CSI Traffic Study and Parking Lot Improvements

Campbell Union School District

Governing Board Presentation • 3-7-2019

Campbell UNION SCHOOL DISTRICT

aedis architects

PRESENTATION CONTENT

- Architect, Overview and Alternatives
- Traffic Consultant, Impact on Streets
- Civil Engineer, Impact on Parking Lot
- Planning Consultant, Recommendation

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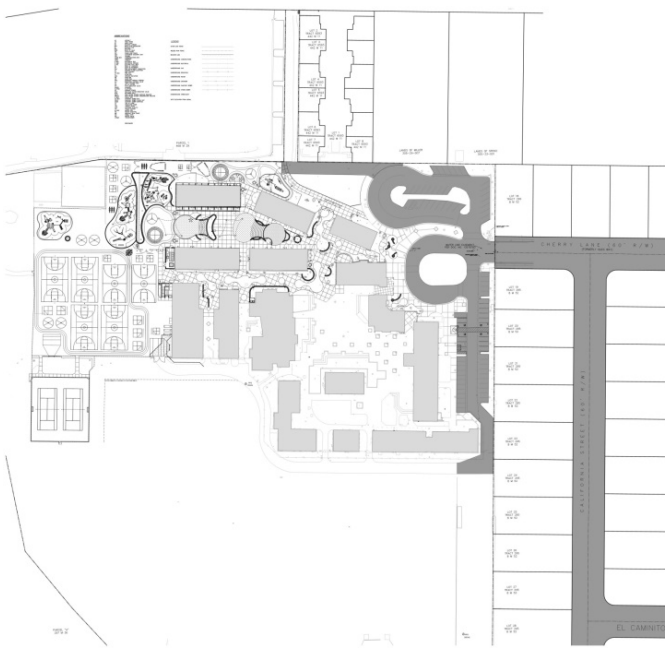
Traffic Study Alternatives

- Alternative 0 (Existing Conditions). Existing peak hour volumes including trips associated with the current school enrollment of 299 students***. Not used, based on current enrollment.***

- Alternative 1 (Existing plus New Entrance-Only Condition). Existing peak hour volumes plus redistribution of existing school trips as a result of the proposed entrance on Rincon Avenue. **Not used, based on current enrollment.**

- Alternative 2 (Existing plus New Exit-Only Condition). Existing peak hour volumes plus redistribution of existing school trips as a result of a proposed exit on Rincon Avenue. The school exit at Rincon Avenue would be a limited access driveway with stop-sign traffic control for the northbound school exit approach. **Not used, based on current enrollment.**



•**<u>Alternative 3A (Maximum Enrollment Condition).</u>** Existing condition roadway characteristics plus additional trips associated with reaching the maximum enrollment of 850 students (Pre-school-8th grades).

•**<u>Alternative 3B (Maximum Enrollment Condition Plus Changes to the Parking Lot).</u>** Existing condition roadway characteristics plus additional trips associated with reaching the maximum enrollment of 850 students (Pre-school-8th grades).

Traffic Study Alternatives

- Alternative 4 (Maximum Enrollment plus New Entrance-Only Condition). Maximum Enrollment peak hour volumes plus redistribution of projected school trips as a result of the new entrance on Rincon Avenue. All trips were redistributed assuming the shortest home-to-school based route**. Not used since alternative 6 produces better results.**

- Alternative 5 (Maximum Enrollment plus New Exit-Only Condition). Maximum Enrollment peak hour volumes plus redistribution of projected school trips as a result of the new exit on Rincon Avenue. The school exit at Rincon Avenue would be a limited access driveway with stop sign traffic control for the northbound school driveway approach. All trips were redistributed assuming the shortest home-to-school based route**. Not used. Using the alley as an exit will cause delays and safety issues in the parking lot.**

- **Alternative 6 (Maximum Enrollment plus New Entrance-Only Condition).** Maximum Enrollment peak hour volumes plus redistribution of projected school trips as a result of the new entrance on Rincon Avenue. All trips were redistributed assuming students second grade and older would use the Rincon Avenue Access.

- Alternative 7 (Maximum Enrollment plus New Exit-Only Condition). Maximum Enrollment peak hour volumes plus redistribution of projected school trips as a result of the new exit on Rincon Avenue. The school exit at Rincon Avenue would be a limited access driveway with stop sign traffic control for the northbound school driveway approach. All trips were redistributed assuming students second grade and older would use the Rincon Avenue Access. **. Not used. Using the alley as an exit will cause delays and safety issues in the parking lot.**

Underlined alternatives represents workable alternatives.

Traffic Study

Study Areas:

1. Proposed School Driveway/Rincon Avenue
2. Winchester Boulevard/Rincon Avenue
3. California Street/Cherry Lane
4. Winchester Boulevard/Cherry Lane

Peak Hour and Daily Trip Estimates

Table 2 – Trip Generation Summary

Land Use	Units (students)	AM Peak Hour				School PM Peak Hour			
		Rate	Trips	In	Out	Rate	Trips	In	Out
Existing (per November 2018 survey)									
School (TK-4)	299	1.13	339	181	158	0.71	213	92	121
Maximum Enrollment									
School (TK-8)	850	1.13	964	515	449	0.71	606	262	344

Table 3 – Daily Trip Generation Estimate

Land Use	Units (students)	Daily	
		Rate	Trips
Existing			
Elementary School – ITE LU 520	-299	1.89	-565
Maximum Enrollment			
Elementary School – ITE LU 520	498	1.89	941
Middle/High School – ITE LU 522	352	2.13	750
Sub-Total	850		1,691
Total Net-New			1,126

Traffic Study

Evaluation Methodology for Intersections

The LOS (Level of Service) evaluation indicates the degree of congestion that occurs during peak travel periods and is the principal measure of roadway and intersection performance.

Level of Service can range from "A" representing free-flow conditions, to "F" representing extremely long delays. LOS B and C signify stable conditions with acceptable delays. LOS D is typically considered acceptable for peak hour operation in urban areas. LOS E is approaching capacity and LOS F represents conditions at or above capacity.

Study Intersection	Alternative 3				Alternative 6			
	AM Peak		School PM Peak		AM Peak		School PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Project Driveway/Rincon Avenue	-	-	-	-	5.3		3.7	
NB (Project Driveway) Approach	-	-	-	-	*8.1*		*7.6*	
2. Winchester Blvd/Rincon Ave	17.0	B	16.2	B	*18.6*	*B-*	*16.7*	*B*
3. California St/Cherry Ln	**	**F**	5.2	A	*2.7*	*A*	*2.2*	*A*
NB (California St) Approach	**	***F***	*23.7*	*C*	*12.7*	*B*	*11.1*	*B*
4. Winchester Blvd/Cherry Ln	**	**F**	31.6	D	*27.9*	*D*	*19.1*	*D*
EB (Cherry Ln) Approach	**	***F***	**	***F***	**	***F***	**	***F***

Notes: Delay is measured in average seconds per vehicle; ** = delay greater than 120 seconds; LOS = Level of Service, LOS E or F shown in **BOLD**.

Traffic Study

Evaluation Methodology for Intersections

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	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Project Driveway/Rincon Avenue	-	-	-	-	5.3		3.7	
NB (Project Driveway) Approach	-	-	-	-	*8.1*		*7.6*	
2. Winchester Blvd/Rincon Ave	17.0	B	16.2	B	*18.6*	*B-*	*16.7*	*B*
3. California St/Cherry Ln	**	**F**	5.2	A	*2.7*	*A*	*2.2*	*A*
NB (California St) Approach	**	***F***	*23.7*	*C*	*12.7*	*B*	*11.1*	*B*
4. Winchester Blvd/Cherry Ln	**	**F**	31.6	D	*27.9*	*D*	*19.1*	*D*
EB (Cherry Ln) Approach	**	***F***	**	***F***	**	***F***	**	***F***

Notes: Delay is measured in average seconds per vehicle; ** = delay greater than 120 seconds; LOS = Level of Service, LOS E or F shown in **BOLD**.

Traffic Study

Summary of Findings:

Under the maximum enrollment with a new entrance at Rincon Ave.

•Peak hour volumes along Rincon Avenue would increase while volumes on Cherry Lane and California Street would decrease.

•LOS would be minimally improved at the intersections of California Street/Cherry Lane and Winchester Boulevard/Cherry Lane.

•LOS would deteriorate slightly at the intersection of Winchester Boulevard/Rincon Avenue

•TIRE index shows significant impact along Rincon Avenue

•The new driveway would operate with an acceptable level of delay under all conditions evaluated.

•Stopping sight distances at the new driveway on Rincon Avenue would be adequate.

•Pedestrian facilities on Rincon Avenue are adequate.

•During the a.m. peak hour, the drop-off/pick-up lane is anticipated to have adequate storage if a discharge of at least one car every 8 seconds can be achieved.

•During the school p.m. peak hour, the drop-off/pick-up lane is anticipated to have adequate storage if a discharge of at least one car every 16 seconds can be achieved.

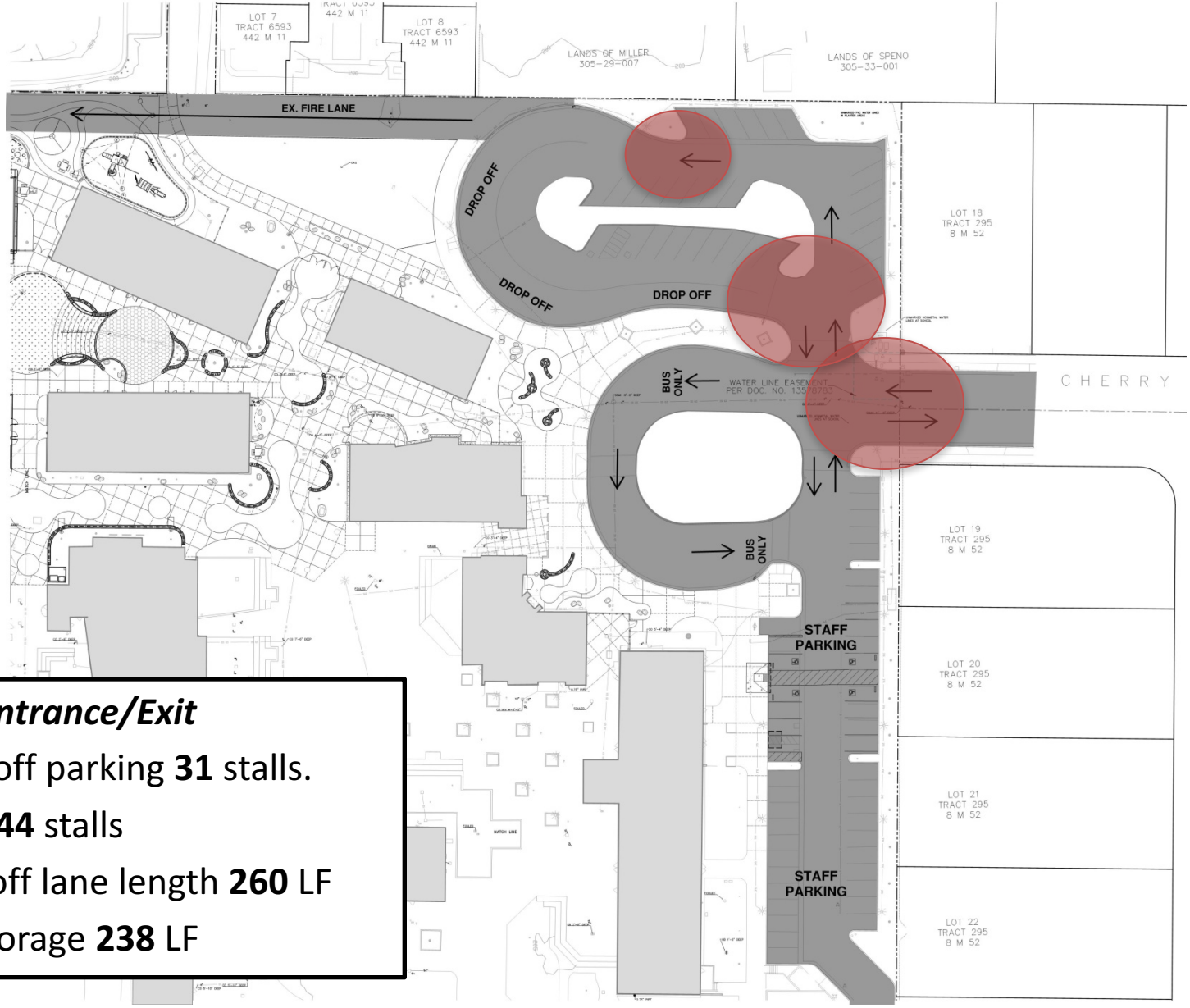
Under the maximum enrollment and current Cherry Lane Access

•At the a.m. peak hour, the intersections of California Street/Cherry Lane and Winchester Boulevard/Cherry Lane would operate at LOS F overall

•At the p.m. peak hour, the intersection of Winchester Boulevard/Cherry Lane would operate with an overall operation of LOS D. While the eastbound approach only would operate at LOS F.

•Onsite improvements would not alter traffic study reporting numbers, however, increases to drop-off length, car storage/ queuing, and parking stalls would mitigate impacts of maximum enrollment traffic.

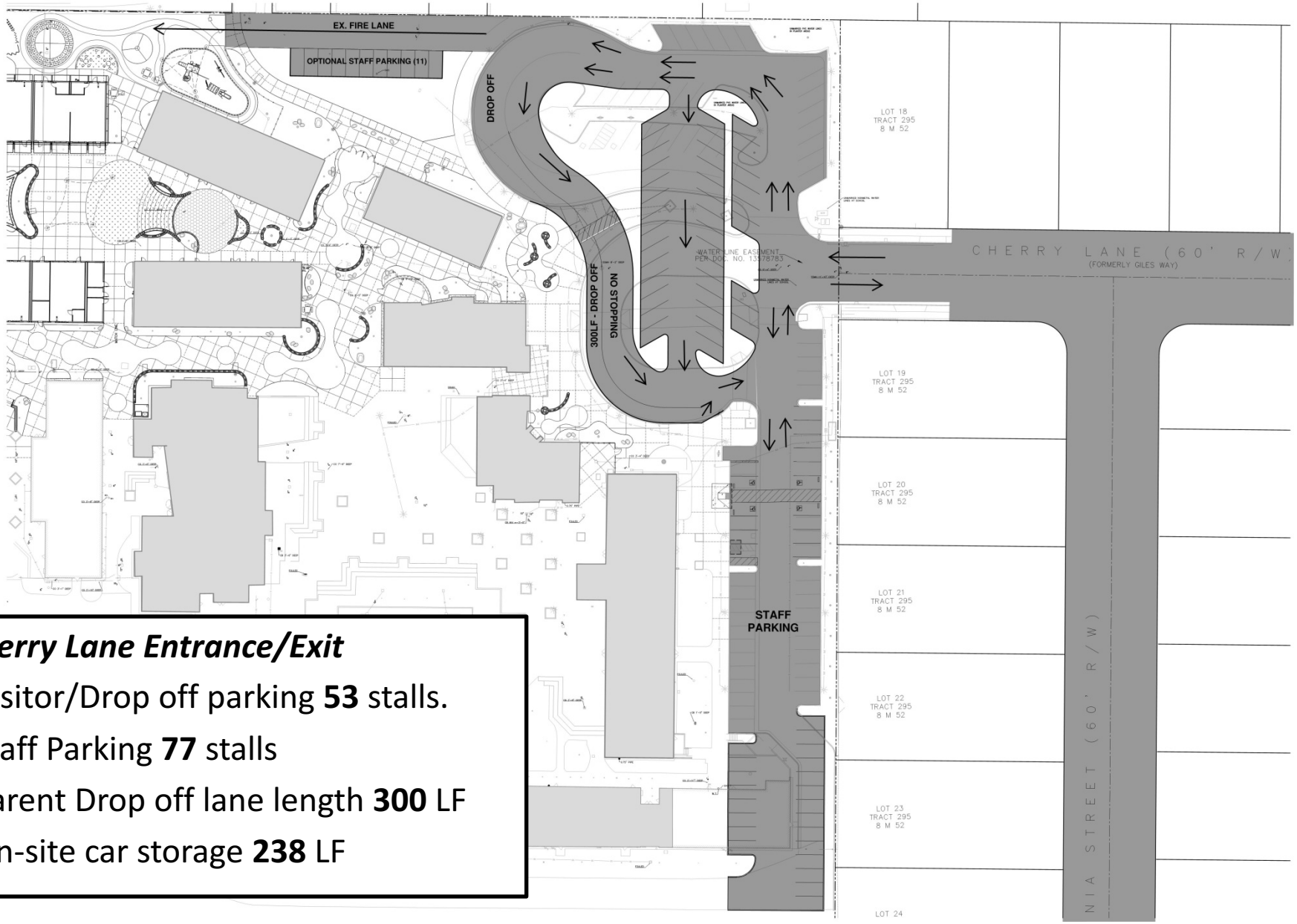
Alternative 3A - Existing Onsite Conditions



Cherry Lane Entrance/Exit

- Visitor/Drop off parking **31** stalls.
- Staff Parking **44** stalls
- Parent Drop off lane length **260** LF
- On-site car storage **238** LF

Alternative 3B- Onsite Improvement



Cherry Lane Entrance/Exit

- Visitor/Drop off parking **53** stalls.
- Staff Parking **77** stalls
- Parent Drop off lane length **300** LF
- On-site car storage **238** LF

Alternative 3B- Onsite Improvement

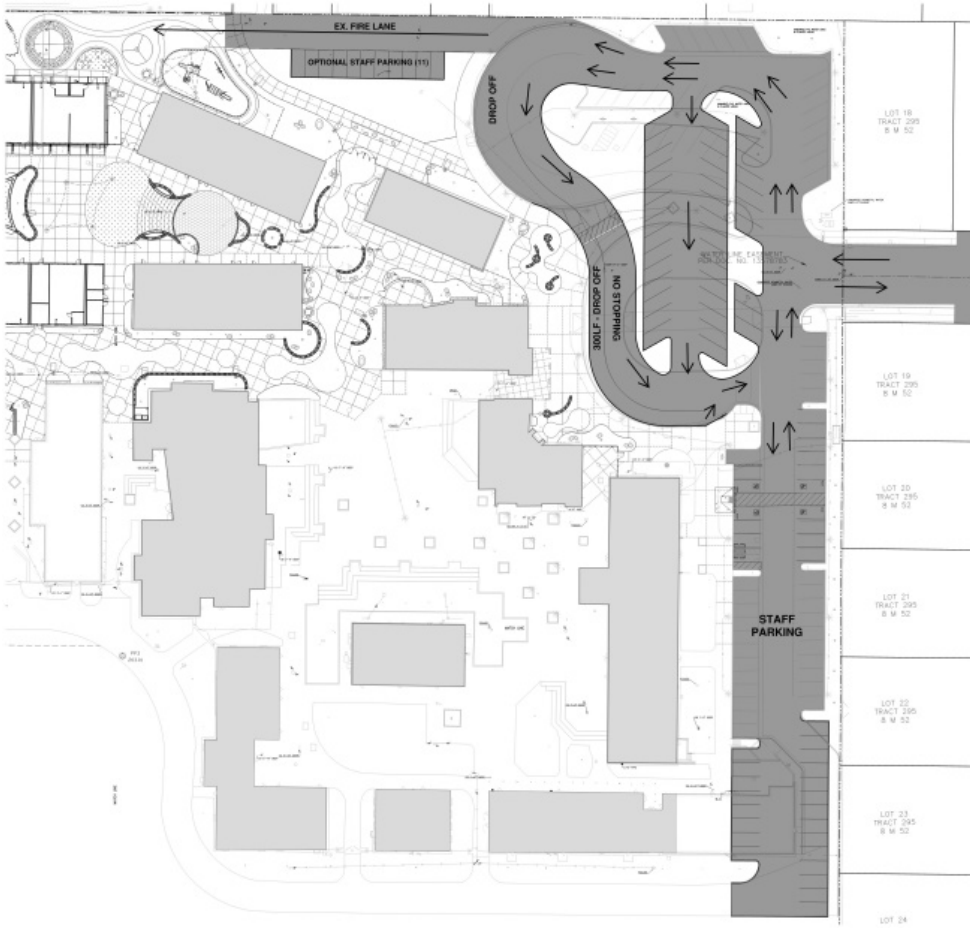
Cherry Lane Entrance/Exit

Pros:

- Visitor parking and Drop off parking stalls increase from 31 to **53** stalls.
- Staff Parking increases from 44 to **77** stalls
- Parent Drop off lane length increases from existing 260 LF to **300 LF**
- Drop off lane visibility is improved from existing condition.
- Two lane drive aisle increases onsite traffic flow rates.

Cons:

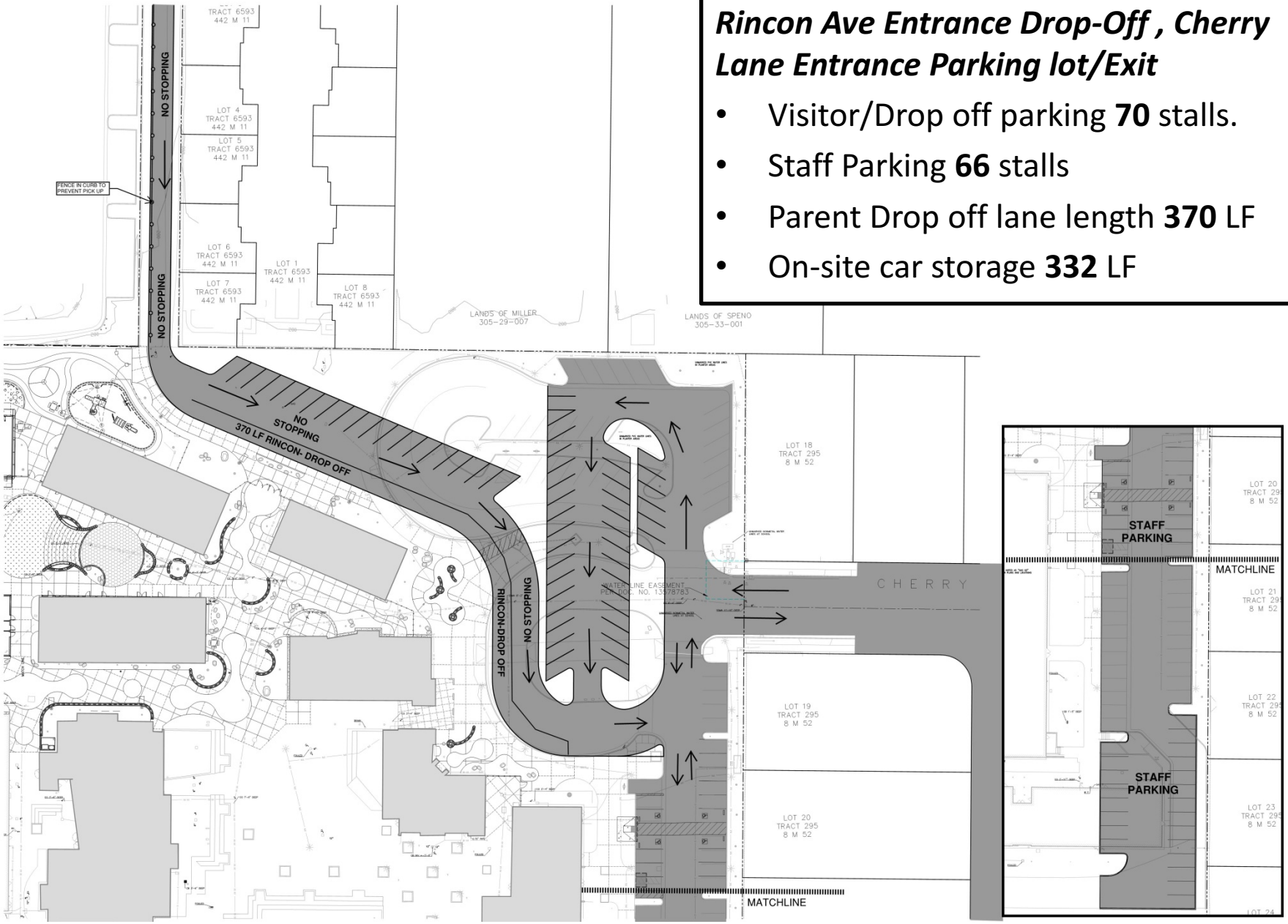
- No increase in On-site car storage/queuing
- If additional northern parking spaces are used by visitors (other than staff) there could be a wait to exit into the drop off lane.



Estimated Cost : $972,000

32,400 SF @ $30/SF

Alternative 6- Onsite Improvement



Rincon Ave Entrance Drop-Off , Cherry Lane Entrance Parking lot/Exit

- Visitor/Drop off parking **70** stalls.
- Staff Parking **66** stalls
- Parent Drop off lane length **370** LF
- On-site car storage **332** LF

Alternative 6- Onsite Improvement

Rincon Ave Entrance Drop-Off , Cherry Lane Entrance Parking lot/Exit

Pros:

•Visitor parking and Drop off parking stalls increase from 31 to **70** stalls.

•Staff Parking increases from 44 to **66** stalls

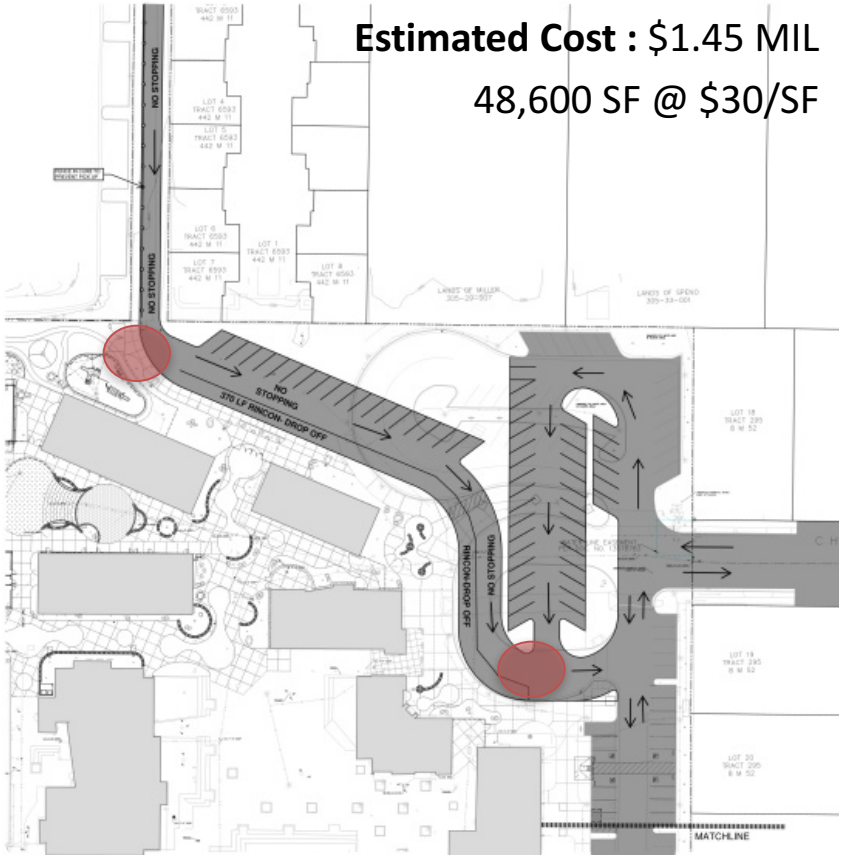
•Parent Drop off lane length increases from existing 260 LF to **370** LF

•Drop off lane student visibility is improved over existing condition.

•On-site car storage increases from existing 238 LF to **332** LF

Estimated Cost : $1.45 MIL

48,600 SF @ $30/SF



Cons:

•All curb side Drop off traffic would need to enter from the Rincon Entrance.

•With no drop-off lane for those entering from Cherry its possible some families may allow their student to exit the vehicle within the parking stall areas which creates a student safety concern.

•A potential for non school related traffic to utilize the site as a short cut exists.

•If a gate is installed at the Rincon entrance, access to nearly half of the layout would be restricted during times when the gate is closed. Internal circulation options are very limited. This may be a future issue if the gate is broken or mistakenly locked at any point in the future.

Onsite Improvements Summary

Alternative 3B

This alternate will improve the Cherry Parking lot / Drop Off from the existing condition. While onsite changes would not impact any traffic report numbers it would create noticeable improvement. By increasing the number of parking stalls the amount of cars parking in the neighborhood would decrease and more 'social events' would shift onsite rather than off site. By increasing the drop off area, the flow through the school at peak times would speed up. This is the most cost effective option and allows for future connection to a possible Rincon driveway access.

Alternative 6

This alternate will improve the Parking lot / Drop Off from the existing condition. The increase in parking stalls, drop off length and car storage/queuing will all create an improvement, however, the underlying issue is the fact that there are two entrances and only one exit and this inherently creates congestion onsite. Critical to the success of this alternative is parents maintaining no curb side drop off access from Cherry. If drop-off occurs along the Rincon driveway (prior to the drop off lane) or in the parking area, an unsafe condition for students may be created and the LOS numbers from the traffic report will not manifest.

Recommendation

It is recommended to the School Board to approve Parking Lot Improvement Alternative 3B.

- Safety
- Educational Program
- Cost