Appendix F Parking Study

Appendices

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PARKING ANALYSIS

FOR THE PROPOSED

DISTRICT BUS YARD & CNG FUELING STATION

1050 LESLIE STREET NORTH OF IMPERIAL HIGHWAY

LA HABRA

Prepared for

FULLERTON JOINT UNION HIGH SCHOOL DISTRICT
&
PLACEWORKS

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I. INTRODUCTION AND STUDY METHODOLOGY

This report summarizes the results of a parking analysis that was conducted for the proposed reconfiguration of the existing bus yard that is operated by the Fullerton Joint Union High School District. The project includes the addition of a compressed natural gas (CNG) fueling station that would be open to the public. The existing bus yard (proposed CNG fueling station) is located at 1050 Leslie Street, which is on the east side of Leslie Street north of Imperial Highway in La Habra.

The District's Maintenance and Operations (M&O) facility is located across the street from the bus yard at 1021 Leslie Street. The parking lots at the M&O site and the bus yard are used jointly by the two operations as most of the bus drivers park in the M&O lots and several of the M&O vehicles are parked in the bus yard lot. An aerial photograph showing the locations of the bus yard and the M&O site is provided on Figure 1.

As the CNG station would displace a portion of the existing bus yard, the reconfigured site would have fewer parking spaces than the existing facility. The objective of this analysis is to analyze the impacts of the reduced number of parking spaces at the bus yard and to determine if the overall parking demands can be accommodated in the M&O parking lots. The study approach was to quantify the number of existing parking spaces at each property, quantify the parking demands at each site, evaluate the impacts of the reduced parking supply at the bus yard, then determine if the overall parking demands can be accommodated at the two properties. Opportunities for providing additional parking spaces at the M&O site were also explored.

It should be noted that the number of vehicles associated with the bus yard and the M&O facility would not change as a result of the proposed CNG fueling station because the District's operation of these facilities would remain the same. The overall parking demand would, therefore, remain unchanged.

II. PARKING CONDITIONS AT BUS YARD

The paragraphs below characterize the existing and proposed parking conditions at the District bus yard on Leslie Street.

Existing Parking Inventory

The bus yard currently has a total of 80 parking spaces on the property. An inventory of the parking spaces is presented in Table 1. The layout of the bus yard is shown on the aerial photograph on Figure 1.

TABLE 1
EXISTING PARKING INVENTORY – BUS YARD

Type of Parking Space	Number of Parking Spaces
Long Spaces for Full-Size Buses	27
Long Spaces for M&O Vehicles	4
Spaces for Small Buses and/or Autos/Pick-up Trucks	49
TOTAL	80

Existing Parking Demand

The parking utilization at the bus yard is comprised of full-size buses, small buses, employee vehicles, and M&O vehicles. Based on observations and information provided by District personnel, the parking demand for each type of vehicle was determined, as summarized in Table 2. As shown, this yard accommodates 51 buses (combined number of full-size and small buses) and a total of 68 vehicles.

TABLE 2
EXISTING PARKING DEMAND – BUS YARD

Type of Vehicle	Number of Vehicles
Full-Size Buses	26
Small Buses	25
M&O Vehicles in Long Spaces	4
Autos/Pick-up Trucks in Small Spaces	13
TOTAL	68

Proposed Parking Supply

The proposed site plan for the District bus yard and public CNG fueling station indicates that there would be a reduction in the number of parking spaces at the bus yard because the CNG station would displace some of the existing parking spaces. Table 3 shows the number of parking spaces that would be provided at the proposed bus yard. The proposed site plan for the bus yard and CNG fueling station is shown on Figure 2.

The proposed project would result in a loss of 24 parking spaces at the bus yard (80 existing, 56 proposed). As the current parking demand is 68 vehicles, the 56 spaces that would be provided results in a shortage of 12 spaces at the bus yard. These 12 spaces are used by employees and M&O vehicles, which would be relocated to the M&O site located on the opposite side of Leslie Street. The 51 buses could all be parked at the bus yard and five extra spaces would be available for parking employee vehicles or District vehicles. One additional space is provided as a bus wash pad, but it is not included in the parking inventory.

TABLE 3
PROPOSED PARKING SUPPLY – BUS YARD

Type of Parking Space	Number of Parking Spaces
Long Spaces with CNG Fuel Post	39
Small Spaces with CNG Fuel Post	7
Small Spaces without CNG Fuel Post	10
TOTAL	56

III.
PARKING CONDITIONS AT MAINTENANCE & OPERATIONS Site

The paragraphs below characterize the existing and projected parking conditions at the District's Maintenance and Operations site on Leslie Street.

Existing Parking Inventory

The M&O site currently has a total of 96 on-site parking spaces. An inventory of the parking spaces is presented in Table 4 and the locations of these parking spaces are illustrated on Figure 3.

TABLE 4
EXISTING PARKING INVENTORY – M&O Site

Type of Parking Space	Number of Parking Spaces
Maintenance Vehicles (White Fleet)	35
Conventional Parking Spaces (Employees & Visitors)	61
TOTAL	96

Parking Demand

The parking utilization at the M&O site is comprised of maintenance vehicles (the white fleet), employee vehicles, and visitor vehicles. Based on observations at the facility, the existing parking demand for each category of vehicle was determined, as summarized in Table 5. As shown, the parking lots at the M&O site currently accommodate 90 vehicles on a typical day of operation. As there are 96 parking spaces on the property, the parking lots are nearly filled to capacity. Although many of the spaces designated for the white fleet are unoccupied for much of the day, they are reserved for the maintenance vehicles and are not used for employee or visitor parking.

TABLE 5
PARKING DEMAND – M&O Site

Type of Vehicle	Number of Vehicles	
	Existing	With Project
Maintenance Vehicles (White Fleet)	35	35
Employee & Visitor Vehicles	55	55
Vehicles Displaced from Bus Yard	0	12
TOTAL	90	102

As stated previously, the installation of the CNG fueling station would result in a reduction in the number of parking spaces at the bus yard and cause a parking shortage of 12 spaces. The plan for accommodating the unmet parking demand is to transfer these vehicles to the M&O parking lots. Table 5 indicates that the parking demand at the M&O site would increase to 102 vehicles with the implementation of the proposed project. As there are 96 parking spaces at the M&O site, there would be a deficiency of six spaces.

Opportunities for Providing Additional Parking Spaces

The M&O site was analyzed to develop options for providing additional parking spaces at the site. The layouts of the existing parking lots on the north, west, and south sides of the main building were found to be efficient and there are no practical opportunities for increasing the number of marked parking stalls other than reducing the size of the parking stalls or utilizing areas that are currently in use for storage (e.g., the northwest corner of the property at the west end of the white fleet parking spaces). There are, however, some opportunities to provide additional parking spaces on the east side of the site, as outlined below.

Unpaved Area at Northeast Corner of Property

The rectangular-shaped unpaved area at the northeast corner of the property could be paved and converted to parking. The area could be striped to provide five spaces along the north side (Option 1) or three spaces on the north side and two spaces on the east side of the area (Option 2), as shown on Figure 4. One existing space that is currently in use immediately south of the unpaved area would need to be eliminated to provide access to the new parking spaces, so there would be a net gain of four parking spaces.

Unpaved Area at Northeast Corner of Property with Driveway Closure

If the District would be agreeable to closing the north driveway that is located immediately south of the unpaved area, there would be an opportunity to provide five parking spaces along the east side of the property and three spaces along the north side of the property, as shown on Figure 5. These eight spaces would be a northerly continuation of the parking spaces that are currently in place along the east property line between the middle driveway and the north driveway. The M&O site currently has three driveways, so the elimination of this north driveway would be feasible if direct access from Leslie Street to the garage door is unnecessary. As the one existing parking space located immediately south of the unpaved area would need to be eliminated, there would be a net gain of seven parking spaces. Alternatively, the existing driveway could be closed and a new driveway constructed. This configuration would result in five parking spaces along the north side of the property and three spaces along the east side of the property at the location where the existing driveway would be close. As one existing parking space would be eliminated, there would be a net gain of seven parking spaces.

Circulation Aisle at Southeast Corner of M&O Building

A circulation aisle located at the southeast corner of the main M&O building immediately west of a landscaped area between the south driveway and the middle driveway could be striped to provide three new parking spaces, as also shown on Figure 5. It does not appear that this circulation aisle is necessary and it was observed that vehicles are often parked at this location even though it is not striped as parking stalls.

Both Ends of the White Fleet Lot

At the west end of the white fleet lot next to the fence along the west property line, three parking spaces could be provided in an area that is currently used for outside storage. Also, an additional

angled parking space could be provided at the east end of the row of spaces along the north property line. This option would result in four additional parking spaces in the M&O lot.

The opportunities for providing additional parking spaces at the M&O site are summarized in Table 6. The use of the unpaved area would result in an increase of four parking spaces (as shown in Figure 4). If the north driveway can be closed, the use of the unpaved area would result in an increase of seven parking spaces. The combined use of the unpaved area and the circulation aisle at the southeast corner of the M&O building would result in a net increase of seven parking spaces if the north driveway is not closed and 10 parking spaces if the north driveway is closed.

TABLE 6
OPPORTUNITIES FOR PROVIDING ADDITIONAL PARKING SPACES

Parking Options	Net Increase in Parking Spaces
Unpaved Area at Northeast Corner of Property	4
Unpaved Area at Northeast Corner of Property with Driveway Closure or Driveway Relocation	7
Circulation Aisle at Southeast Corner of M&O Building	3
Both Ends of the White Fleet Lot	4
Combined – Unpaved Area & Circulation Aisle	7
Combined – Unpaved Area with Driveway Closure or Relocation & Circulation Aisle	10
Combined – Unpaved Area with Driveway Closure or Relocation, Circulation Aisle & White Fleet Lot	14

Opportunities for Parking Buses at M&O Site

An opportunity that could potentially be pursued by the District would be to use the area on the north side of the M&O building (between the building and the property line) as a location to park buses that are not actively in use. The area could accommodate up to nine parked buses; i.e., three rows with three buses in each row (see Figure 6). The objective of this option would be to temporarily relocate spare buses from the bus yard to the M&O site and thereby provide up to nine large parking spaces in the bus yard that would be available for maintenance vehicles, employee vehicles, etc. This option would alleviate the loss of parking spaces at the bus yard that would occur as a result of installing the CNG station.

If the area on the north side of the M&O building were to be used for parking spare buses, the unpaved area at the northeast corner of the property would have to be paved to provide a travel path to Leslie Street and a new driveway would have to be provided at the east end of the currently-unpaved area. The opportunity to provide five standard parking spaces in the unpaved area would be compromised and 10 existing parking spaces that are used for the white fleet (maintenance vehicles) would be eliminated. To partially offset the loss of parking spaces associated with this option, the existing driveway located immediately south of the unpaved area could be closed and three marked parking stalls could be provided.

Operational Measures to Improve Parking Efficiency

In addition to the measures outlined above that could be used to provide additional parking spaces at the M&O site, there are several operational measures that could be used to improve the efficiency of the available parking supply, as outlined below.

Require/Encourage the White Fleet Drivers to Park Personal Vehicles in the White Fleet Spaces

This measure would require some or all of the white fleet drivers to park their personal vehicle in the parking stall where their assigned work vehicle is parked. The designated parking spaces where the white fleet vehicles are parked are generally empty during the day. This measure would provide the opportunity for the shared use of these parking spaces and thereby make other parking spaces available in the M&O lots. The disadvantage would be that the assigned parking spaces for the white fleet vehicles would not be readily available when the employees returned to the M&O site throughout the day and at the end of the day. During the times when an employee would have responsibilities at the M&O site, both the District vehicle and their personal vehicle would be parked in the lots and the shared parking concept would be negated as two spaces would be occupied. This would occur at the beginning of the day, the end of the day, and at any interim time periods when the employee had duties at the M&O site. In addition, the shared use of a parking space for a District vehicle and an employee's personal vehicle would be inconvenient for the employee and could result in vehicle conflicts in the parking lot if numerous employees were making the vehicle exchange simultaneously.

Require/Encourage the Bus Drivers to Park Personal Vehicles in the Bus Stalls

This measure would require some or all of the bus drivers to park their personal vehicle in the parking stall where their bus is parked. The designated parking stalls where the buses are parked are generally empty during the day. This measure would provide the opportunity for the shared use of these parking stalls and thereby make parking spaces available in the M&O lots. The disadvantage would be that the assigned parking stalls for the buses would not be readily available when the bus drivers returned to the bus yard at midday and at the end of the day. In addition, the shared use of a parking stall for a bus and an employee's personal vehicle would be inconvenient for the bus drivers and could result in vehicle conflicts in the bus parking lot if numerous bus drivers were making the vehicle exchange simultaneously.

Remove Some or All of the Unused White Fleet Vehicles

It was observed during the field reconnaissance for this study that there are several unused/inoperable white fleet vehicles that are occupying space in the M&O parking lot. In particular, vehicles of this type are being stored at the east end of the parking lot north of the main M&O building. The removal or relocation of these vehicles would render this area available for a more productive use.

IV.

SUMMARY OF PARKING ANALYSIS AND RECOMMENDATIONS

The results of the parking analysis are summarized in Table 7. The table shows the number of parking spaces and the parking demand (number of vehicles to be parked) at the bus yard, at the M&O site, and the total for the two facilities. This information is shown for existing conditions, for the scenario with the CNG station, and for the scenario with the CNG station and the proposed new parking spaces at the M&O site. In summary, there is an excess of 18 total parking spaces for the existing conditions scenario (176 spaces for 158 vehicles) for the two properties combined. For the scenario with the CNG station, there would be a deficiency of six parking spaces (152 spaces for 158 vehicles). If 14 new parking spaces are provided at the M&O site, as recommended, there would be enough spaces to accommodate the total combined parking demand of the two properties (159 spaces for 166 vehicles).

TABLE 7
SUMMARY OF PARKING ANALYSIS

Facility	Existing Conditions		With CNG Station		With CNG Station & New Parking at M&O	
	# of Spaces	# of Vehicles	# of Spaces	# of Vehicles	# of Spaces	# of Vehicles
Bus Yard	80	68	56	56	56	56
M&O Site	96	90	96	102	110	102
Total	176	158	152	158	160	158

Recommendations

Modify the parking lot at the M&O site by implementing the following features:

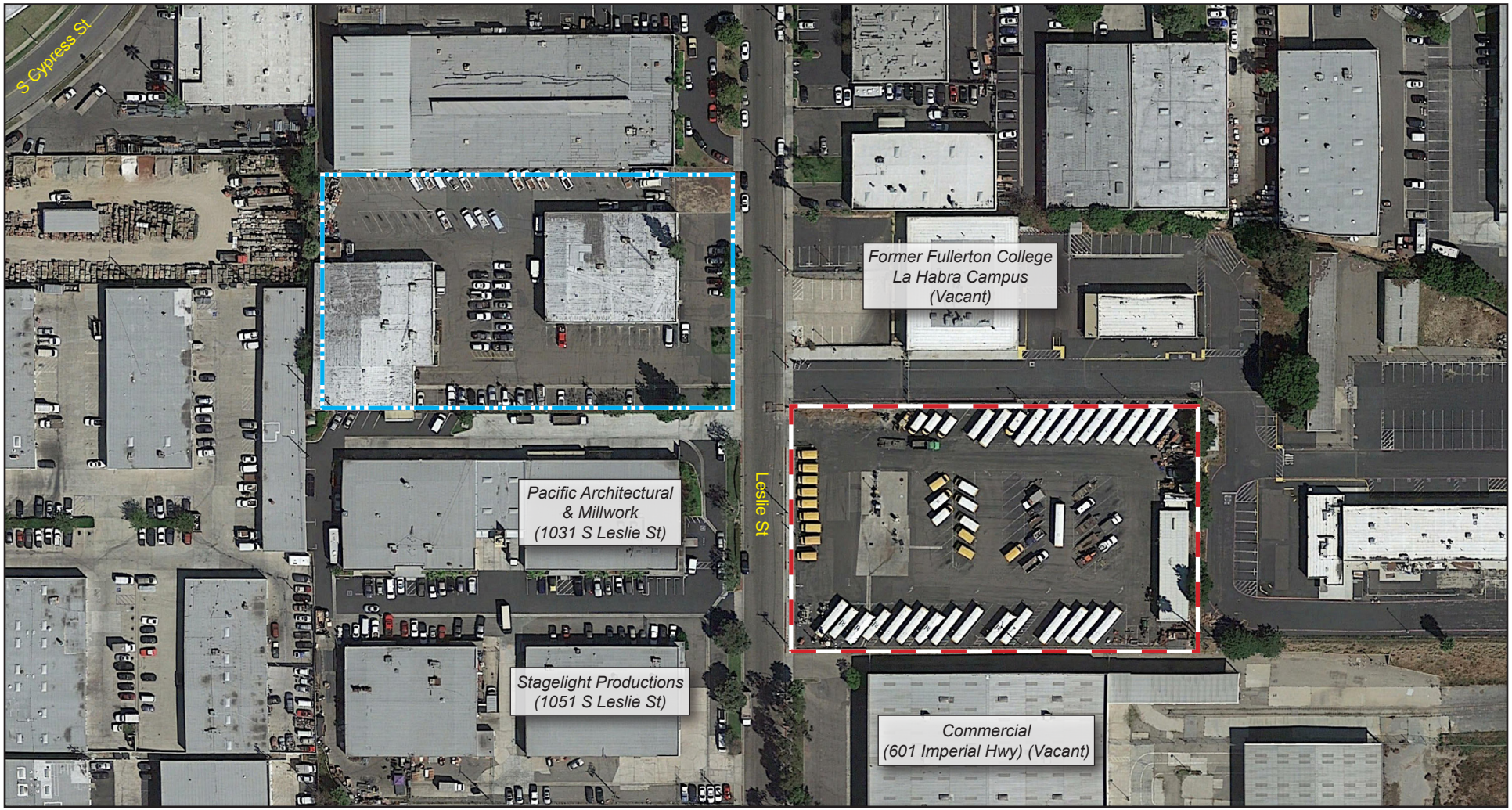
- Eliminate the north driveway and replace it with curb-and-gutter and a sidewalk.
- Construct a new driveway immediately north of the existing (to be closed) north driveway to align with the circulation aisle on the north side of the M&O building.
- Pave the currently-unpaved area at the northeast corner of the M&O site.
- Provide three parking spaces along the east side of the property at the closed driveway location and five parking spaces along the north side of the property in the new paved area.
- Provide three parking spaces in the circulation aisle located at the southeast corner of the main M&O building immediately west of the landscaped area between the south driveway and the middle driveway.
- Provide three parking spaces at the west end of the white fleet lot next to the fence along the west property line and provide an angled parking space at the east end of the row of spaces along the north property line.

The recommended parking plan is illustrated on Figure 7.

If it is not financially feasible to permanently eliminate the north driveway and replace it with curb-and-gutter and a sidewalk, the driveway could be temporarily closed by positioning cones and/or barricades along the property line. The proposed parking spaces could be provided with this interim condition if the unpaved area is paved as recommended.

If it is not financially feasible to pave the currently-unpaved area and close the north driveway, operational measures such as requiring/encouraging the white fleet drivers to park personal vehicles in the white fleet spaces and requiring/encouraging the bus drivers to park personal vehicles in the bus stalls should be considered.

Figure 1 - Aerial Photograph of Bus Yard and M&O Site



CNG Site

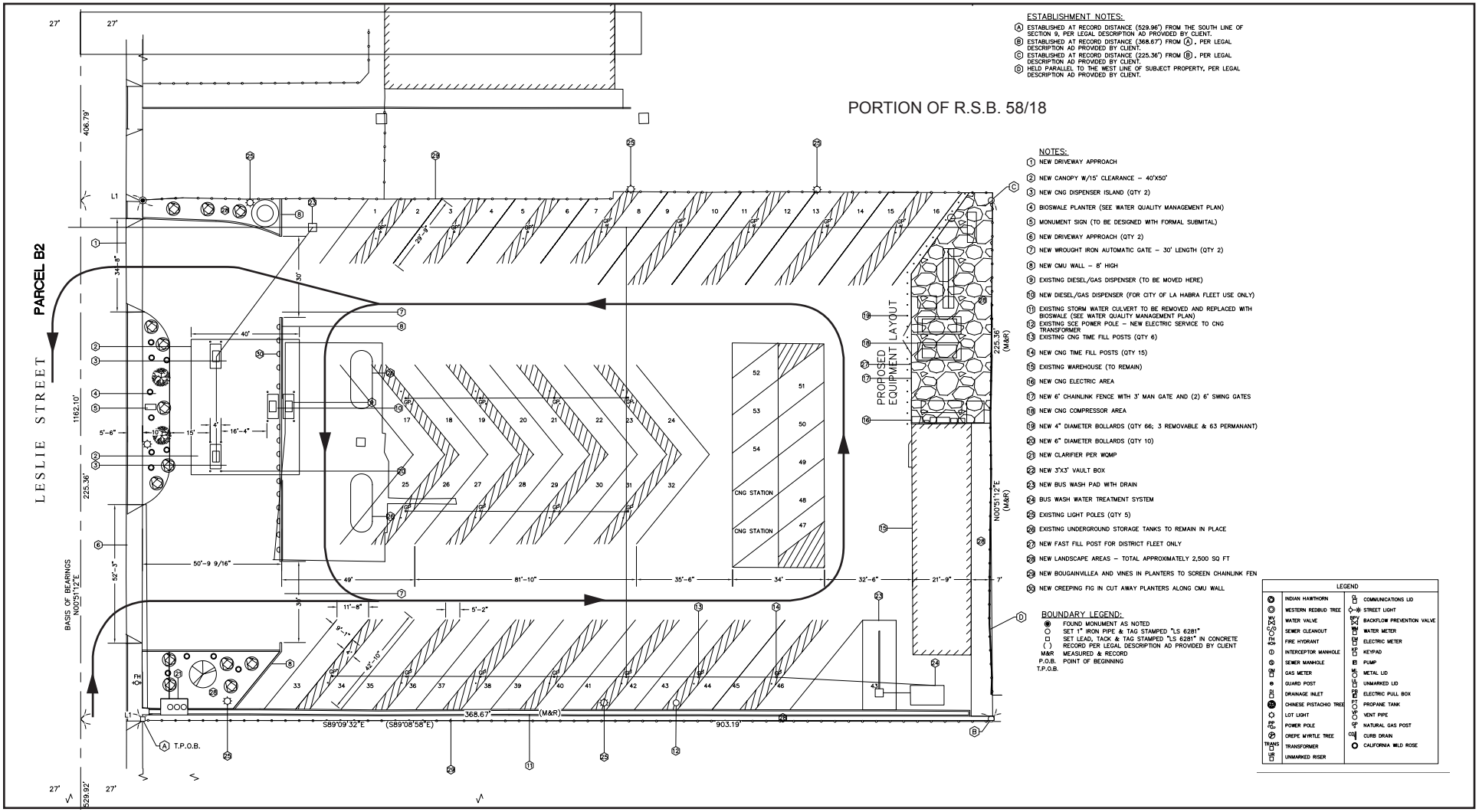
District M&O Site

0 150

Scale (Feet)

Base Map Source: Google Earth Pro, 2015

Figure 2 - Proposed Site Plan



Bus Path of Travel

0 80
Scale (Feet)

Base Map Source: Rosell Surveying and Mapping, Inc., 2016

Figure 3 - Existing Parking Spaces at M&O Site

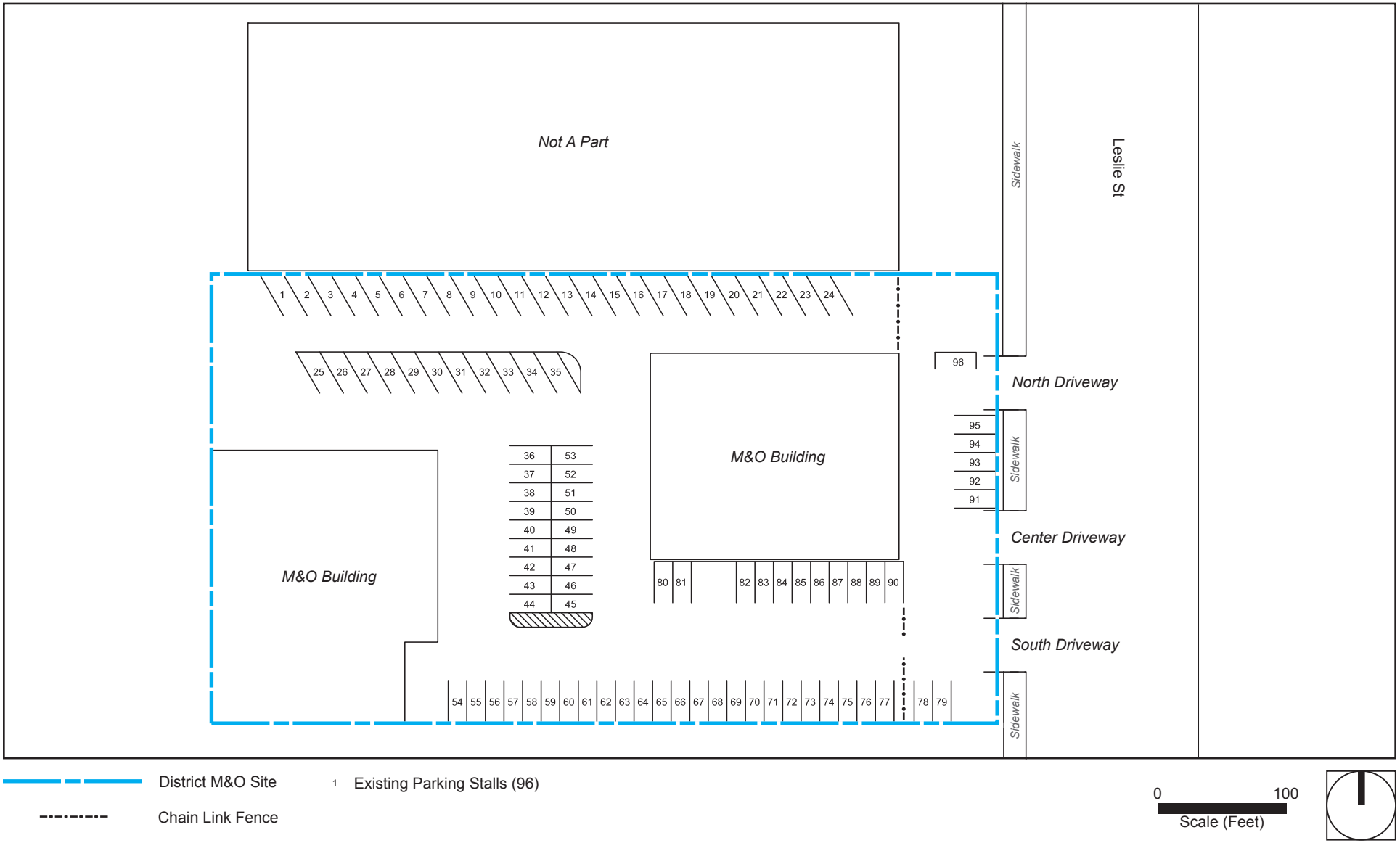


Figure 4 - Opportunity for Additional Parking Spaces - Unpaved Area Options

Option 1

Option 2

District M&O Site

Chain Link Fence

0 20
Scale (Feet)

Base Map Source: Google Maps, 2016

Figure 5 - Opportunity for Additional Parking Spaces - Driveway Closure Option and Circulation Aisle Option

Driveway Closure Option

Circulation Aisle Option

District M&O Site

Chain Link Fence

0 20
Scale (Feet)

Base Map Source: Google Maps, 2016

Figure 6 - Opportunity for Bus Parking at M&O Site

District M&O Site

0 20
Scale (Feet)

Base Map Source: Google Maps, 2016

Figure 7 - Recommended Parking Plan