potentially substantial increase in the emission of criteria pollutants during construction. Implementation of mitigation measures AQ-1 and AQ-2 would be required for all new facility projects to reduce impacts.

[3] For a project specific analysis of construction related air quality emissions of the LRC project, refer to *Learning Resources Center Project Analysis* below.

Mitigation Measures

AQ-1 New Facility Air Quality Assessment

Prior to the start of construction of New Facility projects, quantitative air quality assessments shall be prepared to assess potential impacts to air quality that could result from construction and operation. Air quality assessments shall conservatively estimate the maximum daily emission of ROG, NO_x, CO, PM10, $PM_{2.5}$ and SO_x that could be produced during construction. If estimated emissions are above the BAAQMD construction or operation thresholds shown in Table 2, measures to reduce construction-related emissions shall be applied as needed. Measures to reduce construction emissions may include but are not limited to implementation of a fugitive dust control plan or the use of use of electricity or alternative fuels for on-site mobile equipment instead of diesel, to the extent feasible.

AQ-2 Construction Emission Reduction

New facility projects associated with the FMP shall be conditioned to reduce construction emissions of ROG, NO_x, CO, PM10 and $PM_{2.5}$ by implementing the BAAQMD's Basic Construction Mitigation Measures (described below) or equivalent, expanded, or modified measures based on project and site-specific conditions.

BASIC CONSTRUCTION MITIGATION MEASURES

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day, with priority given to the use of recycled water for this activity when feasible.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping shall be prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
8. A publicly visible sign shall be posted with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Significance After Mitigation

Implementation of Mitigation Measures AQ-1 and AQ-2 would reduce impacts related to the emission of air pollutants associated with New Facility projects to a less than significant level. Therefore, the program would not result in a cumulatively considerable emission of criteria pollutants during construction and impacts would be less than significant with mitigation incorporated. These mitigation measures are in the Draft EIR's executive summary and included in the mitigation monitoring and reporting program (MMRP).

Operational Impacts

Long-term emissions associated with project operation associated with the program would include electricity and natural gas use (energy sources) and landscape maintenance equipment, consumer products, and architectural coating associated with on-site development (area sources). As described in Section 17, *Transportation*, no increase in vehicle trips associated with the program would occur at the Kentfield Campus. The increase in vehicle trips associated with the program at the Indian Valley Campus would be minor and impacts would be less than significant. Vehicle trips to the Bolinas Site would increase, the increase would be minimal with implementation of Mitigation Measure TRA-2. Therefore, new mobile source emissions generated by the program would be minimal.

As described above, the BAAQMD's operational-related air quality screening levels for community college land uses are 152,000 square feet of new buildings or an increase in enrollment of 2,815 students or more (BAAQMD 2017c). According to BAAQMD, if all the screening criteria are met by a proposed project, then the lead agency or applicant does not need to perform a detailed air quality assessment of their project's operational air pollutant emissions. Program implementation would not result in an enrollment increase. Projects designated as capital repairs and improvements, retrofit and other would not involve new construction. However, New Facility Projects would involve new construction. Detailed plans are not currently available for all New Facility Projects; therefore, compliance with the BAAQMD operational screening criteria cannot be assessed at this time. Therefore, new facility Projects could lead to a potentially substantial increase in the emission of criteria pollutants during operation. Implementation of Mitigation Measure AQ-1 would require assessment and reduction of operational emission of air quality pollutants if estimated emissions are above the BAAQMD operation thresholds shown in Table 2. Therefore, the program would not result in a cumulatively considerable emission of criteria pollutants. Construction-related and operations impacts associated with the program would be less than significant with mitigation incorporated. This impact is not discussed in the Draft EIR.

Learning Resources Center Project Analysis

Project construction would generate temporary, construction-related emissions (direct emissions) and long-term, operational emissions (indirect emissions). Emissions associated with the project were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2. The project was modeled as a library land use,[4] as that land use in CalEEMod aligns most appropriately with the proposed project (see Appendix AQ).

[4] Per the CalEEMod Users Guide, a library is a facility that consists of shelved books; reading rooms or areas; and sometimes meeting rooms.

Construction Emissions

Project construction would generate temporary air pollutant emissions. These impacts are associated with PM_{10} and $PM_{2.5}$ and exhaust emissions from heavy construction vehicles, in addition to ROG that would be released during the drying phase upon application of architectural coatings. The proposed project would be required to comply with all BAAQMD rules and regulations regarding construction emission control measures. These include using stationary source equipment with Best Available Control Technology and using low volatile organic compound (VOC) architectural coatings. Although required, CalEEMod was run without using equipment with Best Available Control Technology. The default values for VOC architectural coatings are consistent with BAAQMD rules and regulations. Thus, the modeling results provide a conservative estimate of emissions.

It was assumed that project construction would start in June 2020 and take approximately 12 months, for completion by May 2021. CalEEMod defaults were used for construction schedule and equipment, except for the architectural coating phase, which was assumed to begin halfway through the construction phase, consistent with typical construction schedules. Construction would include demolition, grading, construction, paving, and architectural coating. Construction activities would result in temporary air quality impacts that may vary substantially from day to day, depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. summarizes the estimated maximum daily emissions of pollutants during construction on the project site. As shown in Table 3, project construction would not exceed BAAQMD thresholds. Therefore, construction impacts would be less than significant.

Table 3 LRC Project Construction Emissions

	Emissions (lbs/day)					
Year	**ROG**	**NO_X**	**CO**	**PM_{10} (exhaust)**	**$PM_{2.5}$ (exhaust)**	**SO_X**
2020 Maximum Daily Emissions	10.4	25.4	16.5	1.2	1.1	<0.1
2021 Maximum Daily Emissions	10.2	16.5	16.1	0.8	0.8	<0.1
Maximum Daily Emissions	**10.4**	**25.4**	**16.5**	**1.2**	**1.1**	**<0.1**
BAAQMD Thresholds (average daily emissions)	54	54	N/A	82	54	N/A
Threshold Exceeded?	No	No	N/A	No	No	N/A

[a] See Table 2.0 "Overall Construction-unmitigated" emissions. Winter emissions results are shown for all emissions except SO_2, which has higher summer emissions. CalEEMod worksheets in Appendix AQ.

N/A = not applicable; there is no BAAQMD threshold for CO or SO_X.

Operational Emissions

Long-term emissions associated with project operation, would include electricity and natural gas use (energy sources) and landscape maintenance equipment, consumer products, and architectural coating associated with on-site development (area sources). Because the project would not increase trips from existing conditions, as described in Section 17, *Transportation*, no new mobile source emissions would be associated with project operation. The project would replace similar existing uses on the site; be designed to comply with 2019 CALGreen Building Standards; increase energy efficiency; and increase water use efficiency compared to the existing building. It would accomplish all of this with a smaller building envelope than the existing building. However, the air quality analysis, conservatively, does not account for the elimination of existing operational emissions. As shown in Table 4, project operation would not exceed BAAQMD thresholds. Therefore, operational impacts would be less than significant.

Table 4 LRC Project Operational Emissions

	Estimated Average Daily Emissions (lbs/day)					
Sources	**ROG**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_X**
Area	1.9	<0.1	<0.1	<0.1	<0.1	<0.1
Energy	<0.1	0.5	0.4	<0.1	<0.1	<0.1
Mobile	0.0	0.0	0.0	0.0	0.0	0.0
Total Emissions	**1.9**	**0.5**	**0.4**	**<0.1**	**<0.1**	**<0.1**
BAAQMD Thresholds	54	54	N/A	82	54	N/A
Threshold Exceeded?	No	No	N/A	No	No	N/A

See Appendix AQ for CalEEMod worksheets
N/A = not applicable; there is currently no BAAQMD threshold for CO or SO_X

Conclusion

At the program level, construction and operation of projects designated as capital repair and improvement, retrofit, and other would not result in a cumulatively considerable emission of criteria pollutants. Compliance with Mitigation Measures AQ-1 and AQ-2 would require assessment and reduction of potential air quality impacts associated with New Facility projects. Program impacts would be less than significant with mitigation incorporated.

As shown in Table 3 and Table 4, construction- and operation-related impacts associated with the LRC project would not exceed BAAQMD thresholds. Project impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

Facilities Master Plan Program Analysis and Learning Resources Center Project Analysis

Setting

KENTFIELD CAMPUS

The nearest sensitive receptors to the Kentfield Campus include existing on-site academic buildings, Anne E. Kent Middle School, approximately 260 feet across College Avenue from the existing LRC building, and residences on all sides of the Kentfield Campus. The closest residences to the campus are approximately 600 feet west on Kent Avenue.

INDIAN VALLEY CAMPUS

The nearest sensitive receptors to the Indian Valley Campus include all existing, on-site academic buildings, San Jose Middle School, and residences. The closest residences are approximately 100 feet from the campus entrance and San Jose Middle School is approximately 1,000 feet from the campus entrance.

BOLINAS SITE

The nearest sensitive receptors to the Bolinas Site are residences surrounding the site on all sides. The nearest residences are immediately adjacent to the existing structures to east and west and immediately across Wharf Road to the northeast and northwest.

Analysis

The California Air Resources Board (CARB) has identified diesel particulate matter as a carcinogen for humans (CARB 2019). In addition, toxic air contaminants (TAC) are a defined set of air pollutants that may pose a present or potential hazard to human health. TACs can be generated by stationary sources, including gasoline stations, dry cleaners, diesel backup generators, truck distribution centers, freeways, and major roadways (BAAQMD 2017b). The program would not involve construction of new gas stations, dry cleaners, highways, roadways, or other sources considered a new permitted or non-permitted source of TAC or $PM_{2.5}$ in proximity to receptors. In addition, the program would not involve construction of new stationary sources that could be considered a new permitted or non-permitted source of TAC or $PM_{2.5}$ in proximity to receptors, nor would it result in particulate matter emissions greater than the BAAQMD threshold. Therefore, program and project impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Facilities Master Plan Program Analysis and Learning Resources Center Project Analysis

Table 3-3 in the BAAQMD's 2017 *CEQA Air Quality Guidelines* provides odor-screening distances for land uses with the potential to generate substantial odor complaints. The uses in the table include wastewater treatment plants, landfills or transfer stations, refineries, composting facilities, confined animal facilities, food manufacturing, smelting plants, and chemical plants (BAAQMD 2017c). None of those uses would occur in conjunction with the program or project. The program and project would not generate objectionable odors affecting a substantial number of people during operation.

During construction activities, heavy equipment and vehicles would emit odors associated with vehicle and engine exhaust and during idling, but these odors would be temporary and would cease upon construction completion. Overall, the proposed project would not generate objectionable odors affecting a substantial number of people. Impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts

According to the BAAQMD's CEQA Guidelines, project emissions that do not exceed the BAAQMD emission thresholds would not have a significant cumulative impact. Construction of new facilities associated with the program would be required to comply with Mitigation Measures AQ-1 and AQ-2, which would reduce construction related impacts to air quality to a less than significant level. Program buildout represents a small portion of the development projected by the Marin Countywide and City of Novato General Plans. The project would not result in emissions during construction or operation that exceed BAAQMD emission thresholds, as shown in Table 3 and Table 4. Furthermore, implementation of the program and project would not increase College of Marin enrollment capacity.

Off-site development, including the SFDB Rehabilitation and Jonas Center Pedestrian Bridge projects, would result in the emission of additional air pollutants. However, similar to the program and project and in compliance with CEQA, off-site cumulative developments would be required to demonstrate compliance with BAAQMD thresholds for emission of air quality pollutants. Therefore, program and project's contribution to air quality related impacts would not be cumulatively considerable.

4 Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	□	■	□	□
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	□	■	□	□
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	□	■	□	□
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	□	□	■	□
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	□	□	□	■
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	□	□	□	■

Refer to Section 4.1, *Biological Resources*, of the Draft EIR for analysis of program and project impacts related to biological resources.

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5 Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	■	□	□	□
b. Cause a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?	□	■	□	□
c. Disturb any human remains, including those interred outside of formal cemeteries?	□	■	□	□

Refer to Section 4.2, *Cultural Resources*, of the Draft EIR for an analysis of program and project impacts related to cultural resources.

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6 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	■	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	■	☐

Setting

Electricity and Natural Gas

In 2018, Californians used 284,436 gigawatt-hours (GWh) of electricity, 29 percent of which were from renewable resources (California Energy Commission [CEC] 2018a). Californians also consumed approximately 12,700 million U.S. therms (MMthm) of natural gas in 2018 (CEC 2018b). MCE, a community choice energy program that serves Marin, Napa, Solano and Contra Costa Counties, provides electricity to all College of Marin sites. MCE provides electricity generated from a greater percentage of renewable energy sources in comparison to the standard statewide energy mix. MCE's services are divided into three tiers, including Light Green, Deep Green and Local Sol. The default tier that electricity customers are automatically enrolled is Light Green, which, as of 2018, is composed of a 61 percent electricity generated from eligible renewable sources, as defined by the state Renewable Portfolio Standard[5] (MCE 2019a). MCE's retail sales of electricity totaled 4,436,963 MWh in 2018 (MCE 2019b).

Pacific Gas and Electric (PG&E) provides natural gas to all College of Marin sites. In 2018, PG&E provided approximately 37.8 percent of the total natural gas consumption in California. Table 5 shows the natural gas consumption by sector within the PG&E service area.

[5] The Renewable Portfolio Standard (RPS) is a state program that requires power entities to supply retail sales with minimum quantities of renewable energy. RPS eligible renewable sources of power include solar, wind, biomass and biowaste, geothermal, and certain hydroelectric facilities (MCE 2019).

Table 5 Natural Gas Consumption in PG&E Service Area in 2018

Agriculture and Water Pump	Commercial Building	Commercial Other	Industry	Mining and Construction	Residential	Total Usage
37	899	59	1,776	190	1,833	4,794

Notes: All usage expressed in MMthm

Source: CEC 2018b

Although the College of Marin is a service customer of MCE, it generates power though its installed solar photovoltaic (PV) arrays at the Kentfield and Indian Valley campuses to offset a portion of its electricity demand. Solar PV systems have been installed on the roofs of carports that cover parking lots. Solar generation capacity is approximately 990 kilowatts (kW) at the Indian Valley Campus and 1,220 kW at the Kentfield Campus (College of Marin 2019).

a. *Would the project result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*

Facilities Master Plan Program Analysis

Construction Energy Demand

As described in Section 2, *Project Description*, of the Draft EIR program implementation would involve a combination of projects designated as capital repair and improvement, retrofit and new facility projects at the Kentfield Campus, Indian Valley Campus, and Bolinas Site. The program would result in construction related energy consumption in the form of petroleum-based fuels used to power construction vehicles and equipment on project sites, construction worker travel to and from project sites, and vehicles used to deliver materials to the site.

Capital improvement and repair projects that would occur as part of the program would not involve the use of heavy construction machinery and would not require a substantial number of hauling trips to and from project sites. When retrofit and new facility projects would require the use of heavy construction machinery, all equipment would be maintained to all applicable required standards, and construction activity and associated fuel consumption and energy use would be temporary and typical for construction activity. It is also reasonable to assume contractors would avoid wasteful, inefficient, and unnecessary fuel consumption to reduce construction costs. Therefore, the proposed program would not involve the inefficient, wasteful, or unnecessary use of energy during construction. Impacts related to construction energy consumption would be less than significant.

Operational Energy Demand

Operation of proposed projects associated with the program would require energy use in the form of electricity, natural gas, and gasoline consumption. Natural gas and electricity would be used for heating and cooling systems, lighting, appliances, water use, and the overall operation of facilities. As described in Section 17, *Transportation*, no increase in vehicle trips associated with the program would occur at the Kentfield Campus. The increase in vehicle trips associated with the program at the Indian Valley Campus would be minor, and impacts would be less than significant. Vehicle trips to the Bolinas Site would increase, the increase would be minimal with implementation of

Mitigation Measure TRA-2. As such, the program would not result in a substantial increase in transportation fuel use.

Capital Repair and Improvement Projects

Capital improvement and repair projects would involve the installation of current equipment such as more energy-efficient HVAC systems, lighting and windows that would require less energy to operate in comparison to the equipment currently in use. As such, it is reasonable to assume that energy use for basic facility operations would decrease upon completion of capital repair projects. Therefore, operation of capital improvement and repair projects would not involve wasteful, inefficient, or unnecessary consumption of energy resources.

Retrofit Projects

Retrofit projects would involve renovations to modernize and repurpose existing facilities. Examples of specific activities associated with retrofit projects include but are not limited to replacement of roofs, structural upgrades, and reconfiguration of interior spaces to accommodate new uses. As such, it is reasonable to assume that energy use would not substantially change upon completion of Retrofit projects. Therefore, operation of Retrofit projects would not involve wasteful, inefficient, or unnecessary consumption of energy resources.

Other Projects

Other projects would involve minor work to improve and modernize existing facilities and campus grounds. As such, it is reasonable to assume that energy use would not substantially change upon completion of Other projects. Therefore, operation of Other projects would not involve wasteful, inefficient, or unnecessary consumption of energy resources.

New Facility Projects

New Facility projects would result in the use and operation of new buildings used for academic purposes. All new construction would be required to comply with all standards set in California Building Code (CBC) Title 24, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation. California's Green Building Standards Code (CALGreen; California Code of Regulations, Title 24, Part 11) requires implementation of energy efficient light fixtures and building materials into the design of new construction projects. Furthermore, the 2019 Building Energy Efficiency Standards (CBC Title 24, Part 6) requires newly constructed buildings to meet energy performance standards set by the CEC. These standards are crafted specifically for new buildings to result in energy efficient performance. The standards are updated every three years and each iteration is more energy efficient than the earlier one. For example, according to the CEC, nonresidential buildings built with the 2019 standards will use about 30 percent less energy than those built under the 2016 standards, due mainly to lighting upgrades (CEC 2018c). As a result, new facilities would be considerably more energy efficient than the existing buildings that they would replace. Furthermore, all District facilities would continue to reduce use of nonrenewable energy resources, as the electricity MCE provides from renewable resources continues to increase to comply with the requirements of Senate Bill (SB) 100. This law requires electricity providers to increase procurement from eligible renewable resources to 33 percent of electricity used by 2020, 60 percent by 2030, and 100 percent by 2045.

New facilities would incrementally increase energy consumption in comparison to existing levels and would represent a small portion of MCE's retail electricity sales. Upon compliance with the regulations described above, new facility projects would not result in wasteful, inefficient, or unnecessary consumption of energy resources[6]. Therefore, the proposed program would not involve the inefficient, wasteful, or unnecessary use of energy during operation. Impacts related to operational energy consumption would be less than significant.

Learning Resources Center Project Analysis

Energy consumption includes energy consumed during project construction and operation, such as fuel consumed by vehicles, natural gas consumed for heating or power, and electricity consumed for power. The analysis of energy consumption herein involves the quantification of anticipated vehicle and equipment fuel, natural gas, and electricity consumption during project construction and operation, to the extent feasible, as well as a qualitative discussion of the efficiency, necessity, and wastefulness of that energy consumption.

Construction Energy Demand

During project construction, energy would be consumed in the form of petroleum-based fuels used to power off-road construction vehicles and equipment on the project site, construction worker travel to and from the project site, and vehicles used to deliver materials to the site. The proposed project would require site preparation and grading, including hauling material off-site; pavement and asphalt installation; building construction; architectural coating; and landscaping and hardscaping.

The total consumption of gasoline and diesel fuel during project construction was estimated using the assumptions and factors from CalEEMod (Appendix AQ). As shown in Table 6, project construction would consume approximately 32,540 gallons of fuel. Construction equipment would consume an estimated 25,837 gallons of fuel; vendor and hauling trips would consume approximately 3,381 gallons to fuel and worker trips would consume approximately 3,322 gallons of fuel over all constructing phases.

[6] For a project specific analysis of construction and operational energy use associated with the LRC project, refer to *Learning Resources Center Project Analysis* below.

Table 6 Estimated Fuel Consumption during Construction

Fuel Type	Gallons of Fuel	MMBtu[4]
Diesel Fuel (Construction Equipment)[1]	25,837	3,293
Diesel Fuel (Hauling and Vendor Trips)[2]	3,381	430
Other Petroleum Fuel (Worker Trips)[3]	3,322	365
Total	32,540	4,088

[1] Fuel demand rate for construction equipment is derived from the total hours of operation, the equipment's horse power, the equipment's load factor, and the equipment's fuel usage per horse power per hour of operation, which are all taken from CalEEMod outputs (see Appendix AQ), and from compression-ignition engine brake-specific fuel consumptions factors for engines between 0 to 100 horsepower and greater than 100 horsepower (USEPA 2018). Fuel consumed for all construction equipment is assumed to be diesel fuel.

[2] Fuel demand rate for hauling and vendor trips (cut material imports) is derived from hauling and vendor trip number, hauling and vendor trip length, and hauling and vendor vehicle class from "Trips and Vehicle Miles Traveled" Table contained in Section 3.0, *Construction Detail*, of the CalEEMod results (see Appendix AQ). The fuel economy for hauling and vendor trip vehicles is derived from the United States Department of Transportation (DOT 2018). Fuel consumed for all hauling trucks is assumed to be diesel fuel.

[3] The fuel economy for worker trip vehicles is derived from DOT National Transportation Statistics (24.2 mpg) (DOT 2018). Fuel consumed for all worker trips is assumed to be gasoline fuel.

[4] CaRFG CA-GREET 2.0 fuel specification of 109,786 Btu/gallon used to identify conversion rate for fuel energy consumption for worker trips specified above (CARB 2015). Low-sulfur Diesel CA-GREET 2.0 fuel specification of 127,464 Btu/gallon used to identify conversion rate for fuel energy consumption for construction equipment specified above. Totals may not add up due to rounding.

The construction energy estimates represent a conservative estimate as the construction equipment used in each phase of construction was assumed to be operating every day of construction. Construction equipment would be maintained to all applicable standards as required, and construction activity and associated fuel consumption and energy use would be temporary and typical for construction sites. It is also reasonable to assume contractors would avoid wasteful, inefficient, and unnecessary fuel consumption to reduce construction costs. Therefore, the proposed project would not involve the inefficient, wasteful, or unnecessary use of energy during construction; construction energy consumption would be less than significant.

Operational Energy Demand

Project operation would require energy use in the form of electricity, natural gas, and gasoline consumption. Natural gas and electricity would be used for heating and cooling systems, lighting, appliances, water use, and the overall project operation. Because the project would not increase vehicle trips from existing conditions, as described in Section 17, *Transportation*, there would be no increased energy consumption associated with fuel use from project operation.

Project operation would consume approximately 554 MWh of electricity per year (electricity use provided in Appendix AQ). The proposed project's electricity demand would be served by MCE, which provided 4,436,963 MWh of electricity in 2018; therefore, the project would incrementally increase electricity demand in the MCE service and MCE would have sufficient supplies for the proposed project. Estimated natural gas consumption would be approximately 0.02 MMthm per year (natural gas use provided in Appendix AQ). The proposed project's natural gas demand would be serviced by PG&E, which provided approximately 4,794 MMthm per year in 2018; therefore, the project would incrementally increase natural gas consumption in the PG&E service area and PG&E would have sufficient supplies for the proposed project. Estimates of project electricity and natural gas use are conservative as they do not account for consumption of electricity and natural gas by the existing LRC facility that would cease upon project implementation.

The proposed project would be required to comply with all standards set in CBC Title 24, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation. California's Green Building Standards Code (CALGreen; California Code of Regulations, Title 24, Part 11) requires implementation of energy efficient light fixtures and building materials into the design of new construction projects. Furthermore, the 2019 Building Energy Efficiency Standards (CBC Title 24, Part 6) requires newly constructed buildings to meet energy performance standards set by the CEC. These standards are crafted specifically for new buildings to result in energy efficient performance. The standards are updated every three years and each iteration is more energy efficient than the earlier one. For example, according to the CEC, nonresidential buildings built with the 2019 standards will use about 30 percent less energy than those built under the 2016 standards due mainly to lighting upgrades (CEC 2018c). The proposed project would be considerably more energy efficient than the existing building. Furthermore, the new LRC would continue to reduce its use of nonrenewable energy resources, as the electricity PG&E provides from renewable resources continues to increase to comply with the requirements of SB 100. This law requires electricity providers to increase procurement from eligible renewable resources to 33 percent of total retail sales by 2020, 60 percent by 2030, and 100 percent by 2045.

Project operation would involve the consumption of natural gas and electricity, but PG&E has enough supplies to meet the needs of the proposed project from its existing capacity. For this analysis, energy use from the existing LRC building was not subtracted from the proposed project's energy use and therefore the numbers stated here represent a conservative estimate. As mentioned under criterion b, the project would be designed to reduce fossil fuel reliance and increase energy efficiency compared to the existing building, per the requirements of the College of Marin *Sustainability Design Standard* (2017) and CALGreen.. Therefore, this impact would be less than significant.

Conclusion

MCE and PG&E currently serve the electricity and natural gas demands of all College of Marin facilities. Implementation of the program and project would involve the consumption of natural gas and electricity, but MCE and PG&E have sufficient supplies to meet the needs of the proposed project from its existing capacity. Implementation of the program and project would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Furthermore, existing solar PV arrays at the Kentfield and Indian Valley campuses would continue to generate renewable electricity, offsetting energy use. Therefore, program and project impacts related to energy use during construction and operation would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Facilities Master Plan Program and Learning Resources Center Project Analysis

SB 100 mandates that California acquire 100 percent of its electricity from clean, renewable sources by 2045. Because the existing electricity grid would power the proposed project, the new LRC would eventually be powered 100 percent by renewable energy and would not conflict with this statewide initiative. The District enacted a resolution to "design, deconstruct, renovate, operate, and maintain

District Facilities and infrastructure that are models of energy, water, and material efficiency" (College of Marin 2012). The District has adopted the *Sustainability Design Standard* that provides guidance for achieving energy efficiency goals for campus building projects (College of Marin 2017). Specific actions that apply to new construction include the following mandates:

- **Take an Ecological Site Design Approach**. In the formative design phase, identify sustainability priorities and key milestones in the project timeline.
- **Reduce fossil fuel reliance and related energy costs** by applying Title 24 Standards regarding energy and water efficiency requirements (and indoor air quality requirements) for newly constructed buildings, and alterations to existing buildings.
- **Provide infrastructure for future renewable energy installations**, and when possible, on-site renewable energy systems.

As discussed above under criterion a, the proposed program and project would be required to comply with CBC Title 24, which would minimize the wasteful, inefficient, or unnecessary consumption of energy resources during operation. Conformance with CALGreen (CBC Title 24, Part 11) would ensure incorporation of energy efficient light fixtures and building materials into the design of new construction projects, including the proposed project. This would ensure consistency with the District's *Sustainability Design Standard*, to apply Title 24 Standards to all newly constructed buildings. Furthermore, existing solar PV arrays at the Kentfield and Indian Valley campuses would continue to generate renewable electricity, offsetting energy use.

By implementing sustainable design practices in new construction, the proposed program and project would be consistent with the District's Sustainable Design Plan and this impact would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts

Program and project buildout would represent a small portion of development projected by the Marin Countywide and City of Novato General Plans and would not result in the wasteful, inefficient, or unnecessary consumption of energy resources. Off-site cumulative development would increase demand for electricity, natural gas and fuel. Similar to the proposed project, SFDB Rehabilitation, Jonas Center Pedestrian Bridge and other off-site cumulative development projects would be required and comply with applicable regulations, including Title 24. Therefore, cumulative impacts related to energy would be less than significant and the project's contribution would not be cumulatively considerable.

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7 Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Directly or indirectly cause potentially substantial adverse effects, including the risk of loss, injury, or death involving:				
1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	■	☐	☐
2. Strong seismic ground shaking?	☐	■	☐	☐
3. Seismic-related ground failure, including liquefaction?	☐	■	☐	☐
4. Landslides?	☐	■	☐	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	■	☐	☐
c. Be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	■	☐	☐
d. Be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	■	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	■
f. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	■	☐	☐

a.1. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

Setting

The Kentfield and Indian Valley campuses are not located in an Alquist-Priolo earthquake fault zone for surface fault rupture (California Geologic Survey 2019). No active faults are located at either campus. The nearest known active fault is the northern segment of the San Andreas fault, located approximately nine miles west of the Kentfield Campus and approximately 12.6 miles west of the Indian Valley Campus. The Bolinas Site is located within the San Andres Fault Zone as delineated by the California Earthquake Hazards Zone Application (California Geologic Survey 2019). Potentially active segments of the fault lie between approximately 400 feet and 1000 feet northeast and northwest of the Bolinas Site (California Geologic Survey 2019).

Facilities Master Plan Program and Learning Resources Center Project Analysis

The Kentfield and Indian Valley campuses are not within a known fault zone. Therefore, impacts related to fault rupture would be less than significant at those campuses. The Bolinas Site is located within the San Andreas Fault Zone and the precise location of the fault with respect to the site has not been determined. Therefore, impacts related to surface rupture could be potentially significant at the Bolinas Site and Mitigation Measure GEO-1 would be required.

Pursuant to the provisions of the Alquist-Priolo Act, any project proposed in an earthquake fault zone must address the potential for surface fault rupture through a fault investigation prior to issuance of permits from the lead agency. Therefore, a site-specific fault investigation, as described in Mitigation Measure GEO-1 would be required at the Bolinas Site.

Mitigation Measures

GEO-1 Faulting Investigation

Prior to the start of construction for the Bolinas Marine Field Station project, a fault investigation shall be prepared a professional geologist licensed by the State Board for Professional Engineers, Land Surveyors, and Geologists. The fault investigation shall be prepared pursuant to State Alquist-Priolo Special Studies Zone Guidelines and recommendations contained in the most recent edition of California Geological Society Special Publication 42, *Earthquake Fault Zones – A Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California* (CGS 2018). Per recommendations from Special Publication 42, the fault investigation shall involve trenching, drilling and sampling, and/or other subsurface investigation measures deemed appropriate. A corresponding report shall be prepared that identifies the location and existence or absence of faults that occur on or adjacent to the site. The report shall provide recommendations for appropriate foundation setback distances or other structural measures in the event that a fault is located on or adjacent to the property. All recommendations provided in the geotechnical report shall be followed during planning, grading and construction at the site.

Significance After Mitigation

With implementation of Mitigation Measure GEO-1, impacts related to potential fault rupture at the Bolinas Site would be less than significant. Therefore, program and project impacts would be less than significant with mitigation incorporated. This mitigation measure is listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

a.2. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking?

a.3. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

c. Would the project be located on a geologic unit or soil that is made unstable as a result of the project, and potentially result in on or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?

d. Would the project be located on expansive soil, as defined in Table 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Facilities Master Plan Program and Learning Resources Center Project Analysis

Marin County is in a region of seismic activity and geotechnical instability (County of Marin 2007). According to the County's General Plan, major earthquake faults in the region are the San Andreas and the San Gregorio faults near San Francisco, and the Hayward fault system in the Diablo Range.

Kentfield Campus

The nearest known fault to the Kentfield Campus is the San Andreas Fault, approximately 9 miles west and strong seismic related ground shaking could occur (California Geologic Survey 2019). According to the County's Marinmap Map Viewer for geologic hazards, lateral spreading is not anticipated to occur at the Kentfield Campus, and the site's near-surface soil has no expansive potential (County of Marin 2019).

The Kentfield Campus lies on area with designated liquefaction hazard zones that range from low to high risk according to hazard maps prepared by the County of Marin and the College's FMP (County of Marin 2019a, College of Marin 2016). The FMP indicates that College Standard Construction Policy requires all buildings subject to liquefaction hazards be designed with larger foundations and other features to reduce impacts of liquefaction (College of Marin 2016). Adherence to College Standard Construction Policy and the requirements of the CBC would reduce impacts at the Kentfield Campus associated with strong seismic ground shaking and liquefaction to a less than significant level. Furthermore, implementation of Mitigation Measure GEO-2 would require site specific geotechnical investigation and adherence to geotechnical design recommendations for all New Facility projects at the Kentfield Campus.

Indian Valley Campus

The nearest known fault to the Indian Valley Campus is the San Andreas Fault, approximately 12.6 miles west and strong seismic related ground shaking could occur (California Geologic Survey 2019).

According to the County's Marinmap Map Viewer for geologic hazards, lateral spreading is not anticipated to occur at the Indian Valley Campus, and the site's near-surface soil has expansive potential ranging from none to moderate (County of Marin 2019). However, most soils underlying the developed parts of the campus have no to low potential for expansion. Only the northwestern part of the developed campus lies on an area with moderate potential for soil expansion, including the Organic Garden/Farm and associated structures and parking lot 6.

Developed portions of the Indian Valley Campus lie in a moderate liquefaction hazard zone according to hazard maps prepared by the County of Marin and is identified as having moderate-liquefaction potential in the College's Facilities Master Plan (County of Marin 2019a, College of Marin 2016). As described above, adherence to College Standard Construction Policy and the requirements of the CBC would reduce impacts at the Indian Valley Campus associated with strong seismic ground shaking, liquefaction, and expansive soils to a less than significant level. Furthermore, implementation of Mitigation Measure GEO-2 would require site specific geotechnical investigation and adherence to geotechnical design recommendations for all New Facility projects at the Indian Valley Campus.

Bolinas Site

The Bolinas Site lies within the San Andreas Fault Zone and strong seismic related ground shaking could occur (California Geologic Survey 2019). According to the County's Marinmap Map Viewer for geologic hazards, lateral spreading is not anticipated to occur at the Bolinas Site, and the site's near-surface soil has expansive potential ranging from none to high (County of Marin 2019). Soils with a high expansion potential occur on southern part of the site.

The Bolinas Site lies in very low liquefaction hazard zone according to hazard maps prepared by the County of Marin (County of Marin 2019a). As described above, adherence to College Standard Construction Policy and the requirements of the CBC would reduce impacts at the Bolinas Site associated with strong seismic ground shaking, liquefaction, and expansive soils to a less than significant level. Furthermore, implementation of Mitigation Measure GEO-2 would require site specific geotechnical investigation and adherence to geotechnical design recommendations for new construction at the Bolinas Site.

Mitigation Measure

GEO-2 Geotechnical Investigation

Prior to approval, a registered civil engineer and certified engineering geologist shall complete a geotechnical investigation specific to each New Facility project site and all proposed areas of excavation at the Kentfield Campus, Indian Valley Campus, and Bolinas Site. The geotechnical evaluation shall include, but not be limited to, an estimation of both vertical and horizontal anticipated peak ground accelerations and potential for liquefaction, soil expansion and landslides. Geotechnical investigation shall determine appropriate means of mitigating both structural as well as potential health hazards that could be associated with such development activities.

Suitable measures to reduce liquefaction impacts could include one or more of the following techniques, as determined by a registered geotechnical engineer:

- Specialized design of foundations by a structural engineer
- Removal or treatment of liquefiable soils to reduce the potential for liquefaction
- Drainage to lower the groundwater table to below the level of liquefiable soil

- In-situ densification of soils or other alterations to the ground characteristics
- Other alterations to the ground characteristics

The geotechnical investigation shall also identify depth to groundwater throughout the project site (including estimated variability over the life of the project) and provide methods to avoid adverse effects associated with encountering groundwater during project-related excavations, including but not limited to dewatering as necessary. The geotechnical report shall be subject to review and approval by the District. All recommendations provided in the geotechnical report shall be followed during grading and construction at the site.

Significance After Mitigation

Implementation of Mitigation Measure GEO-2 would reduce impacts related to strong seismic ground shaking, liquefaction and expansive soils at the Kentfield Campus, Indian Valley Campus and Bolinas Site to a less than significant level. Impacts would be less than significant with mitigation incorporated. This mitigation measure is listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

a.4. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?

Facilities Master Plan Program and Learning Resources Center Project Analysis

Kentfield Campus

The Kentfield Campus is not located in a landslide zone (County of Marin 2019). The campus and the surrounding area are relatively flat, and the program would not involve grading on substantial slopes. Landslides are most likely to occur on or near a slope or hillside area, rather than in generally level areas. Therefore, impacts related to landslides at the Kentfield Campus would be less than significant.

Indian Valley Campus

Portions of the Indian Valley Campus lie in areas with low to moderate potential for landslides (County of Marin 2019). Most of the developed portion of campus lies in areas with no potential for landslides, with the exception of the area currently occupied by the existing Aquatics Center and Building 17, which lies in an area with moderate landslide potential. Implementation of Mitigation Measure GEO-2 would require site specific geotechnical investigation and adherence to geotechnical design recommendations, including those pertinent to landslide hazards, for new construction at the Indian Valley Campus. Therefore, impacts related to landslides at the Indian Valley Campus would be less than significant with mitigation incorporated.

Bolinas Site

The entirety of the Bolinas Site lies within an area of high potential for landslides (County of Marin 2019). Implementation of Mitigation Measure GEO-2 would require site specific geotechnical investigation and adherence to geotechnical design recommendations, including those pertinent to landslide hazards, for new construction at the Bolinas Site. Therefore, impacts related to landslides at the Indian Valley Campus would be less than significant with mitigation incorporated.

Therefore, program and project impacts related to landslides at the Kentfield Campus, Indian Valley Campus and Bolinas Site would be reduced to less than significant level with mitigation incorporated. Mitigation Measure GEO-2 is listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project result in substantial soil erosion or the loss of topsoil?

Facilities Master Plan Program and Learning Resources Center Project Analysis

The program would involve construction activities in disturbed areas of the Kentfield and Indian Valley campuses and the Bolinas Site, where paved areas and structures occupy most of the campus area. Bodies of water occur near all sites, including Corte Madera Creek at the Kentfield Campus, Ignacio Creek at the Indian Valley campuses, and the Bolinas Lagoon at the Bolinas Site. Construction activities involving soil disturbance, such as excavation and grading, could result in increased erosion and sediment transport by stormwater and wind to these adjacent bodies of water. Therefore, the program and project could result in substantial soil erosion and Mitigation Measure GEO-3 would be required to reduce impacts to a less than significant level.

Mitigation Measure

GEO-3 Erosion Control Plan

Construction contractors shall prepare and implement an Erosion Control Plan for all projects that would involve excavation and grading to minimize soil erosion. The Erosion Control Plan shall contain best management practices as follows:

- Excavation shall be limited to the dry season of the year (i.e., April 15 to November 1).
- Exposed soils shall be watered twice daily to prevent wind erosion.
- Silt fencing, straw bales composed of rice straw (that are certified to be free of weed seed), fiber rolls, gravel bags, mulching erosion control blankets, soil stabilizers, and storm drain filters shall be used, in conjunction with other methods, to prevent erosion throughout the entire project site and siltation of stream channels and detention basins.
- Temporary berms and sediment basins shall be constructed to avoid unnecessary siltation into local waterways during construction activities.
- Erosion controls that protect and stabilize stockpiles and exposed soils shall be used to prevent movement of materials. Potential erosion control devices include plastic sheeting held down with rocks or sandbags over stockpiles, silt fences, or berms of hay bales.
- Temporary stockpiling of excavated material shall be minimized. However, excavated material shall be stockpiled in areas where it cannot enter Corte Madera Creek. Available stockpiling sites at or near the project site shall be determined prior to the start of construction.
- Frequency of sediment removal from detention basins, location of spoil disposal, locations and types of erosion and sediment control structures, and materials that would be used on-site during construction activities shall be specified.

- Upon completion of project construction, all exposed soils present in and around the project site shall be stabilized within seven days. Exposed soils shall be mulched to prevent sediment runoff and transport. All mulches, except hydro-mulch, shall be applied in a layer not less than two inches deep. Where feasible, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills shall be revegetated with deep-rooted, native, drought tolerant species to minimize slope failure and erosion potential. Geotextile binding fabrics shall be used if necessary, to hold slope soils until vegetation is established.
- An adequate supply of erosion control materials (gravel, straw bales, shovels, etc.) shall be maintained on-site to facilitate a quick response to unanticipated storm events or emergencies.

Significance After Mitigation

Implementation of Mitigation Measure GEO-3 would reduce program and project impacts related erosion to a less than significant level. This mitigation measure is listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

Facilities Master Plan Program and Learning Resource Center Project Analysis

The existing municipal sanitary sewer system would serve all existing and planned facilities at the Kentfield Campus, Indian Valley Campus and Bolinas Site. Septic tanks or alternative wastewater disposal systems would not be used. Therefore, the proposed project and program would have no impact. This impact is not discussed in the Draft EIR.

NO IMPACT

f. Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Facilities Master Plan Program and Learning Resources Center Project Analysis

The paleontological sensitivity of the geologic units that underlie the Kentfield Campus, Indian Valley Campus and Bolinas Site was evaluated using existing paleontological locality data and review of information in the scientific literature concerning known fossils within those geologic units. Fossil collections records from the University of California Museum of Paleontology (UCMP) online database were reviewed, which contain known fossil localities in Marin County (2020). Following the literature review, a paleontological sensitivity classification was assigned to the geologic units within campus. The potential for impacts to significant paleontological resources is based on the potential for ground disturbance to directly impact paleontologically sensitive geologic units. The Society of Vertebrate Paleontology (SVP) has developed a system for assessing paleontological sensitivity and describes sedimentary rock units as having high, low, undetermined, or no potential for containing scientifically significant nonrenewable paleontological resources (SVP 2010). This system is based on rock units within which vertebrate or significant invertebrate fossils have been determined by previous studies to be present or likely to be present.

The three sites are situated within the Coast Ranges geomorphic province of California, which extend about 600 miles from the Oregon border to the Santa Ynez River in Santa Barbara County and range in elevation from approximately 500 feet above mean sea level (amsl) to 7,581 feet amsl (California Geological Survey 2002; Norris and Webb 1990).

Kentfield Campus

According to the published geologic mapping by Blake et. al (2000), the Kentfield Campus is underlain by younger Quaternary (Holocene) alluvium (Qal), derived as unconsolidated sand, gravel, silt, and clay from Mount Tamalpais, and artificial fill (Qmf) over marine and marsh deposits. These underlying marine and marsh deposits are composed of very soft to soft, silty mud, silt, and sand with organic material.

Indian Valley Campus

According to the published geologic mapping by Blake et. al (2000), the Indian Valley Campus is underlain by younger Quaternary (Holocene) alluvium (Qal), derived as unconsolidated sand, gravel, silt, and clay; younger Quaternary (Holocene) landslide deposits, consisting mostly of bedrock debris; and Jurassic Greenstone (Jfg) of the Franciscan Complex. These relatively unsheared plutonic rocks consist of intrusive basalt, diabase, gabbro, pillow lava, tuff, and breccia.

Bolinas Site

According to the published geologic mapping by Cochrane et. al (2015), the Bolinas Site is underlain by younger Quaternary (Holocene) estuarine deposits (Qes), composed of a varied assortment of fine to coarse-grained sediments from the Bolinas Lagoon, and the Merced Formation (QTm), which was deposited between the late Pliocene and the early Pleistocene. The Merced Formation is composed of weakly consolidated, cross-bedded, fine-grained sandstones with blue-gray, friable siltstones and claystones.

Artificial fill (Qmf) and active landslide deposits (Qls) consist of previously disturbed sediments, which are generally less likely to contain well-preserved fossils and important taphonomic information than intact deposits. As such, artificial fill and landslide deposits have a low paleontological resource potential according to SVP standards (SVP 2010). Intact Holocene deposits in the project site, particularly those younger than 5,000 years old (i.e., Qal, Qes), are too young to preserve significant paleontological resources and are also determined to have a low paleontological resource potential. Jurassic plutonic rocks of the Franciscan Complex (Jfg) have no paleontological resource potential since the physical parameters of their formation are not conducive to fossil preservation. However, the Merced Formation (QTm) has produced various invertebrate fossils and vertebrate fossil specimens of mammoth, mastodon, horse, deer, camel, whale, dolphin, seal, shark, and bird (UCMP 2020). In addition, Holocene sediments may grade downward into older Quaternary (Pleistocene) alluvial deposits, which could preserve significant fossil remains at moderate depth. Pleistocene sedimentary deposits have a well-documented record of abundant and diverse vertebrate fauna throughout California. Fossil specimens of whale, sea lion, horse, ground sloth, bison, camel, mammoth, dog, pocket gopher, turtle, ray, bony fish, shark, and bird have been reported (Agenbroad 2003; Jefferson 1985, 1989, 1991; Savage 1951; Savage et al. 1954; Springer et al. 2009; Wilkerson et al. 2011; Winters 1954; UCMP 2020). Therefore, the Merced Formation and Pleistocene alluvial deposits are assigned a high paleontological resource potential.

A search of the paleontological locality records maintained in the UCMP online collections database did not report any vertebrate fossil localities within the project site; however, at least two vertebrate fossil localities, which yielded specimens from the Merced Formation, were reported in Marin County (UCMP 2020). Both localities (i.e., V4301 and V67218) occurred within the coastal community of Bolinas (near the southernmost project site), which rendered fossil specimens of deer (*Odocoileus*), as well as a feather mold associated with a bird (Aves) (UCMP 2020).

Despite the broad program area, ground disturbance associated with the program and project would not require extensive excavations and would be limited to previously developed areas at all three sites. In addition, most of the program area is immediately underlain by geologic units having either low or no paleontological resource potential. Given that the fossiliferous deposits may occur at greater depths than anticipated program and project disturbance, the potential for encountering fossil resources during project-related ground disturbance is low and impacts to paleontological resources are not anticipated. Further paleontological resources work is not recommended at this time; however, Mitigation Measure GEO-4 is recommended in the case of unanticipated fossil discoveries during any ground-disturbing activities associated with program.

Mitigation Measure

GEO-4 Unanticipated Discovery of Paleontological Resources

In the event an unanticipated fossil discovery is made during construction, in accordance with Society of Vertebrate Paleontology 2010 guidelines, construction shall stop within 50 feet of the find and a qualified professional paleontologist shall be retained to evaluate the discovery, determine its significance and if additional mitigation or treatment is warranted. Work in the area of the find will resume once the find is properly documented and authorization is given to resume construction work. Any significant paleontological resources found during construction monitoring will be prepared, identified, analyzed, and permanently curated in an approved regional museum repository, such as the University of California Museum of Paleontology.

Significance After Mitigation

Mitigation Measure GEO-4 would apply to all phases of program and project construction and would ensure that potential impacts to paleontological resources would be less than significant by providing for the recovery, identification and curation of previously unrecovered fossils. This mitigation measure is listed in the Draft EIR’s executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

Cumulative Impacts

Potential impacts related to geologic risks, such as those related to risk from faults, liquefaction potential, slope stability, landslide potential, and expansive and compressible soils, are generally site specific and are not cumulative in nature. Therefore, the program and project impacts related to geologic risks would not be cumulatively considerable.

Impacts related to soil erosion and loss of topsoil could be cumulative. Off-site development could increase soil erosion. Similar to the proposed project, other off-site cumulative development would be required to comply with applicable policies related to water quality, including the County of Marin and City of Novato Codes of Ordnances. With implementation of Mitigation Measure GEO-3, construction activities associated with the program and project would be required to implement and comply with an erosion control plan. As a result, impacts associated with the program and project would not be cumulatively considerable.

8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	□	□	■	□
b. Conflict with any applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of greenhouse gases?	□	□	■	□

Climate change is the observed increase in the average temperature of the earth's atmosphere and oceans along with other substantial changes in climate (such as wind patterns, precipitation, and storms) over an extended period. Climate change is the result of numerous, cumulative sources of greenhouse gases (GHG), gases that trap heat in the atmosphere, analogous to the way in which a greenhouse retains heat. Common GHGs include water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxides (N_2O), fluorinated gases, and ozone (O_3). GHGs are emitted by both natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off gassing associated with agricultural practices and landfills. Anthropogenic GHGs, many of which have greater heat-absorption potential than CO_2, include fluorinated gases, such as hydrofluorocarbons (HFC), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6) (National Aeronautics and Space Administration 2018).

Most individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

In late 2015, the California Supreme Court's Newhall Ranch decision confirmed there are multiple potential pathways for evaluating GHG emissions consistent with CEQA, depending on the circumstances of a given project (Center for Biological Diversity v. Department of Fish and Wildlife (2015) 62 Cal. 4th 204). Given the legislative attention and judicial action regarding post-2020 goals and the scientific evidence that additional GHG reductions are needed through the year 2050, the Association of Environmental Professionals Climate Change Committee published a white paper in October 2016 that provides guidance on defensible GHG thresholds for use in CEQA analyses and GHG reduction targets in climate action plans.

The Climate Change Committee white paper identified seven thresholds for operational emissions. The following four methods described are the most widely used evaluation criteria.[7]

(1) **Consistency with a Qualified GHG Reduction Plan.** For a project located within a jurisdiction that has adopted a qualified GHG reduction plan (as defined by CEQA Guidelines Section 15183.5), GHG emissions would be less than significant if the project is anticipated by the plan and fully consistent with the plan. However, projects with a horizon year beyond 2020 should not tier from a plan that is qualified up to 2020.

(2) **Bright line Thresholds.** There are two types of bright line thresholds:

  a. **Standalone Threshold.** Emissions exceeding standalone thresholds would be considered significant.

  b. **Screening Threshold.** Emissions exceeding screening thresholds would require evaluation using a second-tier threshold, such as an efficiency threshold or other threshold concept to determine whether project emissions would be considered significant. However, projects with a horizon year beyond 2020 should take into account the type and amount of land use projects and their expected emissions out to the year 2030.

(3) **Efficiency Thresholds.** Land use sector efficiency thresholds are currently based on AB 32 targets and should not be used for projects with a horizon year beyond 2020. Efficiency metrics should be adjusted for 2030 and include applicable land uses.

(4) **Percent Below "Business as Usual" (BAU).** GHG emissions would be less than significant if the project reduces BAU emissions by the same amount as the statewide 2020 reductions. However, this method is no longer recommended following the Newhall Ranch ruling.

In the context of this analysis, operational emissions methods (1), (3), and (4) were not applicable. The District does not have a qualified climate action plan. Efficiency thresholds are quantitative thresholds based on a measurement of GHG efficiency for a given project, regardless of the amount of mass emissions. These thresholds identify the emission level below which new development would not interfere with attainment of statewide GHG reduction targets. A project that attains such an efficiency target, with or without mitigation, would result in less than significant GHG emissions.

With the release of the 2017 Climate Change Scoping Plan Update, CARB recognized the need to balance population growth with emissions reductions and in doing so, provided a new local plan level methodology for target setting that provides consistency with state GHG reduction goals using per capita efficiency thresholds. A project-specific efficiency threshold can be calculated by dividing statewide GHG emissions by the sum of statewide jobs and residents. However, not all statewide emission sources are present in the project area (e.g., mining). Accordingly, consistent with the concerns raised in the Golden Door (2018) and Newhall Ranch (2015) decisions regarding the correlation between state and local conditions, the 2030 statewide inventory target was modified with substantial evidence to establish a locally appropriate, evidence-based, residential, project-specific threshold consistent with California's SB 32 targets. This option cannot be utilized, however, because the District does not have an existing baseline inventory that can be used to calculate the project-specific efficiency threshold. Furthermore, BAU emissions are no longer recommended following the Newhall Ranch ruling. Therefore, the most appropriate threshold for the project is the

[7] The three other thresholds are best management practices/best available mitigation, compliance with regulations, and a hybrid threshold concept: separate transportation and non–transportation threshold. These are not commonly used and do not specifically apply to this project.

bright line threshold of 1,100 metric tons (MT) of CO_2e established by BAAQMD. As such, the project would result in a significant impact if project-generated emissions exceed the BAAQMD bright line threshold provided by the BAAQMD's *CEQA Air Quality Guidelines*. Potential emissions associated with the program are discussed qualitatively. Emissions associated with the LRC project were estimated using CalEEMod, version 2016.3.2 (see Appendix AQ).

Learning Resources Center CalEEMod Methodology

GHG emissions associated with the LRC project were calculated using CalEEMod version 2016.3.2 was used to calculate total GHG project emissions, which include construction and operational emissions. This methodology is recommended by the California Air Pollutant Control Officers Association (CAPCOA) CEQA and Climate Change white paper (CAPCOA 2008). The analysis focuses on CO_2, N_2O, and CH_4 as these are the GHG emissions that on-site development would generate in the largest quantities. Fluorinated gases, such as HFCs, PFCs, and SF_6, were also considered for the analysis. However, the proposed project is not expected to be a significant contributor of fluorinated gases since fluorinated gases are primarily associated with industrial processes. Calculations were based on the methodologies discussed in the CAPCOA white paper and included the use of the California Climate Action Registry (CCAR) General Reporting Protocol (CCAR 2013).

Construction Emissions

Project construction would generate temporary GHG emissions primarily due to construction equipment and truck trips. Site preparation and grading typically generate the greatest amount of emissions due to the use of grading equipment and soil hauling. Although construction activity is addressed in this analysis, CAPCOA does not discuss whether any of the suggested threshold approaches adequately address impacts from temporary construction activity. As stated in the CEQA and Climate Change white paper, "more study is needed to make this assessment or to develop separate thresholds for construction activity" (CAPCOA 2008). Additionally, the BAAQMD does not have specific quantitative thresholds for construction activity. Therefore, although estimated in CalEEMod and provided for informational purposes, construction activity is not included in the total emissions calculations.

Operational Emissions

Project operational emissions were modeled using CalEEMod and compared to BAAQMD thresholds. CalEEMod provides operational emissions of CO_2, N_2O, and CH_4. Emissions from energy use include electricity and natural gas use. The emissions factors for natural gas combustion are based on USEPA's AP-42 (Compilation of Air Pollutant Emissions Factors) and CCAR. Electricity emissions are calculated by multiplying the energy use times the carbon intensity of the utility district per kilowatt hour. Project electricity demands would be served by MCE. Therefore, MCE's specific energy emission factor (i.e., the amount of CO_2e emitted per unit of energy consumed) are used in the calculations of GHG emissions. As of 2018, the emission factor for its default service tier (Light Green) was 127 lbs CO_2e per MWh (MCE 2019c). Per SB 100, the statewide Renewable Portfolio Standard (RPS) Program requires electricity providers to increase procurement from eligible renewable energy sources to 60 percent by 2030. As the electricity provided by MCE's Light Green service tier was composed of 61 percent eligible renewable resources as of 2018 (MCE 2019a), the utility has met the SB 100 target and CalEEMod inputs reflected the 2018 MCE emission factor.

Energy usage associated with the project was reduced from the default value by 30 percent to account for the requirements of 2019 Title 24 standards (CEC 2019). Emissions associated with area sources, including consumer products, landscape maintenance, and architectural coating were calculated in CalEEMod and use standard emission rates from CARB, USEPA, and emission factor values provided by the local air district (CAPCOA 2017).

Emissions from waste generation were also calculated in CalEEMod and are based on the International Panel on Climate Change's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste (CAPCOA 2017). Waste disposal rates by land use and overall composition of municipal solid waste in California was based primarily on data provided by the California Department of Resources, Recycling, and Recovery (CalRecycle).

Emissions from water and wastewater usage calculated in CalEEMod were based on the default electricity intensity from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California. CalEEMod does not incorporate water use reductions achieved by 2016 CALGreen (Part 11 of Title 24). New development would be subject to CALGreen, which requires a 20 percent increase in indoor water use efficiency. Thus, in order to account for compliance with CALGreen, a 20 percent reduction in indoor water use was included in the water consumption calculations for new development.

Because the LRC project would not increase trips from existing conditions, as described in Section 17, *Transportation*, there would be no new mobile source emissions during project operation.

The project would comply with 2019 CALGreen Building Standards. The project would also reduce fossil fuel reliance, increase energy efficiency, and increase water use efficiency compared to the existing building; and have a smaller building envelope than the existing building. However, the specific sustainability features that would be applied to the project are not known to the level of detail required for applying reductions in CalEEMod. The analysis excludes these additional sustainability features and represents a conservative analysis of operational emissions.

a. Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Facilities Master Plan Program Analysis

Program implementation would generate temporary, construction related GHG emissions (direct emissions) and long-term operational GHG emissions (indirect emissions). The following discussion identifies potential short- and long-term impacts that would result from program implementation.

Construction Emissions

As described in Section 2, *Project Description*, of Draft EIR program implementation would involve a combination of projects designated as capital repair and improvement, retrofit and new Facility projects at the Kentfield Campus, Indian Valley Campus , and Bolinas Site. These projects would result in temporary emissions of GHGs during construction, which would be generated by truck hauling trips and worker trips to and from project sites and operation of construction machinery. Capital repair and improvement and retrofit projects would not involve new construction or substantial use of heavy equipment. Therefore, they would not generate GHG emissions that would have a significant environmental impact during construction.

New Facility projects would involve demolition of existing facilities and new construction. Detailed plans are not currently available for all projects that would involve new construction, however, the

BAAQMD does not have a recommended screening threshold for construction related GHG emissions. However, it would be reasonable to assume that construction contractors would minimize the unnecessary use of construction equipment and consumption of energy during construction, thereby minimizing GHG emissions. Therefore, emissions associated with program construction would be less than significant.

Operational Emissions

Long-term emissions associated with the program would be generated by area sources, energy use, solid waste, and water use. As described in Section 17, *Transportation*, no increase in vehicle trips associated with the program would occur at the Kentfield Campus. The increase in vehicle trips associated with the program at the Indian Valley Campus would be minor, and impacts would be less than significant. Vehicle trips to the Bolinas Site would increase, the increase would be minimal with implementation of Mitigation Measure TRA-2. Therefore, mobile source emissions would not substantially increase because of the program.

The District has adopted the *Sustainability Design Standard* that provides guidance for achieving energy efficiency goals for campus building projects (College of Marin 2017). The *Sustainability Design Standard* adopts the goal of reducing fossil fuel reliance and related energy costs by applying Title 24 Standards regarding energy and water efficiency for newly constructed buildings, and alterations to existing buildings. Capital repair and improvement and retrofit projects would modernize existing buildings at the Kentfield and Indian Valley campuses. These projects would result in the installation of more efficient fixtures and appliances, which would reduce electricity and natural gas use. Therefore, upon compliance with the *Sustainability Design Standard,* capital repair and improvement and retrofit projects would not generate substantial GHG emissions.

New Facility projects would involve demolition of existing facilities and new construction. The BAAQMD has established a screening threshold to provide a conservative indication of the potential for significance of operational GHG emissions. The BAAQMD's operational-related GHG screening levels for community college land uses is 28,000 square feet of new construction. As detailed plans are not currently available for all New Facility projects[8], compliance with this threshold cannot be assessed at this time. Therefore, New Facility projects could lead to a potentially substantial increase in the emission of GHGs during operation. Implementation of Mitigation Measure GHG-1 would be required for all New Facility projects.

Mitigation Measure

GHG-1 New Facility GHG Assessment

Prior to the start of construction of all New Facility projects, quantitative GHG assessments shall be prepared to assess potential for GHG emission during operation. GHG assessments shall conservatively estimate the annual emission of CO_2e associated with the operation of new facilities. If estimated CO_2e emissions are above the BAAQMD's bright line threshold of 1,100 MT of CO_2e, mandatory measures to reduce operational emissions shall be applied as needed. Measures may include but are not limited to the implementation of a Greenhouse Gas Reduction Plan, the components of which would reduce GHG emissions below the BAAQMD's bright line threshold. If required, the GHG Reduction Plan may include, but is not limited to the installation of additional

[8] For a project specific analysis of construction and operation related GHG emissions associated with the LRC project, refer to *Learning Resources Center Project Analysis* below.

solar panels to reduce the District's electricity use and the purchase of emissions reduction credits to offset emissions.

Significance After Mitigation

Implementation of Mitigation Measure GHG-1 would require GHG assessments to be prepared prior to the start of construction for all New Facility projects. Therefore, program impacts related to GHG emissions would be less than significant with mitigation incorporated. This mitigation measure is listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the EIR.

Learning Resources Center Project Analysis

The project's proposed construction activities, energy use, daily operational activities, and mobile sources would generate GHG emissions. CalEEMod was used to calculate emissions resulting from project construction and long-term operation (see Appendix AQ).

Operational Indirect and Stationary Direct Emissions

CalEEMod was used to calculate direct sources of air emissions associated with the proposed project. These include consumer product use and landscape maintenance equipment. Area emissions are estimated at less than 0.1 MT of CO_2e per year. Project operation would consume electricity, primarily for lighting and powering appliances (including computers and other electronic educational equipment). Electricity generation through combustion of fossil fuels emits CO_2, and to a smaller extent, N_2O and CH_4. The project would generate approximately 134.2 MT of CO_2e per year associated with overall energy use. Based on the estimate of GHG emissions from project-generated solid waste as it decomposes, solid waste would generate approximately 35.7 MT of CO_2e per year. Based on the amount of electricity generated to supply and convey water, the proposed project would generate an estimated 4.0 MT of CO_2e per year. Because the project would not increase trips above existing conditions, there would be no new mobile source emissions during project operation. The proposed project would not increase emissions of CO_2e per year from mobile sources.

Construction Emissions

Emissions generated by project construction would be approximately 195 MT of CO_2e. The BAAQMD does not have a recommended threshold for construction related GHG emissions, and therefore emissions associated with construction would not result in a significant impact.

Combined Stationary and Mobile Source Emissions

Table 7 shows the project's operational and mobile GHG emissions. The annual emissions would total approximately 173.9 MT of CO_2e per year. These emissions would not exceed the 1,100 MT of CO_2e per year threshold for compliance with BAAQMD thresholds. This impact would be less than significant.

Table 7 Operational GHG Emissions

Emissions Source	Annual Emissions (MT of CO_2e/year)
Operational	
Area	<0.1
Energy	134.2
Waste	35.7
Water	4.0
Mobile	
CO_2 and CH_4	0.0
N_2O	0.0
Total	**173.9**
BAAQMD Threshold	1,100
Exceeds Threshold?	No

See Table 2.2 "Overall Operational" emissions. CalEEMod worksheets in Appendix AQ.

Conclusion

At the program level, construction and operation of projects designated as capital repair and improvement, retrofit, and other projects would not result in substantial GHG emissions. Compliance with Mitigation Measure GHG-1 would require assessment and reduction of potential GHG emissions associated with operation of New Facility projects. Program impacts would be less than significant with mitigation incorporated. This impact is not discussed in the Draft EIR.

As discussed above and shown in Table 7, construction and operation related impacts associated with the LRC project would not exceed BAAQMD thresholds for GHG emissions. Project impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Facilities Master Plan Program Analysis and Learning Resources Center Project Analysis

SB 375, signed in August 2008, requires the inclusion of Sustainable Communities' Strategies (SCS) in Regional Transportation Plans for the purpose of reducing GHG emissions. The Metropolitan Transportation Commission and the Association of Bay Area Governments adopted an SCS that meets GHG reduction targets. Plan Bay Area 2040 is a state-mandated, integrated long-range transportation, land-use, and housing plan that would support a growing economy, provide more housing and transportation choices, and reduce transportation-related pollution in the nine-county San Francisco Bay Area (Association of Bay Area Governments 2017a). The SCS builds on earlier efforts to develop an efficient transportation network and grow in a financially and environmentally responsible way. Plan Bay Area 2040 will be updated every four years to reflect new priorities. A goal of the SCS is to reduce vehicles miles traveled per capita by 10 percent (Association of Bay Area Governments 2017b).

As described in Section 6, *Energy*, the District enacted a resolution to "design, deconstruct, renovate, operate, and maintain District Facilities and infrastructure that are models of energy, water, and material efficiency" (College of Marin 2012). The District has adopted the *Sustainability Design Standard* that provides guidance for achieving energy efficiency goals for campus building projects (College of Marin 2017). Specific actions that apply to new construction include:

- Take an Ecological Site Design Approach. In the formative design phase, identify sustainability priorities and key milestones in the project timeline.
- Reduce fossil fuel reliance and related energy costs by applying Title 24 Standards regarding energy and water efficiency requirements (and indoor air quality requirements) for newly constructed buildings, and alterations to existing buildings.
- Provide infrastructure for future renewable energy installations, and when possible, on-site renewable energy systems.

As described in Section 17, *Transportation*, the Kentfield Campus, Indian Valley Campus and Bolinas Site are served by Marin Transit bus routes. In addition, sidewalks provide pedestrian access to all sites. Since the project site can be accessed by bicyclists, pedestrians, and public transit users, increased alternative transportation could reduce vehicle trips, thereby reducing mobile-related GHG emissions and contributing to the achievement of SB 32 goals.

Based on this analysis, the program and project would not conflict with an applicable plan, policy, or regulation adopted to reduce GHG emissions and would be consistent with the objectives of the Regional Transportation Plan/SCS, AB 32, and SB 32. Therefore, the program and project would not conflict with any applicable plan, policy, or regulation related to GHG emissions. Impacts related to GHG emissions would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts

GHG and climate change are, by definition, cumulative impacts. Although GHG emissions have worldwide repercussions, the contribution of the project to the impact is addressed in light of the goals for reducing statewide emissions.

Statewide GHG emissions are an existing significant cumulative impact. As such, the state has established the following statewide emissions reductions targets:

- By 2020, reduce GHG emissions to 1990 levels
- By 2030, reduce GHG emissions to 40 percent below 1990 levels
- By 2050, reduce GHG emissions to 80 percent below 1990 levels

With implementation of Mitigation Measure GHG-1, program impacts related to GHG emissions would not exceed BAAQMD thresholds and would be less than significant. As shown in Table 9, project impacts would not exceed BAAQMD thresholds for GHG emissions. Collectively, the program and project would result in a minor increase in GHG emissions. Off-site cumulative developments would also cause GHG emissions. Similar to the proposed project, other off-site cumulative developments would be required to demonstrate compliance with BAAQMD thresholds for GHG emissions. Therefore, the proposed program and project would not combine with other off-site projects to result in a cumulatively considerable increase in GHG emissions.

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9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	■	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	■	☐	■	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☐	☐	■	☐
d. Be located on a site that is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	■	☐
e. For a project located in an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for excessive noise for people residing or working in the project area?	☐	☐	☐	■
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	■
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires, including where wildlands?	☐	☐	■	☐

Setting

The Kentfield and Indian Valley campuses and the Bolinas Site are not located on hazardous sites, and no hazardous sites are listed within 1 mile of any of the campuses.

Regulatory Setting

Federal and State

Department of Toxic Substances Control

As a department of the California Environmental Protection Agency, the Department of Toxic Substances Control (DTSC) is the primary agency in California that regulates hazardous waste, cleans up existing contamination, and looks for ways to reduce the hazardous waste produced in California. DTSC regulates hazardous waste in California primarily under the authority of Resource Conservation and Recovery Act and the California Health and Safety Code.

DTSC also administers the California Hazardous Waste Control Law to regulate hazardous wastes. While the California Hazardous Waste Control Law is generally more stringent than Resource Conservation and Recovery Act, until the USEPA approves the California program, both state and federal laws apply in California. The California Hazardous Waste Control Law lists 791 chemicals and approximately 300 common materials that may be hazardous; establishes criteria for identifying, packaging, and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal, and transportation; and identifies some wastes that cannot be disposed of in landfills.

Government Code Section 65962.5 requires the DTSC, the State Department of Health Services, the State Water Resources Control Board (SWRCB), and CalRecycle to compile and annually update lists of hazardous waste sites and land designated as hazardous waste sites throughout the state. The Secretary for Environmental Protection consolidates the information submitted by these agencies and distributes it to each city and county where sites on the lists are located. Before the lead agency accepts an application for any development project as complete, the applicant must consult these lists to determine if the site at issue is included.

If any soil is excavated from a site that contains hazardous materials, it is considered a hazardous waste if it exceeds specific criteria in Title 22 of the California Code of Regulations. Remediation of hazardous wastes found at a site may be required if excavation of these materials is performed, or if certain other soil-disturbing activities would occur. Even if soil or groundwater at a contaminated site does not have the characteristics required to be defined as hazardous waste, remediation of the site may be required by regulatory agencies subject to jurisdictional authority. Cleanup requirements are determined on a case-by-case basis by the agency taking jurisdiction.

Government Code Section 65962.5 (Cortese List)

Section 65962.5 of the Government Code requires the California Environmental Protection Agency to develop and update a list of hazardous waste and substances sites, known as the Cortese List. The Cortese List is used by the state, local agencies, and developers to help them comply with CEQA requirements. The Cortese List includes hazardous substance release sites identified by DTSC, SWRCB, and CalRecycle.

Impact Analysis

a. *Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

b. *Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Facilities Master Plan Program Analysis

Construction

Hazardous materials, including fuels for equipment and vehicles, new and used motor oils, cleaning solvents, and paints, would be used during construction and renovation activities. Improper handling and the use of these of materials during project construction, renovations or improvements would represent a potential threat to the public and the environment. Accident prevention and containment are the responsibility of the construction contractors, and provisions to properly manage hazardous substances and wastes are typically included in construction specifications. Furthermore, the transport of any hazardous materials would be subject to federal, state, and local regulations which would assure that risks associated with the transport of hazardous materials are minimal. Proper use and disposal of hazardous materials during program construction would not pose a significant risk to the public and the environment. Construction activities would be required to obtain a Construction General Permit and prepare a Stormwater Pollution Prevention Program (SWPPP). The SWPPP would include best management practices that would reduce the amount of potential pollutants released by project construction. Buildings in the project area may contain asbestos, Polychlorinated biphenyls (PCB), and/or lead-based paint (LBP). Demolition, construction, and renovation activities could expose workers or the general public to these hazardous materials. Prior to construction or renovation activities, a lead-based paint and asbestos survey would be completed to mitigate effects from existing hazardous materials on any of the project sites. Therefore, program construction would not have significant impacts associated with hazardous materials.

Operation

Program operation could involve the use of various hazardous materials, including chemical reagents, solvents, fuels, paints, and cleansers. These materials would be used for building, grounds, and vehicle maintenance at the Kentfield and Indian Valley campuses. They would be stored at the Maintenance and Operations Facility at the Kentfield Campus. Many of the hazardous materials used would be considered household hazardous wastes, common wastes, or universal wastes by the USEPA, which regards these types of wastes to be common to businesses and households and to pose a lower risk to people and the environment than other hazardous wastes when they are properly stored, transported, used, and disposed of. Adherence to federal, state, and local laws for the proper use, disposal, and transport of operational hazardous materials would reduce impacts associated with hazardous materials to a less than significant level. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

Construction

Project construction may include the temporary transport, storage, and use of potentially hazardous materials including fuels, lubricating fluids, cleaners, or solvents. Demolition of the existing building could result in upset and release of hazardous materials into the environment.

The existing LRC building was constructed in 1971, and due to its age, may contain asbestos, Polychlorinated biphenyls (PCB), and/or lead-based paint (LBP). Because the building was constructed before the federal ban on PCBs, it is possible that they are present in light ballasts. Demolition could result in health hazard impacts to workers if not remediated prior to construction activities. However, demolition and construction activities would be carried out in compliance with BAAQMD Regulation 11, Rule 2, which governs the proper handling and disposal of hazardous contaminated aluminum composite material for demolition, renovation, and manufacturing activities in the Bay Area. These activities would also need to comply with California Occupational Safety and Health Administration (Cal/OSHA) regulations regarding lead-based materials. The California Code of Regulations, Section 1532.1, requires testing, monitoring, containment, and disposal of lead-based materials in a manner such that exposure levels do not exceed Cal/OSHA standards. The Department of Toxic Substance Control (DTSC) classifies PCBs as a hazardous waste when concentrations exceed 50 parts per million in non-liquids. Consequently, the DTSC requires materials containing those concentrations of PCBs be transported and disposed of as hazardous waste. Any light ballast removed would be evaluated for the presence of PCBs and managed appropriately. Compliance with BAAQMD, Cal/OSHA, and DTSC policies regarding asbestos-containing materials, LBP, and PCBs, would reduce impacts to a less than significant level.

Furthermore, project construction would require heavy construction equipment, the operation of which could result in a spill or accidental release of hazardous materials, including fuel, engine oil, engine coolant, and lubricants. The transport of any hazardous materials would be subject to federal, state, and local regulations, which would minimize risk associated with the transport hazardous materials. Construction activities that involve hazardous materials would be required to transport such materials along roadways designated for that purpose in the County, thereby limiting risk of upset during transportation.

Operation

Project operation could involve the use of hazardous materials in the form of routine cleaning products. These materials would not be substantially different from commercial and industrial chemicals already in general and wide use throughout the region and project area. As with any institutional activities that involve the storage and use of hazardous materials, on-site activity involving hazardous substances (such as the cleaning products as described above), and the transport, storage, handling of these substances, must adhere to applicable local, state, and federal safety standards, ordinances, or regulations. Cal/OSHA is responsible for developing and enforcing workplace safety regulations. Both federal and state laws include special provisions/training in safe methods for handling any type of hazardous substance. These regulations ensure that potential hazards associated with operational activities do not create a significant hazard to the public. Future uses would be required to store hazardous materials in designated areas designed to prevent accidental release into the environment. Potentially hazardous waste produced during operation would also be collected, stored and disposed of in accordance with applicable laws and regulations.

Compliance with existing laws and regulations governing the transport, use, release, and storage of hazardous materials would reduce impacts related to exposure of the public or environment to hazardous materials to less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?

Facilities Master Plan Program Analysis

The FMP would include capital improvements, retrofits, and new facility or reconstruction projects on the Kentfield Campus, Indian Valley Campus, and Bolinas Site. The Kentfield and Indian Valley campuses are developed with a combination of academic, administrative, and athletic facilities. The Bolinas campus is developed with three buildings consisting of academic and administrative buildings. The Kentfield Campus is located at 835 College Avenue. Anne E. Kent Middle School is located approximately 400 feet north of the campus and Grant Grover School is located approximately 600 feet northeast of the campus. The Indian Valley Campus is located at 1800 Ignacio Boulevard. San Jose Middle School is located at 1000 Sunset Parkway, approximately 100 feet from the eastern edge of the Indian Valley Campus. The Bolinas Site is located on Wharf Road on the shore of the Bolinas Lagoon. Stinson Beach Montessori School is located approximately 1 mile away, across the Bolinas Lagoon.

As discussed under criteria a and b, program implementation would not produce hazardous emissions or require the handling of hazardous materials, substances, or wastes. Therefore, the program would have less than significant impacts on schools within 0.25 mile because it would not involve the use or handling of hazardous material. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

The proposed project would be located on the Kentfield Campus, which is developed with a combination of academic, administrative, and athletic facilities. Anne E. Kent Middle School is across College Avenue within 0.25 mile of the project site. However, as discussed under criteria a and b, project operation would not produce hazardous emissions or require the handling of hazardous materials, substances, or wastes. Therefore, the proposed project would have less than significant impact. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

d. Would the project be located on a site included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Facilities Master Plan: Program Analysis

The following databases and listings compiled pursuant to Government Code Section 65962.5 were queried on January 28, 2020, for known hazardous materials contamination at the three campuses:

- **SWRCB**
  - GeoTracker search for leaking underground storage tanks and other cleanup sites

- **DTSC**
  - EnviroStor database (2018a) for hazardous waste facilities or known contamination sites

The Kentfield Campus, Indian Valley Campus, and Bolinas Site do not appear on the EnviroStor database. However, the GeoTracker database lists the Indian Valley Campus as “Open-Site Assessment” as of September 1, 2015. Gasoline is listed as the potential contaminant of concern that could pollute an aquifer used for the drinking water supply, soil, and other groundwater not used for drinking water. The site is on the path to closure or remediation and is in the process of assessment for closure as of June 30, 2019. Some waste oil residual may remain in the area; however, it does not pose a significant threat to human health and the environment. The Kentfield Campus is also listed on the GeoTracker database for two leaking underground storage tanks. Reference *Learning Resource Center Project Analysis* below for information regarding the Kentfield Campus underground storage tank closure.

The Indian Valley Campus is in the process of closure and the Kentfield Campus has been closed. Therefore, the proposed project would not create a significant hazard to the public or environment and there would be a less than significant impact. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

The following databases and listings compiled pursuant to Government Code Section 65962.5 were queried on January 28, 2020, for known hazardous materials contamination at the project site:

- **SWRCB**
  - GeoTracker search for leaking underground storage tanks and other cleanup sites
- **DTSC**
  - EnviroStor database (2018a) for hazardous waste facilities or known contamination sites

The Kentfield Campus, including the project site, does not appear on the EnviroStor database. However, the GeoTracker database revealed two leaking underground storage tanks on the Kentfield Campus near the LRC building site: one is at the corner of College Avenue and Sir Francis Drake Boulevard and the second is at the corner of College Avenue and Kent Avenue. Both tank sites have been cleaned and the cases have been closed (SWRCB 2014, SWRCB 2015). Contamination from these sites is not expected to have migrated such that the project site is affected by nearby contamination. Therefore, the proposed project would not create a significant hazard to the public or environment and there would be a less than significant impact. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts

Cumulative impacts associated with hazards and hazardous materials are generally site-specific. Compliance with existing regulations, including the preparation of a SWPPP, BAAQMD Regulation 11, Rule 2 and other local, state and federal regulations, would ensure that program and project impacts related to hazardous materials would be less than significant. Furthermore, there are no active hazardous materials sites in the vicinity of the College of Marin sites. Similar to the proposed program and project, other off-site cumulative projects would be required to comply with applicable regulations related to hazards materials. As impacts of the program and project would be site-specific and less than significant, the project’s contribution to this impact would not be cumulatively considerable.

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10 Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	□	■	□	□
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	□	□	■	□
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation on- or off-site?	□	□	■	□
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	□	□	■	□
e. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	□	■	□	□

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
f. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows?	☐	☐	☐	■
g. In a flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	■
h. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	■	☐

Setting

The Kentfield Campus is approximately 2 miles west of the San Francisco Bay and 6.5 miles northeast of the Pacific Ocean. Corte Madera Creek, a 4.5-mile-long stream that flows into the San Francisco Bay, runs along the eastern edge of the campus. The Indian Valley Campus is over five miles west of the San Pablo Bay and over 13 miles east of the Pacific Ocean. A seasonal creek runs east-west through the northern portion of the campus. The Bolinas Site consists of several structures, including a boat dock, along Wharf Road in Bolinas. Wharf Road runs along the west side of the Bolinas Lagoon, which connects to the Bolinas Bay and Pacific Ocean to the south.

Facilities Master Plan Program Analysis

Program buildout would involve excavation, grading, and construction activities throughout the District's sites that would result in soil disturbance that could cause water quality effects through potential erosion and subsequent sedimentation of streams. Construction activity would occur on land that is currently developed with college facilities.

Program buildout would not substantially increase the amount of impermeable surface area at the sites and would not alter the course of a stream or river. Following construction at each project site, stormwater runoff would collect at similar volumes and be drained through the existing drainage facilities on- and off-campus.

Mitigation Measures GEO-2 and GEO-3, listed above in Section 7, *Geology and Soils*, would require preparation of a geotechnical investigations and an erosion control plans for all projects that involve new construction, respectively. The geotechnical investigations would identify potential hazards related to soil instability that could impact surface or groundwater quality, and the erosion control plans would require measures to reduce soil erosion that could result in sedimentation of streams.

Construction activity at the Kentfield Campus and the Bolinas Site would be required to comply with applicable regulations of the Marin County Code of Ordinances, including Chapter 23.18, Stormwater Runoff Pollution Prevention, which is administered by the Marin County Public Works Department. Per Section 23.18.060, discharge of material other than stormwater to a county storm drain is prohibited without a National Pollutant Discharge Elimination System permit issued for the discharge. Per section 23.18.093, construction activities are required to implement best management practices (BMPs) to prevent discharge of construction waste, including soil, sediment, or construction material contaminants. BMPs include erosion and sediment controls, such as timely revegetation of graded areas.

Construction activity at the Indian Valley Campus would be required to comply with applicable regulations of the Novato Municipal Code. This includes section 5-27.08(b), which requires preparation of an erosion control plan.

Construction activities could cause water quality violations by depositing pollutants into nearby waterways, including if an accidental fuel or hazardous materials leak or spill occurs. If precautions are not taken to contain contaminants, construction activities could result in contaminated stormwater runoff that could enter nearby streams. Therefore, project activities could result in potentially significant impacts to water quality, and implementation of Mitigation Measure HWQ-1 would be required to reduce impacts to a less than significant level.

HYDRO-1 Stormwater Pollution Prevention

- Stormwater runoff and nuisance flow drainage shall be directed away from nearby creeks and other waterbodies and into a temporary stormwater filter constructed to remove pollutants before being allowed to discharge into riparian areas.
- The collection and disposal of all pollutants originating from construction equipment shall be identified by the construction manager. During construction activities, washing of concrete, paint, or equipment shall occur only in designated areas greater than 100 feet from riparian areas where polluted water and materials can be contained for subsequent removal from the site. Washing shall not be allowed within 100 feet of creeks and other waterbodies. Plastic shall be placed over any ground surface where fueling or equipment maintenance is to occur. Drip pans shall be placed under equipment parked on site.
- Temporary storage of construction equipment shall be limited to a minimum of 100 feet away from creeks and other waterbodies.

Significance After Mitigation

With implementation of the Mitigation Measure HYDRO-1, program impacts to water quality would be reduced to a less than significant level. This mitigation measure is listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

Project excavation, grading, and construction activities would result in soil disturbance that could cause water quality violations through potential erosion and subsequent sedimentation of streams that intersect the project area. Because the proposed project would disturb less than one acre, the project would not be subject to the National Pollutant Discharge Elimination System Construction General Permit. However, as discussed in Section 7, *Geology and Soils*, the project site has been graded for previous development, but contains a slope that would increase the potential for soil erosion in Corte Madera Creek. Implementation of Mitigation Measure GEO-1 would reduce erosion-related impacts to water quality.

Construction activities could also cause water quality violations if an accidental fuel or hazardous materials leak or spill occurs. If precautions are not taken to contain contaminants, construction activities could result in contaminated stormwater runoff that could enter nearby streams. Therefore, the proposed project would result in potentially significant impacts to water quality, and implementation of Mitigation Measure HWQ-1, described above would be required to reduce impacts to a less than significant level.

During project operation, the site would be developed with the proposed LRC building, an improved parking lot, pedestrian access paths, and landscaping. Stormwater runoff would be collected and transported through existing County storm drain systems and would be required to comply with applicable state and federal regulations pertaining to water quality. No impacts to water quality associated with operation would occur. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

h. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Facilities Master Plan Program Analysis

There are no sustainable groundwater management plans that apply to the District’s campuses. Water service would be provided via the District’s existing water supply sources, and water use would be similar before and after FMP buildout. The project would not involve direct groundwater extraction, nor would the project result in substantial interference with groundwater recharge, as impermeable surface area throughout the sites would be similar before and after FMP buildout. Therefore, program impacts would be less than significant. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

There are no sustainable groundwater management plans that apply to the LRC project site; water service would be provided via District’s existing water supply sources, and on-site water uses would be comparable to existing water uses. As discussed under criteria a and e, the project would not obstruct implementation of existing plans and regulations to protect water quality.

The proposed project would not adversely affect groundwater supplies or impede sustainable groundwater management. Because the project would replace the existing LRC building with a slightly larger building on the existing footprint, the project would not substantially increase the on-site impervious surface and much of the Kentfield Campus is and would remain pervious. Therefore, the project would not substantially interfere with groundwater recharge. Potable water would be required for the project restrooms, drinking fountains, and the breakroom kitchenette, but water use associated with these facilities would be minimal and similar to existing uses at the project site. Therefore, impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

c. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would result in substantial erosion or siltation on- or off-site?*

d. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river through the addition of impervious surfaces, in a manner that would substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?*

Facilities Master Plan Program Analysis

Program buildout would not alter the course of a stream or river. Permeable surfaces at each project location would be similar before and after FMP buildout. Stormwater drainage would function similarly before and after FMP buildout; therefore, the project would not decrease groundwater infiltration, result in new or substantially altered surface runoff, or increase erosion or siltation. Impacts related to stormwater drainage would be less than significant. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

Corte Madera creek runs through the Kentfield Campus and is next to the existing LRC building. Project construction would not occur in Corte Madera creek, nor would the project alter the course of a stream or river.

The project would not substantially increase impervious surfaces at the project site and, therefore, would not affect drainage patterns by decreasing the amount of precipitation able to infiltrate into the ground. Stormwater runoff would be conveyed to the County of Marin's existing storm sewer system: thus, substantial siltation would be prevented. Therefore, project-related impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

f. *Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would impede or redirect flood flows?*

Facilities Master Plan Program Analysis

Portions of the Kentfield Campus near Corte Madera Creek are located within a 100-year flood hazard area, as designated by the Federal Emergency Management Agency (FEMA) (FEMA 2016). The Indian Valley Campus is not within a 100-year flood zone (FEMA 2009). The existing structures at the Bolinas Site are within or directly adjacent from a 100-year flood hazard area due to proximity to the Bolinas Lagoon (FEMA 2017).

While some of the FMP project sites are within or near 100-year flood hazard areas, the program would not alter the course of a stream or river or add impervious surface areas to impede or redirect flood flows. Flood hazards are an existing condition that would not be worsened by the project. Program impacts would be less than significant. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

The project would not result in the addition of impervious surfaces or substantially alter the course of a river or stream such that it would impede or redirect flood flows. Additionally, although portions of the Kentfield Campus are within a 100-year flood hazard area, as designated by FEMA, the existing LRC building is not located in a 100-year flood zone (FEMA 2016). Therefore, the project site would not be subject to a one percent annual chance of flooding, impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

g. *In a flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?*

Facilities Master Plan Program Analysis

The Indian Valley Campus is over five miles west of the San Pablo Bay and over 13 miles east of the Pacific Ocean. The Kentfield Campus is approximately 2 miles west of the San Francisco Bay and over 6 miles from the Pacific Ocean. Neither campus is within a tsunami inundation zone or at risk for seiche hazards.

According to the California Emergency Management Agency (CalEMA), the Bolinas Site is within a Tsunami Inundation Area (CalEMA 2009). The project would replace existing structures at the Bolinas Site, but would not substantially alter the built environment within the Tsunami Inundation Area. Tsunami hazards are an existing condition that would not be altered by FMP buildout. Program impacts would be less than significant. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

The project site is approximately 2 miles west of San Francisco Bay and 6.5 miles from the Pacific Ocean. The project site is not in a tsunami inundation zone (County of Marin 2019). San Francisco Bay is the closest body of water that could experience a seiche event. The distance from the Bay and intervening development would prevent a seiche in the San Francisco Bay from having potential to affect the project site. The project site is not located in a 100-year flood hazard zone (FEMA 2020). Therefore, the risk of release of pollutants from the project due to tsunami, seiche, and flood would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts

Off-site cumulative development would increase water use throughout Marin County as a result of both construction activities and long-term operation. The planned development would also result in the addition of impervious surfaces within this cumulative impact area, which would modify existing drainages and alter groundwater recharge. The impacts of increased impervious surface (e.g., increased runoff, altered drainage patterns, decreased water quality) would be reduced through adherence to the NPDES General Construction Permit administered by the State Water Resources Control Board. Every construction project that disturbs one or more acres of land surface would require coverage under the Construction General Permit. For projects less than 1 acre in size, the Marin County and City of Novato Codes of Ordinances would require implementation of best management practices to protect water quality during construction and operation. Compliance with these and other regulations would reduce impacts of off-site cumulative projects.

Impacts to hydrology and water quality associated with the program and project would be less than significant with mitigation incorporated. Mitigation Measure HYDRO-1 would reduce impacts related to stormwater pollution to a less than significant level. Therefore, the program and project's contribution to impacts related to hydrology and water quality would not be cumulatively considerable.

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11 Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Physically divide an established community?	☐	☐	☐	■
b. Cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	■	☐

Setting

As stated in the *Project Description*, the Kentfield Campus is designated as Public Facilities in the Marin Countywide General Plan, the Indian Valley Campus is designated as Community Facilities in the City of Novato General Plan, and the Bolinas Site is designated as Low Density Residential Coastal Zone in the Marin Countywide General Plan. Surrounding land uses for the Kentfield Campus include residential, commercial, and governmental uses. Land uses surrounding the Indian Valley Campus are open space and residential uses. The Bolinas Site is surrounded by a mix of residential, governmental, and commercial land uses.

The FMP identifies goals for future development at all three sites, including to “build facilities that support the academic needs of students today and tomorrow [and develop] community space between [the LRC] and Student Services Center” (College of Marin 2016).

Impact Analysis

a. Would the project physically divide an established community?

Facilities Master Plan Program Analysis

The program would only affect and construct entirely on campus land that has been developed with academic and administrative buildings serving the District. The program would not establish new structures outside of the existing developed sites and therefore, would not physically divide any established communities in Novato, Kentfield, or Bolinas. Additionally, the program would not include other linear features or development that could potentially divide established communities. Therefore, program implementation would have no impact. This impact is not discussed in the Draft EIR.

Learning Resource Center: Project Analysis

The proposed project would be located on the Kentfield Campus in an area that is developed with academic and administrative buildings. The proposed project would replace the existing LRC building; it would not include new roads or other linear features or development that could potentially divide established communities. Therefore, the proposed project would have no impact. This impact is not discussed in the Draft EIR.

NO IMPACT

b. *Would the project cause a significant environmental impact due to a conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect?*

It should be noted that Community College District properties are extensions of State land, and are not subject to local land use regulatory controls. However, the analysis below is provided for qualitative purposes.

Facilities Master Plan Program Analysis

The Marin County Zoning Designation for the Kentfield Campus is Public Facilities and as such, implementation of the FMP on the Kentfield Campus would not conflict with the County of Marin's zoning designation. The Kentfield Campus would only develop existing campus land and thus, would comply with Marin Countywide Plan. The Indian Valley Campus is designated as Community Facilities in the in the City of Novato General Plan and would not conflict land use plans as set forth by in that plan. The Indian Valley Campus would only affect existing campus land and thus, would not conflict with the City of Novato General Plan. Furthermore, the District holds jurisdiction over land use planning and development on the three campuses. The FMP is the only applicable land use plan, policy, or regulation with jurisdiction over the project sites (College of Marin 2016). The FMP does not set forth plans to develop on additional land outside the three existing college campuses. Nevertheless, the projects would not conflict with local land use plans or policies. There would be no impacts because of program implementation. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

The proposed project would be internal to the Kentfield Campus and would provide updated facilities for student services and would serve the existing student population. Therefore, the project would align with goals of the FMP to build facilities that support the academic needs of students and develop community space in the LRC building. The project would not conflict with land use plans or policies and impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts

The program and project would only involve work on existing College of Marin sites and would not conflict with local land use plans and policies. Cumulative projects would be subject to environmental review, and pursuant to CEQA, identified potentially significant impacts would be mitigated to the extent possible. This would reduce the potential for conflicts with land use plans and programs such that significant environmental impacts would be avoided or minimized. The program and project's contribution would not be cumulatively considerable and cumulative impacts would be less than significant.

12 Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	■
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	■

Setting

Extractive resources known to exist in Marin County include crushed stone, alluvial deposits for construction materials, including asphaltic concrete, aggregate, road base and sub-base, and Portland cement concrete. Eight sites in Marin County have been designated by the State as having significant mineral resources for the North Bay region. These sites contain deposits that qualify as marketable commodities by meeting a threshold value based on gross sales price. Four of these sites should be considered for removal from State listing because they have been purchased for public open space, are already subdivided and used for residential purposes, or are highly environmentally sensitive (County of Marin 2007).

Impact Analysis

a. *Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?*

b. *Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?*

Facilities Master Plan Program and Learning Resources Center Project Analysis

The County of Marin contains native mineral resources throughout the county. The Kentfield Campus, Indian Valley Campus, and Bolinas Site are not located within regions of availability of known mineral resources. Implementation of the program and project would not result in the loss of availability of a known or locally important mineral resource. Therefore, the program and project would have no impact on mineral resources. This impact is not discussed further in the Draft EIR.

NO IMPACT

Cumulative Impacts

The program and project would have no impact related to mineral resources. Although mineral resources are known to occur throughout Marin County, areas containing mineral resources are zoned accordingly by the Marin Countywide and City of Novato General Plans. Therefore, mineral resources would be protected from cumulative development. No cumulative impact would occur.

13 Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project result in:				
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	■	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	■

Noise Fundamentals

The decibel (dB) is the unit of measurement used to describe a noise level. However, the human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, a method called "A-weighting" is used to filter noise frequencies not audible to the human ear. A-weighting approximates the frequency response of the average young ear when listening to most everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the "A-weighted" levels of those sounds. Therefore, the A-weighted noise scale is used for measurements and standards involving the human perception of noise. In this analysis, all noise levels are A-weighted, and the abbreviation "dBA" is understood to identify the A weighted decibel.

Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used for earthquake magnitudes. A 10 dB increase represents a 10-fold increase in sound intensity, a 20 dB increase is a 100-fold intensity increase, a 30 dB increase is a 1,000-fold intensity increase, etc. Similarly, a doubling of a noise source, such as doubling of traffic volume, would increase the noise level by 3 dB; a halving of the noise source would result in a 3 dB decrease.

Human perception of noise has no simple correlation with acoustical energy. The perception of noise is not linear in terms of dBA or in terms of acoustical energy. Two equivalent noise sources combined do not sound twice as loud as one source. It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA (increase or decrease); that a change of 5 dBA is readily perceptible; and that an increase or decrease of 10 dBA sounds twice (half) as loud (California Department of Transportation [Caltrans] 2013a).

Descriptors

The impact of noise is not a function of loudness alone. The time of day when noise occurs and the duration of the noise are also important. In addition, most noise that lasts for more than a few seconds is variable in its intensity. Consequently, a variety of noise descriptors has been developed. The noise descriptors used for this analysis are the one-hour equivalent noise level (L_{eq}) and the community noise equivalent level (CNEL).

The L_{eq} is the level of a steady sound that, in a specific time period and at a specific location, has the same A-weighted sound energy as the time-varying sound. For example, $L_{eq(1h)}$ is the equivalent noise level over a 1-hour period and $L_{eq(8h)}$ is the equivalent noise level over an 8-hour period. $L_{eq(1h)}$ is a common metric for limiting nuisance noise, whereas $L_{eq(8h)}$ is a common metric for evaluating construction noise.

The CNEL is a 24-hour equivalent sound level. The CNEL calculation applies an additional 5 dBA penalty to noise occurring during evening hours (between 7:00 p.m. and 10:00 p.m.) and an additional 10 dBA penalty to noise occurring during the night (between 10:00 p.m. and 7:00 a.m.). These increases for certain times are intended to account for the added sensitivity of humans to noise during the evening and night.

Propagation

Sound from a small, localized source (approximating a "point" source) radiates uniformly outward as it travels away from the source in a spherical pattern, known as geometric spreading. The sound level decreases or drops off at a rate of 6 dBA for each doubling of distance.

Traffic noise is not a single, stationary point source of sound. Over some time interval, the movement of vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point. The drop-off rate for a line source is 3 dBA for each doubling of distance.

Existing Noise Setting

The primary noise sources at the Kentfield Campus, Indian Valley Campus and Bolinas Site are produced by motor vehicles moving along roads that enter or run nearby to the college facilities. These include; Sir Francis Drake Boulevard, College Avenue, and Kent Avenue at the Kentfield Campus; Ignacio Boulevard at the Indian Valley Campus; and Wharf Road at the Bolinas Site. Motor vehicle noise is of concern because it is characterized by a high number of individual events that often create sustained noise levels. Ambient noise levels are generally highest during the day and rush hour unless congestion slows traffic speeds substantially. Other sources of noise in the project vicinity include general conversations from passersby activities associated with adjacent residential and commercial development.

Vibration

Groundborne vibration of concern in environmental analysis consists of the oscillatory waves that move from a source through the ground to adjacent structures. The number of cycles per second of oscillation makes up the vibration frequency, described in terms of hertz (Hz). The frequency of a vibrating object describes how rapidly it oscillates. The normal frequency range of most groundborne vibration that can be felt by the human body is from a low of less than 1 Hz up to a high of about 200 Hz (Crocker 2007).

While people have varying sensitivities to vibrations at different frequencies, in general they are most sensitive to low-frequency vibration. Vibration in buildings, such as from nearby construction activities, may cause windows, items on shelves, and pictures on walls to rattle. Vibration of building components can also take the form of an audible low-frequency rumbling noise, referred to as groundborne noise. Groundborne noise may result in adverse effects, such as building damage, when the originating vibration spectrum is dominated by frequencies in the upper end of the range (60 to 200 Hz). Vibration may also damage infrastructure when foundations or utilities, such as sewer and water pipes, physically connect the structure and the vibration source (Federal Transit Authority [FTA] 2018). Although groundborne vibration is sometimes noticeable in outdoor environments, it is almost never annoying to people who are outdoors. The primary concern from vibration is that it can be intrusive and annoying to building occupants and vibration-sensitive land uses.

Descriptors

Vibration amplitudes are usually expressed in peak particle velocity (PPV) or root mean squared (RMS) vibration velocity. Particle velocity is that at which the ground moves. The PPV and RMS velocity are normally described in inches per second. PPV is defined as the greatest magnitude of particle velocity associated with a vibration event. PPV is often used in monitoring of blasting vibration because it is related to the stresses that are experienced by buildings (Caltrans 2013b).

Although PPV is appropriate for evaluating the potential for building damage, it is not always suitable for evaluating human response. It takes some time for the human body to respond to vibration signals. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to compress the range of numbers required to describe vibration (FTA 2018). Vibration significance ranges from approximately 50 VdB (the typical background vibration-velocity level) to 100 VdB, the general threshold where minor damage can occur in fragile buildings. The general human response to different levels of groundborne vibration velocity levels is described in Table 8.

Table 8 Human Response to Different Levels of Groundborne Vibration

Vibration Velocity Level	Human Reaction
65 VdB	Approximate threshold of perception for many people
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable
85 VdB	Vibration acceptable only if there are an infrequent number of events per day

Source: FTA 2018

Propagation

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. Variability in the soil strata can also cause diffractions or channeling effects that affect the propagation of vibration over long distances (Caltrans 2013b). When a building is impacted by vibration, a ground-to-foundation coupling loss (the loss that occurs when energy is transferred from one medium to another) will usually reduce the overall vibration level. However, under rare circumstances, the ground-to-foundation coupling may actually amplify the vibration level due to structural resonances of the floors and walls.

Regulatory Setting

The District does not have standards or guidance documents pertaining to noise generated by campus development projects. Noise regulations of the underlying jurisdictions are described below for informational purposes.

The Marin Countywide Plan Noise Element (applicable to Kentfield Campus and Bolinas Site) and the Novato General Plan Noise Element (applicable to Indian Valley Campus) establish acceptable noise levels for land uses, as shown below in Table 9 and Table 10.

Table 9 Marin County Noise and Land Use Compatibility Standards

Land Use Category	CNEL Range	General Land Use Criteria
Residential – Low Density, Single Family, Duplex, Mobile Homes	1. Less than 60 2. 55 to 70 3. 70 to 75 4. Over 75	1. Normally Acceptable 2. Conditionally Acceptable 3. Normally Unacceptable 4. Clearly Unacceptable
Residential – Multi Family	1. Less than 65 2. 60 to 70 3. 70 to 75 4. Over 75	1. Normally Acceptable 2. Conditionally Acceptable 3. Normally Unacceptable 4. Clearly Unacceptable
Transient Lodging – Motels, Hotels	1. Less than 65 2. 60 to 70 3. 70 to 80 4. Over 80	1. Normally Acceptable 2. Conditionally Acceptable 3. Normally Unacceptable 4. Clearly Unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	1. Less than 70 2. 60 to 70 3. 70 to 80 4. Over 80	1. Normally Acceptable 2. Conditionally Acceptable 3. Normally Unacceptable 4. Clearly Unacceptable
Auditoriums, Concert Halls, Amphitheaters	1. Less than 70 2. Over 65	1. Conditionally Acceptable 2. Clearly Unacceptable
Sports Arena, Outdoor Spectator Sports	1. Less than 75 2. Over 70	1. Conditionally Acceptable 2. Clearly Unacceptable
Playgrounds, Neighborhood Parks	1. Less than 70 2. 67.5 to 75	1. Normally Acceptable 2. Normally Unacceptable 3. Clearly Unacceptable
Golf Courses, Riding Stables, Water Recreation, Cemeteries	1. Less than 75 2. 70 to 80 3. Over 80	1. Normally Acceptable 2. Normally Unacceptable 3. Clearly Unacceptable
Office Buildings, business Commercial and Professional	1. Less than 70 2. 67.5 to 77.5 3. Over 75	1. Normally Acceptable 2. Conditionally Acceptable 3. Normally Unacceptable
Industrial, Manufacturing, Utilities, Agriculture	1. Less than 75 2. 70 to 80 3. Over 75	1. Normally Acceptable 2. Conditionally Acceptable 3. Normally Unacceptable

CNEL = Community Noise Equivalent Level

Source: Marin County 2007b

Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements

Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.

Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable: New construction or development should generally not be undertaken

Table 10 Novato Noise and Land Use Compatibility Standards

Land Use Category	CNEL Range	General Land Use Criteria
Residential, Hotels, and Motels	1. Less than 60 2. 60 to 75 3. Over 75	1. Normally Acceptable 2. Conditionally Acceptable 3. Unacceptable
Outdoor Sports and Recreation, Neighborhood Parks and Playgrounds	1. Less than 65 2. 65-80 3. Over 80	1. Normally Acceptable 2. Conditionally Acceptable 3. Unacceptable
Schools, Libraries, Museums, Hospitals, Personal Care, Meeting Halls, Churches	1. Less than 60 2. 60 to 75 3. Over 75	1. Normally Acceptable 2. Conditionally Acceptable 3. Unacceptable
Office Buildings, Business Commercial, and Professional	1. Less than 70 2. 70 to 80 3. Over 80	1. Normally Acceptable 2. Conditionally Acceptable 3. Unacceptable
Auditoriums, Concert Halls, Amphitheaters	1. Less than 70 2. Over 70	1. Conditionally Acceptable 2. Unacceptable
Industrial, Manufacturing, Utilities, and Agriculture	1. Less than 70 2. Over 70	1. Normally Acceptable 2. Conditionally Acceptable

CNEL = Community Noise Equivalent Level

Source: City of Novato 1996

Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal convention and construction, without any special insulation requirements

Conditionally Acceptable: Specified land use may be permitted only after detailed analysis of the noise reduction requirements and needed noise insulation features included in the design

Unacceptable: New construction or development should generally not be undertaken because mitigation is usually not feasible to comply with noise element policies

Per Section 6.70.030 of the Marin County Code of Ordinances, construction activities in the County (Kentfield Campus and Bolinas Site) are limited to Monday through Friday, 7:00 a.m. to 6:00 p.m.; Saturdays, 9:00 a.m. to 5:00 p.m.; and prohibited on Sundays and Holidays. Loud noise-generating construction-related equipment can be maintained, operated or serviced at a construction site for permits administered by the County community development agency from 8:00 a.m. to 5:00 p.m.

Per Section 19.22.070 of the Novato Municipal Code, construction hours in Novato (Indian Valley Campus) are limited to 7:00 a.m. to 6:00 p.m. on weekdays; 10:00 a.m. to 5:00 p.m. on Saturdays; and prohibited on Sundays and holidays.

Sensitive Receptors

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Noise-sensitive land uses typically include residences, hospitals, schools, guest lodging, libraries, churches, and certain types of recreational uses.

Kentfield Campus

The nearest sensitive receptors to the Kentfield Campus include existing on-site academic buildings, Anne E. Kent Middle School, approximately 260 feet across College Avenue from the existing LRC building, and residences on all sides of the Kentfield Campus. The residences closest to the campus are approximately 600 feet west on Kent Avenue.

Indian Valley Campus

The nearest sensitive receptors to the Indian Valley Campus include all existing on-site academic buildings, San Jose Middle School, approximately 1,000 feet from the campus entrance, and residences, the closest of which are approximately 100 feet from the campus entrance.

Bolinas Site

The nearest sensitive receptors to the Bolinas Site are residences surrounding the site on all sides. The nearest residences are located immediately adjacent to the existing structures to east and west as well as immediately across Wharf Road to the northeast and northwest.

a. Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Facilities Master Plan Program Analysis

Construction

As described above, the District has not established noise standards or guidance documents regulating noise generated by development projects. FMP buildout would generate noise typical of construction activities using heavy machinery. Construction-related noise would be temporary.

This programmatic analysis does not evaluate the noise impacts of each individual construction project included in the FMP, other than for the LRC project (see below). Therefore, Mitigation Measures NOI-1 and NOI-2 would be required to address individual construction projects that could result in potentially significant noise impacts during construction phases. Mitigation Measures NOI-1 and NOI-2 are applicable to New Facility projects, as described in EIR Chapter 2, *Project Description*.

Mitigation Measures

NOI-1 Construction Hours

Project construction activities shall be conducted in accordance with the construction hours limitations of the County of Marin and the City of Novato, as applicable. Construction activity at the Kentfield Campus and Bolinas Site shall be limited to Monday through Friday, 7:00 a.m. to 6:00 p.m.; Saturdays, 9:00 a.m. to 5:00 p.m.; and prohibited on Sundays and Holidays. Construction activity at the Indian Valley Campus shall be limited to 7:00 a.m. to 6:00 p.m. on weekdays; 10:00 a.m. to 5:00 p.m. on Saturdays; and prohibited on Sundays and holidays.

NOI-2 Construction Noise Complaint Line

The College of Marin shall provide a non-automated telephone number for local residents and employees to call to submit complaints associated with construction noise. The applicant shall keep a log of complaints and shall address complaints as feasible to minimize noise issues for neighbors.

Significance After Mitigation

Construction noise impacts resulting from FMP buildout would be temporary and would mostly occur within campus boundaries. Program impacts related to construction would be less than significant with mitigation incorporated. This mitigation measure is listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

Operation

FMP buildout would not increase enrollment at the District above existing levels. Operational activity at the Kentfield Campus and the Indian Valley Campus would be similar before and after FMP buildout and operational noise would primarily be generated by vehicle traffic. Generally, a doubling of traffic would result in a 3 dBA increase, which is considered barely perceptible to humans and could be considered a significant noise increase. As described in Section 17, *Transportation*, no increase in vehicle trips associated with the program would occur at the Kentfield Campus. Although vehicle trips would increase at the Indian Valley Campus, the increase would not constitute a doubling of traffic. Therefore, program operation would not result in a permanent increase in noise levels at the Kentfield and Indian Valley campuses and operational impacts would be less than significant.

The existing college facilities at the Bolinas Site are not in use. The surrounding area is home to a small residential community, with low existing noise levels, estimated at less than 60 CNEL.

The project would result in the college resuming educational activities at sites intended for such purposes. However, the reactivation of the project site for educational purposes could result in an increase in traffic on Wharf Road, which could increase noise levels in the surrounding community. Mitigation Measure TRA-2 would require a Transportation Demand Management Program to reduce vehicle trips by students to and from the Bolinas Site. As described in Section 17, *Transportation*, the program would result in an increase of 86 trips per day, but would require implementation of Mitigation Measure TRA-2 which would reduce trips substantially. Trips would be dispersed throughout the day based on class times, rather than concentrated during peak hours, and would be limited seasonally by the school's academic schedule. Therefore, the anticipated traffic increase on Wharf Road would be less than a doubling of traffic volumes, and the subsequent noise increase would be negligible. Traffic noise impacts would be less than significant.

Learning Resource Center Project Analysis

Construction

Project construction would generate temporary increases in ambient noise levels, but these would cease upon the completion of construction activity. Noise impacts associated with construction activity are generated by construction equipment, the location and sensitivity of nearby land uses, and the timing and duration of the noise-generating activities. Neither the District nor the County of Marin provides quantitative noise thresholds or standards for construction-associated noise. Therefore, the following quantified construction noise analysis is for informational purposes only.

Due to the distance between project construction and off-site sensitive receptors, project generated noise impacts to off-site sensitive receptors are anticipated to be significantly less than impacts to users of the Academic Center building. Therefore, this analysis focuses on project impacts to the nearest sensitive receptor, the Academic Center building to the north. Table 11 provides estimates of construction noise at the nearest sensitive receptor, for each phase of project construction.

Construction noise was estimated using the Federal Highway Administration's Roadway Construction Noise Model (RCNM). Noise was modeled based on the project's construction equipment list for each phase and distance to nearby receptors. As a project-specific list is not available, an equipment list for the project was generated using CalEEMod, which takes into consideration the project's proposed land uses, construction schedule, building and lot area, volume of export, and square footage of demolition. Distance between the project site and the Academic Center building were calculated from the center of the existing LRC building to the nearest point of the receptor, according to the Construction Noise Handbook (Federal Highway Administration 2006). The CalEEMod-generated equipment list and RCNM outputs are provided in Appendix NOI.

Table 11 Estimated Maximum Construction Noise – dBA Leq

Construction Phase	Equipment	Estimated Noise at 130 feet (dBA Leq)
Demolition	Concrete saw, dozer, tractor/backhoe/loader (3)	76
Site preparation	Grader, tractor/backhoe/loader, scraper	76
Grading	Tractor/backhoe/loader (2), grader, scraper	77
Building construction	Generator, crane, forklift (2), tractor/backhoe/loader, welder (3)	74.5
Paving	Concrete mixer, paver, roller (2), tractor/loader/backhoe	66
Architectural coating	Air compressor	65

See Appendix NOI for RCNM modeling results.

As shown in Table 11, noise levels from construction would temporarily reach an estimated 77 dBA Leq at the nearest sensitive receptor located approximately 130 feet away (the approximate distance between the center of construction activity and the nearest classrooms in the Academic Center building). However, temporary construction activities would occur during daytime hours and the project would not expose receivers to construction noise during noise sensitive hours (such as evening and early morning hours, when people normally sleep). Furthermore, construction noise would be intermittent and limited to the 12-month construction period, much of which would occur during summer and winter breaks when classrooms are not in use. Given that construction noise associated with the project would be temporary and intermittent and would not conflict with adopted noise policies or standards, increases in ambient noise due to project construction would be less than significant. This impact is not discussed in the Draft EIR.

Operation

The site is used for student services and academic uses. Existing noise associated with these uses include noise from mechanical heating, ventilation, and air conditioning equipment, as well as noise associated with vehicle parking, such as engines cranking, car alarms, opening and closing of car doors, and people's voices. As the project would continue these uses, project operation would not introduce new noise sources to the site. Noise associated with the existing mechanical equipment and parking lot operation would continue, consistent with existing conditions.

The project is not anticipated to generate additional daily trips above existing conditions. Therefore, the project would not increase noise for receptors at the Academic Center building or off site such as Anne E. Kent Middle school and nearby residences on Kent Avenue. Therefore, project traffic noise would not be perceptible at sensitive receptors on or near the project site. The project would not result in generation of a substantial permanent increase in ambient noise levels near the project. Project impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

Facilities Master Plan Program Analysis

Project construction activity for the various FMP projects would result in temporary groundborne vibration and groundborne noise levels. Use of heavy machinery, such as paving machinery, would result in vibration impacts. As described above, this programmatic analysis does not evaluate the noise or vibration effects of each individual project (other than for the LRC project). However, the use of vibration-intensive machinery, such as pile driving, is not anticipated. A separate vibration analysis would be required if changes to the project result in more intensive vibration effects. Therefore, program-level vibration impacts would be less than significant. Mitigation Measures NOI-1 and NOI-2 are listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

As illustrated in Table 12, vibration levels could reach approximately 79 vibration decibels (VdB) at the Academic Center building. These levels would not exceed the groundborne velocity threshold level of 100 VdB general threshold established by the FTA for minor damage to fragile buildings (FTA 2018). Therefore, impacts resulting from temporary construction vibration would be less than significant. This impact is not discussed in the Draft EIR.

Table 12 Vibration Levels from Vibration-Generating Construction Equipment

Equipment	Approximate L_v at 25 feet (reference distance)	Approximate Vdb at 130 feet
Air Compressor	81	66
Backhoe	80	65
Dozer	85	70
Saw	70	55
Vibratory Roller	94	79
Loaded Truck	86	71

Source: Table 7-4, FTA 2018, assuming vibration attenuation of 6 VdB per doubling of distance. Noise calculations provided in Appendix NOI

LESS THAN SIGNIFICANT IMPACT

c. For a project located in the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Facilities Master Plan Program and Learning Resources Center Project Analysis

The Kentfield Campus, Indian Valley Campus, and Bolinas Site are not located within 2 miles of an airport or private airstrip. Therefore, the proposed program and project would have no impact related to airports and airstrips. This impact is not discussed in the Draft EIR.

NO IMPACT

Cumulative Impacts

The geographic extent for the analysis of cumulative construction noise, stationary noise, and vibration impacts is generally limited to surrounding areas within 0.5 mile of each site where construction would occur. Beyond this distance, impulse noise may be briefly audible, and steady noise from construction activity or project operations would generally dissipate such that the level of noise would reduce to below applicable noise standards and/or blend in with the background noise level. Similarly, vibration is a localized phenomenon that reduces progressively as the distance from the source increases.

As described above, program and project impacts related to construction noise would be less than significant with implementation of Mitigation Measures NOI-1 and NOI-2. The precise timing of program and project construction phasing is unknown. Therefore, it cannot be definitively determined which elements of the program and projects would occur simultaneously with off-site developments. However, construction of off-site cumulative projects would be required to comply with applicable noise related policies in the Marin County and City of Novato Municipal Codes. Furthermore, it is unlikely that that construction equipment required for the proposed project would be operating in close enough proximity to simultaneous cumulative construction to generate cumulative noise and vibration impacts.

The program and project would introduce new sources of operational noise, such as HVAC equipment, at each site and would increase noise generated by increased vehicle traffic to the Bolinas Site. Although the SFDB Rehabilitation and Jonas Center Pedestrian Bridge would not introduce new sources of stationary noise or generate increased traffic, other off-site developments could create new sources of operational noise. However, the proposed project is anticipated to result in a minor increase in vehicle traffic to the Bolinas Site and noise generated by operation of new facilities would be limited to minor noise typical of community college land uses. Therefore, the program and project’s contribution to a cumulative impact would not be cumulatively considerable and cumulative impacts.

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14 Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	□	□	□	■
b. Displace substantial amounts of existing people or housing, necessitating the construction of replacement housing elsewhere?	□	□	□	■

Setting

Marin County has an estimated population of 260,800 as of 2020, housed in an estimated 112,394 housing units (California Department of Finance [DOF] 2019a; DOF 2019b). The average number of persons per household is estimated at 2.44 (DOF 2019b). By the year 2040, Marin County's population is estimated to decrease to 256,609 (California Department of Finance 2019b).

Impact Analysis

a. Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b. Would the project displace substantial numbers of people or existing housing, necessitating the construction of replacement housing elsewhere?

Facilities Master Plan Program and Learning Resource Center Project Analysis

The FMP is intended to upgrade, renovate, and construct structures that would serve the needs of the students, staff, and faculty on the three campuses. The FMP would not induce population growth in the areas surrounding the three campuses, since it is developed to provide educational services for the existing and planned future population. The project would not result in an increase student enrollment within the District. Program implementation would not develop residences or businesses that would increase the populations of Kentfield, Novato, or Bolinas. The District does not have any housing units or a residential population on its campuses. Program implementation would not increase student enrollment and thus, would not indirectly induce unplanned population growth. The program and project would not displace people or housing in Kentfield, Novato, or Bolinas. Program implementation of the FMP would have no impact related to population and housing. This impact is not discussed in the Draft EIR.

NO IMPACT

Cumulative Impacts

The program and project would not increase population or develop additional housing in Kentfield, Novato and Marin. Off-site cumulative projects could result in a population increase and development of housing, however, the Marin Countywide and City of Novato General Plan anticipate population growth. Therefore, the contribution of the program and project would not be cumulatively considerable with respect to population and housing.

15 Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
1 Fire protection?	☐	☐	■	☐
2 Police protection?	☐	☐	■	☐
3 Schools?	☐	☐	☐	■
4 Parks?	☐	☐	☐	■
5 Other public facilities?	☐	☐	☐	■

Setting

Fire Protection

The Kentfield Fire Protection District (KFPD) provides emergency response and public safety services on the Kentfield Campus. Kentfield Fire Protection District Station 17 is located across Sir Francis Drake Boulevard from the Kentfield Campus. KFPD employs 12 full time professional firefighters, one full time fire inspector, five volunteer firefighters, and three seasonal firefighters during the fire season. The KFPD answers calls and provides care within five minutes of notification (KFPD 2019).

The Novato Fire Protection District (NFPD) Station 61 (Redwood) provides emergency response and public safety services on the Indian Valley Campus. It is located 2.8 miles from the Indian Valley Campus. NFPD employs six firefighting personnel. Two paramedics, one captain, one engineer, and one battalion chief make up the rest of the NFPD (NFPD 2020).

The Bolinas Fire Protection District (BFPD) provides fire protection, emergency medical care, and disaster management to the community of Bolinas including the Bolinas Site of the. It is located approximately one mile away from the Bolinas Site. BFPD employs a fire chief and captain with 18 volunteer firefighters and paramedic services are provided by the Marin County Fire Department approximately 20 minutes away (BFPD 2020).

Police Protection

Police protection for the Kentfield and Indian Valley campuses is provided by The Marin Community College District Police Department and supplemented by surrounding law enforcement agencies. Surrounding law enforcement agencies include the Marin County Sheriff's Office, the Novato Police Department and the Central Marin Police Authority. The Marin Community College District Police Department in coordination with surrounding law enforcement agencies shares jurisdiction on all public streets, areas, and in communities surrounding the Kentfield and Indian Valley campuses (Marin Community College District Police Department 2019). The Bolinas Site is serviced by the Marin County Sheriff's Office, Point Reyes Substation.

Schools

The Kentfield School District serves the Kentfield area's K-8 student population. Kentfield's public institutions include the Adaline E. Kent Middle School and Anthony G. Bacich Elementary School. Grant Grover School is a special education school that is part of the Marin County Office of Education District (California Department of Education 2018a).

The Novato Unified School District serves the Novato area's K-12 student population. Novato Unified School District has seven elementary schools, two middle schools, two high schools, a continuation high school, and independent study student program, and community day school (California Department of Education 2018b).

Bolinas does not have any schools or a school district that directly serves the area. The area is combined with the Stinson area and is served by the Bolinas-Stinson Union School District. The school district has one elementary school, K – 8th grade, and a high school (California Department of Education 2018c).

Parks and Other Public Facilities

Kentfield and Bolinas parks and recreation facilities are within the Marin County Parks Department. The City of Novato Parks, Recreation, and Community Services division oversees parks and recreation within the City of Novato. There are 27 parks and park facilities located throughout Marin. The Marin County Parks Department owns and manages over 15,500 acres of public open space in addition to the parks throughout Marin (Marin County Parks 2008). Of the 15,500 acres of public open space in Marin County, the City of Novato owns 200 acres. The City also owns over 59 acres of developed parks, 169 acres of undeveloped future park land, and 41 community facilities (City of Novato 2015).

a.1. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered fire protection facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

Facilities Master Plan Program Analysis

The FMP would be required to comply with the College of Marin's Emergency Operations Plan, pursuant to the California Administrative Code, Title 5, Education Chapter 3, Article 2, Section 560. The code requires that public schools (kindergarten through community college) to have written disaster plans that are reviewed annually by local governing boards (College of Marin 2020). The

Emergency Operations Plan applies to all Marin Community College District personnel, and all buildings, grounds, and properties owned and operated by the District. The Emergency Operations Plan is updated every four years and includes the distribution to the Marin County Operational Area Office of Emergency Services.

Program implementation would involve either capital improvements, retrofits, or demolition and new construction. On the College on Marin's campuses, new structures to be introduced will not extend past the College of Marin's campus boundaries. Therefore, any new structures introduced on the sites would not require the service of Marin County fire or police protection services. The Organic Farm/Garden enhancement project on the Indian Valley Campus would add a three-classroom building with a capacity of up to 197 students and staff. The new Bolinas Site, one-story structure would introduce a laboratory classroom and offices with associated amenities. As discussed in Section 14, *Population and Housing*, the projects would not be expected to result in increased student enrollment at the College of Marin. The additional classrooms would serve existing students and staff and in accordance with the College of Marin's Emergency Operations Plan, would comply with regulations governing classroom access for emergency services. Furthermore, the classrooms would be required to comply with all applicable building and fire codes and would be within the jurisdiction of the NFPD and BFPD and thus, serviceable by the NFPD and BFPD, respectively. Program implementation would not require any of the public services for Marin County, Kentfield, Novato, or Bolinas to physically alter or construct new facilities that could result in an environmental impact. Program impacts would be less than significant. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

The Kentfield Fire Protection Department is located approximately 150 feet north of the existing LRC building. The campus design incorporates fire lanes and access to fire hydrants to ease emergency access throughout the campus. The new, slightly larger, LRC building would replace the existing building and would be required to comply with applicable building and fire codes and therefore could be served by KFPD in the event of an emergency. The project would not require KFPD to physically alter or construct new facilities that could result in an environmental impact. Project impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

a.2. *Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered police protection facilities, or the need for new or physically altered police protection facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?*

Facilities Master Plan Program Analysis

The Kentfield and Indian Valley campuses are serviced by the on-campus police department and supported by local law enforcement agencies. The Marin County Sheriff's Office serves the Bolinas Site. Program implementation would not increase student enrollment and as such, would not increase demand for police protection. The Bolinas campus would service an existing student population and introduce approximately 40 students and three staff/faculty members to the Bolinas area daily, for four days a week during the school year. The Marin County Sheriff's Office would service the Bolinas Site. The incremental temporary increase in user population from the new structure on the Bolinas Site would be minimal and thus, would not require the addition of a new police protection facility. Program implementation would not require the need for physical alteration or construction of added public safety facilities. Program impacts would be less than significant. This impact is not discussed in the Draft EIR.

Learning Resource Center Project Analysis

The project would not increase student enrollment, and therefore would not increase demand for police protection services. Furthermore, design features such as blue-light emergency phones, security cameras, and current-code fire suppression equipment would be installed to increase safety throughout the project site. The project would not result in the need for physical alteration or construction of added public safety facilities. Impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

a.3. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered schools, or the need for new or physically altered schools, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives?

a.4. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered parks, or the need for new or physically altered parks, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios or other performance objectives?

Facilities Master Plan Program and Learning Resources Center Project Analysis

The program and project would not involve residences or other facilities that would increase population. The Kentfield and Indian Valley campuses provide students with recreational facilities and athletic fields. The FMP would construct new aquatic facilities and move the tennis facilities on the Indian Valley Campus. Program implementation would construct new recreational facilities to serve existing students and staff and would not increase population. Program and project implementation would not result in the need for new schools, parks, or other facilities and would not physically deteriorate existing facilities. No impact would occur. This impact is not discussed in the Draft EIR.

NO IMPACT

a.5. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for other public facilities?

Facilities Master Plan Program and Learning Resources Center Project Analysis

Project construction would not involve the construction of housing or other facilities. No population growth would be induced by the project, and therefore it would not result in the need for new government facilities or the physical deterioration of existing government facilities. No impact would occur. This impact is not discussed in the Draft EIR.

NO IMPACT

Cumulative Impacts

The program and project would have a less than significant impact on public services. Although substantial portions of Kentfield, Novato and Bolinas are built out, off-site cumulative development could increase population, resulting in an increased demand for fire and police protection, schools, parks, and other public facilities. As a result of the increased demand, future growth in the County may require new or physically altered public facilities to accommodate staff and equipment to meet increased demand, the construction of which could cause significant environmental impacts. However, the program and project would not increase population or expand the existing footprint of the College of Marin. Therefore, the contribution of the program and project to impacts on public services would not be cumulatively considerable.

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16 Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	■
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	■

Setting

The County of Marin oversees 34 open space preserves and 31 parks and pathways (County of Marin 2019b). The City of Novato's Parks, Recreation and Community Services Division oversees 41 parks and facilities in Novato (City of Novato 2020).

Hal Brown Park at Creekside is located 1.4 miles south of the Kentfield Campus. Hillside Park is located 1.5 miles east of the Indian Valley Campus. The Bolinas Site abuts the Bolinas Lagoon Nature Preserve, an open space preserve, Mesa Park is located 0.9 mile west of the site and Bolinas Beach is located 1.2 miles south of the site

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Facilities Master Plan Program and Learning Resources Center Program Analysis

The FMP is intended to upgrade and construct academic and administrative buildings. The FMP does not include the construction of residences or businesses that would directly or indirectly increase population surrounding the campuses. Recreational facility improvements on the Indian Valley Campus include a new aquatics center that would replace the existing six tennis courts. Tennis courts, bocce ball courts, and an outdoor activity space would be constructed and replace the existing pool facility on the Indian Valley Campus. Recreational facilities, as part of the FMP, would be improved upon to better serve the existing population on the Indian Valley Campus. Existing use of neighborhood and regional parks or other recreational facilities would remain the same and program implementation would not require the construction or expansion of recreational facilities in Kentfield, Novato, or Bolinas. Therefore, program and project implementation would have no impacts on the increase of population that would use existing recreational facilities and thus, would not require the construction or expansion of recreational facilities. This impact is not discussed in the Draft EIR.

NO IMPACT

Cumulative Impacts

The program and project would have a less than significant impact on recreational facilities. Off-site cumulative development would increase the demand for recreation facilities in Kentfield, Novato and Bolinas. Therefore, future growth may cause substantial physical deterioration of recreational facilities to occur or be accelerated, or may require the construction or expansion of recreational facilities, the construction of which could cause significant environmental impacts. However, population growth is projected by the General Plan and the program and project would not directly increase population or demand for recreational facilities. Therefore, the contribution of the program and project to impacts on public services would not be cumulatively considerable.

17 Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	■	☐	☐
b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	■	☐	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?	☐	☐	☐	■
d. Result in inadequate emergency access?	☐	☐	☐	■

Setting

Kentfield Campus

Major roadways in the vicinity of the Kentfield Campus include College Avenue, Sir Francis Drake Boulevard and Magnolia Avenue. Sir Francis Drake Boulevard connects to U.S. 101 via on and off ramps located approximately 1.9 miles southeast of the campus. Several bus stops served by Marin Transit are located adjacent to the campus along College Avenue and Sir Francis Drake Boulevard. Bus stops in the vicinity of the campus include:

- Sir Francis Drake Boulevard and Elm Avenue served by routes 22 (San Rafael-Marin City), 122 (College of Marin Express), and 228 (San Raefel-Fairfax Manor)
- College Avenue and Sir Francis Drake Boulevard served by routes 22, 29 (Canal-Marin General), and 122
- College Avenue and Kent Avenue served by routes 22 and 29
- Magnolia Avenue and Estelle Avenue served by Route 22

Marin County bicycle routes 15 and 20 are the vicinity of the campus. Route 15 is a Class II facility comprised of striped bicycle lanes demarcated along the sides of College Avenue and Magnolia Avenue. Route 20 is a Class I fully separated bicycle pathway that runs along Corte Madera Creek. Sidewalks along Sir Francis Drake Boulevard and College Avenue provide pedestrian access to the campus and interior pathways provide pedestrian access within the campus.

Kent Middle School and Grant Grover School are located adjacent to the Kentfield Campus at 800 College Avenue. For informational purposes, daily scheduling information and annual break schedules for both schools appear in Table 13 and Table 14.

Table 13 Kent Middle School and Grant Grover School Scheduling Information

School	Daily Class Times	2019-2020 First Day of School	2019-2020 Last Day of School	Summer Program
Kent Middle School	7:45 a.m. – 3:28 PM	September 3	June 12	N/A
Grant Grover School	8:00 a.m. – 2:00 PM	August 19	June 4	Third week of June – Third week of July

Table 14 Kent Middle School and Grant Grover School Break Schedule

School Break Period	Approximate Timeframe	2019-2020 Dates
Kent Middle School		
Thanksgiving Recess	Thanksgiving Day, plus day before and after	November 27-29
Winter Break	Weeks of Christmas Day and New Year’s Day	December 23-January 3
Presidents Recess	Week of President’s Day	February 17-18
Spring Break	Second Week of April	April 6-10
Summer Break	Mid-June - Late August	June 14-August 24
Grant Grover School		
Thanksgiving Recess	Thanksgiving Day, plus day before and after	November 27-29
Winter Break	Weeks of Christmas Day and New Year’s Day	December 23 - January 3
Mid-Winter Break	Week of President’s Day	February 17-21
Spring Break	Second Week of April	April 6-10
Summer Break	Early June – Mid-August	June 8 - August 17

Indian Valley Campus

The only major roadway in the vicinity of the Indian Valley Campus is Ignacio Boulevard, a four lane road which provides direct access to the campus and ends at the western boundary of the campus. The roadway extends in an easterly direction from campus and connects to U.S. 101 approximately 2 miles to the east. Two bus stops served by Marin Transit are located along Ignacio Boulevard. These stops include the following:

- Ignacio Boulevard and Indian Hills Drive served by Routes 151 (Hamilton – San Marin High School), 251 (Novato Shuttle) and 257 (San Rafael – Ignacio)
- Indian Valley caollege served by Routes 151, 251 and 257.

Sidewalks along Ignacio Boulevard provide pedestrian access to the campus and interior pathways provide pedestrian access within the campus. A number of hiking trails and fire roads located in the Indian Valley Open Space Preserve, which borders the campus immediately to the east, are accessed from the campus. The trails and preserve are managed by Marin County Parks.

San Jose Middle School is located 1000 Sunset Parkway, approximately 1000 feet from the eastern edge of the Indian Valley Campus. For informational purposes, daily scheduling information and annual break schedule for the school is presented in Table 15 and Table 16.

Table 15 San Jose Middle School Scheduling Information

School	Daily Class Times	2019-2020 First Day of School	2019-2020 Last Day of School	Summer Program
San Jose Middle School	8:20 a.m. – 2:40 p.m.	August 22	June 11	N/A

Table 16 San Jose Middle School Break Schedule

School Break Period	Approximate Timeframe	2019-2020 Dates
Thanksgiving Break	Week of Thanksgiving	November 25-29
Winter Break	Weeks of Christmas Day and New Year's Day	December 23-January 3
Mid-Winter Break	Week of President's Day	February 17-21
Spring Break	Second Week of April	April 6-10
Summer Break	Mid-June - Late August	June 13-August 21

Bolinas Site

The Bolinas Site is located along Wharf Road, which provide access to the site. One bus stop is in the site vicinity, at Brighton Avenue and Wharf Road is served by Marin Transit Route 61 (West Marin Stagecoach – South). No schools are within one mile of the site.

Existing Conditions

The following information about existing roadway conditions is based on traffic counts and calculations performed by W-Trans. Traffic data is included in Appendix TRA. Traffic volume data were collected February 4, 2020.

Study Intersections

Existing traffic conditions were evaluated at the following intersections during the AM peak hour and PM peak hour on a typical weekday during which College of Marin and nearby public schools were in session.

KENTFIELD CAMPUS

- College Avenue/Sir Francis Drake Boulevard
- College Avenue/Stadium Way
- College Avenue/Woodland Road-Kent Avenue
- Magnolia Avenue/P13 Driveway

INDIAN VALLEY CAMPUS

- Sunset Parkway/Ignacio Boulevard
- Sunset Parkway/Merritt Drive

BOLINAS SITE

- SR 1/Olema-Bolinas Road
- SR 1/Fairfax-Bolinas Road

Level of Service

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay accompanies the LOS designation. Study intersections were analyzed using methodologies published in the Highway Capacity Manual (HCM) (Transportation Research Board 2010).

Traffic Operation Standards

The Marin Countywide General Plan establishes an operational standard of LOS D for intersections on urban and suburban arterials. If an intersection is operating unacceptably, an increase in delay would be considered an impact if the increase contributes to a cumulatively significant change in operation or if the project would cause an intersection operating acceptably without the project to experience deterioration in service from LOS E to F.

Caltrans

Because State Route (SR) 1 is a state highway, Caltrans has jurisdiction over the study intersections at SR 1/Olema-Bolinas Road and SR 1/Fairfax-Bolinas Road. Caltrans indicates that LOS D is acceptable for those intersections that include transitions to and from SR 1.

Existing Level of Service

Under existing conditions, all study intersections operate at acceptable levels of service during the a.m. and p.m. peak hours, except that Sunset Parkway/Ignacio Boulevard operates at LOS E during the a.m. peak hour. A summary of the intersection level of service calculations is contained in Table 17 and LOS calculations are provided in Appendix TRA.

Table 17 Existing Peak Hour Intersection Levels of Service

Study Intersection	AM Peak		PM Peak	
Approach	Delay	LOS	Delay	LOS
1. College Avenue/Sir Francis Drake Boulevard	42.1	D	23.2	C
2. College Avenue/Stadium Way	1.2	A	1.3	A
3. College Avenue/Woodland Rd-Kent Avenue	16.7	C	15.3	C
4. Magnolia Avenue/P13 Driveway	0.3	A	0.7	A
Eastbound (P13 Driveway) Approach	24.2	C	15.6	C
Westbound (P13 Driveway) Approach	18.2	C	13.7	C
5. Sunset Parkway/Ignacio Boulevard	**38.6**	**E**	12.7	B
6. Sunset Parkway/Merritt Drive	2.0	A	1.7	A
Eastbound (Merritt Drive) Approach	13.1	B	10.3	B
Westbound (Merritt Drive) Approach	15.8	C	12.2	B
7. SR 1/Olema-Bolinas Road	2.6	A	2.7	A
Eastbound (Olema-Bolinas Road) Approach	9.1	A	9.3	A
8. SR 1/Fairfax-Bolinas Road	5.1	A	4.3	B
Eastbound (Fairfax-Bolinas Road) Approach	8.9	A	8.8	A
Westbound (Fairfax-Bolinas Road) Approach	10.0	B	9.8	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*; **Bold** text = deficient operation

a. Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Facilities Master Plan Program Analysis

Construction

During construction, temporary construction related traffic in vicinity of the Kentfield Campus, Indian Valley Campus and Bolinas Site would be generated by deliveries of equipment and materials, hauling of demolished material and other construction waste and worker trips to and from each individual project site. The number of construction-related trips to each campus would vary depending on project scale. For example, projects under the FMP that are limited to capital repairs would require substantially fewer vehicle trips compared to projects that involve new construction, which require a greater number of hauling, material delivery and worker trips. The total number of construction-related trips would also depend on the overall timing of program implementation. Implementation would occur incrementally over a period of 4 years and construction related traffic would occur intermittently over this period.

All construction related traffic associated with the FMP program would be temporary and limited to the duration of each FMP project. To reduce traffic related impacts during major projects under the FMP and avoid traffic disruption during student drop-off and pick-up times at nearby schools, Mitigation Measure TRA-1 would be required. Mitigation Measure TRA-1 would apply to all Retrofit[9] and New Construction[10] projects as they would involve a substantial number of construction-related vehicle trips compared to projects designated as capital improvements and repairs and other.

Mitigation Measure

TRA-1 Construction Traffic Management Plan

Prior to the start of work for all Retrofit and New Construction projects, the construction contractor shall prepare a Construction Traffic Management Plan to minimize traffic flow interference from construction activities. The Construction Traffic Management Plan shall be submitted to the County or City of Novato for review and approval and shall include measures to accomplish the following:

- **For projects at the Kentfield Campus:** To minimize traffic disruptions during student drop-off and pick-up times at Kent Middle School and Grant Grover School, construction related vehicle trips of any kind and lane closures shall not occur between the hours of 7:15 a.m. – 8:30 a.m. and 3:00 p.m. – 4:00 p.m.
- **For projects at the Indian Valley Campus:** To minimize traffic disruptions during student drop-off and pick-up times at San Jose Middle School, no construction related vehicle trips of any kind and lane closures shall not occur between the hours of 7:50 a.m. – 8:50 a.m. and 2:10 p.m. – 3:10 p.m.
- **For the Bolinas Marine Biology Lab project:** Access to Wharf Road shall be maintained to the maximum extent feasible during construction. A mailer indicating the construction scheduling and anticipated lane closures shall be sent to all businesses and residences along Wharf Road at least 14 days prior to the beginning of construction.
- In addition to the hours noted above, construction-related traffic traveling to and from project sites shall be minimized during the peak commute hours to the maximum extent feasible (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.).
- Construction related lane closures on major roadways that lead to and from each site shall be minimized during peak commute hours to the maximum extent feasible (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.). These include College Avenue and Sir Francis Drake Boulevard in the vicinity of the Kentfield Campus, Ignacio Boulevard in the vicinity of the Indian Valley Campus and Wharf Road in the vicinity of the Bolinas Site.
- If lane closures are needed, appropriate measures shall be taken to designate detour routes as necessary, which include but are not limited to the use of signage, barricades and flaggers to direct traffic flow.
- Deliveries and pick-ups of construction materials shall be limited to non-peak commute hours, to the maximum extent feasible.
- Haul trucks, deliveries and pick-ups shall be appropriately coordinated to reduce the potential for trucks waiting to load or unload for protracted periods of time to the maximum extent feasible.
- Construction equipment traffic shall be controlled with flaggers.

[9] Retrofit projects include Fusselman Hall at the Kentfield Campus and the, Building 12, and Building 17 projects at the Indian Valley Campus.

[10] New construction projects include the Maintenance and Operations Building/District Warehouse and the Learning Resources Center at the Kentfield Campus, the Building 18 and Jonas Center, Organic Farm/Garden and Miwok Cluster projects at the Indian Valley Campus and the Bolinas Marine Field Station at the Bolinas Site.

- Specific transport routes for heavy trucks and haul trucks to be used over the construction duration shall be designated to avoid incompatible roadways and minimize traffic disruption.
- Existing access for residences, schools, businesses and other land uses in the vicinity of each project site shall be maintained to the maximum extent feasible at all times.
- Construction activities shall not interfere with sidewalks and pathways for pedestrian and bicycle use whenever feasible. If closure of sidewalks or pathways is unavoidable, alternative routes and detours shall be designated using appropriate signage, barricades or other appropriate means.
- Construction contractors shall consult with emergency service providers that operate in the vicinity of all project sites to gather input on appropriate traffic control measures that would minimize disruptions to emergency service and evacuation.

Significance After Mitigation

With implementation of Mitigation Measure TRA-1, construction-related traffic impacts in the vicinity of the Kentfield Campus, Indian Valley Campus and Bolinas Site would be less than significant. This mitigation measure is listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

Sir Francis Drake Boulevard Rehabilitation Project

As described in Section 2, *Project Description*, of the Draft EIR construction of FMP projects at the Kentfield Campus could occur simultaneously with the Sir Francis Drake Boulevard Rehabilitation project. Roadwork associated with the project would be limited to the intersection of Sir Francis Drake Boulevard and College Avenue. As described in the Sir Francis Drake Boulevard Rehabilitation Project EIR, mitigation measures would require the preparation of Traffic Control Plans to reduce impacts to traffic flow during project construction to a less than significant level (LSA 2018). Therefore, the simultaneous implementation of the FMP program and Sir Francis Drake Boulevard Rehabilitation Project would not result in significant impacts to roadways in the vicinity of the Kentfield Campus.

Operation

KENTFIELD CAMPUS

Implementation of the FMP would not result in an increase to the College of Marin's student enrollment. Therefore, no permanent increase in operational vehicle traffic generated by students, staff or faculty would occur at the Kentfield Campus. As no permanent increase in vehicular traffic is anticipated, the program would not impact the performance of circulation facilities or increase congestion above the existing levels shown in Table 17. Therefore, the proposed project would not conflict with applicable plans or programs to manage circulation and congestion and there would be a less than significant impact on the circulation system, congestion and transit facilities in the vicinity of the Kentfield Campus.

INDIAN VALLEY CAMPUS

Implementation of the FMP would not result in an increase to the College of Marin's student enrollment. Therefore, no permanent increase in operational vehicle traffic generated by students, staff or faculty would occur on the Kentfield or Indian Valley Campus es.

A separate Initial Study-Mitigated Negative Declaration (IS-MND) was prepared by Impact Sciences for the Jonas Community Center and Miwok Wellness Center projects. According to this IS-MND, these FMP projects at the Indian Valley Campus would generate new vehicle trips to and from the campus (Impact Sciences 2018). The Jonas Community Center would generate a maximum of approximately 167 new trips per day, attributed to use of the facility by the Rotary Club of Marin, likely during the evening hours. The Miwok Wellness Center would generate a maximum of approximately 75 new trips per day, attributed to periodic use by campus visitors throughout the day. Collectively, these projects would generate a maximum of approximately 242 trips per day (Impact Sciences 2018). Although these projects would generate additional trips, the IS-MND concluded that impacts associated with new trips would be less than significant and would not require mitigation as most new trips would occur outside of peak hours. (Impact Sciences 2018).

As no additional increase in vehicular traffic would occur as a result of the remaining FMP projects at the Indian Valley Campus analyzed in this Initial Study, the program would not impact the performance and facilities for area circulation, nor would it substantially increase congestion above the existing levels shown in Table 17. Therefore, the proposed project would not conflict with applicable plans or programs to manage circulation and congestion and there would be a less than significant impact on the circulation system, congestion and transit facilities in the vicinity of the Indian Valley Campus.

BOLINAS SITE

The Bolinas Site is not currently in use and therefore, does not generate vehicle trips. The proposed Bolinas Marine Field Station project would result in regular use of the Bolinas Site by students, staff and faculty. The following assumptions were used to estimate the maximum number of vehicle trips that would be generated by the project on a daily and weekly basis:

- Classes would take place at the Bolinas Facility Monday through Thursday during regular school hours (no evening classes).
- All trips to and from the Bolinas Site would be made using single occupancy vehicles.
- Five classes would use the Bolinas Site on a weekly basis, with no more than two classes occurring per day.
- Each class would have 20 students and one instructor.
- One custodial staff would make one trip to and from the site Monday through Thursday.

Using these assumptions, the project would result in a maximum of 86 trips per day[11] or a maximum of 218 trips per week, which would result in potentially significant traffic impacts on Wharf Road and other roadways in the vicinity. Therefore, Mitigation Measure TRA-2 would be required to reduce the number of vehicle trips to a maximum of 14 trips per day[12] or a maximum of 32 trips per week.

[11] Reflects number of trips that would occur if two classes took place in the same day.

[12] Reflects number of trips that would occur if two classes took place in the same day.

Mitigation Measure

TRA-2 Transportation Demand Management Program

Prior to operation of the Bolinas Marine Field Station, the College of Marin shall develop and implement and Transportation Demand Management (TDM) plan with provisions to achieve an 85 percent reduction (maximum of 14 trips per day) in overall vehicle trips to and from the site. The TDM plan will initially include, but not be limited to, the implementation of a student shuttle service. The College shall implement the shuttle service to bring all students attending classes in Bolinas from the Kentfield and Indian Valley campuses to the Bolinas Site using vans or shuttle busses, thereby reducing student trips to the site using single occupancy vehicles. The program will be continually monitored and, if trip reduction goals are not met, will be adjusted to replace any elements found to be ineffective.

Significance After Mitigation

With implementation of Mitigation Measure TRA-2, operational traffic impacts at the Bolinas Site would be less than significant, and congestion would substantially increase above the existing levels shown in Table 17 . This mitigation measure is listed in the Draft EIR's executive summary and included in the MMRP. Operational impacts at the Kentfield Campus and Indian Valley Campus would be less than significant and would not require mitigation measures. This impact is not discussed in the Draft EIR.

Learning Resources Center Project Analysis

Construction

The project would involve demolition of the existing LRC and construction of replacement facility at the same site. Demolition and construction activities would generate temporary traffic from deliveries of equipment and materials to the project site and construction worker traffic. Vehicle trips would be generated by deliveries of equipment and materials, hauling of demolished material and other construction waste and worker trips to and from each individual project site. However, this increase in traffic would be temporary and limited to construction duration.

Although construction related trips would be temporary and limited to the construction duration, the demolition phase would require the greatest number of vehicle trips to and from the project site, as a substantial amount of demolished would be hauled away. Construction related vehicle trips would impact College Avenue and Sir Francis Drake Boulevard. To minimize traffic disruptions at the nearby Kent Middle School and Grant Grover Schools, Mitigation Measure TRA-3 would be required.

Mitigation Measure

TRA-3 Learning Resource Center Demolition Schedule

The demolition phase of the LRC project shall occur while Kent Middle School and Grant Grover School are not in session (during the summer). As shown in Table 14, summer break typically occurs from mid-June through late August at Kent Middle School and from early June through mid-August at Grant Grover School. Prior to the start of demolition, the construction contractor shall contact both schools to verify the precise dates of summer breaks at the respective schools. Based on that information, the construction contractor shall conduct demolition activities while neither school is in session (during the summer), to the extent feasible.

Significance After Mitigation

With implementation of Mitigation Measure TRA-3, construction related traffic impacts in the vicinity of the LRC project site would be less than significant. This mitigation measure is listed in the Draft EIR's executive summary and included in the MMRP. This impact is not discussed in the Draft EIR.

Operation

LRC project operation would not result in increased student enrollment; therefore, no permanent increase in vehicular traffic on nearby roads would occur and no additional vehicle trips would be generated.

As no permanent increase in vehicular traffic is anticipated, the proposed project would not impact the performance and facilities for area circulation, nor would it increase congestion. Therefore, the proposed project would not conflict with applicable plans or programs to manage circulation and congestion and impacts on the circulation system, congestion, and transit facilities would be less than significant.

Conclusion

Construction related trips associated with the FMP program and LRC project would be temporary in nature. Mitigation Measures TRA-1 and TRA-2 would reduce construction related traffic impacts in the vicinity of the Kentfield Campus, Indian Valley Campus and Bolinas Site to a less than significant level. No permanent increase in vehicle traffic would occur at the Kentfield and Indian Valley campuses because of the program and FMP implementation would not conflict with applicable plans or programs to manage circulation and congestion. Operational impacts at the Bolinas Site would be reduced to a less than significant level with implementation of Mitigation Measure TRA-3. Therefore, program level impacts associated with the FMP and project level impacts associated with the LRC would be less than significant with mitigation incorporated. Mitigation Measures TRA-1 through TRA -3 are listed in the Draft EIR's executive summary and included in the MMRP. These impacts are not discussed in the Draft EIR.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3 replaces congestion-based metrics, such as intersection delay and LOS, with VMT as the basis for determining significant impacts, unless the CEQA Guidelines provide specific exceptions. Section 15064.3(c) states that a lead agency may elect to apply the provisions of Section 15064.3 at its discretion prior to July 20, 2020, at which time it shall apply statewide. The District has elected not to apply CEQA Guidelines Section 15064.3 for the proposed program and project. Therefore, there would be no impact related to conflicts or inconsistencies with CEQA Guidelines Section 15064.3. A qualitative discussion of the project generated VMT is provided for informational purposes.

As discussed above, implementation of the program and project would not increase enrollment capacity at College of Marin. A permanent increase in operational trips at the Kentfield Campus, and thus, would not increase VMT. New operational trips would be generated by the Jonas Center and Miwok Wellness Center at the Indian Valley Campus; however, new trips would be primarily short distance trips to and from the surrounding community. New operational trips would be generated at the Bolinas Site; however, implementation of Mitigation Measure TRA-2 would reduce new trips to a maximum of 14 per day. As such, new trips associated with the program would not substantially increase VMT. Furthermore, as discussed in Section 14, *Population and Housing,* the program and project does not include housing and would not induce population growth. As discussed in Section 3, *Air Quality*, impacts to air quality associated with project operation (including air quality pollutants generated by vehicle trips) would be less than significant with mitigation incorporated. As discussed in Section 8, *Greenhouse Gas Emissions,* project operation (including GHG emission generated by vehicle trips) would not generate GHG emissions that exceed BAAQMD thresholds with mitigation incorporated. Therefore, program and project impacts related to VMT would be less than significant.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible use (e.g., farm equipment)?

d. Would the project result in inadequate emergency access?

Facilities Master Plan Program Analysis and Learning Resources Center Project Analysis

Under current conditions, emergency access is provided via existing roadways and driveways at the Kentfield Campus, Indian Valley Campus, and Bolinas Site. Program and project implementation would occur on previously developed parcels and would not alter or effect existing street and intersection networks and driveways. The program and project would not include hazardous design features, such as sharp curves or dangerous intersections, nor would it create hazardous conditions by introducing incompatible uses. Therefore, the program and project would not result in increased hazards from design features and emergency access would not be affected. No impact would occur. This impact is not discussed in the Draft EIR.

NO IMPACT

Cumulative Impacts

Impacts of construction related traffic associated with the program and project would be less than significant implementation of Mitigation Measures TRA-1 and TRA-3. The program and project would not induce population growth in Kentfield, Novato or Bolinas and would not increase enrollment capacity at the College of Marin. Therefore, the program and project would not directly contribute to regional growth that would combine with other projects to generate new vehicular trips or substantially increase VMT.

Implementation of the program and project would not generate a permanent increase in vehicular traffic at the Kentfield Campus. Prior analysis concluded that new trips to and from the Indian Valley Campus would be less than significant. Although trips to the Bolinas Site would increase, Mitigation Measure TRA-2 would reduce traffic increase to a minimal amount. Furthermore, the program and project would not alter the circulation systems in Kentfield, Novato and Bolinas. Therefore, the program and project would not cumulatively contribute to transportation related impacts.

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18 Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in a Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	■	☐	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Cod Section 2024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significant of the resource to a California Native American tribe.	☐	■	☐	☐

Refer to Section 4.3, *Tribal Cultural Resources,* of the Draft EIR for a discussion of program and project impacts to tribal cultural resources.

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19 Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	□	□	□	■
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	□	□	□	■
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	□	□	■	□
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	□	□	□	■
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	□	□	□	■

Setting

Water

Potable water would be provided to the Kentfield Campus by Marin Municipal Water District; to the Indian Valley Campus by North Marin Water District; and to the Bolinas Site by the Bolinas Community Public Utility District. New development projects in Bolinas are restricted by a water moratorium. However, the Bolinas Site has two water meters and can be served by the Bolinas Community Public Utility District under its existing entitlements (Kutz 2020).

Wastewater

The San Francisco Bay RWQCB regulates wastewater treatment for the Marin County.

KENTFIELD CAMPUS

Wastewater generated at the Kentfield Campus is discharged into a campus sewer line operated by the Ross Valley Sanitary District and delivered to the Central Marin Sanitary Agency Wastewater Facility for treatment. The Central Marin Sanitary Agency Wastewater Facility currently treats an average of 11 million gallons per day (mgd), with the capacity to treat 30 mgd for secondary treatment (Central Marin Sanitation Agency 2019; County of Marin 2007). Therefore, the Central Marin Wastewater Facility has excess capacity of approximately 19 mgd.

INDIAN VALLEY CAMPUS

Wastewater generated at the Indian Valley Campus is discharged into a campus sewer line and delivered to the Novato Treatment Plant operated by the Novato Sanitary District. The Novato Treatment Plant treats an average of approximately 3.4 mgd during dry weather flow and 14.9 mgd during wet weather flow, with the capacity to treat up to 30.7 mgd during peak wet weather flows (Novato Sanitary District 2019). Therefore, the Novato Treatment Plant has excess capacity of approximately 27.3 mgd during dry weather flows and approximately 15.8 mgd during wet weather flows.

BOLINAS SITE

Wastewater generated at the Bolinas would be discharged into a sewer line and delivered to the Big Mesa Treatment Plant operated by the Bolinas Community Public Utility District (BCPUD). The Big Mesa Treatment Plant treats an average of approximately 30,000 gallons per day, with a maximum capacity for 65,000 gallons per day (BCPUD 2010).

Electricity and Natural Gas

As discussed in Section 6, *Energy*, MCE would provide electricity and PG&E would provide natural gas to the Kentfield Campus, Indian Valley Campus and Bolinas Site.

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Facilities Master Plan Program and Learning Resources Center Project Analysis

Overall, the program would not increase College of Marin enrollment above existing levels. As described under Section 10, *Hydrology and Water Quality*, the proposed program would not require new or expanded water supply entitlements or facilities. The program would only involve construction in disturbed areas, and existing drainage patterns would be maintained to the maximum extent feasible, such that no adverse impacts related to water supply requirements and stormwater drainage would occur at any of the three sites. As discussed under Section 6, *Energy*, the proposed project would be served by existing electric power facilities and would not require new or substantially revised electrical power facilities. Therefore, program implementation would have no impact with respect to the provision of electric power, natural gas, and telecommunication services. A location-specific discussion of wastewater treatment and capacity follows.

Kentfield Campus

Capital repair and improvement and retrofit projects at the Kentfield Campus would only involve repair work and upgrades to existing facilities and would not substantially alter wastewater generation from existing conditions. New facility projects would result in the construction of new buildings that would include restrooms, drinking fountains and kitchenettes. However, the new LRC and Maintenance and Operations facilities would replace existing structures used for similar purposes. Per the District's Sustainability Design Standard, new and renovated facilities would be designed to reduce potable water consumption by 30 percent below CALGreen baselines (College of Marin 2019). As such, wastewater generation at new facilities would be similar to or below existing conditions. Therefore, wastewater generated by the program at the Kentfield Campus would not exceed the treatment requirements of the RWQCB, result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, or exceed the capacity of any existing wastewater treatment provider.

Indian Valley Campus

Capital repair and improvement and retrofit projects at the Indian Valley Campus would only involve repair work and upgrades to existing facilities and would not substantially alter wastewater generation from existing conditions. New facility projects would result in the construction of new buildings that would include restrooms, drinking fountains and kitchenettes. Per the District's Sustainability Design Standard, new facilities and renovated would be designed to reduce potable water consumption by 30 percent below CALGreen baselines (College of Marin 2019). As such, wastewater generation at new facilities would be similar to or below existing conditions. Therefore, wastewater generated by the program at the Indian Valley Campus would not exceed the treatment requirements of the RWQCB, result in the construction of new water or wastewater treatment facilities or the expansion of existing facilities, or exceed the capacity of any existing wastewater treatment provider.

Bolinas Site

The vacant site would be replaced with a new structure that would house a classroom, office and restrooms. As a result, water use and wastewater generation would increase in comparison to existing conditions. However, per the District's Sustainability Design Standard, new facilities would be designed to reduce potable water consumption by 30 percent below CALGreen baselines (College of Marin 2019). Therefore, wastewater generated by the program at the Bolinas Site would not exceed the treatment requirements of the RWQCB, result in the construction of new wastewater treatment facility or the expansion of existing facilities, or exceed the capacity of any existing wastewater treatment provider. In addition, the Bolinas Water Moratorium would not apply to a new structure on the project site (Kutz 2020), and no new water conveyance facility would be required. Therefore, program and project level impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Facilities Master Plan Program and Learning Resources Center Project Analysis

All existing and new facilities associated with the program would utilize the existing water treatment and distribution system in place at the Kentfield Campus, Indian Valley Campus and Bolinas Site. Overall, the program would not increase College of Marin enrollment above existing levels. In addition, the implementation of the District's Sustainability Design Standard would reduce potable water consumption of 30 percent below CALGreen baselines at new and retrofitted facilities. With adherence to Sustainability Design Standards, there would be sufficient water supplies available to serve the program and reasonably foreseeable future development during normal, dry and multiple dry years. Impacts associated with the program and project would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

c. Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Facilities Master Plan Program and Learning Resources Center Project Analysis

As discussed under Section 10, *Hydrology and Water Quality*, stormwater drainage facilities on the Kentfield Campus, Indian Valley Campus and Bolinas Site would not be substantially altered as a result of the program. Each project would be required to comply with all applicable storm water quality policies and regulations set forth by the SWRCB and the San Francisco Bay Area Regional Water Quality Control Board (RWQCB). Although there would be ground disturbance during construction of new facilities, proposed projects would not substantially increase impervious surface area and would be engineered to address storm water drainage and flooding standards by conveying storm water runoff into existing storm sewer systems. The project's runoff would not exceed the capacity of the existing storm sewer system. Therefore, the program and project would not require the addition or expansion of storm water drainage facilities. Impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e. Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Facilities Master Plan Program and Learning Resource Center Project Analysis

Setting

At the Kentfield Campus, solid waste collection service is provided through contract with Marin Sanitary Services. At the Indian Valley Campus and Bolinas Site, solid waste collection service is provided by Recology. Once collected, solid waste from all three sites is transported to and disposed of at Redwood Landfill, which has a permitted throughput of 2,300 tons/day. Redwood Landfill has a remaining capacity of 26 million cubic yards as of December 18, 2008 (CalRecycle 2019).

The program would generate solid waste during construction, but all demolition and construction activities would be required to comply with CALGreen-required waste diversion rates of 65 percent. Waste generated during project construction would be substantially less than the existing remaining permitted capacity at Redwood Landfill. Therefore, project-generated increases in solid waste would be incremental and limited to project construction.

Operational waste associated with the program would be typical of a college, including that generated by libraries, classrooms, offices, laboratories, and associated facilities. The College's Sustainability Design Standard promotes a recycling program with a goal of diverting 75 percent or more of solid waste from landfills (College of Marin 2017). Furthermore, all elements of the program would be required to comply with all applicable federal and state statutes and regulations related to solid waste. Therefore, the program and project would result in less than significant impacts related to solid waste. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts

The program and project would generate less than significant impacts with regard to utility systems. Although water usage, stormwater drainage, electricity and natural gas use and solid waste generation would increase, the program and project would not require the construction of new or expanded utility infrastructure. The SFDB Rehabilitation and Jonas Center Pedestrian Bridge projects would not require utility service, other than electricity. Other off-site development involving construction of new structures would permanently increase demand for utility services. New or expanded facilities, such as stormwater drainage facilities or natural gas lines, could be required to accommodate off-site projects. However, these needs would be assessed on a project-by-project basis, and the environmental impacts of utility expansion would be analyzed under CEQA where appropriate. Therefore, program and project impacts related to utilities would not be cumulatively considerable.

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20 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	■
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	■	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	■
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	■	☐

Setting

While nearly all of California is subject to some degree of wildfire hazard, there are specific features that make certain areas more hazardous. The California Department of Forestry and Wildfire Protection (CAL FIRE) is required by law to map areas of significant fire hazards based on fuels, terrain, weather and other relevant factors (PRC 4201-4204, California Government Code 51175-89). The primary factors that increase an area's susceptibility to fire hazards include topography and slope, vegetation type and vegetation condition, and weather and atmospheric conditions. CAL FIRE maps fire hazards based on zones, referred to as Fire Hazard Severity Zones. There are three Fire Hazard Severity Zone classifications: moderate, high, and very high. Each of the zones influence how people construct buildings and protect property to reduce risk associated with wildland fires. Under state regulations, areas in Very High Fire Hazard Severity Zones (VHFHSZ) must comply with specific building and vegetation management requirements intended to reduce property damage and loss of life within these areas.

In California, federal, state and local agencies share responsibility for wildfire prevention and suppression. Federal agencies have legal responsibility to prevent and suppress wildfires in Federal Responsibility Areas, such as National Forests. CAL FIRE prevents and suppresses wildfires in State Responsibility Area lands, which are non-federal lands in unincorporated areas with watershed value, which are of statewide interest relative to land ownership, population density, and land use. Wildfire prevention and suppression in Local Responsibility Areas (LRA) is typically provided by city fire departments, fire protection districts, counties, and by CAL FIRE under contract to local government. These lands include incorporated cities, cultivated agriculture lands, and portions of the desert (CAL FIRE 2008).

a. *Would the project, if located in or near state responsibility areas or lands classified as very high fire hazard severity zones, substantially impair an adopted emergency response plan or emergency evacuation plan?*

Facilities Master Plan Program and Learning Resource Center Project Analysis

Kentfield Campus

The Kentfield Campus is located in an urbanized and unincorporated portion of Marin County. Undeveloped wildland areas are not in the immediate vicinity, and CAL FIRE has not mapped the campus as being in a VHFHSZ, and the campus is in an LRA (CAL FIRE 2008). The nearest VHFHSZ is approximately one mile to the west. Although the campus is located near a VHFHSZ, implementation of the proposed program and project would not impair an adopted emergency response plan or emergency evacuation plan. Improvements and new construction projects associated with the program would not occur outside of the existing campus boundary. As discussed in Section 15, *Public Services*, the KFPD provides emergency response and public safety services for the Kentfield Campus. The campus would maintain emergency access via existing driveways and would not interfere with an emergency response plan or evacuation route. Impacts at the Kentfield Campus would be less than significant. This impact is not discussed in the Draft EIR.

Indian Valley Campus

The Indian Valley Campus is in an urbanized portion of Novato. Although undeveloped wildlands are in the immediate vicinity of campus, CAL FIRE has not mapped the campus itself as being in a VHFHSZ, and it is in an LRA (CAL FIRE 2008). The nearest VHFHSZ is located immediately adjacent to the southeastern border of campus, approximately 500 feet from the easternmost structures. Although the campus is near a VHFHSZ, program implementation would not impair an adopted emergency response plan or emergency evacuation plan. In addition, improvements and new construction projects associated with the program would not occur outside of the existing campus boundary nor would they occur outside of the portion of the campus that is already developed. As discussed in Section 15, *Public Services*, the NFPD provides emergency response and public safety services for the Indian Valley Campus. The campus would maintain emergency access via existing driveways and would not interfere with an emergency response plan or evacuation route. Impacts at the Indian Valley Campus would be less than significant. This impact is not discussed in the Draft EIR.

Bolinas Site

The Bolinas Site is in an urbanized, unincorporated portion of Marin County. Undeveloped wildlands are not in the immediate vicinity. CAL FIRE has mapped the site in a Moderate Fire Hazard Severity Zone and the site is in a State Responsibility Area (CAL FIRE 2008). The nearest VHFHSZ is approximately 0.2 mile southwest of the Bolinas Site. Although the site is located near a VHFHSZ, program implementation would not impair an adopted emergency response plan or emergency evacuation plan. Improvements and construction projects associated with the program would not occur outside of the site's existing boundary, which is already developed. As discussed in Section 15, *Public Services*, the BFPD provides emergency response and public safety services for the Bolinas Site. The campus would maintain emergency access via its existing driveway and the proposed improvements would not interfere with an emergency response plan or evacuation route. Impacts at the Bolinas Site would be less than significant.

As the Kentfield Campus, Indian Valley Campus, and Bolinas Site are not located in designated VHFHSZ areas and implementation of the program and project would not impair an adopted emergency response plan or emergency evacuation plan, impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

b. Would the project, if located in or near state responsibility areas or lands classified as very high fire hazard severity zones, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Facilities Master Plan Program and Learning Resource Center Project Analysis

Kentfield Campus

Although the Kentfield Campus is not mapped in a CAL FIRE VHFHSZ, the campus is located on a site designated as having moderate to high fire risk according to the MarinMap Map Viewer layer for fire risk (County of Marin 2019). Hillside areas surrounding the Kentfield Campus to the north, west, and south are designated as having high and very high fire risk due to slope and prevailing winds. The campus is not located in a 100-year flood hazard zone.

As noted under criteria a, the campus is in an urbanized area and the program would not involve new construction outside of the existing campus boundary. Therefore, the program would not substantially exacerbate wildfire risks or thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. The program would not expose people or structures to significant risks including downslope or downstream flooding. Therefore, wildfire risks would not be exacerbated and risks to people or structures due to runoff, post-fire slope instability, or drainage changes would not occur. Impacts at the Kentfield Campus would be less than significant. This impact is not discussed in the Draft EIR.

Indian Valley Campus

Although the Indian Valley Campus is not mapped in a CAL FIRE VHFHSZ, the campus is located on a site designated as having high to very high fire risk according to the MarinMap Map Viewer layer for fire risk (County of Marin 2019). Hillside and wildland areas surrounding the Indian Valley Campus to the north, west, and south are designated as having high and very high fire risk due to slope and prevailing winds. The campus is not located within a 100-year flood hazard zone.

As noted under criteria a, the campus is located in an urbanized area and the program would not involve new construction outside of the existing campus boundary or beyond the existing portion of campus that is already developed. Therefore, the program would not substantially exacerbate wildfire risks or thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. The program would not expose people or structures to significant risks including downslope or downstream flooding. Therefore, wildfire risks would not be exacerbated and risks to people or structures due to runoff, post-fire slope instability, or drainage changes would not occur. Impacts at the Indian Valley Campus would be less than significant. This impact is not discussed in the Draft EIR.

Bolinas Site

The Bolinas Site is mapped in a CAL FIRE Moderate Fire Hazard Severity Zone and located on a site designated as having moderate to high fire risk according to the MarinMap Map Viewer layer for fire risk (County of Marin 2019). Areas surrounding the Bolinas Site to the south, west, and east are designated as having moderate to high fire risk due to vegetation and prevailing winds. The Bolinas Site is located in a 100-year flood hazard zone.

As noted under criteria a, the campus is located in an urbanized area and the program would not involve new construction outside of the existing site boundary. Therefore, the program would not substantially exacerbate wildfire risks or thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. The program would not expose people or structures to significant risks including downslope or downstream flooding. Therefore, wildfire risks would not be exacerbated and risks to people or structures due to runoff, post-fire slope instability, or drainage changes would not occur. Impacts at the Indian Valley Campus would be less than significant. Program and projects impacts would be less than significant at all sites. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

c. *Would the project, if located in or near state responsibility areas or lands classified as very high fire hazard severity zones, require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?*

Facilities Master Plan Program and Learning Resources Center Project Analysis

The Kentfield Campus, Indian Valley Campus and Bolinas are in urbanized areas and are not in VHFHSZs (CAL FIRE 2008). The program would not require the installation or maintenance of associated infrastructure that may exacerbate fire risk, such as overhead powerlines or additional roadways. All sites would be served adequately by existing facilities and utilities and program activities would only occur in previously disturbed areas. Therefore, program and project impacts would be less than significant. This impact is not discussed in the Draft EIR.

LESS THAN SIGNIFICANT IMPACT

Cumulative Impacts

The program and project would not involve development in a VHFSZ; however, all sites are located within 1 mile or less of mapped VHFSZs. The program and project would not exacerbate wildfire risk or thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire. Wildfire risks could be exacerbated and impacts could be significant if cumulative projects are located in a mapped FHSZ. However, off site developments would be subject to applicable wildfire risk reduction, firebreak maintenance, and/or defensible space regulations of their respective jurisdictions. Off-site development projects would therefore not be expected to exacerbate wildfire risks, and the project would not result in a cumulatively considerable impact to wildfire risk.

As described above and discussed in Section 15, *Public Services,* and Section 17, *Transportation*, the program and project would maintain sufficient emergency access. Similarly, off-site development projects would be required to maintain suitable emergency access. Therefore, the program and project would not have a cumulatively considerable impact on emergency response.

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21 Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Does the project:				
a. Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	□	■	□	□
b. Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	□	■	□	□
c. Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	□	■	□	□

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

As noted in Section 7, *Geology and Soils*, no historical, archeological, or paleontological resources were identified in the program area. Nevertheless, the potential for the recovery of buried cultural materials during development activities remains. Implementation of Mitigation Measure GEO-4 would reduce impacts to previously undiscovered paleontological resources to a less than significant level by providing a process for evaluating and, as necessary, avoiding impacts to any resources found during construction.

As noted throughout the Initial Study, most other potential environmental impacts related to the quality of environment would be less than significant or less than significant with implementation of mitigation measures. The Draft EIR provides further analysis of program and project impacts to biological resources, cultural resources and TCRs.

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b. *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?*

Refer to EIR Section 3, *Environmental Setting,* for a list of cumulative projects and projections considered in the discussion of program and project cumulative impacts. As discussed in this Initial Study, the program and project would have no impact, a less than significant impact, or a less than significant impact after mitigation with respect to all environmental issues. As discussed in Section 3, *Air Quality*, and Section 8, *Greenhouse Gas Emissions,* the program would not exceed BAAQMD thresholds and implementation of mitigation measures AQ-1, AQ-2 and GHG-1 would reduce potential program impacts to a less than significant level. As discussed in Section 17, *Transportation,* the program would result in less than significant impacts to traffic flow and transportation systems in the vicinity of the two campuses and Bolinas Site with mitigation incorporated. Furthermore, simultaneous implementation of the FMP program and Sir Francis Drake Rehabilitation project would result in a less than significant impact to traffic flow in the vicinity of the Kentfield Campus with mitigation incorporated. The program and project would not result in substantial long-term environmental impacts and, therefore, would not contribute to cumulative environmental changes that may occur due to planned and pending development. Potential impacts of the project would not be cumulatively considerable. Additional discussion of cumulative impacts is provided in the Draft EIR.

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c. *Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?*

Effects on human beings are generally associated with impacts related to issue areas such as air quality, geology and soils, noise, traffic safety, and hazards. As discussed in this Initial Study, with mitigation incorporated, the project would result in a less than significant impact in each of these resource areas. As discussed in Section 3, *Air Quality,* the project would not generate air quality pollutants above BAAQMD thresholds, and implementation of Mitigation Measures AQ-1, AQ-2 and GHG-1 would reduce potential program impacts to a less than significant level. As discussed in Section 6, *Geology and Soils,* with implementation of Mitigation Measures GEO-1 through GEO-3, the program and project would not expose people or structures to potential adverse effects including risk of loss, injury, or death involving seismic-related ground failure, including liquefaction. As discussed in Section 17, *Transportation,* the project would not alter existing transportation infrastructure or have adverse impacts on traffic safety. The project would not cause substantial adverse effects on human beings, either directly or indirectly. Impacts would be less than significant with mitigation.

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED

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Appendix AQ

Air Quality and Greenhouse Gas Modeling Worksheets and Fuel Consumption Calculations

LRC Project

Marin County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Library	77.00	1000sqft	1.70	77,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2022
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	127	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2018 MCE emission factor

Land Use - Lot acerage per Google Earth

Construction Phase - Arch coating starts halfway through building construction

Demolition - Size of existing building

Grading - Assume cut and fill balanced on site

Architectural Coating - BAAQMD reg 8, rule 3

Vehicle Trips - No change in trips from existing conditions

Energy Use - 30% reduction in non-residential energy use reduction per 2019 T-24

Water And Wastewater - 20% reduction indoor water use per 2016 calgreen

Fleet Mix -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	101.00
tblConstructionPhase	PhaseEndDate	5/10/2021	4/12/2021
tblConstructionPhase	PhaseStartDate	4/27/2021	11/23/2020
tblEnergyUse	T24E	1.21	0.85
tblLandUse	LotAcreage	1.77	1.70
tblProjectCharacteristics	CO2IntensityFactor	0	127
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	43.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	52.00	0.00
tblVehicleTrips	DV_TP	44.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PR_TP	44.00	0.00
tblVehicleTrips	ST_TR	46.55	0.00
tblVehicleTrips	SU_TR	25.49	0.00
tblVehicleTrips	WD_TR	56.24	0.00
tblWater	IndoorWaterUseRate	2,409,245.94	1,927,397.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	10.4300	25.4071	16.5040	0.0368	5.8653	1.1681	6.6867	2.9711	1.0910	3.7268	0.0000	3,683.9769	3,683.9769	0.6745	0.0000	3,700.8397
2021	10.1681	16.5462	16.0536	0.0313	0.4001	0.7836	1.1837	0.1081	0.7597	0.8679	0.0000	2,925.2970	2,925.2970	0.4133	0.0000	2,935.3166
Maximum	**10.4300**	**25.4071**	**16.5040**	**0.0368**	**5.8653**	**1.1681**	**6.6867**	**2.9711**	**1.0910**	**3.7268**	**0.0000**	**3,683.9769**	**3,683.9769**	**0.6745**	**0.0000**	**3,700.8397**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	10.4300	25.4071	16.5040	0.0368	5.8653	1.1681	6.6867	2.9711	1.0910	3.7268	0.0000	3,683.9769	3,683.9769	0.6745	0.0000	3,700.8397
2021	10.1681	16.5462	16.0536	0.0313	0.4001	0.7836	1.1837	0.1081	0.7597	0.8679	0.0000	2,925.2970	2,925.2970	0.4133	0.0000	2,935.3166
Maximum	**10.4300**	**25.4071**	**16.5040**	**0.0368**	**5.8653**	**1.1681**	**6.6867**	**2.9711**	**1.0910**	**3.7268**	**0.0000**	**3,683.9769**	**3,683.9769**	**0.6745**	**0.0000**	**3,700.8397**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8685	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Energy	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9249**	**0.5120**	**0.4379**	**3.0700e-003**	**0.0000**	**0.0389**	**0.0389**	**0.0000**	**0.0389**	**0.0389**		**614.2795**	**614.2795**	**0.0118**	**0.0113**	**617.9309**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.8685	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Energy	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.9249**	**0.5120**	**0.4379**	**3.0700e-003**	**0.0000**	**0.0389**	**0.0389**	**0.0000**	**0.0389**	**0.0389**		**614.2795**	**614.2795**	**0.0118**	**0.0113**	**617.9309**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2020	6/26/2020	5	20	
2	Site Preparation	Site Preparation	6/27/2020	6/30/2020	5	2	
3	Grading	Grading	7/1/2020	7/6/2020	5	4	
4	Building Construction	Building Construction	7/7/2020	4/12/2021	5	200	
5	Paving	Paving	4/13/2021	4/26/2021	5	10	
6	Architectural Coating	Architectural Coating	11/23/2020	4/12/2021	5	101	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 115,500; Non-Residential Outdoor: 38,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	302.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	32.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2678	0.0000	3.2678	0.4948	0.0000	0.4948			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761		2,322.3127	2,322.3127	0.5970		2,337.2363
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**3.2678**	**1.1525**	**4.4202**	**0.4948**	**1.0761**	**1.5709**		**2,322.3127**	**2,322.3127**	**0.5970**		**2,337.2363**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1320	4.4271	1.3171	0.0117	0.2634	0.0149	0.2783	0.0722	0.0142	0.0864		1,261.484 5	1,261.484 5	0.0752		1,263.363 7
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0507	0.0337	0.3162	1.0000e-003	0.1068	7.0000e-004	0.1075	0.0283	6.5000e-004	0.0290		100.1797	100.1797	2.4000e-003		100.2396
Total	**0.1827**	**4.4608**	**1.6333**	**0.0127**	**0.3702**	**0.0156**	**0.3858**	**0.1005**	**0.0149**	**0.1154**		**1,361.664 3**	**1,361.664 3**	**0.0776**		**1,363.603 3**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2678	0.0000	3.2678	0.4948	0.0000	0.4948			0.0000			0.0000
Off-Road	2.1262	20.9463	14.6573	0.0241		1.1525	1.1525		1.0761	1.0761	0.0000	2,322.312 7	2,322.312 7	0.5970		2,337.236 3
Total	**2.1262**	**20.9463**	**14.6573**	**0.0241**	**3.2678**	**1.1525**	**4.4202**	**0.4948**	**1.0761**	**1.5709**	**0.0000**	**2,322.312 7**	**2,322.312 7**	**0.5970**		**2,337.236 3**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1320	4.4271	1.3171	0.0117	0.2634	0.0149	0.2783	0.0722	0.0142	0.0864		1,261.4845	1,261.4845	0.0752		1,263.3637
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0507	0.0337	0.3162	1.0000e-003	0.1068	7.0000e-004	0.1075	0.0283	6.5000e-004	0.0290		100.1797	100.1797	2.4000e-003		100.2396
Total	**0.1827**	**4.4608**	**1.6333**	**0.0127**	**0.3702**	**0.0156**	**0.3858**	**0.1005**	**0.0149**	**0.1154**		**1,361.6643**	**1,361.6643**	**0.0776**		**1,363.6033**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553		1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**5.7996**	**0.8210**	**6.6205**	**2.9537**	**0.7553**	**3.7090**		**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0312	0.0208	0.1946	6.2000e-004	0.0657	4.3000e-004	0.0662	0.0174	4.0000e-004	0.0178		61.6491	61.6491	1.4700e-003		61.6859
Total	**0.0312**	**0.0208**	**0.1946**	**6.2000e-004**	**0.0657**	**4.3000e-004**	**0.0662**	**0.0174**	**4.0000e-004**	**0.0178**		**61.6491**	**61.6491**	**1.4700e-003**		**61.6859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537			0.0000			0.0000
Off-Road	1.6299	18.3464	7.7093	0.0172		0.8210	0.8210		0.7553	0.7553	0.0000	1,667.4119	1,667.4119	0.5393		1,680.8937
Total	**1.6299**	**18.3464**	**7.7093**	**0.0172**	**5.7996**	**0.8210**	**6.6205**	**2.9537**	**0.7553**	**3.7090**	**0.0000**	**1,667.4119**	**1,667.4119**	**0.5393**		**1,680.8937**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0312	0.0208	0.1946	6.2000e-004	0.0657	4.3000e-004	0.0662	0.0174	4.0000e-004	0.0178		61.6491	61.6491	1.4700e-003		61.6859
Total	**0.0312**	**0.0208**	**0.1946**	**6.2000e-004**	**0.0657**	**4.3000e-004**	**0.0662**	**0.0174**	**4.0000e-004**	**0.0178**		**61.6491**	**61.6491**	**1.4700e-003**		**61.6859**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296		1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**4.9143**	**0.6844**	**5.5986**	**2.5256**	**0.6296**	**3.1552**		**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0312	0.0208	0.1946	6.2000e-004	0.0657	4.3000e-004	0.0662	0.0174	4.0000e-004	0.0178		61.6491	61.6491	1.4700e-003		61.6859
Total	**0.0312**	**0.0208**	**0.1946**	**6.2000e-004**	**0.0657**	**4.3000e-004**	**0.0662**	**0.0174**	**4.0000e-004**	**0.0178**		**61.6491**	**61.6491**	**1.4700e-003**		**61.6859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256			0.0000			0.0000
Off-Road	1.3498	15.0854	6.4543	0.0141		0.6844	0.6844		0.6296	0.6296	0.0000	1,365.7183	1,365.7183	0.4417		1,376.7609
Total	**1.3498**	**15.0854**	**6.4543**	**0.0141**	**4.9143**	**0.6844**	**5.5986**	**2.5256**	**0.6296**	**3.1552**	**0.0000**	**1,365.7183**	**1,365.7183**	**0.4417**		**1,376.7609**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0312	0.0208	0.1946	6.2000e-004	0.0657	4.3000e-004	0.0662	0.0174	4.0000e-004	0.0178		61.6491	61.6491	1.4700e-003		61.6859
Total	**0.0312**	**0.0208**	**0.1946**	**6.2000e-004**	**0.0657**	**4.3000e-004**	**0.0662**	**0.0174**	**4.0000e-004**	**0.0178**		**61.6491**	**61.6491**	**1.4700e-003**		**61.6859**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688		2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**		**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0585	1.4328	0.5603	3.4200e-003	0.0879	7.4100e-003	0.0954	0.0253	7.0900e-003	0.0324		363.2136	363.2136	0.0190		363.6875
Worker	0.1248	0.0830	0.7783	2.4700e-003	0.2629	1.7200e-003	0.2646	0.0697	1.5900e-003	0.0713		246.5963	246.5963	5.9000e-003		246.7437
Total	**0.1833**	**1.5158**	**1.3386**	**5.8900e-003**	**0.3508**	**9.1300e-003**	**0.3600**	**0.0950**	**8.6800e-003**	**0.1037**		**609.8098**	**609.8098**	**0.0249**		**610.4313**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0305	14.7882	13.1881	0.0220		0.7960	0.7960		0.7688	0.7688	0.0000	2,001.1595	2,001.1595	0.3715		2,010.4467
Total	**2.0305**	**14.7882**	**13.1881**	**0.0220**		**0.7960**	**0.7960**		**0.7688**	**0.7688**	**0.0000**	**2,001.1595**	**2,001.1595**	**0.3715**		**2,010.4467**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0585	1.4328	0.5603	3.4200e-003	0.0879	7.4100e-003	0.0954	0.0253	7.0900e-003	0.0324		363.2136	363.2136	0.0190		363.6875
Worker	0.1248	0.0830	0.7783	2.4700e-003	0.2629	1.7200e-003	0.2646	0.0697	1.5900e-003	0.0713		246.5963	246.5963	5.9000e-003		246.7437
Total	**0.1833**	**1.5158**	**1.3386**	**5.8900e-003**	**0.3508**	**9.1300e-003**	**0.3600**	**0.0950**	**8.6800e-003**	**0.1037**		**609.8098**	**609.8098**	**0.0249**		**610.4313**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608		2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**		**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0479	1.2952	0.4940	3.3900e-003	0.0879	3.1500e-003	0.0911	0.0253	3.0100e-003	0.0283		360.0266	360.0266	0.0180		360.4752
Worker	0.1164	0.0742	0.7096	2.3900e-003	0.2629	1.6800e-003	0.2646	0.0697	1.5400e-003	0.0713		237.9810	237.9810	5.2700e-003		238.1126
Total	**0.1643**	**1.3694**	**1.2036**	**5.7800e-003**	**0.3508**	**4.8300e-003**	**0.3556**	**0.0950**	**4.5500e-003**	**0.0996**		**598.0076**	**598.0076**	**0.0232**		**598.5879**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608	0.0000	2,001.2200	2,001.2200	0.3573		2,010.1517
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**	**0.0000**	**2,001.2200**	**2,001.2200**	**0.3573**		**2,010.1517**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0479	1.2952	0.4940	3.3900e-003	0.0879	3.1500e-003	0.0911	0.0253	3.0100e-003	0.0283		360.0266	360.0266	0.0180		360.4752
Worker	0.1164	0.0742	0.7096	2.3900e-003	0.2629	1.6800e-003	0.2646	0.0697	1.5400e-003	0.0713		237.9810	237.9810	5.2700e-003		238.1126
Total	**0.1643**	**1.3694**	**1.2036**	**5.7800e-003**	**0.3508**	**4.8300e-003**	**0.3556**	**0.0950**	**4.5500e-003**	**0.0996**		**598.0076**	**598.0076**	**0.0232**		**598.5879**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830		1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**		**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0473	0.0302	0.2883	9.7000e-004	0.1068	6.8000e-004	0.1075	0.0283	6.3000e-004	0.0290		96.6798	96.6798	2.1400e-003		96.7333
Total	**0.0473**	**0.0302**	**0.2883**	**9.7000e-004**	**0.1068**	**6.8000e-004**	**0.1075**	**0.0283**	**6.3000e-004**	**0.0290**		**96.6798**	**96.6798**	**2.1400e-003**		**96.7333**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830	0.0000	1,296.8664	1,296.8664	0.4111		1,307.1442
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7739**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**	**0.0000**	**1,296.8664**	**1,296.8664**	**0.4111**		**1,307.1442**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0473	0.0302	0.2883	9.7000e-004	0.1068	6.8000e-004	0.1075	0.0283	6.3000e-004	0.0290		96.6798	96.6798	2.1400e-003		96.7333
Total	**0.0473**	**0.0302**	**0.2883**	**9.7000e-004**	**0.1068**	**6.8000e-004**	**0.1075**	**0.0283**	**6.3000e-004**	**0.0290**		**96.6798**	**96.6798**	**2.1400e-003**		**96.7333**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.9506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109		281.4481	281.4481	0.0218		281.9928
Total	**8.1928**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**		**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0234	0.0156	0.1459	4.6000e-004	0.0493	3.2000e-004	0.0496	0.0131	3.0000e-004	0.0134		46.2368	46.2368	1.1100e-003		46.2645
Total	**0.0234**	**0.0156**	**0.1459**	**4.6000e-004**	**0.0493**	**3.2000e-004**	**0.0496**	**0.0131**	**3.0000e-004**	**0.0134**		**46.2368**	**46.2368**	**1.1100e-003**		**46.2645**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.9506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2422	1.6838	1.8314	2.9700e-003		0.1109	0.1109		0.1109	0.1109	0.0000	281.4481	281.4481	0.0218		281.9928
Total	**8.1928**	**1.6838**	**1.8314**	**2.9700e-003**		**0.1109**	**0.1109**		**0.1109**	**0.1109**	**0.0000**	**281.4481**	**281.4481**	**0.0218**		**281.9928**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0234	0.0156	0.1459	4.6000e-004	0.0493	3.2000e-004	0.0496	0.0131	3.0000e-004	0.0134		46.2368	46.2368	1.1100e-003		46.2645
Total	**0.0234**	**0.0156**	**0.1459**	**4.6000e-004**	**0.0493**	**3.2000e-004**	**0.0496**	**0.0131**	**3.0000e-004**	**0.0134**		**46.2368**	**46.2368**	**1.1100e-003**		**46.2645**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.9506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**8.1695**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0218	0.0139	0.1330	4.5000e-004	0.0493	3.1000e-004	0.0496	0.0131	2.9000e-004	0.0134		44.6214	44.6214	9.9000e-004		44.6461
Total	**0.0218**	**0.0139**	**0.1330**	**4.5000e-004**	**0.0493**	**3.1000e-004**	**0.0496**	**0.0131**	**2.9000e-004**	**0.0134**		**44.6214**	**44.6214**	**9.9000e-004**		**44.6461**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	7.9506					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**8.1695**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0218	0.0139	0.1330	4.5000e-004	0.0493	3.1000e-004	0.0496	0.0131	2.9000e-004	0.0134		44.6214	44.6214	9.9000e-004		44.6461
Total	**0.0218**	**0.0139**	**0.1330**	**4.5000e-004**	**0.0493**	**3.1000e-004**	**0.0496**	**0.0131**	**2.9000e-004**	**0.0134**		**44.6214**	**44.6214**	**9.9000e-004**		**44.6461**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Library	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Library	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Library	0.592917	0.040807	0.199317	0.111088	0.016573	0.005170	0.010431	0.011175	0.002033	0.003262	0.005795	0.000692	0.000740

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
NaturalGas Unmitigated	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Library	5221.23	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
Total		**0.0563**	**0.5119**	**0.4300**	**3.0700e-003**		**0.0389**	**0.0389**		**0.0389**	**0.0389**		**614.2627**	**614.2627**	**0.0118**	**0.0113**	**617.9130**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Library	5.22123	0.0563	0.5119	0.4300	3.0700e-003		0.0389	0.0389		0.0389	0.0389		614.2627	614.2627	0.0118	0.0113	617.9130
Total		**0.0563**	**0.5119**	**0.4300**	**3.0700e-003**		**0.0389**	**0.0389**		**0.0389**	**0.0389**		**614.2627**	**614.2627**	**0.0118**	**0.0113**	**617.9130**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.8685	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Unmitigated	1.8685	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6478					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3000e-004	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Total	**1.8685**	**7.0000e-005**	**7.8700e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0169**	**0.0169**	**4.0000e-005**		**0.0180**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2200					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6478					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	7.3000e-004	7.0000e-005	7.8700e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0169	0.0169	4.0000e-005		0.0180
Total	**1.8685**	**7.0000e-005**	**7.8700e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0169**	**0.0169**	**4.0000e-005**		**0.0180**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

LRC Project

Marin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Library	77.00	1000sqft	1.70	77,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	69
Climate Zone	5			**Operational Year**	2030
Utility Company	User Defined				
CO2 Intensity (lb/MWhr)	127	**CH4 Intensity (lb/MWhr)**	0	**N2O Intensity (lb/MWhr)**	0

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 2018 MCE emission factor

Land Use - Lot acerage per Google Earth

Construction Phase - Arch coating starts halfway through building construction

Demolition - Size of existing building

Grading - Assume cut and fill balanced on site

Architectural Coating - BAAQMD reg 8, rule 3

Vehicle Trips - No change in trips from existing conditions

Energy Use - 30% reduction in non-residential energy use reduction per 2019 T-24

Water And Wastewater - 20% reduction indoor water use per 2016 calgreen

Fleet Mix -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	10.00	101.00
tblConstructionPhase	PhaseEndDate	5/10/2021	4/12/2021
tblConstructionPhase	PhaseStartDate	4/27/2021	11/23/2020
tblEnergyUse	T24E	1.21	0.85
tblLandUse	LotAcreage	1.77	1.70
tblProjectCharacteristics	CO2IntensityFactor	0	127
tblVehicleTrips	CC_TL	7.30	0.00
tblVehicleTrips	CC_TTP	43.00	0.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	CW_TTP	52.00	0.00
tblVehicleTrips	DV_TP	44.00	0.00
tblVehicleTrips	PB_TP	12.00	0.00
tblVehicleTrips	PR_TP	44.00	0.00
tblVehicleTrips	ST_TR	46.55	0.00
tblVehicleTrips	SU_TR	25.49	0.00
tblVehicleTrips	WD_TR	56.24	0.00
tblWater	IndoorWaterUseRate	2,409,245.94	1,927,397.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2872	1.3701	1.1387	2.2600e-003	0.0743	0.0670	0.1413	0.0200	0.0643	0.0843	0.0000	193.9200	193.9200	0.0307	0.0000	194.6871
2021	0.3695	0.6343	0.6219	1.2000e-003	0.0144	0.0303	0.0446	3.8900e-003	0.0293	0.0332	0.0000	102.0547	102.0547	0.0150	0.0000	102.4284
Maximum	**0.3695**	**1.3701**	**1.1387**	**2.2600e-003**	**0.0743**	**0.0670**	**0.1413**	**0.0200**	**0.0643**	**0.0843**	**0.0000**	**193.9200**	**193.9200**	**0.0307**	**0.0000**	**194.6871**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.2872	1.3701	1.1387	2.2600e-003	0.0743	0.0670	0.1413	0.0200	0.0643	0.0843	0.0000	193.9198	193.9198	0.0307	0.0000	194.6870
2021	0.3695	0.6343	0.6219	1.2000e-003	0.0144	0.0303	0.0446	3.8900e-003	0.0293	0.0332	0.0000	102.0546	102.0546	0.0150	0.0000	102.4283
Maximum	**0.3695**	**1.3701**	**1.1387**	**2.2600e-003**	**0.0743**	**0.0670**	**0.1413**	**0.0200**	**0.0643**	**0.0843**	**0.0000**	**193.9198**	**193.9198**	**0.0307**	**0.0000**	**194.6870**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-1-2020	8-31-2020	0.6894	0.6894
2	9-1-2020	11-30-2020	0.6296	0.6296
3	12-1-2020	2-28-2021	0.8777	0.8777
4	3-1-2021	5-31-2021	0.4530	0.4530
		Highest	0.8777	0.8777

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3409	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Energy	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	133.6350	133.6350	1.9500e-003	1.8600e-003	134.2393
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	14.3941	0.0000	14.3941	0.8507	0.0000	35.6608
Water						0.0000	0.0000		0.0000	0.0000	0.6115	1.3606	1.9720	0.0628	1.4800e-003	3.9841
Total	**0.3512**	**0.0934**	**0.0792**	**5.6000e-004**	**0.0000**	**7.1000e-003**	**7.1000e-003**	**0.0000**	**7.1000e-003**	**7.1000e-003**	**15.0056**	**134.9969**	**150.0025**	**0.9154**	**3.3400e-003**	**173.8856**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3409	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Energy	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	133.6350	133.6350	1.9500e-003	1.8600e-003	134.2393
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	14.3941	0.0000	14.3941	0.8507	0.0000	35.6608
Water						0.0000	0.0000		0.0000	0.0000	0.6115	1.3606	1.9720	0.0628	1.4800e-003	3.9841
Total	**0.3512**	**0.0934**	**0.0792**	**5.6000e-004**	**0.0000**	**7.1000e-003**	**7.1000e-003**	**0.0000**	**7.1000e-003**	**7.1000e-003**	**15.0056**	**134.9969**	**150.0025**	**0.9154**	**3.3400e-003**	**173.8856**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2020	6/26/2020	5	20	
2	Site Preparation	Site Preparation	6/27/2020	6/30/2020	5	2	
3	Grading	Grading	7/1/2020	7/6/2020	5	4	
4	Building Construction	Building Construction	7/7/2020	4/12/2021	5	200	
5	Architectural Coating	Architectural Coating	11/23/2020	4/12/2021	5	101	
6	Paving	Paving	4/13/2021	4/26/2021	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 115,500; Non-Residential Outdoor: 38,500; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	302.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	32.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0327	0.0000	0.0327	4.9500e-003	0.0000	4.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0677	21.0677	5.4200e-003	0.0000	21.2031
Total	**0.0213**	**0.2095**	**0.1466**	**2.4000e-004**	**0.0327**	**0.0115**	**0.0442**	**4.9500e-003**	**0.0108**	**0.0157**	**0.0000**	**21.0677**	**21.0677**	**5.4200e-003**	**0.0000**	**21.2031**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-003	0.0441	0.0128	1.2000e-004	2.5400e-003	1.5000e-004	2.6900e-003	7.0000e-004	1.4000e-004	8.4000e-004	0.0000	11.5375	11.5375	6.7000e-004	0.0000	11.5543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.1000e-004	3.0700e-003	1.0000e-005	1.0200e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9133	0.9133	2.0000e-005	0.0000	0.9139
Total	**1.7500e-003**	**0.0444**	**0.0158**	**1.3000e-004**	**3.5600e-003**	**1.6000e-004**	**3.7200e-003**	**9.7000e-004**	**1.5000e-004**	**1.1200e-003**	**0.0000**	**12.4508**	**12.4508**	**6.9000e-004**	**0.0000**	**12.4682**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0327	0.0000	0.0327	4.9500e-003	0.0000	4.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0213	0.2095	0.1466	2.4000e-004		0.0115	0.0115		0.0108	0.0108	0.0000	21.0676	21.0676	5.4200e-003	0.0000	21.2030
Total	**0.0213**	**0.2095**	**0.1466**	**2.4000e-004**	**0.0327**	**0.0115**	**0.0442**	**4.9500e-003**	**0.0108**	**0.0157**	**0.0000**	**21.0676**	**21.0676**	**5.4200e-003**	**0.0000**	**21.2030**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-003	0.0441	0.0128	1.2000e-004	2.5400e-003	1.5000e-004	2.6900e-003	7.0000e-004	1.4000e-004	8.4000e-004	0.0000	11.5375	11.5375	6.7000e-004	0.0000	11.5543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	3.1000e-004	3.0700e-003	1.0000e-005	1.0200e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9133	0.9133	2.0000e-005	0.0000	0.9139
Total	**1.7500e-003**	**0.0444**	**0.0158**	**1.3000e-004**	**3.5600e-003**	**1.6000e-004**	**3.7200e-003**	**9.7000e-004**	**1.5000e-004**	**1.1200e-003**	**0.0000**	**12.4508**	**12.4508**	**6.9000e-004**	**0.0000**	**12.4682**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0184	7.7100e-003	2.0000e-005		8.2000e-004	8.2000e-004		7.6000e-004	7.6000e-004	0.0000	1.5127	1.5127	4.9000e-004	0.0000	1.5249
Total	**1.6300e-003**	**0.0184**	**7.7100e-003**	**2.0000e-005**	**5.8000e-003**	**8.2000e-004**	**6.6200e-003**	**2.9500e-003**	**7.6000e-004**	**3.7100e-003**	**0.0000**	**1.5127**	**1.5127**	**4.9000e-004**	**0.0000**	**1.5249**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0562	0.0562	0.0000	0.0000	0.0562
Total	**3.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0562**	**0.0562**	**0.0000**	**0.0000**	**0.0562**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6300e-003	0.0184	7.7100e-003	2.0000e-005		8.2000e-004	8.2000e-004		7.6000e-004	7.6000e-004	0.0000	1.5127	1.5127	4.9000e-004	0.0000	1.5249
Total	**1.6300e-003**	**0.0184**	**7.7100e-003**	**2.0000e-005**	**5.8000e-003**	**8.2000e-004**	**6.6200e-003**	**2.9500e-003**	**7.6000e-004**	**3.7100e-003**	**0.0000**	**1.5127**	**1.5127**	**4.9000e-004**	**0.0000**	**1.5249**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	1.9000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0562	0.0562	0.0000	0.0000	0.0562
Total	**3.0000e-005**	**2.0000e-005**	**1.9000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0562**	**0.0562**	**0.0000**	**0.0000**	**0.0562**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-003	0.0302	0.0129	3.0000e-005		1.3700e-003	1.3700e-003		1.2600e-003	1.2600e-003	0.0000	2.4779	2.4779	8.0000e-004	0.0000	2.4980
Total	**2.7000e-003**	**0.0302**	**0.0129**	**3.0000e-005**	**9.8300e-003**	**1.3700e-003**	**0.0112**	**5.0500e-003**	**1.2600e-003**	**6.3100e-003**	**0.0000**	**2.4779**	**2.4779**	**8.0000e-004**	**0.0000**	**2.4980**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1124	0.1124	0.0000	0.0000	0.1125
Total	**6.0000e-005**	**4.0000e-005**	**3.8000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1124**	**0.1124**	**0.0000**	**0.0000**	**0.1125**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.7000e-003	0.0302	0.0129	3.0000e-005		1.3700e-003	1.3700e-003		1.2600e-003	1.2600e-003	0.0000	2.4779	2.4779	8.0000e-004	0.0000	2.4980
Total	**2.7000e-003**	**0.0302**	**0.0129**	**3.0000e-005**	**9.8300e-003**	**1.3700e-003**	**0.0112**	**5.0500e-003**	**1.2600e-003**	**6.3100e-003**	**0.0000**	**2.4779**	**2.4779**	**8.0000e-004**	**0.0000**	**2.4980**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	4.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1124	0.1124	0.0000	0.0000	0.1125
Total	**6.0000e-005**	**4.0000e-005**	**3.8000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1124**	**0.1124**	**0.0000**	**0.0000**	**0.1125**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1300	0.9465	0.8440	1.4100e-003		0.0509	0.0509		0.0492	0.0492	0.0000	116.1870	116.1870	0.0216	0.0000	116.7262
Total	**0.1300**	**0.9465**	**0.8440**	**1.4100e-003**		**0.0509**	**0.0509**		**0.0492**	**0.0492**	**0.0000**	**116.1870**	**116.1870**	**0.0216**	**0.0000**	**116.7262**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6200e-003	0.0917	0.0340	2.2000e-004	5.4400e-003	4.7000e-004	5.9100e-003	1.5700e-003	4.5000e-004	2.0200e-003	0.0000	21.3535	21.3535	1.0700e-003	0.0000	21.3804
Worker	7.1500e-003	4.9000e-003	0.0484	1.6000e-004	0.0161	1.1000e-004	0.0162	4.2900e-003	1.0000e-004	4.3900e-003	0.0000	14.3883	14.3883	3.4000e-004	0.0000	14.3969
Total	**0.0108**	**0.0966**	**0.0824**	**3.8000e-004**	**0.0216**	**5.8000e-004**	**0.0222**	**5.8600e-003**	**5.5000e-004**	**6.4100e-003**	**0.0000**	**35.7419**	**35.7419**	**1.4100e-003**	**0.0000**	**35.7772**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1300	0.9465	0.8440	1.4100e-003		0.0509	0.0509		0.0492	0.0492	0.0000	116.1868	116.1868	0.0216	0.0000	116.7260
Total	**0.1300**	**0.9465**	**0.8440**	**1.4100e-003**		**0.0509**	**0.0509**		**0.0492**	**0.0492**	**0.0000**	**116.1868**	**116.1868**	**0.0216**	**0.0000**	**116.7260**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.6200e-003	0.0917	0.0340	2.2000e-004	5.4400e-003	4.7000e-004	5.9100e-003	1.5700e-003	4.5000e-004	2.0200e-003	0.0000	21.3535	21.3535	1.0700e-003	0.0000	21.3804
Worker	7.1500e-003	4.9000e-003	0.0484	1.6000e-004	0.0161	1.1000e-004	0.0162	4.2900e-003	1.0000e-004	4.3900e-003	0.0000	14.3883	14.3883	3.4000e-004	0.0000	14.3969
Total	**0.0108**	**0.0966**	**0.0824**	**3.8000e-004**	**0.0216**	**5.8000e-004**	**0.0222**	**5.8600e-003**	**5.5000e-004**	**6.4100e-003**	**0.0000**	**35.7419**	**35.7419**	**1.4100e-003**	**0.0000**	**35.7772**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0653	0.4909	0.4644	7.9000e-004		0.0246	0.0246		0.0238	0.0238	0.0000	65.3571	65.3571	0.0117	0.0000	65.6488
Total	**0.0653**	**0.4909**	**0.4644**	**7.9000e-004**		**0.0246**	**0.0246**		**0.0238**	**0.0238**	**0.0000**	**65.3571**	**65.3571**	**0.0117**	**0.0000**	**65.6488**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6600e-003	0.0467	0.0168	1.2000e-004	3.0600e-003	1.1000e-004	3.1700e-003	8.9000e-004	1.1000e-004	9.9000e-004	0.0000	11.9074	11.9074	5.7000e-004	0.0000	11.9217
Worker	3.7500e-003	2.4600e-003	0.0249	9.0000e-005	9.0700e-003	6.0000e-005	9.1400e-003	2.4100e-003	6.0000e-005	2.4700e-003	0.0000	7.8107	7.8107	1.7000e-004	0.0000	7.8150
Total	**5.4100e-003**	**0.0491**	**0.0417**	**2.1000e-004**	**0.0121**	**1.7000e-004**	**0.0123**	**3.3000e-003**	**1.7000e-004**	**3.4600e-003**	**0.0000**	**19.7181**	**19.7181**	**7.4000e-004**	**0.0000**	**19.7367**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0653	0.4909	0.4644	7.9000e-004		0.0246	0.0246		0.0238	0.0238	0.0000	65.3571	65.3571	0.0117	0.0000	65.6488
Total	**0.0653**	**0.4909**	**0.4644**	**7.9000e-004**		**0.0246**	**0.0246**		**0.0238**	**0.0238**	**0.0000**	**65.3571**	**65.3571**	**0.0117**	**0.0000**	**65.6488**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6600e-003	0.0467	0.0168	1.2000e-004	3.0600e-003	1.1000e-004	3.1700e-003	8.9000e-004	1.1000e-004	9.9000e-004	0.0000	11.9074	11.9074	5.7000e-004	0.0000	11.9217
Worker	3.7500e-003	2.4600e-003	0.0249	9.0000e-005	9.0700e-003	6.0000e-005	9.1400e-003	2.4100e-003	6.0000e-005	2.4700e-003	0.0000	7.8107	7.8107	1.7000e-004	0.0000	7.8150
Total	**5.4100e-003**	**0.0491**	**0.0417**	**2.1000e-004**	**0.0121**	**1.7000e-004**	**0.0123**	**3.3000e-003**	**1.7000e-004**	**3.4600e-003**	**0.0000**	**19.7181**	**19.7181**	**7.4000e-004**	**0.0000**	**19.7367**

3.6 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1153					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5100e-003	0.0244	0.0266	4.0000e-005		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	3.7022	3.7022	2.9000e-004	0.0000	3.7094
Total	**0.1188**	**0.0244**	**0.0266**	**4.0000e-005**		**1.6100e-003**	**1.6100e-003**		**1.6100e-003**	**1.6100e-003**	**0.0000**	**3.7022**	**3.7022**	**2.9000e-004**	**0.0000**	**3.7094**

3.6 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.1000e-004	2.0600e-003	1.0000e-005	6.9000e-004	0.0000	6.9000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6112	0.6112	1.0000e-005	0.0000	0.6116
Total	**3.0000e-004**	**2.1000e-004**	**2.0600e-003**	**1.0000e-005**	**6.9000e-004**	**0.0000**	**6.9000e-004**	**1.8000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6112**	**0.6112**	**1.0000e-005**	**0.0000**	**0.6116**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1153					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5100e-003	0.0244	0.0266	4.0000e-005		1.6100e-003	1.6100e-003		1.6100e-003	1.6100e-003	0.0000	3.7022	3.7022	2.9000e-004	0.0000	3.7094
Total	**0.1188**	**0.0244**	**0.0266**	**4.0000e-005**		**1.6100e-003**	**1.6100e-003**		**1.6100e-003**	**1.6100e-003**	**0.0000**	**3.7022**	**3.7022**	**2.9000e-004**	**0.0000**	**3.7094**

3.6 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.1000e-004	2.0600e-003	1.0000e-005	6.9000e-004	0.0000	6.9000e-004	1.8000e-004	0.0000	1.9000e-004	0.0000	0.6112	0.6112	1.0000e-005	0.0000	0.6116
Total	**3.0000e-004**	**2.1000e-004**	**2.0600e-003**	**1.0000e-005**	**6.9000e-004**	**0.0000**	**6.9000e-004**	**1.8000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6112**	**0.6112**	**1.0000e-005**	**0.0000**	**0.6116**

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2862					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8800e-003	0.0550	0.0654	1.1000e-004		3.3900e-003	3.3900e-003		3.3900e-003	3.3900e-003	0.0000	9.1917	9.1917	6.3000e-004	0.0000	9.2075
Total	**0.2941**	**0.0550**	**0.0654**	**1.1000e-004**		**3.3900e-003**	**3.3900e-003**		**3.3900e-003**	**3.3900e-003**	**0.0000**	**9.1917**	**9.1917**	**6.3000e-004**	**0.0000**	**9.2075**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-004	4.6000e-004	4.6600e-003	2.0000e-005	1.7000e-003	1.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4645	1.4645	3.0000e-005	0.0000	1.4653
Total	**7.0000e-004**	**4.6000e-004**	**4.6600e-003**	**2.0000e-005**	**1.7000e-003**	**1.0000e-005**	**1.7100e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.4645**	**1.4645**	**3.0000e-005**	**0.0000**	**1.4653**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2862					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8800e-003	0.0550	0.0654	1.1000e-004		3.3900e-003	3.3900e-003		3.3900e-003	3.3900e-003	0.0000	9.1917	9.1917	6.3000e-004	0.0000	9.2075
Total	**0.2941**	**0.0550**	**0.0654**	**1.1000e-004**		**3.3900e-003**	**3.3900e-003**		**3.3900e-003**	**3.3900e-003**	**0.0000**	**9.1917**	**9.1917**	**6.3000e-004**	**0.0000**	**9.2075**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-004	4.6000e-004	4.6600e-003	2.0000e-005	1.7000e-003	1.0000e-005	1.7100e-003	4.5000e-004	1.0000e-005	4.6000e-004	0.0000	1.4645	1.4645	3.0000e-005	0.0000	1.4653
Total	**7.0000e-004**	**4.6000e-004**	**4.6600e-003**	**2.0000e-005**	**1.7000e-003**	**1.0000e-005**	**1.7100e-003**	**4.5000e-004**	**1.0000e-005**	**4.6000e-004**	**0.0000**	**1.4645**	**1.4645**	**3.0000e-005**	**0.0000**	**1.4653**

3.7 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8700e-003	0.0387	0.0443	7.0000e-005		2.0800e-003	2.0800e-003		1.9100e-003	1.9100e-003	0.0000	5.8825	5.8825	1.8600e-003	0.0000	5.9291
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.8700e-003**	**0.0387**	**0.0443**	**7.0000e-005**		**2.0800e-003**	**2.0800e-003**		**1.9100e-003**	**1.9100e-003**	**0.0000**	**5.8825**	**5.8825**	**1.8600e-003**	**0.0000**	**5.9291**

3.7 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.4000e-004	1.4000e-003	0.0000	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4407	0.4407	1.0000e-005	0.0000	0.4410
Total	**2.1000e-004**	**1.4000e-004**	**1.4000e-003**	**0.0000**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4407**	**0.4407**	**1.0000e-005**	**0.0000**	**0.4410**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8700e-003	0.0387	0.0443	7.0000e-005		2.0800e-003	2.0800e-003		1.9100e-003	1.9100e-003	0.0000	5.8825	5.8825	1.8600e-003	0.0000	5.9291
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.8700e-003**	**0.0387**	**0.0443**	**7.0000e-005**		**2.0800e-003**	**2.0800e-003**		**1.9100e-003**	**1.9100e-003**	**0.0000**	**5.8825**	**5.8825**	**1.8600e-003**	**0.0000**	**5.9291**

3.7 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.4000e-004	1.4000e-003	0.0000	5.1000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.4407	0.4407	1.0000e-005	0.0000	0.4410
Total	**2.1000e-004**	**1.4000e-004**	**1.4000e-003**	**0.0000**	**5.1000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4407**	**0.4407**	**1.0000e-005**	**0.0000**	**0.4410**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Library	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Library	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Library	0.606659	0.037139	0.196776	0.106073	0.012990	0.005264	0.011080	0.012730	0.002058	0.002288	0.005513	0.000755	0.000673

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	31.9369	31.9369	0.0000	0.0000	31.9369
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	31.9369	31.9369	0.0000	0.0000	31.9369
NaturalGas Mitigated	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	101.6981	101.6981	1.9500e-003	1.8600e-003	102.3024
NaturalGas Unmitigated	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	101.6981	101.6981	1.9500e-003	1.8600e-003	102.3024

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Library	1.90575e+006	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	101.6981	101.6981	1.9500e-003	1.8600e-003	102.3024
Total		**0.0103**	**0.0934**	**0.0785**	**5.6000e-004**		**7.1000e-003**	**7.1000e-003**		**7.1000e-003**	**7.1000e-003**	**0.0000**	**101.6981**	**101.6981**	**1.9500e-003**	**1.8600e-003**	**102.3024**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Library	1.90575e+006	0.0103	0.0934	0.0785	5.6000e-004		7.1000e-003	7.1000e-003		7.1000e-003	7.1000e-003	0.0000	101.6981	101.6981	1.9500e-003	1.8600e-003	102.3024
Total		**0.0103**	**0.0934**	**0.0785**	**5.6000e-004**		**7.1000e-003**	**7.1000e-003**		**7.1000e-003**	**7.1000e-003**	**0.0000**	**101.6981**	**101.6981**	**1.9500e-003**	**1.8600e-003**	**102.3024**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Library	554400	31.9369	0.0000	0.0000	31.9369
Total		**31.9369**	**0.0000**	**0.0000**	**31.9369**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Library	554400	31.9369	0.0000	0.0000	31.9369
Total		**31.9369**	**0.0000**	**0.0000**	**31.9369**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3409	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Unmitigated	0.3409	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3007					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Total	**0.3409**	**1.0000e-005**	**7.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3800e-003**	**1.3800e-003**	**0.0000**	**0.0000**	**1.4600e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0402					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3007					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	7.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.3800e-003	1.3800e-003	0.0000	0.0000	1.4600e-003
Total	**0.3409**	**1.0000e-005**	**7.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.3800e-003**	**1.3800e-003**	**0.0000**	**0.0000**	**1.4600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.9720	0.0628	1.4800e-003	3.9841
Unmitigated	1.9720	0.0628	1.4800e-003	3.9841

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Library	1.9274 / 3.76831	1.9720	0.0628	1.4800e-003	3.9841
Total		**1.9720**	**0.0628**	**1.4800e-003**	**3.9841**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Library	1.9274 / 3.76831	1.9720	0.0628	1.4800e-003	3.9841
Total		**1.9720**	**0.0628**	**1.4800e-003**	**3.9841**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	14.3941	0.8507	0.0000	35.6608
Unmitigated	14.3941	0.8507	0.0000	35.6608

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Library	70.91	14.3941	0.8507	0.0000	35.6608
Total		**14.3941**	**0.8507**	**0.0000**	**35.6608**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Library	70.91	14.3941	0.8507	0.0000	35.6608
Total		**14.3941**	**0.8507**	**0.0000**	**35.6608**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

LRC Project

Last Updated: 3/26/20

Compression-Ignition Engine Brake-Specific Fuel Consumption (BSFC) Factors **[1]**:

HP: 0 to 100	0.0588	HP: Greater than 100	0.0529

Values above are expressed in gallons per horsepower-hour/BSFC.

CONSTRUCTION EQUIPMENT

Construction Equipment	#	Hours per Day	Horsepower	Load Factor	Construction Phase	Fuel Used (gallons)
Rubber Tired Dozer	1	8	247	0.40	Demo	835.59
Tractors/Loaders/Backhoes	3	8	97	0.37	Demo	1,012.34
Concrete/Industrial Saws	1	8	81	0.73	Demo	555.96
Concrete/Industrial Saws	1	8	81	0.73	Site Prep	55.6
Rubber Tired Dozer	1	7	247	0.40	Site Prep	73.1
Graders	1	8	187	0.41	Site Prep	64.8
Graders	1	6	187	0.41	Grading	97.2
Rubber Tired Dozer	1	8	247	0.40	Grading	167.12
Tractors/Loaders/Backhoes	1	7	97	0.37	Grading	59.0
Cranes	1	6	231	0.29	Building	4,249.23
Forklifts	1	6	89	0.20	Building	1,255.20
Generator Sets	1	8	84	0.74	Building	5,844.45
Tractors/Loaders/Backhoes	1	8	97	0.37	Building	3,374.48
Welders	3	8	46	0.45	Building	5,838.81
XXX	0	8	20	0.30	Building	
Air Compressors	1	8	78	0.48	Arch Coating	1,777.71
XXX	0	8	20	0.30	Arch Coating	
Cement and Mortar Mixers	1	6	9	0.56	Paving	17.7
Pavers	1	6	130	0.42	Paving	173.17
Paving Equipment	1	8	132	0.36	Paving	200.95
Rollers	1	7	80	0.38	Paving	125.05
Tractors/Loaders/Backhoes	1	7	97	0.37	Grading	59.0

Total Fuel Used **25,836.76 (Gallons)**

Construction Phase	Days of Operation
Demolition Phase	20
Site Preparation Phase	2
Grading Phase	4
Building Construction Phase	200
Paving Phase	10
Architectural Coating Phase	101
Total Days	337

WORKER TRIPS

Constuction Phase	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
Demolition	24.2	13	10.8	116.03
Site Prep Phase	24.2	8	10.8	7.14
Grading Phase	24.2	8	10.8	14.28
Building Phase	24.2	32	10.8	2856.20
Paving Phase	24.2	13	10.8	58.02
Architectural Coating Phase	24.2	6	10.8	270.45
			Total	**3,322.12**

HAULING AND VENDOR TRIPS

Trip Class	MPG [2]	Trips	Trip Length (miles)	Fuel Used (gallons)
		HAULING TRIPS		
Demolition	7.4	302	20.0	816.22
Site Prep Phase	7.4	0	20.0	0.00
Grading Phase	7.4	0	20.0	0.00
Building Phase	7.4	0	20.0	0.00
Paving Phase	7.4	0	20.0	0.00

Architectural Coating Phase	7.4	0	20.0	0.00
			Total	**816.22**

VENDOR TRIPS

Demolition	7.4	0	7.3	0.00
Site Prep Phase	7.4	0	7.3	0.00
Grading Phase	7.4	0	7.3	0.00
Building Phase	7.4	13	7.3	2564.86
Paving Phase	7.4	0	7.3	0.00
Architectural Coating Phase	7.4	0	7.3	0.00
			Total	**2,564.86**
				3,381.08

Total Gasoline Consumption (gallons)	**3,322.12**
Total Diesel Consumption (gallons)	**29,217.84**
	32,539.95

Sources:

[1] United States Environmental Protection Agency. 2018. *Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b* . July 2018. Available at: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UXEN.pdf.

[2] United States Department of Transportation, Bureau of Transportation Statistics. 2018. *National Transportation Statistics 2018* . Available at: https://www.bts.gov/sites/bts.dot.gov/files/docs/browse-statistical-products-and-data/national-transportation-statistics/223001/ntsentire2018q4.pdf.

Appendix AQ

CalEEMod Output Files

Appendix NOI

Noise Level Estimate Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Demo

Academic Center

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	130.0	0.0
Dozer	No	40		81.7	130.0	0.0
Backhoe	No	40		77.6	130.0	0.0
Backhoe	No	40		77.6	130.0	0.0
Backhoe	No	40		77.6	130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	81.3	74.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	73.4	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	69.3	65.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	69.3	65.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	69.3	65.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	81.3	76.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Site Prep

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		130.0	0.0
Tractor	No	40	84.0		130.0	0.0
Scraper	No	40		83.6	130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	76.7	72.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	75.3	71.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	76.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Grading

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	130.0	0.0
Tractor	No	40	84.0		130.0	0.0
Grader	No	40	85.0		130.0	0.0
Tractor	No	40	84.0		130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	73.4	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	76.7	72.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	76.7	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: Building Construction

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	130.0	0.0
Crane	No	16		80.6	130.0	0.0
Man Lift	No	20		74.7	130.0	0.0
Tractor	No	40	84.0		130.0	0.0
Welder / Torch	No	40		74.0	130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator	72.3	69.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	72.3	64.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	66.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	65.7	61.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	75.7	74.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Paving

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	130.0	0.0
Paver	No	50		77.2	130.0	0.0
Roller	No	20		80.0	130.0	0.0
Roller	No	20		80.0	130.0	0.0
Tractor	No	40	84.0		130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)							
			Day		Evening		Night		Day		Evening		Night			
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	70.5	66.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Paver	68.9	65.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Roller	71.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Roller	71.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			
Total	75.7	74.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A			

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Arch Coating

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	69.4	65.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	69.4	65.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Demo

Anne E Kent Middle

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	460.0	0.0
Dozer	No	40		81.7	460.0	0.0
Backhoe	No	40		77.6	460.0	0.0
Backhoe	No	40		77.6	460.0	0.0
Backhoe	No	40		77.6	460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	70.3	63.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.3	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.3	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.3	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.3	65.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Site Prep

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent Middle	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Grader	No	40	85.0		460.0	0.0
Tractor	No	40	84.0		460.0	0.0
Scraper	No	40		83.6	460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	65.7	61.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	64.3	60.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.7	65.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Grading

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent Middle	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	460.0	0.0
Tractor	No	40	84.0		460.0	0.0
Grader	No	40	85.0		460.0	0.0
Tractor	No	40	84.0		460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	65.7	61.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.7	66.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Building Construction

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	460.0	0.0
Crane	No	16		80.6	460.0	0.0
Man Lift	No	20		74.7	460.0	0.0
Tractor	No	40	84.0		460.0	0.0
Welder / Torch	No	40		74.0	460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator	61.4	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	61.3	53.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	55.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	54.7	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	64.7	63.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Paving

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	460.0	0.0
Paver	No	50		77.2	460.0	0.0
Roller	No	20		80.0	460.0	0.0
Tractor	No	40	84.0		460.0	0.0
Roller	No	20		80.0	460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	57.9	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	60.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	60.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	64.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Arch Coating

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	460.0	0.0

Results

Equipment	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	58.4	54.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.4	54.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Demo

Residences

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Concrete Saw	No	20		89.6	720.0	0.0
Dozer	No	40		81.7	720.0	0.0
Backhoe	No	40		77.6	720.0	0.0
Backhoe	No	40		77.6	720.0	0.0
Backhoe	No	40		77.6	720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10
Concrete Saw	66.4	62.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.5	57.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4	53.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4	53.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4	53.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.4	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Site Prep

**** Receptor #1 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences	Residential	654.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		720.0	0.0
Tractor	No	40	84.0		720.0	0.0
Scraper	No	40		83.6	720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	61.8	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.8	61.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Grading

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	720.0	0.0
Tractor	No	40	84.0		720.0	0.0
Grader	No	40	85.0		720.0	0.0
Tractor	No	40	84.0		720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	58.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	61.8	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.8	62.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Building Construct

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	720.0	0.0
Crane	No	16		80.6	720.0	0.0
Man Lift	No	20		74.7	720.0	0.0
Tractor	No	40	84.0		720.0	0.0
Welder / Torch	No	40		74.0	720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator	57.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	57.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	51.5	44.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	50.8	46.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	60.8	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Paving

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	720.0	0.0
Paver	No	50		77.2	720.0	0.0
Roller	No	20		80.0	720.0	0.0
Roller	No	20		80.0	720.0	0.0
Tractor	No	40	84.0		720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	55.6	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.1	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	56.8	49.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	56.8	49.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	60.8	59.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Arch Coating

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Compressor (air)	No	40		77.7	720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	54.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	54.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix TRA

Existing Traffic Volumes and Level of Service Calculations

College of Marin Facilities Master Plan

Vistro File: N:\...\AM Existing Condition.vistro — Scenario 1 AM Existing

Report File: N:\...\AM Existing V3.pdf — 3/12/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	College Avenue/Sir Francis Drake Boulevard	Signalized	HCM 6th Edition	WB Left	0.683	42.1	D
2	College Avenue/Stadium Way	Signalized	HCM 6th Edition	SB Left	0.301	1.2	A
3	College Avenue/Woodland Road-Kent Avenue	All-way stop	HCM 6th Edition	SEB Thru	0.646	16.7	C
4	Magnolia Avenue/P13 Driveway	Two-way stop	HCM 6th Edition	EB Left	0.036	24.3	C
5	Sunset Parkway/Ignacio Boulevard	All-way stop	HCM 6th Edition	SB Left	1.043	38.6	E
6	Sunset Parkway/Merritt Drive	Two-way stop	HCM 6th Edition	WB Left	0.065	22.8	C
7	SR 1/Olema-Bolinas Road	Two-way stop	HCM 6th Edition	EB Left	0.046	9.1	A
8	SR 1/Fairfax-Bolinas Road	Two-way stop	HCM 6th Edition	WB Left	0.004	10.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: College Avenue/Sir Francis Drake Boulevard

Control Type:	Signalized	Delay (sec / veh):	42.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	College Ave						Sir Francis Drake Blvd			Sir Francis Drake Blvd			
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	1	0	0	0
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	130.00	240.0	100.0	100.0	100.0
Speed [mph]	30.00			15.00			35.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Curb Present	No			No			No			No			
Crosswalk	Yes			No			No			Yes			

Volumes

Name	College Ave						Sir Francis Drake Blvd			Sir Francis Drake Blvd			
Base Volume Input [veh/h]	137	0	415	1	0	0	0	613	266	16	539	563	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	266	0	0	0	0	0	148	0	0	0	0
Total Hourly Volume [veh/h]	137	0	149	1	0	0	0	613	118	16	539	563	0
Peak Hour Factor	0.9400	1.0000	0.9400	0.9400	0.9400	0.9400	1.0000	0.9400	0.9400	0.940	0.940	0.940	0.940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	0	40	0	0	0	0	163	31	4	143	150	0
Total Analysis Volume [veh/h]	146	0	159	1	0	0	0	652	126	17	573	599	0
Presence of On-Street Parking	No		No	No		No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0			
v_co, Outbound Pedestrian Volume crossing	0			0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0			
Bicycle Volume [bicycles/h]	0			0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Prote	Permi	Permi
Signal Group	3	0	0	0	4	0	0	2	0	0	1	6	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	0	0	0	5	0	0	5	0	0	5	5	0
Maximum Green [s]	30	0	0	0	30	0	0	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	35	0	0	0	9	0	0	35	0	0	21	56	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	26	0	0	0	10	0	0	26	0	0	0	10	0
Rest In Walk	No				No			No				No	
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0
l2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No				No			No			No	No	
Maximum Recall	No				No			No			No	No	
Pedestrian Recall	No				No			No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	0	41	41	30	75	75
g / C, Green / Cycle	0.13	0.13	0.00	0.41	0.41	0.30	0.75	0.75
(v / s)_i Volume / Saturation Flow Rate	0.04	0.10	0.00	0.18	0.08	0.33	0.16	0.16
s, saturation flow rate [veh/h]	3459	1589	1781	3560	1589	1781	1870	1870
c, Capacity [veh/h]	433	199	5	1471	657	533	1407	1407
d1, Uniform Delay [s]	39.95	42.52	49.78	21.08	18.70	35.05	3.65	3.65
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.46	7.20	22.96	0.21	0.14	71.83	0.35	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.80	0.22	0.44	0.19	1.11	0.21	0.21
d, Delay for Lane Group [s/veh]	40.41	49.72	72.74	21.29	18.84	106.87	4.00	4.00
Lane Group LOS	D	D	E	C	B	F	A	A
Critical Lane Group	No	Yes	Yes	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.66	4.18	0.05	5.30	1.83	23.05	1.47	1.47
50th-Percentile Queue Length [ft/ln]	41.50	104.56	1.36	132.60	45.74	576.34	36.81	36.81
95th-Percentile Queue Length [veh/ln]	2.99	7.53	0.10	9.08	3.29	32.95	2.65	2.65
95th-Percentile Queue Length [ft/ln]	74.71	188.21	2.45	227.02	82.34	823.81	66.26	66.26

Movement, Approach, & Intersection Results

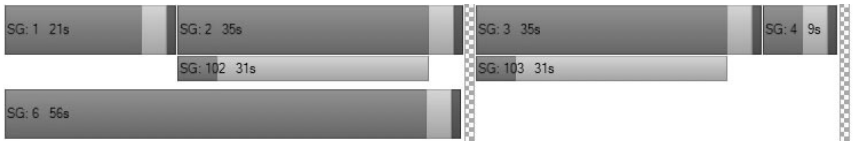
d_M, Delay for Movement [s/veh]	40.41	0.00	49.72	72.74	72.74	72.74	0.00	21.29	18.84	106.8	106.8	4.00	4.00
Movement LOS	D		D	E	E	E		C	B	F	F	A	A
d_A, Approach Delay [s/veh]	45.26			72.74			20.90			55.05			
Approach LOS	D			E			C			E			
d_I, Intersection Delay [s/veh]	42.05												
Intersection LOS	D												
Intersection V/C	0.683												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	0.00	0.00	41.41
I_p,int, Pedestrian LOS Score for Intersection	2.862	0.000	0.000	2.822
Crosswalk LOS	C	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	100	620	1040
d_b, Bicycle Delay [s]	50.00	45.13	23.81	11.52
I_b,int, Bicycle LOS Score for Intersection	4.132	1.561	2.324	2.527
Bicycle LOS	D	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: College Avenue/Stadium Way

Control Type:	Signalized	Delay (sec / veh):	1.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.301

Intersection Setup

Name	College Ave			College Ave			Stadium Way			Middle School Dwy		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	45.00	100.00	100.00	45.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			15.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	College Ave			College Ave			Stadium Way			Middle School Dwy		
Base Volume Input [veh/h]	2	410	74	116	500	10	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	410	74	116	500	10	0	0	0	0	0	0
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	113	20	32	137	3	0	0	0	0	0	0
Total Analysis Volume [veh/h]	2	451	81	127	549	11	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	61	0	0	61	0	0	19	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	7	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
l1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
l2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	
C, Cycle Length [s]	80	80	80	80	80	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	72	72	72	72	0	
g / C, Green / Cycle	0.90	0.90	0.90	0.90	0.00	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.29	0.15	0.30	0.00	
s, saturation flow rate [veh/h]	849	1821	872	1864	1870	
c, Capacity [veh/h]	785	1636	805	1674	3	
d1, Uniform Delay [s]	1.32	0.58	1.51	0.59	0.00	
k, delay calibration	0.50	0.50	0.50	0.50	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.01	0.53	0.42	0.54	0.00	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.00	0.33	0.16	0.33	0.00	
d, Delay for Lane Group [s/veh]	1.33	1.11	1.93	1.13	0.00	
Lane Group LOS	A	A	A	A	A	
Critical Lane Group	No	No	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.00	0.24	0.35	0.25	0.00	
50th-Percentile Queue Length [ft/ln]	0.12	6.01	8.77	6.27	0.00	
95th-Percentile Queue Length [veh/ln]	0.01	0.43	0.63	0.45	0.00	
95th-Percentile Queue Length [ft/ln]	0.22	10.82	15.79	11.29	0.00	

Movement, Approach, & Intersection Results

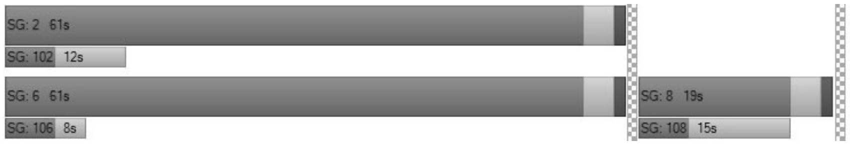
d_M, Delay for Movement [s/veh]	1.33	1.11	1.11	1.93	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A			
d_A, Approach Delay [s/veh]	1.11			1.28			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	1.20											
Intersection LOS	A											
Intersection V/C	0.301											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	0.00	31.51	31.51
I_p,int, Pedestrian LOS Score for Intersection	2.229	0.000	1.717	1.803
Crosswalk LOS	B	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1425	1425	375	0
d_b, Bicycle Delay [s]	3.31	3.31	26.41	40.00
I_b,int, Bicycle LOS Score for Intersection	2.441	2.693	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: College Avenue/Woodland Road-Kent Avenue

Control Type:	All-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	College Ave				College Ave				Woodland Rd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	1	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00				25.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				Yes				Yes			

Volumes

Name	College Ave				College Ave				Woodland Rd			
Base Volume Input [veh/h]	53	0	263	19	47	260	110	0	138	0	4	96
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	53	0	263	19	47	260	110	0	138	0	4	96
Peak Hour Factor	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	1.0000	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	0	69	5	12	68	29	0	36	0	1	25
Total Analysis Volume [veh/h]	56	0	277	20	49	274	116	0	145	0	4	101
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	498	539	506	545	611	543
Degree of Utilization, x	0.11	0.55	0.10	0.50	0.19	0.46

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.38	3.32	0.32	2.80	0.70	2.40
95th-Percentile Queue Length [ft]	9.45	82.94	8.00	70.04	17.39	60.05
Approach Delay [s/veh]	16.25		13.67			15.16
Approach LOS	C		B			C
Intersection Delay [s/veh]	16.70					
Intersection LOS	C					

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Intersection Setup

Name	Driveway				Kent Ave			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Driveway				Kent Ave			
Base Volume Input [veh/h]	4	3	16	4	59	0	181	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	3	16	4	59	0	181	50
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	4	1	16	0	48	13
Total Analysis Volume [veh/h]	4	3	17	4	62	0	191	53
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	513	474
Degree of Utilization, x	0.05	0.65

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.17	4.50
95th-Percentile Queue Length [ft]	4.33	112.54
Approach Delay [s/veh]	10.44	23.41
Approach LOS	B	C
Intersection Delay [s/veh]	16.70	
Intersection LOS	C	

Intersection Level Of Service Report
Intersection 4: Magnolia Avenue/P13 Driveway

Control Type:	Two-way stop	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name	Magnolia Ave			College Ave			P13 Dwy			P13 Dwy		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			15.00			15.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Magnolia Ave			College Ave			P13 Dwy			P13 Dwy		
Base Volume Input [veh/h]	2	281	5	3	442	1	5	0	6	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	281	5	3	442	1	5	0	6	1	0	0
Peak Hour Factor	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	103	2	1	163	0	2	0	2	0	0	0
Total Analysis Volume [veh/h]	3	413	7	4	650	1	7	0	9	1	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.02	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.86	0.00	0.00	8.17	0.00	0.00	24.29	22.50	13.41	24.16	21.81	10.76
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.01	0.01	0.01	0.17	0.17	0.17	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.24	0.24	0.24	0.26	0.26	0.26	4.37	4.37	4.37	0.40	0.40	0.40
d_A, Approach Delay [s/veh]	0.06			0.05			18.17			24.16		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	0.34											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Sunset Parkway/Ignacio Boulevard

Control Type:	All-way stop	Delay (sec / veh):	38.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.043

Intersection Setup

Name	Sunset Pkwy		Ignacio Blvd		Ignacio Blvd		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	80.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		No		

Volumes

Name	Sunset Pkwy		Ignacio Blvd		Ignacio Blvd		
Base Volume Input [veh/h]	409	87	71	141	6	157	247
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	409	87	71	141	6	157	247
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	27	22	44	2	48	76
Total Analysis Volume [veh/h]	505	107	88	174	7	194	305
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	505	576	427	454	454	486	537
Degree of Utilization, x	1.04	0.19	0.21	0.19	0.19	0.41	0.57

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	15.13	0.68	0.77	0.70	0.70	2.01	3.52
95th-Percentile Queue Length [ft]	378.13	16.93	19.14	17.54	17.54	50.13	88.03
Approach Delay [s/veh]	67.57		12.78			16.83	
Approach LOS	F		B			C	
Intersection Delay [s/veh]	38.56						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 6: Sunset Parkway/Merritt Drive

Control Type:	Two-way stop	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	Sunset Pkwy			Sunset Pkwy			Merritt Drive			Merritt Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Sunset Pkwy			Sunset Pkwy			Merritt Drive			Merritt Drive		
Base Volume Input [veh/h]	0	309	6	7	405	405	6	0	78	12	0	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	309	6	7	405	405	6	0	78	12	0	19
Peak Hour Factor	1.0000	0.8500	0.8500	0.8500	0.8500	1.0000	0.8500	0.8500	0.8500	0.8500	1.0000	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	91	2	2	119	101	2	0	23	4	0	6
Total Analysis Volume [veh/h]	0	364	7	8	476	405	7	0	92	14	0	22
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.00	0.16	0.06	0.00	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.05	0.00	0.00	20.28	18.91	12.60	22.75	18.42	11.36
Movement LOS		A	A	A	A		C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.02	0.02	0.00	0.66	0.66	0.66	0.32	0.32	0.32
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.51	0.51	0.00	16.60	16.60	16.60	8.03	8.03	8.03
d_A, Approach Delay [s/veh]	0.00			0.13			13.14			15.79		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	1.95											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: SR 1/Olema-Bolinas Road

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.046

Intersection Setup

Name	SR 1		SR 1		Olema-Bolinas Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00		65.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 1		SR 1		Olema-Bolinas Rd	
Base Volume Input [veh/h]	0	10	43	38	35	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	10	43	38	35	1
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	13	11	11	0
Total Analysis Volume [veh/h]	0	12	52	46	42	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free		Free		Stop	
Flared Lane					No	
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance					No	
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	7.41	0.00	0.00	0.00	9.13	8.84
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	3.69	3.69
d_A, Approach Delay [s/veh]	0.00		0.00		9.13	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.56					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 8: SR 1/Fairfax-Bolinas Road

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	SR 1			SR 1			Olema-Bolinas Rd			Fairfax-Bolinas Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	SR 1			SR 1			Olema-Bolinas Rd			Fairfax-Bolinas Rd		
Base Volume Input [veh/h]	22	11	1	0	44	2	0	0	61	2	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	11	1	0	44	2	0	0	61	2	0	0
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	3	0	0	14	1	0	0	19	1	0	0
Total Analysis Volume [veh/h]	28	14	1	0	56	3	0	0	77	3	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.37	0.00	0.00	7.25	0.00	0.00	9.61	10.11	8.86	9.98	9.84	8.40
Movement LOS	A	A	A	A	A	A	A	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.06	0.00	0.00	0.00	0.25	0.25	0.25	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.38	1.38	1.38	0.00	0.00	0.00	6.19	6.19	6.19	0.31	0.31	0.31
d_A, Approach Delay [s/veh]	4.80			0.00			8.86			9.98		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.05											
Intersection LOS	A											

College of Marin Facilities Master Plan

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Report File: N:\...\PM Existing V3.pdf — 3/12/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	College Avenue/Sir Francis Drake Boulevard	Signalized	HCM 6th Edition	NB Right	0.649	23.2	C
2	College Avenue/Stadium Way	Signalized	HCM 6th Edition	EB Left	0.326	1.3	A
3	College Avenue/Woodland Road-Kent Avenue	All-way stop	HCM 6th Edition	NB Thru	0.593	15.3	C
4	Magnolia Avenue/P13 Driveway	Two-way stop	HCM 6th Edition	EB Left	0.052	20.2	C
5	Sunset Parkway/Ignacio Boulevard	All-way stop	HCM 6th Edition	SB Left	0.472	12.7	B
6	Sunset Parkway/Merritt Drive	Two-way stop	HCM 6th Edition	WB Left	0.026	14.6	B
7	SR 1/Olema-Bolinas Road	Two-way stop	HCM 6th Edition	EB Left	0.058	9.4	A
8	SR 1/Fairfax-Bolinas Road	Two-way stop	HCM 6th Edition	EB Thru	0.005	11.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: College Avenue/Sir Francis Drake Boulevard

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name	College Ave						Sir Francis Drake Blvd			Sir Francis Drake Blvd			
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	1	0	0	0
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	130.00	240.0	100.0	100.0	100.0
Speed [mph]	30.00			15.00			35.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Curb Present	No			No			No			No			
Crosswalk	Yes			No			No			Yes			

Volum

Name	College Ave						Sir Francis Drake Blvd			Sir Francis Drake Blvd			
Base Volume Input [veh/h]	216	0	498	0	0	0	0	576	186	23	406	729	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	303	0	0	0	0	0	126	0	0	0	0
Total Hourly Volume [veh/h]	216	0	195	0	0	0	0	576	60	23	406	729	1
Peak Hour Factor	0.9100	1.0000	0.9100	0.9100	0.9100	0.9100	1.0000	0.9100	0.9100	0.910	0.910	0.910	0.910
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	59	0	54	0	0	0	0	158	16	6	112	200	0
Total Analysis Volume [veh/h]	237	0	214	0	0	0	0	633	66	25	446	801	1
Presence of On-Street Parking	No		No	No		No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0			
v_co, Outbound Pedestrian Volume crossing	0			0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0			
Bicycle Volume [bicycles/h]	0			0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Prote	Permi	Permi
Signal Group	3	0	0	0	4	0	0	2	0	0	1	6	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	0	0	0	5	0	0	5	0	0	5	5	0
Maximum Green [s]	30	0	0	0	30	0	0	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	62	0	0	0	9	0	0	23	0	0	46	69	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	17	0	0	0	10	0	0	14	0	0	0	7	0
Rest In Walk	No				No			No				No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No				No			No			No	No	
Maximum Recall	No				No			No			No	No	
Pedestrian Recall	No				No			No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	0	33	33	26	63	63
g / C, Green / Cycle	0.17	0.17	0.00	0.37	0.37	0.29	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.07	0.13	0.00	0.18	0.04	0.26	0.21	0.21
s, saturation flow rate [veh/h]	3459	1589	1870	3560	1589	1781	1870	1869
c, Capacity [veh/h]	577	265	1	1297	579	517	1307	1307
d1, Uniform Delay [s]	33.56	36.12	0.00	22.14	18.99	30.83	5.19	5.19
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.14	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	5.73	0.00	1.32	0.40	8.25	0.61	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.81	0.00	0.49	0.11	0.91	0.31	0.31
d, Delay for Lane Group [s/veh]	34.03	41.85	0.00	23.46	19.39	39.08	5.80	5.80
Lane Group LOS	C	D	A	C	B	D	A	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.32	4.86	0.00	5.15	0.94	10.56	2.47	2.47
50th-Percentile Queue Length [ft/ln]	58.06	121.59	0.00	128.79	23.59	264.07	61.67	61.65
95th-Percentile Queue Length [veh/ln]	4.18	8.48	0.00	8.87	1.70	15.89	4.44	4.44
95th-Percentile Queue Length [ft/ln]	104.51	212.01	0.00	221.85	42.45	397.32	111.01	110.97

Movement, Approach, & Intersection Results

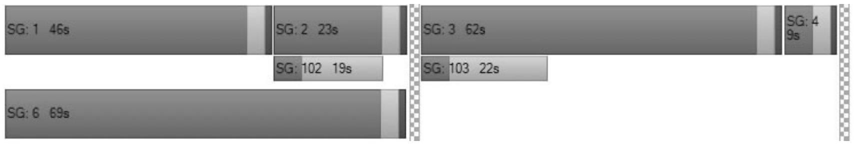
d_M, Delay for Movement [s/veh]	34.03	0.00	41.85	0.00	0.00	0.00	0.00	23.46	19.39	39.08	39.08	5.80	5.80
Movement LOS	C		D	A	A	A		C	B	D	D	A	A
d_A, Approach Delay [s/veh]	37.74			0.00			23.07			18.11			
Approach LOS	D			A			C			B			
d_I, Intersection Delay [s/veh]	23.20												
Intersection LOS	C												
Intersection V/C	0.649												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00	0.00	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.903	0.000	0.000	2.853
Crosswalk LOS	C	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	111	422	1444
d_b, Bicycle Delay [s]	45.00	40.14	28.01	3.47
I_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.240	2.589
Bicycle LOS	D	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: College Avenue/Stadium Way

Control Type:	Signalized	Delay (sec / veh):	1.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.326

Intersection Setup

Name	College Ave			College Ave			Stadium Way			Middle School Dwy		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	45.00	100.00	100.00	45.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			15.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	College Ave			College Ave			Stadium Way			Middle School Dwy		
Base Volume Input [veh/h]	1	537	14	29	490	12	1	0	1	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	537	14	29	490	12	1	0	1	0	0	0
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	148	4	8	135	3	0	0	0	0	0	0
Total Analysis Volume [veh/h]	1	590	15	32	538	13	1	0	1	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	61	0	0	61	0	0	19	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	7	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	
C, Cycle Length [s]	80	80	80	80	80	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	72	72	72	72	0	
g / C, Green / Cycle	0.90	0.90	0.90	0.90	0.00	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.04	0.30	0.00	
s, saturation flow rate [veh/h]	857	1862	815	1862	1680	
c, Capacity [veh/h]	789	1668	749	1668	7	
d1, Uniform Delay [s]	1.36	0.64	1.52	0.62	39.69	
k, delay calibration	0.50	0.50	0.50	0.50	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.00	0.61	0.11	0.53	20.92	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.00	0.36	0.04	0.33	0.29	
d, Delay for Lane Group [s/veh]	1.36	1.26	1.63	1.15	60.61	
Lane Group LOS	A	A	A	A	E	
Critical Lane Group	No	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	0.00	0.28	0.09	0.25	0.08	
50th-Percentile Queue Length [ft/ln]	0.06	7.10	2.16	6.15	2.01	
95th-Percentile Queue Length [veh/ln]	0.00	0.51	0.16	0.44	0.14	
95th-Percentile Queue Length [ft/ln]	0.11	12.78	3.90	11.08	3.62	

Movement, Approach, & Intersection Results

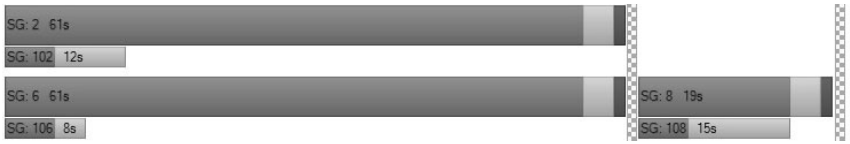
d_M, Delay for Movement [s/veh]	1.36	1.26	1.26	1.63	1.15	1.15	60.61	60.61	60.61	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	E	E	E			
d_A, Approach Delay [s/veh]	1.26			1.17			60.61			0.00		
Approach LOS	A			A			E			A		
d_I, Intersection Delay [s/veh]	1.32											
Intersection LOS	A											
Intersection V/C	0.326											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	0.00	31.51	31.51
I_p,int, Pedestrian LOS Score for Intersection	2.246	0.000	1.716	1.510
Crosswalk LOS	B	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1425	1425	375	0
d_b, Bicycle Delay [s]	3.31	3.31	26.41	40.00
I_b,int, Bicycle LOS Score for Intersection	2.560	2.522	1.563	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: College Avenue/Woodland Road-Kent Avenue

Control Type:	All-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name	College Ave				College Ave				Woodland Rd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	1	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00				25.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				Yes				Yes			

Volumes

Name	College Ave				College Ave				Woodland Rd			
Base Volume Input [veh/h]	57	0	259	13	43	237	110	0	116	0	3	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	0	259	13	43	237	110	0	116	0	3	54
Peak Hour Factor	0.8800	1.0000	0.8800	0.8800	0.8800	0.8800	0.8800	1.0000	0.8800	1.0000	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	0	74	4	12	67	31	0	33	0	1	15
Total Analysis Volume [veh/h]	65	0	294	15	49	269	125	0	132	0	3	61
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	483	521	489	525	585	534
Degree of Utilization, x	0.13	0.59	0.10	0.51	0.21	0.37

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.46	3.82	0.33	2.89	0.80	1.67
95th-Percentile Queue Length [ft]	11.55	95.42	8.31	72.35	20.08	41.82
Approach Delay [s/veh]	17.79		14.22		13.60	
Approach LOS	C		B		B	
Intersection Delay [s/veh]	15.27					
Intersection LOS	C					

Intersection Setup

Name	Driveway				Kent Ave			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Driveway				Kent Ave			
Base Volume Input [veh/h]	23	5	72	9	12	0	129	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	5	72	9	12	0	129	50
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	1.0000	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	1	20	3	3	0	37	14
Total Analysis Volume [veh/h]	26	6	82	10	14	0	147	57
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	528	482
Degree of Utilization, x	0.23	0.45

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.90	2.31
95th-Percentile Queue Length [ft]	22.61	57.82
Approach Delay [s/veh]	11.90	16.48
Approach LOS	B	C
Intersection Delay [s/veh]	15.27	
Intersection LOS	C	

Intersection Level Of Service Report
Intersection 4: Magnolia Avenue/P13 Driveway

Control Type:	Two-way stop	Delay (sec / veh):	20.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.052

Intersection Setup

Name	Magnolia Ave			College Ave			P13 Dwy			P13 Dwy		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			15.00			15.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Magnolia Ave			College Ave			P13 Dwy			P13 Dwy		
Base Volume Input [veh/h]	1	414	5	4	407	0	12	0	14	4	0	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	414	5	4	407	0	12	0	14	4	0	9
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	113	1	1	111	0	3	0	4	1	0	2
Total Analysis Volume [veh/h]	1	450	5	4	442	0	13	0	15	4	0	10
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02	0.02	0.00	0.02
d_M, Delay for Movement [s/veh]	8.22	0.00	0.00	8.27	0.00	0.00	20.19	18.95	11.66	19.84	18.38	11.21
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.25	0.25	0.25	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.07	0.07	0.07	0.27	0.27	0.27	6.16	6.16	6.16	2.53	2.53	2.53
d_A, Approach Delay [s/veh]	0.02			0.07			15.62			13.68		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	0.71											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Sunset Parkway/Ignacio Boulevard

Control Type:	All-way stop	Delay (sec / veh):	12.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.472

Intersection Setup

Name	Sunset Pkwy		Ignacio Blvd		Ignacio Blvd		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	80.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		No		

Volum

Name	Sunset Pkwy		Ignacio Blvd		Ignacio Blvd		
Base Volume Input [veh/h]	138	63	84	170	16	114	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	63	84	170	16	114	208
Peak Hour Factor	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	22	30	60	6	40	73
Total Analysis Volume [veh/h]	194	89	118	239	23	161	293
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	493	588	499	537	537	548	621
Degree of Utilization, x	0.39	0.15	0.24	0.22	0.22	0.34	0.47

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.86	0.53	0.91	0.84	0.84	1.47	2.52
95th-Percentile Queue Length [ft]	46.45	13.28	22.77	21.12	21.12	36.72	63.12
Approach Delay [s/veh]	13.19		11.58			13.18	
Approach LOS	B		B			B	
Intersection Delay [s/veh]	12.67						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 6: Sunset Parkway/Merritt Drive

Control Type:	Two-way stop	Delay (sec / veh):	14.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Sunset Pkwy			Sunset Pkwy			Merritt Drive			Merritt Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Sunset Pkwy			Sunset Pkwy			Merritt Drive			Merritt Drive		
Base Volume Input [veh/h]	1	275	13	12	145	145	7	1	43	8	0	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	275	13	12	145	145	7	1	43	8	0	12
Peak Hour Factor	1.0000	0.8000	0.8000	0.8000	0.8000	1.0000	0.8000	0.8000	0.8000	0.8000	1.0000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	86	4	4	45	36	2	0	13	3	0	4
Total Analysis Volume [veh/h]	1	344	16	15	181	145	9	1	54	10	0	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.06	0.03	0.00	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.04	0.00	0.00	14.07	13.94	9.64	14.62	13.73	10.55
Movement LOS		A	A	A	A		B	B	A	B	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.04	0.04	0.00	0.28	0.28	0.28	0.15	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.95	0.95	0.00	7.08	7.08	7.08	3.73	3.73	3.73
d_A, Approach Delay [s/veh]	0.00			0.62			10.33			12.18		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.68											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: SR 1/Olema-Bolinas Road

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.058

Intersection Setup

Name	SR 1		SR 1		Olema-Bolinas Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00		65.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 1		SR 1		Olema-Bolinas Rd	
Base Volume Input [veh/h]	0	52	24	37	42	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	52	24	37	42	4
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	16	7	11	13	1
Total Analysis Volume [veh/h]	0	63	29	45	51	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	7.36	0.00	0.00	0.00	9.35	8.81
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.20	0.20
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	5.01	5.01
d_A, Approach Delay [s/veh]	0.00		0.00		9.30	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.70					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 8: SR 1/Fairfax-Bolinas Road

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	SR 1			SR 1			Olema-Bolinas Rd			Fairfax-Bolinas Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	SR 1			SR 1			Olema-Bolinas Rd			Fairfax-Bolinas Rd		
Base Volume Input [veh/h]	66	54	2	1	27	0	0	2	27	0	1	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	54	2	1	27	0	0	2	27	0	1	1
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	17	1	0	9	0	0	1	9	0	0	0
Total Analysis Volume [veh/h]	84	68	3	1	34	0	0	3	34	0	1	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.41	0.00	0.00	7.36	0.00	0.00	10.70	11.18	8.61	10.92	11.03	8.64
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.17	0.00	0.00	0.00	0.12	0.12	0.12	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	4.21	4.21	4.21	0.05	0.05	0.05	2.94	2.94	2.94	0.20	0.20	0.20
d_A, Approach Delay [s/veh]	4.02			0.21			8.82			9.83		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.26											
Intersection LOS	B											

Appendix NOI

Roadway Noise Construction Model Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Demo

Academic Center

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	130.0	0.0
Dozer	No	40		81.7	130.0	0.0
Backhoe	No	40		77.6	130.0	0.0
Backhoe	No	40		77.6	130.0	0.0
Backhoe	No	40		77.6	130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	81.3	74.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	73.4	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	69.3	65.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	69.3	65.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	69.3	65.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	81.3	76.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Site Prep

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Grader	No	40	85.0		130.0	0.0
Tractor	No	40	84.0		130.0	0.0
Scraper	No	40		83.6	130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	76.7	72.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	75.3	71.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	76.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Grading

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	130.0	0.0
Tractor	No	40	84.0		130.0	0.0
Grader	No	40	85.0		130.0	0.0
Tractor	No	40	84.0		130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	73.4	69.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	76.7	72.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	76.7	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: Building Construction

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	130.0	0.0
Crane	No	16		80.6	130.0	0.0
Man Lift	No	20		74.7	130.0	0.0
Tractor	No	40	84.0		130.0	0.0
Welder / Torch	No	40		74.0	130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator	72.3	69.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	72.3	64.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	66.4	59.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	65.7	61.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	75.7	74.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Paving

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	130.0	0.0
Paver	No	50		77.2	130.0	0.0
Roller	No	20		80.0	130.0	0.0
Roller	No	20		80.0	130.0	0.0
Tractor	No	40	84.0		130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	70.5	66.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	68.9	65.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	71.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	71.7	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	75.7	71.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	75.7	74.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Arch Coating

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Academic Center	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	130.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	69.4	65.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	69.4	65.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Demo

Anne E Kent Middle

**** Receptor #1 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Anne E Kent	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Saw	No	20		89.6	460.0	0.0
Dozer	No	40		81.7	460.0	0.0
Backhoe	No	40		77.6	460.0	0.0
Backhoe	No	40		77.6	460.0	0.0
Backhoe	No	40		77.6	460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Saw	70.3	63.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.3	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.3	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	58.3	54.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	70.3	65.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Site Prep

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent Middle	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85.0		460.0	0.0
Tractor	No	40	84.0		460.0	0.0
Scraper	No	40		83.6	460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	65.7	61.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	64.3	60.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.7	65.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Grading

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent Middle	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	460.0	0.0
Tractor	No	40	84.0		460.0	0.0
Grader	No	40	85.0		460.0	0.0
Tractor	No	40	84.0		460.0	0.0

Results

Equipment	Calculated (dBA) Lmax	Calculated (dBA) Leq	Noise Limits Day Lmax	Noise Limits Day Leq	Noise Limits Evening Lmax	Noise Limits Evening Leq	Noise Limits Night Lmax	Noise Limits Night Leq	Exceedance Day Lmax	Exceedance Day Leq	Exceedance Evening Lmax	Exceedance Evening Leq	Exceedance Night Lmax	Exceedance Night Leq
Dozer	62.4	58.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	65.7	61.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.7	66.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Building Construction

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	460.0	0.0
Crane	No	16		80.6	460.0	0.0
Man Lift	No	20		74.7	460.0	0.0
Tractor	No	40	84.0		460.0	0.0
Welder / Torch	No	40		74.0	460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator	61.4	58.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	61.3	53.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	55.4	48.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	54.7	50.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	64.7	63.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Paving

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	460.0	0.0
Paver	No	50		77.2	460.0	0.0
Roller	No	20		80.0	460.0	0.0
Tractor	No	40	84.0		460.0	0.0
Roller	No	20		80.0	460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	59.5	55.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	57.9	54.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	60.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	64.7	60.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller	60.7	53.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	64.7	63.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Arch Coating

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Anne E Kent	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	460.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	58.4	54.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	58.4	54.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Demo

Residences

**** Receptor #1 ****

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Concrete Saw	No	20		89.6	720.0	0.0
Dozer	No	40		81.7	720.0	0.0
Backhoe	No	40		77.6	720.0	0.0
Backhoe	No	40		77.6	720.0	0.0
Backhoe	No	40		77.6	720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10
Concrete Saw	66.4	62.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dozer	58.5	57.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4	53.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4	53.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Backhoe	54.4	53.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.4	64.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Site Prep

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residences	Residential	654.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Actual Lmax (dBA)	Receptor Lmax (dBA)	Estimated Distance (feet)	Shielding (dBA)
Grader	No	40	85.0		720.0	0.0
Tractor	No	40	84.0		720.0	0.0
Scraper	No	40		83.6	720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	61.8	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Scraper	60.4	56.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.8	61.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Grading

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	720.0	0.0
Tractor	No	40	84.0		720.0	0.0
Grader	No	40	85.0		720.0	0.0
Tractor	No	40	84.0		720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Dozer	58.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Grader	61.8	57.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	61.8	62.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Building Construct

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Generator	No	50		80.6	720.0	0.0
Crane	No	16		80.6	720.0	0.0
Man Lift	No	20		74.7	720.0	0.0
Tractor	No	40	84.0		720.0	0.0
Welder / Torch	No	40		74.0	720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Generator	57.5	54.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Crane	57.4	49.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Man Lift	51.5	44.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Welder / Torch	50.8	46.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	60.8	59.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Paving

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Spec Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Concrete Mixer Truck	No	40		78.8	720.0	0.0
Paver	No	50		77.2	720.0	0.0
Roller	No	20		80.0	720.0	0.0
Roller	No	20		80.0	720.0	0.0
Tractor	No	40	84.0		720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night			
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Concrete Mixer Truck	55.6	51.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Paver	54.1	51.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Roller	56.8	49.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Roller	56.8	49.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Tractor	60.8	56.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Total	60.8	59.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 06/11/2019
Case Description: COM LRC - Arch Coating

**** Receptor #1 ****

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residences	Residential	65.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Compressor (air)	No	40		77.7	720.0	0.0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening		Night		Noise Limit Exceedance (dBA) Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Compressor (air)	54.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	54.5	50.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Appendix NOP

Notice of Preparation and Comment Letters Received

Notice of Preparation for a Draft Program and Project Environmental Impact Report

Date:	November 15, 2019
To:	State Clearinghouse and Interested Parties and Organizations
Project Title:	College of Marin Kentfield Campus Learning and Resource Center Project
Lead Agency:	Marin Community College District 1800 Ignacio Boulevard Building 17, Gilbane Novato, California 94949
Contact:	Greg Nelson, Assistant Superintendent/Vice President for Administrative Services
Public Review Period:	November 15 through December 16, 2019 (30 days) in accordance with CEQA Guidelines Section 15082

Purpose of the Notice

The intent of this Notice of Preparation (NOP) is to inform agencies and interested parties that the Marin Community College District is preparing a Draft Program and Project Environmental Impact Report (EIR) for the proposed College of Marin Kentfield Campus Learning and Resource Center Project (LRC Project) in accordance with California Environmental Quality Act (CEQA) Guidelines Sections 15082, 15165, and 15168. The EIR will analyze the LRC Project at both project level as well as "program" level under the 2016 Facility Master Plan (2016 FMP). An Initial Study has been prepared for the EIR and is available for review at the College of Marin Kentfield Campus Library and Indian Valley Campus Library during regular business hours or online at measurebcom.org.

Project Location

The LRC Project site is located at 835 College Avenue in Kentfield. For the purposes of this report, the LRC Project site comprises the entire College of Marin Kentfield Campus (77 acres) which is bounded by Sir Francis Drake Boulevard to the north, Kent Avenue to the south, College Avenue and Corte Madera Creek to the east, and by Laurel Avenue to the west. Activities associated with the proposed LRC Project would be located on the site of the existing LRC building along College Avenue where it intersects with Corte Madera Creek.

For purposes of this report, the 2016 FMP site includes the entire College of Marin Kentfield Campus, the entire College of Marin Indian Valley Campus (which is located on a 333-acre site located at 1800 Ignacio Boulevard in Novato), and the Bolinas marine biology site, which is located 72 Wharf Road, Bolinas.

Project Description

The LRC is a project identified in the 2016 FMP and would involve demolition of the existing LRC building and the construction of a new building for the same use as well as landscaping and improvements to the existing surface parking. Project construction would occur over approximately 12 months and would involve demolition of the existing 66,000-square foot two-story LRC building and the construction of a new 65,000 square foot two-story building for the same use.

Potential Environmental Effects

An Initial Study was prepared for the LRC Project at the project level and found that the project would have no impact, a less than significant impact, or a less than significant impact with mitigation incorporated for most environmental issue areas evaluated under CEQA. The Draft EIR will further evaluate potential project impacts related to cultural resources, hydrology and water quality and tribal cultural resources. It will also further evaluate the cumulative impacts resulting from each of the projects encompassed within the 2016 FMP program. The Draft EIR will propose mitigation to avoid and/or reduce impacts to these environmental issue areas, identify reasonable project alternatives, and compare the environmental impacts of the alternatives to the impacts of the proposed project. In addition to discussing the direct environmental impacts of the LRC Project, the Draft EIR will also evaluate the cumulative impacts resulting from each of the projects encompassed within the 2016 FMP program and other closely related past, present, and reasonably foreseeable probable future projects in the area (14 CCR 15130). Comments provided in response to the NOP and during the ensuing analyses may identify additional environmental topics to be evaluated.

Providing Comments

At this time, the Marin Community College District is soliciting your comments on the scope of the Draft EIR, including potential environmental impacts of the project and alternatives to be considered. This information will be considered when preparing the Draft EIR's discussion of environmental impacts, mitigation measures, and alternatives. Because of time limits mandated by State law, comments must be received no later than **5:00 p.m. on December 16, 2019**, which ends the 30-day scoping period.

Comments may be submitted by U.S. mail or by email prior to the close of the scoping period.

Mail comments to:

> Greg Nelson, Assistant Superintendent/Vice President for Administrative Services
> Marin Community College District
> 1800 Ignacio Boulevard
> Building 17, Gilbane
> Novato, California 94949

Email comments to GNelson@marin.edu. For comments submitted via email, please include "NOP Comments: College of Marin Kentfield Campus Learning and Resource Center Project" in the subject line and the name and physical address of the commenter in the body of the email. For additional information regarding this project and the Initial Study, please contact Greg Nelson at (415) 883-2211 ext. 8100.

All comments on environmental issues received during the public scoping period will be considered and addressed in the Draft EIR, which is anticipated to be available for public review in the winter of 2020. This NOP, the Initial Study, and other public review documents for this project are available for viewing online at measurebcom.org. These documents are also available for review at the College of Marin Kentfield Campus Library and Indian Valley Campus Library during regular business hours. If you have any questions about the environmental review process, please contact Greg Nelson at the contact information provided above.

Attachments

Initial Study

Figure 1. College of Marin Properties

Figure 2. LRC Project Location

Figure 3. LRC Project Concept Schematic

STATE OF CALIFORNIA GAVIN NEWSOM, Governor

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov

November 18, 2019

Greg Nelson
Marin Community College District
1800 Ignacio Boulevard, Building 17, Gilbane
Novato, CA 94949

RE: SCH# 2019110285, College of Marin Kentfield Campus Learning and Resource Center Project, Marin County

Dear Mr. Nelson:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of <u>portions</u> of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
   a. A brief description of the project.
   b. The lead agency contact information.
   c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
   d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).
   a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
   a. Alternatives to the project.
   b. Recommended mitigation measures.
   c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
   a. Type of environmental review necessary.
   b. Significance of the tribal cultural resources.
   c. Significance of the project's impacts on tribal cultural resources.
   d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
   a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
   b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
   a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
   b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:
    a. Avoidance and preservation of the resources in place, including, but not limited to:
       i. Planning and construction to avoid the resources and protect the cultural and natural context.
       ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
    b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
       i. Protecting the cultural character and integrity of the resource.
       ii. Protecting the traditional use of the resource.
       iii. Protecting the confidentiality of the resource.
    c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
    d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).
    e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).
    f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
    a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.
    b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
    c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
   a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
   b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
   a. If part or all of the APE has been previously surveyed for cultural resources.
   b. If any known cultural resources have already been recorded on or adjacent to the APE.
   c. If the probability is low, moderate, or high that cultural resources are located in the APE.
   d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
   a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
   b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address:

Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Staff Services Analyst

cc: State Clearinghouse

Department of Toxic Substances Control

Jared Blumenfeld
Secretary for
Environmental Protection

Meredith Williams, Ph.D.
Acting Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Gavin Newsom
Governor

December 16, 2019

Mr. Greg Nelson
Marin Community College District
1800 Ignacio Boulevard, Building 17, Gilbane
Novato, California 94949

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT FOR THE COLLEGE OF MARIN KENTFIELD CAMPUS LEARNING AND RESOURCE CENTER PROJECT, COLLEGE AVENUE AND SIR FRANCIS DRAKE BOULEVARD, KENTFIELD, MARIN COUNTY (SCH #2019110285)

Dear Mr. Nelson:

The Northern California Schools Unit of the Department of Toxic Substances Control (DTSC) has received the notice of preparation (NOP) for an Environmental Impact Report for the College of Marin Kentfield Campus Learning and Resource Center project proposed by the Marin Community College District (District). The due date to submit comments is December 16, 2019.

As reported in the NOP, the project would involve the demolition and reconstruction of the Learning and Resource Center (LRC) in order to provide seismic safety and upgraded facilities. The new LRC building would include a library, computer laboratory, mailroom, student store, classrooms and offices. It would be constructed on the same building footprint as the existing LRC building located on College Avenue, which is located approximately 350 feet south of the intersection of College Avenue and Sir Francis Drake Boulevard in the City of Kentfield, Marin County, California (Site).

Based on a review of the NOP, DTSC would like to provide the following comments:

1. Because the project is school site related, DTSC recommends that an environmental review, such as a Phase I Environmental Site Assessment and/or Preliminary Environmental Assessment, be conducted to determine whether there has been or may have been a release or threatened release of a hazardous material, or whether a naturally occurring hazardous material is present based on reasonably available information about the property and the areas in its vicinity. Such an environmental review should generally be conducted as part of the California Environmental Quality Act (CEQA) process. If the District elects to proceed and conduct an environmental

assessment at the Site under DTSC oversight, it should enter into a Voluntary Cleanup Agreement with DTSC to oversee the preparation of the environmental assessment.

2. The presence of existing, older or former structures at the Site may result in potential environmental concerns due to lead from lead-based paint and/or organochlorine pesticides from termiticide applications and polychlorinated biphenyls from electrical transformers, light ballast or window caulking or glazing. DTSC recommends that these environmental concerns be investigated and possibly mitigated, in accordance with DTSC's "*Interim Guidance, Evaluation of School Sites with Potential Soil Contamination as a Result of Lead from Lead-Based Paint, Organochlorine Pesticides from Termiticides, and Polychlorinated Biphenyls from Electrical Transformers, dated June 9, 2006*", and in accordance with the recommendations provided in the United States Environmental Protection Agency's website "Polychlorinated Biphenyls (PCBs) in Building Materials" (https://www.epa.gov/pcbs/polychlorinated-biphenyls-pcbs-building-materials).

3. If the Site is, or was previously, used for agricultural purposes, pesticides (such as DDT, DDE, and toxaphene) and fertilizers (usually containing heavy metals) commonly used as part of agricultural operations are likely to be present. These agricultural chemicals are persistent and bio-accumulative toxic substances. DTSC recommends that these environmental concerns be investigated and possibly mitigated, in accordance with the "*Interim Guidance for Sampling Agricultural Soils (Third Revision)*", dated August 2008. This guidance should be followed to sample agricultural properties where development is anticipated.

4. The Project area appears to be located within 10-miles of geological units potentially containing naturally occurring asbestos (NOA). Pursuant to DTSC's "*Interim Guidance – Naturally Occurring Asbestos at School Sites, Revised September 24, 2004*", further action should be considered and conducted to determine whether a naturally occurring hazardous material (i.e., NOA) is present on the Project area based on reasonably available information about the properties and the areas in the vicinity and a soil assessment.

5. If fill material exists on the Site, DTSC recommends these areas be investigated and possibly mitigated in accordance with DTSC's "*Information Advisory, Clean Imported Fill*", dated October 2001.

6. If a response action is required based on the results of the above investigations, and/or other information, the Initial Study (IS) will require an analysis of the potential public health and environmental impacts associated with any proposed response action, pursuant to requirements of the California Environmental Quality Act (CEQA - Pub. Resources Code, Division 13, section 21000 et seq.), and its implementing Guidelines (California Code of Regulations, Title 14, section

15000 et seq.), prior to approval or adoption of a CEQA determination for the Project. A discussion of the mitigation and/or removal actions, if necessary, and associated cumulative impacts to the Project properties and the surrounding environment, should be included in the IS and final CEQA determination. If sufficient information to discuss the proposed mitigation and/or removal actions, and their associated impacts to the Project properties and the surrounding environment, are not available for inclusion in the IS, then an Addendum or Supplement to the final CEQA determination may be required.

DTSC is also administering the Revolving Loan Fund (RLF) Program which provides revolving loans to investigate and clean up hazardous materials at properties where redevelopment is likely to have a beneficial impact to a community. These loans are available to developers, businesses, schools, and local governments.

For additional information on DTSC's Schools process or RLF Program, please visit DTSC's web site at www.dtsc.ca.gov. If you would like to discuss this matter further, please contact me at (916) 255-3695, or via email at Bud.Duke@dtsc.ca.gov.

Sincerely,

Harold (Bud) Duke, PG
Northern California Schools Unit
Site Mitigation and Restoration Program

cc: (via email)

State Clearinghouse (State.clearinghouse@opr.ca.gov)
Office of Planning and Research

Fred Yeager (FYeager@cde.ca.gov)
Department of Education – Sacramento, CA

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Jose Salcedo (Jose.Salcedo@dtsc.ca.gov)
DTSC Schools Unit – Sacramento, CA

Mr. David Kereazis (Dave.Kereazis@dtsc.ca.gov)
DTSC CEQA Unit – Sacramento, CA

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Mr. Greg Nelson
Marin Community College District
1800 Ignacio Boulevard, Building 17, Gilbane
Novato, California 94949

94949-499899

Appendix TCR

Confidential Tribal Cultural Resources Information

CONFIDENTIAL APPENDIX

To protect sensitive information about the location and nature of cultural resources, this appendix is not included in the public draft of this document.

Appendix TRA

Existing Traffic Volumes and Level of Service Calculations

College of Marin Facilities Master Plan

Vistro File: N:\...\AM Existing Condition.vistro — Scenario 1 AM Existing

Report File: N:\...\AM Existing V3.pdf — 3/12/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	College Avenue/Sir Francis Drake Boulevard	Signalized	HCM 6th Edition	WB Left	0.683	42.1	D
2	College Avenue/Stadium Way	Signalized	HCM 6th Edition	SB Left	0.301	1.2	A
3	College Avenue/Woodland Road-Kent Avenue	All-way stop	HCM 6th Edition	SEB Thru	0.646	16.7	C
4	Magnolia Avenue/P13 Driveway	Two-way stop	HCM 6th Edition	EB Left	0.036	24.3	C
5	Sunset Parkway/Ignacio Boulevard	All-way stop	HCM 6th Edition	SB Left	1.043	38.6	E
6	Sunset Parkway/Merritt Drive	Two-way stop	HCM 6th Edition	WB Left	0.065	22.8	C
7	SR 1/Olema-Bolinas Road	Two-way stop	HCM 6th Edition	EB Left	0.046	9.1	A
8	SR 1/Fairfax-Bolinas Road	Two-way stop	HCM 6th Edition	WB Left	0.004	10.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: College Avenue/Sir Francis Drake Boulevard

Control Type:	Signalized	Delay (sec / veh):	42.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	College Ave						Sir Francis Drake Blvd			Sir Francis Drake Blvd			
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	1	0	0	0
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	130.00	240.0	100.0	100.0	100.0
Speed [mph]	30.00			15.00			35.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Curb Present	No			No			No			No			
Crosswalk	Yes			No			No			Yes			

Volumes

Name	College Ave						Sir Francis Drake Blvd			Sir Francis Drake Blvd			
Base Volume Input [veh/h]	137	0	415	1	0	0	0	613	266	16	539	563	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	266	0	0	0	0	0	148	0	0	0	0
Total Hourly Volume [veh/h]	137	0	149	1	0	0	0	613	118	16	539	563	0
Peak Hour Factor	0.9400	1.0000	0.9400	0.9400	0.9400	0.9400	1.0000	0.9400	0.9400	0.940	0.940	0.940	0.940
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	36	0	40	0	0	0	0	163	31	4	143	150	0
Total Analysis Volume [veh/h]	146	0	159	1	0	0	0	652	126	17	573	599	0
Presence of On-Street Parking	No		No	No		No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0			
v_co, Outbound Pedestrian Volume crossing	0			0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0			
Bicycle Volume [bicycles/h]	0			0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Prote	Permi	Permi
Signal Group	3	0	0	0	4	0	0	2	0	0	1	6	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	0	0	0	5	0	0	5	0	0	5	5	0
Maximum Green [s]	30	0	0	0	30	0	0	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	35	0	0	0	9	0	0	35	0	0	21	56	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	26	0	0	0	10	0	0	26	0	0	0	10	0
Rest In Walk	No				No			No				No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No				No			No			No	No	
Maximum Recall	No				No			No			No	No	
Pedestrian Recall	No				No			No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13	13	0	41	41	30	75	75
g / C, Green / Cycle	0.13	0.13	0.00	0.41	0.41	0.30	0.75	0.75
(v / s)_i Volume / Saturation Flow Rate	0.04	0.10	0.00	0.18	0.08	0.33	0.16	0.16
s, saturation flow rate [veh/h]	3459	1589	1781	3560	1589	1781	1870	1870
c, Capacity [veh/h]	433	199	5	1471	657	533	1407	1407
d1, Uniform Delay [s]	39.95	42.52	49.78	21.08	18.70	35.05	3.65	3.65
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.46	7.20	22.96	0.21	0.14	71.83	0.35	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.80	0.22	0.44	0.19	1.11	0.21	0.21
d, Delay for Lane Group [s/veh]	40.41	49.72	72.74	21.29	18.84	106.87	4.00	4.00
Lane Group LOS	D	D	E	C	B	F	A	A
Critical Lane Group	No	Yes	Yes	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.66	4.18	0.05	5.30	1.83	23.05	1.47	1.47
50th-Percentile Queue Length [ft/ln]	41.50	104.56	1.36	132.60	45.74	576.34	36.81	36.81
95th-Percentile Queue Length [veh/ln]	2.99	7.53	0.10	9.08	3.29	32.95	2.65	2.65
95th-Percentile Queue Length [ft/ln]	74.71	188.21	2.45	227.02	82.34	823.81	66.26	66.26

Movement, Approach, & Intersection Results

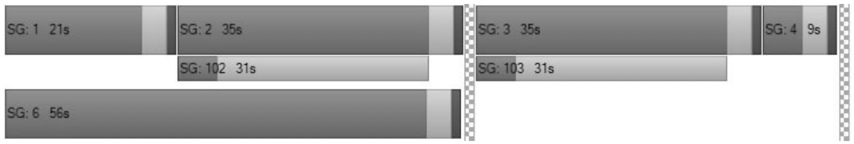
d_M, Delay for Movement [s/veh]	40.41	0.00	49.72	72.74	72.74	72.74	0.00	21.29	18.84	106.8	106.8	4.00	4.00
Movement LOS	D		D	E	E	E		C	B	F	F	A	A
d_A, Approach Delay [s/veh]	45.26			72.74			20.90			55.05			
Approach LOS	D			E			C			E			
d_I, Intersection Delay [s/veh]	42.05												
Intersection LOS	D												
Intersection V/C	0.683												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	0.00	0.00	41.41
I_p,int, Pedestrian LOS Score for Intersection	2.862	0.000	0.000	2.822
Crosswalk LOS	C	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	100	620	1040
d_b, Bicycle Delay [s]	50.00	45.13	23.81	11.52
I_b,int, Bicycle LOS Score for Intersection	4.132	1.561	2.324	2.527
Bicycle LOS	D	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: College Avenue/Stadium Way

Control Type:	Signalized	Delay (sec / veh):	1.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.301

Intersection Setup

Name	College Ave			College Ave			Stadium Way			Middle School Dwy		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	45.00	100.00	100.00	45.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			15.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	College Ave			College Ave			Stadium Way			Middle School Dwy		
Base Volume Input [veh/h]	2	410	74	116	500	10	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	410	74	116	500	10	0	0	0	0	0	0
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	113	20	32	137	3	0	0	0	0	0	0
Total Analysis Volume [veh/h]	2	451	81	127	549	11	0	0	0	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	61	0	0	61	0	0	19	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	7	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	
C, Cycle Length [s]	80	80	80	80	80	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	72	72	72	72	0	
g / C, Green / Cycle	0.90	0.90	0.90	0.90	0.00	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.29	0.15	0.30	0.00	
s, saturation flow rate [veh/h]	849	1821	872	1864	1870	
c, Capacity [veh/h]	785	1636	805	1674	3	
d1, Uniform Delay [s]	1.32	0.58	1.51	0.59	0.00	
k, delay calibration	0.50	0.50	0.50	0.50	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.01	0.53	0.42	0.54	0.00	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.00	0.33	0.16	0.33	0.00	
d, Delay for Lane Group [s/veh]	1.33	1.11	1.93	1.13	0.00	
Lane Group LOS	A	A	A	A	A	
Critical Lane Group	No	No	No	Yes	No	
50th-Percentile Queue Length [veh/ln]	0.00	0.24	0.35	0.25	0.00	
50th-Percentile Queue Length [ft/ln]	0.12	6.01	8.77	6.27	0.00	
95th-Percentile Queue Length [veh/ln]	0.01	0.43	0.63	0.45	0.00	
95th-Percentile Queue Length [ft/ln]	0.22	10.82	15.79	11.29	0.00	

Movement, Approach, & Intersection Results

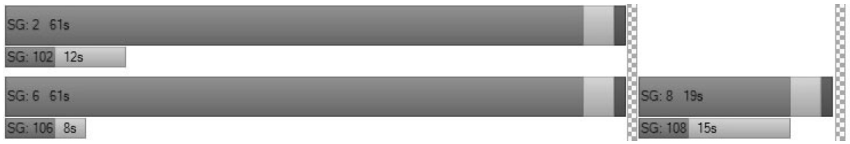
d_M, Delay for Movement [s/veh]	1.33	1.11	1.11	1.93	1.13	1.13	0.00	0.00	0.00	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A			
d_A, Approach Delay [s/veh]	1.11			1.28			0.00			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	1.20											
Intersection LOS	A											
Intersection V/C	0.301											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	0.00	31.51	31.51
I_p,int, Pedestrian LOS Score for Intersection	2.229	0.000	1.717	1.803
Crosswalk LOS	B	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1425	1425	375	0
d_b, Bicycle Delay [s]	3.31	3.31	26.41	40.00
I_b,int, Bicycle LOS Score for Intersection	2.441	2.693	1.560	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: College Avenue/Woodland Road-Kent Avenue

Control Type:	All-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	College Ave				College Ave				Woodland Rd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	1	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00				25.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				Yes				Yes			

Volumes

Name	College Ave				College Ave				Woodland Rd			
Base Volume Input [veh/h]	53	0	263	19	47	260	110	0	138	0	4	96
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	53	0	263	19	47	260	110	0	138	0	4	96
Peak Hour Factor	0.9500	1.0000	0.9500	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	1.0000	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	0	69	5	12	68	29	0	36	0	1	25
Total Analysis Volume [veh/h]	56	0	277	20	49	274	116	0	145	0	4	101
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	498	539	506	545	611	543
Degree of Utilization, x	0.11	0.55	0.10	0.50	0.19	0.46

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.38	3.32	0.32	2.80	0.70	2.40
95th-Percentile Queue Length [ft]	9.45	82.94	8.00	70.04	17.39	60.05
Approach Delay [s/veh]	16.25		13.67			15.16
Approach LOS	C		B			C
Intersection Delay [s/veh]	16.70					
Intersection LOS	C					

Intersection Setup

Name	Driveway				Kent Ave			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Driveway				Kent Ave			
Base Volume Input [veh/h]	4	3	16	4	59	0	181	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	3	16	4	59	0	181	50
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	1.0000	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	4	1	16	0	48	13
Total Analysis Volume [veh/h]	4	3	17	4	62	0	191	53
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	513	474
Degree of Utilization, x	0.05	0.65

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.17	4.50
95th-Percentile Queue Length [ft]	4.33	112.54
Approach Delay [s/veh]	10.44	23.41
Approach LOS	B	C
Intersection Delay [s/veh]	16.70	
Intersection LOS	C	

Intersection Level Of Service Report
Intersection 4: Magnolia Avenue/P13 Driveway

Control Type:	Two-way stop	Delay (sec / veh):	24.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.036

Intersection Setup

Name	Magnolia Ave			College Ave			P13 Dwy			P13 Dwy		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			15.00			15.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Magnolia Ave			College Ave			P13 Dwy			P13 Dwy		
Base Volume Input [veh/h]	2	281	5	3	442	1	5	0	6	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	281	5	3	442	1	5	0	6	1	0	0
Peak Hour Factor	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800	0.6800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	103	2	1	163	0	2	0	2	0	0	0
Total Analysis Volume [veh/h]	3	413	7	4	650	1	7	0	9	1	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.02	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	8.86	0.00	0.00	8.17	0.00	0.00	24.29	22.50	13.41	24.16	21.81	10.76
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.01	0.01	0.01	0.17	0.17	0.17	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.24	0.24	0.24	0.26	0.26	0.26	4.37	4.37	4.37	0.40	0.40	0.40
d_A, Approach Delay [s/veh]	0.06			0.05			18.17			24.16		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	0.34											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Sunset Parkway/Ignacio Boulevard

Control Type:	All-way stop	Delay (sec / veh):	38.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.043

Intersection Setup

Name	Sunset Pkwy		Ignacio Blvd		Ignacio Blvd		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	80.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		No		

Volumes

Name	Sunset Pkwy		Ignacio Blvd		Ignacio Blvd		
Base Volume Input [veh/h]	409	87	71	141	6	157	247
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	409	87	71	141	6	157	247
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	126	27	22	44	2	48	76
Total Analysis Volume [veh/h]	505	107	88	174	7	194	305
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	505	576	427	454	454	486	537
Degree of Utilization, x	1.04	0.19	0.21	0.19	0.19	0.41	0.57

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	15.13	0.68	0.77	0.70	0.70	2.01	3.52
95th-Percentile Queue Length [ft]	378.13	16.93	19.14	17.54	17.54	50.13	88.03
Approach Delay [s/veh]	67.57		12.78			16.83	
Approach LOS	F		B			C	
Intersection Delay [s/veh]	38.56						
Intersection LOS	E						

Intersection Level Of Service Report
Intersection 6: Sunset Parkway/Merritt Drive

Control Type:	Two-way stop	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	Sunset Pkwy			Sunset Pkwy			Merritt Drive			Merritt Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Sunset Pkwy			Sunset Pkwy			Merritt Drive			Merritt Drive		
Base Volume Input [veh/h]	0	309	6	7	405	405	6	0	78	12	0	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	309	6	7	405	405	6	0	78	12	0	19
Peak Hour Factor	1.0000	0.8500	0.8500	0.8500	0.8500	1.0000	0.8500	0.8500	0.8500	0.8500	1.0000	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	91	2	2	119	101	2	0	23	4	0	6
Total Analysis Volume [veh/h]	0	364	7	8	476	405	7	0	92	14	0	22
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.00	0.03	0.00	0.16	0.06	0.00	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.05	0.00	0.00	20.28	18.91	12.60	22.75	18.42	11.36
Movement LOS		A	A	A	A		C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.02	0.02	0.00	0.66	0.66	0.66	0.32	0.32	0.32
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.51	0.51	0.00	16.60	16.60	16.60	8.03	8.03	8.03
d_A, Approach Delay [s/veh]	0.00			0.13			13.14			15.79		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	1.95											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: SR 1/Olema-Bolinas Road

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.046

Intersection Setup

Name	SR 1		SR 1		Olema-Bolinas Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00		65.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 1		SR 1		Olema-Bolinas Rd	
Base Volume Input [veh/h]	0	10	43	38	35	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	10	43	38	35	1
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	3	13	11	11	0
Total Analysis Volume [veh/h]	0	12	52	46	42	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.05	0.00
d_M, Delay for Movement [s/veh]	7.41	0.00	0.00	0.00	9.13	8.84
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	3.69	3.69
d_A, Approach Delay [s/veh]	0.00		0.00		9.13	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.56					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 8: SR 1/Fairfax-Bolinas Road

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	SR 1			SR 1			Olema-Bolinas Rd			Fairfax-Bolinas Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	SR 1			SR 1			Olema-Bolinas Rd			Fairfax-Bolinas Rd		
Base Volume Input [veh/h]	22	11	1	0	44	2	0	0	61	2	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	11	1	0	44	2	0	0	61	2	0	0
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	3	0	0	14	1	0	0	19	1	0	0
Total Analysis Volume [veh/h]	28	14	1	0	56	3	0	0	77	3	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.37	0.00	0.00	7.25	0.00	0.00	9.61	10.11	8.86	9.98	9.84	8.40
Movement LOS	A	A	A	A	A	A	A	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.06	0.00	0.00	0.00	0.25	0.25	0.25	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	1.38	1.38	1.38	0.00	0.00	0.00	6.19	6.19	6.19	0.31	0.31	0.31
d_A, Approach Delay [s/veh]	4.80			0.00			8.86			9.98		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.05											
Intersection LOS	A											

College of Marin Facilities Master Plan

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Report File: N:\...\PM Existing V3.pdf — 3/12/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	College Avenue/Sir Francis Drake Boulevard	Signalized	HCM 6th Edition	NB Right	0.649	23.2	C
2	College Avenue/Stadium Way	Signalized	HCM 6th Edition	EB Left	0.326	1.3	A
3	College Avenue/Woodland Road-Kent Avenue	All-way stop	HCM 6th Edition	NB Thru	0.593	15.3	C
4	Magnolia Avenue/P13 Driveway	Two-way stop	HCM 6th Edition	EB Left	0.052	20.2	C
5	Sunset Parkway/Ignacio Boulevard	All-way stop	HCM 6th Edition	SB Left	0.472	12.7	B
6	Sunset Parkway/Merritt Drive	Two-way stop	HCM 6th Edition	WB Left	0.026	14.6	B
7	SR 1/Olema-Bolinas Road	Two-way stop	HCM 6th Edition	EB Left	0.058	9.4	A
8	SR 1/Fairfax-Bolinas Road	Two-way stop	HCM 6th Edition	EB Thru	0.005	11.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: College Avenue/Sir Francis Drake Boulevard

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name	College Ave						Sir Francis Drake Blvd			Sir Francis Drake Blvd			
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration													
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	0	0	0	0	0	1	1	0	0	0
Pocket Length [ft]	50.00	100.00	50.00	100.00	100.00	100.00	100.00	100.00	130.00	240.0	100.0	100.0	100.0
Speed [mph]	30.00			15.00			35.00			35.00			
Grade [%]	0.00			0.00			0.00			0.00			
Curb Present	No			No			No			No			
Crosswalk	Yes			No			No			Yes			

Volum

Name	College Ave						Sir Francis Drake Blvd			Sir Francis Drake Blvd			
Base Volume Input [veh/h]	216	0	498	0	0	0	0	576	186	23	406	729	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	303	0	0	0	0	0	126	0	0	0	0
Total Hourly Volume [veh/h]	216	0	195	0	0	0	0	576	60	23	406	729	1
Peak Hour Factor	0.9100	1.0000	0.9100	0.9100	0.9100	0.9100	1.0000	0.9100	0.9100	0.910	0.910	0.910	0.910
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	59	0	54	0	0	0	0	158	16	6	112	200	0
Total Analysis Volume [veh/h]	237	0	214	0	0	0	0	633	66	25	446	801	1
Presence of On-Street Parking	No		No	No		No	No		No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0			
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0			
v_co, Outbound Pedestrian Volume crossing	0			0			0			0			
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0			
Bicycle Volume [bicycles/h]	0			0			0			0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permi	Prote	Permi	Permi
Signal Group	3	0	0	0	4	0	0	2	0	0	1	6	0
Auxiliary Signal Groups													
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	0	0	0	5	0	0	5	0	0	5	5	0
Maximum Green [s]	30	0	0	0	30	0	0	30	0	0	30	30	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	62	0	0	0	9	0	0	23	0	0	46	69	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	0	5	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	17	0	0	0	10	0	0	14	0	0	0	7	0
Rest In Walk	No				No			No				No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No				No			No			No	No	
Maximum Recall	No				No			No			No	No	
Pedestrian Recall	No				No			No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	0	33	33	26	63	63
g / C, Green / Cycle	0.17	0.17	0.00	0.37	0.37	0.29	0.70	0.70
(v / s)_i Volume / Saturation Flow Rate	0.07	0.13	0.00	0.18	0.04	0.26	0.21	0.21
s, saturation flow rate [veh/h]	3459	1589	1870	3560	1589	1781	1870	1869
c, Capacity [veh/h]	577	265	1	1297	579	517	1307	1307
d1, Uniform Delay [s]	33.56	36.12	0.00	22.14	18.99	30.83	5.19	5.19
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.14	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	5.73	0.00	1.32	0.40	8.25	0.61	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.81	0.00	0.49	0.11	0.91	0.31	0.31
d, Delay for Lane Group [s/veh]	34.03	41.85	0.00	23.46	19.39	39.08	5.80	5.80
Lane Group LOS	C	D	A	C	B	D	A	A
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.32	4.86	0.00	5.15	0.94	10.56	2.47	2.47
50th-Percentile Queue Length [ft/ln]	58.06	121.59	0.00	128.79	23.59	264.07	61.67	61.65
95th-Percentile Queue Length [veh/ln]	4.18	8.48	0.00	8.87	1.70	15.89	4.44	4.44
95th-Percentile Queue Length [ft/ln]	104.51	212.01	0.00	221.85	42.45	397.32	111.01	110.97

Movement, Approach, & Intersection Results

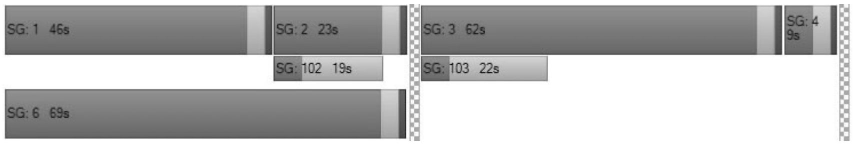
d_M, Delay for Movement [s/veh]	34.03	0.00	41.85	0.00	0.00	0.00	0.00	23.46	19.39	39.08	39.08	5.80	5.80
Movement LOS	C		D	A	A	A		C	B	D	D	A	A
d_A, Approach Delay [s/veh]	37.74			0.00			23.07			18.11			
Approach LOS	D			A			C			B			
d_I, Intersection Delay [s/veh]	23.20												
Intersection LOS	C												
Intersection V/C	0.649												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00	0.00	36.45
I_p,int, Pedestrian LOS Score for Intersection	2.903	0.000	0.000	2.853
Crosswalk LOS	C	F	F	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	111	422	1444
d_b, Bicycle Delay [s]	45.00	40.14	28.01	3.47
I_b,int, Bicycle LOS Score for Intersection	4.132	1.560	2.240	2.589
Bicycle LOS	D	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: College Avenue/Stadium Way

Control Type:	Signalized	Delay (sec / veh):	1.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.326

Intersection Setup

Name	College Ave			College Ave			Stadium Way			Middle School Dwy		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	45.00	100.00	100.00	45.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			15.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No					
Crosswalk	Yes			No			Yes			Yes		

Volumes

Name	College Ave			College Ave			Stadium Way			Middle School Dwy		
Base Volume Input [veh/h]	1	537	14	29	490	12	1	0	1	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	537	14	29	490	12	1	0	1	0	0	0
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	148	4	8	135	3	0	0	0	0	0	0
Total Analysis Volume [veh/h]	1	590	15	32	538	13	1	0	1	0	0	0
Presence of On-Street Parking	No		No	No		No	No		No			
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	0	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	0	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0
Split [s]	0	61	0	0	61	0	0	19	0	0	0	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0	0
Pedestrian Clearance [s]	0	3	0	0	7	0	0	10	0	0	0	0
Rest In Walk		No			No			No				
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
Minimum Recall		No			No			No				
Maximum Recall		No			No			No				
Pedestrian Recall		No			No			No				
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	C	
C, Cycle Length [s]	80	80	80	80	80	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	72	72	72	72	0	
g / C, Green / Cycle	0.90	0.90	0.90	0.90	0.00	
(v / s)_i Volume / Saturation Flow Rate	0.00	0.32	0.04	0.30	0.00	
s, saturation flow rate [veh/h]	857	1862	815	1862	1680	
c, Capacity [veh/h]	789	1668	749	1668	7	
d1, Uniform Delay [s]	1.36	0.64	1.52	0.62	39.69	
k, delay calibration	0.50	0.50	0.50	0.50	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.00	0.61	0.11	0.53	20.92	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.00	0.36	0.04	0.33	0.29	
d, Delay for Lane Group [s/veh]	1.36	1.26	1.63	1.15	60.61	
Lane Group LOS	A	A	A	A	E	
Critical Lane Group	No	Yes	No	No	Yes	
50th-Percentile Queue Length [veh/ln]	0.00	0.28	0.09	0.25	0.08	
50th-Percentile Queue Length [ft/ln]	0.06	7.10	2.16	6.15	2.01	
95th-Percentile Queue Length [veh/ln]	0.00	0.51	0.16	0.44	0.14	
95th-Percentile Queue Length [ft/ln]	0.11	12.78	3.90	11.08	3.62	

Movement, Approach, & Intersection Results

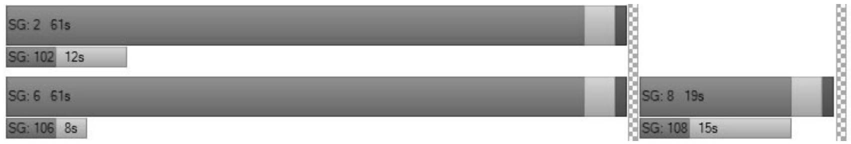
d_M, Delay for Movement [s/veh]	1.36	1.26	1.26	1.63	1.15	1.15	60.61	60.61	60.61	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A	E	E	E			
d_A, Approach Delay [s/veh]	1.26			1.17			60.61			0.00		
Approach LOS	A			A			E			A		
d_I, Intersection Delay [s/veh]	1.32											
Intersection LOS	A											
Intersection V/C	0.326											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	31.51	0.00	31.51	31.51
I_p,int, Pedestrian LOS Score for Intersection	2.246	0.000	1.716	1.510
Crosswalk LOS	B	F	A	A
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1425	1425	375	0
d_b, Bicycle Delay [s]	3.31	3.31	26.41	40.00
I_b,int, Bicycle LOS Score for Intersection	2.560	2.522	1.563	4.132
Bicycle LOS	B	B	A	D

Sequence

Ring 1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: College Avenue/Woodland Road-Kent Avenue

Control Type:	All-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name	College Ave				College Ave				Woodland Rd			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left2	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	1	0	0	0	0
Pocket Length [ft]	80.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00				25.00				25.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	No				Yes				Yes			

Volumes

Name	College Ave				College Ave				Woodland Rd			
Base Volume Input [veh/h]	57	0	259	13	43	237	110	0	116	0	3	54
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	0	259	13	43	237	110	0	116	0	3	54
Peak Hour Factor	0.8800	1.0000	0.8800	0.8800	0.8800	0.8800	0.8800	1.0000	0.8800	1.0000	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	0	74	4	12	67	31	0	33	0	1	15
Total Analysis Volume [veh/h]	65	0	294	15	49	269	125	0	132	0	3	61
Pedestrian Volume [ped/h]	0				0				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	483	521	489	525	585	534
Degree of Utilization, x	0.13	0.59	0.10	0.51	0.21	0.37

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.46	3.82	0.33	2.89	0.80	1.67
95th-Percentile Queue Length [ft]	11.55	95.42	8.31	72.35	20.08	41.82
Approach Delay [s/veh]	17.79		14.22			13.60
Approach LOS	C		B			B
Intersection Delay [s/veh]	15.27					
Intersection LOS	C					

Intersection Setup

Name	Driveway				Kent Ave			
Approach	Westbound				Southeastbound			
Lane Configuration								
Turning Movement	Left	Thru	Right	Right2	Left	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	15.00				25.00			
Grade [%]	0.00				0.00			
Crosswalk	Yes				Yes			

Volumes

Name	Driveway				Kent Ave			
Base Volume Input [veh/h]	23	5	72	9	12	0	129	50
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	5	72	9	12	0	129	50
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	1.0000	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	1	20	3	3	0	37	14
Total Analysis Volume [veh/h]	26	6	82	10	14	0	147	57
Pedestrian Volume [ped/h]	0				0			

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	528	482
Degree of Utilization, x	0.23	0.45

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.90	2.31
95th-Percentile Queue Length [ft]	22.61	57.82
Approach Delay [s/veh]	11.90	16.48
Approach LOS	B	C
Intersection Delay [s/veh]	15.27	
Intersection LOS	C	

Intersection Level Of Service Report
Intersection 4: Magnolia Avenue/P13 Driveway

Control Type:	Two-way stop	Delay (sec / veh):	20.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.052

Intersection Setup

Name	Magnolia Ave			College Ave			P13 Dwy			P13 Dwy		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			15.00			15.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			No			No			No		

Volumes

Name	Magnolia Ave			College Ave			P13 Dwy			P13 Dwy		
Base Volume Input [veh/h]	1	414	5	4	407	0	12	0	14	4	0	9
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	414	5	4	407	0	12	0	14	4	0	9
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	113	1	1	111	0	3	0	4	1	0	2
Total Analysis Volume [veh/h]	1	450	5	4	442	0	13	0	15	4	0	10
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.02	0.02	0.00	0.02
d_M, Delay for Movement [s/veh]	8.22	0.00	0.00	8.27	0.00	0.00	20.19	18.95	11.66	19.84	18.38	11.21
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.01	0.01	0.01	0.25	0.25	0.25	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.07	0.07	0.07	0.27	0.27	0.27	6.16	6.16	6.16	2.53	2.53	2.53
d_A, Approach Delay [s/veh]	0.02			0.07			15.62			13.68		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	0.71											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Sunset Parkway/Ignacio Boulevard

Control Type:	All-way stop	Delay (sec / veh):	12.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.472

Intersection Setup

Name	Sunset Pkwy		Ignacio Blvd		Ignacio Blvd		
Approach	Southbound		Eastbound		Westbound		
Lane Configuration							
Turning Movement	Left	Right	Left	Thru	U-turn	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	0	0	0	0
Pocket Length [ft]	100.00	100.00	80.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00		25.00		25.00		
Grade [%]	0.00		0.00		0.00		
Crosswalk	Yes		Yes		No		

Volum

Name	Sunset Pkwy		Ignacio Blvd		Ignacio Blvd		
Base Volume Input [veh/h]	138	63	84	170	16	114	208
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	63	84	170	16	114	208
Peak Hour Factor	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	22	30	60	6	40	73
Total Analysis Volume [veh/h]	194	89	118	239	23	161	293
Pedestrian Volume [ped/h]	0		0		0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	493	588	499	537	537	548	621
Degree of Utilization, x	0.39	0.15	0.24	0.22	0.22	0.34	0.47

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.86	0.53	0.91	0.84	0.84	1.47	2.52
95th-Percentile Queue Length [ft]	46.45	13.28	22.77	21.12	21.12	36.72	63.12
Approach Delay [s/veh]	13.19		11.58		13.18		
Approach LOS	B		B		B		
Intersection Delay [s/veh]	12.67						
Intersection LOS	B						

Intersection Level Of Service Report
Intersection 6: Sunset Parkway/Merritt Drive

Control Type:	Two-way stop	Delay (sec / veh):	14.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.026

Intersection Setup

Name	Sunset Pkwy			Sunset Pkwy			Merritt Drive			Merritt Drive		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Sunset Pkwy			Sunset Pkwy			Merritt Drive			Merritt Drive		
Base Volume Input [veh/h]	1	275	13	12	145	145	7	1	43	8	0	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	275	13	12	145	145	7	1	43	8	0	12
Peak Hour Factor	1.0000	0.8000	0.8000	0.8000	0.8000	1.0000	0.8000	0.8000	0.8000	0.8000	1.0000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	86	4	4	45	36	2	0	13	3	0	4
Total Analysis Volume [veh/h]	1	344	16	15	181	145	9	1	54	10	0	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.00	0.06	0.03	0.00	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	8.04	0.00	0.00	14.07	13.94	9.64	14.62	13.73	10.55
Movement LOS		A	A	A	A		B	B	A	B	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.04	0.04	0.00	0.28	0.28	0.28	0.15	0.15	0.15
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.95	0.95	0.00	7.08	7.08	7.08	3.73	3.73	3.73
d_A, Approach Delay [s/veh]	0.00			0.62			10.33			12.18		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.68											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 7: SR 1/Olema-Bolinas Road

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.058

Intersection Setup

Name	SR 1		SR 1		Olema-Bolinas Rd	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00		65.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 1		SR 1		Olema-Bolinas Rd	
Base Volume Input [veh/h]	0	52	24	37	42	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	52	24	37	42	4
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	16	7	11	13	1
Total Analysis Volume [veh/h]	0	63	29	45	51	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.06	0.00
d_M, Delay for Movement [s/veh]	7.36	0.00	0.00	0.00	9.35	8.81
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.20	0.20
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	5.01	5.01
d_A, Approach Delay [s/veh]	0.00		0.00		9.30	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.70					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 8: SR 1/Fairfax-Bolinas Road

Control Type:	Two-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

Intersection Setup

Name	SR 1			SR 1			Olema-Bolinas Rd			Fairfax-Bolinas Rd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	65.00			65.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	SR 1			SR 1			Olema-Bolinas Rd			Fairfax-Bolinas Rd		
Base Volume Input [veh/h]	66	54	2	1	27	0	0	2	27	0	1	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	54	2	1	27	0	0	2	27	0	1	1
Peak Hour Factor	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	17	1	0	9	0	0	1	9	0	0	0
Total Analysis Volume [veh/h]	84	68	3	1	34	0	0	3	34	0	1	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.41	0.00	0.00	7.36	0.00	0.00	10.70	11.18	8.61	10.92	11.03	8.64
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.17	0.00	0.00	0.00	0.12	0.12	0.12	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	4.21	4.21	4.21	0.05	0.05	0.05	2.94	2.94	2.94	0.20	0.20	0.20
d_A, Approach Delay [s/veh]	4.02			0.21			8.82			9.83		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.26											
Intersection LOS	B											