Impacts of Charter Schools in San Antonio and Lessons Learned

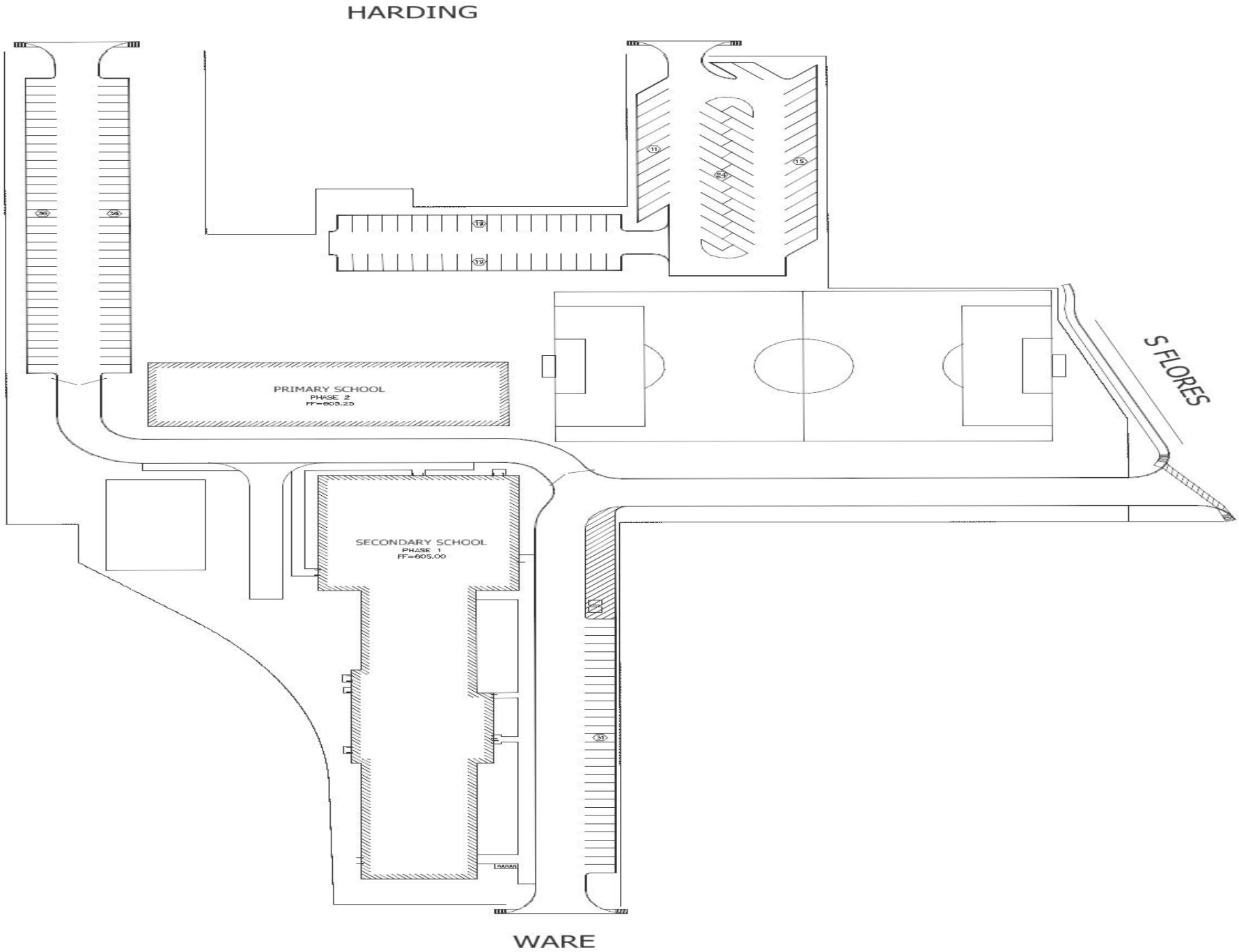
September 23, 2016

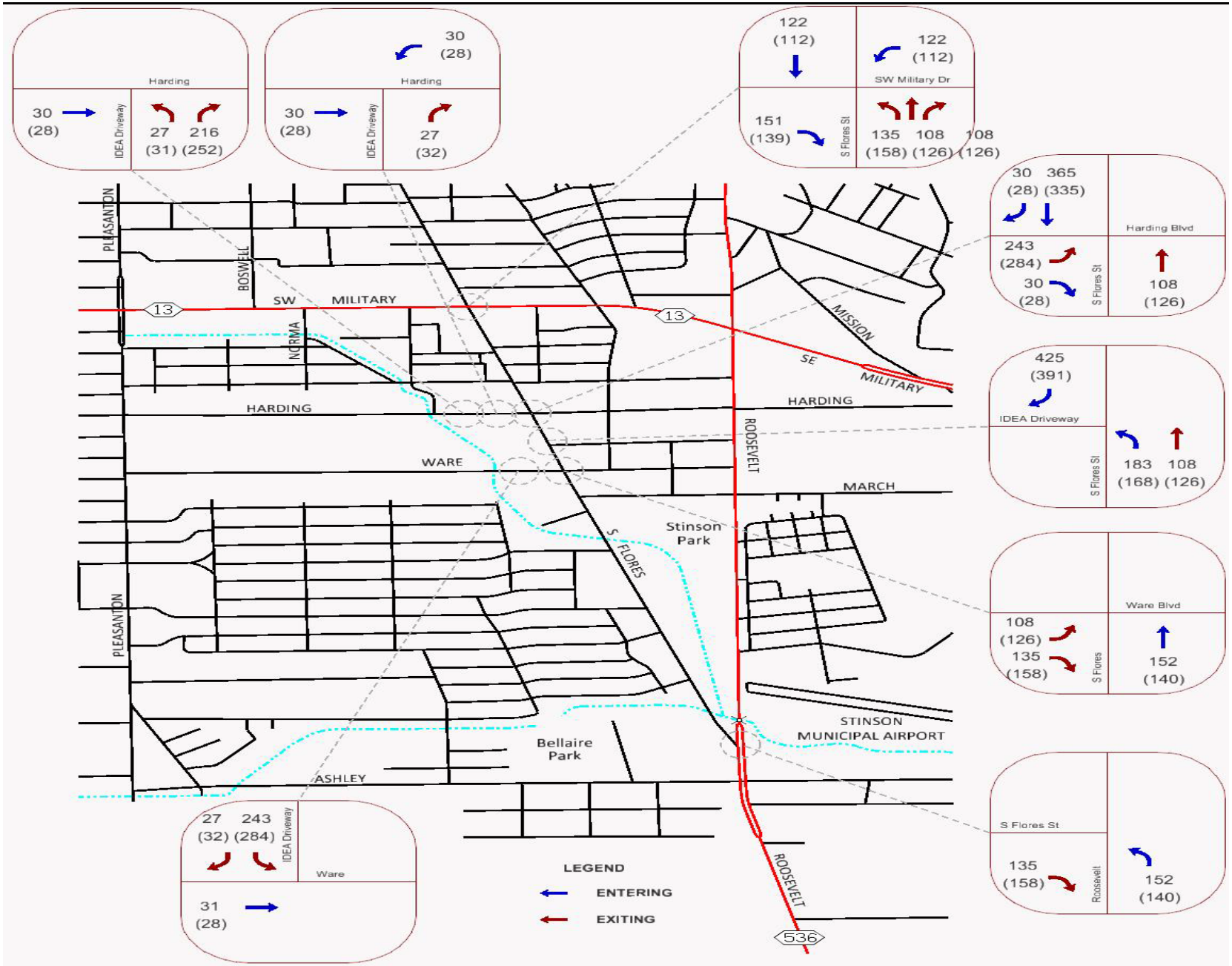
Traffic Impact Analysis (TIA) Study vs. Traffic Circulation Study

- Traffic Impact Analysis Study:
  - ITE Trip Generation Rate
  - Looks at Level of Service (LOS) of Intersections as it relates to delay
  - Mitigation measures to include right turn lanes, left turns lanes, traffic signals, widening

Level of Service

Level of Service (LOS)	Control Delay (seconds/vehicle)		General Description (For signalized Intersections)
	Signalized Intersections	Unsignalized Intersection	
A	≤ 10.0	≤ 10.0	Free Flow
B	10.1 to 20.0	10.1 to 15.0	Stable Flow (slight delays)
C	20.1 to 35.0	15.1 to 25.0	Stable Flow (acceptable delays)
D	35.1 to 55.0	25.1 to 35.0	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	55.1 to 80.0	35.1 to 50.0	Unstable flow (intolerable delay)
F	> 80.0	> 50.0	Forced flow (jammed)


HARDING
PRIMARY SCHOOL
PHASE 2
FF=605.25
SECONDARY SCHOOL
PHASE 1
FF=605.00
S FLORES
WARE


Harding
30 (28)
IDEA Driveway
27 (31)
216 (252)
Harding
30 (28)
IDEA Driveway
30 (28)
27 (32)
122 (112)
151 (139)
S Flores St
SW Military Dr
122 (112)
135 (158)
108 (126)
108 (126)
30 (28)
365 (335)
243 (284)
30 (28)
S Flores St
Harding Blvd
108 (126)
425 (391)
IDEA Driveway
S Flores St
183 (168)
108 (126)
Ware Blvd
108 (126)
135 (158)
S Flores
152 (140)
S Flores St
135 (158)
Roosevelt
152 (140)
27 (32)
243 (284)
IDEA Driveway
Ware
31 (28)
PLEASANTON
BOSWELL
SW MILITARY
13
NORMA
HARDING
WARE
ASHLEY
PLEASANTON
13
MISSION
SE MILITARY
HARDING
ROOSEVELT
MARCH
Stinson Park
S FLORES
STINSON MUNICIPAL AIRPORT
Bellaire Park
ROOSEVELT
536
LEGEND
ENTERING
EXITING

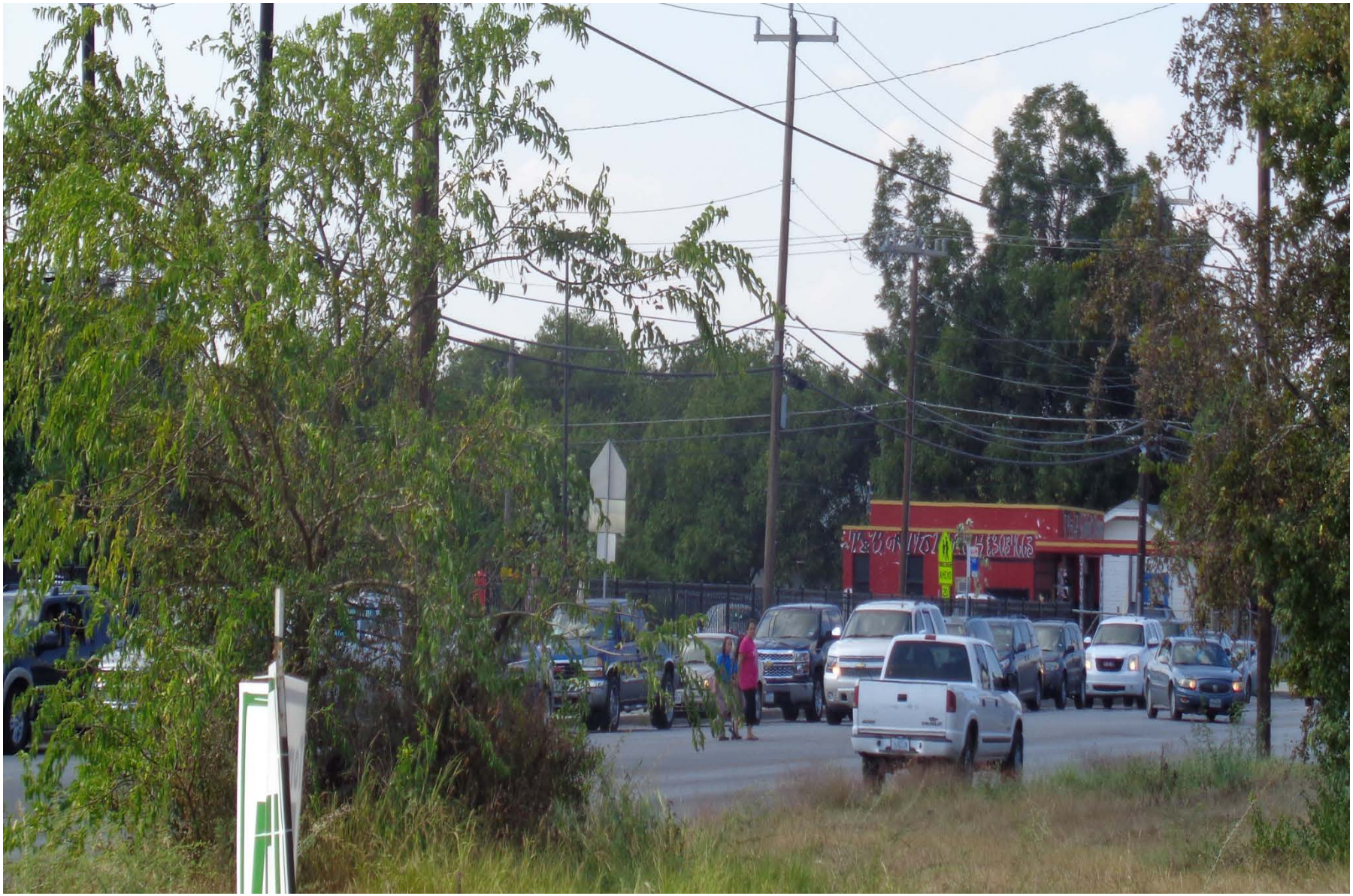
"Rule of Thumb" Design Value

- On-site queue length (in terms of vehicles) is approximately **6%** of the total planned ultimate enrollment of the school
- Assume typical vehicle length of 23 feet[1]
- Thus, a planned 1,000 student elementary school should have (1,000)(.06)(23)=1,380 linear feet of queue length on-site

[1]Source: Harris County, TX, School Traffic Study Guidelines


The Road to
COLLEGE
Starts Here


IDEA
South Flores Campus
VALERO




Judson Rd
STOP
COP
Judson Rd &
Creston Loop


INJURY SCIENCES
OFFICE FLEX
FOR LEASE
300 RAMSEY
PLACE


STOP
AHEAD
20


STUDENT & VISITOR ENTRANCE
DELIVERIES
WELCOME

Traffic Circulation Study:

- Determination of required versus available on-site queuing length based on ultimate (build-out) school enrollment (if development is to be done in phases then on-site available queuing length should also be provided for the different phases)

- Location of any proposed vehicular gates that will limit or prevent access into the site (this will impact the available on-site queuing length and may require a guarantee in writing from the school to have gates opened at least 90 minutes before the start and end of school)

- Existing versus proposed conditions of existing street network to include:
  - street widths
  - number of lanes
  - traffic control devices (all-way stop, traffic signal, on-street parking restrictions, school zones, etc)
  - pedestrian amenities such as ramps and crosswalks

Traffic Circulation Study (con't):

- An exhibit showing how traffic will circulate into, through, and out of the school site during morning drop-off and afternoon pick-up
- Provide morning drop-off and afternoon pick-up procedures that will be provided to parents such as staggered start and end times for different levels
- Expected mode of travel to and from site of school population - % of pedestrians, % of bus riders, % of single car
- School boundary map (Public Schools)
- Information regarding the number of buses (if bus service is provided)
- Evaluation of on-street parking along the perimeter of the school site
- Provide for a school drop off agreement to be signed by all parents(yet to implement)
- Provide exhibit of where pedestrian route will be (crosswalks, ramps)
- Location of door entries for students

Traffic Circulation Study:

- **General Information:**
  - Maximum student population for proposed school, number of faculty/staff, number of buses
    - Are there any plans to increase the student population (future construction or install mobile units)?
  - School Type: Public, Private
  - Grade Level: Elementary (including Pre-K and K), Middle, High
  - School hours of operation (make considerations for any pre-school and after-school programs)

Traffic Circulation Study

- **Loading Operations**

  - Does the site plan provide adequate queue length? Compare the Required Queue Length from the Calculator to the site plan.
    - **NOTE:** Additional driveway length or other accommodations should be provided for high traffic demand days (assemblies, inclement weather, and/or special events).
  - Is the student loading zone for parent pickup/drop-off defined? If so, is it located near the main building entrance?
  - Are sidewalks and covered walkways provided?
  - Is a lane available for vehicles to pass when necessary?
  - Is the proposed parent traffic pattern shown?

Traffic Circulation Study:

- **Traffic Operations**
  - Are there different traffic patterns for staff, parents, bus and student drivers described in the TIA and shown on the site plan?
  - Check for any internal traffic conflicts and pedestrian safety concerns.
  - Is the student and bus loading operations identified in separate areas?
  - How many driveways are proposed? Are they full access, right-in/right-out, one-way, etc.?

Traffic Circulation Study:

- Parking
  - Is there enough parking for faculty, staff, and buses?
  - At a High School are the proper amount of student spaces provided?

Traffic Circulation Study:

- Pedestrians
  - Are sidewalks provided on campus and adjacent to school property?
  - Are sidewalks provided in the parking lot separating vehicles from pedestrians? Can faculty, visitors, and students walk from parking lot to building safely?
  - Are crosswalks provided on campus and adjacent to school property? Appropriate markings and locations?
  - School Flashers (Reduce School Zones)

MSTA School Traffic Calculations

AM and PM Peak Traffic Estimates

(These numbers do not reflect peak hour traffic volumes)

School Name: Great Hearts Private School

Is this a PUBLIC school? No

Version:

	AM Cars / Student	PM Cars / Student	Avg. Car Length	PM At one Time
	36.56%	16.31%	22.19	45.50%
	34.58%	14.10%	22.70	51.90%
	9.20%	4.30%	24.42	55.71%
P	43.35%	26.30%	22.00	37.87%

Private School school data is based on no buses and uses the same percentages for all school types (elementary, middle, & high).

NOTES

- Minimum Queue Length does NOT include an alternative traffic pattern for high traffic demand days.
- Peak traffic volumes at schools normally occur within a 30-minute time period. (PHF of 0.5)

MSTA School Queue Input

Type School	Student Population	Number of Buses	Staff Members	Student Drivers
Private E	420	6	55	
Private M	360	8	47	
Private H	320	5	42	92

Calculations

PM Total Vehicles	PM Peak Vehicles	Minimum Queue Length	Total AM Trips	Total PM Trips
111	42	925	364	222
95	36	791	312	190
85	32	708	277	170
		2424	954	582

Elementary School Data

Direction	AM Trips Generated: Parents	Buses	Staff	Trips	PM Trips Generated: Parents	Buses	Staff	Trips
IN	182			182	111			111
OUT	182			182	111			111
			AM Elementary Trips	364			PM Elementary Trips	222

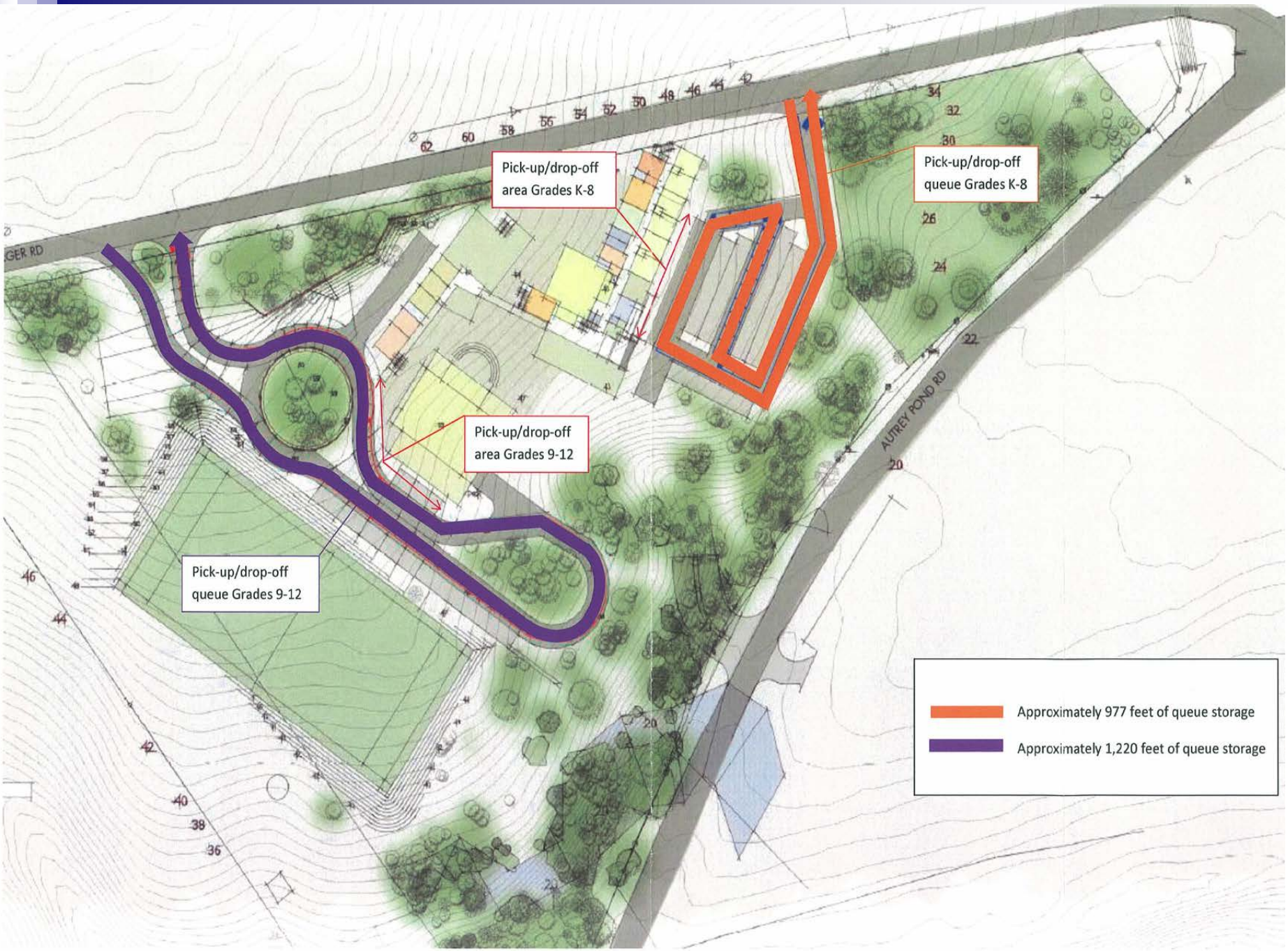
Middle School Data

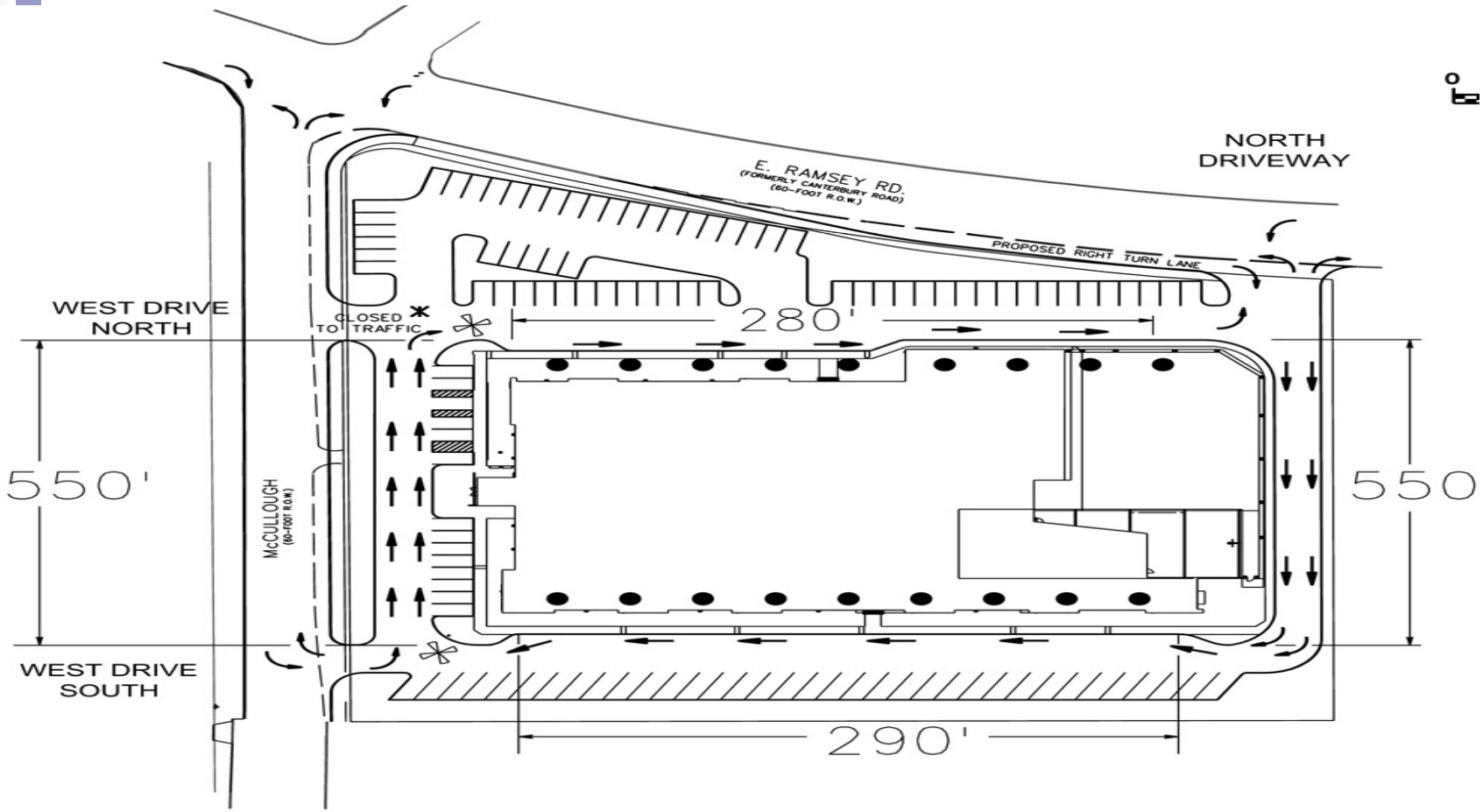
Direction	AM Trips Generated: Parents	Buses	Staff	Trips	PM Trips Generated: Parents	Buses	Staff	Trips
IN	156			156	95			95
OUT	156			156	95			95
			AM Middle Trips	312			PM Middle Trips	190

High School Data

Direction	AM Trips Generated: Parents	Buses	Staff		Trips	PM Trips Generated: Parents	Buses	Staff		Trips
IN	139				139	85				85
OUT	139				139	85				85
			AM Private Trips		277			PM Private Trips		170

Total All AM Trips	In	477	Total All PM Trips	In	291
	Out	477		Out	291
	Total	954		Total	582


Pick-up/drop-off area Grades K-8
Pick-up/drop-off queue Grades K-8
Pick-up/drop-off area Grades 9-12
Pick-up/drop-off queue Grades 9-12
AUTREY POND RD
Approximately 977 feet of queue storage
Approximately 1,220 feet of queue storage



● STUDENT PICK-UP / DROP-OFF POINT

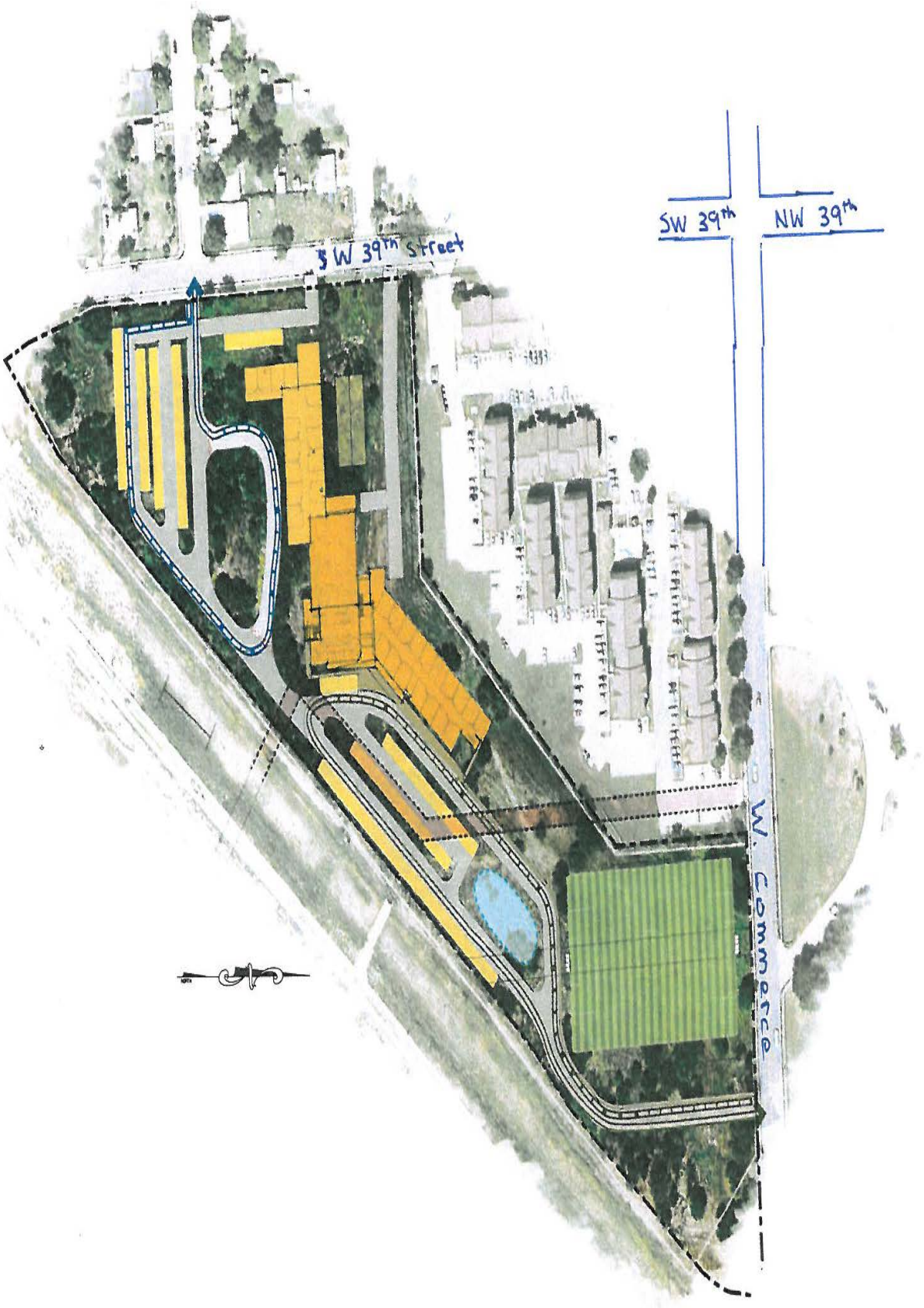
✳ STAFF TRAFFIC MONITOR

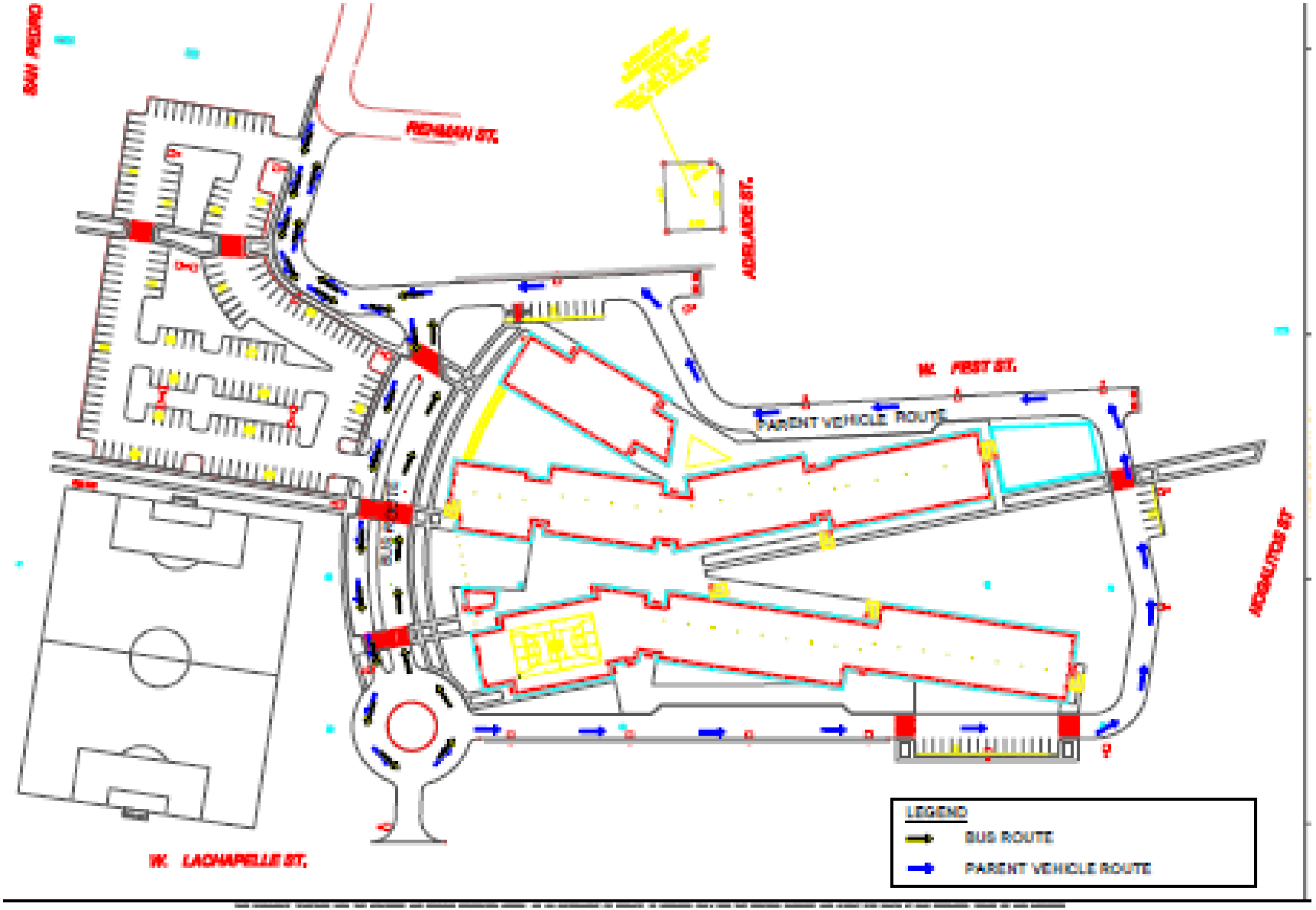
✱ CLOSED DURING NORMAL A.M. & P.M. ARRIVAL/DEPARTURE HOURS

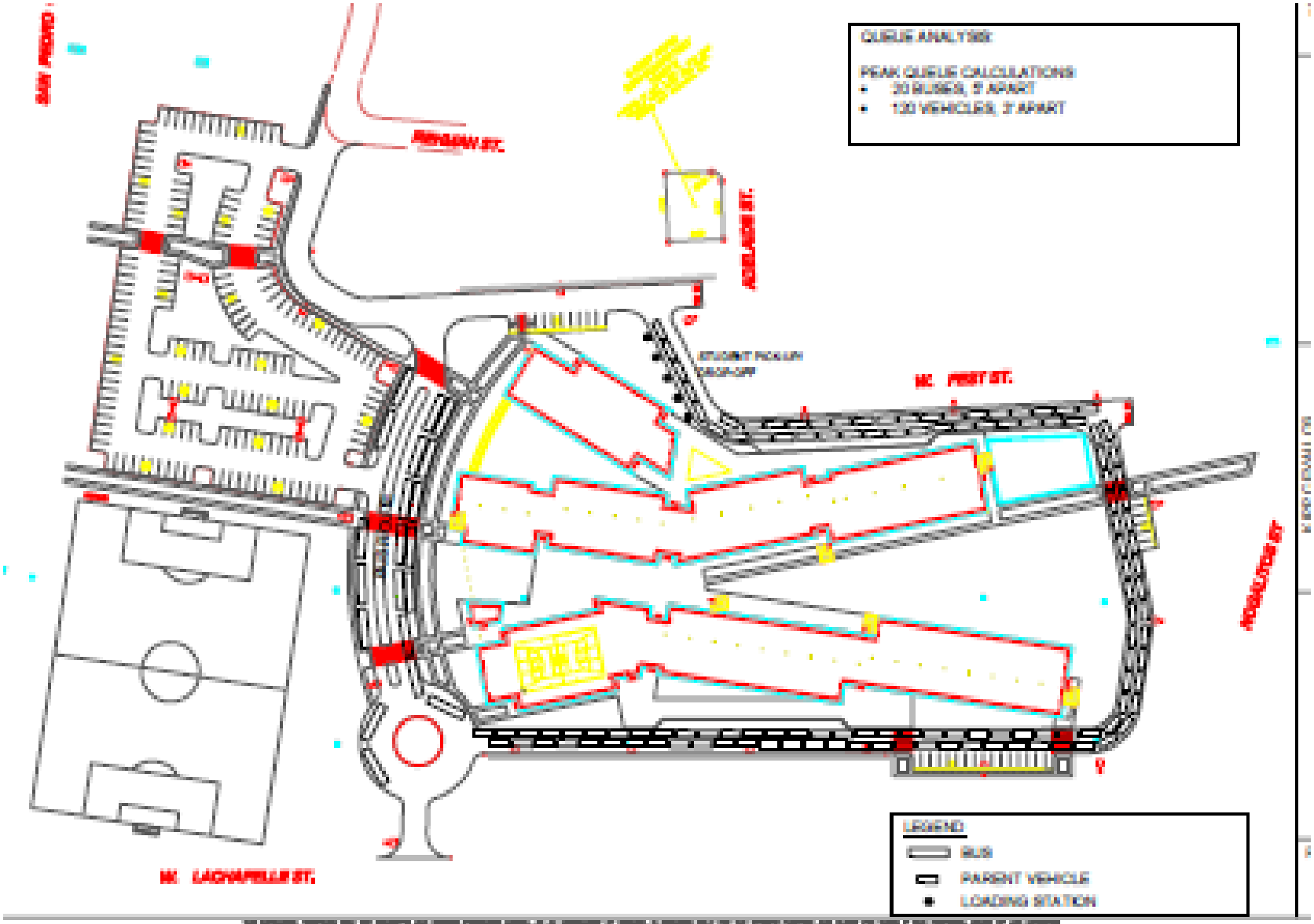
290' QUEUING DISTANCE AVAILABLE

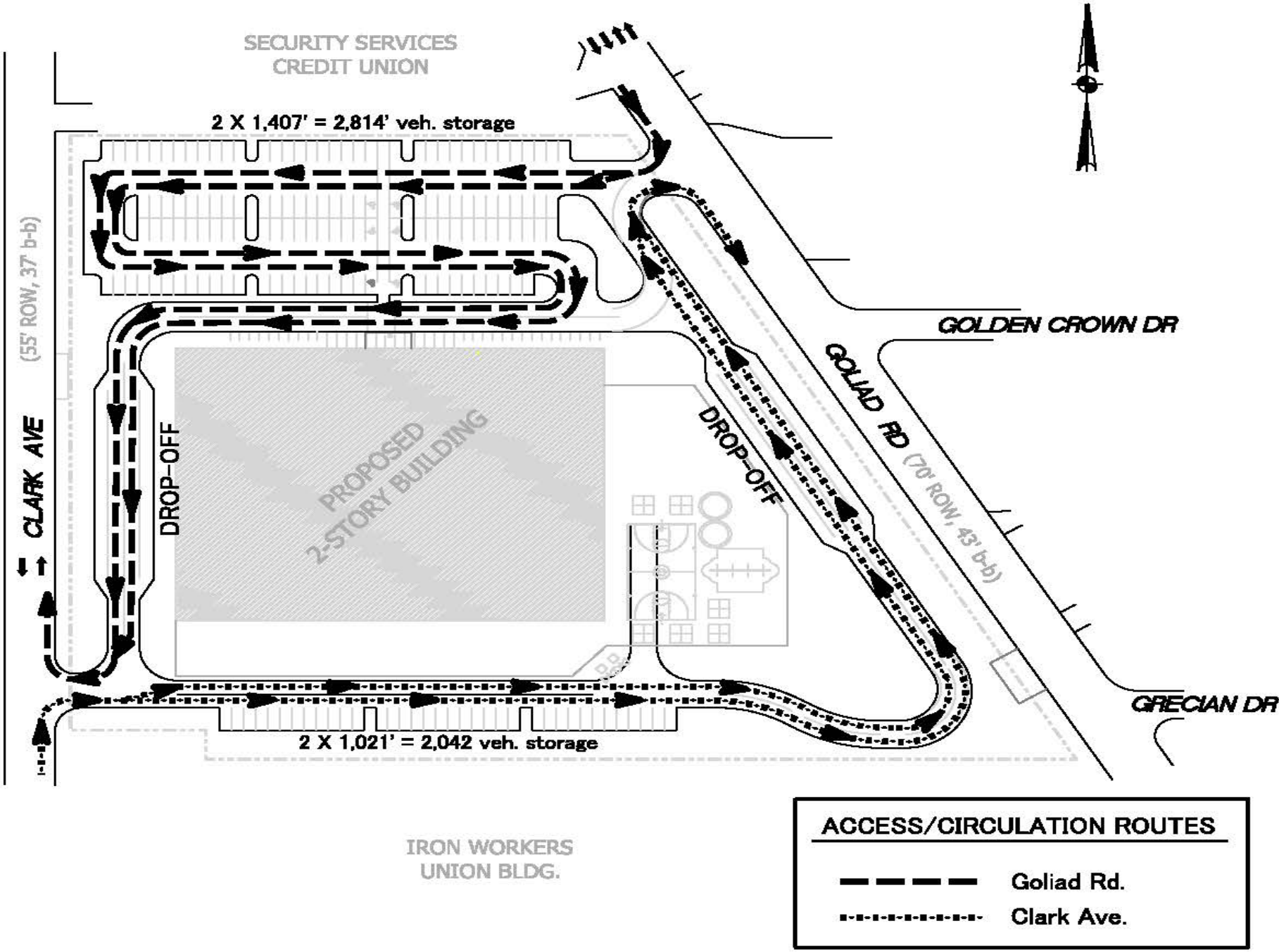
FIGURE 12
PROPOSED CIRCULATION PATTERNS

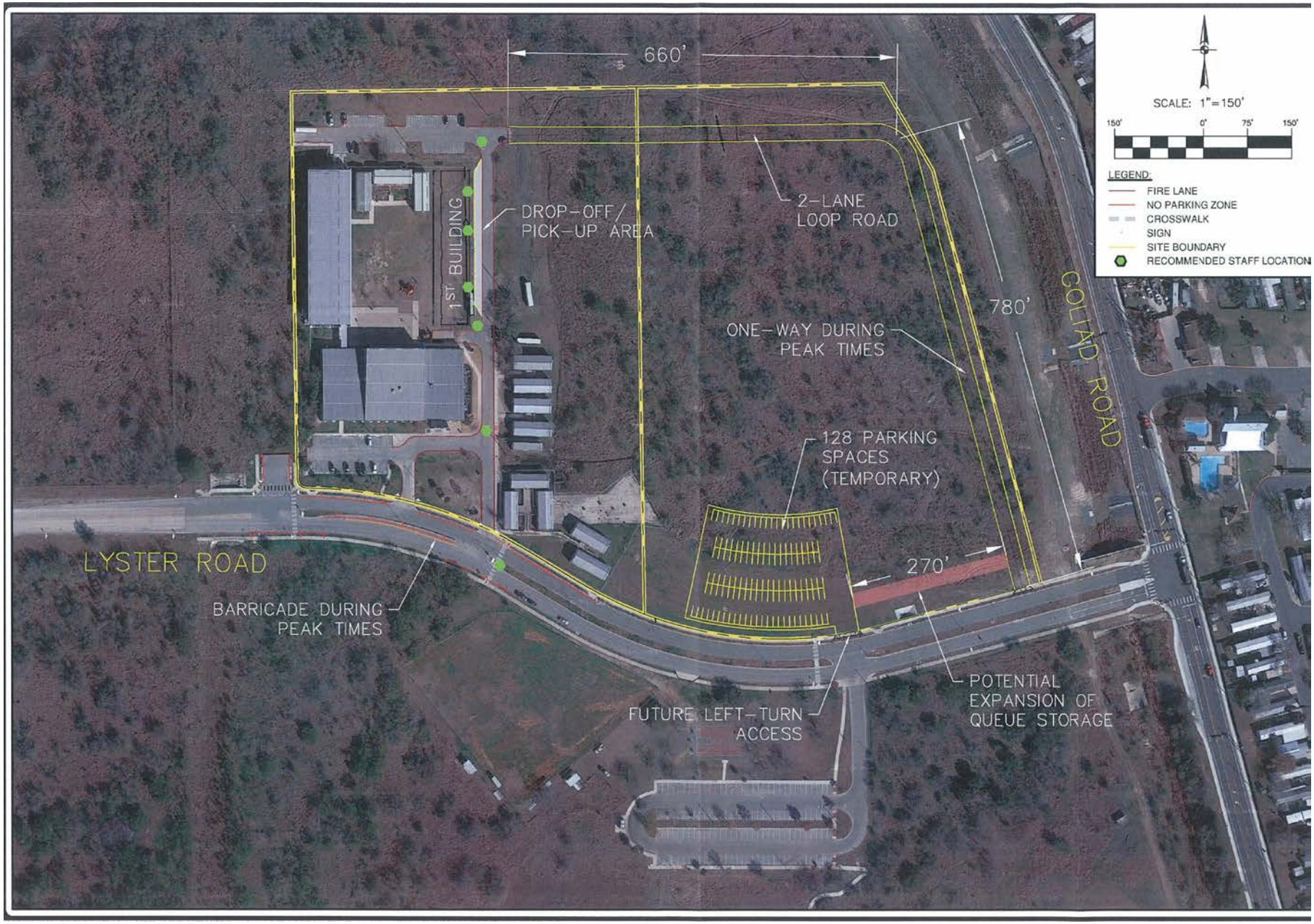
REV.: 2/2


SW 39th Street
SW 39th
NW 39th
W. Commerce

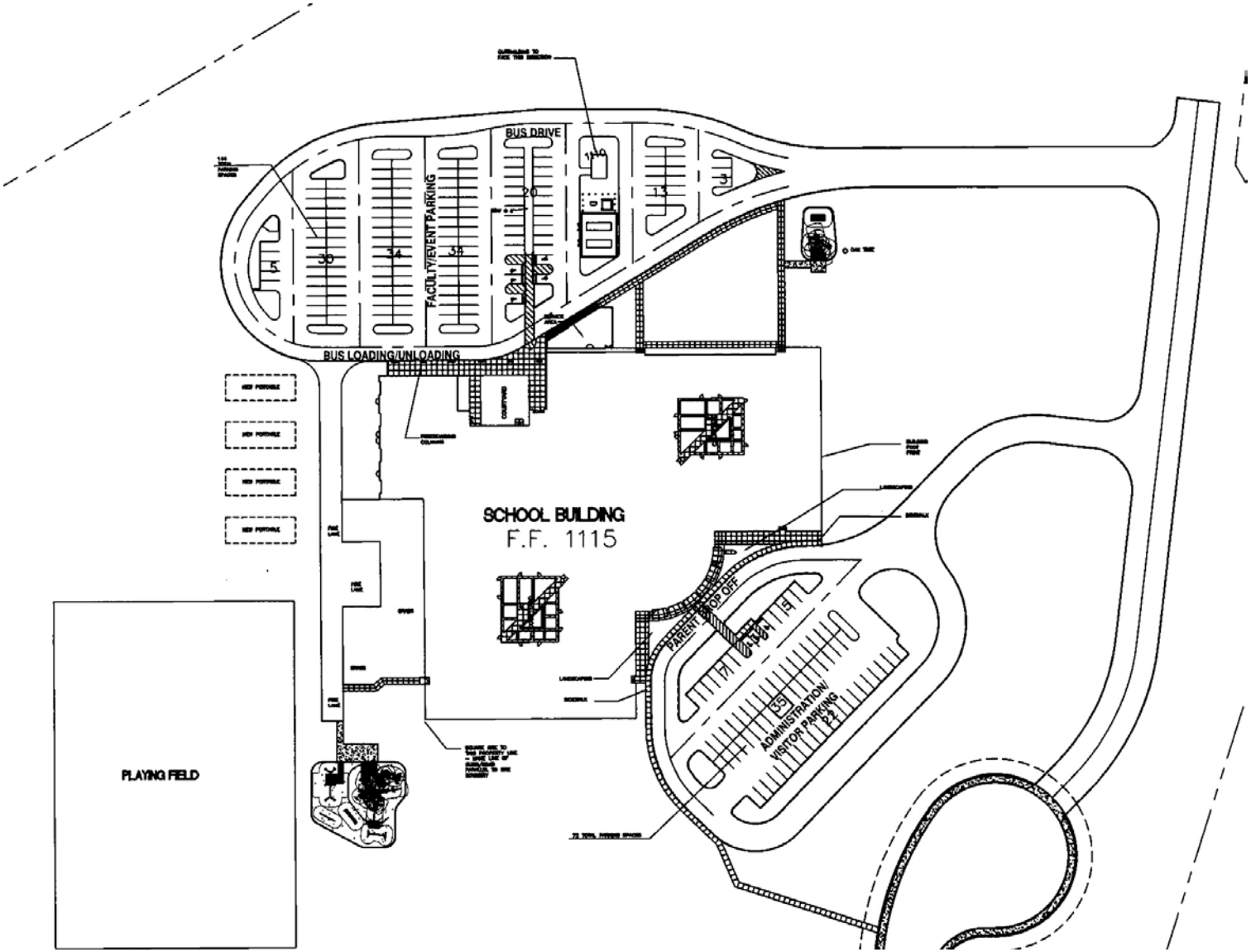

SAN PEDRO
RENAMAN ST.
ADELAIDE ST.
W. FIRST ST.
PARENT VEHICLE ROUTE
ARGUELLO BLVD
W. LACHAPELLE ST.
LEGEND
BUS ROUTE
PARENT VEHICLE ROUTE

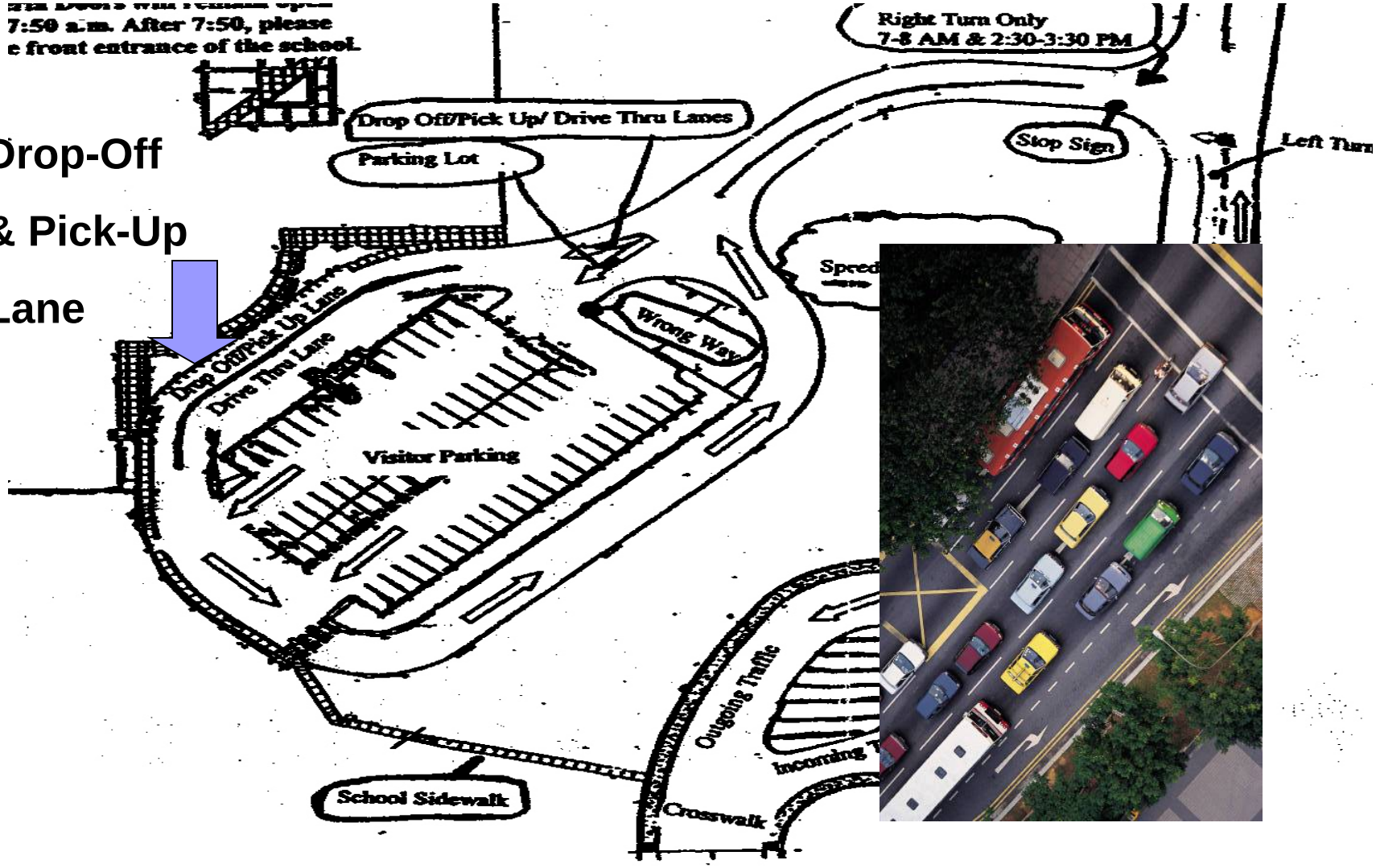

QUEUE ANALYSIS
PEAK QUEUE CALCULATIONS
• 33 BUSES, 5' APART
• 120 VEHICLES, 3' APART
SAN PEDRO
NEWMAN ST.
ADELAIDE ST.
W. FIRST ST.
W. LACHAPELLE ST.
ARGYLE ST.
LEGEND
BUS
PARENT VEHICLE
LOADING STATION


SECURITY SERVICES
CREDIT UNION
2 X 1,407' = 2,814' veh. storage
(55' ROW, 37' b-b)
CLARK AVE
DROP-OFF
PROPOSED
2-STORY BUILDING
DROP-OFF
GOLDEN CROWN DR
GOLIAD RD (70' ROW, 43' b-b)
GRECIAN DR
2 X 1,021' = 2,042 veh. storage
IRON WORKERS
UNION BLDG.
ACCESS/CIRCULATION ROUTES
Goliad Rd.
Clark Ave.


660'
SCALE: 1"=150'
150' 0' 75' 150'
LEGEND:
FIRE LANE
NO PARKING ZONE
CROSSWALK
SIGN
SITE BOUNDARY
RECOMMENDED STAFF LOCATION
1ST BUILDING
DROP-OFF/ PICK-UP AREA
2-LANE LOOP ROAD
780'
GOLIAD ROAD
ONE-WAY DURING PEAK TIMES
128 PARKING SPACES (TEMPORARY)
LYSTER ROAD
270'
BARRICADE DURING PEAK TIMES
FUTURE LEFT-TURN ACCESS
POTENTIAL EXPANSION OF QUEUE STORAGE

Drop-Off & Pick-Up Traffic Plan Handout to Parents at Open House Night





Front Parking Lot with Two Traffic Lanes along Entrance Sidewalk

Pick-Up Procedure and Drop off Procedure

- Vehicle Plaque
- Radios & Wait Areas
- Clipboards

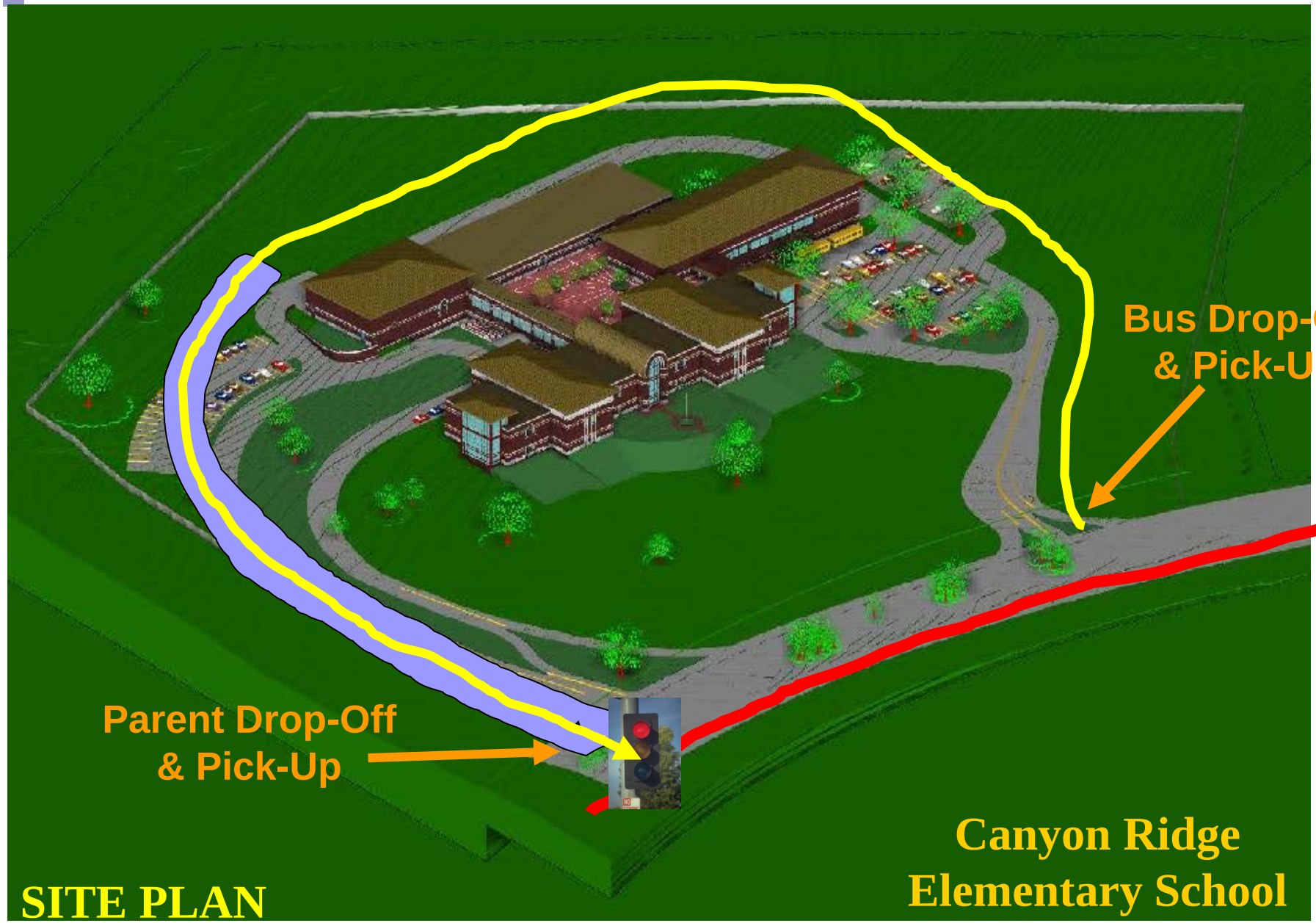
Problem

- Most school sites have insufficient on-site parking
  - Past school designs centered around the idea that most children would walk to the local neighborhood school
  - Reconstruction/renovation has eliminated on-site parking
- More private schools
  - Children attending school are not typically from the area and therefore most arrive by car

Other Factors

- Parents want to park close to be able to walk their child to class
- School staff wants to park close to work
- Complaints by area residents
  - vehicles blocking driveways
  - mail delivery and garbage pick-up is hindered, delayed or stopped
- Congestion in and around schools during drop-off and pick-up times

- On-street parking around schools is a delicate issue which tries to balance:
  - Safety
  - Convenience of parking
  - Continuous flow of traffic
  - Local resident concerns
- The treatments described can only work if everyone understands and follows the parking regulations


Bus Drop-Off
& Pick-Up
Parent Drop-Off
& Pick-Up
Canyon Ridge
Elementary School
SITE PLAN

CITY OF SAN ANTONIO

TRANSPORTATION & CAPITAL IMPROVEMENTS

Thank you!

Christina De La Cruz, P.E.

Senior Engineer

TCI- Transportation and Planning Division

Traffic Plan Review Section

210-207-7732

Questions?