BOARD OF TRUSTEES' FACILITIES CONTRACTING COMMITTEE MATERIALS

January 25, 2023
11:00 a.m. – 1:00 p.m.

AGENDA
FACILITIES CONTRACTING COMMITTEE
January 25, 2023
11:00 a.m. -1:00 p.m.

Executive Session:

1. Discussion: Real Estate and Construction Items – As needed

Regular Meeting:

Trustees Facilities Contracting Committee and Full Board Public Session:

1. Consideration and Action: Chick Fil A – CMAR Agreement ……...3
2. Consideration and Action: Athletics Grounds Storage Facility – Delivery Method ….4
3. Consideration and Action: UW Flood Restoration- Agreement ……6

Trustees Facilities Contracting Committee only:

1. Status of building projects under construction. Status, update, and summary of any and all issues (i.e. cost, design, change order, etc.) to avoid all surprises. 1) Parking Garage, 2) Housing, 3) AMK, 4) Law School 5) Natatorium 6) Stadium and 7) other—Mai. (NOTE-Executive Session on construction projects—if necessary). ***Remains as agenda topic***. ……..7
2. Status of Housing Construction (dorms & parking) and status of satisfaction of Bond Debt requirements. (timing of use of funds, construction timeline, architect schedule for compliance, etc). ***Remains as agenda item until project completed***
3. Construction Project Enabling Actions or Information- As needed
4. Information: 9th/Lewis Street Landscaping ……22
5. Information: Student Housing Site Plan Options ……... 28
6. Information: Final Version of Tree Succession Plan ……. 32

FACILITIES CONTRACTING COMMITTEE
COMMITTEE MEETING MATERIALS

AGENDA ITEM TITLE: **Chick-fil-A – CMAR Agreement**, Mai

☒ PUBLIC SESSION

☐ EXECUTIVE SESSION

PREVIOUSLY DISCUSSED BY COMMITTEE:

☐ Yes

☒ No

FOR FULL BOARD CONSIDERATION:

☒ Yes *[Note: If yes, materials will also be included in the full UW Board of Trustee report.]*

☐ No

☐ *Attachments/materials are provided in advance of the meeting.*

EXECUTIVE SUMMARY:

Planning and Construction within the Division of Administration has been working with Chick-fil-A, and the project team to develop a project logistics plan and to on-board a constructor.

The project team unanimously agreed to work with Arcon Inc. Laramie, WY for pre-construction services and to develop a GMP. Administration will work directly with Chick-fil-A's design team including a Wyoming local mechanical engineer to finalize the construction documents. Administration will coordinate with RLDS for access and logistics as the construction activities are scheduled. Administration anticipates developing a GMP amendment for consideration at the May, 2023 Board of Trustees meeting.

Administration requests authorization to execute a CMAR Agreement with Arcon Inc. for pre-construction services in the amount of Fourteen Thousand Nine Hundred dollars ($14,900.00) and development of a Guaranteed Maximum Price for the Chick-fil-A project with funding to come from the Dining Reserve Account.

PRIOR RELATED BOARD DISCUSSIONS/ACTIONS:

- September 2022 – Board authorized Administration to proceed with design documents and construction procurement.

WHY THIS ITEM IS BEFORE THE COMMITTEE:

Pursuant to UW Regulation 6-9, the Board of Trustees shall approve construction contracts.

ACTION REQUIRED AT THIS COMMITTEE MEETING:

Recommendation to the full Board of Trustees to approve the CMAR agreement with Arcon Inc.

PROPOSED MOTION:

"I move to recommend to the full Board of Trustees to allow Administration to execute a CMAR Agreement with Arcon Inc. for pre-construction services in the amount of Fourteen Thousand Nine Hundred dollars ($14,900.00) and development of a Guaranteed Maximum Price for the Chick-fil-A project with funding to come from the Dining Reserve Account."

FACILITIES CONTRACTING COMMITTEE
COMMITTEE MEETING MATERIALS

AGENDA ITEM TITLE: Athletics Grounds Storage Facility, Mai

☒ PUBLIC SESSION
☐ EXECUTIVE SESSION

PREVIOUSLY DISCUSSED BY COMMITTEE:
- ☐ Yes
- ☒ No

FOR FULL BOARD CONSIDERATION:
- ☒ Yes *[Note: If yes, materials will also be included in the full UW Board of Trustee report.]*
- ☐ No

☐ *Attachments/materials are provided in advance of the meeting.*

EXECUTIVE SUMMARY:

Administration is currently working to design the Athletics Grounds Storage Facility. The facility will replace space Athletics currently utilizes under the west stands of the Stadium to store and repair maintenance equipment. Current planning for the War Memorial Stadium West Stands Renovation project utilizes this space to accommodate new concessions, restrooms, and circulation space.

Administration recently received the schematic design package for the project including an updated cost estimate. The estimate exceeds the current project budget of $4,522,974.10 by $1,000,000.00. While options for reducing costs have been explored, significant savings have not been identified. Modifying proposed building systems yields little savings as the building has been designed very efficiently. A reduction in the size of the building was explored with Athletics, however, it eliminates space needed to operate the facility efficiently. To continue with the project Administration is recommending an increase in the budget to accommodate the full program. The funding for this increase is proposed to come from the overall War Memorial Stadium West Stands Renovation budget.

After review of the schematic design package, Administration is recommending the design-bid-build project delivery method due to the size and complexity of the project. Administration requests authorization to proceed with the Athletics Grounds Storage facility utilizing the design-bid-build delivery method with a revised total project budget of Five Million Five Hundred Thousand dollars ($5,500,000.00) to come from the War Memorial Stadium West Stands Renovation budget.

PRIOR RELATED BOARD DISCUSSIONS/ACTIONS:
- September, 2022 – Board approved a design amendment for the design of the Athletics Grounds Storage Facility.

- May, 2022 – Board authorized administration to proceed with Level III services for the War Memorial West Stands Renovation project.
- May, 2020 – Board authorized Administration to enter contract negotiations with Arete Design Group as the design consultant for the War Memorial West Stand Renovation and Corbett Natatorium Addition projects.

WHY THIS ITEM IS BEFORE THE COMMITTEE:
Per UW Regulation 6-9, 4., F., project delivery methods are to be approved by the Board and no modifications shall be made to the project budget without prior approval of the Board.

ACTION REQUIRED AT THIS COMMITTEE MEETING:
Recommendation to the full Board of Trustees approval of a delivery method and increase to the project budget.

PROPOSED MOTION:
“I move to recommend to the full Board of Trustees to authorize Administration to proceed with the Athletics Grounds Storage facility utilizing the design-bid-build delivery method with a revised total project budget of Five Million Five Hundred Thousand dollars ($5,500,000.00) to come from the War Memorial Stadium West Stands Renovation budget.”

FACILITIES CONTRACTING COMMITTEE
COMMITTEE MEETING MATERIALS

AGENDA ITEM TITLE: **UW Flood Restoration- Agreement**, Mai

☒ PUBLIC SESSION
☐ EXECUTIVE SESSION

PREVIOUSLY DISCUSSED BY COMMITTEE:
- ☐ Yes
- ☒ No

FOR FULL BOARD CONSIDERATION:
- ☒ Yes *[Note: If yes, materials will also be included in the full UW Board of Trustee report.]*
- ☐ No

☐ *Attachments/materials are provided in advance of the meeting.*

EXECUTIVE SUMMARY:
On August, 13, 2022 a severe storm caused flood damage to 22 University buildings. Working with Risk Management, UW Operations advertised a request for proposals to complete the work remaining. Six general contractors attended the mandatory walk through. Three proposals were received.

The project team, including Risk Management and the insurance provider reviewed the proposals and ranked the teams based on quality of response, experience and cost. The restoration work will occur between February, 2023 and August, 2023. This contract will be funded from an active UW Property claim settlement.

Administration requests approval to execute a construction contract with Prairie Equipment, Laramie, WY in the amount of Seven hundred and eighty-nine thousand, five hundred and seventy-two dollars ($789,572).

WHY THIS ITEM IS BEFORE THE COMMITTEE:
Pursuant to UW Regulation 6-9(III)(F), the Board of Trustees shall approve consultant selection for projects over $500,000.00 and approve the project delivery method.

ACTION REQUIRED AT THIS COMMITTEE MEETING:
Recommendation to the full Board of Trustees for approval to execute a construction agreement for restoration services.

PROPOSED MOTION:
“I move to recommend to the full Board of Trustees to authorize Administration to execute a construction contract with Prairie Equipment, Laramie, WY in the amount of Seven hundred and eighty-nine thousand, five hundred and seventy-two dollars ($789,572) with funds to come from an active UW property claim settlement.”

Capital Construction
Progress Report as of January 8, 2023

PROJECTS IN CONSTRUCTION
https://www.uwyo.edu/administration/planning-and-construction/

1. 11th & 12th/Lewis Street Reconstruction

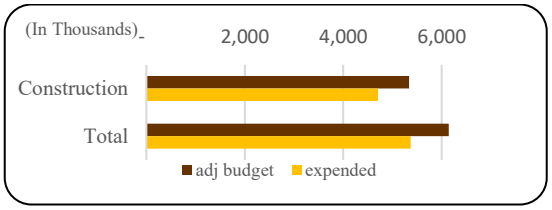
Design Documents
- Start - May 2020
- Completion - October 2020

Construction Documents
- Start - November 2020
- Completion - April 2021

Construction
- Start - Spring 2021
- Est Completion - Fall 2022

Contractor: GE Johnson Construction Wyoming
BOT approval - March 25, 2021

Architect: Norris Design
BOT approval - November 14, 2019



Original Project Budget $ 4,000,000 (a)
Adjusted Project Budget $ 6,140,465 (d)

Table 1.1: Funding- 11th and 12th /Lewis Street

Funding Sources:	Original Anticipated:	Actual:
EERB Project Reserve	4,000,000.00	4,300,000.00
Science Initiative Project Reserve		300,000.00
West Campus Satellite Energy Plant Project Reserve		1,446,440.17
City of Laramie		31,624.83
Campus Master Plan Project – remaining funds		62,400.00
Total Project	**4,000,000.00**	**6,140,465.00**

Table 1.2: Project Expenses- 11th and 12th /Lewis Street

(In Thousands)	Budget (a)	Additional Funding/Adj (b)	Use of Contingency (c)	Adj Budget (a+b+c)=(d)	Expenditures (e)	Obligations (f)	Remaining Balance (d+e+f)=(g)
Construction	3,000	2,078	260	5,338	(4,706)	(632)	-
Contingency	450	-	(450)	-	-	-	-
Design	365	63	234	662	(611)	(51)	-
FF&E	-	-	-	-	-	-	-
Tech	-	-	-	-	-	-	-
Admin	185	-	(44)	141	(54)	(18)	**69**
Total	**4,000**	**2,141**	-	**6,141**	**(5,371)**	**(701)**	**69**

Project History Summary: 11th and 12th / Lewis Street

Guaranteed Maximum Price (GE Johnson)	$ 3,586,303.00 (direct construction)
Change Orders (GE Johnson)	$ 228,999.88
Change Order Surveying and Installation (Haselden)	$ 1,425,572.00
Change Order Additional Sewer Line (Domino)	$ 97,400.00
TOTAL (GE Johnson, Haselden and Domino)	**$ 5,338,274.88**

Contract Substantial Completion Date Phase 1 and 2: May 2022

Project History Detail: 11th and 12th / Lewis Street

Statement of Contract Amount (GE Johnson)

Original contract	Phase 1 & 2 Lewis Street Corridor Improvements *(Change order to GE Johnson Science Initiative contract)*	**$3,586,303**
Change order #9	Additional concrete for light pole bases, contingency for 12th Street section and overhead	48,198
Change order #10	Additional light pole stone, construction contingency and overhead	8,057
Change order #11	Additional concrete to widen 12th Street rated path per AHJ, contingency and overhead	47,680
Change order #12	Additional boulders/plant count; additional sandstone boulders; irrigation design changes and added boring	25,754
COR 102	Added site rails, no change to overall contract. Cost adjustment from Lewis St portion to SI	(3,909)
CO 004 & 011	Damaged fiber vault, concrete paving, and painting. Cost adjustment from Lewis St to SI	(7,859)
CO 014 & 015	Guardrail, handrail changes. Cost adjustment from Lewis St portion to SI	(2,727)
Change order #17	Provide 9th Street striping and excavate foundation, pour concrete base monolithic (EERB art foundation)	28,713
CO 015 & 006	Additional concrete sidewalk repairs; inlet box lowered, bury broken valve box. Cost adjustment from Lewis St portion to SI	(3,137)
Change order #18	Added drainage area and revision to landscape, detention pond, manhole, pipe and grading	49,176.89
Change order #19	Added detention pond, manhole, drainage rock and asphalt patch/grading	39,052.99
Adj contract		**$3,815,302.88**

Statement of Contract Amount (Haselden)

Original contract	Surveying, Installation of 15th Street North Additional Water & Sewer Lines *(Change order to Haselden Wyoming Hall contract)*	**$1,425,572.00**
Adj contract		**$1,425,572.00**

Statement of Contract Amount (Domino)

Original contract	Additional Sewer Line (Required by MOU with City) *(Domino Construction)*	**$97,400.00**
Adj contract		**$97,400.00**

Total Contractors	*GE Johnson, Haselden, Domino Construction*	**$5,338,274.88**

Project Update: 11th and 12th/ Lewis Street

Work Completed/In Progress:
• Phase I surrounding Science Initiative is complete. • Phase II between Agriculture and Engineering buildings is complete. • 12th St. between Lewis and Bradley is complete including storm drain tie-in and detention basin rock infill.

Issues Encountered with Proposed Resolution for Each:
• None at this time.

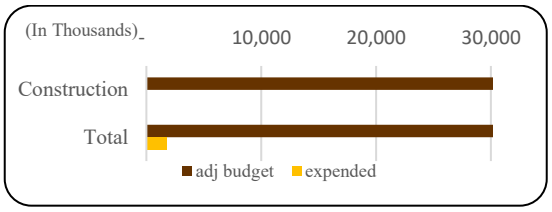
Work Planned for Upcoming Month:
• 12th Street and Bradley intersection detention basin. • Final landscape planting scheduled for spring 2023.

2. College of Law Expansion & Renovation

Design Documents
- Start - May 2019
- Completion - July 2020

Construction Documents
- Start - July 2020
- Completion - June 2022

Construction
- Start - December 2022
- Est. Completion - May 2024



Contractor: FCI Constructors of Wyoming, LLC
BOT approval – July 15, 2022

Architect: By Architectural Means
BOT approval – March 28, 2019

Original Project Budget $30,000,000 (a)
Adjusted Project Budget $38,000,000 (d)

Table 2.1: Funding- College of Law Expansion & Renovation

Funding Sources:	Original Anticipated:	Actual:
UW Foundation – donor funds	3,800,000.00	3,800,000.00
State Appropriation 2021-2022 (SF0067, Enrolled Act No. 19)	15,000,000.00	15,000,000.00
Major Maintenance (2023-2024)	11,200,000.00	19,200,000.00
Total Project	**30,000,000.00**	**38,000,000.00**

Table 2.2: Project Expenses- College of Law Expansion & Renovation

(In Thousands)	Budget (a)	Additional Funding/Adj (b)	Use of Contingency (c)	Adj Budget (a+b+c)=(d)	Expenditures (e)	Obligations (f)	Remaining Balance (d+e+f)=(g)
Construction	18,980	7,206	4,507	30,693	-	(30,693)	-
Contingency	6,297	754	(4,897)	2.154	-	-	**2,154**
Design	1,759	(25)	737	2,471	(1,277)	(546)	**648**
FF&E	1,154	45	(424)	775	-	-	**775**
Tech	714	(50)	(379)	285	(3)	-	**282**
Admin	1,096	70	456	1,622	(541)	(782)	**299**
Total	**30,000**	**8,000**	-	**38,000**	**(1,821)**	**(32,021)**	**4,158**

Project History Summary: College of Law Expansion & Renovation

Pre-Construction	$ 36,400
Guaranteed Maximum Price (Amendment #1)	$30,657,013
TOTAL	**$30,693,413**

Contract Substantial Completion Date May 8, 2024

Project History Detail: College of Law Expansion & Renovation

Statement of Contract Amount

Original contract	Pre-construction	**$36,400**
Amendment #1	Guaranteed Maximum Price	30,657,013
Adj contract		**$30,693,413**

Project Update: College of Law Expansion & Renovation

Work Completed/In Progress:

- Abatement Phase 1 is complete.

Issues Encountered with Proposed Resolution for Each:

- None at this time.

Work Planned for Upcoming Month:

- Site demolition, site utilities, temporary walls, build out A1 bathrooms, mechanical, electrical and plumbing (MEP) reroutes, information technology reroutes.

Utility Infrastructure

3. West Campus Satellite Energy Plant – Phase I

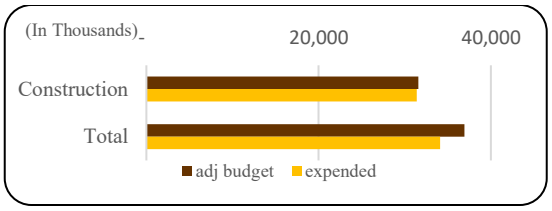
Design Documents
- Start - June 2017
- Completion - May 2018

Construction Documents
- Start - June 2018
- Completion - July 2019

Construction
- Start - October 2019
- Completion - November 2021

Contractor: GE Johnson Construction Wyoming
BOT approval – July 13, 2018

Architect: GLHN Architects and Engineers, Inc.
BOT approval - July 13, 2016



Original Project Budget $ 36,931,109 (a)
Adjusted Project Budget $ 36,931,109 (d)

Table 3.1: Funding- West Campus Satellite Energy Plant- Phase I

Funding Sources:	Original Anticipated:	Actual:
Major Maintenance	18,000,000.00	22,000,000.00
EERB Project Reserve	12,314,336.00	12,612,600.00
SI Project Reserve	2,000,000.00	1,701,736.00
UW – Capital Reserves (BOT)	4,616,773.00	
UW – Housing bonds		616,773.00
Total Project	**36,931,109.00**	**36,931,109.00**

Table 3.2: Project Expenses- West Campus Satellite Energy Plant- Phase I

(In Thousands)	Budget (a)	Additional Funding/Adj (b)	Use of Contingency (c)	Adj Budget (a+b+c)=(d)	Expenditures (e)	Obligations (f)	Remaining Balance (d+e+f)=(g)
Construction	29,059		2,513	31,572	(31,398)	(174)	-
Contingency	4,188	(500)	(3,664)	24	-	-	**24**
Reserve		1,447	950	2,397		(2,397)	-
Design	2,623	(565)	-	2,058	(1,983)	(61)	**14**
FF&E	110	(50)	-	60	(41)	-	**19**
Tech	25	-	-	25	(11)	-	**14**
Admin	926	(132)	1	795	(685)	(97)	**13**
Total	**36,931**	-	-	**36,931**	**(34,118)**	**(2,729)**	**84**

Project History Summary: West Campus Satellite Energy Plant- Phase I

Guaranteed Maximum Price (Amendment #1 and #2)	$ 29,058,549.00
Amendments #3 and #4 and Change Orders #1 and #2	$ 2,513,008.00
TOTAL	**$ 31,571,557.00**

Contract Substantial Completion Date November 22, 2021

Project History Detail: West Campus Satellite Energy Plant- Phase I

Statement of Contract Amount

Original contract	Pre-construction	**$61,250**
Amendment #1	Initial Guaranteed Maximum Price for Foundation and Utilities. (Includes pre-construction)	15,486,191
Amendment #2	Final Guaranteed Maximum Price; full project scope	13,572,358
Amendment #3	Utility extension and future boiler rough-in	82,297
Amendment #4	Heat exchangers, full heating conversion to surrounding buildings	2,348,254
Change order #1	Install curb and flood wall east of EERB for drainage mitigation; concrete paving	41,229
Change order #2	Install trench drain and valley pan east of EERB	41,228
Adj contract		**$31,571,557**

Project Update: West Campus Satellite Energy Plant- Phase I

Work Completed/In Progress:

- Substantial completion accepted on 11/22/2021.

Issues Encountered with Proposed Resolution for Each:

- None at this time.

Work Planned for Upcoming Month:

- Testing systems for use in warmer weather and extension to new construction.

4. West Campus Satellite Energy Plant – Phase II (Hot Water Expansion/Tunnel Upgrades)

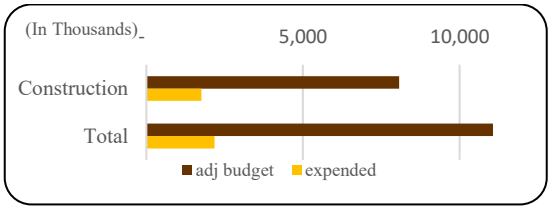
Design Documents
- Start - September 2021
- Completion - January 2022

Construction Documents
- Start - January 2022
- Completion - July 2022

Construction
- Start - August 2022
- Completion - Est November 2023

Contractor: GE Johnson Construction Wyoming
BOT approval – January 14, 2022

Architect: ST+B Engineering, Inc.
BOT approval – September 16, 2021



Original Project Budget $ 4,500,000 (a)
Adjusted Project Budget $ 11,489,000 (d)

Table 4.1: Funding- West Campus Satellite Energy Plant- Phase II

Funding Sources:	Original Anticipated:	Actual:
Major Maintenance (2021-2022)	4,500,000.00	4,500,000.00
WCSEP Phase I Reserve		950,000.00
Major Maintenance (2023-2024)		3,500,000.00
Major Maintenance (2025-2026)		2,539,000.00
Total Project	**4,500,000.00**	**11,489,000.00**

Table 4.2: Project Expenses- West Campus Satellite Energy Plant- Phase II

(In Thousands)	Budget (a)	Additional Funding/Adj (b)	Use of Contingency (c)	Adj Budget (a+b+c)=(d)	Expenditures (e)	Obligations (f)	Remaining Balance (d+e+f)=(g)
Construction	8,072	-	-	8,072	(1,760)	(6,312)	**0**
Contingency	2,604	-	-	2,604	-	-	**2,604**
Design	713	-	-	713	(401)	(260)	**52**
FF&E	-	-	-	-	-	-	**-**
Tech	-	-	-	-	-	-	**-**
Admin	100	-	-	100	(14)	(23)	**63**
Total	**11,489**	-	-	**11,489**	**(2,175)**	**(6,595)**	**2,719**

Project History Summary: West Campus Satellite Energy Plant- Phase II

Guaranteed Maximum Price $ 8,072,331.00
Contract Substantial Completion Date July 11, 2023

Project History Detail: West Campus Satellite Energy Plant- Phase II

Statement of Contract Amount

Original contract		
Amendment #1	Initial Guaranteed Maximum Price	$950,000
Amendment #2	Final Guaranteed Maximum Price	$8,072,331
Adj contract		**$8,072,331**

Project Update: West Campus Satellite Energy Plant- Phase II

Work Completed/In Progress:

- South Prexy's Pasture domestic water line has been directionally bored, building connections scheduled for summer 2023.
- North Prexy's Pasture condensate line replacement is complete, landscape treatment scheduled for summer 2023.

Issues Encountered with Proposed Resolution for Each:

- None at this time.

Work Planned for Upcoming Month:

- Completion of hot water piping between Classroom and Health Sciences. Surface treatments will be completed in the spring.

UW Housing Phase I
Housing Projects Summary:

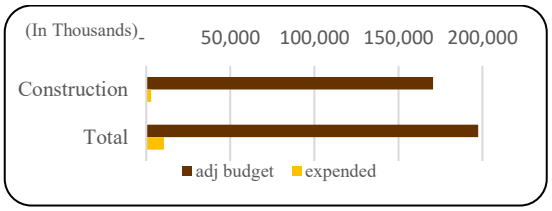
Project	Bonds	Major Maintenance	Other (TBD)	Other (VP Admin)	Other (Grant)	Other (City of Laramie)	Total	Expenditures + Obligations	Remaining Balance
Student Housing & Dining (See Item #5)	$ 196,903,934	$ 635,424	$ -	$ -	$ -	$ -	$ 197,539,358	$ 180,961,106	$ 16,578,252
Ivinson Parking Garage (See Item #6)	$ 27,331,647	$ 368,353	$ -	$ -	$ -	$ -	$ 27,700,000	$ 24,603,352	$ 3,096,648
Wyoming Hall Utility Relocation (Complete)	$ 14,905,300	$ 24,000	$ -	$ -	$ -	$ 88,686	$ 15,017,986	$ 13,732,190	$ 1,285,796
Bus Garage/Fleet Relocation (Complete)	$ 2,779,260	$ -	$ -	$ 197,695	$ 5,784,267	$ -	$ 8,761,222	$ 7,900,042	$ 861,180
Wyoming Hall Deconstruction	$ 2,724,536	$ 2,000	$ -	$ -	$ -	$ -	$ 2,726,536	$ 1,620,428	$ 1,106,108
West Campus Satellite Energy Plant (Complete)	$ 616,773	$ -	$ -	$ -	$ -	$ -	$ 616,773	$ 616,773	$ -
563 N. 14th Street Property Purchase (Complete)	$ 300,659	$ -	$ -	$ -	$ -	$ -	$ 300,659	$ 300,659	$ -
Fleet Rental Services (Complete)	$ -	$ -	$ -	$ 223,772	$ -	$ -	$ 223,772	$ 203,519	$ 20,253
TOTAL	$ 245,562,108	$ 1,029,777	$ -	$ 421,467	$ 5,784,267	$ 88,686	$ 252,886,306	$ 229,938,068	$ 22,948,238

5. UW Student Housing and Dining

Design Documents
- Start - January 2021
- Completion - November 2021

Construction Documents
- Start - January 2022
- Completion - June 2022

Construction
- Est Start - Fall 2022
- Est Completion - May 2025



Contractor: JE Dunn Construction
BOT approval – June 10, 2020

Architect: alm2s
BOT approval – July 18, 2019

Original Project Budget $210,308,891 (a)
Adjusted Project Budget $197,539,358 (d)

Table 5.1: Funding- Student Housing and Dining

Funding Sources:	Original Anticipated:	Actual:
UW – Housing Reserve Account	8,681,675.00	
UW – Construction Reserve Account	2,143,000.00	
Other Anticipated Costs- Funding TBD	199,484,216.00	
UW – Housing Bonds		197,539,358.00
Total Project	**210,308,891.00**	**197,539,358.00**

Table 5.2: Project Expenses- Student Housing and Dining

(In Thousands)	Budget	Additional Funding/Adj	Use of Contingency	Adj Budget	Expenditures	Obligations	Remaining Balance
	(a)	(b)	(c)	(a+b+c)=(d)	(e)	(f)	(d+e+f)=(g)
Construction	170,597	-	-	170,597	(2,826)	(167,771)	-
Contingency	9,761	-	-	9,761	-	-	**9,761**
Design	9,231	-	-	9,231	(6,580)	(2,149)	**502**
FF&E	3,585	-	-	3,585	-	-	**3,585**
Tech	1,500	-	-	1,500	-	-	**1,500**
Admin	2,865	-	-	2,865	(1,108)	(527)	**1,230**
Total	**197,539**	-	-	**197,539**	**(10,514)**	**(170,447)**	**16,578**

Project History Summary: Student Housing and Dining

Pre-Construction	$ 349,657
Guaranteed Maximum Price (Final)	$170,246,987
TOTAL	**$170,596,644**

Contract Substantial Completion Date May 20, 2025

Project History Detail: Student Housing and Dining

Statement of Contract Amount (JE Dunn)

Original contract	Pre-construction	**$349,657**
Amendment #2	Initial Guaranteed Maximum Price (includes pre-construction)	27,961,914
Amendment #3	Final Guaranteed Maximum Price	170, 246, 987
Adj contract	Revised project scope	**$170,596,644**

Project Update: UW Student Housing and Dining

Work Completed/In Progress:

- Preliminary Design phase is complete.
- Construction Documents are 100% complete.
- Project has publicly bid and scope review is in process.
- Guaranteed Maximum Price (GMP) contract amendment approved at the November Board of Trustees Meeting, excludes South Hall building.

Issues Encountered with Proposed Resolution for Each:

- South Hall funding.

Work Planned for Upcoming Month:

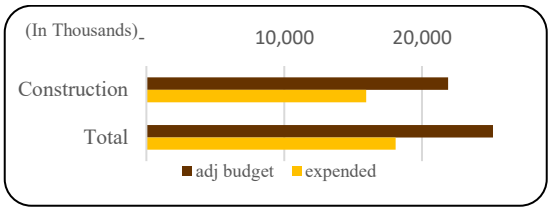
- Construction site mobilization, fencing, layout, and start of early site clearing activities.

6. Ivinson Lot Parking Garage

Design Documents
- Start - September 2020
- Completion - December 2020

Construction Documents
- Start - January 2021
- Completion - April 2021, Redesign July 2021

Construction
- Start - October 2021
- Est Completion -Spring 2023



Contractor: Sampson Construction Co.
BOT approval – September 16, 2021

Architect: By Architectural Means
BOT approval – December 11, 2019

Original Project Budget $27,850,000 (a)
Adjusted Project Budget $27,850,000 (d)

Table 6.1: Funding- Ivinson Lot Parking Garage

Funding Sources:	Original Anticipated:	Actual:
UW – Housing Reserve Account	926,400.00	-
Other Anticipated Costs- Funding TBD	26,923,600.00	
UW – Housing Bonds	-	27,850,000.00
Total Project	**27,850,000.00**	**27,850,000.00**

Table 6.1: Project Expenses- Ivinson Lot Parking Garage

(In Thousands)	Budget (a)	Additional Funding/Adj (b)	Use of Contingency (c)	Adj Budget (a+b+c)=(d)	Expenditures (e)	Obligations (f)	Remaining Balance (d+e+f)=(g)
Construction	22,688	-	(798)	21,890	(15,950)	(5,940)	-
Contingency	1,666	-	778	2,444	-	-	**2,444**
Design	1,680	-	20	1,700	(1,625)	(64)	**11**
FF&E	265	114	-	379	(26)	(356)	**(3)**
Tech	442	(114)	-	328	(77)	(73)	**178**
Admin	1,109	-	-	1,109	(415)	(77)	**617**
Total	**27,850**	-	-	**27,850**	**(18,093)**	**(6,510)**	**3,247**

Project History Summary: Ivinson Lot Parking Garage

Pre-Construction (Haselden)	$ 15,712.00
Original Contract Amount (Sampson)	$ 20,138,000.00
Change Orders (Sampson)	$ 1,736,458.77
Total (Haselden and Sampson)	**$ 21,890,170.77**

Contract Substantial Completion Date December 15, 2022

Project History Detail: Ivinson Lot Parking Garage

Statement of Contract Amount (Haselden)

Original contract	Pre-construction *(Haselden Wyoming Constructors)*	**$15,712**

Statement of Contract Amount (Sampson)

Original contract		**$20,138,000**
Change order #1	Various revisions: plumbing, electric water cooler (credit), added electric sub-meter, fiber optic cable (credit), drilled pier under/over run, demolish hospital foundation	8,770
Change order #2	Corridor 101 seat bench casework revision, City water main rework	9,083
Change order #3	10th/11th/Ivinson Street reconstruction, utility upgrades	1,509,464
Change order #4	Revisions to concrete, flat panel light spec, water entry combustion air, block out for upturned beams, door and door frames	(2,554)
Change order #5	UW emblem added for CS-45 inscribed panel	2,413
Change order #6	Door hardware revisions	(1,566)
Change order #7	Credit for architectural wall label revisions, deletion of fluid applied air barrier and 2-inch polyisocyanurate insulation deleted from walls	(27,295)
Change order #8	Provide flexible piping connectors for natural gas piping at the garage/acoustical assembly interface	1,015
Change order #9	Bus lane curb and sidewalk revisions	5,801
Change order #10	Purchase, assemble and place (3) teak shower benches in shower area	1,057
Change order #11	Design, fabricate and install (2) illuminated exterior panel signs for garage entry	32,520.77
Change order #12	Exterior painting to Level 1 parking garage ceiling	45,000
Change order #13	10th/11th and Ivinson Street replacement per City	49,987
Change order #14	Addition of (8) 2.5” caliper lance leaf cottonwood trees with soil prep and mulch along north side of Ivinson Street	5,400
Change order #15	Exterior painting to Level 2 parking garage ceiling	40,000
Change order #16	Concrete sealer for Level 1	21,362

Change order #17	Dispatch video intercom control for overhead door	10,454
Change order #18	Color accent on underside of parking deck & painted accent walls	4,578
Change order #19	Relocate cameras #7 & #13	11,912
Change order #20	Change 4" fire sprinkler pipe to Schedule 40	9,057
Adj contract		**$21,874,458.77**

Total Contractors	*Haselden (pre-con), Sampson Construction*	**$21,890,170.77**

Project Update: Ivinson Lot Parking Garage

Work Completed/In Progress:

- Police Department interior finishes are 90% complete.
- Garage finishes are 90% complete.
- Exterior stone and cast stone in progress.
- Structural concrete masonry unit (CMU) is 95% complete.
- Audio visual, information technology and security progressing.
- Appliances installed.

Issues Encountered with Proposed Resolution for Each:

- Monitoring low concrete breaks on exterior sidewalks.
- Exterior skin delayed–working on strategies with contractor and design team.
- Masonry issues, supply chain, and labor shortage has caused delays. Contractor proposing partial use solutions.

Work Planned for Upcoming Month:

- Exterior skin.
- Interior masonry and finishes.

BEFORE

UW 9th Street Photo-Visualizations | **View 1**

November 17, 2022

AFTER

UW 9th Street Photo-Visualizations | **View 1**

November 17, 2022

BEFORE

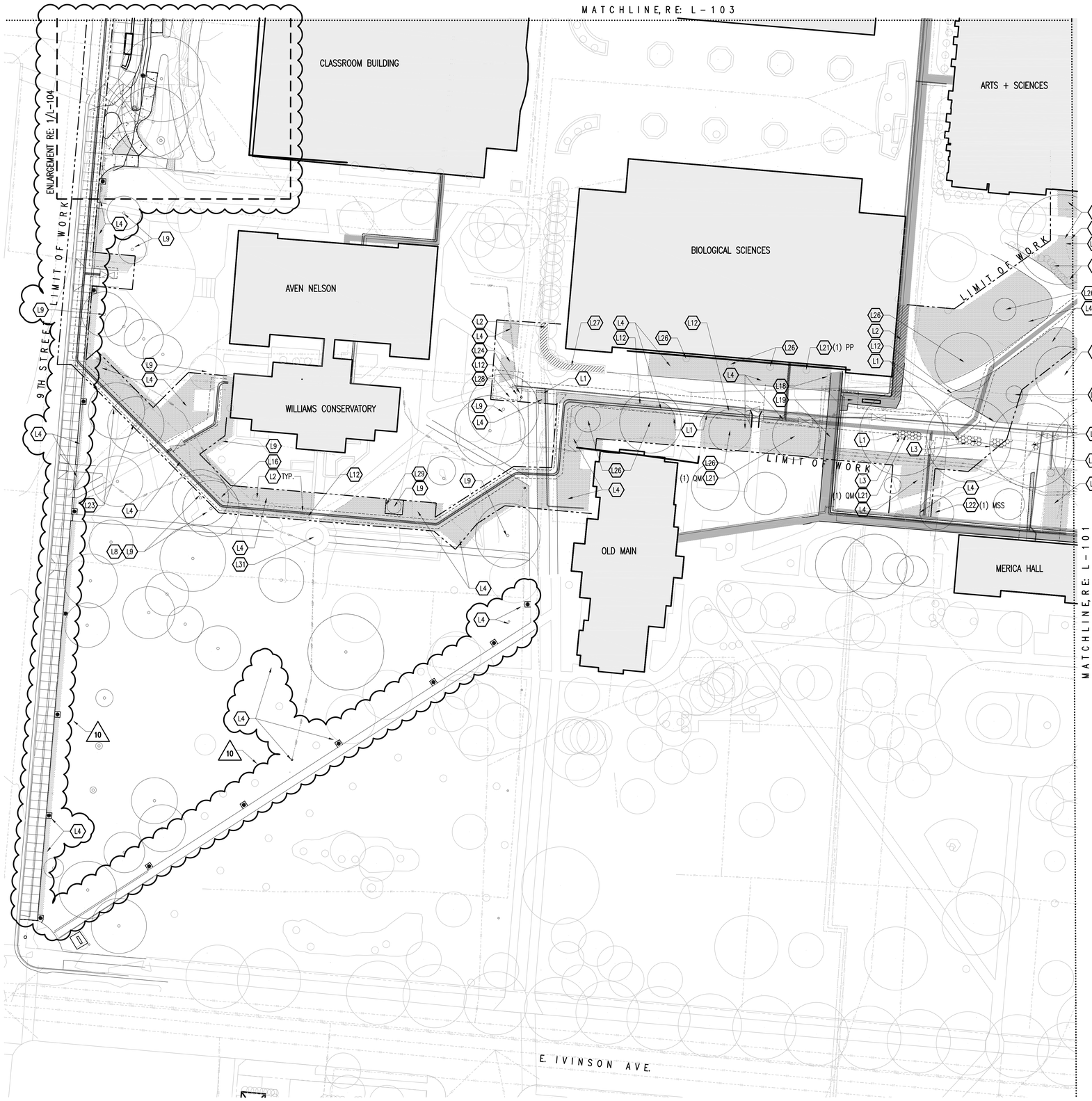
UW 9th Street Photo-Visualizations | **View 2**

November 17, 2022

AFTER

UW 9th Street Photo-Visualizations | **View 2**

November 17, 2022



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PLANTING NOTES

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11. ALL LANDSCAPE TO BE IRRIGATED. REPAIR EXISTING IRRIGATION DISTURBED BY CONSTRUCTION.

KEY NOTES

L.0 LANDSCAPE

- L1 SALVAGE EXISTING BOULDERS AND REPLACE IN SAME LOCATION, ORIENTATION + DEPTH, RE: 6/L-501
- L2 REPLACE DEMOLISHED PLANTS WITH SAME SPECIES, QUANTITY + LOCATIONS, + MATCH MULCH TYPE + WEED BARRIER FABRIC. SHRUBS = 5 GAL., PERENNIALS = 1 GAL., RE: 4+5/L-501 + SPECS.
- L3 MULCH WITH 3" DEPTH WOOD MULCH, RE: SPECS.
- L4 WHERE EXISTING LAWN IS DISTURBED/REMOVED, INSTALL 6" AMENDED TOPSOIL AND SOD, RE: SPECS.
- L5 PRESERVE + PROTECT EXISTING LIGHT POLE
- L6 SALVAGE EXISTING BOULDERS + TURNOVER TO OWNER
- L7 REMOVE TREE STUMP
- L8 LIMB UP EXIST. CONIFERS UNIFORMLY ON ALL SIDES TO ACCOMMODATE WORK IN CONSULTATION WITH OWNER
- L9 PROTECT EXISTING TREE, RE: 10/L-501 + SPECS.
- L10 REPLACE STONE PAVING TO MATCH EXISTING TYPE, COLOR, FINISH AND CONFIGURATION, RE: SPECS.
- L11 PRESERVE + PROTECT EXIST. BEN FRANKLIN STATUE + BASE/PLINTH
- L12 EXISTING LIGHT POLE TO BE SALVAGED + REINSTALLED IN SAME LOCATION
- L13 REPLACE 8" DEPTH OF TOPSOIL IN DISTURBED PLANTING BED. MATCH EXISTING FINISH + GRADE, RE: SPECS.
- L14 SALVAGE/REPLACE BUS STOP PAD, KIOSK, BENCHES + TRASH RECEPTACLE
- L15 PRESERVE + PROTECT EXISTING BOULDERS + STONE PAVING TO MATCH EXISTING, RE: 6/L-501 + 8/L-501
- L16 SALVAGE EXIST. BENCH + REINSTALL IN SAME LOCATION + ORIENTATION
- L17 REPLACE DEMOLISHED LIGHT POLE, STONE BASE + FOOTING REMOVED DURING CONSTRUCTION, RE: 7/L-501
- L18 SALVAGE + REINSTALL MONUMENT SIGN IN SAME LOCATION
- L19 EXISTING UTILITY TUNNEL
- L20 SALVAGE TRASH RECEPTACLE + REINSTALL IN SAME LOCATION
- L21 REPLACE DEMOLISHED DECIDUOUS TREE WITH 2.5" CALIPER DECIDUOUS TREE, RE: 1L-501 + SPECS.
- L22 REPLACE DEMOLISHED MULTI-STEM TREE WITH 8' MULTI-STEM TREE, RE: 2/L-501 + SPECS.
- L23 REPLACE DEMOLISHED EVERGREEN TREE WITH 8' EVERGREEN TREE, RE: 3/L-501 + SPECS.
- L24 SALVAGE + REPLACE PRECAST CONCRETE UNIT PAVERS, RE: 9/L-501 + SPECS.
- L25 REPLACE ROCK MULCH OVER WEED BARRIER FABRIC TO MATCH EXIST.
- L26 PRESERVE + PROTECT EXIST. TREE. THE EVENT THAT THE TREE HAS TO BE REMOVED, REPLACE WITH SAME TREE TYPE (DECIDUOUS 2.5" CAL.; MULTI-STEM 8'; EVERGREEN 8'), SPECIES SELECTION BY ENGINEER
- L27 PRESERVE + PROTECT RAISED PLANTER. IF DAMAGED/REMOVED BY CONSTRUCTION, REPLACE TO MATCH EXIST.
- L28 SALVAGE + REINSTALL BIKE RACKS IN ORIGINAL LOCATION
- L29 TREE PROTECTION FENCE, RE: 10/L-501
- L30 REPAIR/REPLACE EXISTING STONE + STEEL BENCH TO MATCH EXIST.
- L31 PRESERVE + PROTECT EXIST. MONUMENT+ ADJACENT PAVEMENT
- L32 SALVAGE EXIST STAMPED TEXT IN CONCRETE - SAW CUT, REMOVE + REPLACE AS DIRECTED BY OWNER
- L33 INSTALL 8" DEPTH AMENDED TOPSOIL PRIOR TO SODDING, RE: SPECS.

10

SYMBOLS LEGEND

- IRRIGATED SOD, RE: SPECS
- PLANTING BED, TOPSOIL, RE: SPECS.
- 3" DEPTH WOOD MULCH, RE: SPECS.

PLANT LEGEND

ABBR.	BOTANICAL NAME	COMMON NAME	SIZE	COMMENTS
	EVERGREEN TREES			
PPG	PICEA PUNGENS 'GLAUCA'	COLORADO BLUE SPRUCE	8'-0"	B & B, STAKE + GUY
	DECIDUOUS TREES			
AA	AMELANCHIER ALNIFOLIA	SASKATOON SERVICEBERRY	8' CLUMP	B & B, STAKE + GUY
ANS	ACER NEGUNDO 'SENSATION	SENSATION BOX ELDER	2.5" CAL.	B & B, STAKE + GUY
MSS	MALUS 'SPRING SNOW'	SPRING SNOW CRABAPPLE	8' CLUMP	B & B, STAKE + GUY
PP	PRUNUS PADUS	MAYDAY TREE	2.5" CAL.	B & B, STAKE + GUY
PVS	PRUNUS VIRGINIANA 'SCHUBERT'	CANADA RED CHOKECHERRY	2.5" CAL.	B & B, STAKE + GUY
PVM	PRUNUS VIRGINIANA 'SCHUBERT'	CANADA RED CHOKECHERRY	8' CLUMP	B & B, STAKE + GUY
QM	QUERCUS MACROCARPA	BUR OAK	2.5" CAL.	B & B, STAKE + GUY

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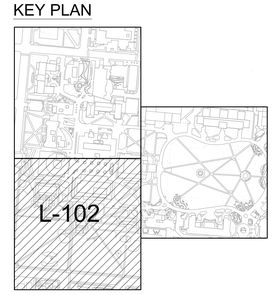

STAMP:

LICENSED LANDSCAPE ARCHITECT ANNE DESJARDINS 0002B Date: 09.15.22 STATE OF WYOMING

ST+B
SPADEK TIMBIE AND BLEVINS ENGINEERING INC
WWW.STB.ENGINEERING INFO@STB.ENGINEERING
PO BOX 3699
(303) 900-8782 EVERGREEN, CO 80437

limegreen DESIGN
WWW.LGDINC.COM INFO@LGDINC.COM
(303) 733-7558 1165 S. PENNSYLVANIA ST.
SUITE 120A
DENVER, CO 80210

UNIVERSITY OF WYOMING
PREXY'S PASTURE HEATING WATER EXTENSION
BID PACKAGE #1
UNIVERSITY OF WYOMING
1000 E. UNIVERSITY AVE.
LARAMIE, WY 82071

ST+B No.: 2777.02

NO	SUBMISSION	DATE
1	COORDINATION	08/20/21
2	COORDINATION	02/11/22
3	UTILITY OWNER REVIEW	03/18/22
4	OWNER REVIEW	04/06/22
5	BID SET	04/19/22
6	ADDENDUM 1	05/06/22
7	N PREXY CN UPDATES	08/01/22
8	NORTH CONDENSATE CD'S	08/26/22
9	90% CDs - 9TH STREET	09/09/22
10	100% CDs - 9TH STREET	09/15/22

SHEET NAME
LANDSCAPE PLAN

SHEET NO.
L-102

10/3/2022 4:21 PM 30x42

Scale: 1" = 30'

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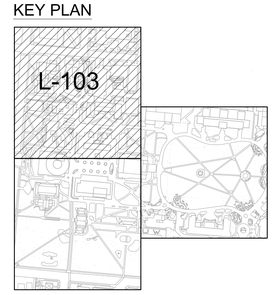
QM	QUERCUS MACROCARPA	BUR OAK	2.5" CAL.	B & B, STAKE + GUY

KEY PLAN



STAMP:

LICENSED LANDSCAPE ARCHITECT ANNE DESJARDINS 002B Date: 09.15.22 STATE OF WYOMING

ST+B
SPADEK TIMBIE AND BLEVINS ENGINEERING INC
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PO BOX 3699
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DENVER, CO 80210

UNIVERSITY OF WYOMING
PREXY'S PASTURE HEATING WATER EXTENSION
BID PACKAGE #1
UNIVERSITY OF WYOMING
1000 E. UNIVERSITY AVE.
LARAMIE, WY 82071

ST+B No.: 2777.02

NO	SUBMISSION	DATE
1	COORDINATION	08/20/21
2	COORDINATION	02/11/22
3	UTILITY OWNER REVIEW	03/18/22
4	OWNER REVIEW	04/06/22
5	BID SET	04/19/22
6	ADDENDUM 1	05/06/22
7	N PREXY CN UPDATES	08/01/22
8	NORTH CONDENSATE CD'S	08/26/22
9	90% CDs - 9TH STREET	09/09/22
10	100% CDs - 9TH STREET	09/15/22

SHEET NAME
LANDSCAPE PLAN

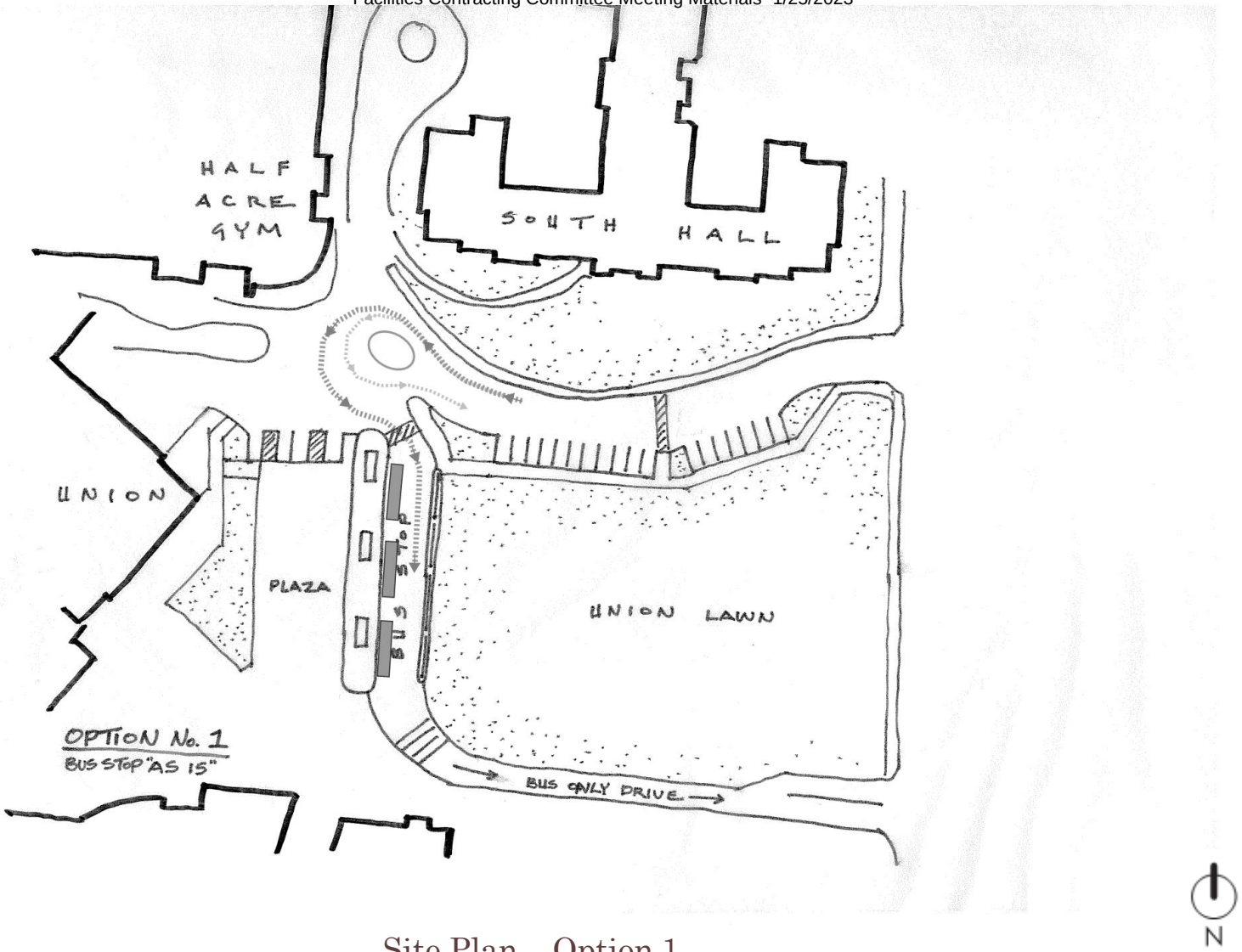
SHEET NO.
L-103

10/3/2022 4:23 PM

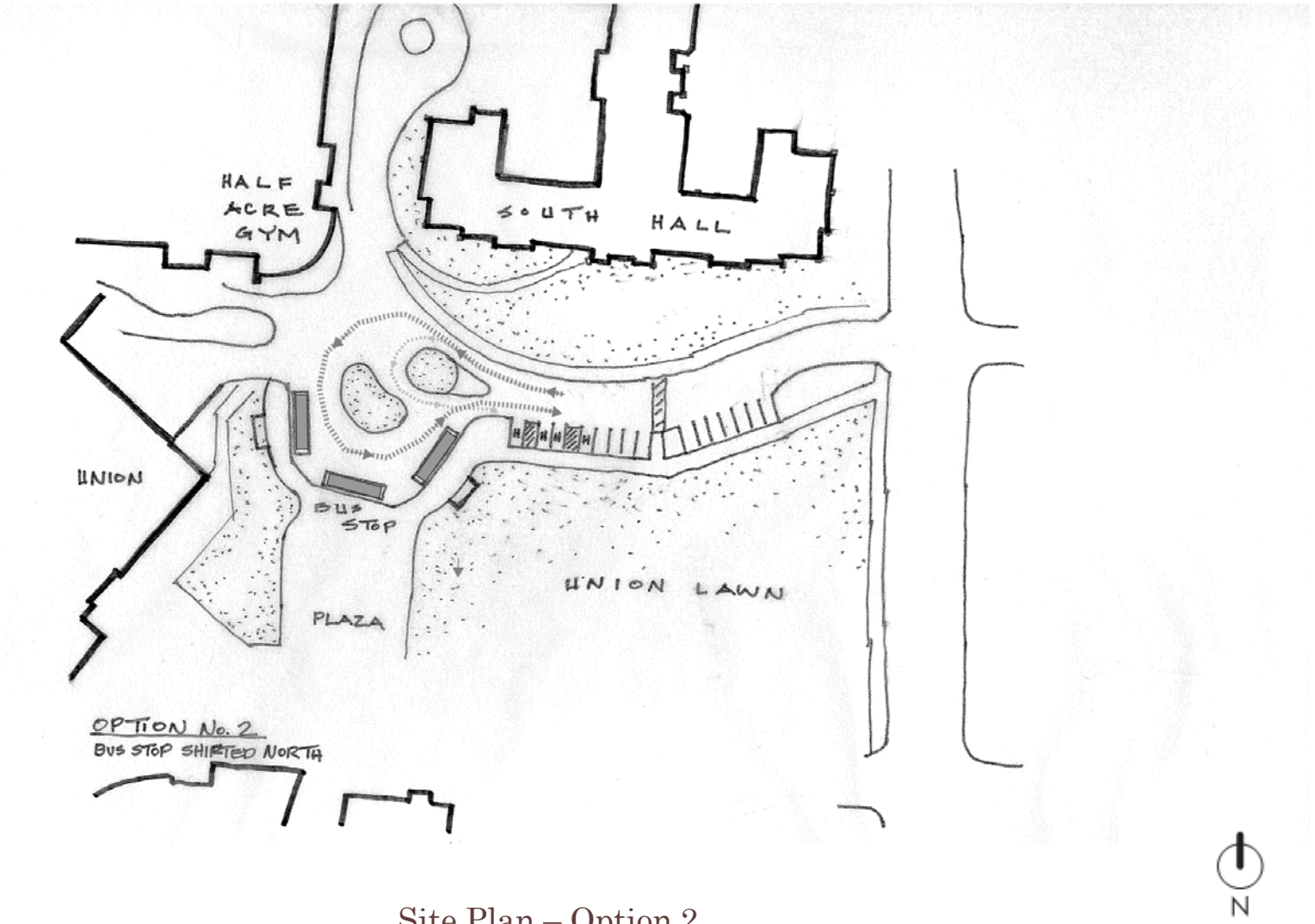
STUDENT HOUSING

TRANIST STOP OPTIONS

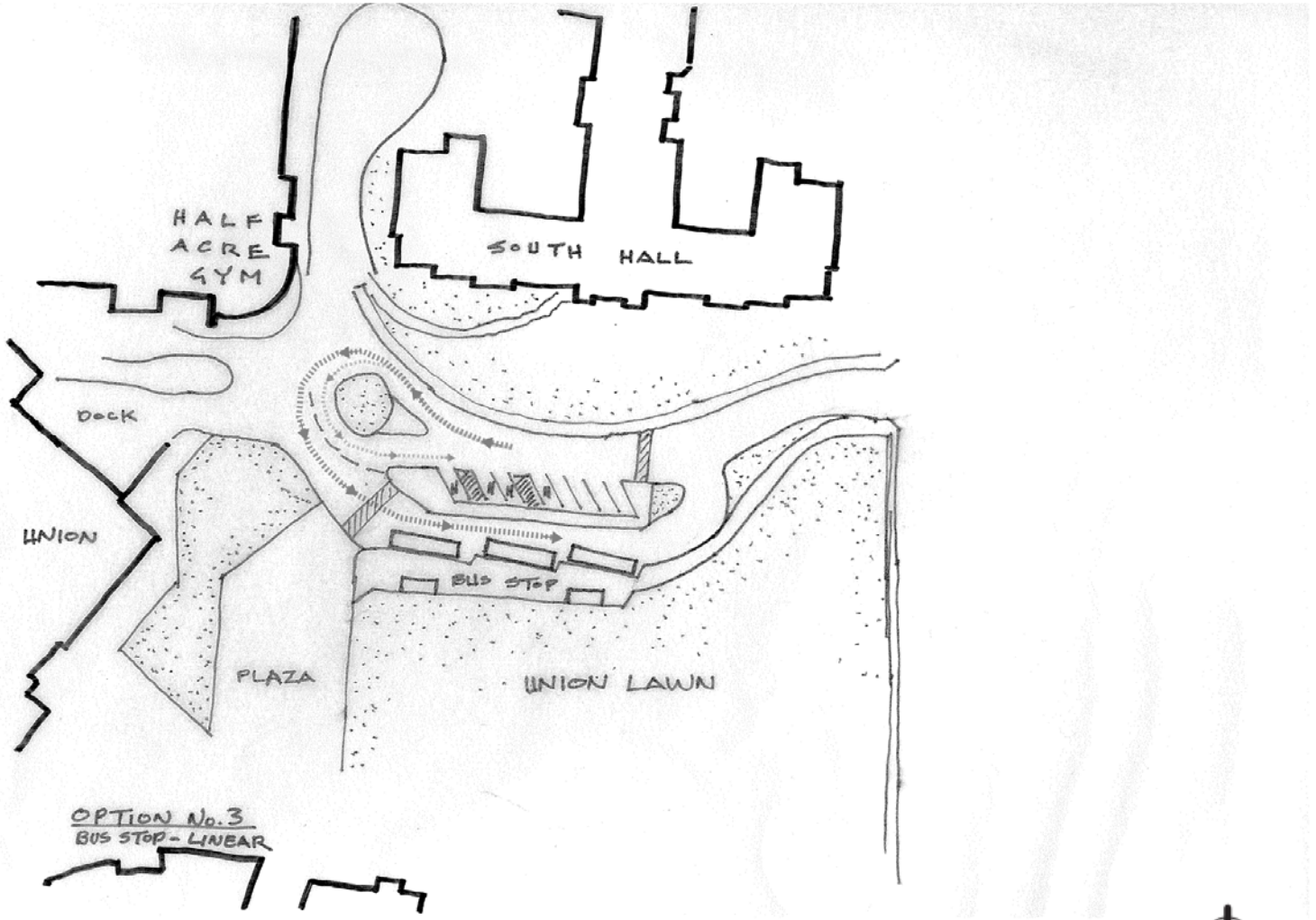
January 17, 2023



Site Plan – Option 1



Site Plan – Option 2



Site Plan – Option 3

UNIVERSITY OF WYOMING

TREE SUCCESSION PLAN

01.11.2023

NORRIS DESIGN
Planning | Landscape Architecture | Branding

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

UNIVERSITY OF WYOMING - PROJECT PLANNING TEAM

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- Greg Brown – Professor/Associate Dean College of Arts and Sciences
- Andy Smith - Manager, Grounds Services
- Wendy Berelson, GISP - Geospatial Project Coordinator, Senior
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- Lorena Falcon - Landscape Designer
- Zoe McLaughlin - Landscape Designer
- Tucker Hancock - 3D Specialist

TREE ANALYSIS GROUP - ARBORIST

- Bob Howey, ISA Certified & ASCA Consulting Arborist - Project Aroborist

INTRODUCTION

The Tree Succession Plan is the result of observations and recommendations made in the 2020 University of Wyoming Campus Master Plan. The Campus Master Plan states that a significant percentage of the existing tree canopy is maturing and that a plan to strategically replace aging trees should be implemented in order to ensure the long-term health and diversity of the trees on campus.

A large portion of this plan focuses on the historic campus core, therefore the history and development of the campus became an important consideration as the plan developed. The University of Wyoming Historic Preservation Plan and Architectural Guidelines identifies several “heritage landscapes” as well as their character defining features and guidelines for long-term preservation and treatment. These guidelines have been an integral resource as the approach to the Tree Succession Plan has taken shape. Project limits are indicated on the adjacent diagram.

In addition to providing the Tree Succession Plan, the overall goal of this report is to create a sound framework that can be used for tree replacement and future succession planning as the campus continues to grow and redevelop using tree species that respond to the local climate and reflect the regional aesthetic.

The Tree Succession Plan portion of this report is schematic in nature and is meant to be used in conjunction with the University of Wyomint’s GIS data, which has been updated as part of this project within the project limits. The GIS data provides detailed information about the tree species, location and condition; this data will be updated in the years to come as changes take place on campus and should be consulted as detailed plans are put into place and implemented.

PROJECT LIMITS

PROJECT GOALS

- Provide an inventory via GIS and analysis of existing trees within the project work area
- Provide a tree palette using native and regionally appropriate trees that will contribute to overall biodiversity and campus character
- Provide a tree succession plan in key areas that will reduce the impact of tree loss due to pests, disease, storm damage and age and support the more hospitable outdoor spaces in terms of shelter/ wind break areas and reduce long-term maintenance needs
- Preserve the character defining features of the heritage landscapes
- Provide framework for future tree analysis and tree succession planning as the campus continues to grow and redevelop

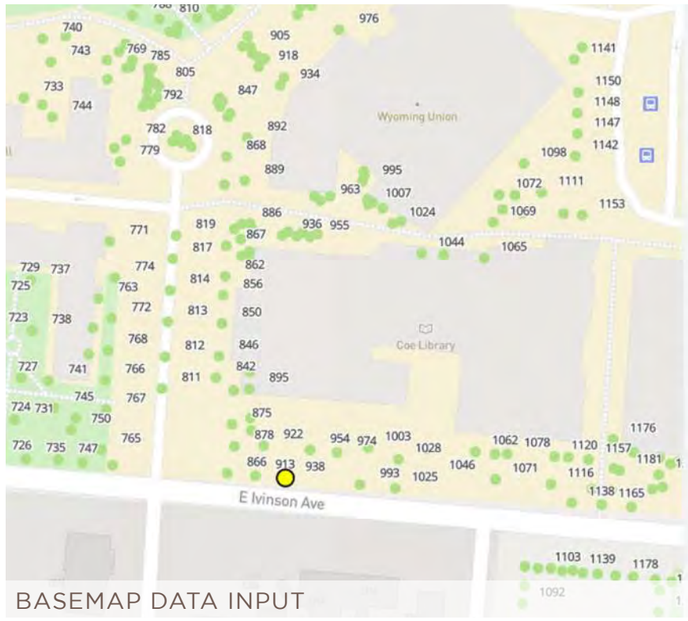
INTRODUCTION

PROJECT APPROACH

INVENTORY

An initial site visit was conducted in June of 2020 to inventory trees within the project limits. A total of 1,827 trees were inventoried with 635 trees being given a priority status of 1, 2 or 3. Ultimately some trees were removed from the priority areas due to current and future campus projects. Criteria for prioritization is covered in the Approach section.

Data including tree type, common name, DBH (trunk measurement), height, condition, age and other relevant details were input into Basemap software via app on site (see image below). This data was then exported to GIS for further refinement, summarized and used to analyze the current condition of the campus tree canopy. An inventory map has been provided on pages 4-5 with a break down of tree areas, priorites and species.



UW_Trees	
Tree Type	Shade Tree
ID_Number	938
Memorial	
removal_fp	
Common Name	Eastern Cottonwood
DBH	34
Height	65
Condition	Good
Issues	
Hazards	Structural
Age	Very Old (40+ Years)
Expected Life Span	Long (21-40 Years)
Replacement Schedule	Long Term (21-40 Years))
Notes	Old
Priority	1 (High)
Genus	Populus
Species	deltoides
Tree_ID	
Tree Diameter (UW Inventory)	
Attached File(s)	No Files Attached.

BASEMAP DATA INPUT

INFORMATION GATHERING

In addition to the data gathered on site, interviews were conducted with Andy Smith, University of Wyoming, Randy Overstreet, City of Laramie arborist and Rob Meyer, Wyoming Trees, Inc. to better understand which tree species are appropriate in the Laramie climate and how to successfully diversify the tree species selected for use.

Planning documents used as resources during the project are the University of Wyoming Campus Master Plan, the Univerity of Wyoming Design Guidelines and the University of Wyoming Historic Preservation Plan and Architectural Guidelines. Lastly, utility information was also obtained via the University's GIS department and overlaid into the plan to ensure that the required utility separations are achieved.

DEVELOPMENT OF THE FRAMEWORK AND PLAN

Once the trees in the project area were inventoried and the information was compiled, a findings summary and analysis was completed. This consisted of discussion points on each of the major trees species that are currently found on campus along with observations regarding their overall health and condition as it relates to their specific location or use and the climate in Laramie.

All of this information was used to develop priority areas on campus as well a system to prioritize individual trees based on hazards, condition and age. This general framework was presented to the Project Planning Team for feedback and direction to develop the final plan. Specific direction included:

- Replacement plantings should be considered for The Hollows, Prexy's Pasture, Ivinson Streetscape, Cooper (and Carriage) House and Sorority/Fraternity Mall
- Provide recommendations for the approach to tree removal, specifically on Ivinson; wholesale remove and replace or phased
- Evergreen trees along 15th will be removed as part of an ongoing construction project and should not be included in these efforts
- Provide high level costs that can be used for budgeting over a 10-year period
- GIS information that is updated as part of this project should be compatible with the University's system so that it can be integrated back in seamlessly and regularly updated as changes occur on campus

TREE INVENTORY

TREE LEGEND

TYPE		PRIORITY
E	EVERGREEN	1A
O	ORNAMENTAL	1B
		2
D	DECIDUOUS	3
		NONE

INVENTORY SUMMARY

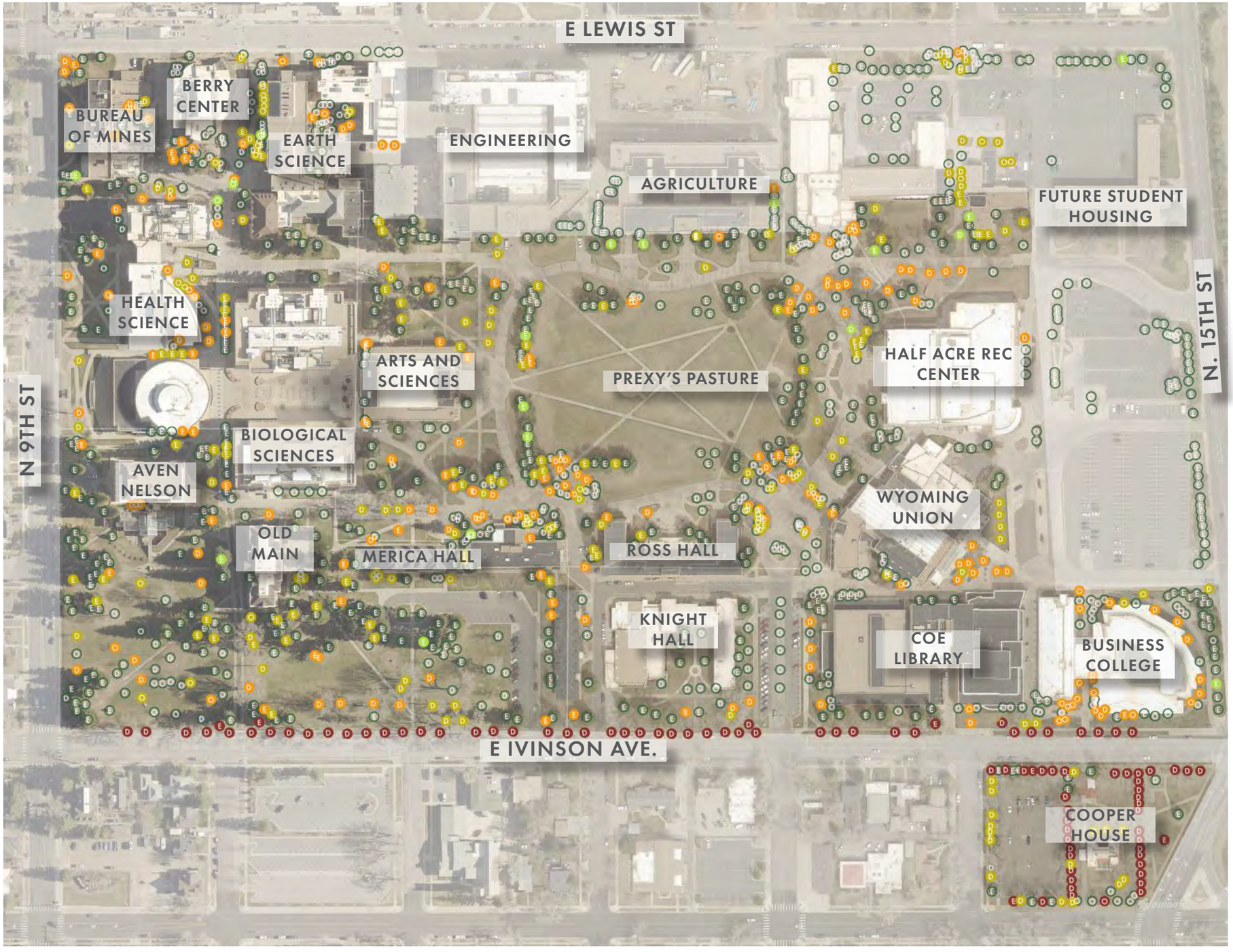
TOTAL TREES INVENTORIED - 1,827
635 ESTABLISHED PRIORITY TREES

PRIORITY AREA TREES - 1,589
- 84 PRIORITY 1A TREES
- 245 PRIORITY 1B TREES
- 246 PRIORITY 2 TREES
- 22 PRIORITY 3 TREES

NON-PRIORITY AREA TREES - 238
- 15 PRIORITY 1B TREES
- 20 PRIORITY 2 TREES
- 3 PRIORITY 3 TREES

DOMINANT SPECIES
- 569 BLUE SPRUCE
- 264 COTTONWOOD (MULTIPLE SPECIES)

TREE MATURITY
- 335 VERY OLD
- 17 OLDER



TREE INVENTORY

PLAN FRAMEWORK

TREE PRIORITIES

CRITERIA

The following priorities have been established based on the hazards, age and condition of each tree.

Priority 1 Removal:
- Dead or missing tree
- Hazards: leaning, storm damage, lightening scars, significant structural issues, disease beyond treatment
- Very old, expected lifespan of less than 5 years
- Replacement trees should be provided at the time of removal in appropriate areas

Priority 2 Removal:
- In fair or poor condition
- Hazards: less significant structural issues, insects or disease
- Old, expected lifespan of 6-10 years
- Replacement trees should be provided at the time of removal in appropriate areas

Priority 3 Removal:
- Trees that appear to be in decline
- Hazards: co-dominant stem, minor storm damage
- Timing of tree removal is not critical. Replacement should be considered as needed or through succession planning in key areas

* It should be noted that the "Hazard" determination is based on a brief, cursory inspection during the inventory process and was not based on a detailed hazard inspection of all trees. A separate hazardous tree or risk assessment should be considered if the University feels that it is necessary.

PRIORITY TIME FRAME

The following time frames are recommended to begin implementing the Tree Succession Plan. The first phase should focus on the removal and replacement of priority 1 trees as they pose the most risk, followed by succession planting in key areas based on University priorities and ongoing projects.

0-3 Years - Priority 1A & 1B Trees
- Immediate removal and replacement due to hazards regardless of location.
  - Priority Area A is the first priority
  - Priority 1B trees should be undertaken concurrently or as soon as budget allows in other Priority Areas
- This includes Cottonwoods that lean, have structural damage, hollow/rotted cores

3-6 Years - Priority 2 Trees
- Priority Areas B, C and D
- Removal and replacement of trees with less significant hazards/issues
- Begin succession planting where tree removal is not yet needed

6-10 Years - Priority 3 Trees
- Priority Areas E, F and G
- Removal and replacement of trees that are aging or developing disease
- Begin succession planting where tree removal is not yet needed

+10 Years
- As the campus continues to grow, redevelop and change, the GIS portion of the deliverable will be the "living" document that the University can use to record changes, add or delete tree and plant information and develop future plans as conditions and needs change

This prioritization is subject to change over time due to natural causes or events where otherwise healthy trees may die or become significantly damaged or diminished due to weather, insects, disease, etc. The criteria and time frame recommendations are intended to be a framework for consistent tree evaluation and prioritization as the campus evolves.

PRIORITY AREAS

Areas within the project limit have been prioritized based on levels of cultural/historic significance, visibility and use. A brief description of each area is provided in the following sections as well as a narrative describing the thought process and approach to tree replacement and succession planning in that area. Overall considerations include retaining campus character, safety and security, utility locations, and the framing of outdoor spaces and architectural features. In general, replacement and succession trees are not being shown or recommended in areas that are too close to buildings or where they exist currently over utility lines. An illustrative map of these priority areas has been provided on pages 14-15 in the Tree Succession Plan section.

AREA A - IVINSON STREETSCAPE (NORTH) AND COOPER HOUSE

The Ivinson Streetscape includes the row of cottonwoods in the parkway on the north side of Ivinson Avenue and the Cooper House property. All cottonwoods listed in this area are priority 1 due to structural damage, leaning habits and age, and therefore have been given the highest priority for tree removal and replacement. Replacement trees in this area should be planted in between the current tree locations to maintain existing character and spacing.

The Cooper House is listed on the National Register of Historic Places for the architecture of the house and carriage house. It was noted in the UW Historic Preservation Plan that a preservation treatment should be applied to the landscape. While species other than cottonwoods were selected to replace the existing cottonwoods, care was taken to provide a more appropriate spacing for large canopy trees, while retaining the existing planting patterns which frame the two structures as well as the adjacent sidewalks.

AREA B - PREXY'S PASTURE AND ADJACENT QUADS

Prexy's Pasture is located in the center of the main quadrangle of historic academic buildings and is a significant heritage landscape. Several plazas have been constructed at the edges of a large central lawn that are in keeping with efforts to tie the campus aesthetic to it's surroundings and in this case, reflect the character of the nearby Vedauwoo landscape. These spaces, along with the stands of Spruce significantly contribute to the uniqueness and sense of place of this area of campus. The smaller quadrangles (Art & Sciences to Merica and Art & Science to Geology) are also heritage landscapes consisting of turf lawns, trees and sidewalks.

Due to the significance of this space, a conscious effort was made to replace Priority 1 trees with the same or similar species and in close proximity to the trees that they are replacing. The placement of evergreen succession trees was carefully considered so that the character-defining features are retained in addition to the wind break and natural shelter effect that the trees have in the space. Succession trees are shown where they will receive the most sunlight and have the best chance at establishment. Additional trees may be planted in the future as the larger trees continue to age and as a result are removed, which will open up additional space and allow more sunlight.

PLAN FRAMEWORK

AREA C - THE HOLLOWS, 10TH ST. PEDESTRIAN CORRIDOR, OLD MAIN & 9TH ST.

This southwest corner of the campus and 9th Street is made up of historic buildings and several significant heritage landscapes including State Park (The Hollows), Old Main Pedestrian Entrance Corridor & Memorial Garden, 9th Street Streetscape and the 10th Street Pedestrian Corridor. These areas provide an abundance of the character-defining elements that define the UW campus, including the clusters of large spruce trees that frame buildings and outdoor spaces. The open, park-like landscape of State Park (The Hollows) has been in existence since the initial development of the campus.

The placement of succession trees and replacement trees has been carefully considered in order to retain the historic character-defining features in these spaces such as the expansive views, openness and the clusters of Spruce that frame the pedestrian entrance at the corner of 9th Street and Ivinson Avenue. The removal and thinning of some evergreens has been indicated based on recommendations from the Historic Preservation Plan.

AREA D - 9TH ST. STREETSCAPE AND 10TH ST. PEDESTRIAN CORRIDOR

This northwest corner of campus includes several historic buildings as well as the Berry Center. The 9th Street Streetscape and the 10th Street Pedestrian Corridor are a part of this area and are significant heritage landscapes as noted in the Area C narrative. The buildings follow the alignment of 9th and 10th Streets and create linear views along the walks.

Careful thought was given to the placement of succession and replacement trees as it relates to the architecture, views and utilities, however, the streetscape portion has not been addressed to allow for consideration of a future 9th Street corridor redesign as recommended in the Historic Preservation Plan.

AREA E - KNIGHT HALL, 13TH ST. ENTRANCE, WILLET DR. AND RECENT BLDGS.

The Knight Hall Courtyard, 13th Street Vehicular Entrance and the Willet Drive Entrance Corridor make up the heritage landscapes within Priority Area E. The removal of a tree is indicated at Knight Hall as well as the addition of shade trees based on recommendations from the Historic Preservation Plan. Care was taken to frame (rather than block) architectural features and avoid utilities. Tree replacements are indicated at the 13th Street Entrance using the same species in order to retain the cohesive character on both sides of the entrance. Succession trees are indicated in the Willet Drive Entrance Corridor to the extent possible given the amount of utilities in the area.

The remaining landscapes in Area E are relatively recent with the landscape plans for each building available for reference. Replacement trees are shown where trees are prioritized with succession planning trees being indicated only where there are mature stands of trees. In several areas, succession planning is premature or not needed due to the ongoing construction of the housing project.

AREA F - FRATERNITY MALL

Fraternity Mall is a heritage landscape and was identified in the Campus Master Plan as one of the main pedestrian oriented open spaces meant to provide direct building access. In the future, this space is planned to extend all the way to the Wyoming Union Plaza, so views from east to west will be of critical importance.

Succession trees are shown on the corners of the Mall to retain existing character over time and new trees are suggested in groupings along the north and south edges to provide areas of respite and a sense of enclosure in the space as recommended in the Historic Preservation Plan. New trees are not recommended in the central areas in order to keep the visual connection from east to west.

AREA G - CRANE-HILL DINING HALL AND EAST CAMPUS

This area consists of several smaller spaces on the east side of campus including the College of Law building, the south end of War Memorial Stadium and the Crane-Hill Dining Hall which are both heritage landscapes. Replacement trees are shown in appropriate areas and

PLAN FRAMEWORK

succession trees are shown where trees are aging in a way that will retain the existing character found in these spaces. This is especially important at War Memorial Stadium as the buildings in this complex were designed to honor the contributions of the University community to World War II and are historic.

The north side of the College of Law building is not included in the succession plan due to a planned addition to the building.

TREE SELECTION & PLACEMENT

TREE SPECIES SELECTION

Tree species shall be selected based on their mature size and sunlight needs as well as proximity to nearby buildings, sidewalks and underground utilities. Historically, Cottonwoods have been used as street trees and in several other areas on campus. They are a good solution in the short-term due to their hardiness in Laramie's climate, their fast growth rate and their ability to provide shade in a relatively shorty amount of time, however they are problematic in the long term. Trees that grow quickly have soft/weak wood and are prone to damage and breakage as they age and during storm events as they become a hazard for pedestrians, nearby buildings and vehicles.

The tree palette provided in this document offers several alternatives in an effort to provide the biodiversity needed on campus as well as structurally sound species that will age well and not pose a danger to people or property. There are several species that are appropriate for many location types and uses, but care should be taken when selecting species for future succession planning and replacement efforts due to the specific characteristics or needs of certain species.

The following is a brief analysis of the significant species found on campus. A more detailed discussion of these, and the remaining species can be found in Appendix A.

Cottonwoods

Should be used sparingly and in areas where they are not near sidewalks, vehicular traffic or buildings. In the long term, the trees that have been identified as "Eastern Cottonwoods" could be propagated from cuttings as they appear to have a better form, structure and sturdiness than the Plains Cottonwood and appear to be less prone to breakage and the cytospora fungus. In the short term, Lanceleafs may be an acceptable species as they do not seem to sucker or be as invasive as the Narrowleaf.

Aspen

The native tree and the Columnar Swedish Aspen are acceptable trees with the understanding that they are short lived and vulnerable to the cytospora fungus. These are especially important in the plaza areas on Prexy's Pasture and an ongoing plan for maintenance, care and replacement should be implemented in order to maintain the existing character of the spaces where they are currently planted.

Blue Spruce

This is the most dominant and prominent species on campus and noted for their significant contribution to the character of the UW campus. These trees are hardy and well suited to the Laramie climate and are recommended for succession planning efforts as they will continue to provide the windbreak and shelter effect in the spaces that they are planted in on campus.

TREE PLACEMENT CONSIDERATIONS

As replacement and succession trees are placed, it is important to consider several factors.

Mature Size

The mature size of the tree should be considered when planning tree placement. The spread of the canopy should not interfere with building overhangs, roof lines or light poles. A minimum separation from buildings from any tree should be 8'. If a large tree is being considered, a minimum 12'-15' separation is more appropriate. Care should be taken to avoid blocking significant views (depending on location), unique or historic architectural features and windows.

PLAN FRAMEWORK

Large, deciduous shade trees should be spaced a minimum of 40’ from light poles. Near pedestrian light poles, they may be pruned or limbed-up to avoid blocking light on sidewalks. Ornamental trees should be a placed a minimum of 15’ from light poles.

Sunlight

Succession trees should be planted on the sunny side of existing trees to the extent possible to ensure enough sunlight for growth. If planted in between existing trees, lack of sunlight and other nutrients would delay or stunt the growth of new trees. Solar orientation should also be considered in terms of proximity to buildings for the same reason.

Utilities

Trees should be placed with a minimum spacing of 10’ from underground utilities. Replacement and succession trees are not recommended in areas where trees exist over utility lines or tunnels. For succession planning purposes in areas where there are conflicts, new trees are proposed in close proximity to the existing tree location to the extent possible. An example of this is at the Crane-Hill Dining Hall.

Before tree removal or planting, utility locations should be verified and are available upon request from the University.

Other Spacing Considerations

Trees should be placed a minimum of 6’ off of sidewalks, curbs and other hard surfaces to avoid damage from root systems. Additionally, when looking at tree planting within parkways (the area between the sidewalk and curb), trees should be placed on average 40’ on center. In more open areas, spacing may be less regimented, but the minimum distance between large canopy trees should This will allow room for canopy growth as the tree matures and also provide the canopy cover for a tree-lined tree affect.

PLANTING RECOMMENDATIONS

TREE STOCK SELECTION

Trees shall shall meet specifications for measurements, grading, branching, quality, pruning, ball and burlapping as stated in the American Standard for Nursery Stock (ANSI Z60.1).

Provide nursery grown trees grown in a recognized nursery in accordance with good horticultural practice, with healthy root systems developed by transplanting or root pruning. Provide only healthy vigorous stock, free of diseases, insects, eggs, larvae, and defects such as knots, sunscald, injuries, abrasions, or disfigurement. Trees shall be grown in Hardiness Zones 2, 3, and 4 only.

The trees shall be of the size shown or specified in the plant schedule and in accordance with the dimensional relationship requirements of ANSI Z60.1 for the kind and type of tree required. Deciduous Canopy Trees shall be single stem trees with straight trunk and intact leader, free of branches to a point. Ornamental trees of upright or spreading type shall be single stem, branched or pruned naturally according to species and type. Where shown as a “clump form” provide trees with 3 or more stem starting from the ground. Evergreen trees shall have good, intense color, have a well-balanced form and exhibit consistent growth periods and not exhibit signs of accelerated growth. Evergreen trees shall also contain a central dominant leader with evenly spaced branches. Trees containing multiple central leaders should be rejected.

Balled and burlapped trees shall be dug with a firm, natural ball of earth in which they were grown. The ball size shall not be less than the diameter and depth recommended by ANSI Z60.1 for the type and size of tree required. Increase the ball size or modify ratio of depth to diameter as required to encompass the fibrous and feeding root system necessary for full recovery of trees subject to unusual or atypical conditions of growth, soil conditions, or horticultural practice.

Trees of larger than specified size may be used, in which case the sizes of the root balls should be increased proportionately. Any substitutions in the provided plant schedules or deviations from the tree pallette provided shall be reviewed and approved by the University of Wyoming or their Owner’s Representative.

Where formal arrangements (i.e. in tree lawns) or consecutive order of trees are shown, select stock for uniform height and spread, and label with numbers (if necessary) to ensure symmetry in planting.

EXAMPLE OF HEALTHY STREET TREES
SOURCE: GOOGLE, ARBOR1.COM

PLAN FRAMEWORK

EXECUTION

Soil Preparation

Prior to amending the soils where tree planting will occur, soil samples should be taken and sent to a qualified testing agency where the physical, chemical and organic matter content should be analyzed and a written report with results and recommendations for soil treatment should be provided. These should at a minimum, include recommendations for nitrogen, phosphorus, and potassium fertilization, and for micronutrients and should be followed to ensure healthy, vialble plants. Organic amendments should be incorporated into the soil at a rate of 3 cubic yards per 1,000 s.f. Fertilizers should be applied at the recommendeded rate provided in the report. Incorporation

Excavation/Setting and Backfilling

Tree pits shall be dug with flat bottoms and vertical sides. Tree pits shall be dug with radius equal the diameter of the root ball. All tree pits shall have a minimum depth to accommodate root ball. The contractor should be able to demonstrate to the Univeristy of Wyoimg or their Owner's Representative that the planting pits have adequate drainage.

Set tree ball, plumb and in the center of pit or trench with top of ball 2", minimum, above adjacent landscape grades. Remove burlap from sides and tops of balls, but do not remove from under balls. Remove platforms, if any, before setting. Do not use tree stock if ball is cracked or broken before or during planting operation. When setting, place additional backfill around base and sides of ball and work each layer to settle backfill and eliminate voids and air pockets. When excavation is approximately 2/3 full, water thoroughly before placing remainder of backfill. Repeat watering until no more is absorbed. Water again after placing final layer of backfill. No burlap shall be pulled out from under balls and a minimum of three-quarters of the wire basket and surplus nylon or binding shall be completely removed, taking care not to damage the root ball. Any roots which are bruised or broken shall be pruned at the time of planting.

Pruning

Prune, thin out, and shape trees and shrubs in accordance with standard horticultural practice. Prune trees to retain required height and spread. Do not cut tree leaders and remove only injured or dead branches from flowering trees, if any.

Pruning shall meet standards set forth in ANSI 300.

Staking/Guying

Deciduous Trees

Pound stakes into undisturbed soil beyond the planting pit so that stake is secure (2' deep minimum). Secure wire through metal grommets on nylon strap and wrap above first branch or at mid-point of tree. Secure guy wire to stake so that it is taut but allows some movement and so that no sharp projections of wire are extending from post. Adjust tension on wire if needed. Flag guy wire with 3/4" PVC pipe for visibility.

Evergreen Trees

Pound stakes into undisturbed soil beyond the planting pit sot that stake is secure (2' deep min.), angling away from planting pit and so that top is flush with finish grade. Secure wire through metal grommets on canvas strap and wrap at midpoint of tree. Secure guy wire to stake so that it is taut but not overly tight and so that no sharp projections of wire are extending from post. Adjust tension on wire if needed. Flag guy wire with 3/4" PVC for visibility.

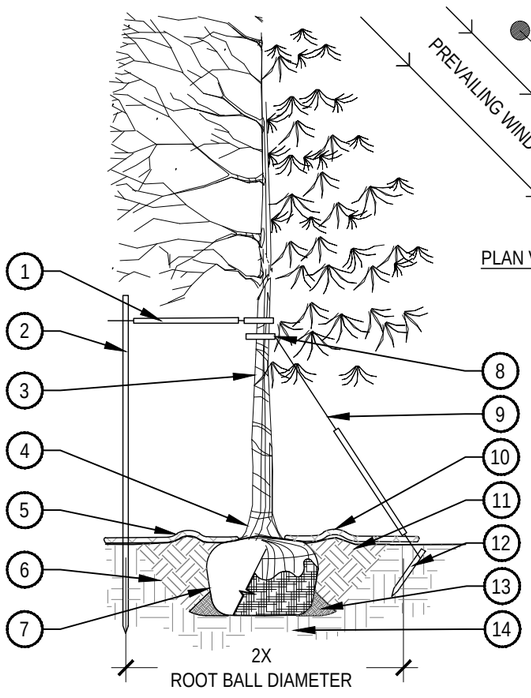
An example of a tree planting detail has been provided on the following page.

PRUNING NOTES:

1. ALL PRUNING SHALL COMPLY WITH ANSI A300 STANDARDS.
2. DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS AND BROKEN BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED. HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.

STAKING NOTES:

1. STAKE TREES PER FOLLOWING SCHEDULE, THEN REMOVE AT END OF FIRST GROWING SEASON.
   a. 1-1/2" CALIPER SIZE - MIN. 1 STAKE ON SIDE OF PREVAILING WIND (GENERALLY N.W. SIDE).
   b. 1-1/2" - 3" CALIPER SIZE - MIN. 2 STAKES - ONE ON N.W. SIDE, ONE ON S.W. SIDE (OR PREVAILING WIND SIDE AND 180° FROM THAT SIDE).
   c. 3" CALIPER SIZE AND LARGER - 3 STAKES PER DIAGRAM.
2. WIRE OR CABLE SHALL BE MIN. 12 GAUGE, TIGHTEN WIRE OR CABLE ONLY ENOUGH TO KEEP FROM SLIPPING. ALLOW FOR SOME TRUNK MOVEMENT. NYLON STRAPS SHALL BE LONG ENOUGH TO ACCOMMODATE 1-1/2" OF GROWTH AND BUFFER ALL BRANCHES FROM WIRE.



PLAN VIEW - THREE STAKES

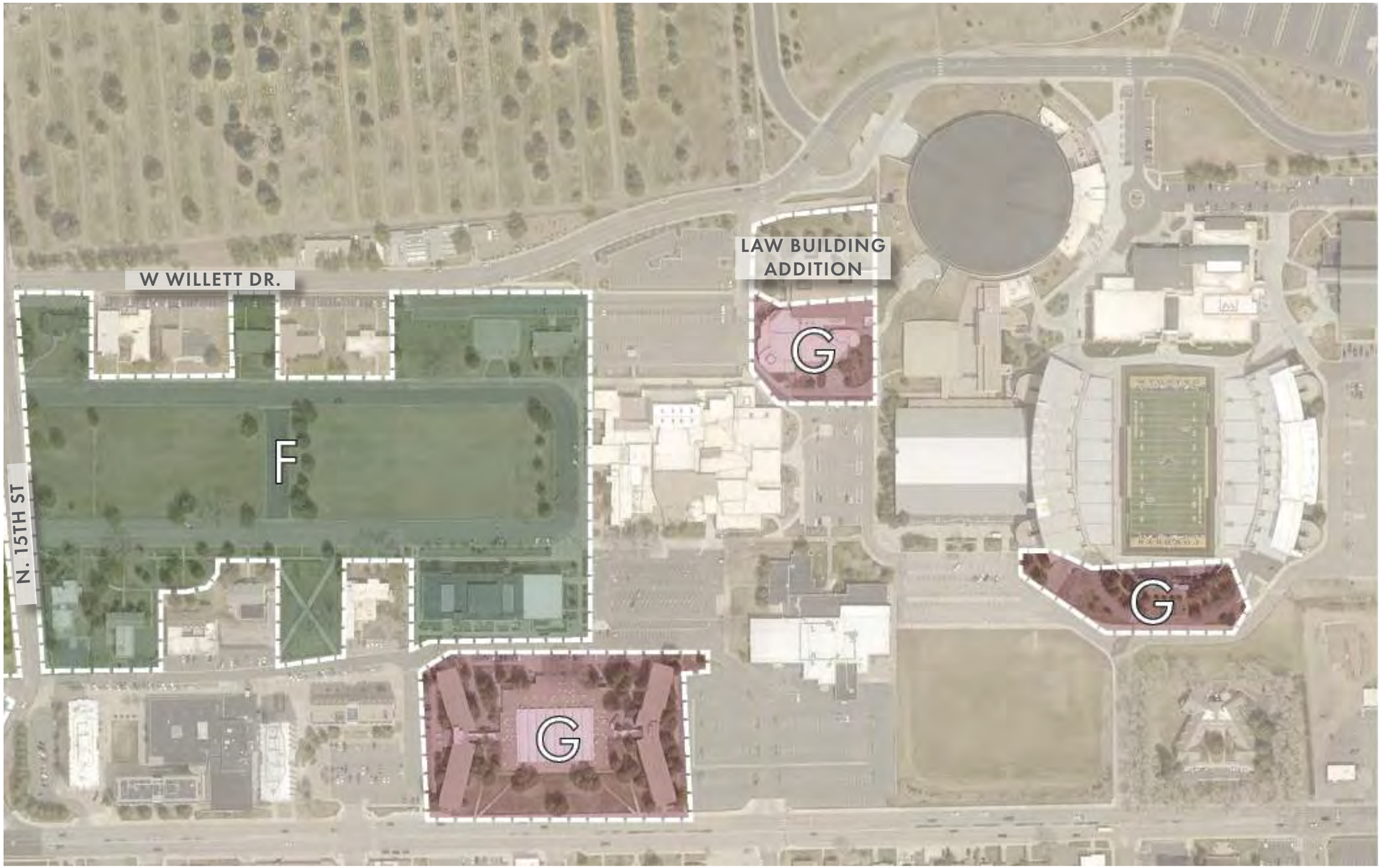
1. PLACE MINIMUM 1/2" PVC PIPE AROUND EACH WIRE, EXPOSED WIRE SHALL BE MAXIMUM 2" EACH SIDE
2. 6'-0"UNTREATED WOOD POST, MINIMUM 1.5" DIAMETER, ALL SHALL BE DRIVEN OUTSIDE ROOTBALL AND IN UNDISTURBED SOIL
3. TREE WRAP TO BE INSTALLED ONLY FROM OCTOBER 1 THROUGH APRIL 30, DECIDUOUS ONLY, WRAP FROM BASE OF TRUNK TO BOTTOM LIMB
4. PLANT TREE SO THAT TOP MOST MAJOR ROOT IS 1"-2" ABOVE FINISHED GRADE
5. 2'-0" RADIUS MULCH RING, VENTERED ON TRUNK, 3" DEPTH, DO NOT PLACE MULCH IN CONTACT WITH TREE TRUNK, FINISHED GRADE REFERENCES TOP OF MULCH
6. 1:1 SLOPE ON SIDES OF PLANTING HOLE
7. ROPES AT TOP OF ROOTBALL SHALL BE CUT, REMOVE TOP 1/3 OF BURLAP, NON-BIODEGRADABLE MATERIAL SHALL BE TOTALLY REMOVED
8. GROMMETED NYLON STRAPS
9. GALVANIZED WIRE, MINIMUM 12 GAUGE CABLE,TWIST WIRE ONLY TO KEEP FROM SLIPPING
10. 4-6" HIGH WATER SAUCER IN NON-TURF AREAS
11. BACKFILL WITH BLEND OF EXISTING SOIL AND A MAXIMUM 20%, BY VOLUME, ORGANIC MATERIAL, WATER THOROUGHLY WHEN BACKFILLING
12. 2'-0" STEEL T-POST, ALL SHALL BE DRIVEN BELOW GRADE AND OUTSIDE ROOTBALL IN UNDISTURBED SOIL
13. PLACE SOIL AROUND ROOT BALL FIRMLY, DO NOT COMPACT OR TAMP, SETTLE SOIL WITH WATER TO FILL ALL AIR POCKETS
14. PLACE ROOT BALL ON UNDISTURBED SOIL TO PREVENT SETTLEMENT

TYPICAL TREE PLANTING DETAIL

TREE SUCCESSION PLAN

PRIORITY AREAS - OVERALL PLAN

TREE SUCCESSION PLAN



TREE SUCCESSION PLAN

KEY MAP

LEGEND

PROPOSED

- DECIDUOUS
- EVERGREEN
- ORNAMENTAL

EXISTING

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PRIORITY AREA A

TREE SUCCESSION PLAN

UNIVERSITY OF WYOMING

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UNIVERSITY OF WYOMING

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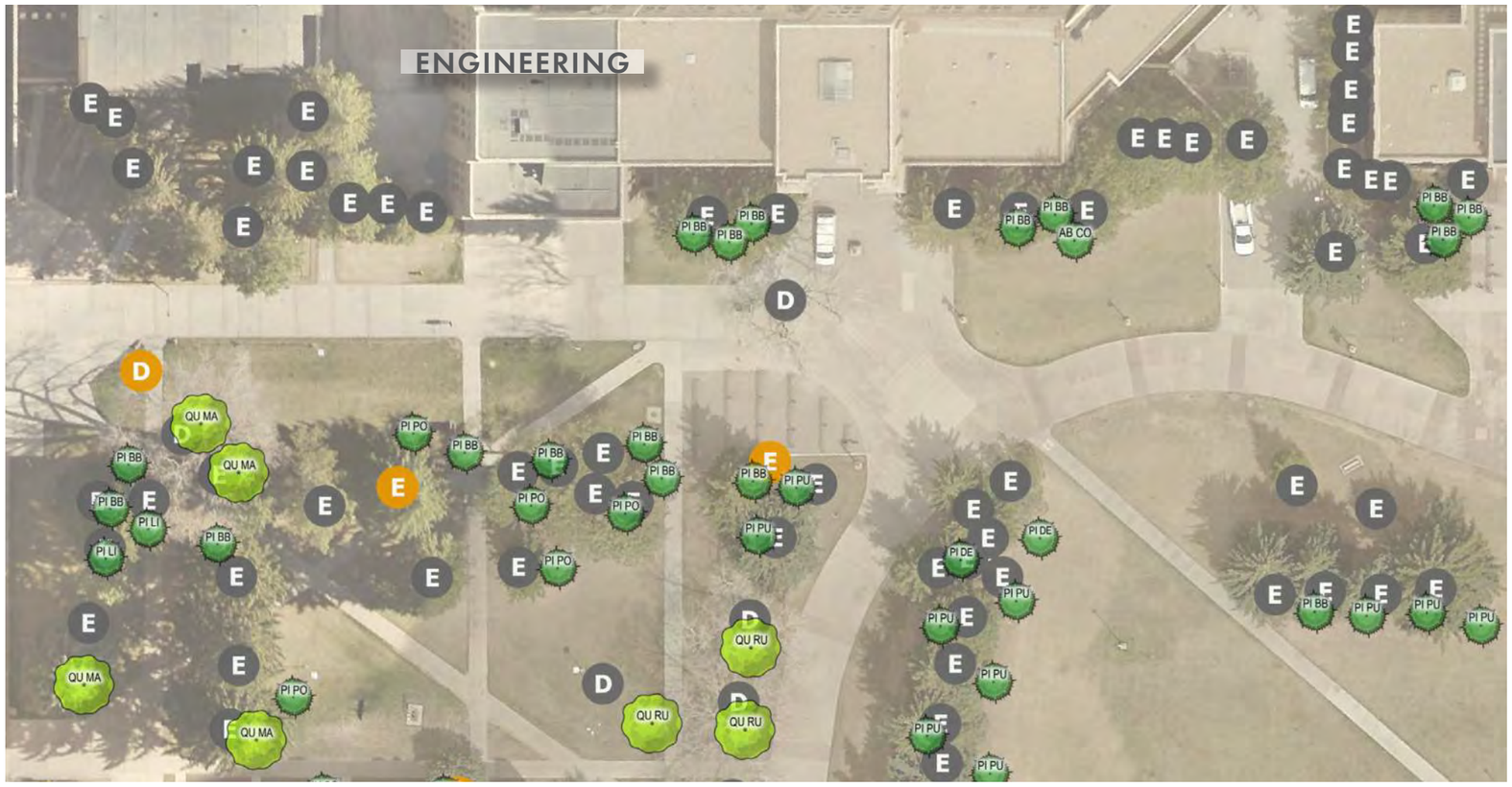

PRIORITY AREA B

TREE SUCCESSION PLAN

UNIVERSITY OF WYOMING

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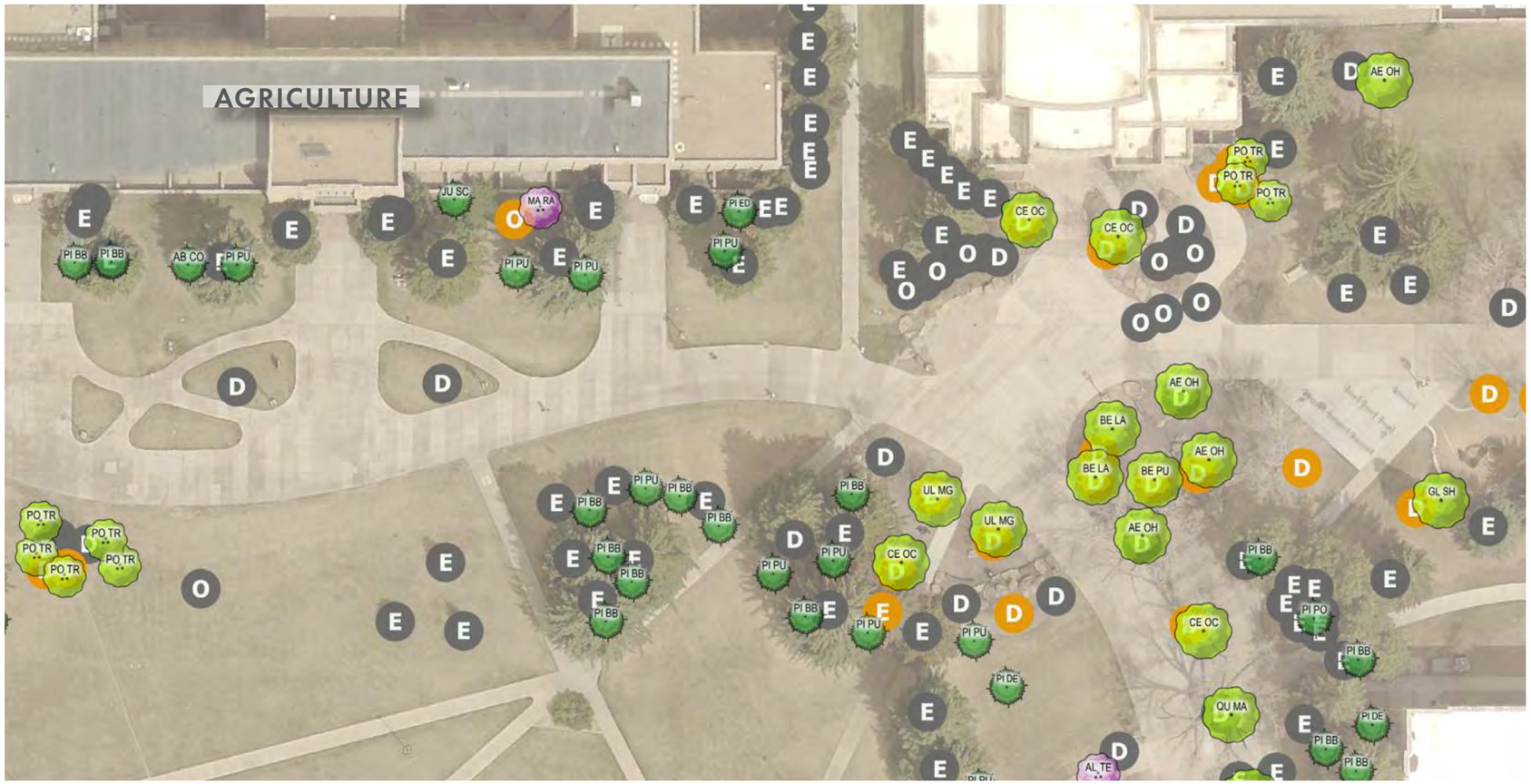

PRIORITY AREA B

TREE SUCCESSION PLAN

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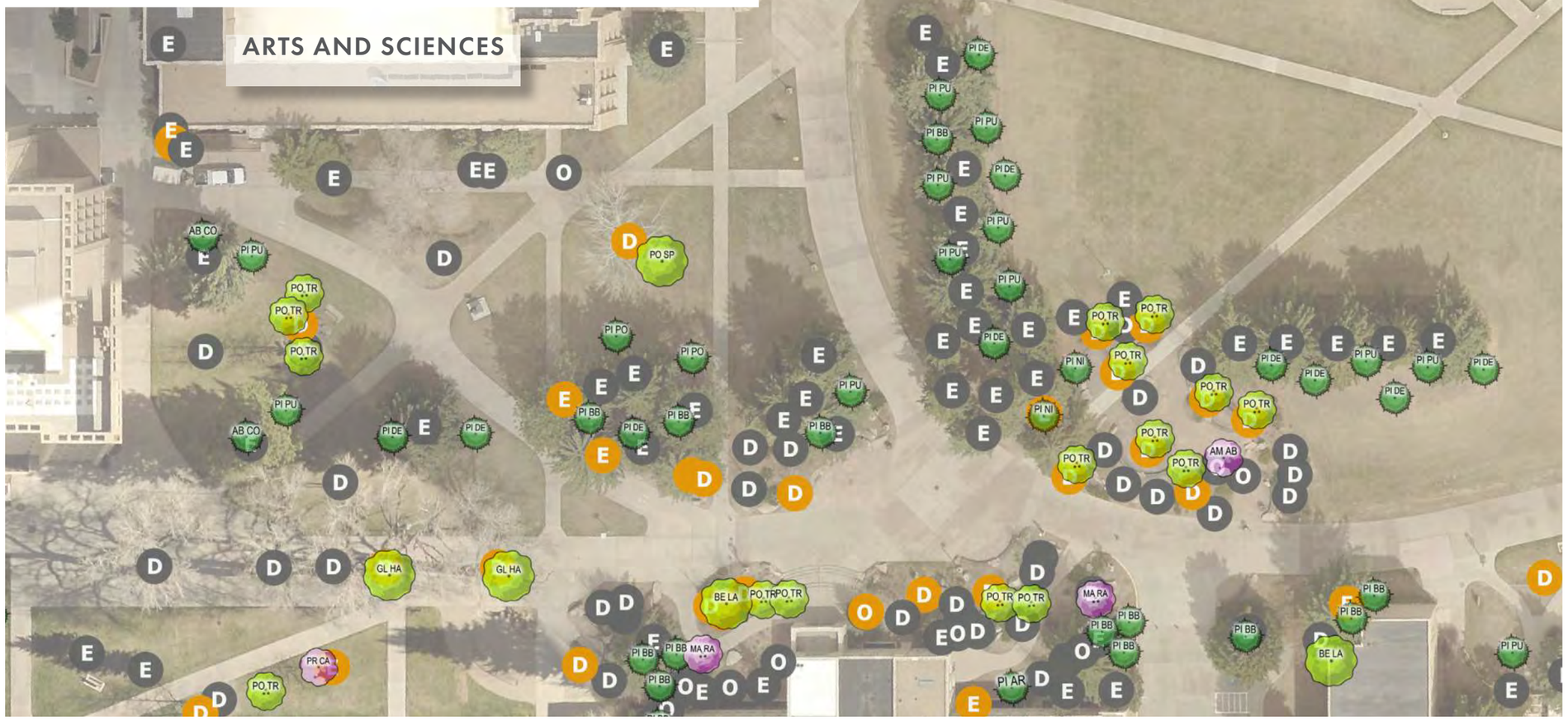

PRIORITY AREA B

TREE SUCCESSION PLAN

UNIVERSITY OF WYOMING

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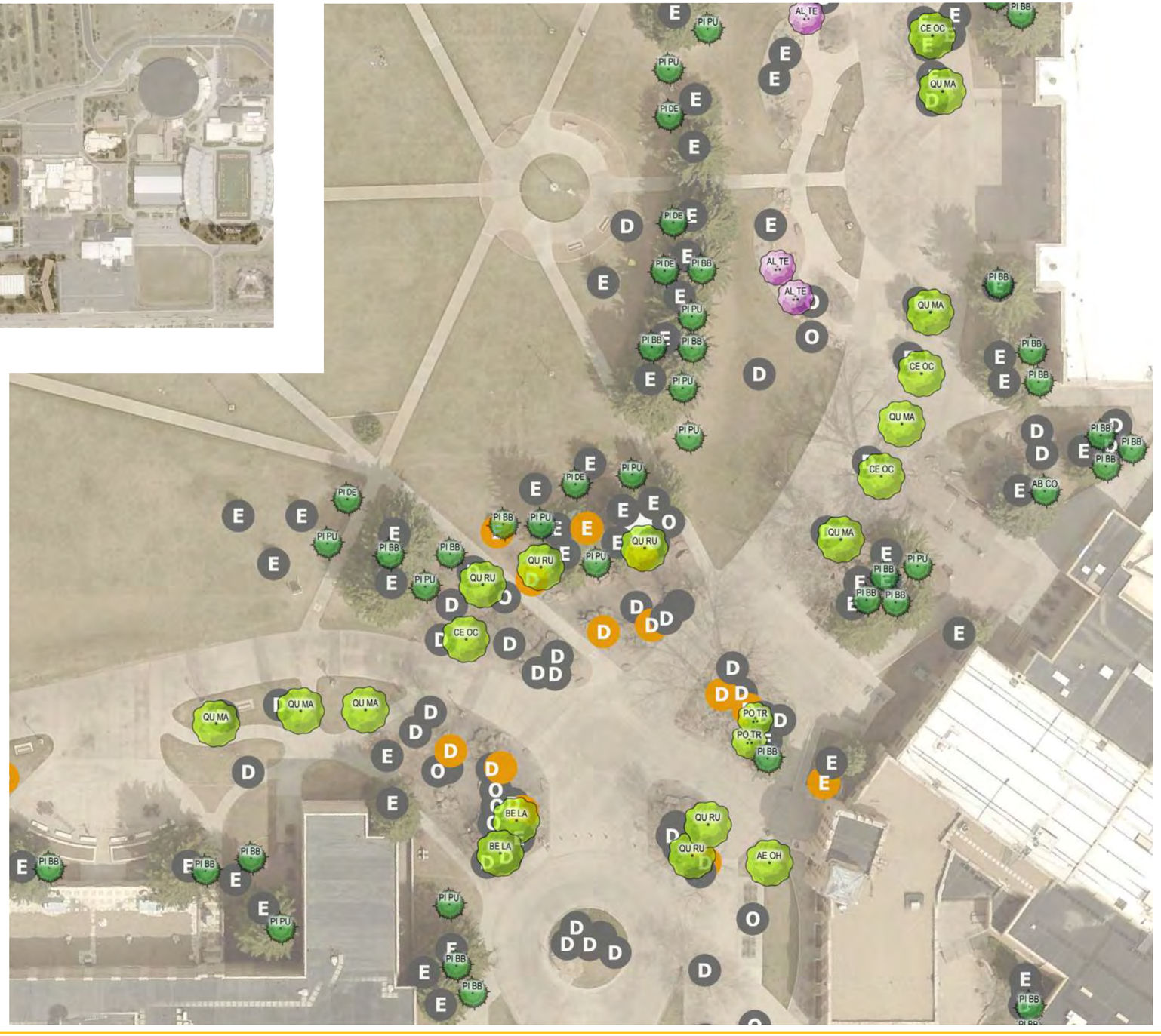

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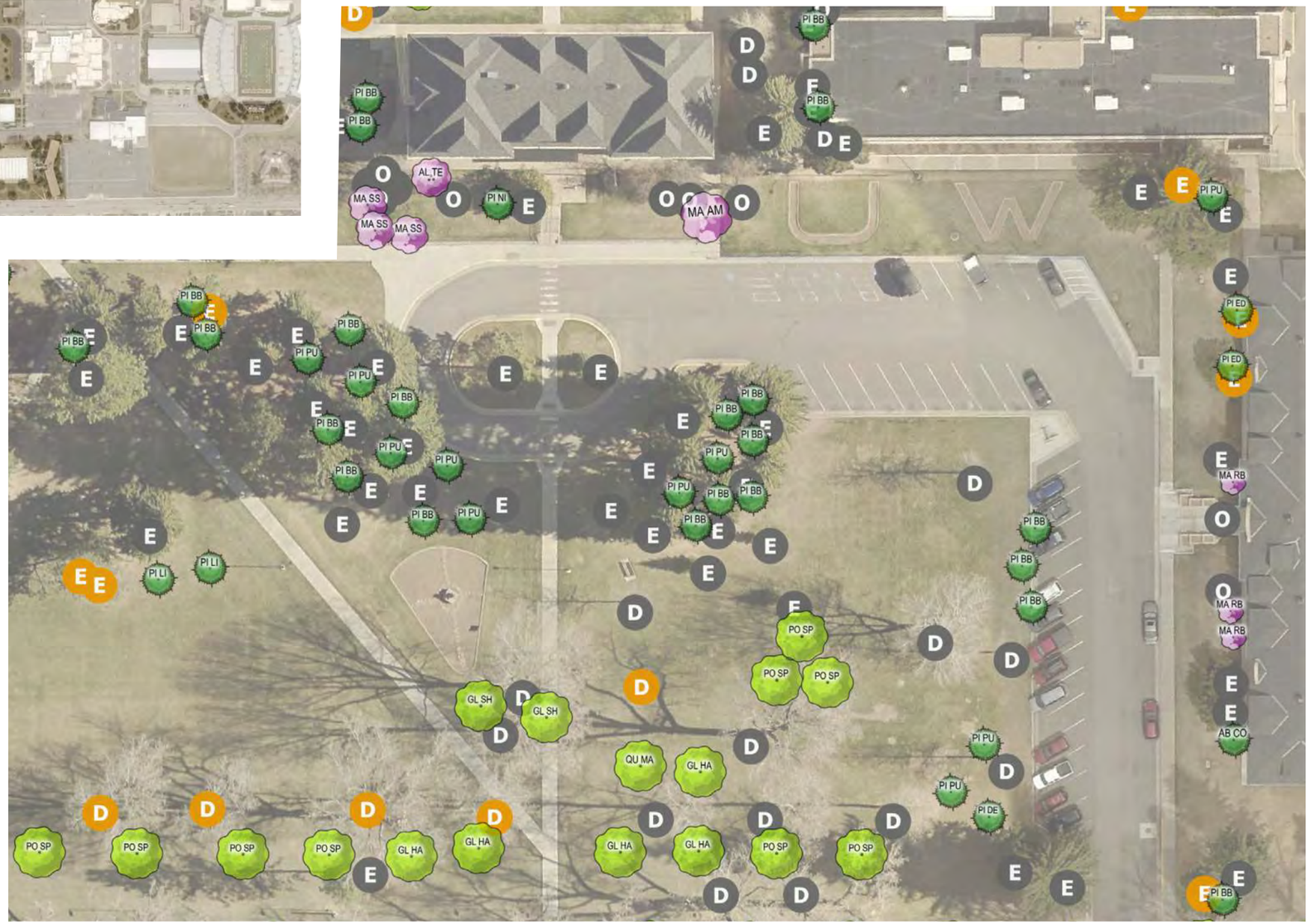

PRIORITY AREA C

TREE SUCCESSION PLAN

UNIVERSITY OF WYOMING

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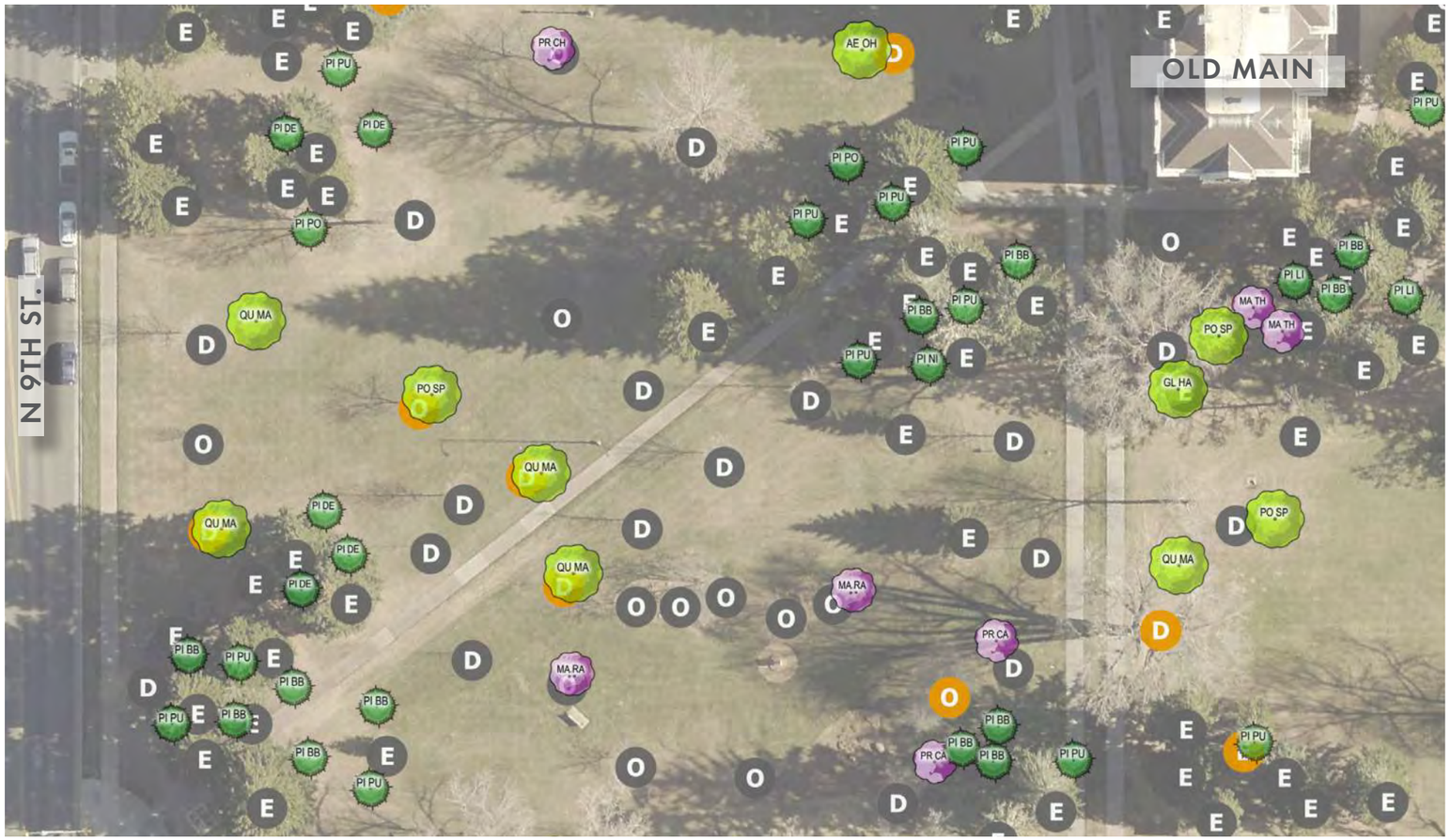

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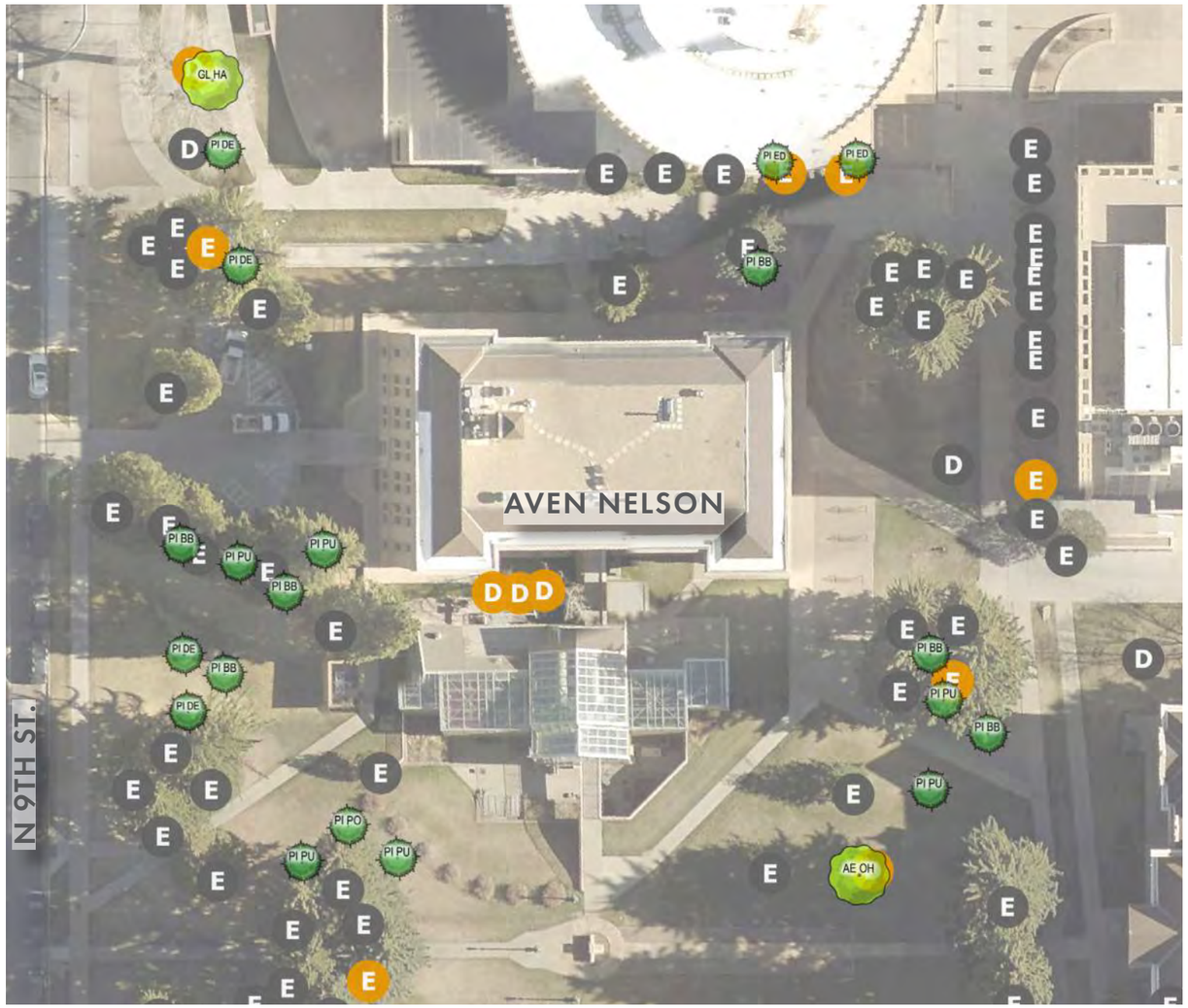

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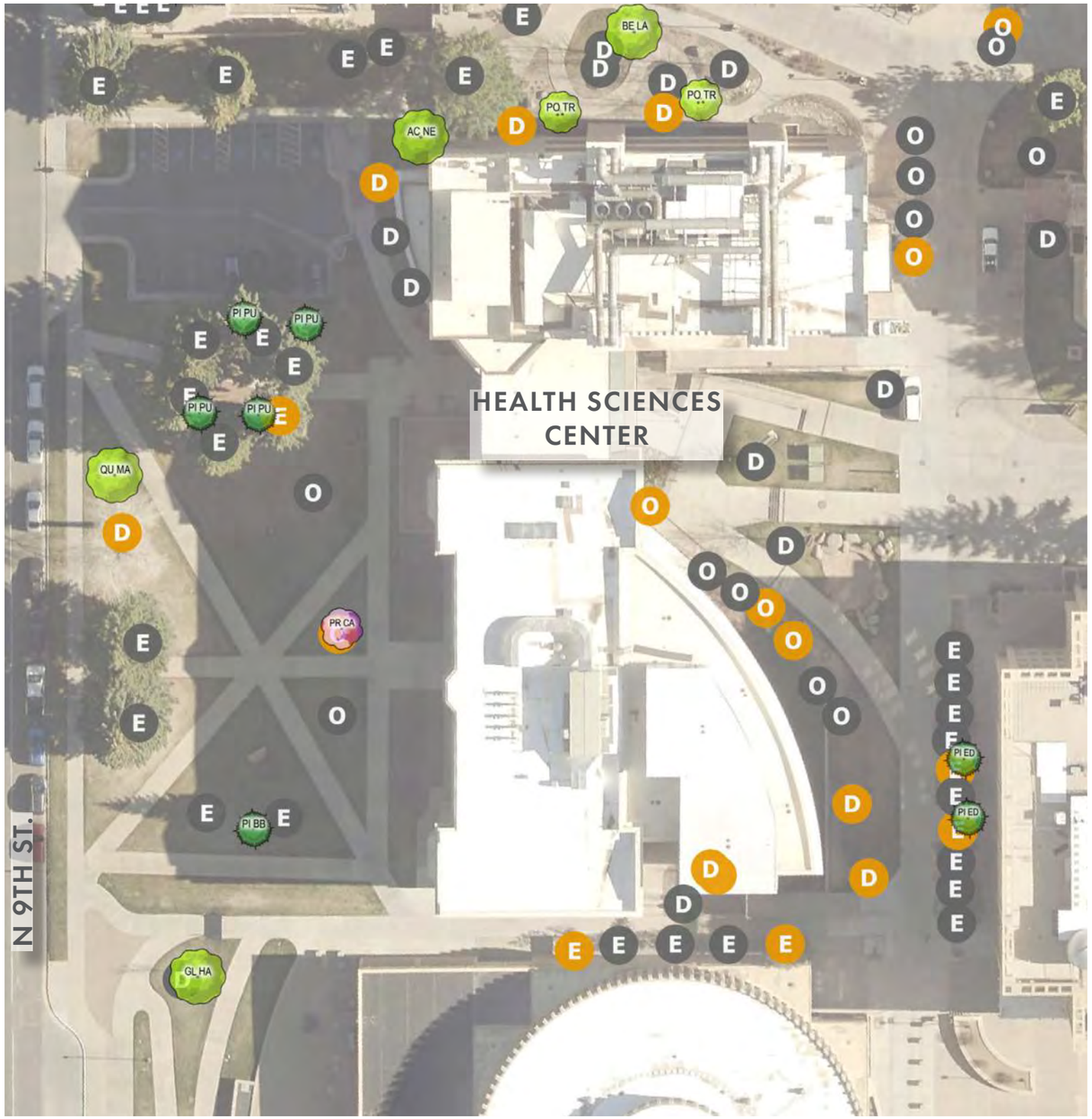

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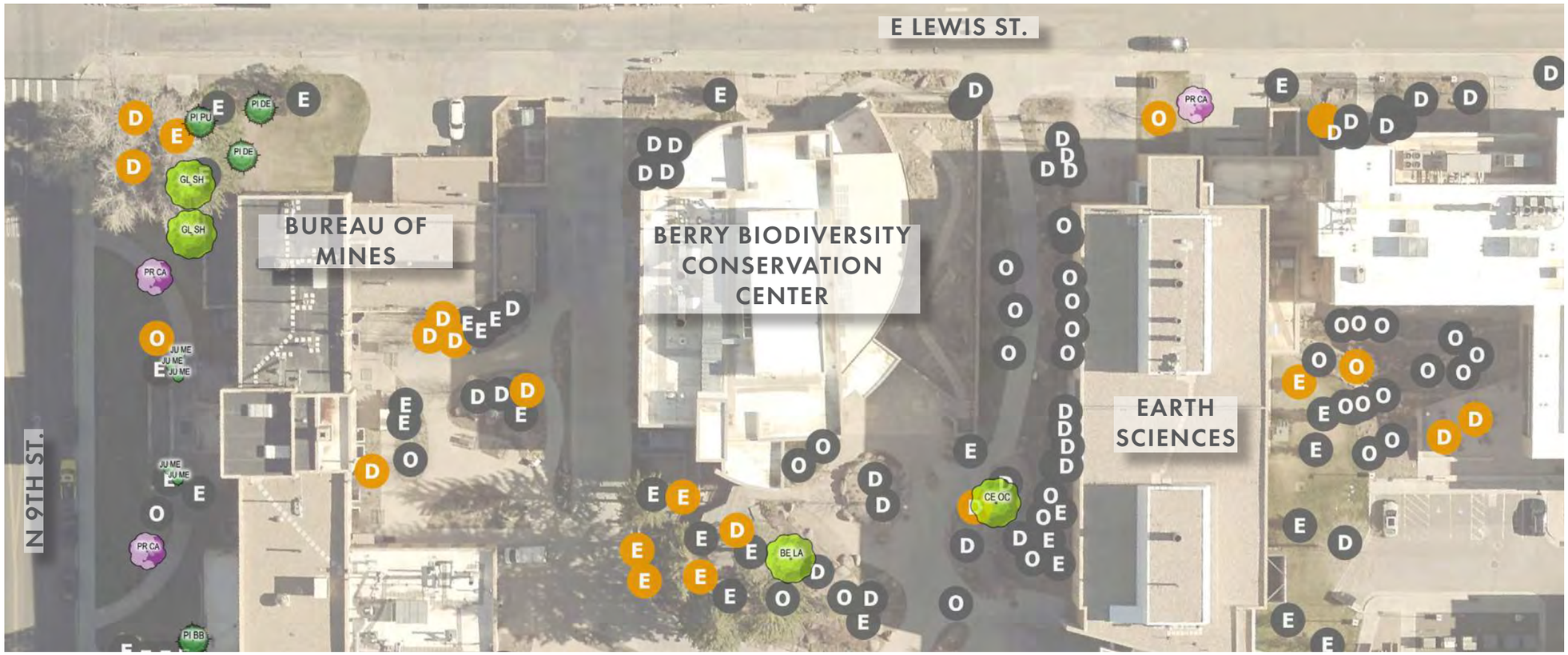

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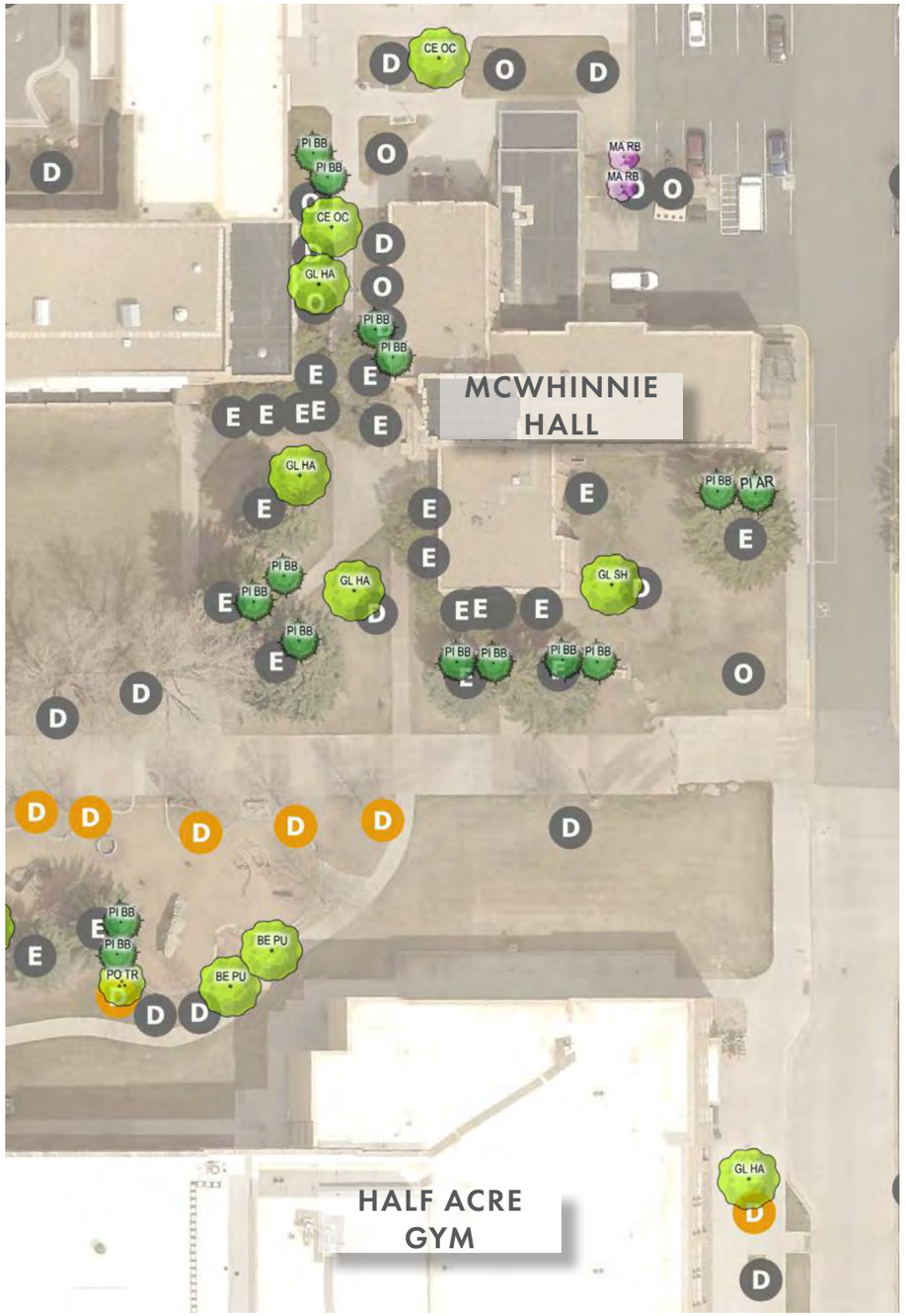

PRIORITY AREA E

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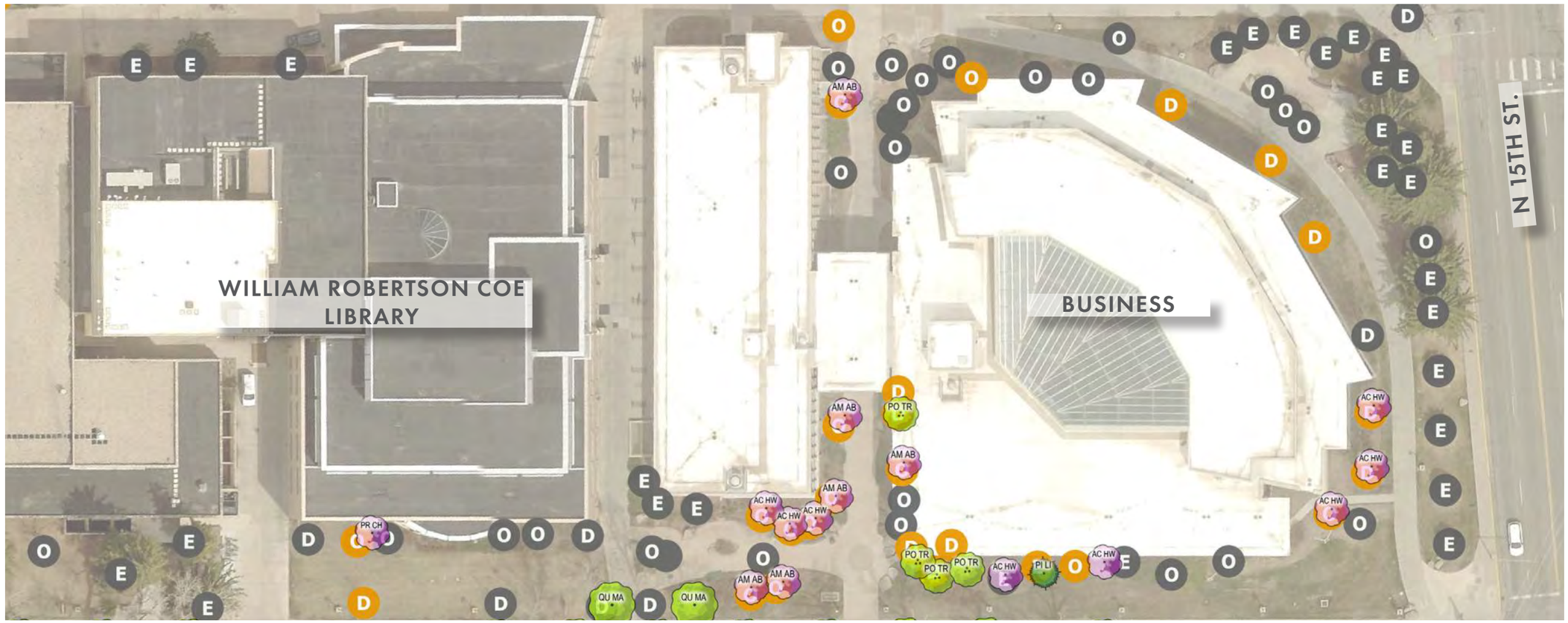

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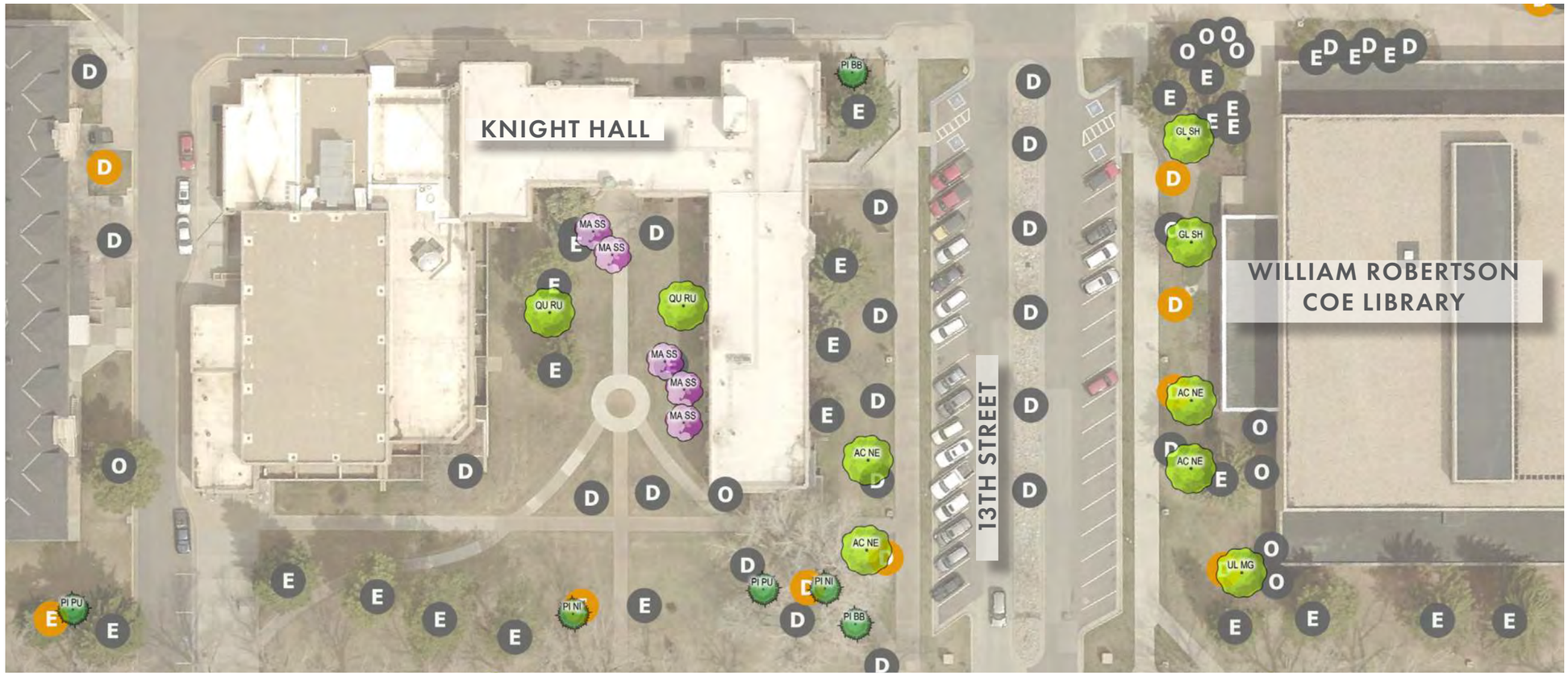

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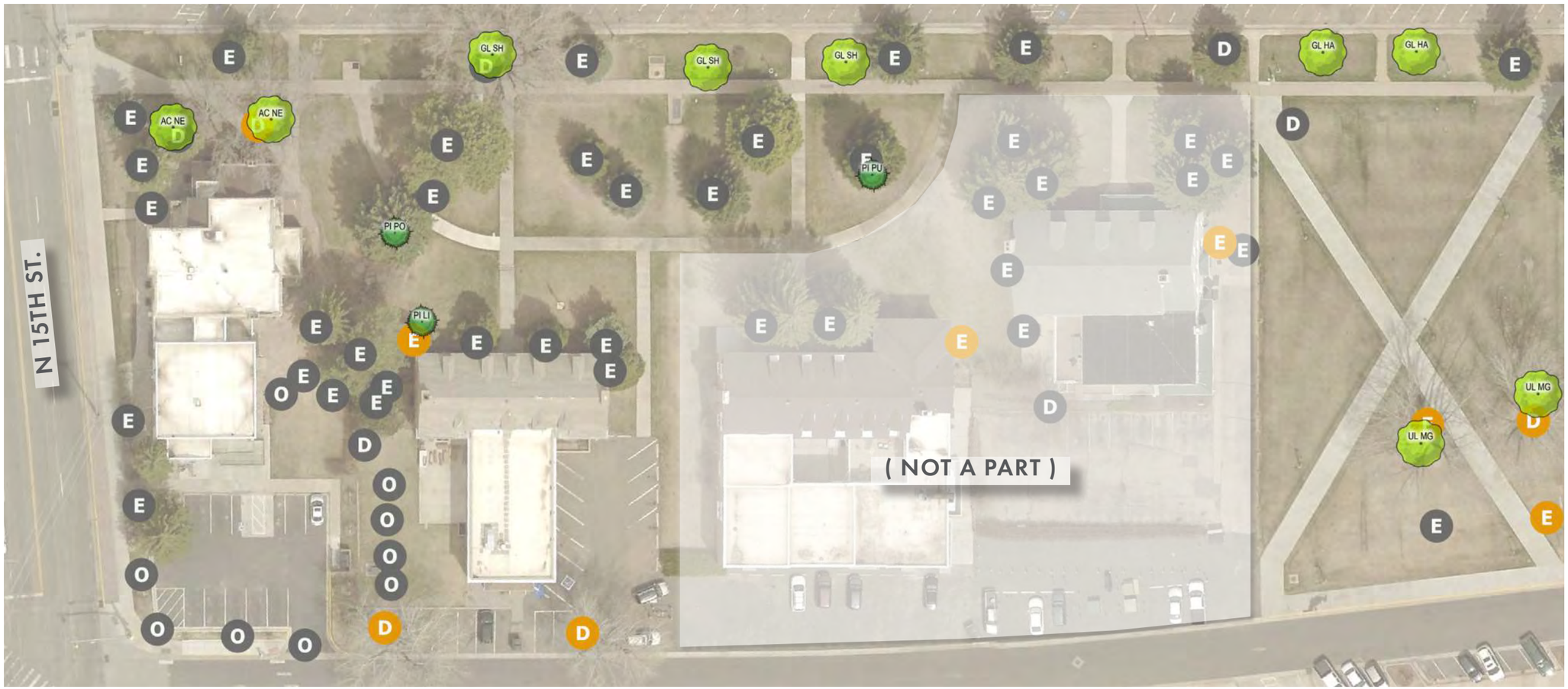

PRIORITY AREA F

TREE SUCCESSION PLAN

UNIVERSITY OF WYOMING

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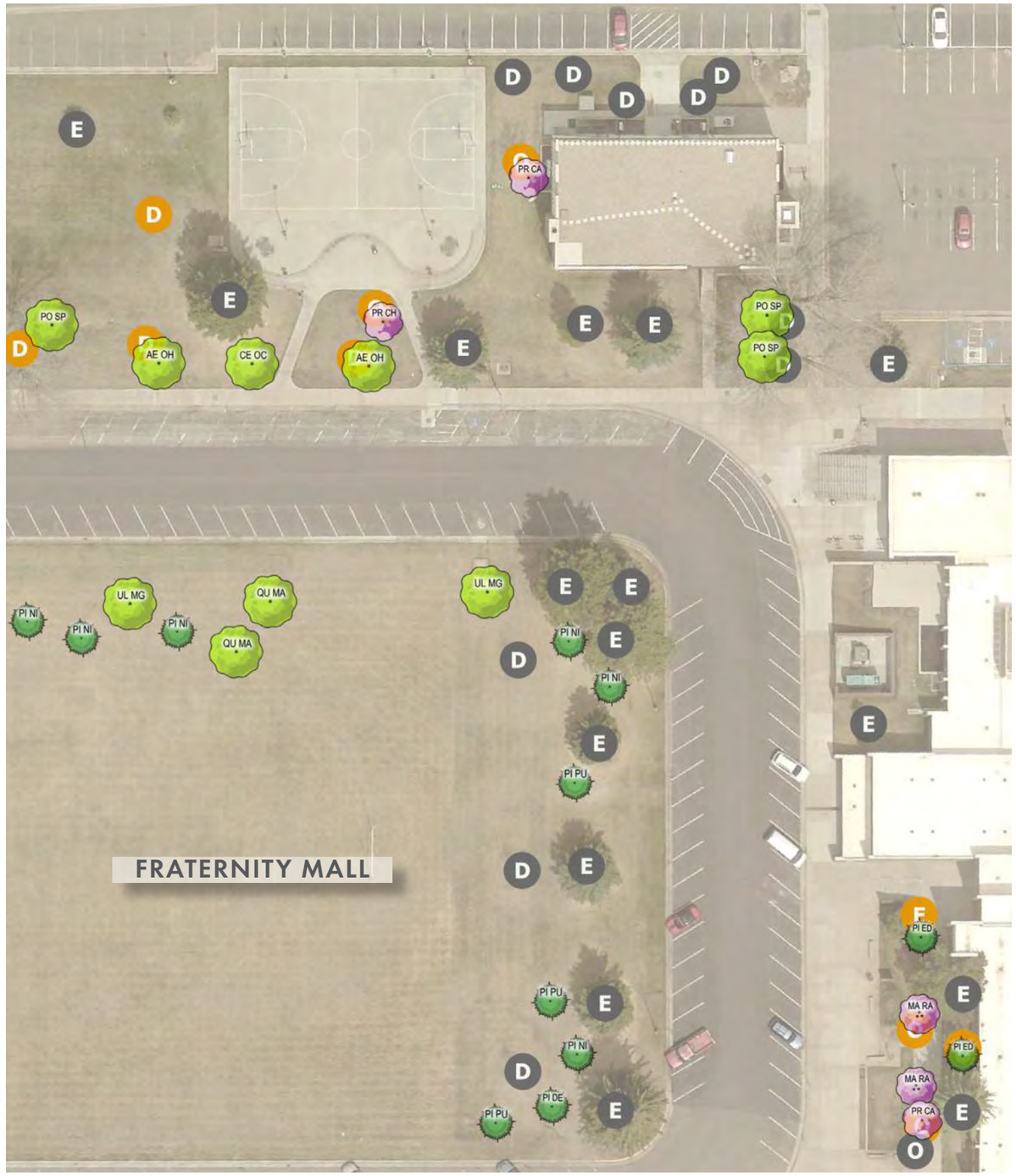

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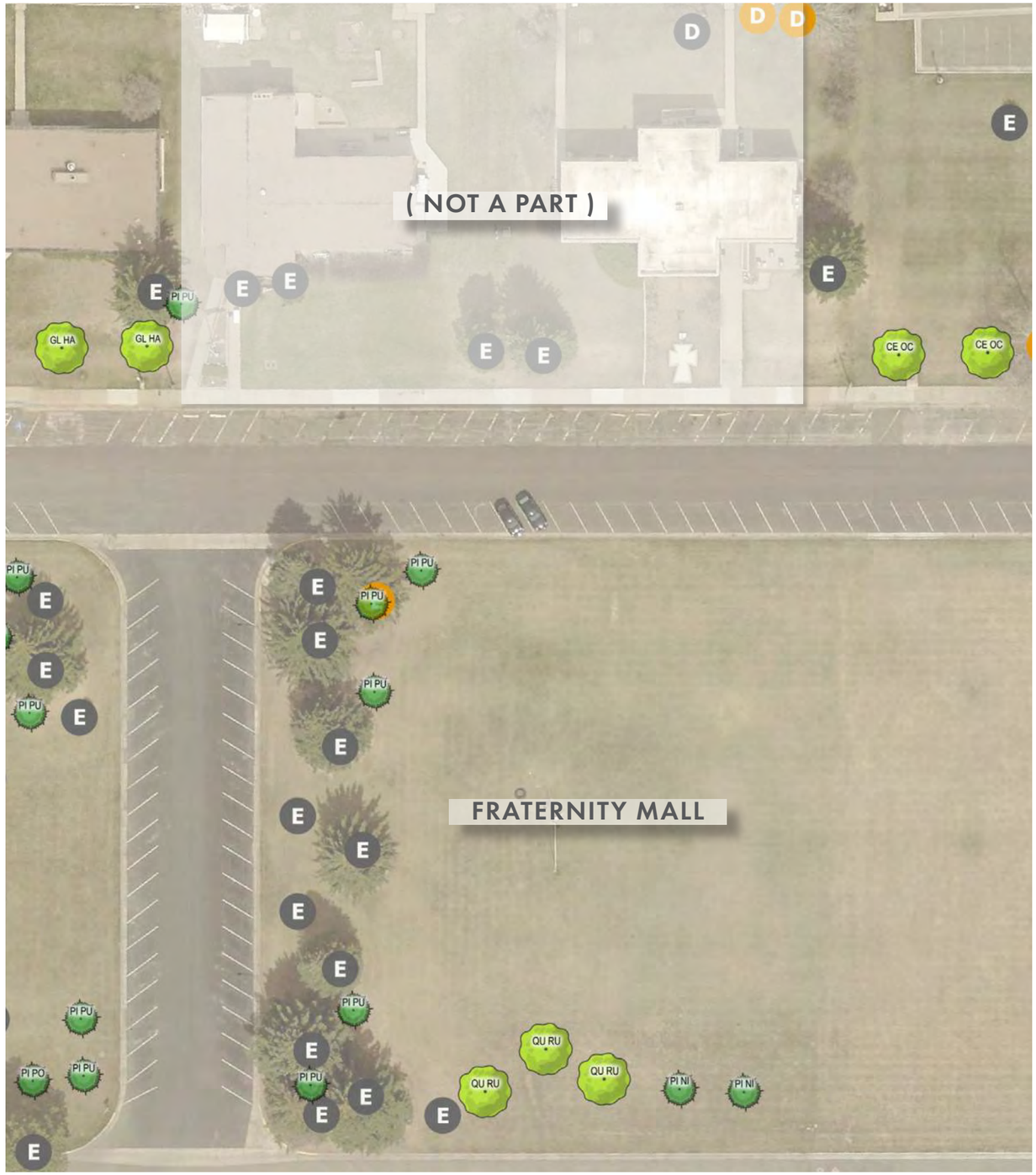

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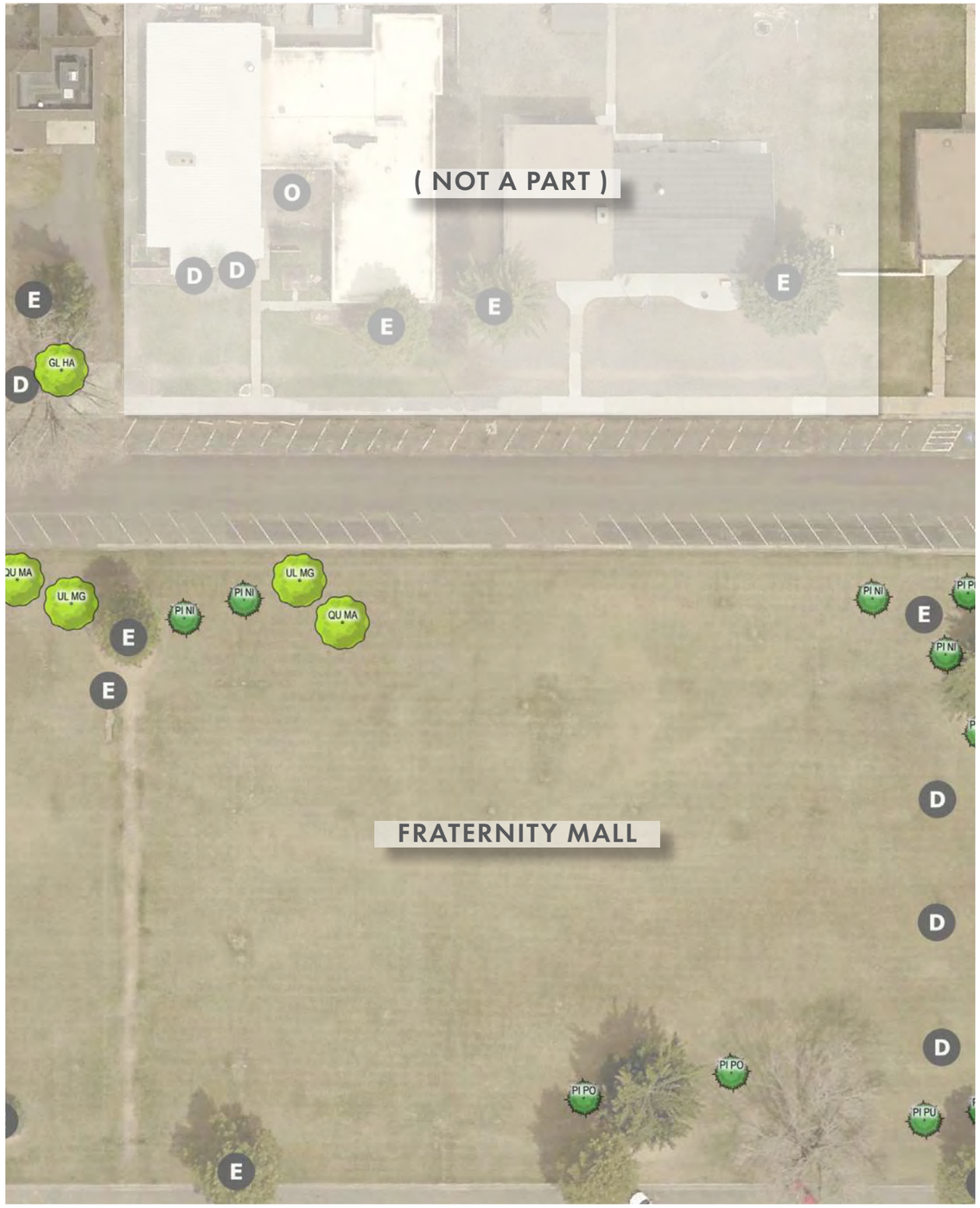

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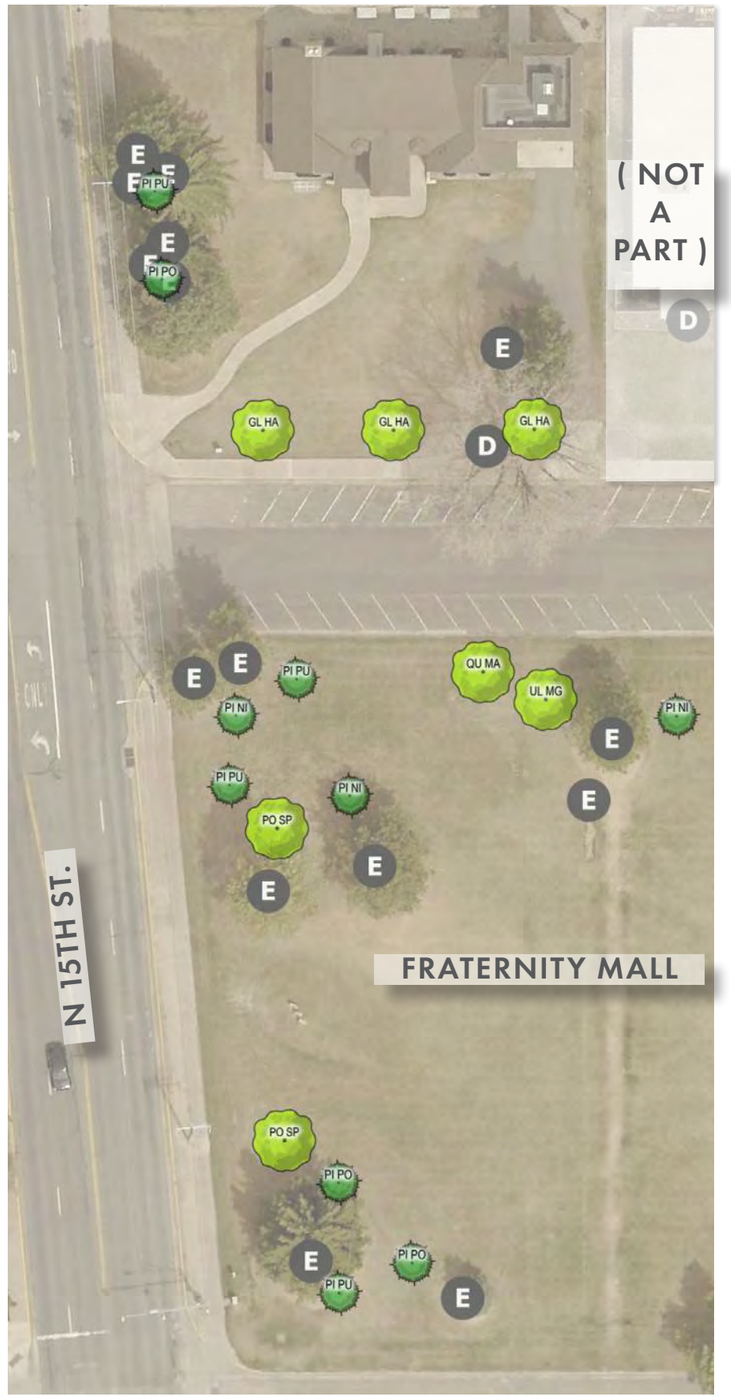

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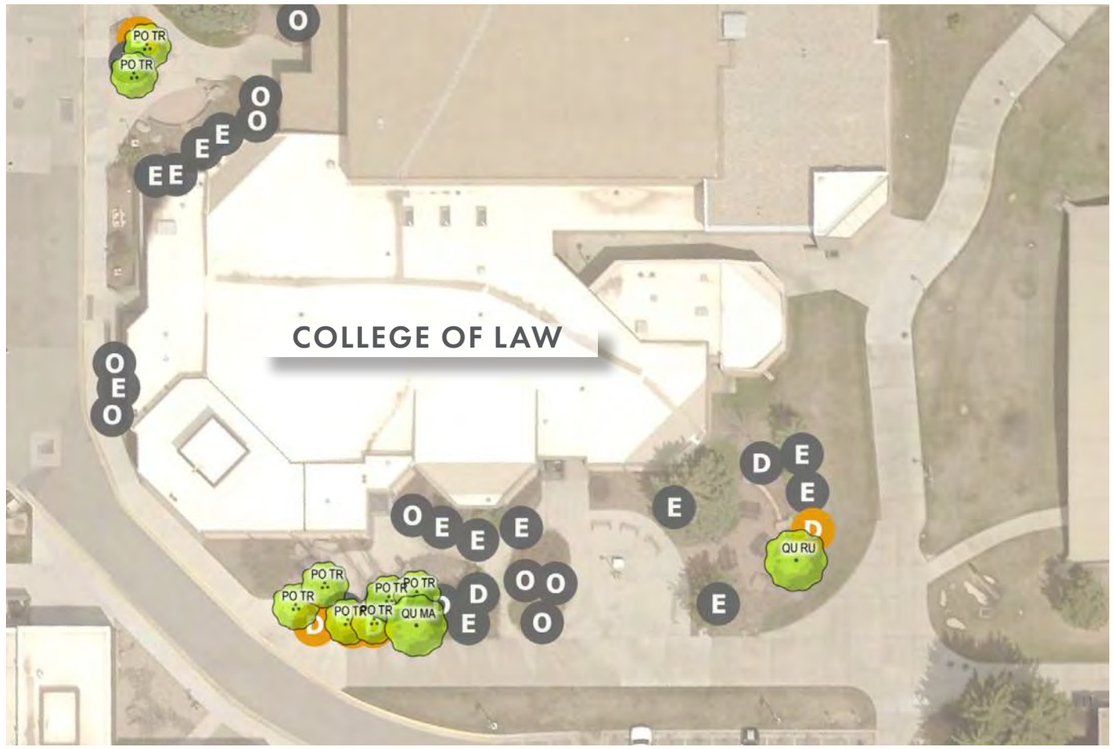
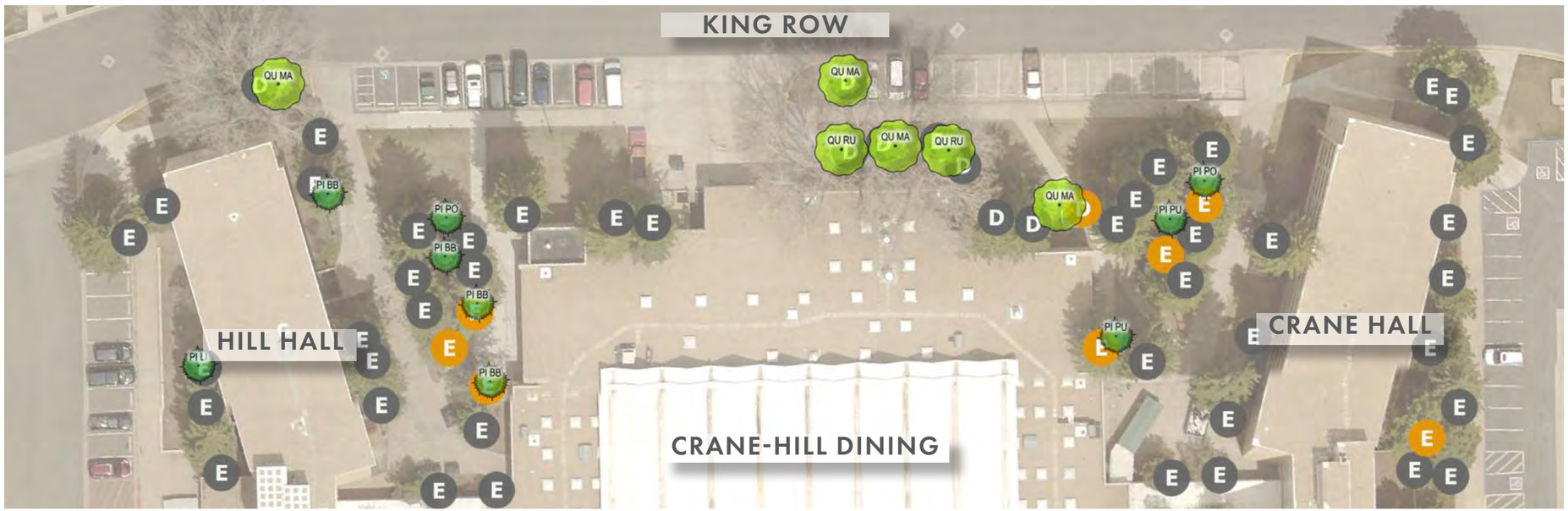
PRIORITY AREA G





TREE SUCCESSION PLAN

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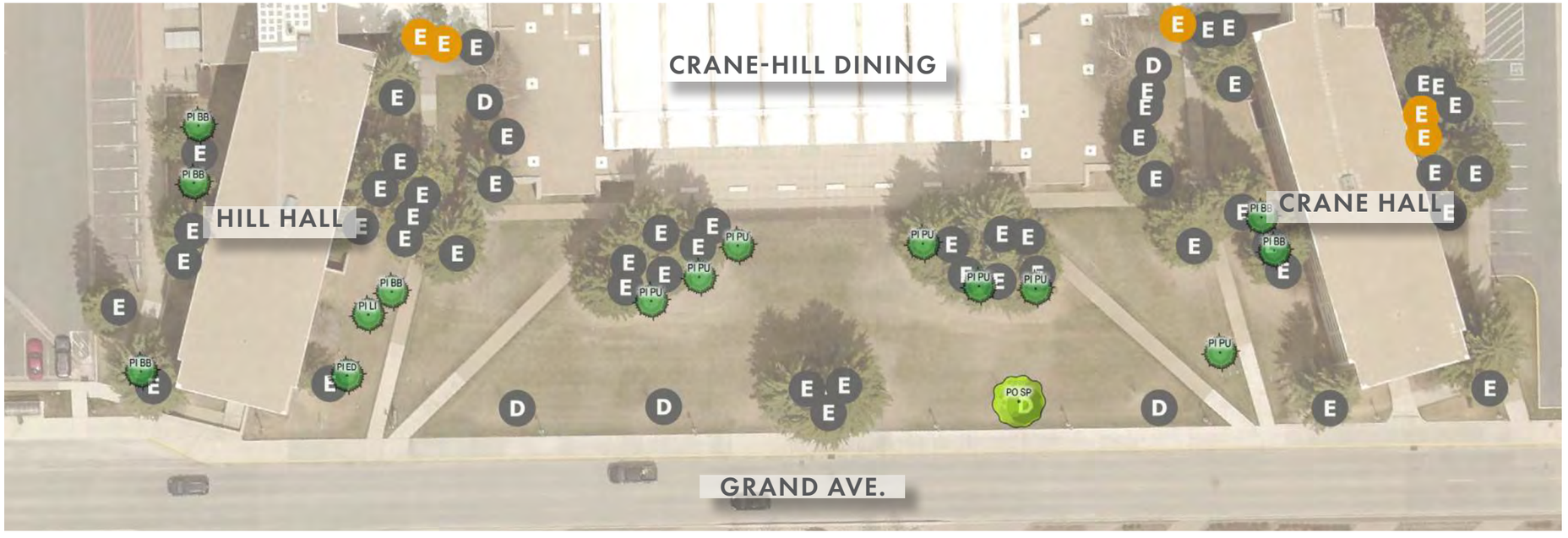

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PRIORITY AREA G

TREE SUCCESSION PLAN SCHEDULES

PLANT SCHEDULE - PRIORITY AREA A

DECIDUOUS TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AE OH	AESCULUS GLABRA	OHIO BUCKEYE	B & B	2"CAL	9
CE OC	CELTIS OCCIDENTALIS	COMMON HACKBERRY	B & B	2"CAL	13
GL HA	GLEDITSIA TRIACANTHOS INERMIS `HARVE` TM	NORTHERN ACCLAIM THORNLESS HONEY LOCUST	B & B	2"CAL	11
GL SH	GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER` TM	SHADEMASTER LOCUST	B & B	2"CAL	5
PO SP	POPULUS SP.	EASTERN COTTONWOOD	B & B	2"CAL	5
PO TR	POPULUS TREMULOIDES	QUAKING ASPEN	B & B	2"CAL	3
QU MA	QUERCUS MACROCARPA	BURR OAK	B & B	2"CAL	16
QU RU	QUERCUS RUBRA	NORTHERN RED OAK	B & B	2"CAL	9
UL MG	ULMUS X `MORTON GLOSSY` TM	TRIUMPH ELM	B & B	2"CAL	19

EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
PI PU	PICEA PUNGENS	COLORADO GREEN SPRUCE	B & B	6` HEIGHT	1
PI BB	PICEA PUNGENS `BABY BLUE EYES`	BABY BLUE EYES COLORADO BLUE SPRUCE	B & B	6` HEIGHT	5

ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
MA RB	MALUS X `RED BARRON`	RED BARRON CRAB APPLE	B & B	1.5"CAL	3
MA SS	MALUS X `SPRING SNOW`	SPRING SNOW CRAB APPLE	B & B	1.5"CAL	3

PLANT SCHEDULE - PRIORITY AREA B

DECIDUOUS TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AE OH	AESCULUS GLABRA	OHIO BUCKEYE	B & B	2"CAL	4
BE LA	BETULA PENDULA 'LACINIATA'	CUTLEAF EUROPEAN WHITE BIRCH	B & B	2"CAL	6
BE PU	BETULA PUBESCENS	DOWNY BIRCH	B & B	2"CAL	1
CE OC	CELTIS OCCIDENTALIS	COMMON HACKBERRY	B & B	2"CAL	9
GL HA	GLEDITSIA TRIACANTHOS INERMIS `HARVE` TM	NORTHERN ACCLAIM THORNLESS HONEY LOCUST	B & B	2"CAL	2
PO SP	POPULUS SP.	EASTERN COTTONWOOD	B & B	2"CAL	1
PO TR	POPULUS TREMULOIDES	QUAKING ASPEN	B & B	2"CAL	24
QU MA	QUERCUS MACROCARPA	BURR OAK	B & B	2"CAL	12
QU RU	QUERCUS RUBRA	NORTHERN RED OAK	B & B	2"CAL	8
UL MG	ULMUS X `MORTON GLOSSY` TM	TRIUMPH ELM	B & B	2"CAL	2

EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AB CO	ABIES CONCOLOR	WHITE FIR	B & B	6` HEIGHT	5
JU SC	JUNIPERUS SCOPULORUM	ROCKY MOUNTAIN JUNIPER	B & B	6` HEIGHT	4
PI DE	PICEA GLAUCA `DENSATA`	BLACK HILLS SPRUCE	B & B	6` HEIGHT	21
PI PU	PICEA PUNGENS	COLORADO GREEN SPRUCE	B & B	6` HEIGHT	46
PI BB	PICEA PUNGENS `BABY BLUE EYES`	BABY BLUE EYES COLORADO BLUE SPRUCE	B & B	6` HEIGHT	69
PI AR	PINUS ARISTATA	BRISTLECONE PINE	B & B	6` HEIGHT	1
PI ED	PINUS EDULIS	PINYON PINE	B & B	6` HEIGHT	1
PI LI	PINUS FLEXILIS	LIMBER PINE	B & B	6` HEIGHT	2
PI NI	PINUS NIGRA	AUSTRIAN BLACK PINE	B & B	6` HEIGHT	2
PI PO	PINUS PONDEROSA	PONDEROSA PINE	B & B	6` HEIGHT	8

TREE SUCCESSION PLAN SCHEDULES

PLANT SCHEDULE - PRIORITY AREA B CONT...

ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AL TE	ALNUS INCANA TENUIFOLIA	THINLEAF ALDER	B & B	6` CLUMP	3
AM AB	AMELANCHIER X GRANDIFLORA `AUTUMN BRILLIANCE`	AUTUMN BRILLIANCE SERVICEBERRY	B & B	6` CLUMP	1
MA RA	MALUS X `RADIANT`	RADIANT CRABAPPLE	B & B	1.5"CAL	3
PR CA	PRUNUS VIRGINIANA `CANADA RED`	CANADA RED CHOKECHERRY	B & B	1.5"CAL	1

PLANT SCHEDULE - PRIORITY AREA C

DECIDUOUS TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AE OH	AESCULUS GLABRA	OHIO BUCKEYE	B & B	2"CAL	2
GL HA	GLEDITSIA TRIACANTHOS INERMIS `HARVE` TM	NORTHERN ACCLAIM THORNLESS HONEY LOCUST	B & B	2"CAL	6
GL SH	GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER` TM	SHADEMASTER LOCUST	B & B	2"CAL	2
PO SP	POPULUS SP.	EASTERN COTTONWOOD	B & B	2"CAL	12
QU MA	QUERCUS MACROCARPA	BURR OAK	B & B	2"CAL	8

EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AB CO	ABIES CONCOLOR	WHITE FIR	B & B	6` HEIGHT	3
PI DE	PICEA GLAUCA `DENSATA`	BLACK HILLS SPRUCE	B & B	6` HEIGHT	10
PI PU	PICEA PUNGENS	COLORADO GREEN SPRUCE	B & B	6` HEIGHT	30
PI BB	PICEA PUNGENS `BABY BLUE EYES`	BABY BLUE EYES COLORADO BLUE SPRUCE	B & B	6` HEIGHT	40
PI ED	PINUS EDULIS	PINYON PINE	B & B	6` HEIGHT	4
PI LI	PINUS FLEXILIS	LIMBER PINE	B & B	6` HEIGHT	4
PI NI	PINUS NIGRA	AUSTRIAN BLACK PINE	B & B	6` HEIGHT	2
PI PO	PINUS PONDEROSA	PONDEROSA PINE	B & B	6` HEIGHT	3

ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AL TE	ALNUS INCANA TENUIFOLIA	THINLEAF ALDER	B & B	6` CLUMP	1
MA AM	MAACKIA AMURENSIS	AMUR MAACKIA	B & B	2"CAL	1
MA RA	MALUS X `RADIANT`	RADIANT CRABAPPLE	B & B	1.5"CAL	5
MA RB	MALUS X `RED BARRON`	RED BARRON CRAB APPLE	B & B	1.5"CAL	3
MA SS	MALUS X `SPRING SNOW`	SPRING SNOW CRAB APPLE	B & B	1.5"CAL	3
MA TH	MALUS X `THUNDERCHILD`	THUNDERCHILD CRAB APPLE	B & B	1.5"CAL	2
PR CA	PRUNUS VIRGINIANA `CANADA RED`	CANADA RED CHOKECHERRY	B & B	1.5"CAL	2
PR CH	PRUNUS X VIRGINIANA `P002`	SUCKER PUNCH CANADA CHOKECHERRY	B & B	1.5"CAL	1

TREE SUCCESSION PLAN SCHEDULES

PLANT SCHEDULE - PRIORITY AREA D

DECIDUOUS TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AC NE	ACER NEGUNDO	BOX ELDER	B & B	2"CAL	1
BE LA	BETULA PENDULA 'LACINIATA'	CUTLEAF EUROPEAN WHITE BIRCH	B & B	2"CAL	2
CE OC	CELTIS OCCIDENTALIS	COMMON HACKBERRY	B & B	2"CAL	1
GL HA	GLEDITSIA TRIACANTHOS INERMIS `HARVE` TM	NORTHERN ACCLAIM THORNLESS HONEY LOCUST	B & B	2"CAL	2
GL SH	GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER` TM	SHADEMASTER LOCUST	B & B	2"CAL	2
PO TR	POPULUS TREMULOIDES	QUAKING ASPEN	B & B	2"CAL	2
QU MA	QUERCUS MACROCARPA	BURR OAK	B & B	2"CAL	1

EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
JU ME	JUNIPERUS SCOPULORUM `MEDORA`	MEDORA JUNIPER	B & B	6` HEIGHT	5
PI DE	PICEA GLAUCA `DENSATA`	BLACK HILLS SPRUCE	B & B	6` HEIGHT	2
PI PU	PICEA PUNGENS	COLORADO GREEN SPRUCE	B & B	6` HEIGHT	5
PI BB	PICEA PUNGENS `BABY BLUE EYES`	BABY BLUE EYES COLORADO BLUE SPRUCE	B & B	6` HEIGHT	2
PI ED	PINUS EDULIS	PINYON PINE	B & B	6` HEIGHT	2

ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
PR CA	PRUNUS VIRGINIANA `CANADA RED`	CANADA RED CHOKECHERRY	B & B	1.5"CAL	4

PLANT SCHEDULE - PRIORITY AREA E

DECIDUOUS TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AC NE	ACER NEGUNDO	BOX ELDER	B & B	2"CAL	4
AE OH	AESCULUS GLABRA	OHIO BUCKEYE	B & B	2"CAL	1
BE PU	BETULA PUBESCENS	DOWNY BIRCH	B & B	2"CAL	2
GL HA	GLEDITSIA TRIACANTHOS INERMIS `HARVE` TM	NORTHERN ACCLAIM THORNLESS HONEY LOCUST	B & B	2"CAL	3
GL SH	GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER` TM	SHADEMASTER LOCUST	B & B	2"CAL	4
PO SP	POPULUS SP.	EASTERN COTTONWOOD	B & B	2"CAL	12
PO TR	POPULUS TREMULOIDES	QUAKING ASPEN	B & B	2"CAL	8
QU RU	QUERCUS RUBRA	NORTHERN RED OAK	B & B	2"CAL	2
UL MG	ULMUS X `MORTON GLOSSY` TM	TRIUMPH ELM	B & B	2"CAL	1

EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
PI PU	PICEA PUNGENS	COLORADO GREEN SPRUCE	B & B	6` HEIGHT	2
PI BB	PICEA PUNGENS `BABY BLUE EYES`	BABY BLUE EYES COLORADO BLUE SPRUCE	B & B	6` HEIGHT	14
PI AR	PINUS ARISTATA	BRISTLECONE PINE	B & B	6` HEIGHT	1
PI LI	PINUS FLEXILIS	LIMBER PINE	B & B	6` HEIGHT	1
PI NI	PINUS NIGRA	AUSTRIAN BLACK PINE	B & B	6` HEIGHT	2

ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AC HW	ACER TATARICUM `HOT WINGS`	HOT WINGS TATARIAN MAPLE	B & B	1.5"CAL	8
AM AB	AMELANCHIER X GRANDIFLORA `AUTUMN BRILLIANCE`	AUTUMN BRILLIANCE SERVICEBERRY	B & B	6` CLUMP	6
MA SS	MALUS X `SPRING SNOW`	SPRING SNOW CRAB APPLE	B & B	1.5"CAL	5
PR CH	PRUNUS X VIRGINIANA `P002`	SUCKER PUNCH CANADA CHOKECHERRY	B & B	1.5"CAL	1

TREE SUCCESSION PLAN SCHEDULES

PLANT SCHEDULE - PRIORITY AREA F

DECIDUOUS TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
AC NE	ACER NEGUNDO	BOX ELDER	B & B	2"CAL	2
AE OH	AESCULUS GLABRA	OHIO BUCKEYE	B & B	2"CAL	2
CE OC	CELTIS OCCIDENTALIS	COMMON HACKBERRY	B & B	2"CAL	3
GL HA	GLEDITSIA TRIACANTHOS INERMIS `HARVE` TM	NORTHERN ACCLAIM THORNLESS HONEY LOCUST	B & B	2"CAL	11
GL SH	GLEDITSIA TRIACANTHOS INERMIS `SHADEMASTER` TM	SHADEMASTER LOCUST	B & B	2"CAL	6
PO SP	POPULUS SP.	EASTERN COTTONWOOD	B & B	2"CAL	5
QU MA	QUERCUS MACROCARPA	BURR OAK	B & B	2"CAL	6
QU RU	QUERCUS RUBRA	NORTHERN RED OAK	B & B	2"CAL	3
UL MG	ULMUS X `MORTON GLOSSY` TM	TRIUMPH ELM	B & B	2"CAL	6

EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
PI DE	PICEA GLAUCA `DENSATA`	BLACK HILLS SPRUCE	B & B	6` HEIGHT	1
PI PU	PICEA PUNGENS	COLORADO GREEN SPRUCE	B & B	6` HEIGHT	19
PI LI	PINUS FLEXILIS	LIMBER PINE	B & B	6` HEIGHT	1
PI NI	PINUS NIGRA	AUSTRIAN BLACK PINE	B & B	6` HEIGHT	15
PI PO	PINUS PONDEROSA	PONDEROSA PINE	B & B	6` HEIGHT	7

ORNAMENTAL TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
MA SS	MALUS X `SPRING SNOW`	SPRING SNOW CRAB APPLE	B & B	1.5"CAL	1
PR CA	PRUNUS VIRGINIANA `CANADA RED`	CANADA RED CHOKECHERRY	B & B	1.5"CAL	1
PR CH	PRUNUS X VIRGINIANA `P002`	SUCKER PUNCH CANADA CHOKECHERRY	B & B	1.5"CAL	1

PLANT SCHEDULE - PRIORITY AREA G

DECIDUOUS TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
PO SP	POPULUS SP.	EASTERN COTTONWOOD	B & B	2"CAL	1
PO TR	POPULUS TREMULOIDES	QUAKING ASPEN	B & B	2"CAL	9
QU MA	QUERCUS MACROCARPA	BURR OAK	B & B	2"CAL	5
QU RU	QUERCUS RUBRA	NORTHERN RED OAK	B & B	2"CAL	3

EVERGREEN TREES	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY
PI PU	PICEA PUNGENS	COLORADO GREEN SPRUCE	B & B	6` HEIGHT	25
PI BB	PICEA PUNGENS `BABY BLUE EYES`	BABY BLUE EYES COLORADO BLUE SPRUCE	B & B	6` HEIGHT	10
PI ED	PINUS EDULIS	PINYON PINE	B & B	6` HEIGHT	2
PI LI	PINUS FLEXILIS	LIMBER PINE	B & B	6` HEIGHT	2
PI PO	PINUS PONDEROSA	PONDEROSA PINE	B & B	6` HEIGHT	2

TREE PALETTE

DECIDUOUS SHADE TREES

Accolade Elm
Ulmus accolade 'Morton'
Water: Moderate
Interest/use: Dark green foliage and yellow fall color

Downy Birch
Betula pubescens
Water: Moderate
Interest/use: More Upright, browner thicker bark

Ohio Buckeye
Aesculus glabra
Water: Low
Interest/use: Bright red, orange, and yellow fall color

Boxelder Maple
Acer negundo
Water: Moderate
Interest/use: Orange-red fall color

Narrowleaf Cottonwood
Populus angustifolia
Water: Low
Interest/use: Native with willow like foliage

Quaking Aspen
Populus tremuloiides
Water: Moderate
Interest/use: Hardy tree with bright yellow fall color

Burr Oak
Quercus macrocarpa
Water: Low
Interest/use: Yellow fall color

Northern Red Oak
Quercus rubra
Water: Low
Interest/use: Dark red and orange fall color

Skyline Honeylocust
Gleditsia triacanthos inermis 'Skyline'
Water: Low
Interest/use: Thornless, yellow fall color

Cutleaf Weeping Birch
Betula pendula
Water: Moderate
Interest/use: White papery bark with pendulous branches

Northern Acclaim Thornless Honeylocust
Gleditsia triacanthos inermis 'Harve'
Water: Low
Interest/use: Thornless, seedless with yellow fall color

Tower Poplar
Populus x canescens 'Tower'
Water: Low
Interest/use: Columnar growth with yellow fall color

ORNAMENTAL TREES

Amur maackia
Maackia amurensis
Water: Low
Interest/use: Large white flowers in midsummer.

Autumn Brilliance Serviceberry
Amelanchier x grandiflora
Water: Moderate
Interest/use: White flowers with red-orange fall color

Bigtooth Maple
Acer grandidentatum
Water: Moderate
Interest/use: Yellow, orange, and bright red fall color

Canada Red Chokecherry
Prunus virginiana 'Canada Red'
Water: Low
Interest/use: Maroon-red leaves

TREE PALETTE

ORNAMENTAL TREES CONT.

Dolgo Crabapple
Malus domestica
Water: Low
Interest/use: White/Pink blooms

Russian Hawthorn
Crataegus ambigua
Water: Low
Interest/use: Yellow to red fall color; white flowers, red berries

Thornless Cockspur Hathorn
Crataegus crus-galli var. inermis
Water: Low
Interest/use: White flowers, no thorns, wide branching structure

Gambel Oak
Quercus gambelii
Water: Low
Interest/use: Yellow, orange, to red fall color

Spring Snow Crabapple
Malus x 'Spring Snow'
Water: Low
Interest/use: Bright green foliage with white blossoms

Thunderchild Crabapple
Malus x 'Thunderchild'
Water: Low
Interest/use: Purple-leafed tree with pink blossoms

Hotwings Maple
Acer tataricum 'Garann'
Water: Moderate
Interest/use: Red blooms with yellow to orange-red fall color

Sucker Punch Chokecherry
Prunus virginiana 'Sucker Punch'
Water: Low
Interest/use: Maroon-red leaves, does not sucker

Winter King Hawthorn
Crataegus viridis 'Winter King'
Water: Moderate
Interest/use: Purple to scarlet fall color; white flowers

Oakleaf Mountain Ash
Sorbus hybrida
Water: Moderate
Interest/use: Showy white flowers with bright red berries

Thinleaf Alder
Alnus tenuifolia
Water: Moderate
Interest/use: Yellow fall color; attractive foliage

Water Birch
Betula occidentalis
Water: Moderate
Interest/use: Multi-stem, Reddish-brown thin papery bark

TREE PALETTE

EVERGREEN TREES

Austrian Pine
Pinus nigra
Water: Low
Interest/use: Dense grower with dark green needles

Colorado Green Spruce
Picea pungens
Water: Low
Interest/use: Conical shape with green color

Medora Juniper
Juniperus scopulorum 'Medora'
Water: Low
Interest/use: Blue-green color, columnar

Baby Blue Eyes Spruce
Picea Pungens 'Baby Blue Eyes'
Water: Low
Interest/use: Upright

Douglas Fir
Pseudotsuga menziesii
Water: Moderate
Interest/use: Pyramidal shape with blueish-green needles

Ponderosa Pine
Pinus ponderosa
Water: Low
Interest/use: Dark red/brown bark

Bristlecone Pine
Pinus longaeva
Water: Low
Interest/use: Unique trunk structure

European Larch
Larix decidua
Water: Moderate
Interest/use: Pyramidal with age, green needles in summer with a rich yellow fall color

White Fir
Abies concolor
Water: Moderate
Interest/use: Pyramidal shape with blue-green needles

Limber pine
Pinus flexilis
Water: Low
Interest/use: Dark blue green needles

ESTIMATED COSTS

The cost estimate provided was completed at a high level and includes tree removal, stump grinding, tree replacement and tree succession tree planting. This assumes large scale operations with minimal mobilization. A 6% yearly escalation estimate has also been included to account for inflation.

Costs for the removal and replacement of Priority 1a and 1b trees have been provided as one lump sum as those trees need to be addressed immediately (or as soon as funds allow) regardless of location. Costs for the remaining areas are broken down by Priority Area. Where the number of proposed trees exceed the quanity of trees being removed, a separate cost break down for new trees has been provided.

These costs do not include specific line items for modifications or repairs to irrigation or the re-establishment of adjacent sod or landscape areas when trees are removed. Additionally, these costs do not take into account future succession planting (as low or non-priority trees age out and are removed providing enough room for additional trees to be planted).

Costs are subject to change due to unforseen storm or other events that would cause damage to trees or otherwise impact the condition of trees on campus.

TREE SUCCESSION PLAN — SUMMARY BY AREA

January 9, 2023

Area	Cost
Priority 1 Trees	$252,300.00
Priority Area A	$143,150.00
Priority Area B	$279,550.00
Priority Area C	$143,150.00
Priority Area D	$279,550.00
Priority Area E	$66,700.00
Priority Area F	$86,600.00
Priority Area G	$136,300.00
TOTAL	$1,387,300.00

ESTIMATED COSTS

TREE SUCCESSION PLAN — Priority 1 Trees

January 9, 2023

Item	Quanity	Unit	Cost	Extended Cost
REMOVAL/REPLACEMENT				
1a Tree	84	EA	$2,900.00	$243,600.00
1b Tree	3	EA	$2,900.00	$8,700.00
				$252,300.00
			TOTAL	$252,300.00
			Additional Costs	
			Yearly Escalation Assumption (6%)	$15,138.00

TREE SUCCESSION PLAN — Priority Area B

January 9, 2023

Item		Unit	Cost	Extended Cost
REMOVE/REPLACE				
Priority 2 Tree	69	EA	$2,900.00	$200,100.00
Priority 3 Tree	7	EA	$2,900.00	$20,300.00
				$220,400.00
LANDSCAPE				
Successon Tree	91	EA	$650.00	$59,150.00
				$59,150.00
			TOTAL	$279,550.00
			Additional Costs	
			Yearly Escalation Assumption (6%)	$16,773.00

TREE SUCCESSION PLAN — Priority Area A

January 9, 2023

Item		Unit	Cost	Extended Cost
REMOVE/REPLACE				
Priority 2 Tree	23	EA	$2,900.00	$66,700.00
				$66,700.00
LANDSCAPE				
Successon Tree	15	EA	$650.00	$9,750.00
				$143,150.00
			TOTAL	$143,150.00
			Additional Costs	
			Yearly Escalation Assumption (6%)	$8,589.00

TREE SUCCESSION PLAN — Priority Area C

January 9, 2023

Item		Unit	Cost	Extended Cost
REMOVE/REPLACE				
Priority 2 Tree	43	EA	$2,900.00	$124,700.00
Priority 3 Tree	2	EA	$2,900.00	$5,800.00
				$130,500.00
LANDSCAPE				
Successon Tree	68	EA	$650.00	$44,200.00
				$44,200.00
			TOTAL	$174,700.00
			Additional Costs	
			Yearly Escalation Assumption (6%)	$10,482.00

ESTIMATED COSTS

TREE SUCCESSION PLAN — Priority Area D

January 9, 2023

Item		Unit	Cost	Extended Cost
REMOVE/REPLACE				
Priority 2 Tree	30	EA	$2,900.00	$87,000.00
Priority 3 Tree	4	EA	$2,900.00	$11,600.00
				$98,600.00
LANDSCAPE				
Successon Tree		EA	$650.00	
			TOTAL	$98,600.00
			Additional Costs	
			Yearly Escalation Assumption (6%)	$5,916.00

TREE SUCCESSION PLAN — Priority Area F

January 9, 2023

Item		Unit	Cost	Extended Cost
REMOVE/REPLACE				
Priority 2 Tree	16	EA	$2,900.00	$46,400.00
Priority 3 Tree	4	EA	$2,900.00	$11,600.00
				$58,000.00
LANDSCAPE				
Successon Tree	44	EA	$650.00	$28,600.00
				$28,600.00
			TOTAL	$86,600.00

TREE SUCCESSION PLAN — Priority Area E

January 9, 2023

Item		Unit	Cost	Extended Cost
REMOVE/REPLACE				
Priority 2 Tree	19	EA	$2,900.00	$55,100.00
Priority 3 Tree	4	EA	$2,900.00	$11,600.00
				$66,700.00
LANDSCAPE				
Successon Tree		EA	$650.00	
			TOTAL	$66,700.00
			Additional Costs	
			Yearly Escalation Assumption (6%)	$4,002.00

TREE SUCCESSION PLAN — Priority Area G

January 9, 2023

Item		Unit	Cost	Extended Cost
REMOVE/REPLACE				
Priority 2 Tree	46	EA	$2,900.00	$133,400.00
Priority 3 Tree	1	EA	$2,900.00	$2,900.00
				$136,300.00
LANDSCAPE				
Successon Tree		EA	$650.00	
			TOTAL	$136,300.00
			Additional Costs	
			Yearly Escalation Assumption (6%)	$8,178.00

APPENDIX A - DISCUSSION OF EXISTING TREES

University of Wyoming
Main Campus Tree Inventory for Tree Succession Planning
Discussion of the Existing Trees and Inventory
7/24/21

The following comments and discussion relate to the Summer 2021 Tree Inventory of the trees in the main/core campus and other selected areas at the University of Wyoming. The Arborists' Inventory, was performed by Tree Analysis Group/Bob Howey, ISA Certified #7030A and ASCA Consulting Arborist #729, in conjunction with and the first step in the Tree Succession Plan being prepared for the University by Norris Design. There are two major portions to this discussion: the first part is about the tree and tree species and the second part is about the inventory and data collected on the existing trees.

The following is a discussion about each of the major tree species that are currently found in the main campus area. We are not discussing many of the singular or lesser used and found tree species though there were also not a lot of these. For simplicity we are using the trees' common names, but their scientific names can be found on the digital inventory if needed. These are simply my comments and observations about each of these trees as it relates to those on the University of Wyoming campus. It is not an attempt to fully discuss or detail the species – information about these can be found elsewhere in general tree/arboricultural literature (ie Dirr's Encyclopedia of Trees and Shrubs).

Cottonwoods:

- "Eastern" Cottonwood: this is one of the more dominant and prominent tree species on the campus. These large and mature trees run along Ivinson and at the Cooper House esp. the West Parking area and in other scattered locations. They appear to be a very good Cottonwood and larger specimen tree and have better form, structure, sturdiness, and maybe less prone to breakage than the Plains Cottonwoods that are also found in some of these same areas. Like the Plains Cottonwoods, these seem to have good resistance to cytospora fungus. The exact species or hybrid of this Populus is not certain, they could be mature Lanceleafs, but this does not seem to match up especially in comparison to the younger trees on campus that are known to be Lanceleaf and which appear to be much different. These trees could possibly be Canadian Poplar, a cross between the Plains Cottonwood (Populus deltoides or robusta) and Black Cottonwood (Populus nigra). These trees could likely be easily propagated from cuttings or whips if there was a desire for more of these trees on the campus. It would be interesting to know more about how these large trees have performed and how maintenance intensive they are. They would not be a good choice for further planting if they are like the Plains Cottonwood and know to shed large limbs. Most are in good to very good condition even in spite of their age.
- Plains Cottonwood – some of these mature trees are found on campus, esp. at the East and West ends of Ivinson and East/Northeast of the Cooper House. They are a hardy and attractive tree, but they are also soft wooded and can be hazardous. Their large, heavy limbs are prone to falling especially as they age, so for this reason they do not seem like a good choice especially when they are located in areas with frequent pedestrian and vehicle traffic.
- Lanceleaf Cottonwood – these are a fast growing, naturally occurring or selected hybrid of Plains Cottonwood and Narrowleaf Cottonwoods. A significant number of these have been planted on campus in the last 20-30 years, a lot of them have significant storm damage with limbs broken out and they are also generally more prone to cytospora fungus which can decimate these trees.
- Narrowleaf Cottonwood – there are few or none of these on campus at this time, they are similar to the Lanceleaf, but also tend to produce a lot of invasive suckers which are hard to manage, so these are not recommended.
- Aspen – generally fairly short lived tree, they are prone to cytropora fungus which can cause cankering and dieback of die off. They are a native tree and nice while healthy and still may have a place in campus landscape.
- Columnar Swedish Aspen – a similarly short lived tree with cytospora issues like the standard Aspen, these are more upright and straight than the Aspens.

Spruce:

- Blue Spruce – these evergreens are by far the most dominant and prominent trees on the campus. They have done well and will likely continue to do so, though this cannot be guaranteed. Some major negatives of these is that a lot of them are older: mature to very mature so are starting to age out, the fact that they have been so heavily used/over used on the campus already, and some have weak co-dominant trunks which are prone to failing. There is major reliance on this tree and if a pest were to become a serious issue, it would have a huge impact on the campus aesthetics and tree canopy.
- Engelmann Spruce – these look very similar to the Blue Spruce and there are some planted with the Blue Spruce especially on the older and Western side of campus. They seem to have done well like the Blue Spruce, but are also aging out. These trees are not common in the nursery trade, but probably can be sought out and located if there is interest in planting more.
- Black Hills Spruce – these are a nice, attractive green spruce that are smaller and more mid-sized in stature compared to the Blue Spruce. There are some of these used on the North side of the Student Health building. It would be good to use more of these.
- Norway Spruce – there are a few of these planted on the North side of the Information Technology building. They are a good choice and introduce some needed variety into the available plant mix. These are also available as narrow columnar or unique and varied "Character" forms.

Pines:

- Ponderosa Pine – this is a generally hardy native and there are some nice older Ponderosas on the campus. They tend to be a lighter green and have a more open canopy than the Austrian Pines.

APPENDIX A - DISCUSSION OF EXISTING TREES

- Austrian Pine – there are some healthy and generally younger Austrian Pines on campus, these are a good variety and have a nice, dark green look. Continuing to use some of these pines in the campus planting mix is a good idea.
- Pinon Pine – this is another, generally hardy tree with native stands as close as 35 miles South of Laramie. They are a tough and drought tolerant tree that grows to about 30 feet. The foliage is a lighter green and is not as rich or lush as some other pines.
- Bristlecone Pine – this is also a good native selection and there are both young and old of these trees on the campus. An attractive, dark green pine that does not get as large as other pines, i.e. 30 feet or so at full maturity. May not be popular with some on campus due to their slower growth.
- Limber Pine – another native that can be found in the nearby mountains. They are not highly common in the nursery trade and tend to have irregular growth habit. They can be useful in the right situation.
- Mugo Pine – varying sizes of these exist, this is a shrub form of pine. A great choice to provide an evergreen look for/in smaller spaces. They do like full or at least partial sun. Various sizes and ages of Mugo Pines exist on the campus.
- Bosnian Pine – a relatively newer variety of pine in the local landscape trade, these are a nice mid-sized (ie 40 feet) tree at maturity. There are a few newer of these planted on campus – good to watch how they perform.

Fir:

- White Fir – There are a few newer White Firs growing along the North side of the Technology building. They look somewhat like a Blue Spruce and generally prefer drier, better drained locations than the spruce. A good alternative to Blue Spruce, but don't over use until these are more proven.

Birch:

- Water Birch or River Birch – a good choice and a fairly quick grower though never getting too large, these top out at 20-30 feet. Attractive reddish brown, shiny bark – year round and cute small cones that can persist.
- Downey or White Birch – a hardy, northern tree the few that exist on campus look pretty good and it seems like more of these should be used. Double check to see if Bronze Birch borer has been much of a local issue, if not then good to use more of these. They do like moisture and don't generally do well if they are often dry or become too dry.
- Cutleaf Weeping Birch – similar to the White Birch above.

Oaks:

- Bur Oak – there are some good looking Bur Oaks on campus, most of them are younger though and not many over 20 years old. It seems like a good option as a shade tree.

Prunus:

- Chokecherry – a fast growing and relatively small (ie 20 feet tall), native tree. They are fairly tough and hardy, but also typically do not have a very long life span. There are quite a few of these on campus. There is the typical green leaf form and also a red leaf form called Red Canada Chokecherry in the trade.
- Mayday Tree – similar to the Chokecherry, but not as hardy or resilient. There are a few of these trees on campus, but not a lot.
- Apricot – There is a good grouping of these on the West side of campus. They are a smaller stature tree, but fairly tough and typically have a good lifespan. They may or may not produce fruit depending on the Spring weather and freezes.
- Purple leaf Plum – There were just a few of these on campus. They are typically not as resilient, long lasting, or reliable, but do provide attractive dark red or purple foliage.

Maples:

- Tartarian Maple – A nice and hardy shrub maple, growing up to 20 feet. There are a number of these that have been used on campus, some are thriving, some are not as much. They need a good amount of sunlight to be full and thrive and they can handle some shade too.
- Amur Maple – Similar to the Tartarian Maple, but a bit less tough or hardy.
- Bigtooth Maple – A semi-native, mid-sized maple. Best in sunny locations. The growth of these seems to vary, some thrive and others seem to languish.
- Boxelder – These can be nice, albiet shorter lived, mid sized trees, but they often are not that robust and hardy. They also tend to have soft and weak wood which is prone to both storm damage and earlier decay than most trees.

Lindens:

- Littleleaf Linden – ie Greenspire:
- American Linden – ie Redmond
  - There are both of these on campus, but no larger or older Lindens. Would seem to be a good shade tree in somewhat more protected locations.

Other Trees – there are some of these on campus:

- Rocky Mountain Juniper and related upright junipers: a native, small to midsized evergreen. Some of these, especially the more native or collected trees, are more rough, open, and ragged looking, but some varieties are more uniform and tighter/thicker. The Medora Junipers on the West side of the Law Building are a good example of a smaller and more compact upright juniper, they max out at about 10 feet.
- Thuja sp. – Arborvitae: An interesting, smaller scale, evergreen tree; good in the right location. Protected and well watered will generally be best for these.
- Ohio Buckeye – There are a handful of these nice middle aged and younger trees on campus. They seem to like and do best in the somewhat warmer and more protected areas. This is more of a midsized tree at maturity.
- Honeylocust – Most of these are younger trees, but they seem also to be doing well in more protected and warmer locations. These could/should grow into nice shade trees.
- Crabapple – there are some of these, but more could be used. Select varieties that have smaller fruit and that are fire blight resistant.

APPENDIX A - DISCUSSION OF EXISTING TREES

- Serviceberry – We gathered the locations of these generally lighter, less dense and more airy small trees or large shrubs in our tree inventory. Some of them were growing well, but others are just so/so. They do best in part sun, more damp locations and where they do not have much competition.

<u>Currently Underutilized Trees:</u>
Ohio Buckeye, Honeylocust, Black Hills Spruce, Norway Spruce, Birch – Downey and Cutleaf Weeping, Bur Oak, Upright Junipers, Lindens: American and Littleleaf, Apricot, Crabapples – Fruitless or Small Fruit and Fireblight Resistant, Hawthorns

<u>Less Desirable, Existing Trees – these may still have value in the right locations:</u>
White or Silver Poplar, Siberian Elm, Buckthorn, Southwestern White Pine, Boxelder, and Serviceberry.

UNIVERSITY OF WYOMING

TREE SUCCESSION PLAN

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