

LSC Responses to EPC TIS Redline Comments

School Operations

Students in grades 11-12 will generally spent 50-75 percent of their time at the proposed campus in this report, with the remainder of their schedule split between either an internship or at Pikes Peak Community College (PPCC). Each academic classroom will have 25 student desks and one teacher workstation to accommodate 20-25 students at any given time.

Although eligible to enroll at the school, students in grades 13-14 will never attend classes at this proposed campus (studied in this report), as they will attend PPCC full-time. Enrollment numbers for grades 13-14 were not included in Table 1.

SCHOOL BELL AND BUS OPERATIONS

The school day would begin at 7:30 a.m. and transport approximately 100 students from other campuses scheduled to arrive between 7:10 a.m. to 7:15 a.m. and leave between 3:45 p.m. to 4:00 p.m. These buses would also be available for student travel to other campuses.

1
Unresolved. Explain how the buses will maneuver into the drop site when there are several buses arriving/leaving within a 15 minute window. The drop off site appears to not have enough room for buses to wait and not block access point.

LSC has analyzed the following peak-hour periods to coincide with the arrival/dismissal of students during the school day and the peak hour of adjacent street traffic:

- AM peak hour – 7:00 a.m. to 8:00 a.m.
- Mid-day school peak hour – 2:30 p.m. to 3:30 p.m.
- PM peak hour – 4:00 p.m. to 5:00 p.m.

AREA PEDESTRIAN AND BICYCLE FACILITIES

Sidewalks exist along Waynoka Place, but generally not along Waynoka Road. Sidewalks exist along Constitution Avenue to the north and along Palmer Park Boulevard east of Waynoka.

Future extensions of two major regional trails (Sand Creek Trail and the Rock Island Trail) are planned in close proximity to the site. These future major regional trail connections would provide connectivity to other trails and intersecting roadways (most with sidewalks and some with bicycle lanes).

ROADWAY AND TRAFFIC CONDITIONS

2
Unresolved. Provide pedestrian routes for the site.

Study Area

The study area is bordered by Constitution Avenue on the north, Palmer Park Boulevard on the south, Powers Boulevard on the west, and a combination of Sand Creek, the Rock Island Trail ROW and the Cherokee Ridge Golf Course on the east. Per the multi-jurisdictional project

LSC Responses to EPC TIS Redline Comments

Page: 9

☰ Number: 1 Author: lpackman Subject: Callout Date: 11/1/2022 3:24:31 PM

Unresolved. Explain how the buses will maneuver into the drop site when there are several buses arriving/leaving within a 15 minute window. The drop off site appears to not have enough room for buses to wait and not block access point.

👉 Author: jchodsdon Subject: Sticky Note Date: 11/3/2022 1:21:23 PM

LSC Response: Additional detail has been added regarding the number of buses and the inter-campus bus service/operations. There will only be a few buses for inter-campus shuttle transportation (and associated parents picking up and dropping off students using this service), not general bus route transportation as is typical for traditional public schools. Text has also been added near the end of the report to address the bus maneuvers and recommended operations at the internal entry/exit points to the inter-campus bus "terminal."

☰ Number: 2 Author: lpackman Subject: Callout Date: 11/1/2022 3:25:21 PM

Unresolved. Provide pedestrian routes for the site.

👉 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:49:37 PM

LSC Response: Provided as requested.

ACCESS SIGHT-DISTANCE ANALYSIS

Discuss applicable ECM criteria and design vehicle for site distance calculations.

Both existing site-access points and the proposed north site-access point have been evaluated for intersection and stopping sight distance. Please refer to Figure 3a-c, which show the detailed access sight-distance analysis.

Site improvements (existing-to-remain and proposed new) must not impede sight-distance lines of sight, as the access points will need to meet El Paso County's *Engineering Criteria Manual (ECM)* standards for sight distance.

Existing site landscaping, lower tree branches, bushes, signs, buildings, parking areas, etc. should be removed, if necessary, and new site improvements should not be placed within the *ECM*-required line of sight "triangles."


Existing Traffic Volumes

Existing traffic volumes at the following intersections are shown in Figure 4. Detailed traffic count reports are attached.


- Powers Road/Waynoka Road
 - Thursday, June 9, 2022, from 6:45 – 8:00 a.m.
 - Thursday, June 9, 2022, from 2:30 – 3:30 p.m.
 - Thursday, June 9, 2022, from 4:00 – 6:00 p.m.
- Waynoka Road/Waynoka Place
 - Thursday, June 9, 2022, from 6:45 – 8:00 a.m.
 - Thursday, June 9, 2022, from 2:30 – 3:30 p.m.
 - Thursday, June 9, 2022, from 4:00 – 6:00 p.m.
- Constitution Avenue/Waynoka Place/Tutt Boulevard
 - Tuesday, June 28, 2022, from 6:30 – 8:30 a.m.
- Palmer Park Boulevard/Waynoka Road
 - Tuesday, July 19, 2022, from 6:30 – 8:30 a.m.
 - Tuesday, July 19, 2022, from 1:30 – 3:30 p.m.
 - Tuesday, July 19, 2022, from 4:00 – 6:00 p.m.

TRIP GENERATION

Estimates of the existing and projected vehicle trips to be generated by a site are typically made using the following nationally-published average trip-generation rates in *Trip Generation, 11th Edition, 2021* by the Institute of Transportation Engineers (ITE). LSC used rates for ITE land-use code "538 – Charter School (K-12)" to estimate the school trip generation. LSC has also included a comparison to the trip generation for the previous land use at this site (estimated), for reference.

 Number: 1 Author: lpackman Subject: Callout Date: 9/22/2022 3:51:55 PM

[Discuss applicable ECM criteria and design vehicle for site distance calculations.](#)

 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:49:45 PM
LSC Response: Added as requested.

Comparison to Previous Land Use

Short Term

During the opening year, compared to the previous land use for the site (an 82,235-square-foot manufacturing building), the proposed James Irwin Charter Academy would generate:

- AM peak hour – 69 additional entering and 144 additional exiting trips
- Mid-day peak hour – 121 additional entering and 82 additional exiting trips
- PM peak hour – 14 fewer entering and 92 fewer exiting trips

Long Term

During the long term, compared to the previous land use for the site (an 82,235-square-foot office building), the proposed James Irwin Charter Academy would generate:

- AM peak hour – 249 additional entering and 303 additional exiting trips
- Mid-day peak hour – 253 additional entering and 214 additional exiting trips
- PM peak hour – 7 fewer entering and 85 fewer exiting trips

TRIP DISTRIBUTION AND ASSIGNMENT

Trip Directional Distribution


Estimating the directional distribution of site-generated vehicle trips to the study-area roads and intersections is a necessary component in determining the site's traffic impacts. Figure 5 shows the percentages of the site-generated vehicle trips projected to be oriented to and from the site's major approaches. Estimates have been based on the following factors: the proposed new land use, the area street and road system serving the site, and the site's geographic location relative to the balance of the City of Colorado Springs and unincorporated areas of El Paso County.

Additionally, the applicant provided a list of zip codes in which currently-enrolled students reside. LSC utilized these data as part of the trip distribution estimate. Please refer to Appendix Figure 1 for more details.


Site-Generated Traffic (Short Term)

Revise to include zip code information since it is not in the appendix.

Figure 6 shows the projected site-generated traffic volumes for the weekday morning and evening peak hours for the short term. Short-term site-generated traffic volumes have been calculated by applying directional-distribution percentages estimated by LSC (from Figure 5) to the short-term trip-generation estimates (from Table 3). The 2022-2023 school year estimates have been used for the short-term school site-generated traffic-volume estimates.

 Number: 1 Author: lpackman Subject: Callout Date: 9/21/2022 5:21:56 PM

Revise to include zip code information since it is not in the appendix.

 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:49:57 PM
LSC Response: Included as requested.

Site-Generated Traffic (Long Term)

Figure 7 shows the projected site-generated traffic volumes for the weekday morning and evening peak hours for the maximum enrollment year. Long-term site-generated traffic volumes have been calculated by applying directional-distribution percentages estimated by LSC (from Figure 5) to the long-term trip-generation estimates (from Table 3). The maximum enrollment school year estimates have been used for the long-term school site-generated traffic-volume estimates.

SHORT-TERM SCENARIO, BASELINE AND TOTAL TRAFFIC

The Waynoka Road connection to Powers Boulevard will be permanently closed **with this project**, as required by CDOT.

Figure 8 shows the estimated short-term baseline traffic volumes, which reflect adjustments and rerouting of existing traffic to account for the planned closure of the Waynoka Road/Powers Boulevard intersection.

Figure 9 shows the projected short-term total traffic volumes, which are the sum of short-term baseline (adjusted existing traffic, from Figure 8) plus estimated James Irwin Charter Academy short-term (2023-2024 school year) site-generated traffic (from Figure 6).

FUTURE LONG-TERM TRAFFIC SCENARIO


Several potential future changes to the area roadway network will affect future traffic volumes in the study area.

- Powers Boulevard is planned as a future freeway. Although Powers Boulevard volumes are likely to continue to increase, the corridor already currently carries high volumes.
- The Waynoka Road connection to Powers Boulevard will be permanently closed **with this project**, as required by CDOT.
- Waynoka Road south of Waynoka Place and Waynoka Place will likely combine to form portions of the planned future Powers Boulevard frontage road.
- Some currently-vacant parcels along Waynoka Road may be developed in the future. Although this will add some additional traffic to Waynoka, the roadway is under-capacity and will be able to accommodate additional trips.


2042 BACKGROUND TRAFFIC

Provide reference for statement. ¹

Figure 10 shows the background traffic volumes for the year 2042. Background traffic is the traffic estimated to be on the adjacent roadway system without consideration of the proposed school. Background traffic includes the through traffic and the traffic generated by adjacent developments (existing and anticipated future) but assumes zero traffic generated by the site.

 Number: 1 Author: lpackman Subject: Callout Date: 9/21/2022 5:35:30 PM

[Provide reference for statement.](#)

 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:50:05 PM
LSC Response: Added as requested.

Short Term

Based on existing signal timings, all individual turning movements currently operate at and are projected to remain at LOS D or better during the short term, with or without the addition of site-generated traffic from the proposed charter school.

Long Term

Using existing signal timings, the following individual turning movements are projected to operate at LOS E or worse during the long term, with or without the addition of site-generated traffic from the proposed charter school: southbound-through and northbound-left. The northbound-through/right shared turn lane is projected to operate at LOS E during the maximum enrollment school year.

It is unlikely that LOS on the northbound approach would improve without modifying the existing signal timings to provide more green time on minor-street approaches. There is not sufficient room to add separate northbound-through and northbound-right lanes, so this turning movement is likely to remain a single northbound-through/right shared turn lane in the future. Additionally, the eastbound-right turning movement already exceeds the City's threshold for requiring a right-turn deceleration lane, but this improvement is not feasible due to geometric constraints on the southwest corner of Constitution/Tutt/Waynoka.

Palmer Park Boulevard/Waynoka Road

Short Term


Assuming the existing stop-sign control, all individual turning movements would continue to operate at LOS D or better during the short term, with or without the addition of site-generated traffic from the proposed charter school.

Long Term


Based on the long term projected total volumes, the southbound left-turning movement is projected to operate at LOS E or worse during the morning and mid-afternoon peak hours. Assuming existing traffic control, the southbound-left turning movement is projected to operate at LOS F during all peak hours during the 20-year horizon. This intersection is a short distance east of the Powers/Palmer Park signalized intersection. Relatively long traffic gaps in eastbound traffic are created by this upstream signal and the signal at the adjacent Wendy's/shopping center signal, which benefit southbound-left-turning motorists at Waynoka Road/Palmer Park Boulevard.

Right-of-way has been reserved for potential future realignment of Waynoka Road north of Palmer Park. The Powers Environmental Assessment envisions this realignment such that

Discuss what cross section this section should have to improve LOS. 1

 Number: 1 Author: lpackman Subject: Callout Date: 9/22/2022 3:49:09 PM

[Discuss what cross section this section should have to improve LOS.](#)

 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:50:14 PM
LSC Response: Text has been added to address this.

Waynoka Road would align with the rear access to the former Kmart shopping center, and this four-leg intersection would be signalized. The property owner on the north side of Palmer Park is (and has been) evaluating other short-term and long-term access and traffic-control alternatives for this section of Palmer Park Boulevard.

QUEUING ANALYSIS – ACCESS POINT INTERSECTIONS AND OFFSITE INTERSECTIONS

A queuing analysis was performed for the eastbound approach at the middle site access to Waynoka Place. Queuing analyses have been run for the short-term total and the 2042 total traffic volumes.

“Upstream block time” represents the percent of time during the peak hour in which the entry point for a turn lane upstream of the subject intersection is blocked by a queue in the adjacent through lane. “Storage block time” is the proportion of time in which the turn lane’s queue exceeds the available storage length and left-turning vehicles overspill the turn lane in the model and into the adjacent through lane.

“Maximum queue” represents the maximum queue length observed for each individual lane during the 15-minute analysis period. SimTraffic records the maximum back of queue observed for every two-minute period. In SimTraffic, a vehicle is considered queued whenever it is behind another vehicle traveling at less than 10 feet/second (approximately 7 mph) or at a stop bar. The maximum observed queue may not occur during the same interval in which the highest upstream block time (percent) or storage block time (percent) occurs. LSC has analyzed the highest value for each metric for each turn lane/approach, regardless of whether or not they occur in the same 15-minute interval.

Reported queue lengths for auxiliary turn lanes in SimTraffic is generally limited by the turn-lane length. SimTraffic simply reports the maximum observed queue length during simulations. Any spillover from a left-t

Middle Access

Analysis has been r eastbound-left and eastbound-right exiting lanes at the middle access to determine the minimum on-site stacking length for parent and student vehicles after pick-up and drop-off operations. These lanes would be striped separately in their entirety after the parent loading zone.

During the mid-afternoon peak hour, simulation reports indicate that the eastbound-left queue is projected to reach a maximum of about 264 feet, while the eastbound-right queue is projected to reach a maximum of about 135 feet during the long-term afternoon release period.

LSC recommends that the eastbound exiting turn lanes at the middle access each be striped for a minimum of 264 feet, which would accommodate approximately 10-12 vehicles. Please refer

1
Include in the narrative model queue lengths for the northbound left turn lane and determine whether 175 feet will be enough for that queue. Also discuss if queue has enough length for both buses and parent vehicles combined.

2
Show the queue lengths in the loading/unloading exhibit.

3
Explain in a narrative how queuing buses are going to affect this second access point and how the circulation will work if queue is in the way when buses are making a left to the unloading zone. Show where buses are going to wait while other buses unload. Per the report, buses are expected to arrive and leave with a 15 minute window.

Number: 1 Author: lpackman Subject: Callout Date: 11/3/2022 1:26:07 PM

Include in the narrative model queue lengths for the northbound left turn lane and determine whether 175 feet will be enough for that queue. Also discuss if queue has enough length for both buses and parent vehicles combined.

Author: jchodsdon Subject: Sticky Note Date: 11/3/2022 1:31:20 PM

LSC Response: Added as requested.

Just to clarify, the traffic turning northbound left into the school at the middle access will not include parent vehicles dropping off and picking up students attending THIS school, rather only visitors, inter-campus busses, and parents dropping off and picking up students using the inter-campus bus service for travel to/from other campuses.

Number: 2 Author: lpackman Subject: Callout Date: 9/22/2022 11:55:57 AM

Show the queue lengths in the loading/unloading exhibit.

Author: jchodsdon Subject: Sticky Note Date: 11/4/2022 10:25:35 AM

LSC Response: To address this comment, a separate figure has been added which graphically depicts the queuing analysis results.

Number: 3 Author: lpackman Subject: Callout Date: 11/1/2022 3:21:49 PM

Explain in a narrative how queuing buses are going to affect this second access point and how the circulation will work if queue is in the way when buses are making a left to the unloading zone. Show where buses are going to wait while other buses unload. Per the report, buses are expected to arrive and leave with a 15 minute window.

Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:53:29 PM

LSC Response: Additional detail has been added regarding the number of buses and bus operations. There will only be a few buses for inter-campus shuttle transportation (and associated parents picking up and dropping off students using this service), not general bus route transportation as is typical for traditional public schools. Text has also been added near the end of the report to address the bus maneuvers and recommended operations at the internal entry/exit points to the bus "terminal."

to the attached SimTraffic reports for projected maximum and 95th percentile mid-day peak-hour queue lengths.

North Access

Analysis has been run to estimate the maximum queue length of the northbound-left lanes at the north access that would extend to the middle access. A 180-foot dedicated northbound-left turn lane is recommended on Waynoka Place between the north and middle site accesses.

SimTraffic simulation reports indicate that the northbound-left queue is projected to reach a maximum of about 105 feet, which would **not** exceed the 180 feet of stacking distance for this turn lane.

AUXILIARY TURN-LANE NEED ANALYSIS

Please refer to the following exhibits (attached) for proposed striping plans at each site access:

- Figure 12: Proposed North Access Laneage
- Figure 13: Proposed Middle Access Laneage
- Figure 14: Proposed South Access Laneage

Powers Boulevard/Waynoka Road


Powers Boulevard is classified as “F-W: Freeway” with a posted speed limit of 55 mph in the vicinity of the site. Waynoka Road is classified as a Non-Residential Collector. No auxiliary right-turn lanes currently exist on Powers Boulevard at Waynoka Road. However, CDOT has indicated that this RIRO intersection will be **closed** in conjunction with the opening of the proposed school.

Waynoka Road at Waynoka Place


Following the closure of the Waynoka Road/Powers intersection, nearly all vehicles would be westbound-right-turning (to head northbound on Waynoka Place), so there would be no need for a separate right-turn deceleration lane on the westbound approach.

Additionally, LSC recommends that the southbound approach on Waynoka Place approaching Waynoka Road should remain a single-lane approach. Striping for a short northbound-left-turn bay is recommended just north of this intersection at the south access (staff/overflow parking lot), and that is achievable with the southbound single-lane approach on Waynoka Place at Waynoka Road.

↑
1
Discuss whether the 100' left turn bay is long enough for the queue at peak hours.

 Number: 1 Author: lpackman Subject: Callout Date: 9/22/2022 3:02:18 PM

[Discuss whether the 100' left turn bay is long enough for the queue at peak hours.](#)

 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:51:14 PM
LSC Response: Added as requested.

Waynoka Place/Site Access Points

Provide peak hour left and right turning volumes for all access point and discuss applicable ECM criteria section 2.3.7.D.1. and 2.3.7.D.2.

LSC recommends that Waynoka Place be striped with a painted left-turn median. This would either be striping for dedicated left-turn bays or a center two-way left-turn lane (TWLTL) in conjunction with the opening of the charter school. The preliminary recommended configuration of the access points and associated laneage, striping of Waynoka Place, etc. is shown in Figures Figure 12-Figure 14

Waynoka Place/North Site Access

Only entering turning movements will be permitted at the north access, which will be the ingress for parent and student drivers. Based on projected traffic volumes, *ECM* thresholds for southbound-right and northbound-left turn lanes would be met at the main access. LSC recommends the following turn-lane dimensions at the north access:

- 280-foot southbound right-turn deceleration lane (190 feet with 90-foot taper)
- Northbound left-turn deceleration lane at part of TWLTL

Waynoka Place/Middle Site Access

Determine whether a right turn lane necessary for the southbound vehicles that use this access point per ECM 2.3.7.D.2.

The middle access would serve as an exit-only, except for buses, visitors and parents dropping off/picking up students using inter-school bus service to other James Irwin schools. These vehicles would be allowed entry at this middle access. LSC recommends that separate eastbound-left and eastbound-right turn lanes with at least 250 feet of stacking distance per lane be provided to accommodate projected exiting queues.

Waynoka Place/South Site Access

Staff parking and primarily overflow parking would be served by the south access. Due to the short distance on Waynoka Place between the south access and the stop bar at Waynoka Road, LSC recommends striping for a short 100-foot northbound-left turn bay at the south access. This lane would consist of 50 feet of storage and a 50-foot taper.

Palmer Park Boulevard/Waynoka Road

Discuss the east bound left turn lane movement threshold.

Based on projected traffic volumes, the westbound right-turn movement would exceed the *ECM* threshold requiring a separate westbound right-turn deceleration lane. The cross-section of Palmer Park Boulevard includes a striped, center left-turn median (TWLTL).

Constitution Avenue/Tutt Boulevard/Waynoka Place

There is not sufficient this turning movement the future. Additional

Address right bound turn volumes and determine if there is a deficiency or if this development will create a deficiency per the ECM criteria (not City's). Also discuss southbound right turn and left turn thresholds on Constitution Ave.

☰ Number: 1 Author: lpackman Subject: Text Box Date: 9/22/2022 3:14:24 PM

Provide peak hour left and right turning volumes for all access point and discuss applicable ECM criteria section 2.3.7.D.1. and 2.3.7.D.2.

👉 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:51:24 PM

LSC Response: Added as requested. New tables have been added to the report for this purpose.

☰ Number: 2 Author: lpackman Subject: Callout Date: 9/22/2022 3:13:28 PM

Determine whether a right turn lane necessary for the southbound vehicles that use this access point per ECM 2.3.7.D.2.

👉 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:51:33 PM

LSC Response: Added as requested.

☰ Number: 3 Author: lpackman Subject: Callout Date: 9/22/2022 3:25:52 PM

Discuss the east bound left turn lane movement threshold.

👉 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:51:38 PM

LSC Response: Added as requested.

☰ Number: 4 Author: lpackman Subject: Callout Date: 11/1/2022 3:04:29 PM

Address right bound turn volumes and determine if there is a deficiency or if this development will create a deficiency per the ECM criteria (not City's). Also discuss southbound right turn and left turn thresholds on Constitution Ave.

👉 Author: jchodsdon Subject: Sticky Note Date: 11/3/2022 1:39:08 PM

LSC Response: This intersection has been addressed in the report per comments from and our discussion with City Traffic Engineering. This intersection is controlled by the city, so the city "Traffic Criteria Manual" was used as the applicable criteria.

threshold for requiring a right-turn deceleration lane, but this improvement is not feasible due to geometric constraints on the southwest corner of Constitution/Tutt/Waynoka.

ON-SITE QUEUING REQUIREMENT (FOR PARENT PICK-UP/DROP-OFF “CAR-LINE”)

School On-Site Queuing for Parent Drop-off and Pick-up

The North Carolina Municipal School Transportation Assistance (MSTA) performs studies that address the safety concerns with the overall pedestrian safety and traffic operations on a school campus, and how traffic affects adjacent roadways. To calculate school operations, MSTA has developed a database of specific data related to school operations, including required queue lengths and trip-generation estimates by mode (parent drop-off/pick-up, bus, etc.). LSC has used the MSTA’s spreadsheet in several similar school operations studies, as it has typically been required by jurisdictions as a preferred alternative to ITE rates for schools.

Data indicates that AM traffic operations on a school campus usually operate safely and efficiently due to parent traffic arriving at a broader range of times. PM traffic operations are quite different, as parents often arrive well before the school dismissal and park or queue (back up) along campus driveways. The PM queue often results with vehicles stopped in the roadway or along the shoulder of a major through route, which increase the chances of accidents and similar traffic-related safety concerns.

Per information from the City of Colorado Springs Traffic Engineering Division, the required “high-demand” stacking length on-site in the proposed parent drop-off/pick-up loop for the maximum enrollment (720 students) would be 1,650 feet. The school “carpool” plan will need to show this length of on-site stacking/queuing distance for parent drop-off/pick-up **plus** 175 feet of active loading/unloading zone distance (NC MSTA guidelines). Depending on the site operational characteristics, the necessary on-site queue lengths could potentially be adjusted.


This queue distance is exclusive of a recommended 5-7-vehicle-long drop-off/pick-up zone (the 175-foot distance). The empirical formula adds an additional 30 percent to a base queue-length calculation of required total queue length as a precaution for atypical events, including bad weather, school performances, and other special events. Formula-generated queue lengths are based on afternoon school peak-hour empirical queuing data.

1 Discuss the configuration of the pick-up line in the next submittal once it has been determined.


ROADWAY CLASSIFICATIONS


Powers Boulevard is a designated Freeway, Waynoka Road is a Non-Residential Collector, and Waynoka Place is a Local Road. However, Waynoka Place should likely be considered a Non-Residential Collector.

2 Discuss if it is more likely to be a collector because of the development.


 Number: 1 Author: lpackman Subject: Callout Date: 9/22/2022 3:41:06 PM

[Discuss the configuration of the pick-up line in the next submittal once it has been determined.](#)

 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:51:45 PM
LSC Response: Added as requested.

 Number: 2 Author: lpackman Subject: Callout Date: 11/1/2022 3:06:21 PM

[Discuss if it is more likely to be a collector because of the development.](#)

 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:51:57 PM
LSC Response: Added as requested.

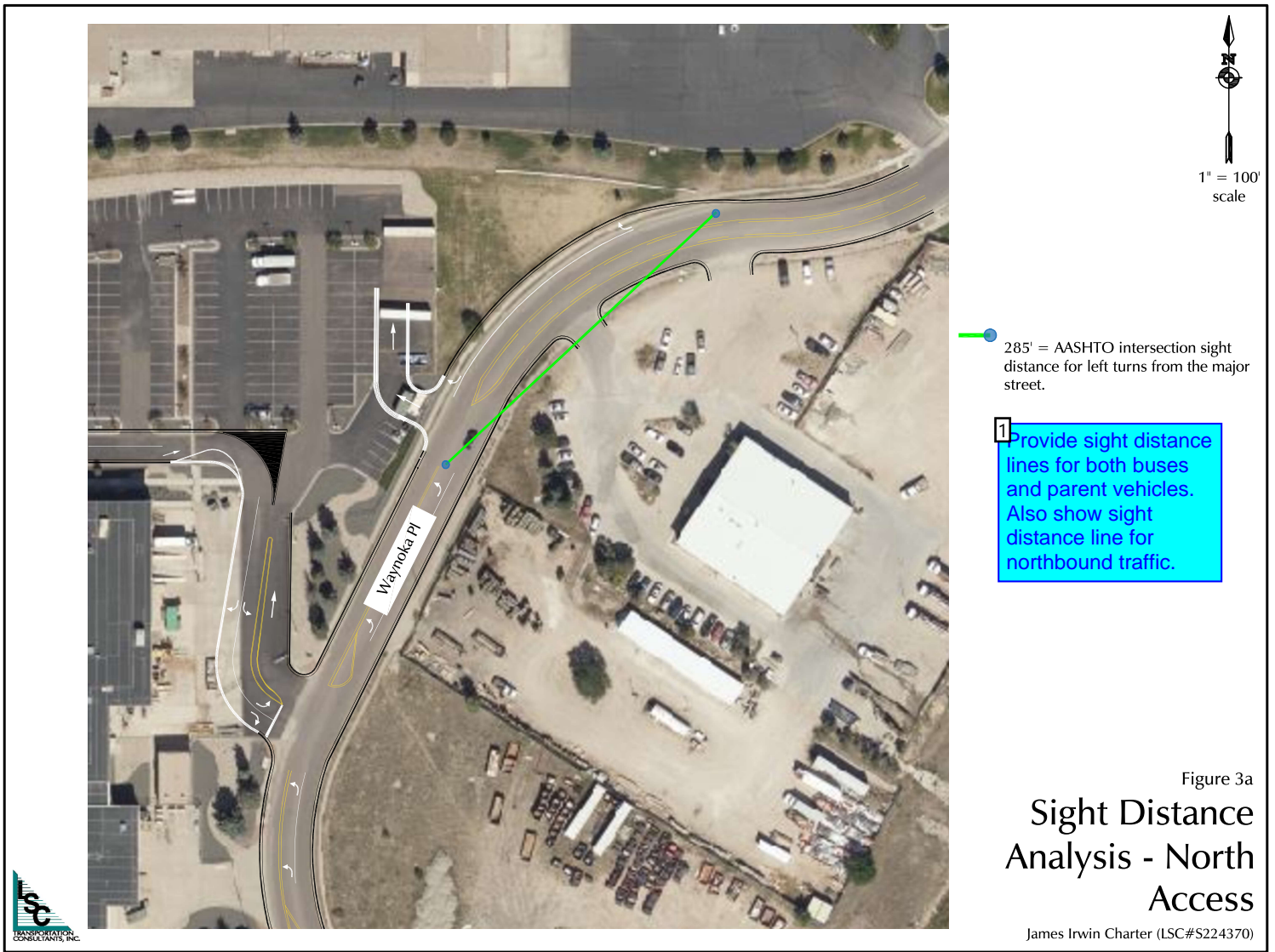




Figure 3a
**Sight Distance
 Analysis - North
 Access**

James Irwin Charter (LSC#S224370)

 Number: 1 Author: lpackman Subject: Text Box Date: 9/22/2022 3:53:08 PM

Provide sight distance lines for both buses and parent vehicles. Also show sight distance line for northbound traffic.

 Author: jchodsdon Subject: Sticky Note Date: 11/3/2022 1:40:58 PM

LSC Response: This north access will not be used by buses - parent vehicles only. Therefore, only the line of sight for passenger vehicles has been shown for northbound left-turning vehicles "from the major road."




1 Show sight distance line for southbound passenger vehicle

- 390' = ECM-prescribed entering sight distance for driveways (Table 2-35) on a 30-mph (posted speed) roadways with single-unit trucks (school bus) as the design vehicle
- School bus line of sight for 360' intersection sight distance - Speed of approaching vehicle about 10 mph at south end of line
- Line of sight for 270' of intersection sight distance - "worst case" scenario assuming no sight distance easement across private property. Speed of approaching vehicle less than 30 mph at south end of line of sight


Figure 3b
Sight Distance Analysis - Middle Access

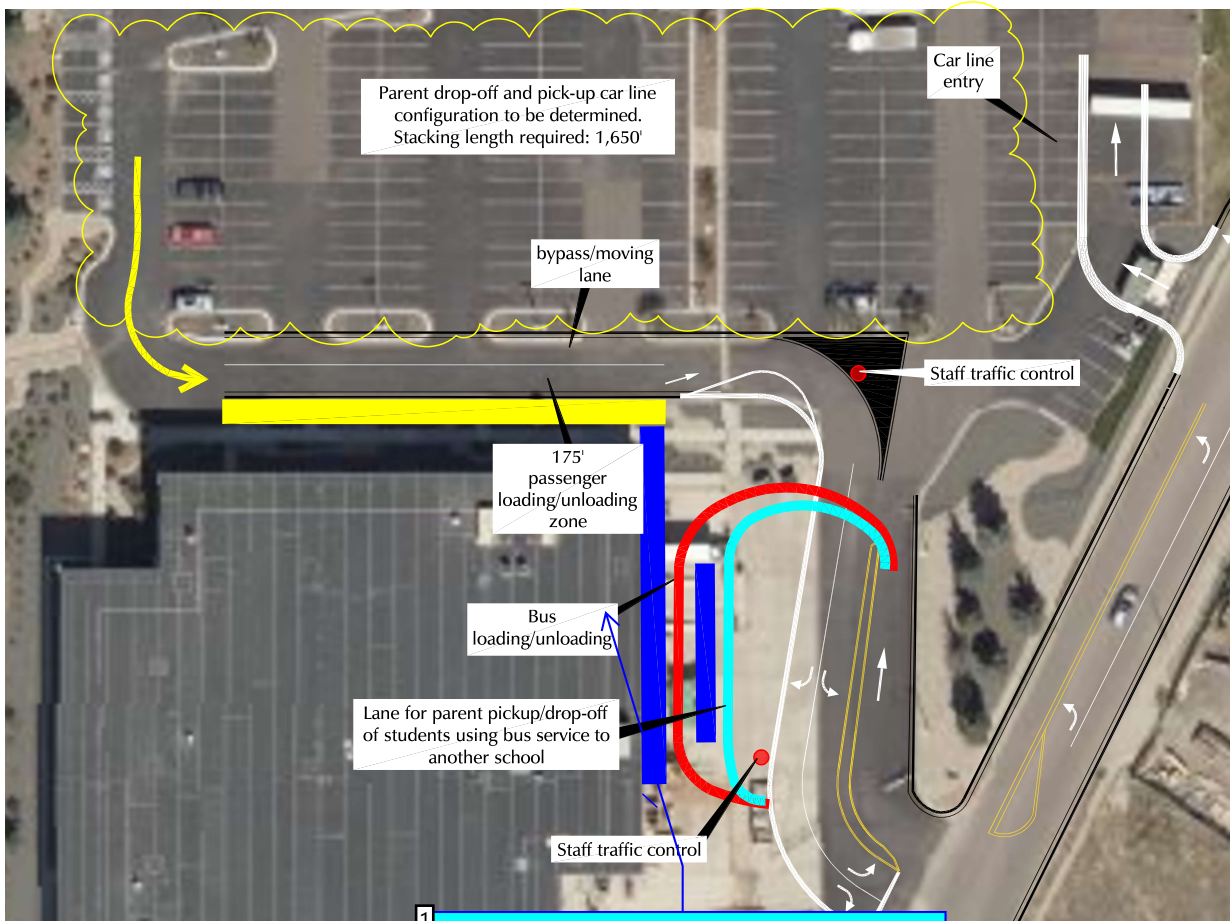
James Irwin Charter (LSC#S224370)



 Number: 1 Author: lpackman Subject: Callout Date: 9/22/2022 3:54:30 PM

[Show sight distance line for southbound passenger vehicle](#)

 Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:52:30 PM
LSC Response: Added as requested.



1" = 60' scale

1 Explain in a narrative how queuing buses are going to affect this second access point. Show where buses are going to wait while other buses unload. Per the report, buses are expected to arrive and leave with a 15 minute window.

Conceptual Only - not for design

Figure 15
Loading/Unloading Areas

James Irwin Charter (LSC#S224370)



Number: 1 Author: lpackman Subject: Callout Date: 9/22/2022 10:23:38 AM

Explain in a narrative how queuing buses are going to affect this second access point. Show where buses are going to wait while other buses unload. Per the report, buses are expected to arrive and leave with a 15 minute window.

Author: jchodsdon Subject: Sticky Note Date: 11/2/2022 4:53:04 PM

LSC Response: Added as requested. Note: additional detail has been added regarding the number of buses and the inter-campus bus service/ operations. There will only be a few buses for inter-campus shuttle transportation (and associated parents picking up and dropping off students using this service), not general bus route transportation as is typical for traditional public schools.