

CU Anschutz Parking Lot Repairs

CU Anschutz Medical Campus
Aurora, Colorado

Martin/Martin, Inc. Project No.: 22.1635

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Prepared For: Mr. David Perkins
University of Colorado Denver | Anschutz Medical Campus
1945 Wheeling Street
Aurora, Colorado 80045

Prepared By: MARTIN/MARTIN, INC.
12499 WEST COLFAX AVENUE
LAKEWOOD, COLORADO 80215
303.431.6100

Principal-in-Charge: Bill Willis, PE
Project Manager: Brian Techau, PE
Project Engineer: Michael Duesterbeck, PE

MARTIN/MARTIN, INC.

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I. INTRODUCTION

A. Scope

Martin/Martin, Inc. [M/M] entered into an agreement with The University of Colorado Denver Anschutz Medical Campus [University] on December 1, 2022, to provide evaluation and improvement recommendations of seven parking lots on the Anschutz Medical Campus. These lots include Aspen, Purgatory, Breckenridge, Frisco, Evergreen, Durango, and Leadville. M/M issued a summary report dated March 24, 2023 that overviewed all seven parking lots. However, this revised report only includes the Evergreen, Leadville, and Purgatory parking lots. The existing lots show varying degrees of degradation from age and use. This report outlines the condition of each, recommended improvements to extend the service life based on observed conditions and University communicated priorities/budget, and the estimated costs for the suggested improvements. Technical specifications for the suggested improvements are not included within this report but are included in the separate bidding documents.

II. EXISTING CONDITIONS

M/M performed three site visits on November 22, 2022, November 23, 2022, and December 4, 2022 to observe the existing conditions of each parking lot. Copies of the field notes are included within this report as Exhibit A. Observations for each lot are outlined below and typical photos to demonstrate existing conditions (longitudinal cracking, alligator cracking, raveling, concrete pan/curb/gutter deterioration, settlement of previous patching, drainage issues, etc.) are included within this report as Exhibit B.

A. Evergreen Lot **Base Bid**

This lot has some large longitudinal cracking throughout that is greater than 1" in width. For these areas, it is recommended to remove/replace the asphalt to full depth and fix any subgrade issues that may have contributed to the large cracking. For smaller cracks than 1" in width, a hot applied joint sealant is recommended. There are also some areas of large alligator cracking present that are recommended to be removed/replaced to address the apparent poor subgrade conditions. Also, a concrete vault area in the middle of the lot was observed to be deteriorated and is recommended for the top section to be removed/replaced. Lastly, there were some areas of poor drainage observed on the south side of the lot. To address these, it would first be recommended to explore further with a topographic survey to better understand the elevations and drainage patterns of the lot.

B. Leadville Lot **Bid Alternate**

This lot has some large longitudinal cracking throughout that is greater than 1" in width. For these areas, it is recommended to remove/replace the asphalt to full depth and fix any subgrade issues that may have contributed to the large cracking. For smaller cracks than 1" in width, a hot applied joint sealant is recommended. There are also some areas of large alligator cracking and raveling present that are recommended to be removed/replaced to address the apparent poor subgrade



conditions. Lastly, a few concrete areas throughout the lot were observed to be deteriorated and are recommended to be removed/replaced (gutter pan and curb/gutter).

C. Purgatory Lot **Base Bid**

This lot has significant large longitudinal cracking throughout that is greater than 1" in width. For these areas, it is recommended to remove/replace the asphalt to full depth and fix any subgrade issues that may have contributed to the large cracking. For smaller cracks than 1" in width, a hot applied joint sealant is recommended. Previous areas have been patched in the lot and appear to still be in good condition, with a joint sealant recommended around the patched areas. There are also some areas of large alligator cracking present that are recommended to be removed/replaced to address the apparent poor subgrade conditions.

III. RECOMMENDED IMPROVEMENTS

Following site visits to observe the existing conditions and consultation with the University to realize their campus priorities and available budget, M/M has created a set of recommended improvements to extend the service life of each lot. Those improvements include asphalt crack sealing, asphalt slurry seal, asphalt full-depth removal/replacement, asphalt milling/overlay, and pavement markings. Previously, repairs to existing concrete infrastructure (drainage pan, curb, gutter) were recommended but the University wishes to evaluate those repairs on an as needed basis and within the budget allowed with the awarded contractor. Further details of each recommended improvement are included below. In addition, a summary of estimated quantities and a layout depicting each improvement location are included as Exhibit C.

A. Asphalt Crack Sealing

Asphalt crack sealing is intended for areas where the cracking is less than 1-inch wide and is to be measured per lineal foot. The cracks would be cleaned out with compressed air and a hot-applied joint sealant would fill in the crack to be flush with the surface of the existing pavement. These locations are to be outside of the limits that are to be repaired under the Asphalt Full-Depth Repair item or Asphalt Mill/Overlay items.

B. Asphalt Slurry Seal

Asphalt slurry seal is intended to be applied to the asphalt surface of an entire lot following all other improvements (crack sealing, asphalt remove/replace, etc.) and is to be measured per square foot.

C. Asphalt Full-Depth Repair (Remove/Replace)

Asphalt full-depth remove/replace repair is intended for cracking larger than 1-inch wide and areas of poor subsurface condition (as realized by asphalt alligator cracking) and is to be measured per square foot as indicated on the plan sheets. Each area is to be sawcut to a vertical line and a tack coat applied prior to asphalt placement. Each area is to be excavated to sound base course material, allowing for import of material (Class 6 Aggregate Base) if necessary, and compacted to



provide a solid subgrade base for asphalt. Asphalt to be placed and compacted while still hot to match the surrounding adjacent surface grades and elevations.

D. Asphalt Milling

To be included as a bid alternate for the Evergreen and Leadville Lots, asphalt milling/overlay is intended for the entire surface of each lot, measured by the square foot. The entire surface would be milled to a depth of 2" and to a surface free of gouges, grooves, and ridges. This would include disposal of milled asphaltic material from the project site and the surface would be cleaned to be free of loose material and dust prior to the asphalt overlay.

E. Asphalt Concrete Pavement, 2" Overlay

To be included as a bid alternate for the Evergreen and Leadville Lots, asphalt milling/overlay is intended for the entire surface of each lot, measured by the square foot. New asphalt concrete pavement is to be placed in all areas where the existing surface was milled. The final surface shall match the lines, grades, and elevations prior to milling. The final surface shall also maintain all existing drainage. A tack coat is to be applied between the milled surface and the new pavement, and testing/compaction of the asphalt mix to be included under this item.

F. Concrete Drainage Pan, Curb, and/or Gutter (Remove/Replace)

Concrete remove/replace is intended for areas where the existing concrete surface (vault lid, gutter pan, curb/gutter) has deteriorated and is to be measured by the square foot. This item includes removal of the old concrete. Each area is to be sawcut to a vertical line and be excavated to sound base course material, allowing for import of material (Class 6 Aggregate Base) if necessary, and compacted to provide a solid subgrade base for concrete. Reinforcing steel and joint sealants are also be included under this item. The final surface, lines, grades, elevations and horizontal placement prior to construction must be surveyed and existing drainage patterns maintained. As mentioned above, the shown areas are to be suggested, but each location will have to be evaluated on as needed basis depending upon the budget allowable to the awarded contractor for the rest of the improvements.

G. Pavement Markings (High Build Acrylic)

Pavement markings are to be reapplied once all other improvements have been made to each lot and are to be measured as a lump sum item. The markings shall be in the same location as the existing markings prior to the improvements.

H. Project Phasing

As previously mentioned, M/M issued a report dated March 24, 2023 that outlined recommended improvements for Phases I & II. This revised report only includes Phase II improvements, which encompasses the Evergreen, Leadville, and Purgatory Lots. Improvements under Phase I are currently being constructed as of the date of this revised report.



1. Phase II – Exhibit C

- Evergreen Lot: Asphalt Full-Depth Repair (Remove/Replace) of the recommended areas and intermediate crack sealing, followed by Asphalt Slurry Seal of the entire lot with new pavement markings.
- Leadville Lot (Bid Alternate): Asphalt Full-Depth Repair (Remove/Replace) of the recommended areas and intermediate crack sealing, followed by Asphalt Slurry Seal of the entire lot with new pavement markings. Improvements for this lot are desired to be included as a bid alternate.
- Purgatory Lot: Asphalt Full-Depth Repair (Remove/Replace) of the recommended areas, followed by Asphalt Milling/2" Overlay of the entire lot with new pavement markings.
- As a bid alternate, it is also desired to include Asphalt Milling/2" Overlay of the Evergreen and Leadville Lots

IV. ENGINEER'S OPINION OF ESTIMATED COST

Following identification of recommended improvements and consultation with the University, M/M has created an estimated cost for each of the phases mentioned in Section III above. A breakout of these estimated costs are included as Exhibit D. Any opinions of probable Project costs or construction costs rendered by M/M represent its reasonable professional engineering opinion and are furnished for general guidance. M/M makes no representation, warranty, or guarantee, either expressed or implied, as to the accuracy of such opinions as compared to bid or actual costs.

EXHIBIT A – EXISTING CONDITONS (FIELD NOTES)

Evergreen Lot

12,090 SY

SEAL
Pavement
Along curb

Left side
of road
x 100 ft



100 ft

Leadville Lot
11,030 SY

CRACK SEAL FOLLOWS
CRACKS IN DRAWING

FOR TRAVELLED
AREAS MAY
NEED TO CORE
OR VERIFY DEPTH
FOR M+D
VS FULL DEPTH

REPAIR
CONE
CHIP

2 1/2' CONE
10' DEEP

4' WIDTH

Repair
Surface
Patch
or
MOD

2 1/2' CONE
11' DEEP

2 1/2' CONE
11' DEEP

SEAL
SURFACE
OF
POT
PATCH

TRIMMED DRAIN
FOR GRAVITY FLOW

REPAIR
POT
PATCH

Purgatory Lot
4,690 SY

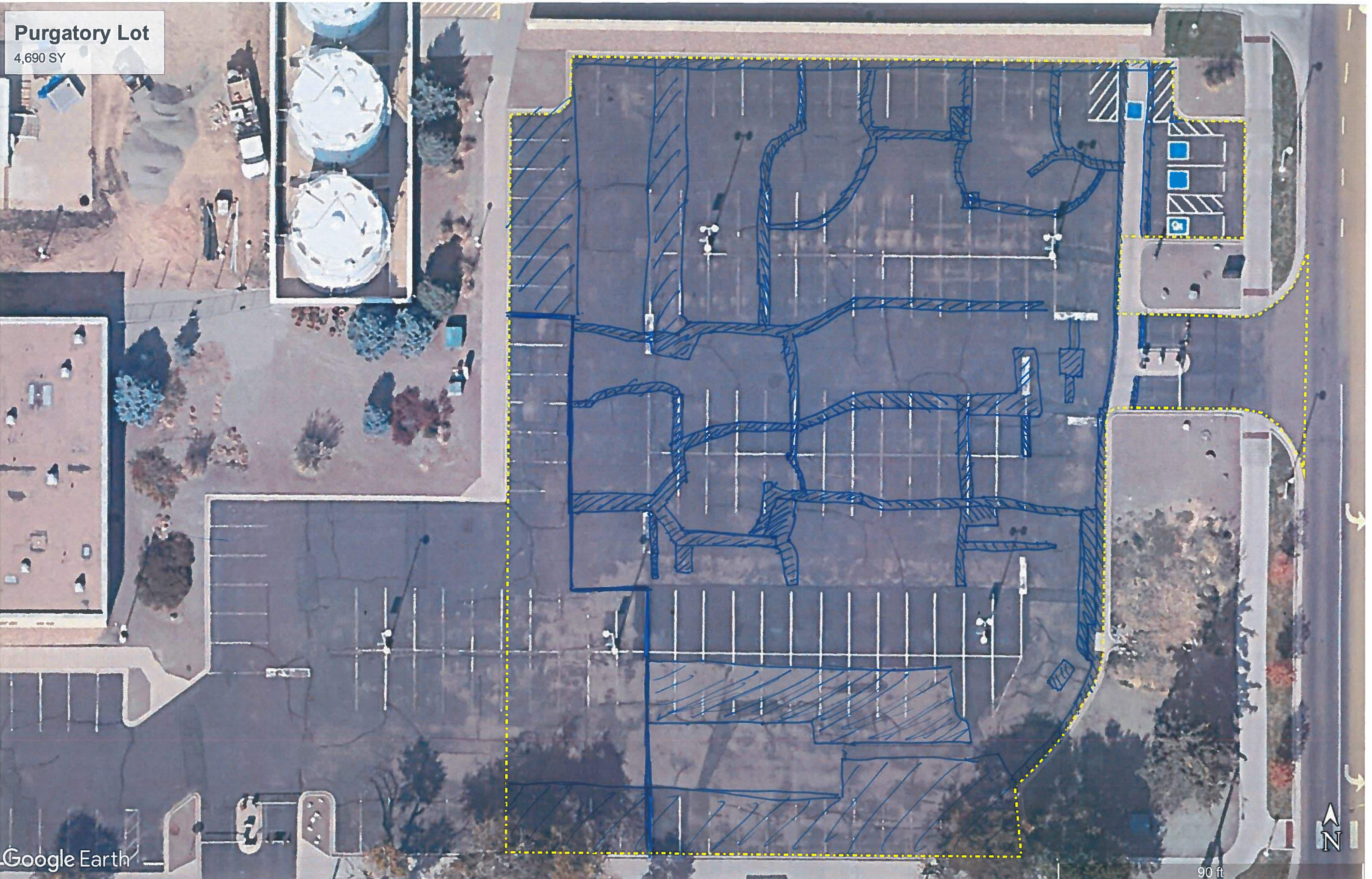
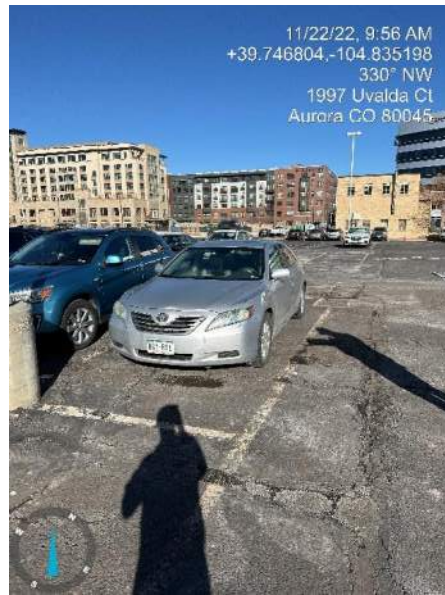
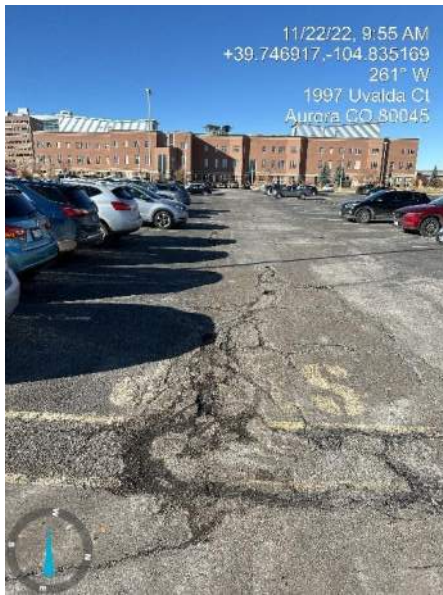
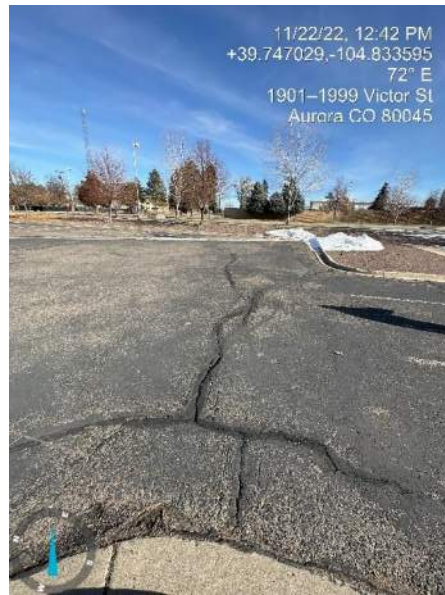


EXHIBIT B – TYPICAL PHOTOS OF EXISTING CONDITIONS

EVERGREEN LOT



LEADVILLE LOT



PURGATORY LOT

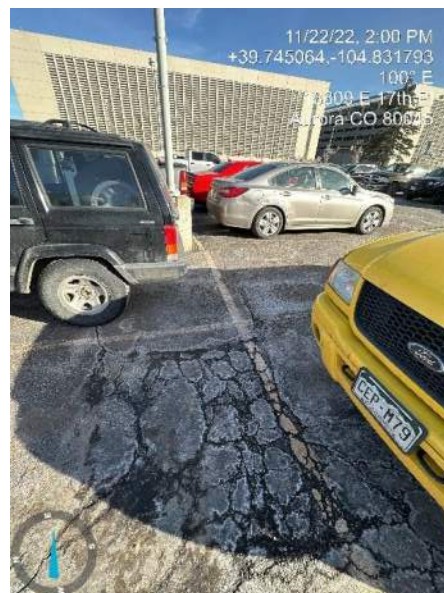
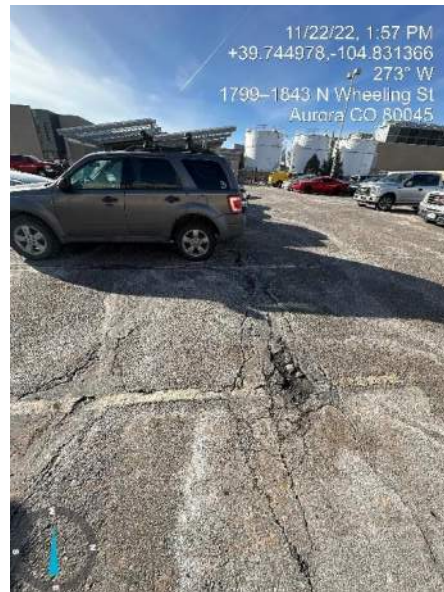
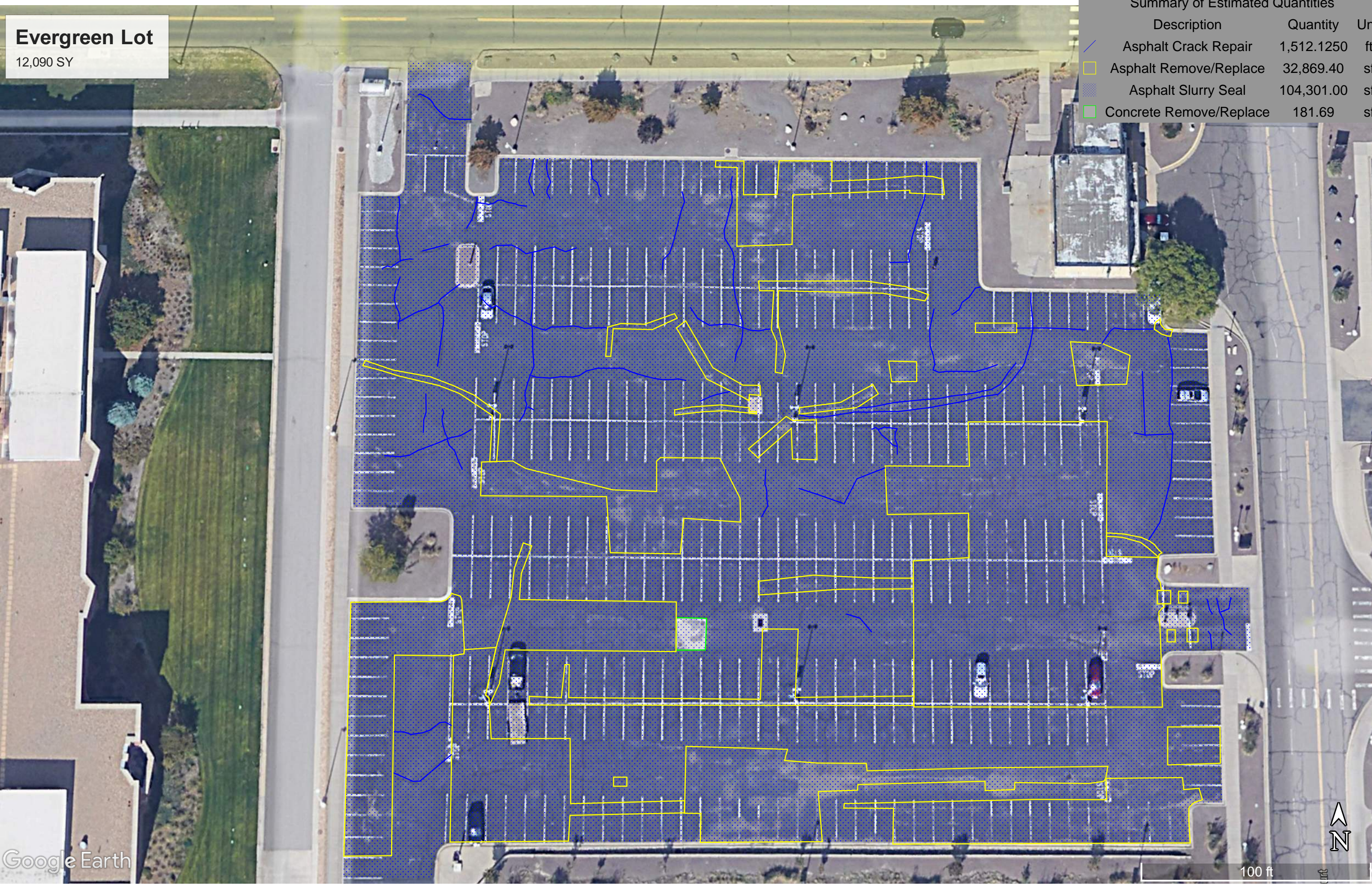








EXHIBIT C – SUGGESTED IMPROVEMENTS FOR PHASE II

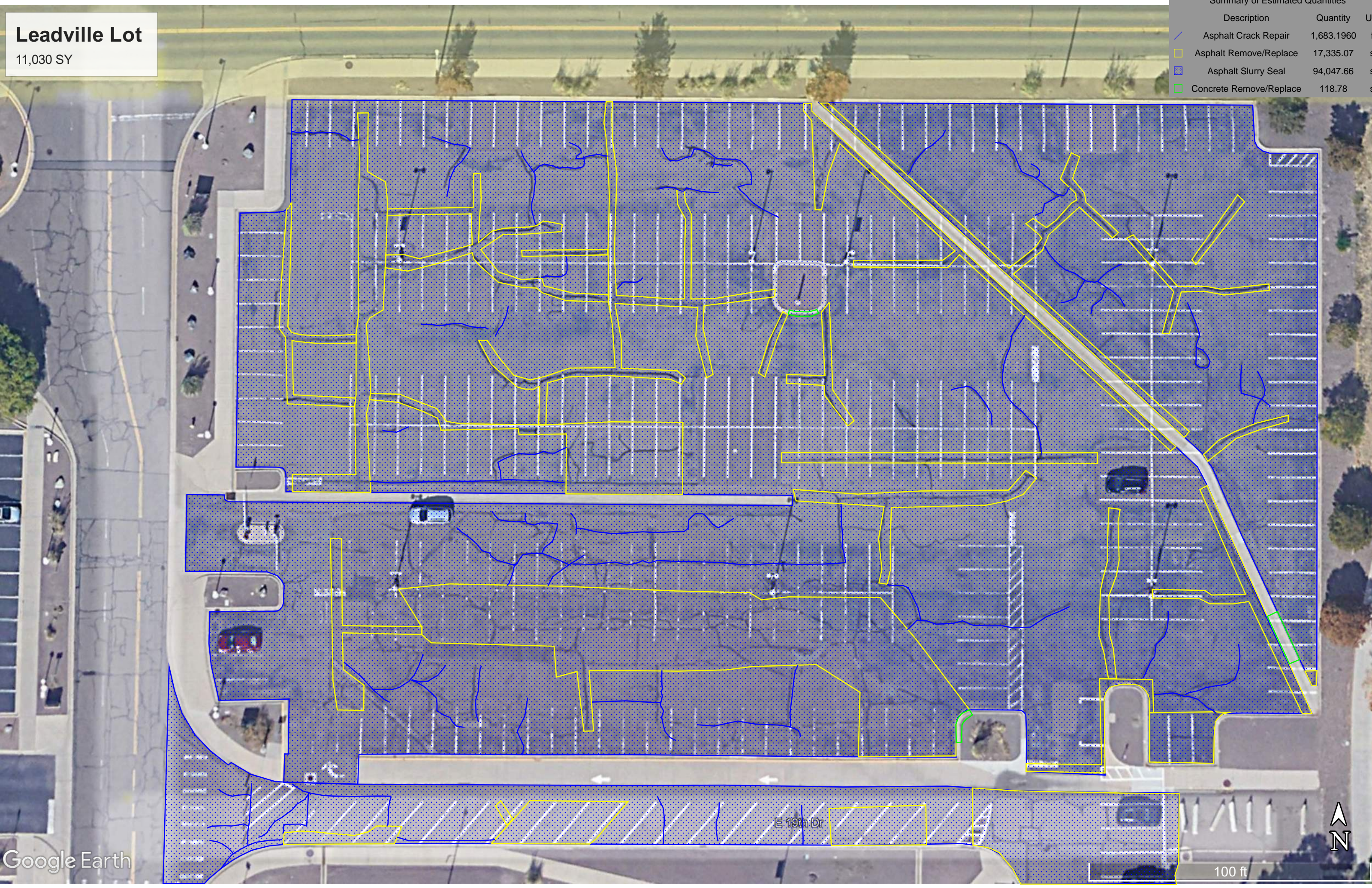
	SUMMARY OF ESTIMATED QUANTITIES				
	Asphalt Crack Repair [LF]	Asphalt Full-Depth Remove/ Replace [SF]	Asphalt Slurry Seal [SF]	Asphalt Milling/ 2" Overlay [SF]	Pavement Markings (High Build Acrylic) [LS]
Evergreen Lot	1,512	32,869	104,301	0	1
Leadville Lot (Bid Alternate)	1,683	17,335	94,048	0	1
Purgatory Lot	0	10,740	0	43,147	1
Totals	3,195	60,944	198,349	43,147	



Evergreen Lot
12,090 SY

Summary of Estimated Quantities			
	Description	Quantity	Unit
	Asphalt Crack Repair	1,512.1250	ft
	Asphalt Remove/Replace	32,869.40	sf
	Asphalt Slurry Seal	104,301.00	sf
	Concrete Remove/Replace	181.69	sf





Leadville Lot
11,030 SY

Summary of Estimated Quantities			
	Description	Quantity	Unit
✓	Asphalt Crack Repair	1,683.1960	ft
□	Asphalt Remove/Replace	17,335.07	sf
▣	Asphalt Slurry Seal	94,047.66	sf
□	Concrete Remove/Replace	118.78	sf

E 19th Dr



100 ft



Purgatory Lot
4,690 SY

Summary of Estimated Quantities		
Description	Quantity	Unit
Asphalt Mill/Overlay	43,146.82	sf
Asphalt Remove/Replace		sf



EXHIBIT D – ENGINEER’S OPINION OF ESTIMATED COSTS FOR PHASE II



ENGINEER'S OPINION OF PROBABLE COST

Project: CU Anschutz Parking Lot Repairs

Location: Aurora, Colorado

Client: CU Anschutz Medical Campus

Scope of Work: Parking Lot Improvements - Phase II

Date: 3/24/2023

Project No.: 23.1635

Prepared By: MD

Checked By: BT

Note: Any opinions of price, probable project costs or construction costs rendered by MARTIN/MARTIN represent its best judgment and are furnished for general guidance. MARTIN/MARTIN makes no warranty of guarantee, either expressed or implied as to the accuracy of such opinions as compared to bid or actual cost.

Item No.	Item Description	Units	Quantity	Unit Price	Item Cost
Evergreen Lot Base Bid					
1	Asphalt Crack Repair	LF	1,512	\$ 1.40	\$ 2,100.00
2	Asphalt Full-Depth Remove/Replace	SF	32,869	\$ 6.70	\$ 220,200.00
3	Asphalt Slurry Seal	SF	104,301	\$ 0.25	\$ 26,100.00
4	Pavement Markings (High Build Acrylic)	LS	1	\$ 8,200.00	\$ 8,200.00
Subtotal:					\$ 256,600.00
20% Contingencies:					\$ 51,320.00
Total Cost:					\$ 307,920.00
Leadville Lot Bid Alternate					
1	Asphalt Crack Repair	LF	1,683	\$ 1.40	\$ 2,400.00
2	Asphalt Full-Depth Remove/Replace	SF	17,335	\$ 6.70	\$ 116,100.00
3	Asphalt Slurry Seal	SF	94,048	\$ 0.25	\$ 23,500.00
4	Pavement Markings (High Build Acrylic)	LS	1	\$ 7,300.00	\$ 7,300.00
Subtotal:					\$ 149,300.00
20% Contingencies:					\$ 29,860.00
Total Cost:					\$ 179,160.00
Purgatory Lot Base Bid					
1	Asphalt Milling / 2" Overlay (Entire Lot)	SF	43,147	\$ 2.70	\$ 116,500.00
2	Asphalt Full-Depth Remove/Replace	SF	10,740	\$ 6.70	\$ 72,000.00
4	Pavement Markings (High Build Acrylic)	LS	1	\$ 3,400.00	\$ 3,400.00
Subtotal:					\$ 191,900.00
20% Contingencies:					\$ 38,380.00
Total Cost:					\$ 230,280.00
Remarks:	1. All work is contingent on the availability of construction water, access to the work, negotiation of acceptable contract terms, a mutually agreeable schedule, and verification of financing.				
	2. Martin/Martin, inc. makes no warranty or guarantee, either expressed or implied, as to the accuracy of the earthwork quantities shown. an earthwork contractor should be contracted by the owner to perform a contractual earthwork analysis and budget after all the design and construction issues have been realized.				
	3. Costs do not include general conditions, surveying, utility locating, insurance, bonding, etc.				
	Cost of Subtotals: \$ 597,800.00				
Total					
20% Contingencies:					\$ 119,560.00
Subtotal:					\$ 717,360.00
Total Cost:					\$ 717,360.00

The opinions of probable construction costs provided herein are made on the basis of Martin/Martin, Inc.'s qualifications. Martin/Martin, Inc. has no control over the costs or availability of labor, materials, equipment, the Contractor's methods of determining prices, or over competitive bidding or market conditions. These preliminary opinions represent Martin/Martin, Inc.'s best judgment as a design professional familiar with the construction industry and makes no warranty, express or implied, that proposals,