

**WWE**  
**MEMORANDUM**

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**To:** Holly Piza, P.E., CFM, Brik Zivkovich, P.E, CFM  
Mile High Flood District

**Via Email:** [hpiza@mhfd.org](mailto:hpiza@mhfd.org) and [bzivkovich@mhfd.org](mailto:bzivkovich@mhfd.org)

**From:** Wright Water Engineers, Inc.  
Andrew Earles, Ph.D., P.E., P.H., D.WRE  
Victoria Hennon, E.I.T

**Date:** October 16, 2023

**Re:** Analysis and Recommendations for Updated Land Use-based Percent Impervious Values

## 1.0 Introduction

Wright Water Engineers, Inc. (WWE) has prepared this memorandum to document our analysis and recommendations for updating land-use percent impervious values for the Mile High Flood District (MHFD) and the City of Aurora (COA). The recommended values would replace the values published in the current versions of the MHFD Urban Storm Drainage Criteria Manual (USDCM) Runoff Chapter (see Table 1) and the COA Storm Drainage Manual Hydrology Chapter.

## 2.0 Background

Land-use percent impervious values are used in stormwater master planning to predict current and future runoff and design stormwater infrastructure. Most of the current percent impervious values were developed several decades ago. However, development patterns are changing to generally include higher-density development. For example, single-family homes are becoming larger and lot sizes are becoming smaller. These patterns suggest that current percent impervious values may underestimate the actual imperviousness of recent and future development.

Additionally, some municipalities are considering “turf ordinances” to limit the amount of irrigated turfgrass that can be installed on new lots. For example, the COA’s new turf ordinance states that the installation of cool-season turf (such as Kentucky bluegrass) should not exceed the lesser of 45% of the backyard area or 500 square feet (Sec. 138-191 of City Code). In lieu of turfgrass, developers and/or homeowners would be required to use “water-wise landscapes” planted in areas of mulch, pea gravel, etc.

Finally, the current impervious values for single-family residential land use only represents the lots and does not consider the imperviousness of roadways. The layout of roadways is generally not available at the master planning level; therefore, use of the current values may underestimate overall imperviousness of such developments.

The overall objective of this work was to compute “updated” percent impervious values for several different land uses considering the circumstances described above. Recommendations are made where updated values vary significantly from current values.

**Table 1. Current Published Recommended Percentage Impervious Values  
(Table 6-3 in Runoff Chapter of Urban Storm Drainage Criteria Manual (USDCM)  
Volume 1)**

Land Use	Percentage Imperviousness (%)
<b>Business:</b>	
Downtown Areas	95
Suburban Areas	75
<b>Residential Lots (lot area only):</b>	
Single-family	
2.5 acres or larger	12
0.75 - 2.5 acres	20
0.25 - 0.75 acres	30
0.25 acres or less	45
Apartments	75
<b>Industrial:</b>	
Light areas	80
Heavy Areas	90
<b>Parks, cemeteries</b>	10
<b>Playgrounds</b>	25
<b>Schools</b>	55
<b>Railroad yard areas</b>	50
<b>Undeveloped Areas:</b>	
Historic flow analysis	2
Greenbelts, agricultural	2
Off-site flow analysis	45

### 3.0 Methodology

This work was conducted using geospatial analysis and Excel spreadsheet calculations at two different scales. First, a "lot-scale" analysis was performed to determine the impacts of the COA turf ordinance on residential, lot-scale percent impervious values. Second, a “zoning-scale” analysis was performed to estimate percent impervious values for multiple different land uses. All analysis was performed within the COA limits. Detailed descriptions of the methods are provided below.

### **3.1 Geospatial Data**

WWE obtained parcel, zoning and planimetric shapefile data from the City of Aurora (CoA) GIS Open Data portal (<https://data-auroraco.opendata.arcgis.com/>). The planimetric data are polygons and polylines outlining rooftops, edge of pavement, paved parking, driveways and sidewalks. These datasets were developed by the Denver Regional Council of Governments (DRCOG) using high-resolution Denver Regional Aerial Photography Project imagery to manually draw each detailed feature, and are regularly updated as features are built, modified and replaced. The planimetric data are critical to this project as it identifies most impervious surfaces found in the urban environment.

The planimetric data were last updated on November 18<sup>th</sup>, 2022, in the CoA GIS Open Data portal. The zoning layer was last updated on February 17<sup>th</sup>, 2023 and the parcel layer was last updated on June 14<sup>th</sup>, 2023.

### **3.2 Calculation of Single-Family Residential (Lot Scale) Percent Impervious Values with Turf Ordinance**

To understand the impacts of the COA turf ordinance, percent impervious values were calculated for 323 individual single-family, residential parcels. 199 of those parcels were classified as low-density (R-1 zoning) single-family homes (SFH) and 124 were classified as medium-density (R-2 zoning) SFH.

For each parcel, the planimetric data were used to compute the areas covered by the rooftop, driveway and sidewalk. The remaining area was assumed to be landscaped areas. Figure 1 shows an example of several residential parcels used for this analysis with the planimetric land cover polygons overlaid. This figure shows that the planimetric polygons are not perfect and seem to miss some impervious surfaces such as patios, however we did not attempt to adjust the polygons.

An area-weighted percent impervious value was calculated in Excel for each parcel under two different conditions: 1) without the turf ordinance and 2) with the turf ordinance. For both calculations, rooftops, driveways and sidewalks were assumed to be 95% impervious. Without the turf ordinance, the landscaped areas were assumed to be turfgrass with an impervious value of 5% (current criteria for turf areas). With the turf ordinance, the landscaped area was further divided into turfgrass (500 square feet) and “water-wise landscape” areas, with a 20% impervious value.

The Excel spreadsheet calculations can be found in Attachment A (“GIS Analysis Impervious Area Calculations.xlsx”).



**Figure 1: Example of R-1 Lot-Scale Selection (Indicated by Red Boundary) with Planimetric Data**

### 3.3 Calculation of Zoning-Level Imperviousness

Zoning-level analysis was conducted to estimate percent impervious values for multiple different land uses. A complete list of COA zone districts that were analyzed are included in Table 2.

**Table 2: Land Uses and Corresponding Zoning and Closest MHFD Designation**

Land Use	Corresponding Zoning	Density	Closest MHFD Designation
<b>Residential (Roads Included)</b>			
Rural SFH	R-R	0-3 du/acre	SF, 0.75-2.5 Acres
Low-Density SFH	R-1, PD	3 du/acre	SF, 0.25-0.75 Acres
Medium-Density SFH	R-2	5 du/acre	SF, 0.25 Acres or Less
Mobile Homes	R-MH	Manufactured: 10 du/ac; cohousing/cottage: 12 du/ac; tiny houses: 15 du/ac	SF, 0.25 Acres or Less
Medium-Density MFH	R-3	5-20 du/acre	Apartments
High-Density MFH	R-4, MU-TOD	Core: 60 du/ac, min.; Edge: 20 du/ac, min.	Apartments
<b>Commercial</b>			
Low-Density Commercial	MU-N	N/A	Suburban Areas
Medium- to High-Density Commercial	MU-R, MU-FS, MU-C	N/A	Suburban Areas
Urban Core Commercial	OA-G, OA-MS	N/A	Urban Areas
<b>Industrial/Institutional</b>			
Schools	MU-OI, Typ	N/A	Schools
Office/Institutional	MU-OI (non-school)	N/A	Industrial, Light Areas
Industrial, Light Area	I-1	N/A	Industrial, Light Areas
Industrial, Heavy Areas	I-2	N/A	Industrial, Heavy Areas
<b>Parks and Open Space</b>			
Open Space, other Parks uses and Trails	POS	N/A	Parks, Cemeteries
Community Parks	POS	N/A	Playgrounds
Neighborhood Parks	POS	N/A	Parks, Cemeteries
Golf Courses	POS	N/A	Parks, Cemeteries
Cemeteries	POS	N/A	Parks, Cemeteries

For each land use classification, a number of areas were selected for analysis (see Table 3). Figures in Attachment B present the spatial distribution of areas selected across the City of Aurora for each type of land use (residential, commercial, industrial, and parks).

**Table 3: Land Uses and Number of Areas Evaluated**

Land Use	Corresponding Zoning	Number of areas evaluated
<b>Residential (Roads Included)</b>		
Rural SFH	R-R	7
Low-Density SFH	R-1, PD	16
Medium-Density SFH	R-2	6
Mobile Homes	R-MH	10
Medium-Density MFH	R-3	15
High-Density MFH	R-4, MU-TOD	21
<b>Commercial</b>		
Low-Density Commercial	MU-N	9
Medium- to High-Density Commercial	MU-R, MU-FS, MU-C	33
Urban Core Commercial	OA-G, OA-MS	27
<b>Industrial/Institutional</b>		
Schools	MU-OI, Typ	6
Office/Institutional	MU-OI (non-school)	5
Industrial, Light Area	I-1	17
Industrial, Heavy Areas	I-2	6
<b>Parks and Open Space</b>		
Open Space, other Parks uses and Trails	POS	6
Community Parks	POS	5
Neighborhood Parks	POS	6
Golf Courses	POS	6
Cemeteries	POS	2

For each area, the planimetric data were used to compute the areas covered by the following surfaces: 1) rooftops, 2) paved roadways, 3) unpaved roadways, 4) paved parking, 5) mixed paved parking, 6) driveways and 7) sidewalks. The remaining area was assumed to be landscaped areas.

Attachment C includes several example maps showing how the planimetric data overlays with different land uses, including low-density single-family homes and light industrial areas.

Area-weighted percent impervious values were then calculated in Excel using the percent impervious values shown in Table 4. All landscaped areas within “Parks and Open Space” areas were assumed to be native grass/undeveloped conditions, while landscaped areas in all other land use categories used the “landscaping” value.

The Excel spreadsheet calculations can be found in Attachment A (“GIS Analysis Impervious Area Calculations.xlsx”).

**Table 4: Percent Imperviousness of Land Covers Used for Determining Land Use-based Imperviousness**

<i>Imperviousness (%)</i>								
Roof Footprint	Paved Road	Unpaved Road	Paved Parking	Mixed Paved Parking	Driveway	Sidewalk	Landscaping	Native Grass/Undeveloped
95	95	80'	95	60*	95	95	20^	5
^Unpaved road indicates either a dirt or gravel compacted roadway. *Mixed paved parking is made up of both landscaped areas and paved sidewalks within parking lots, as well as large artificial turf sport fields. The impervious value suggests an average between both land types. ^Landscaping category encompasses water wise landscaping (shrubs, perennials, and warm-weather grasses), lawns, active turf, and uncompacted gravel for landscaping. See the land cover impervious memorandum for more information.								

## 4.0 Results, Discussion and Recommendations

### 4.1 Single-Family Residential (Lot Scale) Percent Impervious Values with Turf Ordinance

The results of the SFH imperviousness evaluation are presented in Table 5 below. At the lot scale, the average percent impervious without the COA turf ordinance was measured as 33% for R-1 zoning (3 dwellings per acre) and 35% for R-2 zoning (5 dwellings per acre). These values assume that all landscape areas are turfgrass with 5% imperviousness (current criteria for turf areas). As noted above, the planimetric data did not capture all impervious areas that were apparent on aerial imagery, therefore these values may be slightly underestimated.

With the COA turf ordinance, the lot-scale percent impervious values increase to 43% and 45% for R-1 and R-2 zoning, respectively. This is the direct result of the landscape areas being limited to 500 square feet of turfgrass (assuming 20% impervious for managed turf with disturbed soil) and the remaining being “water-wise landscaping” with an assumed imperviousness of 20%.

**Table 5: Measured Imperviousness Results for SFH at the Lot Scale and Zoning Scale**

Land Use	Corresponding Zoning	Published Imperviousness	Measured Imperviousness (Lot Scale Only)	Measured Imperviousness with Turf Ordinance (Lot Scale Only)
Low-Density SFH	R-1	30%	33%	43%
Medium-Density SFH	R-2	45%	35%	45%

## **4.2 Zoning-level Imperviousness**

Table 6 summarizes the results of the zoning-level analysis (“Measured”), as well as the existing (“Pre 2023 Manual Update”) and recommended (“Recommended”) percent impervious values. The differences between the “Measured” results from this analysis and the existing percent impervious values were mixed (some were higher, some lower and some similar). The sections below provide a brief discussion of the results and justification for the recommended percent impervious values.

### **4.2.1 SFH (Rural, Low-density, Medium Density)**

The SFH (i.e., single-family, residential) land uses generally had higher measured values compared to existing values. This is due to both the increased imperviousness at the lot-scale with the turf ordinance and including roadways in the percent impervious calculations. These are both valid explanations to justify recommended values that are greater than the existing values.

The R-1 and R-2 zoning did not have significant differences in lot sizes or average imperviousness, so the zoning was grouped together to provide a single impervious value for low and medium density single family homes.

### **4.2.2 Mobile Homes**

This would be a new land use that is not identified in the existing UDSCM. Mobile homes tend to be clustered on lots much smaller than 0.25 acres, therefore we recommend a value greater than the existing (applicable) value.

### **4.2.3 Multi-family Housing (Medium-density, High-density)**

The measured impervious values were slightly less than the comparable existing values. Since the existing values did not differentiate between medium and high-density, we have recommended values for each land use type.

### **4.2.4 Commercial**

The measured impervious values were generally less than the comparable existing value. Since the existing values did not differentiate between low and medium/high-density, we have recommended values for each land use type.

### **4.2.5 Industrial/Institutional**

The measured impervious values were similar to or less than the comparable existing values. These land use types have much more variability in their developments; therefore, we have recommended to retain the existing values for all categories except “Office/Institutional.” There was not a large difference in imperviousness between I-1 and I-2 zoning, so the zoning was grouped together to provide a single impervious value for light and heavy industrial areas.



**4.2.6 Parks and Open Space**

The measured values were similar to or greater than the comparable existing values. We found that cemeteries, golf courses, and community parks may have the most underestimated imperviousness compared to existing values.

**4.3 Summary**

The land use-based impervious values provided in this work are intended as recommendations, with the understanding that incorporating good engineering judgment is essential when undertaking master planning and other large-scale development.

**Table 6: New Recommended Land Use-based Imperviousness Values for Master Planning**

Land Use/Density	City of Aurora Pre 2023 Manual Update Imperviousness	Measured Average Imperviousness (Roads Included)	Recommended Imperviousness (Roads Included)
<b>Residential</b>			
Rural SFH (0 - 3 du/ac)	20%	35%	35%
Low & Medium-Density SFH (3 - 5 du/ac)	30-45%	54%	55%
Manufactured Housing (>= 10 du/ac)	60%	63%	65%
Medium-Density MFH/High Density SFH (5 - 20 du/ac)	60-75%	62%	65%
High-Density MFH (>20 du/ac)	80%	67%	70%
<b>Commercial</b>			
Low-Density Commercial	85%	64%	65%
Medium- to High-Density Commercial	85%	75%	80%
Urban Core Commercial	95%	84%	90%
<b>Industrial/Institutional</b>			
Schools	50%	51%	55%
Office/Institutional	80%	61%	65%
Industrial Areas	90%	70%	75%
<b>Parks and Open Space</b>			
Open Space, undisturbed Native Grasses	2%	7%	5%
Community Parks	5%	22%	25%
Neighborhood Parks	5%	15%	15%
Golf Courses	5%	27%	30%
Cemeteries	5%	23%	25%

Note: Recommended imperviousness values shown in the table are the minimum imperviousness values for a specific land use. It is the engineer’s responsibility to select imperviousness values that appropriately reflect the actual density of the proposed development.

## 5.0 References

Mile High Flood District. (2018, Revised). Urban Storm Drainage Criteria Manual: Volume 1 – Management, Hydrology and Hydraulics.

City of Aurora. (2022, Updated). City of Aurora Open Data. <https://data-auroraco.opendata.arcgis.com/>

City of Aurora. (2023). Aurora Unified Development Ordinance. <https://aurora.municipal.codes/UDO/146>

## 6.0 Attachments

- Attachment A. GIS Analysis Impervious Area Calculations
- Attachment B. Maps of Zoomed-in Land Uses with Planimetric Data
- Attachment C. Selected Zoning across City of Aurora for each Land Use

**Attachment A.**

**GIS Analysis Impervious Area Calculations**

## **APPENDIX A**

Project: ArcGIS Pro Analysis Output and Imperviousness Calculations

Analysis done by Kristin Karashinski and Victoria Hennon

Date: 10/13/2023

1. Planimetric shapefiles downloaded from <https://data-auroraco.opendata.arcgis.com/>
2. Processed and analyzed in ArcGIS by zoning and parcel (for residential land uses only).
3. Tabulate area tool used to sum planimetric covers for each zoned area. Area weighted imperviousness calculated using land cover imperviousness
4. The planimetric data is variable and in some areas, uncomplete. Visual checks were done to ensure that planimetric data was representing imperviousness for this analysis

ZONE	NEIGHBORHOOD	Type	TOTAL POLYGON AREA (SQFT)	BUILDING ROOFTOP T (SQFT)	EDGE OF PAVEMENT - PAVED (SQFT)	EDGE OF PAVEMENT - UNPAVED (SQFT)	EDGE OF PAVEMENT - UNPAVED (SQFT)	PAVED PARKING - IMPERVIOUS (SQFT)	PAVED PARKING - MIXED (SQFT)	DRIVEWAY (SQFT)	SIDEWALK (SQFT)	TURF (SQFT)	Percent Imperviousness
R-1	Morris Heights		4162781.262	764166	664337	20985	0	259602	120983	2332708	53%		
R-1	Tollgate Crossing		6208235.339	1002876	883197	0	55688	1382	303579	3658824	51%		
R-1	Pheasant Run, Summer Valley, Prides Crossing		19134831.53	3289037	3698211	0	10021	508	882438	792502	10462115	54%	
R-1	Centrepont		9294114.318	1649821	1683490	0	21	0	510864	360670	5089248	54%	
R-1	Side Creek		3886269.061	651334	803942	0	0	0	205645	167812	2057536	55%	
R-1	Morris Heights, Sable-Altura Chambers		4119540.188	600537	878019	19915	0	0	206615	126476	2287978	53%	
R-1	Singletree		3224909.283	547723	502914	1151	0	0	202308	151252	1819561	53%	
R-1	Prides Crossing		1886744.84	342945	364427	0	0	0	110669	72591	996113	55%	
R-1	Side Creek		1297323.304	284025	196281	0	0	0	92553	53122	671342	56%	
R-1	Prides Crossing		2856679.499	578984	564510	0	0	0	152373	112510	1448302	57%	
R-1	Seven Hills		3303702.684	546142	601362	0	0	0	160517	131194	1864488	53%	
PD	Talllys Reach		2182031	528500	278249	0	0	0	167508	84308	1123466	56%	
PD	Talllys Reach		1825184	329827	178324	0	0	0	84819	53081	1179133	47%	
PD	Talllys Reach		1908006	299142	335077	0	0	0	83068	71440	1119279	51%	
N/A	Green Valley Ranch; Outside of COA Boundary		1527219	293238	380683	0	0	0	31541	103412	718345	60%	
N/A	Green Valley Ranch; Outside of COA Boundary		3565631	825142	584610	0	0	0	242085	161873	1751921	58%	
R-2	Tower Triangle		436013.2346	120259	92318	0	0	0	27759	16764	178913	64%	
R-2	Tower Triangle		458889.5555	65990	70870	0	0	0	28757	14539	278734	49%	
R-2	Talllys Reach North		6439032.523	941029	895352	0	169906	2633	297097	246059	3886957	50%	
R-2	Talllys Reach North		5446719.35	839464	739056	0	48662	1654	306388	238493	3273002	50%	
R-2	Highpoint		1631785.174	340907	305827	0	58297	0	63606	67981	795167	58%	
R-2	Cherry Creek Raquet Club		221690.7385	34336	34152	0	42872	0	0	6891	103440	60%	
R-3	Pheasant Run		298413.4691	81410	14738	0	86158	0	0	3609	112498	67%	
R-3	Cherry Creek Raquet Club		964523.2155	186694	63451	0	215012	0	0	14316	485050	57%	
R-3	Pheasant Run		570261.969	155319	56311	0	159960	0	0	12497	186175	71%	
R-3	Meadow Hills		219071.933	63052	39554	0	29262	0	0	6638	80566	67%	
R-3	Meadow Hills		1132342.294	338905	38865	0	225859	0	0	7959	520754	61%	
R-3	Cherry Creek Raquet Club		69185.60821	15380	14692	0	7465	0	0	3252	28397	64%	
R-3	Cherry Creek Raquet Club		126160.0177	22982	21976	0	18096	0	0	4664	58442	60%	
R-3	Cherry Creek Raquet Club		1442068.213	307378	109721	0	393378	0	0	27813	603778	64%	
R-3	Pheasant Run		477609.0891	88345	72571	0	92898	0	0	12755	211040	62%	
R-3	Heather Ridge		3112409.323	803924	289069	0	647885	92	0	73257	1298182	64%	
R-3	Side Creek		2398051.607	477817	227102	0	575770	0	0	50937	1066426	62%	
R-3	City Center North		1716934.188	417535	322734	0	12099	0	103054	21747	839765	58%	
R-3	Side Creek		1419396.206	333542	111120	0	360218	29724	0	16502	568290	64%	
PD	Heritage Eagle Bend		881710	265181	93402	0	87345	0	26218	25701	383863	62%	
R-4	Meadow Hills		272467.7615	57443	55604	0	0	0	19623	9469	130329	59%	
R-4	Utah Park		36778.8658	4765	9588	0	10150	0	0	1579	10697	73%	
R-4	Utah Park		220505.0957	47511	44164	0	23119	0	5623	10033	90055	64%	
R-4	Hamdpen Town Center		404969.0433	140532	50850	0	46219	0	0	151949	151949	67%	
R-4	Hamdpen Town Center		257594.7616	85945	53020	0	28516	640	0	15361	74113	73%	
R-4	Hamdpen Town Center		327781.1795	82045	32240	0	91184	0	0	10108	112204	69%	
R-4	Hamdpen Town Center		210884.7173	63811	23898	0	52152	2439	0	7461	61124	73%	
R-4	Hamdpen Town Center		248007.7892	76217	27490	0	68762	1561	0	8264	65714	75%	
R-4	Hamdpen Town Center		684798.4783	176777	36142	0	205274	0	0	15984	250621	68%	
R-4	Hoffman Heights/Jewell Heights		240968.9439	54963	44555	0	60432	0	0	7409	73610	72%	
R-4	Utah Park		712342.0494	202813	72035	0	135112	0	0	14761	287621	65%	
R-4	Dayton Triangle		716843.8249	171190	48122	0	208145	0	0	11728	277659	66%	
R-4	Lyn Knoll		429299.4759	90211	86927	0	83106	0	0	3158	165897	66%	
R-4	Lyn Knoll		62790.70395	14837	14449	0	3716	0	0	536	29253	60%	
R-4	Highline Villages		584685.593	146412	55586	0	161691	0	0	14217	206780	68%	

R-4	182663.6704	46754	10166	0	89769	0	0	0	1555	34420	81%
R-4	311596.5294	75535	43456	0	48206	0	0	0	1841	142559	61%
R-4	322930.6811	87421	54075	0	55578	0	0	0	1784	124073	66%
R-4	604671.4076	146911	64790	0	154439	0	0	0	12945	283423	60%
R-4	773603.8023	234053	36183	0	154439	0	0	0	8555	340374	62%
R-4	52998.87238	19077	3253	0	16293	0	0	0	917	13459	76%
R-R	108783.0439	6177	12623	0	0	0	0	5401	0	84582	37%
R-R	108630.7643	4113	6246	0	0	0	0	1041	5	97226	28%
R-R	217150.6452	7387	11227	0	0	0	0	0	212	198325	27%
R-R	488537.5666	25806	37757	0	11716	0	0	11725	312	401222	33%
R-R	108684.1115	5962	7865	0	0	0	0	8168	60	86629	35%
R-R	1658757.86	156341	141820	0	28312	0	0	68954	10120	1253211	38%
R-R	856323.1535	74173	119768	0	0	0	0	30831	15201	616350	41%
R-MH	1422649.068	387388	409012	0	4946	0	0	85952	13184	522167	67%
R-MH	466666.5652	131346	133001	0	1451	0	0	44442	0	156427	70%
R-MH	2654346.74	675067	670440	0	12945	0	0	122740	9427	1163728	62%
R-MH	201001.6024	47591	48435	0	9217	0	0	9505	1257	84997	63%
R-MH	214829.9461	52096	65323	0	0	0	0	18156	1833	77422	68%
R-MH	216252.693	17272	80409	0	0	0	0	2284	514	115774	55%
R-MH	80694.55395	13666	7878	0	29933	0	0	40	1980	27198	70%
R-MH	1932068.771	449117	432873	0	15417	0	0	113922	70616	850124	62%
R-MH	1463682.629	429323	254243	0	30482	0	0	92810	4105	652720	62%
R-MH	94410.54317	13372	17211	0	0	0	0	5051	2324	56453	50%
MU-C	984599	196364	80244	0	493376	14969	0	0	15859	183787	80%
MU-C	182762	22172	35437	0	69677	0	0	7532	47944	75%	75%
MU-C	1101027	166705	216856	0	390161	4399	0	40704	282202	76%	76%
MU-C	1561480	264264	169362	0	721687	31655	0	29186	345326	78%	78%
MU-C	68618	5468	10977	0	27724	0	0	3099	21350	72%	72%
MU-C	123327	17427	18097	0	51696	0	0	3352	32755	75%	75%
MU-C	474473	138246	27835	0	224933	0	0	5412	78047	83%	83%
MU-C	260988	93264	3578	0	102889	0	0	568	60689	78%	78%
MU-C	582039	82198	111027	692	239359	2885	0	9202	136676	77%	77%
MU-C	2920873	469676	523440	0	1240903	34529	0	48595	603730	79%	79%
MU-C	935363	94252	136111	0	339311	32353	0	26511	306825	69%	69%
MU-C	654648	130277	65412	0	330292	3393	0	12105	113169	82%	82%
MU-C	3459930	711749	321207	0	1101678	0	0	72608	1252688	68%	68%
MU-C	792013	125609	64756	0	369596	10624	0	17538	203890	75%	75%
MU-C	824990	122296	4080	0	359249	8496	0	1719	329150	65%	65%
MU-C	42488	0	0	0	40015	0	0	0	2473	91%	91%
MU-C	346568	40966	44699	0	152969	1501	0	7410	99023	73%	73%
MU-C	679899	143291	58577	0	239735	2744	0	19164	216388	71%	71%
MU-C	4803197	1035574	472234	0	1743833	64089	0	89864	1397603	73%	73%
MU-C	1099706	196247	96713	0	519758	25400	0	17803	243785	78%	78%
MU-R	121514.0884	667	79974	0	6687	0	0	6124	28062	78%	78%
MU-R	1953400.792	154211	186262	0	389502	7333	0	58629	1157464	50%	50%
MU-R	1324236.866	228347	172212	0	408758	52836	0	35129	426955	69%	69%
MU-R	3660335.14	719630	300565	0	1092137	13046	0	70803	1464154	65%	65%
MU-R	453368.2666	36402	31588	0	189562	11046	0	9562	175208	65%	65%
MU-R	956077.4696	134299	144947	0	344371	6922	0	31065	294473	72%	72%
MU-R	3783517.983	715776	247993	0	1541395	28971	0	57828	1191555	71%	71%
MU-R	129461.3829	0	21411	0	58	0	0	5000	102992	35%	35%
MU-R	5455561.129	530959	943536	0	2297678	79358	0	87671	1516359	74%	74%
MU-R	2955435.485	747304	105445	0	1429075	77025	0	25766	570820	80%	80%
MU-R	3235938.822	716538	166097	0	1329644	83202	0	36484	903974	73%	73%
MU-R	2404162.871	236399	276162	0	444933	1697	0	61359	1383613	52%	52%

MU-R	Southlands	1169055.13	47985	65413	0	214947	26183	0	13163	801364	43%
MU-N	Pheasant Run	348003.6432	25555	32986	100245	8762	0	0	4700	175756	53%
MU-N	Pheasant Run	113621.9892	19920	21339	42041	0	0	0	4149	26173	72%
MU-N	Rocky Ridge	172866.1806	29377	36155	57400	772	0	0	5613	43569	71%
MU-N	Rangeview	122566.9509	21825	20432	47851	0	0	0	4326	28133	72%
MU-N	Horseshoe Park	238992.4085	44214	36017	119957	0	0	0	7527	31277	78%
MU-N	Tower Triangle	103040.6964	7101	21587	32795	0	0	0	4443	37115	63%
MU-N	Seven Hills	286534.2133	44131	24079	107060	0	0	0	15969	95295	64%
MU-N	Seven Hills	444608.1018	27100	38180	118554	0	0	0	17799	242975	50%
MU-N	Seven Hills	193437.588	28766	13827	68540	0	0	0	8640	73665	61%
OA-G	Del Mar Parkway	20758.89935	0	5347	0	14280	0	0	942	190	94%
OA-G	Del Mar Parkway	218673.2673	75693	29203	0	98168	0	0	5231	10378	91%
OA-G	North Aurora, Del Mar Parkway	6522978.329	1397082	1176599	8311	2133136	2163	58316	216858	1530513	77%
OA-G	North Aurora	163478.0516	23086	53333	0	52770	0	1557	5567	27165	83%
OA-G	Del Mar Parkway	320263.5978	72849	0	0	222108	2358	0	80	22869	89%
OA-G	Del Mar Parkway	242310.1858	58816	53187	0	88800	546	0	6859	34102	84%
OA-G	North Aurora	2860503.493	487363	234355	0	1195594	3215	2923	47799	889254	72%
OA-G	Del Mar Parkway	78854	16918	18546	0	39731	0	0	1667	1992	93%
OA-MS	Del Mar Parkway	40723.5123	6423	10033	0	17215	0	0	1691	5362	85%
OA-MS	Del Mar Parkway	17538.09459	0	3060	0	10916	0	0	285	3277	81%
OA-MS	North Aurora, Del Mar Parkway	6469343.751	1547117	1424642	26121	1316183	81	142996	295725	1716479	75%
OA-MS	North Aurora	218596.1284	37772	52469	0	56687	0	3443	7641	60584	74%
OA-MS	North Aurora	100824.5681	6528	11216	0	45344	0	0	3516	34221	70%
OA-MS	North Aurora	84596.12898	14453	20239	0	38052	0	0	4426	7426	88%
OA-MS	North Aurora	62737.0426	15503	22203	0	21131	0	0	1220	2680	92%
OA-MS	Del Mar Parkway	114565.4679	28910	26222	0	25736	0	194	3241	30262	75%
OA-MS	Del Mar Parkway	153013.6603	31683	38473	0	50326	0	306	5620	26606	82%
OA-MS	Del Mar Parkway	25512.88932	8380	4323	0	2865	0	2246	579	7120	74%
OA-MS	Del Mar Parkway	54437.48373	11979	9353	0	23459	0	99	1292	8255	84%
OA-MS	Del Mar Parkway	11276.99943	4363	1935	0	3011	0	30	280	1658	84%
OA-MS	Del Mar Parkway	60372.08689	9235	16738	0	12133	0	135	2586	19545	71%
OA-MS	Del Mar Parkway	22777.50898	1371	6712	0	11451	0	30	3201	84%	84%
OA-MS	Del Mar Parkway	56978.43359	13440	11672	0	17534	0	0	2336	11996	79%
OA-MS	North Aurora	638586.6194	159122	145970	7891	140263	0	4247	30848	150246	77%
OA-MS	North Aurora	101117.3715	23154	18815	0	26078	0	0	10608	22462	78%
OA-MS	Del Mar Parkway	52814.79572	5101	15465	0	17067	0	0	2624	12558	77%
OA-MS	Del Mar Parkway	227368.0087	38298	52818	0	94943	0	0	9015	32294	84%
OA-MS	North Aurora	100784.3091	14974	26138	0	18671	0	1585	6544	32872	71%
I-1	Sunny Vale	301612.7943	37235	4064	0	86196	0	0	7069	167049	53%
I-1	Aurora Hills Golf Course	316687.1411	42591	38688	0	161529	0	0	9967	63912	80%
I-1	Morris Heights	199317.8816	6114	31726	0	41847	0	0	8354	11277	53%
I-1	Norfolk Glen	218435.6553	65202	34705	0	69612	0	0	7501	41416	81%
I-1	Sunny Vale	61392.05691	0	3975	0	20210	0	0	310	36897	50%
I-1	Aurora Hills Golf Course	1400044.581	181284	33326	0	731824	0	0	22325	431286	72%
I-1	Norfolk Glen	642874.1369	163559	95273	0	324438	0	0	0	59604	88%
I-1	Norfolk Glen	1000402.238	216726	130901	0	405487	0	0	7420	239868	77%
I-1	Norfolk Glen	1139140.058	235012	130064	0	349114	0	0	2052	422908	67%
I-1	Norfolk Glen	431088.1165	93099	25008	0	203421	0	0	5732	103828	77%
I-1	Sunny Vale	437421.183	139880	40083	0	217167	0	0	6732	33559	89%
I-1	Tollgate Overlook	2940231.859	255997	292629	0	576397	7948	0	50468	1756793	50%
I-1	Meadowood	733386.0256	47750	21009	0	289337	0	0	4115	371175	57%
AD	Costco Depot Filing No.1	3593183	601855	273640	0	1823316	0	0	59840	834532	78%
I-1	N/A	1546628	588303	7874	0	590378	0	0	34579	325494	79%
I-1	Majestic Commercecenter II	4314547	166499	166499	0	1447242	6186	0	39388	1749909	65%
I-1	Aurora Commerce Center Filing No. 2	1496332	557537	11076	0	590113	0	0	30487	307119	80%

I-2	Morris Heights	1308809.906	102043	186	0	627237	331	0	2283	576730	62%
I-2	Morris Heights	3459935.585	701196	247350	0	1313917	0	2479	121912	1073082	72%
I-2	Gateway Park	4096093.15	145316	135763	0	3426865	1790	0	15318	371041	88%
I-2	Gateway Park	1585744.975	476332	73385	0	238690	0	0	14045	783293	58%
I-2	Gateway Park	2197124.057	627284	48935	8424	702146	17042	0	11896	781397	68%
I-2	Morris Heights	619215.2204	138843	53362	0	175498	0	0	9512	242000	66%
MU-OI	Hoffman Heights/Jewell Heights	1072039.237	121309	167629	0	300453	1122	0	26666	454860	63%
MU-OI	Arapahoe Crossing	1421995.582	175229	0	0	307677	143961	0	95676	699453	55%
MU-OI	Arapahoe Crossing	1359453.959	4530	75232	0	199942	81023	0	38775	959952	40%
MU-OI	APS Educational Campus	4392943.674	279980	356934	0	477261	172851	0	284358	2821560	45%
MU-OI	Del Mar Parkway	5120063.261	473859	436641	0	1011950	0	15466	255242	2926905	52%
MU-OI	Del Mar Parkway	216634.1942	8754	2395	0	95508	0	0	2715	107262	58%
MU-OI	Hoffman Heights/Jewell Heights	1173127.966	118718	164226	0	345642	11897	0	9775	522870	61%
MU-OI	Hoffman Heights/Jewell Heights	172409.7222	0	31084	0	69100	0	0	8793	63433	67%
MU-OI	Tallyns Reach	518962.3967	69603	61887	0	95923	2505	0	58732	230312	62%
MU-OI	Southshore	4778342.433	387609	138445	0	918261	256258	2810	250899	2824060	49%
MU-OI	Heather Ridge	2915102	410030	166207	0	404587	159258	0	201391	1573629	53%
POS	Aurora Hills Golf Course	8228506.709	22315	150475	0	242241	0	1003	91148	7721325	11%
POS	Aurora Hills Golf Course	1360366.55	7343	39485	0	78768	0	0	28596	1206175	15%
POS	Kirkegaard Acres	1894307.185	0	0	7634	0	0	0	0	1886673	5%
POS	Valley Country Club	28241.51527	0	0	0	0	0	0	1418	26824	10%
POS	Valley Country Club	1213154.425	1332	137749	0	16837	0	0	29316	1027920	19%
POS	Cornerstar	1492935.799	0	0	0	0	0	0	31732	1461204	7%
POS	Kirkegaard Acres	7804263.447	6418	12314	31155	246366	0	0	90870	7417140	9%
POS	Kirkegaard Acres	5697352.543	12973	50676	6144	520407	0	0	108832	4998321	16%
POS	Kirkegaard Acres	1733738.897	17059	0	0	96645	0	0	92363	1527672	16%
POS	Kirkegaard Acres	1926332.598	3829	170547	0	114914	439096	0	39871	1158076	33%
POS	Tallyns Reach	603002.5813	6707	65453	0	54437	0	0	24807	451599	28%
POS	Kirkegaard Acres	1140015.382	0	13670	6132	6270	0	0	6505	1107438	7%
POS	Pheasant Run	255109.1461	10	6088	0	0	0	0	12173	236838	11%
POS	Mission Viejo	466875.6371	2006	19226	0	0	0	0	34156	411488	16%
POS	Mission Viejo	353237.221	1146	26735	0	36539	0	0	35329	253488	30%
POS	Mission Viejo	445034.1536	0	39160	0	10245	0	0	15406	380223	18%
POS	Aurora Hills Golf Course	197995.2014	0	51598	0	0	0	0	11665	134732	34%
POS	Valley Country Club	30993.79118	0	0	0	0	0	0	5799	25195	22%
POS	Valley Country Club	12124.42038	0	8452	0	0	0	0	656	3016	73%
POS	Cornerstar	203151.8057	0	0	0	0	0	0	5487	197665	7%
POS	Cornerstar	52066.4656	0	0	0	0	0	0	1122	50944	7%
POS	Cornerstar	25448.09553	0	0	0	0	0	0	247	25201	6%
POS	Wheatlands	1207329.02	47	149922	0	8059	0	0	30879	1018422	19%
POS	Del Mar Parkway	889888.998	10386	9051	0	130501	0	0	0	739951	20%
POS	Tower Triangle	843931.863	912	196035	0	1057	0	0	0	645928	26%





R-2	Tollgate Crossing	10023.0101	0.23	2109	691	0	7223	500	6723	30%	41%
R-2	Tollgate Crossing	5346.684826	0.12	2102	325	0	2920	500	2420	46%	54%
R-2	Tollgate Crossing	12312.08461	0.28	2310	498	51	9453	500	8953	26%	37%
R-2	Tollgate Crossing	5821.774705	0.13	1882	434	0	3506	500	3000	41%	50%
R-2	Tollgate Crossing	6580.188726	0.15	2095	730	0	3755	500	3550	44%	52%
R-2	Tollgate Crossing	9229.907698	0.21	2158	808	0	6264	500	5764	34%	44%
R-2	Tollgate Crossing	11940.95688	0.27	2405	901	0	8635	500	8135	30%	41%
R-2	Tollgate Crossing	6145.977585	0.14	1932	378	0	3836	500	3336	39%	48%
R-2	Tollgate Crossing	9921.677323	0.23	2131	654	0	7137	500	6637	30%	41%
R-2	Tollgate Crossing	8107.190188	0.19	2323	745	0	5039	500	4539	39%	48%
R-2	Tollgate Crossing	9542.283473	0.22	2885	381	47	6229	500	5729	36%	46%
R-2	Tollgate Crossing	7377.561341	0.17	4312	105	105	4312	500	3812	42%	51%
R-2	Tollgate Crossing	6405.265428	0.15	2588	372	67	3378	500	2878	48%	55%
R-2	Tollgate Crossing	903.114721	0.21	2218	777	0	6036	500	5536	35%	45%
R-2	Tollgate Crossing	6766.671591	0.16	2246	669	74	3778	500	3278	45%	53%
R-2	Tollgate Crossing	7239.072397	0.17	2248	355	74	4562	500	4062	38%	48%
R-2	Tollgate Crossing	7819.710405	0.18	2217	715	2	4886	500	4386	39%	48%
R-2	Tollgate Crossing	11237.66664	0.26	2834	659	100	7645	500	7145	34%	44%
R-2	Tollgate Crossing	6610.187701	0.15	2265	416	0	3929	500	3429	42%	50%
R-2	Tollgate Crossing	6297.281398	0.14	1785	453	0	4059	500	3559	37%	47%
R-2	Tollgate Crossing	28458.32965	0.65	3043	2115	14	23286	500	22786	21%	34%
R-2	Tollgate Crossing	13087.06071	0.30	3167	569	0	9351	500	8851	31%	41%
R-2	Tollgate Crossing	11628.79784	0.27	3689	664	138	7158	500	6658	40%	49%
R-2	Tollgate Crossing	9328.836021	0.21	2763	574	0	5992	500	5492	47%	54%
R-2	Tollgate Crossing	20202.16028	0.46	4379	1726	102	13995	500	13495	33%	43%
R-2	Tollgate Crossing	18911.06832	0.39	3247	1583	0	12081	500	11581	31%	41%
R-2	Tollgate Crossing	25944.88448	0.60	20587	2477	45	20587	500	20087	24%	35%
R-2	Tollgate Crossing	14317.87844	0.33	3447	1265	7	9599	500	9099	35%	45%
R-2	Tollgate Crossing	12974.06929	0.30	4278	988	109	7599	500	7099	42%	51%

ZONE	NEIGHBORHOOD	TOTAL PARCEL AREA (SQFT)	Total Area (Acre)	BUILDING ROOFPRI (SQFT)	DRIVEWAY (SQFT)	SIDEWALK (SQFT)	Existing Turf (SQFT)	Cool Weather Turf (SQFT)	Water Wise Landscape (SQFT)	Existing Percent Impervious	Turf Ordinance Percent Impervious
R-1	Singletree	6316.385899	0.15	1908	322	44	4042	500	3542	37%	47%
R-1	Sable-Altura Chamber	7604.584199	0.17	1737	212	0	5656	500	5156	28%	39%
R-1	Sable-Altura Chamber	14573.26335	0.33	2313	221	0	12039	500	11539	21%	33%
R-1	Morris Heights	9306.904897	0.21	2807	841	0	5699	500	5199	40%	49%
R-1	Morris Heights	7491.98815	0.17	1714	282	0	5496	500	4996	40%	49%
R-1	Morris Heights	7586.711246	0.17	1634	988	0	4965	500	4465	36%	46%
R-1	Morris Heights	7776.740881	0.18	1247	108	0	6422	500	5922	21%	33%
R-1	Morris Heights	7803.195152	0.18	1790	1309	0	4704	500	4204	41%	50%
R-1	Centrepoint	7403.481013	0.17	1827	1248	0	4328	500	3828	42%	51%
R-1	Centrepoint	9359.688247	0.21	1819	345	0	7196	500	6696	26%	37%
R-1	Centrepoint	12619.18148	0.29	1819	455	0	10345	500	9845	21%	34%
R-1	Centrepoint	7715.9166	0.18	2096	527	0	5093	500	4593	36%	45%
R-1	Centrepoint	8606.415766	0.20	1641	348	0	6617	500	6117	26%	37%
R-1	Centrepoint	7127.991872	0.16	1546	516	0	5066	500	4566	31%	42%
R-1	Centrepoint	7925.967384	0.18	1616	396	0	5914	500	5414	28%	39%
R-1	Centrepoint	7773.230683	0.18	1807	360	0	5606	500	5106	30%	41%
R-1	Centrepoint	11904.8811	0.27	1697	413	0	9795	500	9295	21%	33%
R-1	Centrepoint	933.1893735	0.23	2109	476	0	347	500	6847	28%	40%
R-1	Centrepoint	10254.06673	0.24	1733	556	0	7965	500	7465	25%	37%
R-1	Centrepoint	7389.136764	0.17	1588	453	0	5348	500	4848	30%	41%
R-1	Centrepoint	7922.044739	0.18	1782	490	0	5650	500	5150	31%	42%
R-1	Centrepoint	8015.093476	0.18	1886	419	0	5710	500	5210	31%	42%
R-1	Centrepoint	7105.132417	0.16	1489	377	0	5239	500	4739	29%	40%
R-1	Centrepoint	694.3535045	0.16	1697	485	0	4762	500	4262	33%	44%
R-1	Centrepoint	7078.412579	0.16	1823	665	0	4590	500	4090	37%	46%
R-1	Centrepoint	8321.332852	0.19	2012	408	0	5901	500	5401	31%	42%
R-1	Side Creek	6533.624044	0.15	1944	260	1	4329	500	3829	35%	45%
R-1	Side Creek	5008.423298	0.11	1864	413	19	2712	500	2212	46%	54%
R-1	Side Creek	6110.574654	0.14	1617	336	0	4158	500	3658	34%	44%

R-1	Side Creek	5008.380541	0.11	1784	332	12	2880	500	2380	43%	52%
R-1	Side Creek	6059.839494	0.14	2021	379	1	3659	500	3155	41%	50%
R-1	Side Creek	6020.008234	0.14	2112	387	0	5621	500	3021	29%	51%
R-1	Side Creek	7747.98157	0.18	1738	348	0	5662	500	5167	29%	40%
R-1	Side Creek	6230.664532	0.14	2137	372	0	3722	500	3222	41%	50%
R-1	Side Creek	5495.712872	0.13	2154	412	4	2926	500	2426	47%	55%
R-1	Side Creek	7537.234704	0.17	2088	840	46	4563	500	4063	41%	50%
R-1	Side Creek	6580.604029	0.15	2164	318	0	4095	500	3599	39%	48%
R-1	Side Creek	6361.844481	0.15	2106	313	0	3943	500	3443	39%	49%
R-1	Side Creek	5947.213661	0.13	2120	368	0	3359	500	2859	43%	52%
R-1	Side Creek	5008.264398	0.11	2004	354	0	2650	500	2150	47%	55%
R-1	Side Creek	6063.174644	0.14	1579	762	0	3722	500	3222	40%	49%
R-1	Side Creek	6847.502996	0.16	2220	298	5	4325	500	3825	38%	48%
R-1	Seven Hills	5009.179367	0.11	2189	342	64	2114	500	1914	52%	59%
R-1	Seven Hills	5008.651279	0.11	1650	303	0	3056	500	2556	40%	49%
R-1	Seven Hills	5008.072928	0.11	1420	361	0	3227	500	2727	37%	47%
R-1	Seven Hills	5143.943556	0.12	1521	483	0	3140	500	2640	40%	49%
R-1	Seven Hills	8853.959633	0.20	1814	640	0	6400	500	5900	30%	41%
R-1	Seven Hills	5333.997635	0.12	1392	353	0	3589	500	3089	34%	45%
R-1	Seven Hills	5621.616571	0.13	1544	236	0	3842	500	3342	33%	44%
R-1	Seven Hills	5622.107352	0.13	1588	364	0	3670	500	3170	36%	46%
R-1	Seven Hills	5354.020142	0.12	1761	352	0	3241	500	2741	41%	50%
R-1	Seven Hills	5043.065427	0.12	1583	343	0	3117	500	2617	39%	49%
R-1	Seven Hills	5040.25045	0.12	1722	696	0	2622	500	2122	48%	56%
R-1	Seven Hills	5313.161228	0.12	1890	528	0	2895	500	2395	46%	54%
R-1	Seven Hills	5233.979847	0.12	1489	447	0	3298	500	2798	38%	48%
R-1	Seven Hills	4990.861279	0.11	1540	379	0	3072	500	2572	40%	49%
R-1	Seven Hills	5357.384097	0.12	1467	374	0	3516	500	3016	36%	46%
R-1	Seven Hills	5391.096318	0.12	1663	646	0	3082	500	2582	44%	52%
R-1	Seven Hills	7345.04152	0.17	1578	367	0	5400	500	4900	29%	40%
R-1	Seven Hills	5912.73013	0.14	1516	359	0	4038	500	3538	34%	44%
R-1	Seven Hills	10309.43906	0.24	1717	395	0	8197	500	7697	23%	35%
R-1	Seven Hills	6141.113765	0.14	1514	576	0	4051	500	3551	36%	46%
R-1	Seven Hills	8015.729547	0.18	1876	439	0	5701	500	5201	31%	42%
R-1	Seven Hills	6778.227516	0.16	1644	416	0	4718	500	4218	32%	43%
R-1	Seven Hills	8039.171038	0.18	1783	888	0	5368	500	4868	35%	45%
R-1	Prides Crossing	7460.788889	0.17	1933	731	0	4797	500	4297	37%	47%
R-1	Summer Valley	9174.254452	0.21	1802	752	0	6620	500	6120	30%	41%
R-1	Summer Valley	4868.211627	0.11	1218	366	0	3284	500	2784	34%	44%
R-1	Prides Crossing	7271.632495	0.17	1503	415	0	5354	500	4854	29%	40%
R-1	Summer Valley	7521.606323	0.17	1245	325	0	5952	500	5452	24%	36%
R-1	Summer Valley	4406.288555	0.10	1414	333	0	2659	500	2159	41%	50%
R-1	Summer Valley	8511.516588	0.20	1477	357	0	6678	500	6178	24%	36%
R-1	Summer Valley	4586.785191	0.11	1334	449	0	2804	500	2304	40%	49%
R-1	Summer Valley	9153.580855	0.21	1408	360	0	7386	500	6886	22%	34%
R-1	Summer Valley	5562.1414823	0.13	1267	329	0	3966	500	3466	31%	42%
R-1	Summer Valley	7425.625171	0.17	1518	356	0	5552	500	5052	28%	39%
R-1	Summer Valley	4543.19138	0.10	1374	323	0	2846	500	2346	39%	48%
R-1	Summer Valley	9431.110632	0.22	2118	369	0	6932	500	6432	29%	40%
R-1	Summer Valley	8646.548979	0.20	1531	336	0	6780	500	6280	24%	36%
R-1	Prides Crossing	8745.629973	0.20	2291	782	0	5673	500	5173	37%	46%
R-1	Prides Crossing	10461.75698	0.24	2232	725	0	7505	500	7005	30%	41%
R-1	Summer Valley	6981.818405	0.16	1468	462	0	5052	500	4552	30%	41%
R-1	Summer Valley	8002.949723	0.18	1255	353	0	6395	500	5895	23%	35%
R-1	Summer Valley	6740.710432	0.15	1429	294	0	5019	500	4519	28%	39%
R-1	Prides Crossing	7123.897289	0.16	2330	593	0	4201	500	3701	42%	51%
R-1	Prides Crossing	6327.833392	0.15	2223	611	0	3494	500	2994	45%	54%
R-1	Summer Valley	5486.506493	0.13	1620	409	0	3461	500	2961	38%	48%
R-1	Prides Crossing	10662.808	0.24	1858	1071	10	7724	500	7224	30%	41%
R-1	Prides Crossing	7528.951198	0.17	2681	497	0	4351	500	3851	43%	52%
R-1	Prides Crossing	6739.206071	0.15	1994	436	0	4346	500	3846	37%	47%
R-1	Prides Crossing	6366.437224	0.15	2503	622	0	3241	500	2741	49%	57%

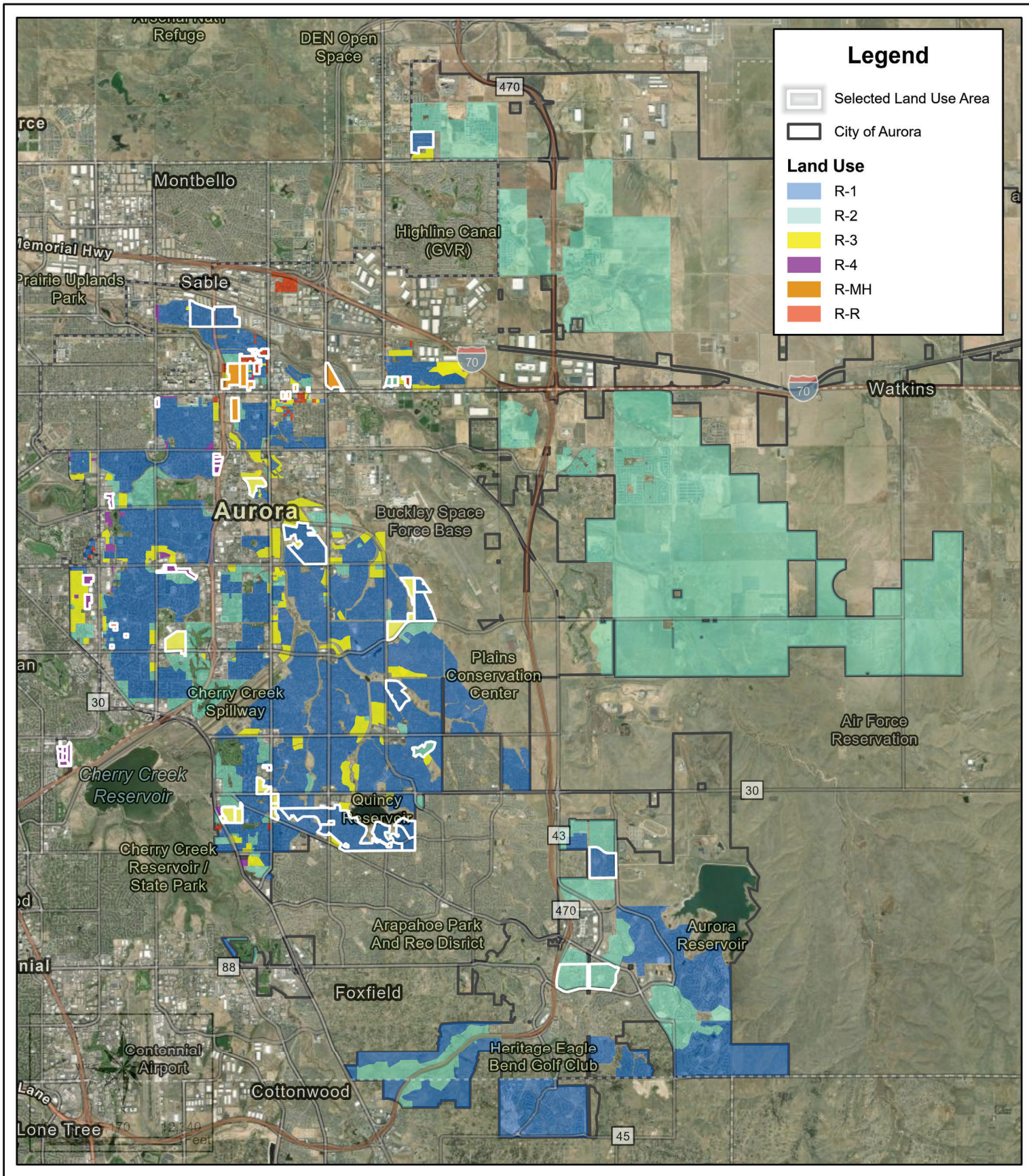
R-1	Summer Valley	6291.057019	0.14	1181	515	0	4595	500	4095	29%	40%
R-1	Summer Valley	4839.090555	0.11	1340	337	0	3162	500	2662	36%	46%
R-1	Summer Valley	7154.615036	0.16	1286	330	0	5539	500	5039	37%	37%
R-1	Summer Valley	4205.748868	0.10	1241	472	0	2493	500	1993	42%	51%
R-1	Prides Crossing	8233.665594	0.19	2263	803	0	5148	500	4648	39%	48%
R-1	Prides Crossing	8415.759242	0.19	2207	591	0	5618	500	5118	35%	45%
R-1	Prides Crossing	7893.076381	0.18	1560	524	0	5809	500	5309	29%	40%
R-1	Summer Valley	5862.433735	0.13	1376	501	0	3985	500	3485	34%	44%
R-1	Summer Valley	6930.597704	0.16	1256	319	0	5356	500	4856	25%	37%
R-1	Summer Valley	6727.492139	0.15	1565	338	0	4824	500	4324	30%	41%
R-1	Prides Crossing	8504.386639	0.20	1697	551	0	6256	500	5756	29%	40%
R-1	Summer Valley	7340.988903	0.17	1250	397	0	5694	500	5194	37%	47%
R-1	Summer Valley	4924.484212	0.11	1235	320	0	3369	500	2869	33%	44%
R-1	Prides Crossing	10916.2926	0.25	2355	699	0	7862	500	7362	30%	41%
R-1	Summer Valley	4600.258224	0.11	1257	574	0	2769	500	2269	41%	50%
R-1	Prides Crossing	12410.39718	0.28	2453	717	0	9240	500	8740	28%	39%
R-1	Prides Crossing	8813.110284	0.20	1780	406	1	6626	500	6126	27%	39%
R-1	Summer Valley	5910.960586	0.14	1204	315	0	4392	500	3892	28%	39%
R-1	Prides Crossing	7204.49749	0.17	2598	674	0	3932	500	3432	46%	54%
R-1	Summer Valley	5672.037697	0.13	1157	347	0	4168	500	3668	29%	40%
R-1	Prides Crossing	10696.8299	0.25	2126	406	0	8165	500	7665	26%	38%
R-1	Summer Valley	5651.691727	0.13	1503	348	0	3711	500	3211	35%	45%
R-1	Summer Valley	5723.351385	0.13	1196	394	0	4133	500	3633	30%	41%
R-1	Prides Crossing	8755.842245	0.20	2488	616	0	5652	500	5152	37%	47%
R-1	Prides Crossing	7693.798655	0.18	2080	562	0	4552	500	4052	36%	46%
R-1	Summer Valley	5175.179681	0.12	1369	396	0	3410	500	2910	36%	46%
R-1	Prides Crossing	8943.31692	0.21	1666	451	0	6826	500	6326	26%	38%
R-1	Summer Valley	5480.176924	0.13	1269	534	0	3677	500	3177	35%	45%
R-1	Prides Crossing	10887.77432	0.25	2111	720	0	8057	500	7557	28%	40%
R-1	Prides Crossing	6937.731429	0.16	1728	543	1	4666	500	4166	34%	45%
R-1	Prides Crossing	7147.688119	0.16	2169	417	0	5562	500	5062	38%	47%
R-1	Prides Crossing	8153.862689	0.19	1379	433	0	6342	500	5842	25%	37%
R-1	Summer Valley	6715.575208	0.15	1362	536	0	4818	500	4318	30%	41%
R-1	Prides Crossing	8967.039983	0.21	1869	678	0	6420	500	5920	31%	41%
R-1	Prides Crossing	9190.840992	0.21	2576	649	0	5966	500	5466	37%	46%
R-1	Prides Crossing	6977.727977	0.16	1575	520	0	4883	500	4383	32%	43%
R-1	Tollgate Crossing	12821.35516	0.29	2609	574	55	9583	500	9083	28%	39%
R-1	Tollgate Crossing	12283.11512	0.28	3678	833	5	7767	500	7267	38%	48%
R-1	Tollgate Crossing	12313.89631	0.28	2746	938	16	8614	500	8114	32%	43%
R-1	Tollgate Crossing	6888.786842	0.16	2506	567	0	3816	500	3316	45%	53%
R-1	Tollgate Crossing	9600.115905	0.22	3421	1274	0	4905	500	4405	49%	57%
R-1	Tollgate Crossing	6692.537246	0.15	2647	680	0	3366	500	2866	50%	57%
R-1	Tollgate Crossing	11962.05688	0.27	2913	700	0	6349	500	5849	32%	43%
R-1	Tollgate Crossing	7664.099934	0.18	2561	707	40	4356	500	3856	44%	52%
R-1	Tollgate Crossing	10732.64748	0.25	2662	694	99	7278	500	6778	34%	44%
R-1	Tollgate Crossing	10588.73739	0.24	3722	656	76	6135	500	5635	43%	52%
R-1	Tollgate Crossing	6692.697963	0.15	2724	747	0	3222	500	2722	52%	59%
R-1	Tollgate Crossing	6692.544461	0.15	2647	562	0	3484	500	2984	48%	56%
R-1	Tollgate Crossing	8048.494138	0.20	2733	663	0	3235	500	2735	49%	56%
R-1	Tollgate Crossing	8789.322733	0.20	2749	680	0	5230	500	4730	41%	50%
R-1	Tollgate Crossing	9457.366263	0.22	2724	628	0	6105	500	5605	37%	47%
R-1	Tollgate Crossing	15557.90376	0.36	2664	866	39	11995	500	11495	26%	37%
R-1	Tollgate Crossing	10943.42977	0.25	3594	1099	44	6206	500	5706	44%	52%
R-1	Tollgate Crossing	9894.621635	0.23	3382	381	0	6132	500	5632	39%	49%
R-1	Tollgate Crossing	9385.395139	0.22	2694	914	0	5777	500	5277	40%	49%
R-1	Tollgate Crossing	14310.77349	0.33	2544	775	0	10992	500	10492	26%	37%
R-1	Tollgate Crossing	8760.431523	0.20	2547	867	0	5346	500	4846	40%	49%
R-1	Tollgate Crossing	7769.329589	0.18	3316	987	0	3466	500	2966	55%	62%
R-1	Tollgate Crossing	11697.72651	0.27	2491	878	173	8406	500	7906	30%	41%
R-1	Tollgate Crossing	11919.47195	0.27	3791	645	214	7269	500	6769	40%	49%
R-1	Tollgate Crossing	12515.87744	0.29	2795	759	84	8879	500	8379	31%	42%
R-1	Tollgate Crossing	13312.77305	0.31	2657	854	51	9751	500	9251	29%	40%

R-1	Tollgate Crossing	9799.830306	0.22	3450	641	48	5661	500	5161	43%	52%
R-1	Tollgate Crossing	9518.104297	0.22	2543	734	82	6159	500	5659	37%	46%
R-1	Tollgate Crossing	8122.76787	0.19	2486	646	35	4956	500	4456	40%	49%

<b>Land Cover Percent Impervious (%)</b>									
Roof Footprint	Paved Road	Unpaved Road (dirt or gravel)	Paved Parking	Mixed Paved Parking	Driveway	Sidewalk	Landscaping	Native Grass/Open Space	
95%	95%	80%	95%	60%	95%	95%	20%	5%	

## **Attachment B.**

### **Maps of Zoomed-in Land Uses with Planimetric Data**



Path: Z:\Project Files\22\221-009\221-009.000\CAD-GIS\GIS01\_Project and MXDs\KK\_working\KK\_working.aprx



CITY OF AURORA, COLORADO

## RESIDENTIAL LAND USE SELECTION

LAND-USE BASED IMPERVIOUSNESS EVALUATION

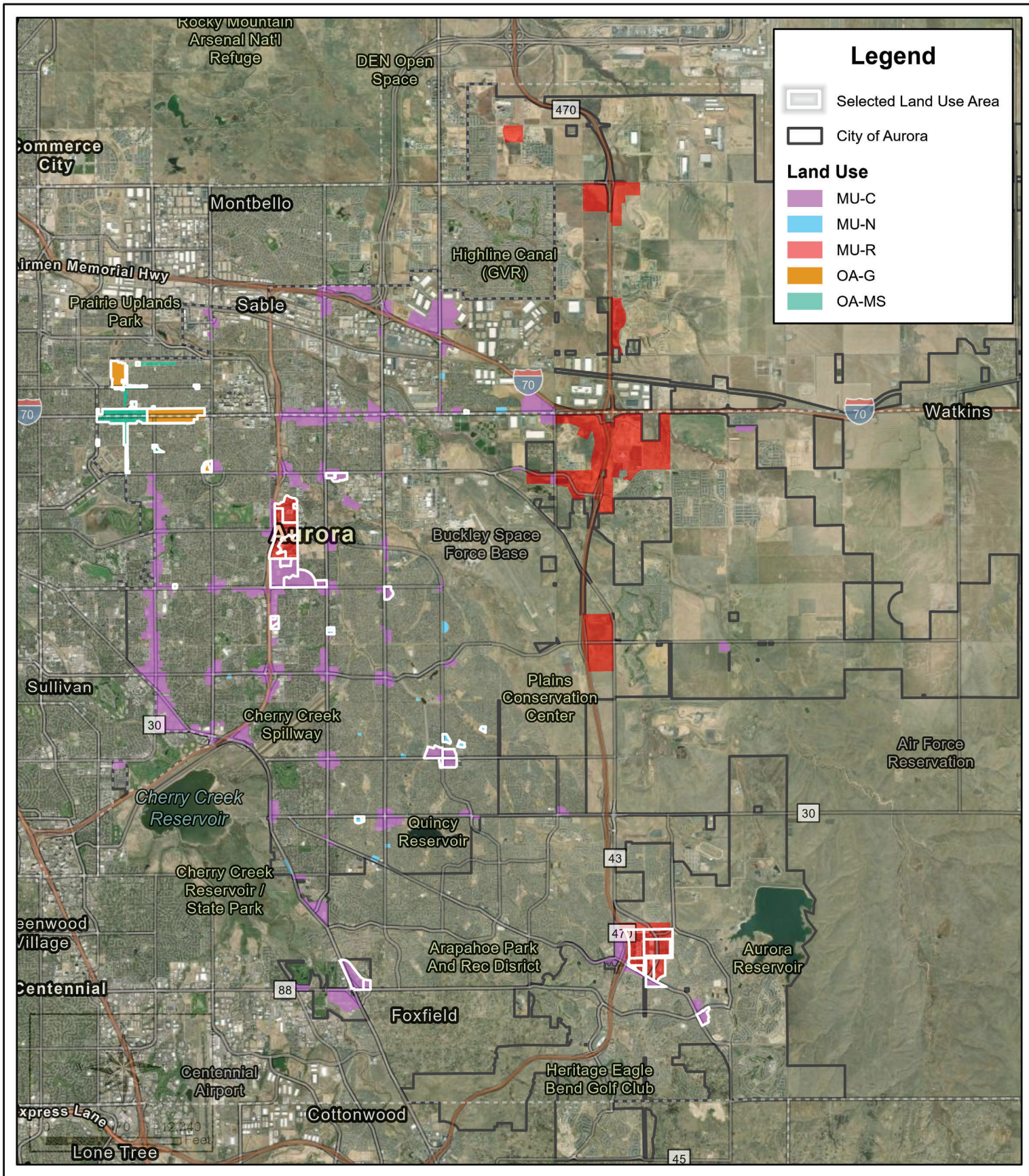


0 6,000 12,000 ft

FIGURE

5





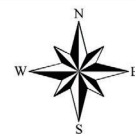
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CITY OF AURORA, COLORADO

## COMMERCIAL LAND USE SELECTION

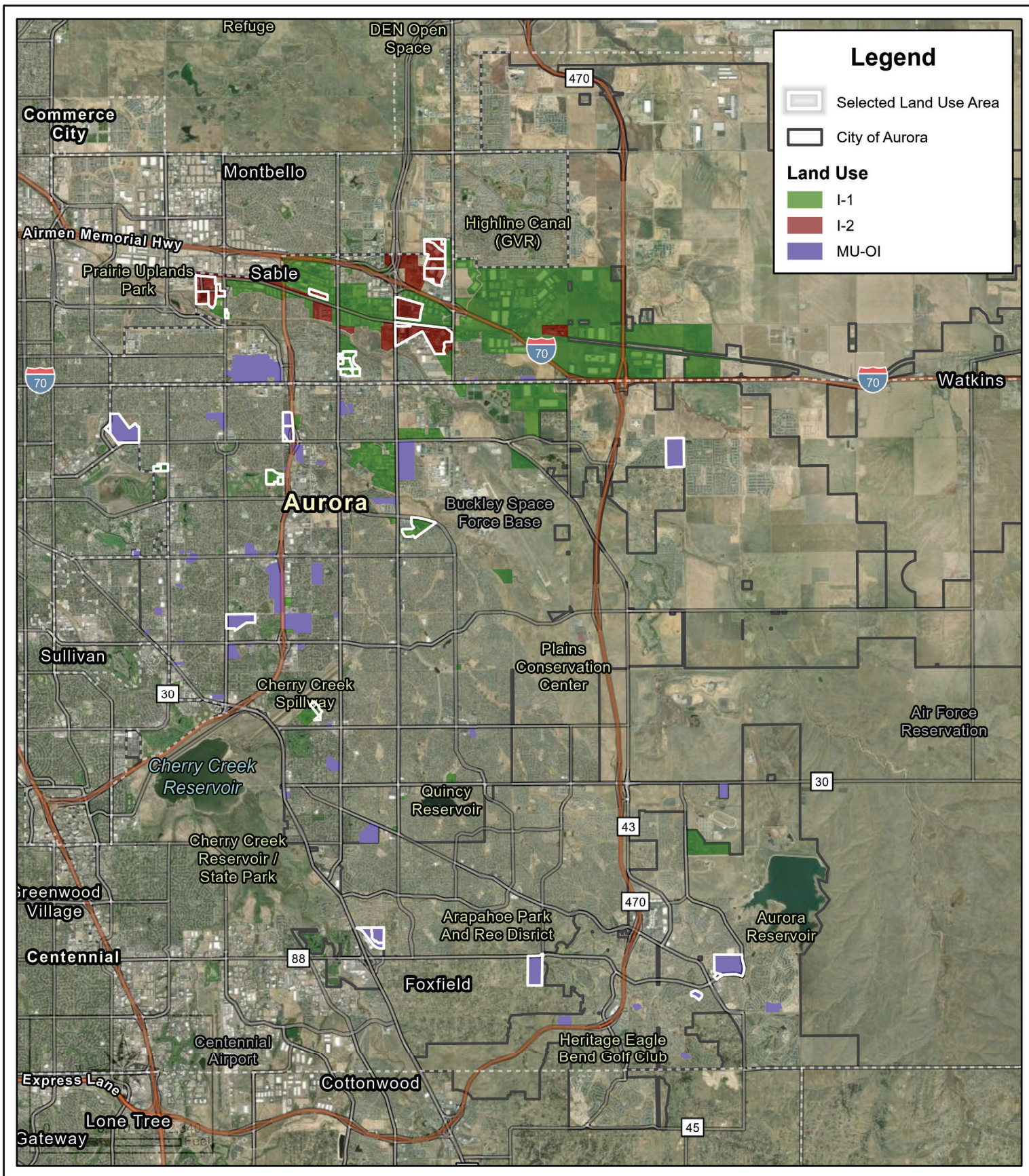
LAND-USE BASED IMPERVIOUSNESS EVALUATION



0 6,000 12,000 ft

FIGURE

6



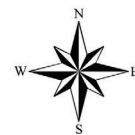
Path: Z:\Project Files\22\221-009\221-009.000\CAD-GIS\GIS01\_Project and MXDs\KK\_working\KK\_working.aprx



CITY OF AURORA, COLORADO

## INDUSTRIAL LAND USE SELECTION

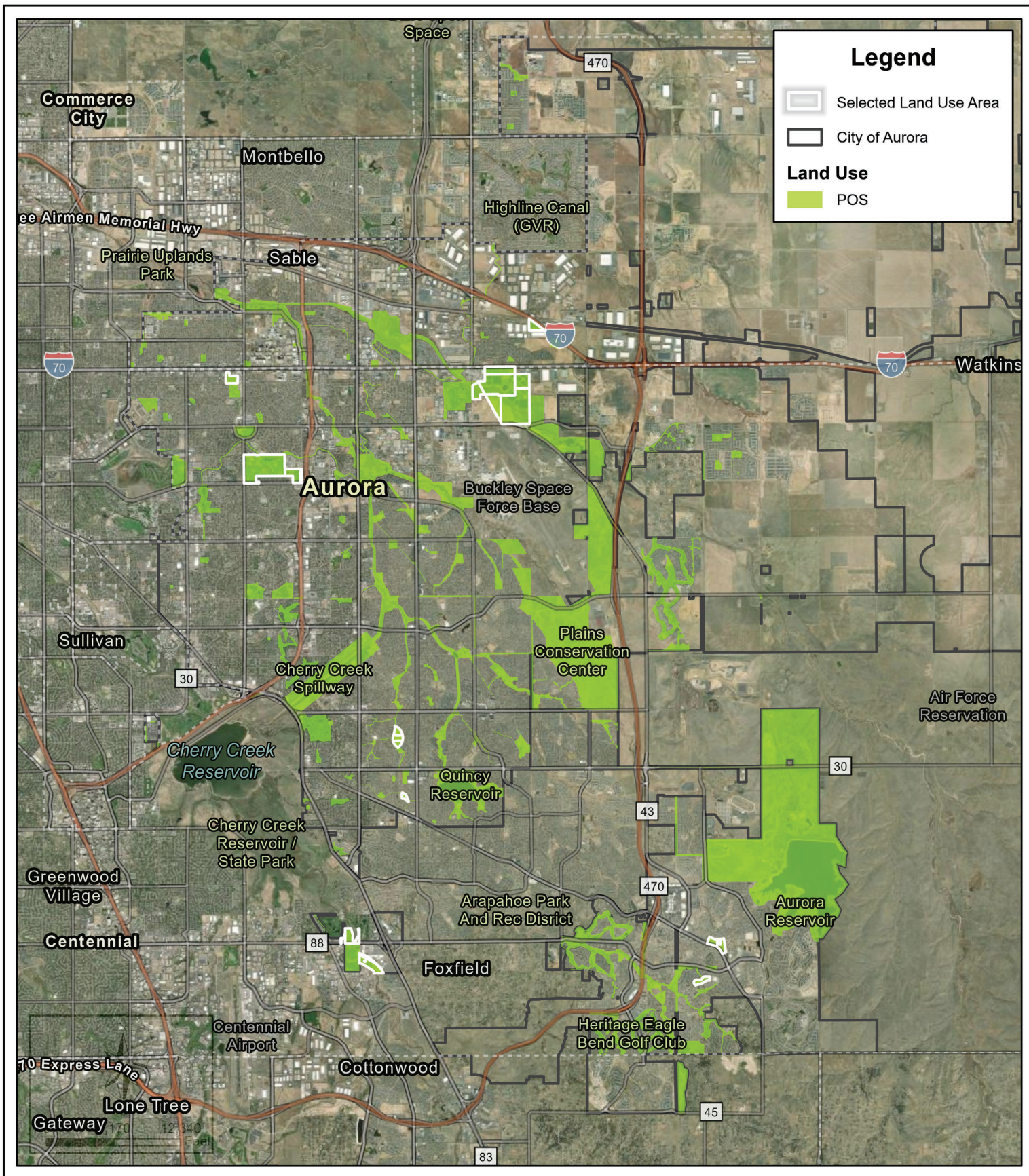
LAND-USE BASED IMPERVIOUSNESS EVALUATION



0 6,000 12,000 ft

FIGURE

7



Path: Z:\Project Files\22\221-009\221-009.000\CAD-GIS\GIS\01\_Project and MXDs\KK\_working\KK\_working.aprx



CITY OF AURORA, COLORADO

## PARKS AND OPEN SPACE LAND USE SELECTION

LAND-USE BASED IMPERVIOUSNESS EVALUATION

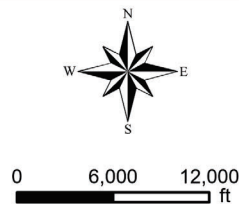


FIGURE  
8

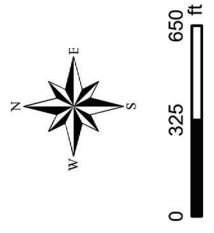
**Attachment C.**

**Selected Zoning across City of Aurora for each Land Use**



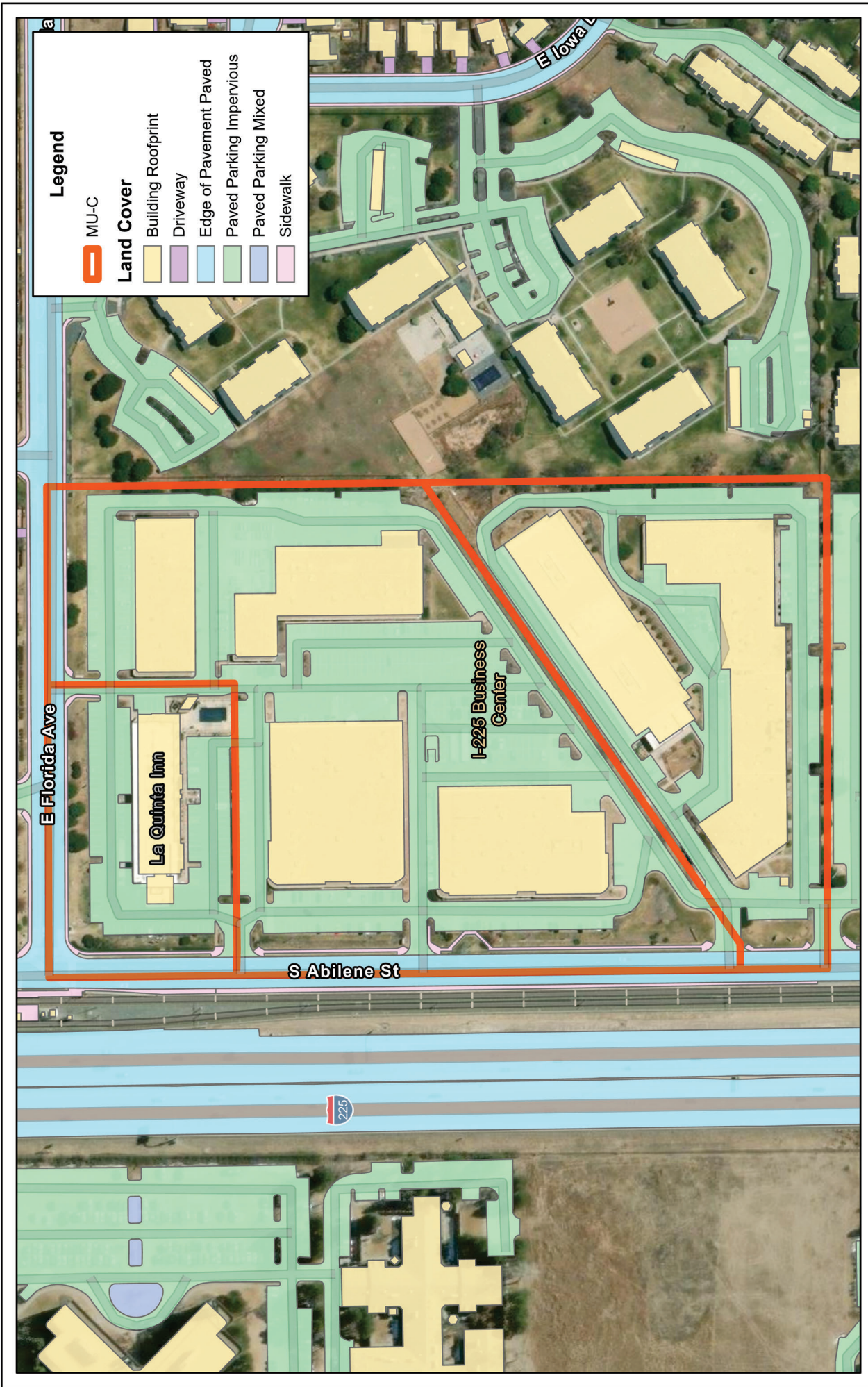
**R-1 (LOW DENSITY SINGLE FAMILY HOME, INCLUDING ROADS)**  
**LAND-USE BASED IMPERVIOUSNESS EVALUATION**

CITY OF AURORA, COLORADO



**FIGURE 1**

Path: Z:\Project Files\221221-009\221-009.000\CAD-GIS\GIS\01\_Project and MXDs\KK\_working\KK\_working.aprx



Path: Z:\Project Files\22\221-009\221-009.000\CAD-GIS\GIS\01\_Project and MXDs\KK\_working\KK\_working.aprx

CITY OF AURORA, COLORADO



# MU-C (MEDIUM-TO HIGH-DENSITY COMMERCIAL)

LAND-USE BASED IMPERVIOUSNESS EVALUATION

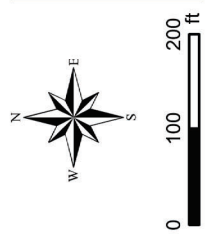
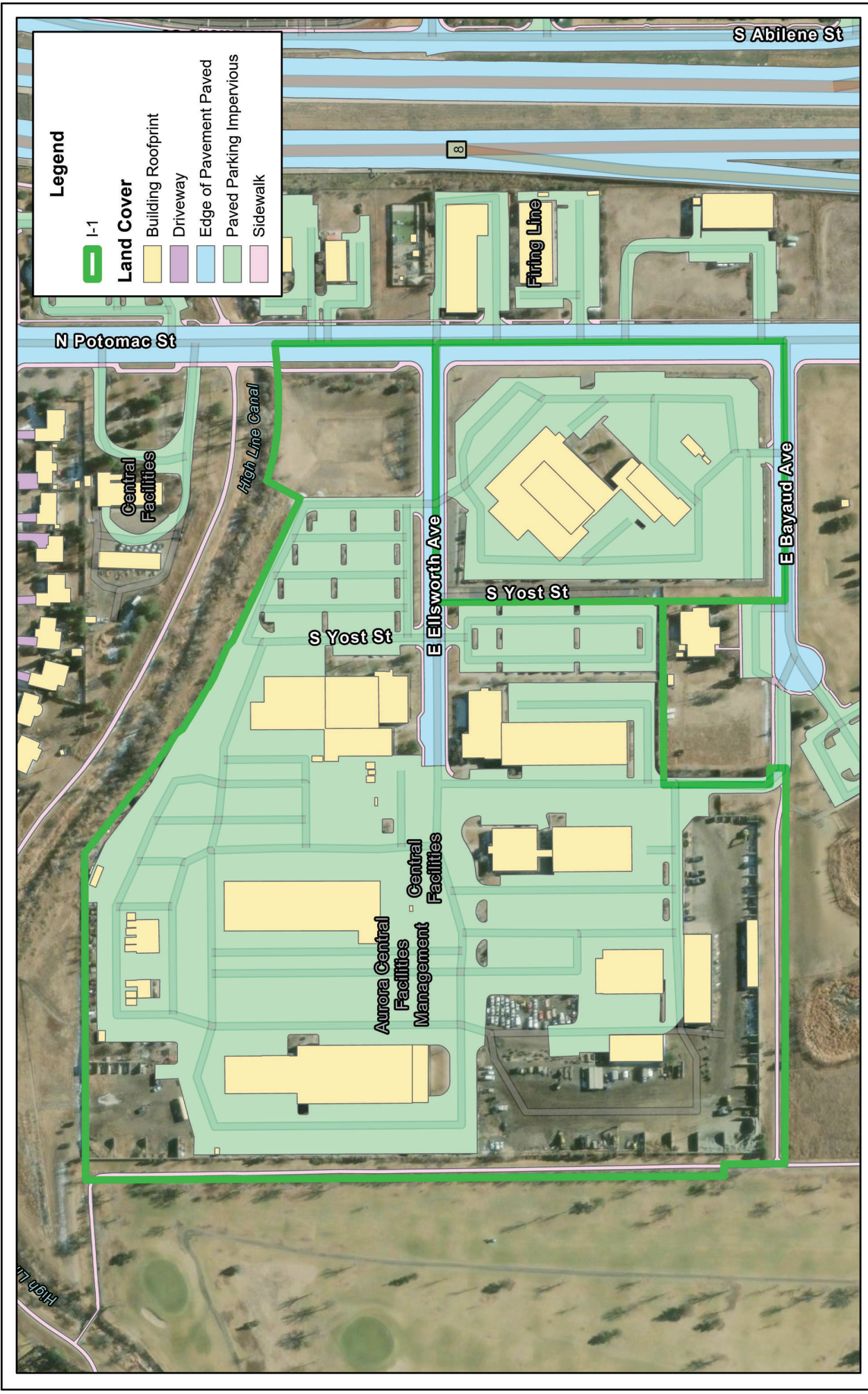


FIGURE 2



Path: Z:\Project Files\22\221-009\221-009.000\CAD-GIS\GIS\01\_Project and MXDs\KK\_working\KK\_working.aprx

CITY OF AURORA, COLORADO



# I-1 (INDUSTRIAL, LIGHT AREAS)

## LAND-USE BASED IMPERVIOUSNESS EVALUATION

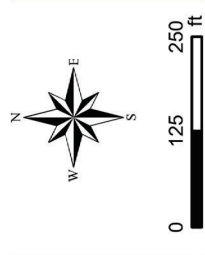
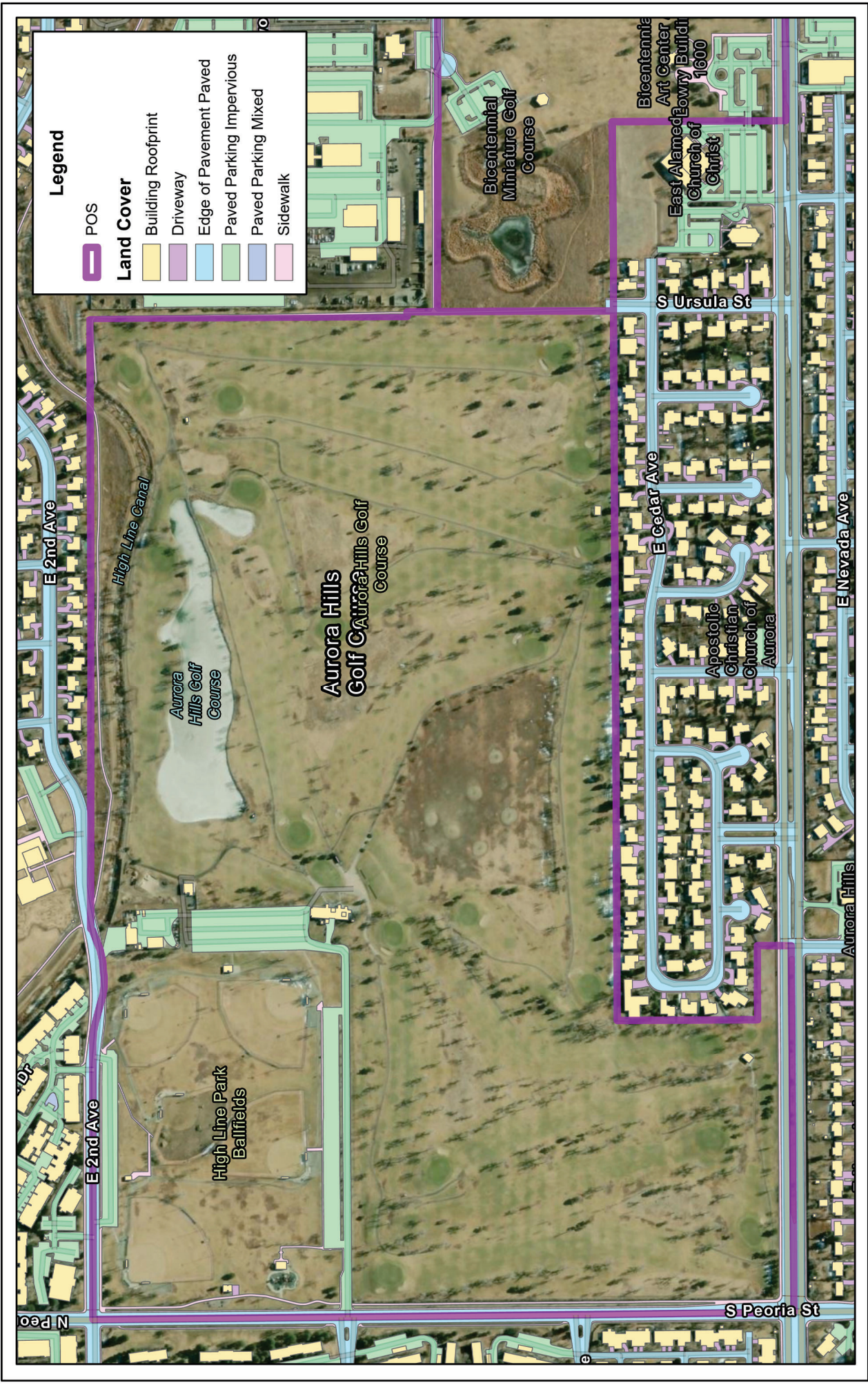


FIGURE  
3



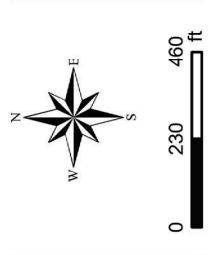
Path: Z:\Project Files\22\221-009\221-009.000\CAD-GIS\GIS\01\_Project and MXDs\KK\_working\KK\_working.aprx

CITY OF AURORA, COLORADO



**POS (OPEN SPACE)**

**LAND-USE BASED IMPERVIOUSNESS EVALUATION**



**FIGURE 4**