

Appendix

Appendix C Traffic Impact Analysis

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**TRAFFIC IMPACT ANALYSIS
FOR THE PROPOSED EXPANSION OF
OXFORD PREPARATORY ACADEMY
LAKE FOREST**

**Prepared for
PLACEWORKS
&
SADDLEBACK VALLEY UNIFIED SCHOOL DISTRICT**

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I.

INTRODUCTION AND STUDY METHODOLOGY

This traffic analysis was conducted to determine the impacts of the proposed expansion of the existing Oxford Preparatory Academy in Lake Forest. Sixteen relocatable classrooms would be provided to accommodate 7th and 8th grade students. The location of Oxford Preparatory Academy is shown on Figure 1 and the proposed site plan is shown on Figure 2.

The Oxford Preparatory Academy campus is bounded by Loumont Drive on the north, Blackfoot Drive on the west, and Dune Mear Road on the south. The current enrollment is 363 students in grades TK through 6. The proposed project would increase the capacity of the school to 700 students in grades TK through 8.

The objective of the traffic analysis is to quantify the impacts of the proposed project on the streets and intersections in the vicinity of the school site. The methodology for the traffic study, in general, was to 1) establish the baseline traffic conditions on the streets that provide access to the school site, 2) project the future baseline traffic conditions for the first year of operation for the proposed project (year 2024), 3) estimate the levels of traffic that would be generated by the proposed school expansion, 4) add the traffic that would be generated by the project to the baseline traffic volumes to establish the traffic conditions with the proposed project, 5) conduct a comparative level of service analysis for the scenarios with and without the proposed project, and 6) evaluate vehicle, pedestrian, and bicycle safety issues, vehicle miles traveled (VMT), and emergency access.

The traffic analysis is based on morning peak hour traffic volumes on the streets and intersections in the project area because traffic that is generated by the school in the morning generally coincides with the morning commuter peak period. The afternoon peak period was not evaluated because the afternoon peak hour of traffic activity for a school does not typically coincide with the commuter peak hour on the roadway network. The afternoon commuter peak period generally occurs from approximately 5:00 to 6:00 p.m., while a K-8 school generally experiences its peak traffic activity between 2:00 and 3:00 p.m. when the background traffic volumes are relatively light (as compared to the peak hours).

The traffic analysis addresses the impacts at six intersections in the vicinity of the school site. The study area intersections and the type of traffic control at each intersection are listed below in Table 1. All of the intersections are in the jurisdiction of the City of Lake Forest.

TABLE 1	
STUDY AREA INTERSECTIONS	
Intersection	Traffic Control
Blackfoot Drive at Costa Bella Drive	No Stop Signs – T Intersection
Blackfoot Drive at Loumont Drive	No Stop Signs – T Intersection
Blackfoot Drive at Dune Mear Road	No Stop Signs – T Intersection
Muirlands Boulevard at Loumont Drive	Stop Sign on Loumont Drive
Muirlands Boulevard at Entradas Drive	Stop Signs on Entradas Drive
Ridge Route Drive at Coleford Street	Stop Sign on Coleford Street

The traffic impact analysis is based on an evaluation of the levels of service at the affected study area intersections. Level of service (LOS) is an industry standard by which the operating conditions of a roadway segment or an intersection are measured. LOS is defined on a scale of A through F with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. LOS A is characterized as having free flowing traffic conditions with no restrictions on maneuvering or operating speeds and little or no delays, where traffic volumes are low and travel speeds are high. LOS F is characterized as having forced flow with many stoppages, extensive delays, and low operating speeds.

According to the performance criteria cited in the “City of Lake Forest Transportation Analysis Guidelines” (July 21, 2020), LOS A through D represents acceptable conditions, while LOS E and F represent congested, over-capacity conditions. The levels of service at the intersections in the study area were determined by using the Intersection Capacity Utilization (ICU) methodology, as specified in the City of Lake Forest’s guidelines. A delay-based level of service analysis was also conducted using the Highway Capacity Manual methodology to address project-related delays for turning movements at the intersections.

The levels of service for the intersections in the vicinity of the school were analyzed for the following scenarios:

- Existing conditions (2023)
- Existing conditions plus the proposed project
- Future baseline conditions without the proposed project for the target year of 2024
- Future conditions with the proposed project.

The year 2024 was used for the future target year as that is anticipated to be the first year of operation for the proposed project.

II. BASELINE TRAFFIC CONDITIONS

The street network in the project vicinity, the existing and future baseline traffic volumes, and the levels of service at the affected study area intersections are described below.

Street Network

The local streets that provide access to the school site include Loumont Drive, Blackfoot Drive, Dune Mear Road, Coleford Street, Costa Bella Drive, Corta Cresta Drive, and Entradas Drive. The arterial streets that provide access to the project area include Muirlands Boulevard and Ridge Route Drive. The following paragraphs provide a brief description of the characteristics of these streets. A figure showing the study area street network, the types of traffic control at each intersection, and the lane configuration at each intersection is provided as Figure 3.

Loumont Drive is a two lane east-west street that abuts the north side of the school site. The exit driveway from the school's parking lot feeds into Loumont Drive east of Blackfoot Drive. A segment of Loumont Drive also provides a link between Corta Cresta Drive and Muirlands Boulevard and serves as an entrance/exit for the residential neighborhood in which the school is located. The speed limit on Loumont Drive is 25 miles per hour (mph).

Blackfoot Drive is a two lane north-south street that abuts the west side of the school site. The entrance driveway to the school's parking lot is accessed from Blackfoot Drive south of Loumont Drive and the speed limit is 25 mph.

Dune Mear Road is a two lane east-west street that abuts the south side of the school site adjacent to the school's playfields. The speed limit on Dune Mear Road is 25 mph.

Coleford Street is a two lane north-south street located 130 feet east of the school site. There is a row of single-family residences between the school campus and Coleford Street. A segment of Coleford Street also provides a link between Costa Bella Drive and Ridge Route Drive and serves as an entrance/exit for the residential neighborhood in which the school is located. The speed limit on Coleford Street is 25 mph.

Costa Bella Drive is a two lane east-west street located approximately 320 feet (one block) north of the school site. The speed limit on Costa Bella Drive is 25 mph.

Corta Cresta Drive is a two lane north-south street located approximately 320 feet (one block) west of the school site. The speed limit on Corta Cresta Drive is 25 mph.

Entradas Drive is a short two lane east-west street that provides a link between Corta Cresta Drive and Muirlands Boulevard and serves as an entrance/exit for the residential neighborhood in which the school is located. The speed limit on Entradas Drive is 25 mph.

Muirlands Boulevard is a four lane north-south street located approximately 500 feet west of the school site. It has a center left turn lane and bike lanes on both sides of the street. It is classified as a primary arterial roadway in the Mobility Element of the "Lake Forest General Plan 2040" and the speed limit is 45 mph.

Ridge Route Drive is a four lane east-west street located approximately 500 feet north of the school site. It has a raised median with periodic left turn pockets and bike lanes on both sides of the street.

It is classified as a secondary arterial roadway in the Mobility Element and the speed limit is 40 mph.

Existing Traffic Volumes

Manual traffic counts were taken at the study area intersections on Wednesday, June 7, 2023, during the morning peak period. Figure 4 shows the existing peak hour traffic volumes and turning movements at each intersection. The traffic counts were taken from 7:00 to 9:00 a.m. and the highest one-hour period of traffic flow was determined for each intersection. The morning peak hour generally occurs between 7:30 and 8:30 a.m. The afternoon peak period was not addressed in the traffic impact analysis because the peak period of traffic activity for a K-8 school typically occurs from 2:00 to 3:00 p.m., which does not coincide with the late afternoon commuter peak hour, which occurs generally from 5:00 to 6:00 p.m.

Existing Intersection Levels of Service

To quantify the existing baseline traffic conditions, the six study area intersections were analyzed to determine their operating conditions during the morning peak hour. The operating conditions are identified based on the levels of service (LOS) that were calculated for each intersection.

The LOS values were determined by calculating the intersection capacity utilization (ICU) values. ICU is a measure of an intersection's traffic volumes as compared to the theoretical capacity of the intersection. It is essentially the same as a volume/capacity ratio. The relationship between ICU values and levels of service is shown in Table 2.

TABLE 2	
RELATIONSHIP BETWEEN ICU VALUES & LEVELS OF SERVICE	
Level of Service	ICU Value
A	0.00 to 0.60
B	> 0.60 to 0.70
C	> 0.70 to 0.80
D	> 0.80 to 0.90
E	> 0.90 to 1.00
F	> 1.00

Based on the peak hour traffic volumes, the turning movement volumes, and the number of lanes at each intersection, the levels of service have been determined for the study area intersections, as summarized in Table 3. These values represent the existing 2023 traffic conditions without the project.

TABLE 3 EXISTING (2023) INTERSECTION LEVELS OF SERVICE	
Intersection	ICU Value & Level of Service AM Peak Hour
Blackfoot Drive at Costa Bella Drive	0.233 – A
Blackfoot Drive at Loumont Drive	0.221 – A
Blackfoot Drive at Dune Mear Road	0.315 – A
Muirlands Boulevard at Loumont Drive	0.353 – A
Muirlands Boulevard at Entradas Drive	0.424 – A
Ridge Route Drive at Coleford Street	0.191 – A

As shown in Table 3, the study area intersections all currently operate at an acceptable level of service (LOS A through D) during the morning peak hour as all six of the intersections operate at LOS A.

Future Baseline Traffic Conditions

The future (year 2024) baseline traffic conditions without the project were estimated by considering the effects of general ambient regional growth and the cumulative increase in traffic volumes that would be generated by ongoing development in the project area. As the relocatable buildings are proposed to be installed and occupied in the year 2024, that is the target year for the future baseline analysis.

The future baseline traffic volumes were forecast by multiplying the existing traffic volumes by a growth factor of three percent, which accounts for the traffic increases associated with general regional growth and local development in the study area. The projected future baseline traffic volumes without the proposed project for the target year of 2024 are shown on Figure 5.

Based on the projected peak hour traffic volumes and turning movement counts, the future baseline ICU values and levels of service were calculated for each study area intersection, as summarized in Table 4 for the target year of 2024. Table 4 indicates that all six of the study area intersections are projected to operate at acceptable levels of service during the morning peak hour as all of the intersections would operate at LOS A.

TABLE 4 FUTURE BASELINE INTERSECTION LEVELS OF SERVICE WITHOUT PROJECT	
Intersection	ICU & Level of Service AM Peak Hour
Blackfoot Drive at Costa Bella Drive	0.237 – A
Blackfoot Drive at Loumont Drive	0.226 – A
Blackfoot Drive at Dune Mear Road	0.323 – A
Muirlands Boulevard at Loumont Drive	0.361 – A
Muirlands Boulevard at Entradas Drive	0.434 – A
Ridge Route Drive at Coleford Street	0.196 – A

III. TRAFFIC IMPACT ANALYSIS

The following sections summarize the analysis of the project's impacts on study area traffic conditions. First is a discussion of project generated traffic volumes. This is followed by an analysis of the impacts of the proposed project on traffic volumes and intersection levels of service in the vicinity of the project site. Then the impacts associated with vehicle miles traveled (VMT), bicycle and pedestrian safety, traffic hazards, and emergency access are presented.

Project Generated Traffic

The volumes of traffic expected to be generated by the proposed school expansion were determined in order to estimate the impacts of the project on the study area streets and intersections. Table 5 shows the estimated volumes of project generated traffic for an average day and for the morning and afternoon peak hours. The trip generation rates are from the Institute of Transportation Engineers *Trip Generation Manual* (11th Edition, 2021). Although the trip generation rates and traffic volumes shown in Table 5 for the school are based on the number of students, the data represent the total number of vehicle trips generated by the school expansion, including staff/faculty vehicles, drop-off/pick-up activities, visitors, and deliveries.

TABLE 5 PROJECT GENERATED TRAFFIC							
Land Use	AM Peak Hour			PM Peak Hour			Daily Traffic
	Total	In	Out	Total	In	Out	
TRIP GENERATION RATES (vehicle trips per student)							
Middle School	0.74	55%	45%	0.36	46%	54%	2.10
GENERATED TRAFFIC VOLUMES							
Middle School (337 students)	249	137	112	121	56	65	708

Table 5 indicates that the proposed project would generate an estimated 249 vehicle trips during the morning peak hour (137 inbound and 112 outbound), 121 trips during the afternoon peak hour (56 inbound and 65 outbound), and approximately 708 vehicle trips per day.

It should be noted that the traffic volumes shown in Tables 5 do not necessarily introduce new traffic to the overall roadway network but instead represent the traffic that would be re-directed to this school site from other existing schools, because the number of students attending school in the district is a function of the school-age population and the demand for educational facilities. Most of the school-related traffic would be traveling on the roadway network regardless of the status of the proposed project. It has been assumed for the traffic analysis, however, that the additional site-generated traffic would be new traffic on the roadway network.

Projected Traffic Volumes

To quantify the increase in traffic volumes at each intersection resulting from the proposed school expansion, the project generated traffic was geographically distributed onto the street network using the directional percentages shown on Figure 6. The distribution assumptions are based on

the layout of the street network, the existing traffic patterns, and the anticipated geographical distribution of the students who would attend the school.

Using the generated traffic volumes shown in Table 5 and the geographical distribution assumptions shown on Figure 6, the volumes of project traffic on each access street and at each study area intersection were determined for the traffic impact analysis. The volumes of project generated traffic at each study area intersection are shown on Figure 7.

The traffic impact analysis considers two scenarios. One is the project's impacts on existing conditions and the other is the project's impacts on the projected year 2024 conditions. To quantify the impacts on existing conditions, the project generated traffic volumes shown on Figure 7 were added to the existing traffic volumes. The resulting "existing plus project" traffic volumes are shown on Figure 8.

The total volumes of traffic projected for the year 2024 scenario were determined by adding the project generated traffic to the future baseline traffic volumes. These projected traffic volumes are shown on Figure 9.

Significance Criteria

The "City of Lake Forest Transportation Analysis Guidelines" indicates that the level of service performance standard for streets and intersections is LOS D or better. Based on the LOS D threshold of significance, an intersection would be significantly impacted and mitigation would be required if a project would result in a change from LOS A through D to LOS E or F or if the project would result in an increase of 0.02 or greater in the ICU value at an intersection that is projected to operate at LOS E or F. The impacts would not be significant at intersections that are projected to operate at LOS A through D.

With regard to the CEQA thresholds of significance, Appendix G of the CEQA Guidelines states that a project would normally have a significant effect on the environment if the project could:

- T-1 Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities,
- T-2 Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT),
- T-3 Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), or
- T-4 Result in inadequate emergency access.

Intersection Impact Analysis

The impact analysis for the six study area intersections was conducted by comparing the ICU values and levels of service (LOS) for the "without project" and "with project" scenarios. For the existing conditions scenario, the analysis compares the existing conditions to the conditions with the proposed project. Similarly, for the year 2024 scenario, the analysis compares the year 2024 baseline conditions without the proposed project to the year 2024 scenario with the proposed project. The year 2024 was used as the target year for future conditions as that is anticipated to be the first year that the proposed project would be completed and operational.

The comparative levels of service at the study area intersections for the existing conditions baseline scenario are summarized in Table 6. The table shows the before and after ICU values and levels of service that would occur at each study area intersection. Also shown are the increases in the ICU values that would occur as a result of the proposed project. The last column in Table 6 indicates if the intersections would be significantly impacted by the proposed project.

The intersection of Blackfoot Drive and Costa Bella Drive, for example, operates with an ICU value of 0.233 and LOS A for existing conditions and would operate with an ICU value of 0.301 and LOS A for the existing plus project scenario, which represents an increase of 0.068 in the ICU value. This impact would be less than significant according to the criteria outlined above because the intersection would continue to operate at an acceptable LOS A.

TABLE 6 PROJECT IMPACT ON INTERSECTION LEVELS OF SERVICE EXISTING CONDITIONS AS BASELINE				
Intersection	ICU Value & LOS		Increase In ICU Value	Signif- icant Impact
	Existing Conditions	Existing Plus Project		
Blackfoot Drive at Costa Bella Drive	0.233 – A	0.301 – A	0.068	No
Blackfoot Drive at Loumont Drive	0.221 – A	0.302 – A	0.081	No
Blackfoot Drive at Dune Mear Road	0.315 – A	0.394 – A	0.079	No
Muirlands Boulevard at Loumont Drive	0.353 – A	0.399 – A	0.046	No
Muirlands Boulevard at Entradas Drive	0.424 – A	0.488 – A	0.064	No
Ridge Route Drive at Coleford Street	0.191 – A	0.218 – A	0.027	No

Table 6 indicates that none of the study area intersections would be significantly impacted by the additional traffic that would be generated by the proposed project for the existing conditions baseline scenario because all of the intersections would continue to operate at an acceptable LOS A.

The before-and-after ICU values and levels of service at each of the study area intersections are summarized in Table 7 for the year 2024 baseline scenario. The table shows the projected 2024 traffic conditions without the project, the 2024 traffic conditions with the project, and the change in the ICU values associated with the project. The last column in Table 7 indicates if the intersection would be significantly impacted by the project traffic.

Table 7 indicates that none of the study area intersections would be significantly impacted by the additional traffic that would be generated by the proposed project for the year 2024 baseline scenario because all of the intersections would continue to operate at an acceptable LOS A.

TABLE 7 PROJECT IMPACT ON INTERSECTION LEVELS OF SERVICE YEAR 2024 AS BASELINE				
Intersection	ICU Value & LOS		Increase In ICU Value	Signif- icant Impact
	2024 Without Project	2024 With Project		
Blackfoot Drive at Costa Bella Drive	0.237 – A	0.303 – A	0.066	No
Blackfoot Drive at Loumont Drive	0.226 – A	0.307 – A	0.081	No
Blackfoot Drive at Dune Mear Road	0.323 – A	0.403 – A	0.080	No
Muirlands Boulevard at Loumont Drive	0.361 – A	0.408 – A	0.047	No
Muirlands Boulevard at Entradas Drive	0.434 – A	0.498 – A	0.064	No
Ridge Route Drive at Coleford Street	0.196 – A	0.221 – A	0.025	No

Tables 6 and 7 indicate that the proposed project would not have a significant impact at any of the study area intersections based on the significance criteria presented previously because the intersections would all continue to operate at an acceptable LOS A. As there would be no significant impacts, no capacity-related mitigation measures would be required.

As the LOS data provided in Tables 6 and 7 represent an analysis of traffic conditions based on the intersection capacity utilization (ICU) values, as specified in the City of Lake Forest guidelines, an additional analysis of the intersections has been done based on delay values for the critical turning movements at each intersection. This analysis uses the Highway Capacity Manual methodology, which calculates levels of service for each movement based on average vehicle delay values. The relationship between average delay values and levels of service is shown in Table 8.

TABLE 8 RELATIONSHIP BETWEEN DELAY VALUES & LEVELS OF SERVICE	
Level of Service	Average Delay Value (seconds) Unsignalized Intersections
A	0.0 to 10.0
B	> 10.0 to 15.0
C	> 15.0 to 25.0
D	> 25.0 to 35.0
E	> 35.0 to 50.0
F	> 50.0

The average delay values and levels of service for the most-heavily delayed movement at each study area intersection are shown in Table 9. As shown, three of the intersections would operate at LOS B, two intersections would operate at LOS C, and one intersection would operate at LOS D. These delay values are for the movements at the intersections that would experience the highest delays, which is typically a left turn movement. Table 9 indicates that the delay-based LOS values at all six intersections for the most critical movements would remain at an acceptable level (LOS D or better) for the “year 2024 with project” scenario.

TABLE 9 INTERSECTION DELAY VALUES & LEVELS OF SERVICE YEAR 2024 WITH PROJECT	
Intersection	Delay Value & Level of Service AM Peak Hour
Blackfoot Drive at Costa Bella Drive	15.2 – C
Blackfoot Drive at Loumont Drive	14.1 – B
Blackfoot Drive at Dune Mear Road	14.1 – B
Muirlands Boulevard at Loumont Drive	16.7 – C
Muirlands Boulevard at Entradas Drive	32.8 – D
Ridge Route Drive at Coleford Street	11.0 – B

Non-Motorized Transportation and Transit

The proposed project would generate an increased demand for non-motorized travel as some students would travel to and from the school as pedestrians or on bicycles. The streets in the vicinity of the school site have sidewalks along both sides of the street, the Loumont Drive/Blackfoot Drive intersection has a painted crosswalk across Loumont Drive, and crossing guards are deployed to assist with pedestrian crossings during the peak arrival and departure times at the school. The crosswalk is yellow to inform motorists that they are in a school zone. Bike lanes are currently in place on both sides of Muirlands Boulevard and Ridge Route Drive and bike racks are available at the existing school campus.

With regard to public transit, the Orange County Transportation Authority (OCTA) operates several bus routes that pass through the school area. Route 177 runs along Muirlands Boulevard and Lake Forest Drive west of and north of the school site, Route 86 runs along Jeronimo Road east of the school site, and Route 89 runs along El Toro Road south of the school site. These bus lines could potentially be used by students and staff at the school.

The proposed project would not adversely affect the performance of any transit or non-motorized transportation facilities and would not conflict with any plans or policies relative to these transportation modes. The proposed project would be consistent with policies supporting alternative transportation because bike lanes and sidewalks are provided on the streets in the vicinity of the school, bike racks are provided at the school campus, and transit routes are available in the vicinity of the school.

Based on the LOS analysis and the discussion of non-motorized transportation and transit, the proposed project would not conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Vehicle Miles Traveled (VMT)

The “VMT Impact Analysis” section of the City of Lake Forest “Transportation Analysis Guidelines” states that public facilities that are publicly owned or controlled, such as K-12 schools located within established communities and serving local needs, are assumed to cause a less-than-significant transportation impact. As the proposed expansion of an existing K-6 school to include

grades 7 and 8 falls into this category of a locally-serving public facility, it can be screened from requiring a detailed VMT analysis.

In addition, the County of Orange “Guidelines for Evaluating VMT Under CEQA” state that the development of public facilities, which includes institutional/government and public service uses, can be screened from a CEQA VMT analysis. As the proposed project is included in the public facilities category, it can be screened in accordance with the Orange County guidelines.

Most of the traffic that would be generated by the project are trips associated with the transport of students to and from the school site. These student-related trips would not result in an incremental increase in the VMT because these trips would occur regardless of the status of the proposed project. Students would be transported to other schools in the District if the proposed relocatable classrooms were not installed. The proposed project would not, therefore, result in an increase in VMT for student trips.

Traffic Hazards and Incompatible Uses

Vehicular access to the school site would not change as a result of the proposed project. The school site is currently accessed via an ingress driveway on the east side of Blackfoot Drive south of Loumont Drive and an egress driveway on the south side of Loumont Drive east of Blackfoot Drive. The increased levels of traffic, the increased number of pedestrians, and the increased number of vehicular turning movements that would occur at the school driveways and at the nearby intersections would result in an increased number of traffic conflicts and a corresponding increase in the probability of an accident occurring. These impacts would not be significant, however, because the streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity. These streets and intersections have been accommodating school-related traffic on a daily basis for the existing Oxford Preparatory Academy and the conditions would not substantially change as a result of the proposed project.

The addition of relocatable classrooms at the school would be compatible with the neighborhood and would not result in any major hazards for vehicular traffic, pedestrians, or bicyclists. The streets in the vicinity of the school site have sidewalks along both sides of the street and the intersection of Blackfoot Drive and Loumont Drive adjacent to the school site is equipped with a painted crosswalk and has crossing guards to assist with pedestrian crossings. These features enhance pedestrian safety and facilitate pedestrian access to the school.

With regard to bicycle amenities in the vicinity of the school site, Muirlands Boulevard and Ridge Route Drive have bike lanes on both sides of the streets. In addition, bike racks are available for use on the school campus.

As the existing roadway network, including the pedestrian and bicycle circulation features, could readily accommodate the anticipated increase in vehicular, pedestrian, and bicycle activity, the proposed project would not substantially increase hazards due to a geometric design feature or incompatible uses.

Emergency Access

The access and circulation features at the existing school, including the driveways, on-site roadways, parking lots, and fire lanes, would continue to accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. All access features were subject to and satisfied the design requirements of the District, the City of Lake Forest, and the

Division of the State Architect (DSA). Emergency vehicles would be able to access the school grounds, the buildings, and all other areas of the school campus, including the play fields, via existing on-site travel corridors. The proposed project would not, therefore, result in inadequate emergency access.

IV. SUMMARY OF IMPACTS AND CONCLUSIONS

The key findings and conclusions of the traffic impact analysis are outlined below.

- The proposed relocatable classrooms, which would accommodate an additional 337 students at the school, would generate an estimated 249 vehicle trips during the morning peak hour (137 inbound and 112 outbound), 121 trips during the afternoon peak hour (56 inbound and 65 outbound), and 708 trips per day.
- The levels of traffic generated by the project would not result in a significant impact at any of the study area intersections based on the projected levels of service and the significance criteria used by the City of Lake Forest for evaluating significant traffic impacts.
- All six of the study area intersections are projected to operate at an acceptable level of service A (LOS A) during the morning peak period based on the intersection capacity utilization (ICU) calculations. The City of Lake Forest guidelines indicate that LOS A through D represents acceptable conditions. The afternoon peak hour was not addressed because the school-generated traffic does not coincide with the afternoon commuter peak period.
- An analysis of average vehicle delays at the study area intersections indicates that the most critically impacted turning movements at the intersections would operate at LOS B, C, and D for the “2024 with project” scenario. This represents acceptable levels of service.
- CEQA threshold of significance T-1 asks if the proposed project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities. The analysis indicates that the impact would be less than significant because:
 - The intersection levels of service would not be exceeded as a result of the proposed project, and
 - The proposed project would not adversely affect the performance or safety of any transit or non-motorized transportation facilities (pedestrians and bicycles) and would not conflict with any adopted plans, policies, or programs relative to these alternative transportation modes.
- CEQA threshold of significance T-2 asks if the proposed project would conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b), which addresses vehicle miles traveled (VMT). The analysis indicates that the impact would be less than significant because the proposed project is a local-serving public use and it would not result in an overall increase in student-related vehicle trips.
- CEQA threshold of significance T-3 asks if the proposed project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). The analysis indicates that the streets, intersections, and driveways are designed to accommodate the anticipated levels of vehicular and pedestrian activity and that the streets have been readily accommodating the traffic generated by the existing Oxford Preparatory Academy. The addition of the proposed relocatable classrooms would be compatible with the neighborhood and the

proposed project would not result in any major hazards for vehicular traffic, pedestrians, or bicyclists. The proposed project would not, therefore, substantially increase hazards due to a geometric design feature or incompatible uses.

- CEQA threshold of significance T-4 asks if the proposed project would result in inadequate emergency access. The existing access and circulation features at the school, including the driveways, on-site roadways, parking lots, and fire lanes, would accommodate emergency ingress and egress by fire trucks, police units, and ambulance/paramedic vehicles. Emergency vehicles would be able to access the school grounds, the buildings, and all other areas of the school, including the play fields, via on-site travel corridors. The proposed project would not result in inadequate emergency access.

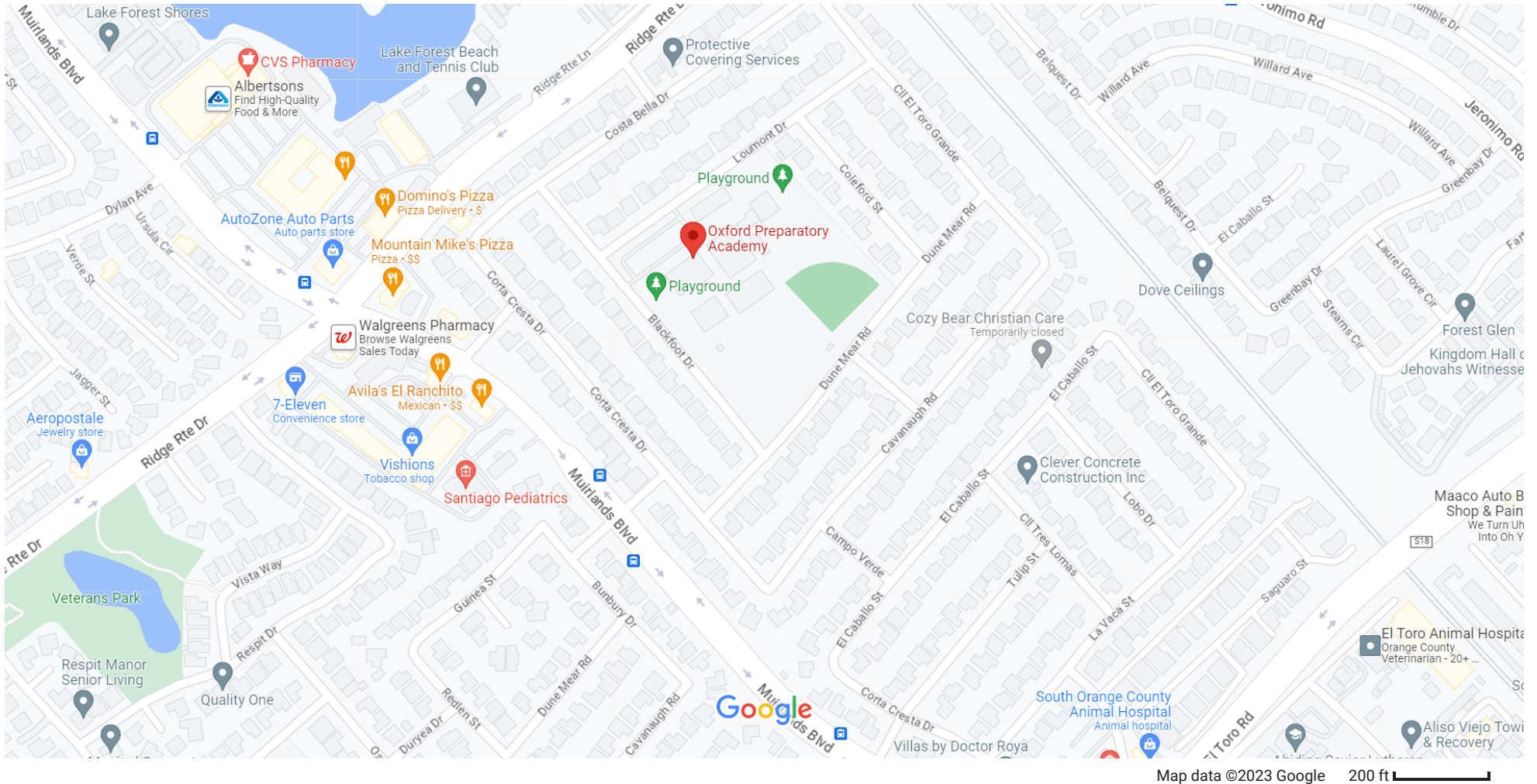
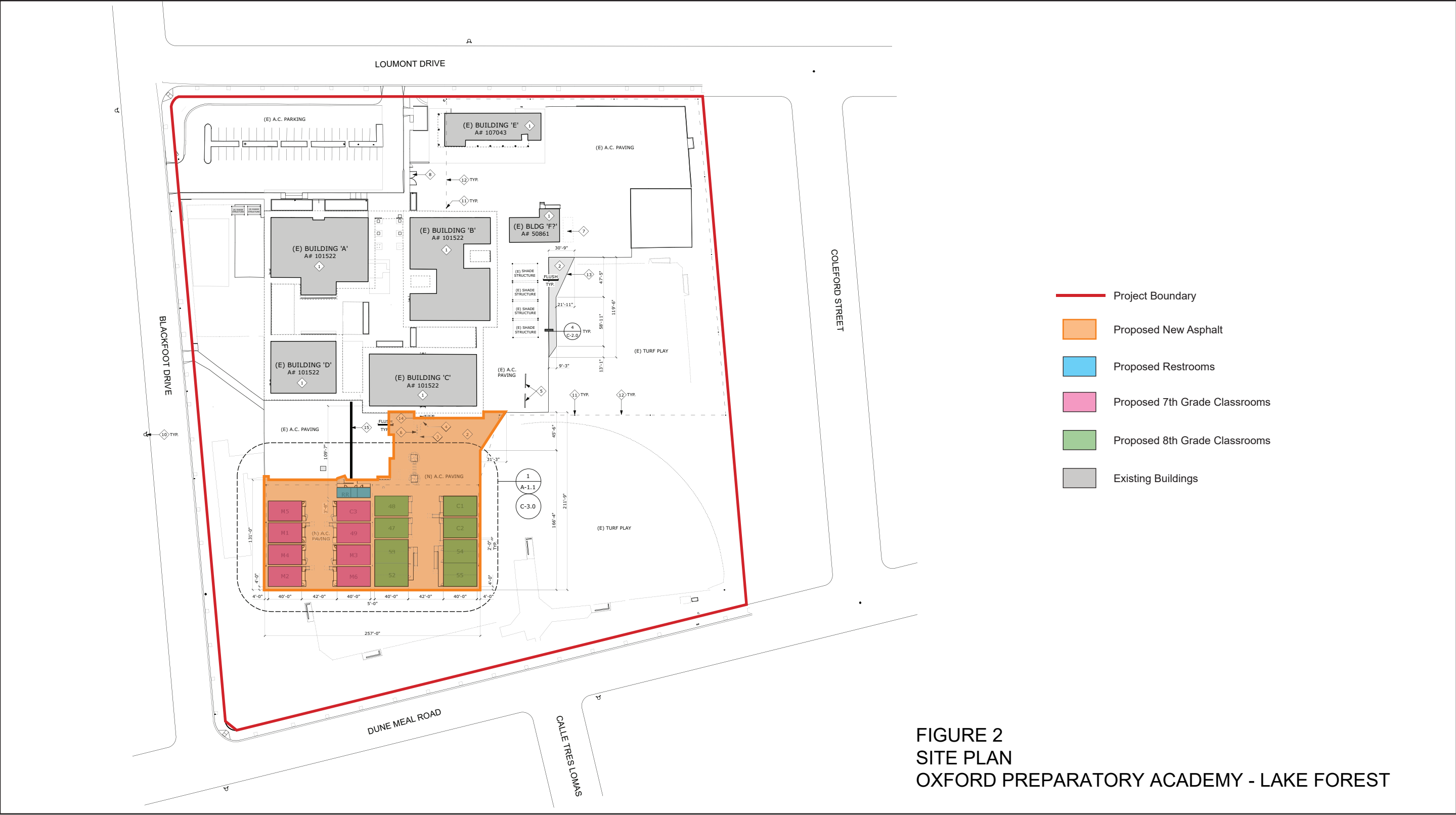


FIGURE 1
LOCATION MAP
OXFORD PREPARATORY ACADEMY - LAKE FOREST



Source: PJHM Architects 2023.

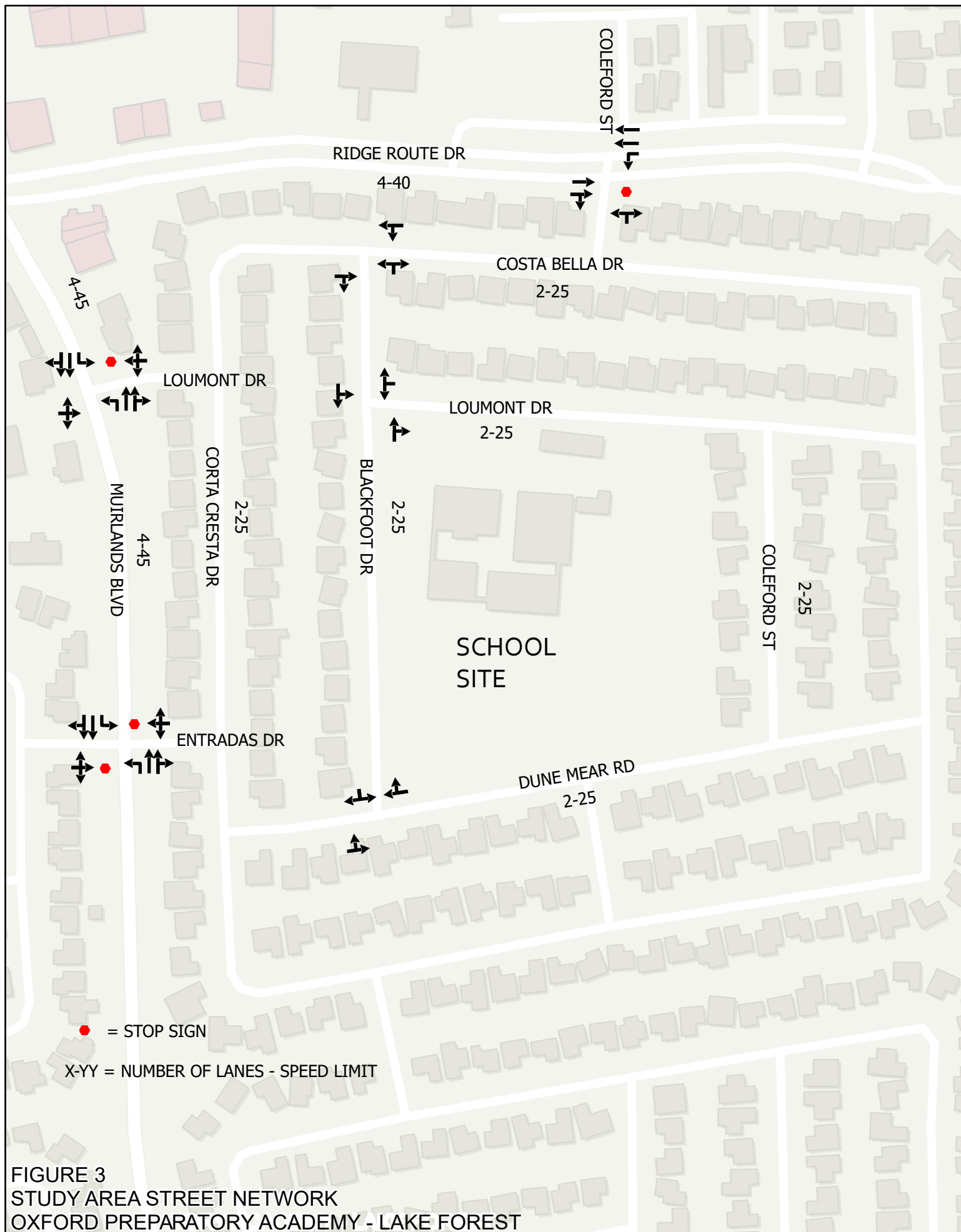
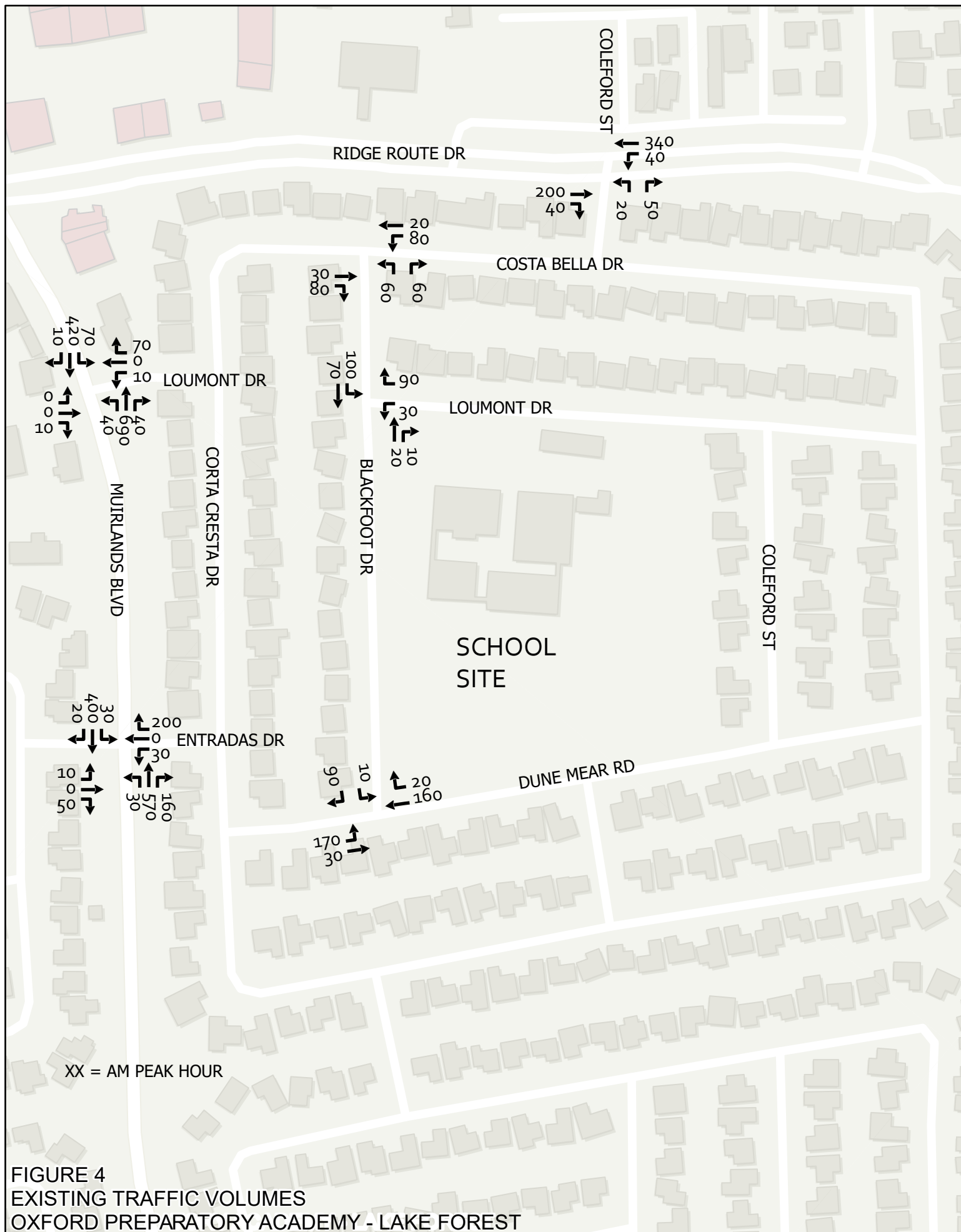


FIGURE 3
STUDY AREA STREET NETWORK
OXFORD PREPARATORY ACADEMY - LAKE FOREST



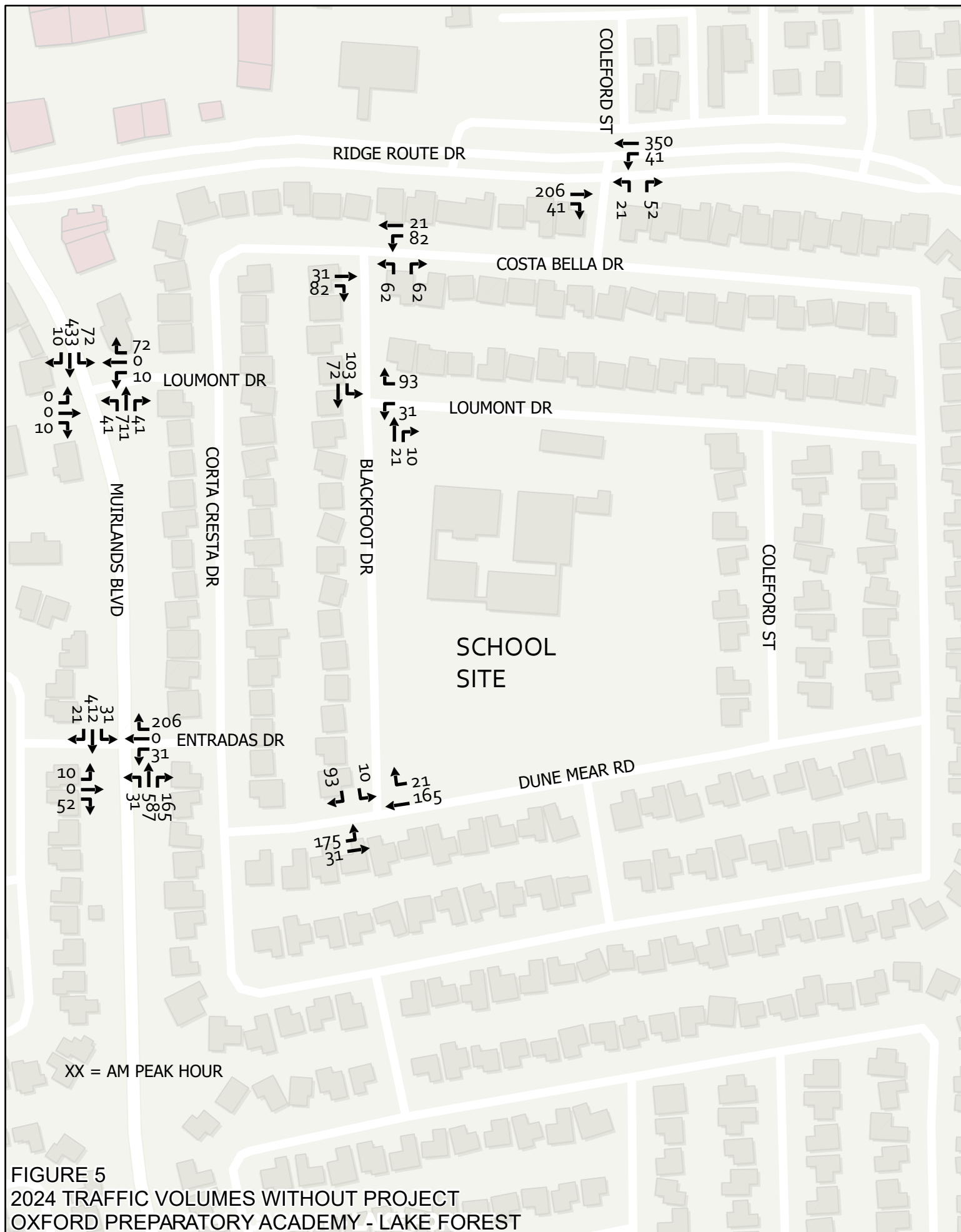


FIGURE 5
2024 TRAFFIC VOLUMES WITHOUT PROJECT
OXFORD PREPARATORY ACADEMY - LAKE FOREST



FIGURE 6
DISTRIBUTION OF PROJECT GENERATED TRAFFIC
OXFORD PREPARATORY ACADEMY - LAKE FOREST

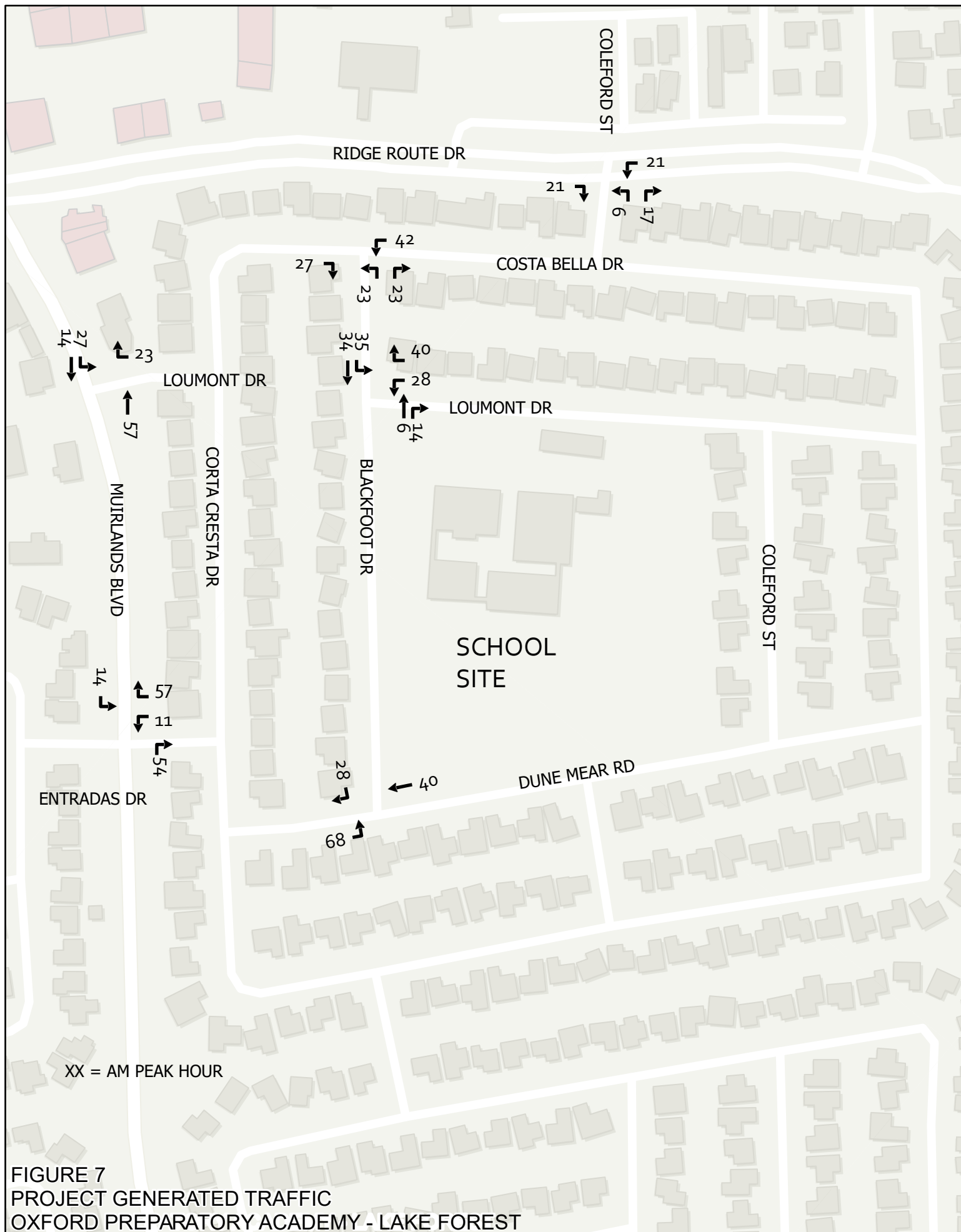


FIGURE 7
PROJECT GENERATED TRAFFIC
OXFORD PREPARATORY ACADEMY - LAKE FOREST

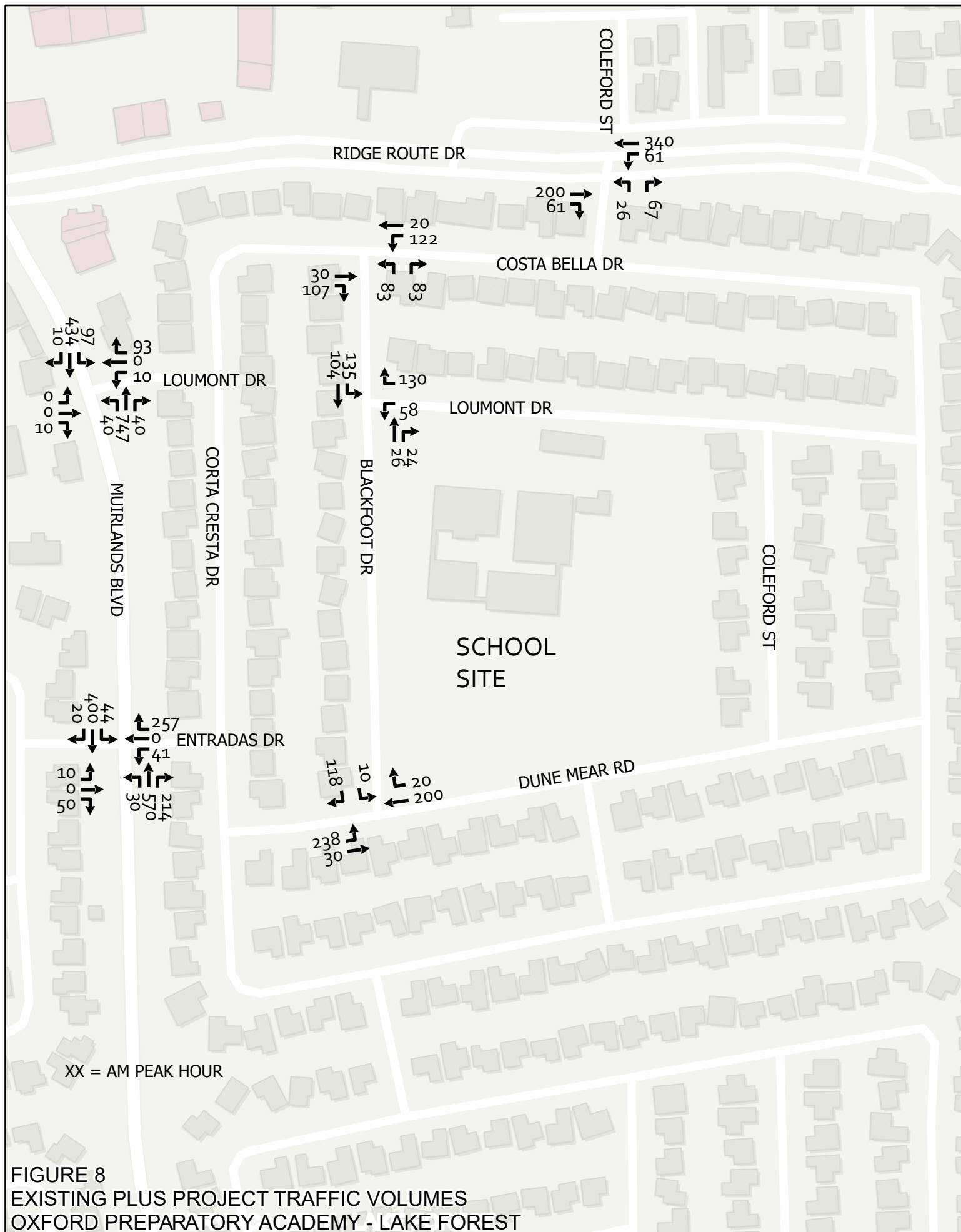


FIGURE 8
EXISTING PLUS PROJECT TRAFFIC VOLUMES
OXFORD PREPARATORY ACADEMY - LAKE FOREST

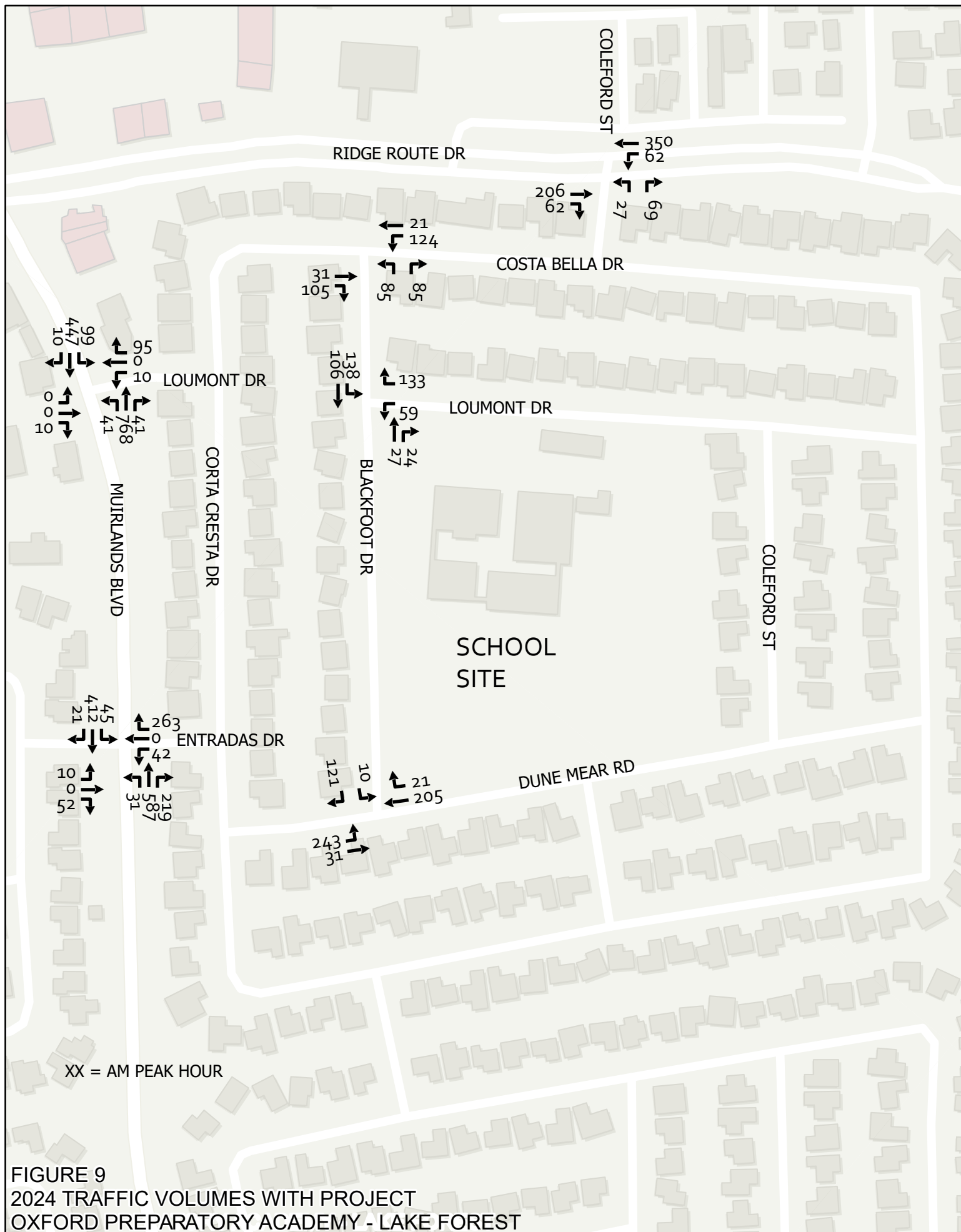


FIGURE 9
2024 TRAFFIC VOLUMES WITH PROJECT
OXFORD PREPARATORY ACADEMY - LAKE FOREST

**LEVEL OF SERVICE
CALCULATION SHEETS
ICU METHODOLOGY**

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Blackfoot Drive/Costa Bella Drive
Time Period: AM Peak Hour
Scenario: Existing Conditions

Direction/ Movement	# Of Lanes	Capacity	Existing Conditions		Existing Plus Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	1	1700	60	0.071*	83	0.098*
NBT	0	0	0	0	0	0
NBR	S	S	60	S	83	S
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	0	0	0	0	0	0
EBL	0	0	0	0	0	0
EBT	1	1700	30	0.065*	30	0.081*
EBR	S	S	80	S	107	S
WBL	S	S	80	0.047*	122	0.072*
WBT	1	1700	20	0.059	20	0.084
WBR	0	0	0	0	0	0
Sum of Critical V/C Ratios				0.183		0.251
Clearance Interval				0.050		0.050
ICU Value				0.233		0.301
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Blackfoot Drive/Loumont Drive
Time Period: AM Peak Hour
Scenario: Existing Conditions

Direction/ Movement	# Of Lanes	Capacity	Existing Conditions		Existing Plus Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	0	0	0	0	0	0
NBT	1	1700	20	0.018	26	0.029
NBR	S	S	10	S	24	S
SBL	S	S	100	0.059	135	0.079
SBT	1	1700	70	0.100*	104	0.141*
SBR	0	0	0	0	0	0
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	0	0	0	0	0	0
WBL	1	1700	30	0.071*	58	0.111*
WBT	0	0	0	0	0	0
WBR	S	S	90	S	S	S
Sum of Critical V/C Ratios				0.171		0.252
Clearance Interval				0.050		0.050
ICU Value				0.221		0.302
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Blackfoot Drive/Dune Mear Road
Time Period: AM Peak Hour
Scenario: Existing Conditions

Direction/ Movement	# Of Lanes	Capacity	Existing Conditions		Existing Plus Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	0	0	0	0	0	0
NBT	0	0	0	0	0	0
NBR	0	0	0	0	0	0
SBL	1	1700	10	0.059*	10	0.075*
SBT	0	0	0	0	0	0
SBR	S	S	90	S	118	S
EBL	S	S	170	0.100*	238	0.140*
EBT	1	1700	30	0.118	30	0.158
EBR	0	0	0	0	0	0
WBL	0	0	0	0	0	0
WBT	1	1700	160	0.106*	200	0.129*
WBR	S	S	20	S	20	S
Sum of Critical V/C Ratios				0.265		0.344
Clearance Interval				0.050		0.050
ICU Value				0.315		0.394
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Muirlands Boulevard/Loumont Drive
Time Period: AM Peak Hour
Scenario: Existing Conditions

Direction/ Movement	# Of Lanes	Capacity	Existing Conditions		Existing Plus Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	1	1700	40	0.024	40	0.024
NBT	2	3400	690	0.215*	747	0.231*
NBR	S	S	40	S	40	S
SBL	1	1700	70	0.041*	97	0.057*
SBT	2	3400	420	0.126	434	0.131
SBR	S	S	10	S	10	S
EBL	S	S	0	0	0	0
EBT	1	1700	0	S	0	S
EBR	S	S	10	0.006	10	0.006
WBL	S	S	10	0.006	10	0.006
WBT	1	1700	0	0.047*	0	0.061*
WBR	S	S	70	S	93	S
Sum of Critical V/C Ratios				0.303		0.349
Clearance Interval				0.050		0.050
ICU Value				0.353		0.399
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Muirlands Boulevard/Entradas Drive
Time Period: AM Peak Hour
Scenario: Existing Conditions

Direction/ Movement	# Of Lanes	Capacity	Existing Conditions		Existing Plus Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	1	1700	30	0.018	30	0.018
NBT	2	3400	570	0.215*	570	0.231*
NBR	S	S	160	S	214	S
SBL	1	1700	30	0.018*	44	0.026*
SBT	2	3400	400	0.124	400	0.124
SBR	S	S	20	S	20	S
EBL	S	S	10	0.006*	10	0.006*
EBT	1	1700	0	0.035	0	0.035
EBR	S	S	50	S	50	S
WBL	S	S	30	0.018	41	0.024
WBT	1	1700	0	0.135*	0	0.175*
WBR	S	S	200	S	257	S
Sum of Critical V/C Ratios				0.374		0.438
Clearance Interval				0.050		0.050
ICU Value				0.424		0.488
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Ridgeroute Drive/Coleford Street
Time Period: AM Peak Hour
Scenario: Existing Conditions

Direction/ Movement	# Of Lanes	Capacity	Existing Conditions		Existing Plus Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	S	S	20	S	26	S
NBT	0	0	0	0	0	0
NBR	1	1700	50	0.041*	67	0.055*
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	0	0	0	0	0	0
EBL	0	0	0	0	0	0
EBT	2	3400	200	0.071	200	0.077*
EBR	S	S	40	S	61	S
WBL	1	1700	40	0.024	61	0.036*
WBTL	2	3400	340	0.100*	340	0.100
WBR	0	0	0	0	0	0
Sum of Critical V/C Ratios				0.141		0.168
Clearance Interval				0.050		0.050
ICU Value				0.191		0.218
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Blackfoot Drive/Costa Bella Drive
Time Period: AM Peak Hour
Scenario: Year 2024

Direction/ Movement	# Of Lanes	Capacity	2024 Without Project		2024 With Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	1	1700	62	0.073*	85	0.100*
NBT	0	0	0	0	0	0
NBR	S	S	62	S	85	S
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	0	0	0	0	0	0
EBL	0	0	0	0	0	0
EBT	1	1700	31	0.066*	31	0.080*
EBR	S	S	82	S	106	S
WBL	S	S	82	0.048*	124	0.073*
WBT	1	1700	21	0.061	21	0.085
WBR	0	0	0	0	0	0
Sum of Critical V/C Ratios				0.187		0.253
Clearance Interval				0.050		0.050
ICU Value				0.237		0.303
Level of Service				A		A

NOTE: "S" indicates shared lane. "**" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Blackfoot Drive/Loumont Drive
Time Period: AM Peak Hour
Scenario: Year 2024

Direction/ Movement	# Of Lanes	Capacity	2024 Without Project		2024 With Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	0	0	0	0	0	0
NBT	1	1700	21	0.018	27	0.030
NBR	S	S	10	S	24	S
SBL	S	S	103	0.061	138	0.081
SBT	1	1700	72	0.103*	106	0.144*
SBR	0	0	0	0	0	0
EBL	0	0	0	0	0	0
EBT	0	0	0	0	0	0
EBR	0	0	0	0	0	0
WBL	1	1700	31	0.073*	59	0.113*
WBT	0	0	0	0	0	0
WBR	S	S	93	S	133	S
Sum of Critical V/C Ratios				0.176		0.257
Clearance Interval				0.050		0.050
ICU Value				0.226		0.307
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Blackfoot Drive/Dune Mear Road
Time Period: AM Peak Hour
Scenario: Year 2024

Direction/ Movement	# Of Lanes	Capacity	2024 Without Project		2024 With Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	0	0	0	0	0	0
NBT	0	0	0	0	0	0
NBR	0	0	0	0	0	0
SBL	1	1700	10	0.061*	10	0.077*
SBT	0	0	0	0	0	0
SBR	S	S	93	S	121	S
EBL	S	S	175	0.103*	243	0.143*
EBT	1	1700	31	0.121	31	0.161
EBR	0	0	0	0	0	0
WBL	0	0	0	0	0	0
WBT	1	1700	165	0.109*	205	0.133*
WBR	S	S	21	S	21	S
Sum of Critical V/C Ratios				0.273		0.353
Clearance Interval				0.050		0.050
ICU Value				0.323		0.403
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Muirlands Boulevard/Loumont Drive
Time Period: AM Peak Hour
Scenario: Year 2024

Direction/ Movement	# Of Lanes	Capacity	2024 Without Project		2024 With Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	1	1700	41	0.024	41	0.024
NBT	2	3400	711	0.221*	768	0.238*
NBR	S	S	41	S	41	S
SBL	1	1700	72	0.042*	99	0.058*
SBT	2	3400	433	0.130	447	0.134
SBR	S	S	10	S	10	S
EBL	S	S	0	0	0	0
EBT	1	1700	0	S	0	S
EBR	S	S	10	0.006	10	0.006
WBL	S	S	10	0.006	10	0.006
WBT	1	1700	0	0.048*	0	0.062*
WBR	S	S	72	S	95	S
Sum of Critical V/C Ratios				0.311		0.358
Clearance Interval				0.050		0.050
ICU Value				0.361		0.408
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Muirlands Boulevard/Entradas Drive
Time Period: AM Peak Hour
Scenario: Year 2024

Direction/ Movement	# Of Lanes	Capacity	2024 Without Project		2024 With Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	1	1700	31	0.018	31	0.018
NBT	2	3400	587	0.221*	587	0.237*
NBR	S	S	165	S	219	S
SBL	1	1700	31	0.018*	45	0.026*
SBT	2	3400	412	0.127	412	0.127
SBR	S	S	21	S	21	S
EBL	S	S	10	0.006*	10	0.006*
EBT	1	1700	0	0.036	0	0.036
EBR	S	S	52	S	52	S
WBL	S	S	31	0.018	42	0.025
WBT	1	1700	0	0.139*	0	0.179*
WBR	S	S	206	S	263	S
Sum of Critical V/C Ratios				0.384		0.448
Clearance Interval				0.050		0.050
ICU Value				0.434		0.498
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

LEVEL OF SERVICE CALCULATIONS INTERSECTION CAPACITY UTILIZATION METHODOLOGY

Jurisdiction: City of Lake Forest
Project: Oxford Preparatory Academy
Intersection: Ridgeroute Drive/Coleford Street
Time Period: AM Peak Hour
Scenario: Year 2024

Direction/ Movement	# Of Lanes	Capacity	2024 Without Project		2024 With Project	
			Peak Hour Traffic Volume	V/C Ratio	Peak Hour Traffic Volume	V/C Ratio
NBL	S	S	21	S	27	S
NBT	0	0	0	0	0	0
NBR	1	1700	52	0.043*	69	0.056*
SBL	0	0	0	0	0	0
SBT	0	0	0	0	0	0
SBR	0	0	0	0	0	0
EBL	0	0	0	0	0	0
EBT	2	3400	206	0.073	206	0.079*
EBR	S	S	41	S	62	S
WBL	1	1700	41	0.024	62	0.036*
WBTL	2	3400	350	0.103*	350	0.103
WBR	0	0	0	0	0	0
Sum of Critical V/C Ratios				0.146		0.171
Clearance Interval				0.050		0.050
ICU Value				0.196		0.221
Level of Service				A		A

NOTE: "S" indicates shared lane. "*" indicates critical movement.

**LEVEL OF SERVICE
CALCULATION SHEETS
HIGHWAY CAPACITY MANUAL METHODOLOGY**

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	R Garland			Intersection	Blackfoot Dr/Costa Bella Dr			
Agency/Co.	Saddleback Valley USD			Jurisdiction	City of Lake Forest			
Date Performed	7/9/2023			Analysis Year	2024 With Project			
Analysis Time Period	AM Peak Hour							
Project Description Oxford Preparatory Academy								
East/West Street: Costa Bella Drive				North/South Street: Blackfoot Drive				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		31	105	124	21			
Peak-Hour Factor, PHF	1.00	0.67	0.67	0.67	0.67	1.00		
Hourly Flow Rate, HFR (veh/h)	0	46	156	185	31	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	85		85					
Peak-Hour Factor, PHF	0.67	1.00	0.67	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	126	0	126	0	0	0		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		185		252				
C (m) (veh/h)		1382		604				
v/c		0.13		0.42				
95% queue length		0.46		2.05				
Control Delay (s/veh)		8.0		15.2				
LOS		A		C				
Approach Delay (s/veh)	--	--	15.2					
Approach LOS	--	--	C					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	R Garland			Intersection	Blackfoot Dr/Loumont Dr			
Agency/Co.	Saddleback Valley USD			Jurisdiction	City of Lake Forest			
Date Performed	7/9/2023			Analysis Year	2024 With Project			
Analysis Time Period	AM Peak Hour							
Project Description Oxford Preparatory Academy								
East/West Street: Loumont Drive				North/South Street: Blackfoot Drive				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		27	24	138	106			
Peak-Hour Factor, PHF	1.00	0.67	0.67	0.67	0.67	1.00		
Hourly Flow Rate, HFR (veh/h)	0	40	35	205	158	0		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				59		133		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.67	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	88	0	198		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (veh/h)		205		286				
C (m) (veh/h)		1537		680				
v/c		0.13		0.42				
95% queue length		0.46		2.09				
Control Delay (s/veh)		7.7		14.1				
LOS		A		B				
Approach Delay (s/veh)	--	--	14.1					
Approach LOS	--	--	B					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	R Garland			Intersection	Blackfoot Dr/Dune Mear Rd			
Agency/Co.	Saddleback Valley USD			Jurisdiction	City of Lake Forest			
Date Performed	7/9/2023			Analysis Year	2024 With Project			
Analysis Time Period	AM Peak Hour							
Project Description Oxford Preparatory Academy								
East/West Street: Dune Mear Road				North/South Street: Blackfoot Drive				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	243	31			205	21		
Peak-Hour Factor, PHF	0.67	0.67	0.67	0.67	0.67	0.67		
Hourly Flow Rate, HFR (veh/h)	362	46	0	0	305	31		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				10		121		
Peak-Hour Factor, PHF	0.67	1.00	0.67	0.67	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	14	0	180		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	362						194	
C (m) (veh/h)	1235						587	
v/c	0.29						0.33	
95% queue length	1.23						1.44	
Control Delay (s/veh)	9.1						14.1	
LOS	A						B	
Approach Delay (s/veh)	--	--				14.1		
Approach LOS	--	--				B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	R Garland			Intersection	Muirlands Blvd/Loumont Dr			
Agency/Co.	Saddleback Valley USD			Jurisdiction	City of Lake Forest			
Date Performed	7/9/2023			Analysis Year	2024 With Project			
Analysis Time Period	AM Peak Hour							
Project Description Oxford Preparatory Academy								
East/West Street: Loumont Drive				North/South Street: Muirlands Blvd				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	41	768	41	99	447	10		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	43	808	43	104	470	10		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	10	10	0	95		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	0	0	10	10	0	100		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	43	104	110			10		
C (m) (veh/h)	1093	796	416			804		
v/c	0.04	0.13	0.26			0.01		
95% queue length	0.12	0.45	1.05			0.04		
Control Delay (s/veh)	8.4	10.2	16.7			9.5		
LOS	A	B	C			A		
Approach Delay (s/veh)	--	--	16.7			9.5		
Approach LOS	--	--	C			A		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	R Garland			Intersection	Muirlands Blvd/Entradas Dr			
Agency/Co.	Saddleback Valley USD			Jurisdiction	City of Lake Forest			
Date Performed	7/9/2023			Analysis Year	2024 With Project			
Analysis Time Period	AM Peak Hour							
Project Description Oxford Preparatory Academy								
East/West Street: Entradas Drive				North/South Street: Muirlands Blvd				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	31	587	219	45	412	21		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	32	617	230	47	433	22		
Percent Heavy Vehicles	0	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	1	2	0	1	2	0		
Configuration	L	T	TR	L	T	TR		
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	10	0	52	42	0	263		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95		
Hourly Flow Rate, HFR (veh/h)	10	0	54	44	0	276		
Percent Heavy Vehicles	0	0	0	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	L	L	LTR			LTR		
v (veh/h)	32	47	320			64		
C (m) (veh/h)	1116	799	436			434		
v/c	0.03	0.06	0.73			0.15		
95% queue length	0.09	0.19	5.89			0.51		
Control Delay (s/veh)	8.3	9.8	32.8			14.7		
LOS	A	A	D			B		
Approach Delay (s/veh)	--	--	32.8			14.7		
Approach LOS	--	--	D			B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	R Garland			Intersection	Ridgeroute Dr/Coleford St		
Agency/Co.	Saddleback Valley USD			Jurisdiction	City of Lake Forest		
Date Performed	7/9/2023			Analysis Year	2024 With Project		
Analysis Time Period	AM Peak Hour						
Project Description Oxford Preparatory Academy							
East/West Street: Ridgeroute Drive				North/South Street: Coleford Street			
Intersection Orientation: East-West				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Eastbound			Westbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)		206	62	62	350		
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR (veh/h)	0	216	65	65	368	0	
Percent Heavy Vehicles	0	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	0	1	2	0	
Configuration		T	TR	L	T		
Upstream Signal		0			0		
Minor Street	Northbound			Southbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	27		69				
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR (veh/h)	28	0	72	0	0	0	
Percent Heavy Vehicles	0	0	0	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Eastbound	Westbound	Northbound			Southbound	
Movement	1	4	7	8	9	10	11
Lane Configuration		L		LR			
v (veh/h)		65		100			
C (m) (veh/h)		1293		701			
v/c		0.05		0.14			
95% queue length		0.16		0.50			
Control Delay (s/veh)		7.9		11.0			
LOS		A		B			
Approach Delay (s/veh)	--	--	11.0				
Approach LOS	--	--	B				