2022 CAMPUS MASTER PLAN RESTART

(2020 CAMPUS MASTER PLAN)

SPACE COMMITTEE

THE UNIVERSITY OF ARIZONA

AYERS SAINT GROSS

NOVEMBER 7, 2022

Agenda

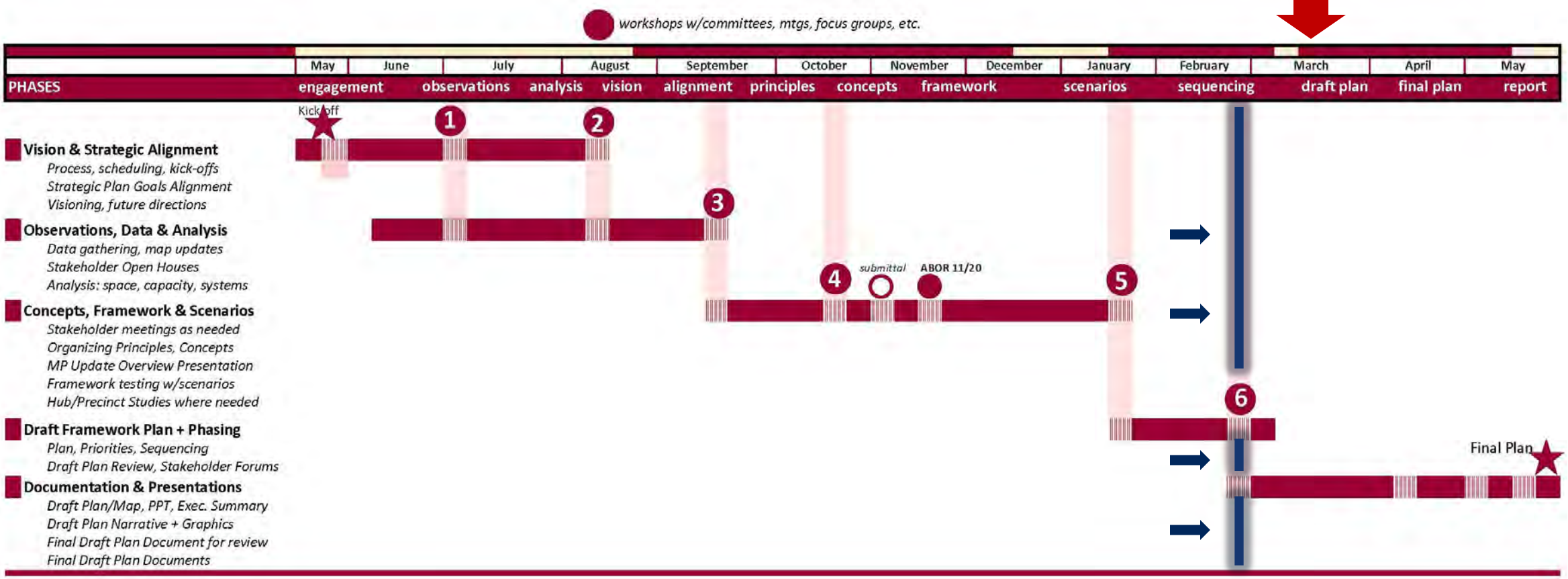
- Team Introductions
- Process Overview
- Methodology
- Space
- Systems
- Big Takeaways
- Summary

Who is in the Room?

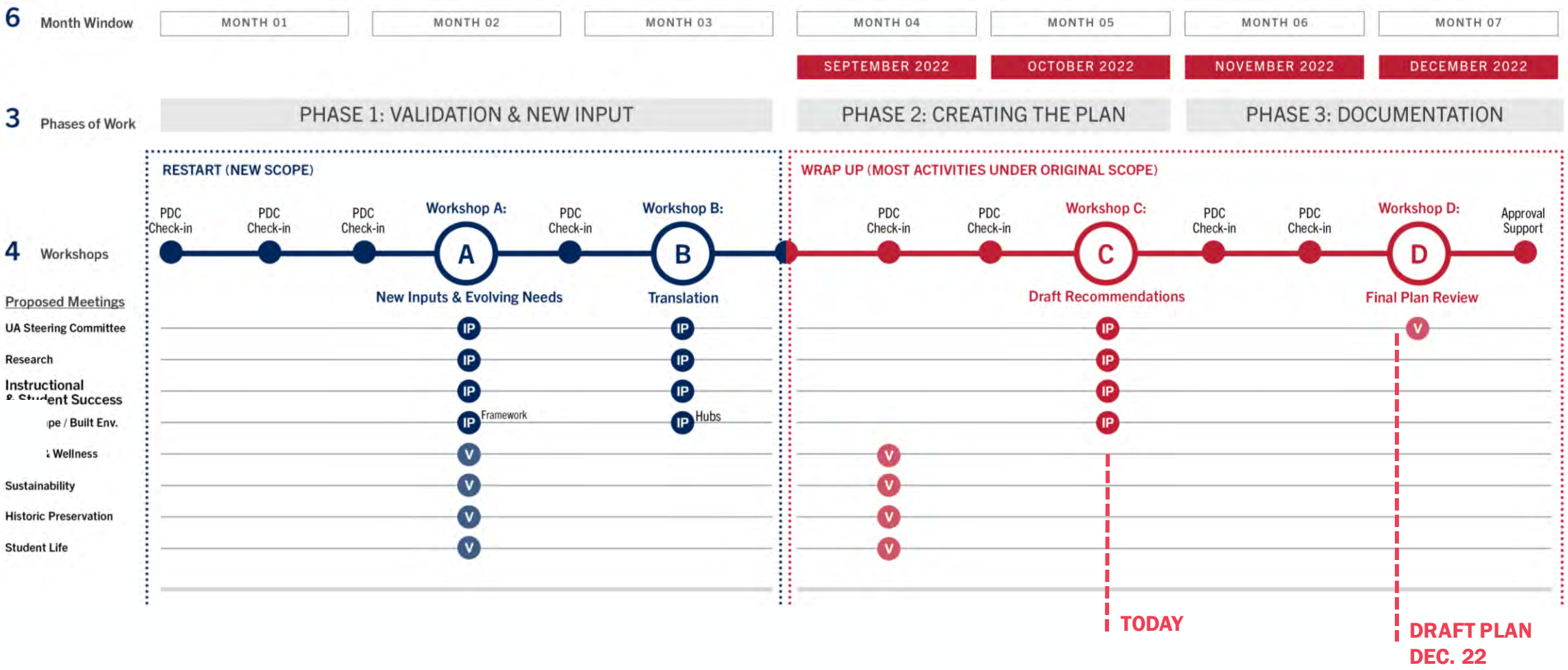
PROCESS OVERVIEW

(previous) 2020 Campus Master Plan Schedule

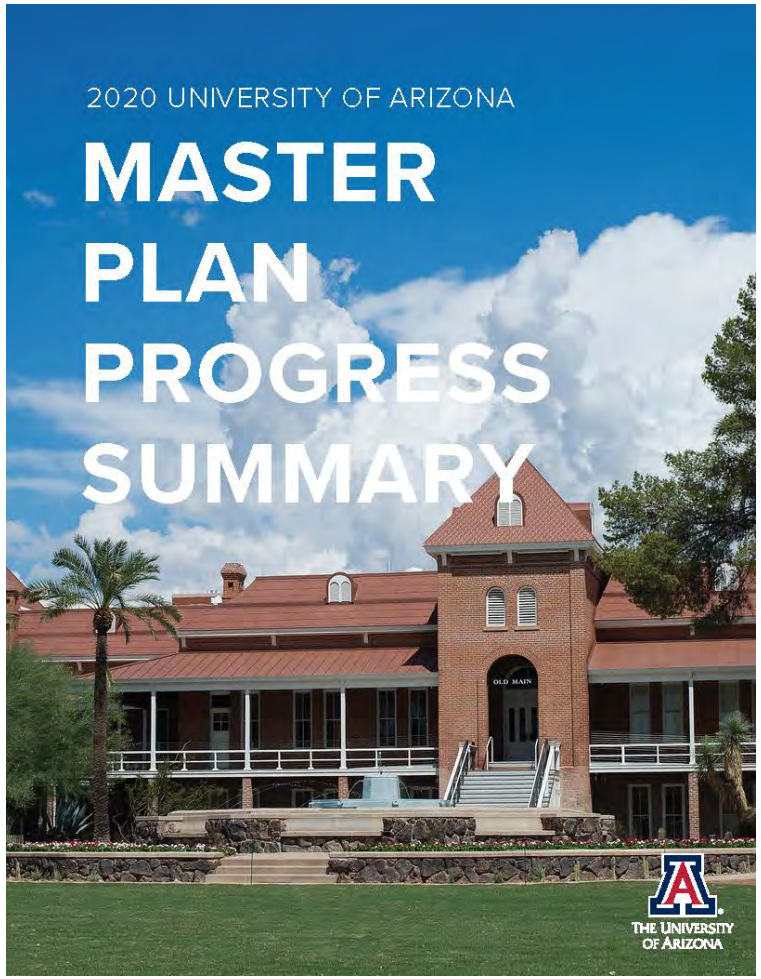
WHERE WE LEFT OFF…

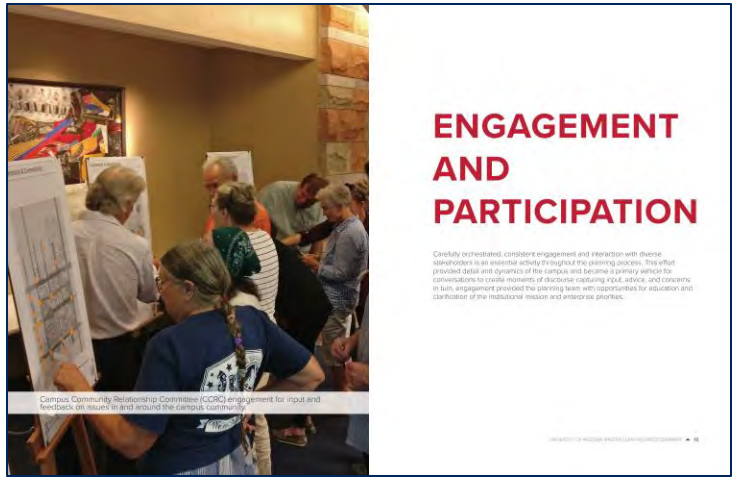


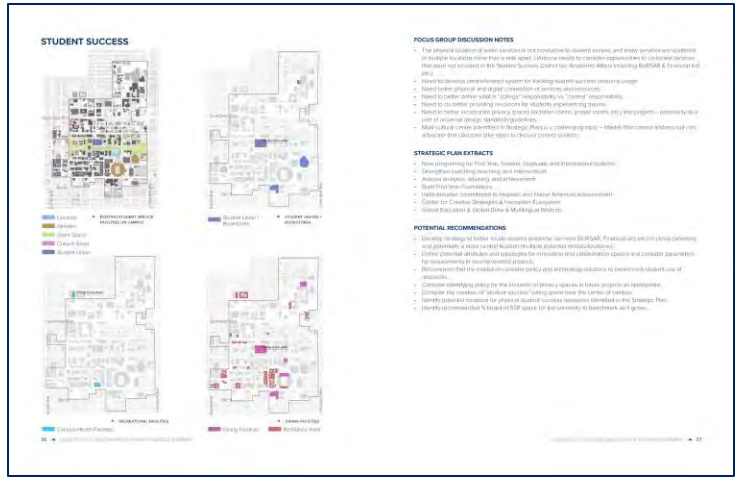
Master Plan Schedule

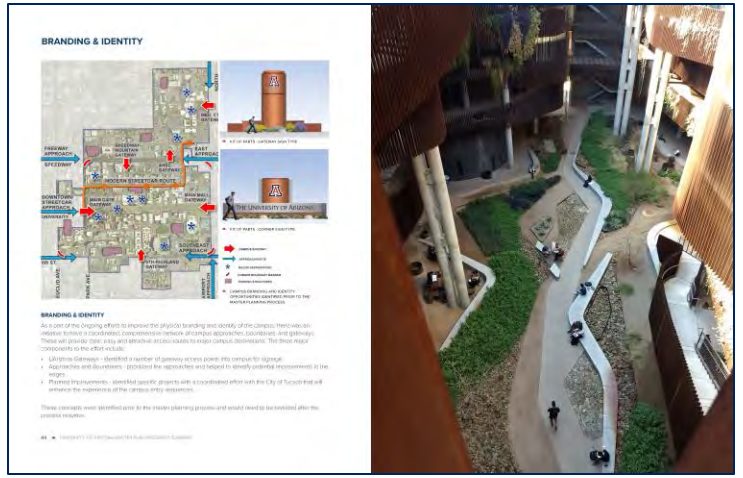


Executive Summary Draft



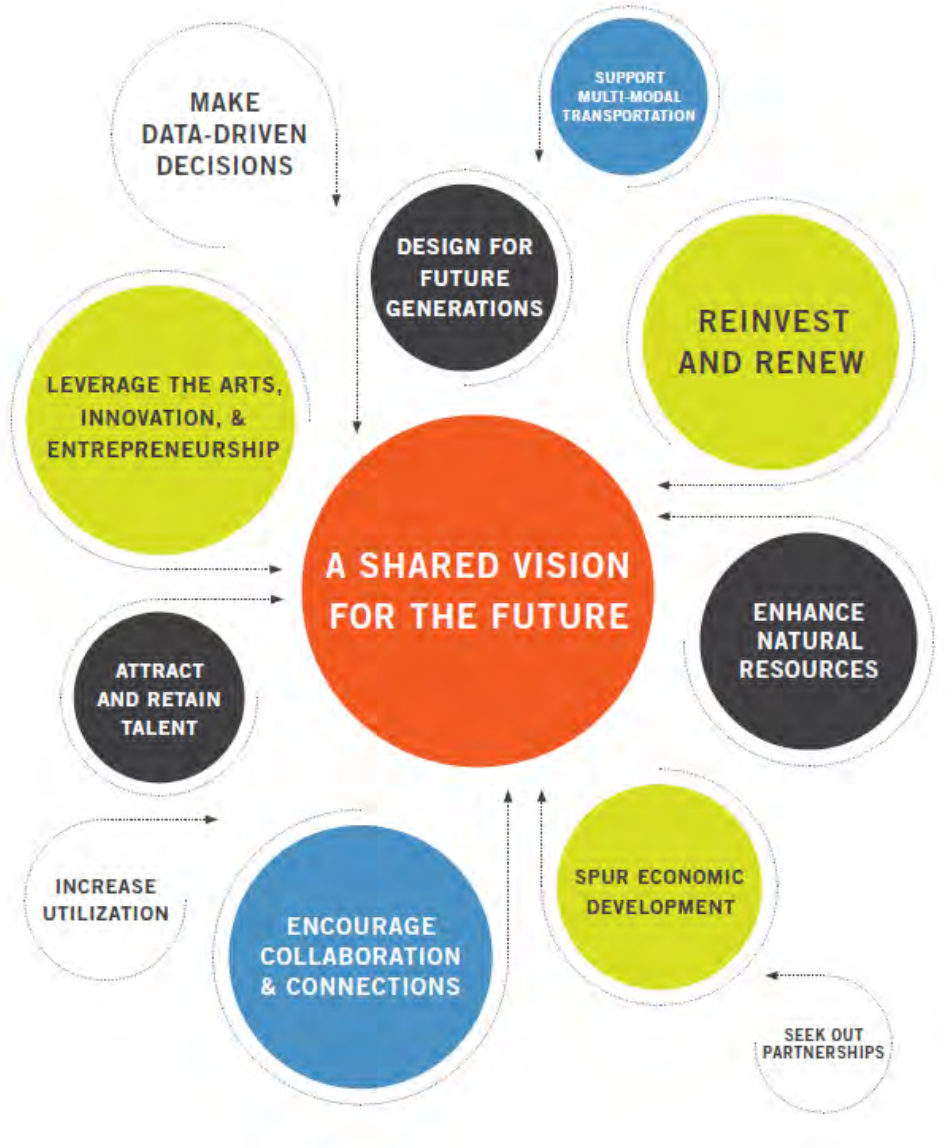






What is a Master Plan?

- A **critical analysis** of the **physical resources** of the campus and how they perform separately and in conjunction.
- An opportunity for **broad engagement** and participation on the use and needs of the campus.
- A device to assess the **long-term capacity of systems** and resources of campus comprehensively.
- A shared resource or reference to **create alignment and common perspectives** across many different user groups and programs.
- A method to **convey the long-term direction** and intentions of the university to its community and neighbors.



Why a Master Plan?

- **Align physical assets** with mid- and long-term needs.
- **Improve the campus quality and experience** for all users.
- **Support programmatic alignment** and synergies.
- **Forecast infrastructure** needs to align with new facilities.
- **Balance sources of input and viewpoints** in the use and maintenance of the campus.
- Respond to **emerging and changing needs** and challenges.

METHODOLOGY

Engagement-to-date

26

Engagement Meetings

- 4 Workshops
- 18 Focus Groups (part of 1 or more meetings)
- 4 Meetings (Steering Committee/ Operations Committee)

1

Campus-wide Open House

- 4,000+ Dots (1 Dot=1 comment)
- 200+ Participants
- 400 Cookies
- 360+ Web Site Comments

3

Neighborhood Meetings (Open Houses & Report-back)

- 450+ Dots (1 Dot=1 comment)
- 10 Neighborhood Associations
- 40+ Neighbors

1,128 Total Participants

Engagement & Input

Operations & Steering Committees

Topical Focus Groups

Engagement Activities

Stakeholder Groups

Stakeholder Participants

Session 1
November 7, 2022
11:00 a.m. - Noon

Executive Steering Committee

Elizabeth	Cantwell
Elliott	Cheu
Michael	Dake
Peter	Dourlein
Jon	Dudas
Liesl	Folks
Marla	Franco
Ryan	Goodell
David	Heeke
Leila	Hudson
Luis	Irizarry Figueroa
Laura Todd	Johnson
Sam	Keim
Steve	Kelly
Marc	Miller
Steve	Moore
Gary	Packard
Nancy	Pollock-Ellwand
Patrick	Robles
JP	Roczniak
Lisa	Rulney
Andrew	Schulz
Jessica	Summers
Steve	Voeller

Session 2
November 7, 2022
2:30 p.m. - 4:00 p.m.

Space Utilization
Focus Groups:
Academics, Research,
Space Planning, Analytics, Housing & Residential Life

Academics	
Barry	Brummund
Gail	Burd
Shane	Burgess
Arlette	Cordery
Peter	Dourlein
Alain-Philippe	Durand
John Paul	Jones
Kim	Jones
Ladd	Keith
Lynn	Nadel
Francisco	Pedroza
Pam	Perry
Joaquin	Ruiz
Darcy	Van Patten
Research	
Keith	Aspinall
Ralph	Banks
Elizabeth	Cantwell
Elliott	Cheu
Peter	Dourlein
Christine	Gaul
Ken	McAllister
John	O'Neil
Sangita	Pawar
Lauren	Zajac

Space Planning	
Nina	Bates
Peter	Dourlein
Richard	Edmiston
Angie	Souza
Jose	Teran
Alex	Underwood
Bruce	Vaughan
Connie	Yazzie
Analytics	
Mark	Ray
Peter	Dourlein
Housing & Residential Life	
Alex	Blandeburgo
Peter	Dourlein

Session 3
November 8, 2022
10:30 a.m. - Noon

Campus Facilities & Systems
Focus Groups:
Campus Gateways & Branding, Campus Landscape, Campus Infrastructure,
Accessibility, Campus Recreation, Campus Access & Transportation,
Campus Sustainability

Campus Gateways & Branding	
John	Denker
Peter	Dourlein
Alain-Philippe	Durand
Ed	Galda
Ryan	Goodell
Amanda	Hunt
Julie	Katsel
Steve	Moore
Mark	Novak
Campus Landscape	
Jeff	Christensen
Peter	Dourlein
Nicole	Feldt
Trevor	Ledbetter
Grant	McCormick
Mark	Novak
Sandra	Obenour-Dowd
Tanya	Quist
Luis	Rocha

Campus Infrastructure	
Ralph	Banks
Peter	Dourlein
Chris	Kopach
David	Lane
Charlie	Lynn
Steve	Marker
Grant	McCormick
Mark	St. Onge
Accessibility	
Eric	Bell
Peter	Dourlein
Amanda	Kraus
Campus Recreation	
Peter	Dourlein
Troy	Vaughn
Campus Access & Transportation	
Peter	Dourlein
Jim	Sayre
Campus Sustainability	
Courtney	Crosson
Peter	Dourlein
Mike	Herman
Trevor	Ledbetter

Session 4
November 8, 2022
3:00 p.m. - 4:30 p.m.

Campus Planning Summary

Ralph	Banks
Alex	Blandeburgo
Peter	Dourlein
Ed	Galda
Ryan	Goodell
Chris	Kopach
Trevor	Ledbetter
Mark	Novak
Jim	Sayre

Master Plan Framework

Key areas for campus wide improvements

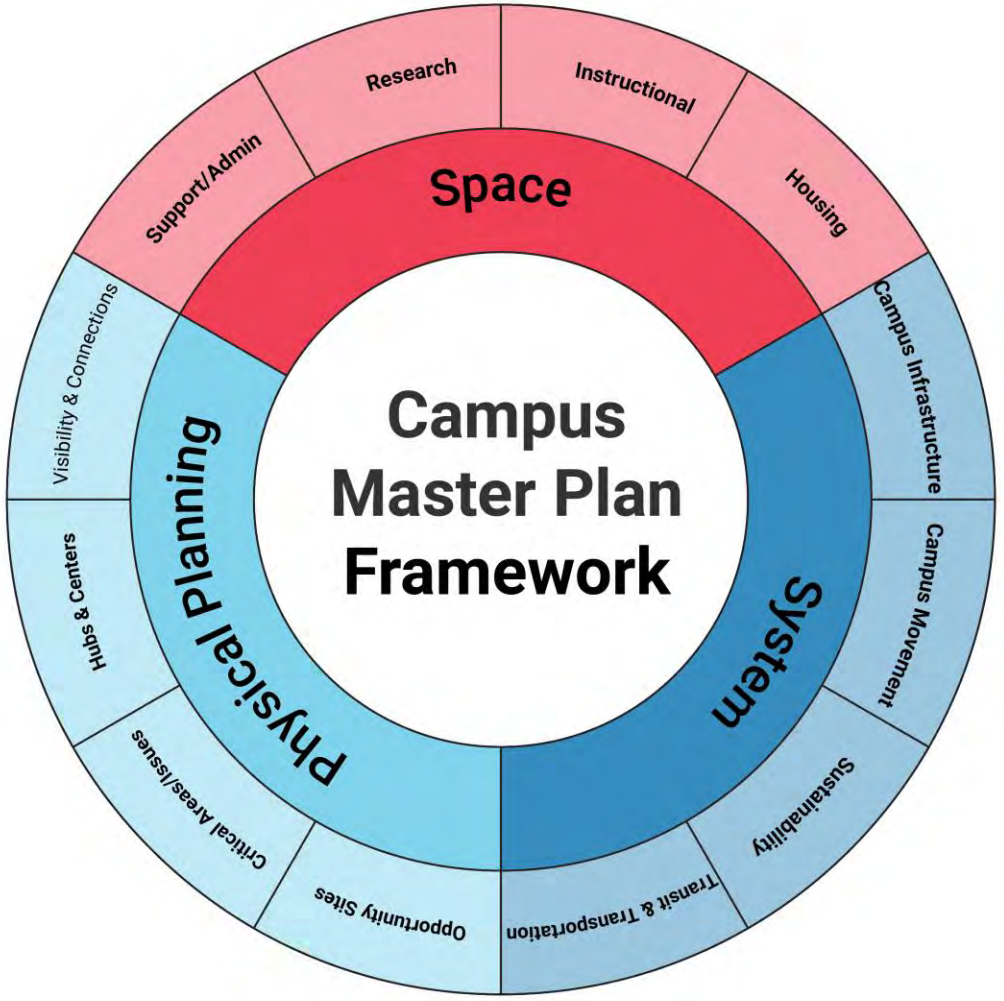
STRATEGIC PLAN
ALIGNMENT

1 SPACE

2 SYSTEMS

3 PHYSICAL PLANNING

INTEGRATED WITH ALL 3
SUPPORTING TOPICS



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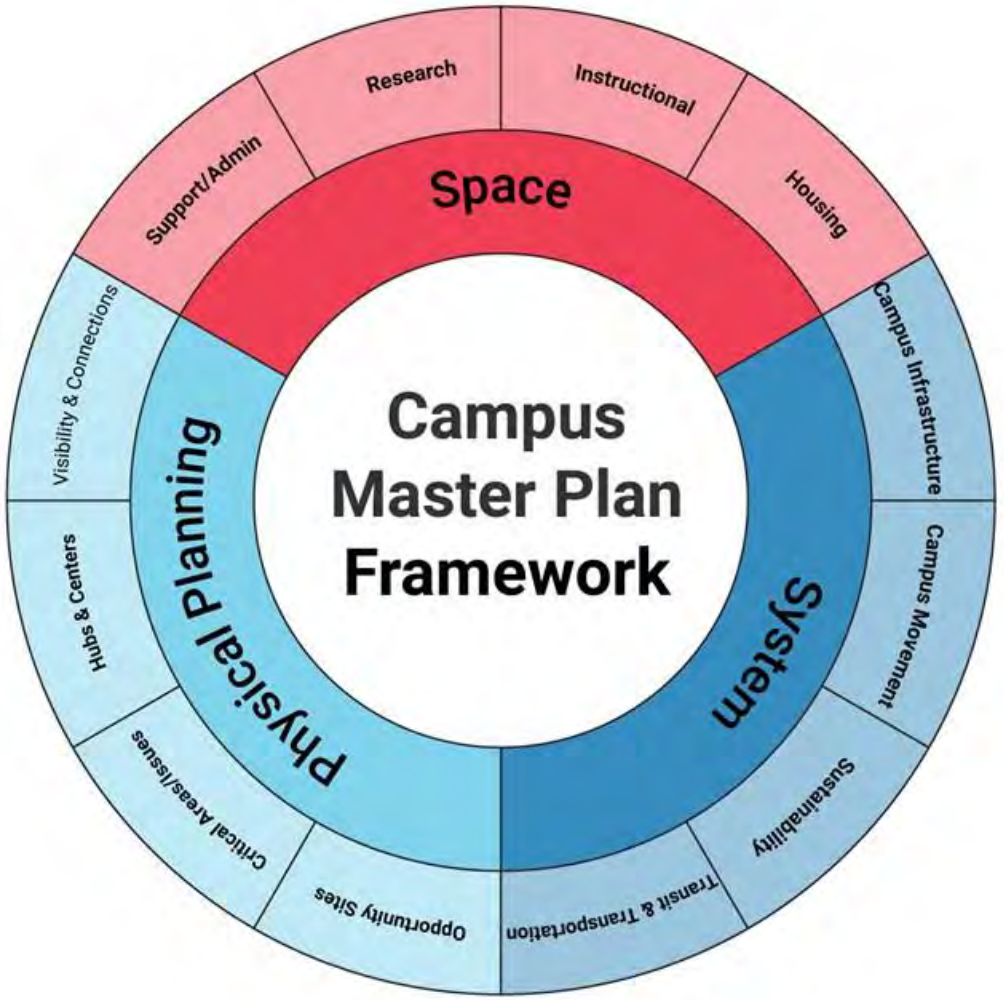


Key Analytical Drivers:

- **Enrollment**
- **Research & Innovation Resources**
- **Campus Quality and Functionality**

Additional Drivers

- Building Capacity and Conditions
- Academic and Program growth

Enrollment Trends

Fall 2022 – Total Enrollment

University of Arizona Total

51,134
Enrolled Students
(41,906.00 FTE)

Undergraduate Students

40,407	33,723.67	13.21
Headcount	FTE	Average SCH

Graduate Students

10,727	8,182.33	10.34
Headcount	FTE	Average SCH

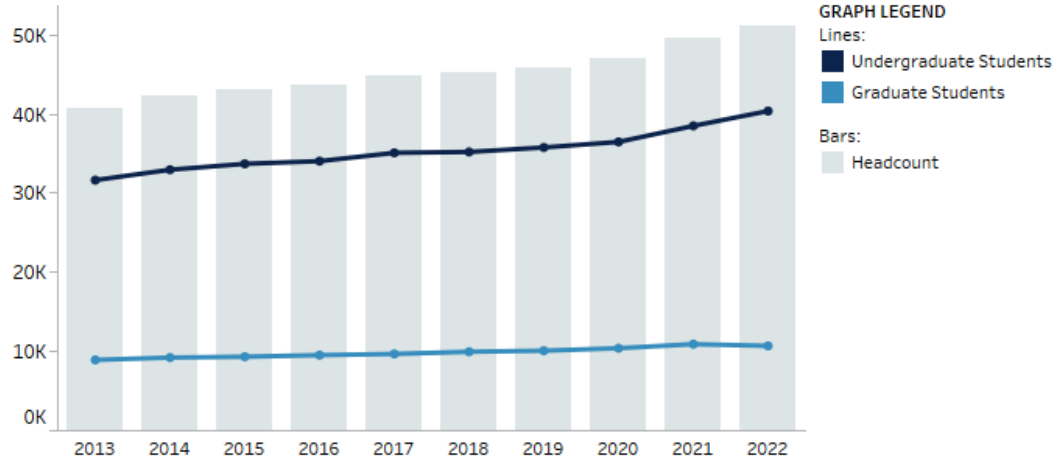
Total Enrollment by Campus

Main	39,606
Arizona Online	8,132
Arizona International	1,644
Phoenix	766
Distance	652
Southern Arizona	214
Global Direct	120

Trends | **Total Enrollment**

College (Primary Major): All
Campus: All
Residency: All
IPEDS Race / Ethnicity*: All
Sex: All
Full-Time/Part-Time: All

University of Arizona Total
Fall Enrollment by Academic Career



Academic Career	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Undergraduate Students	31,670	32,987	33,732	34,072	35,123	35,233	35,801	36,503	38,528	40,407
Graduate Students	8,951	9,249	9,356	9,553	9,708	9,984	10,117	10,429	10,943	10,727
Grand Total	**40,621**	**42,236**	**43,088**	**43,625**	**44,831**	**45,217**	**45,918**	**46,932**	**49,471**	**51,134**

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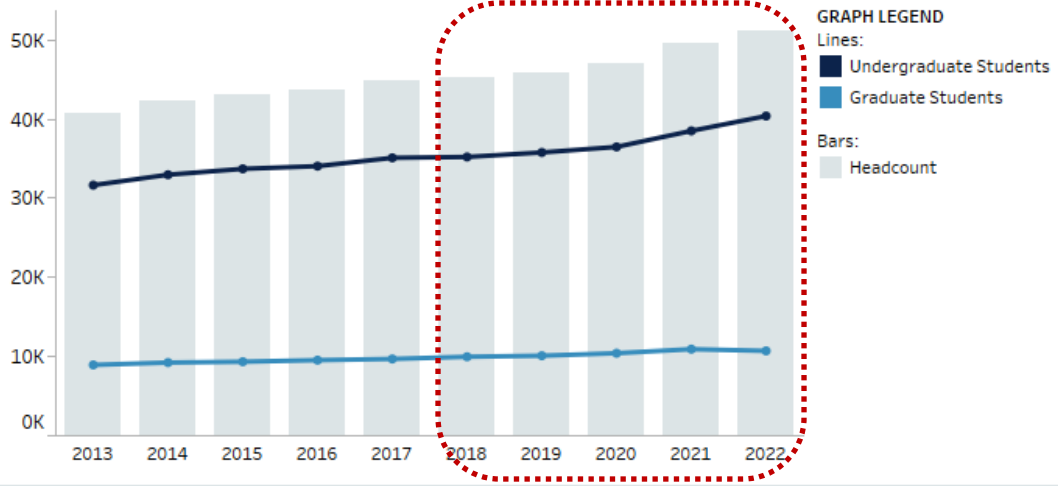

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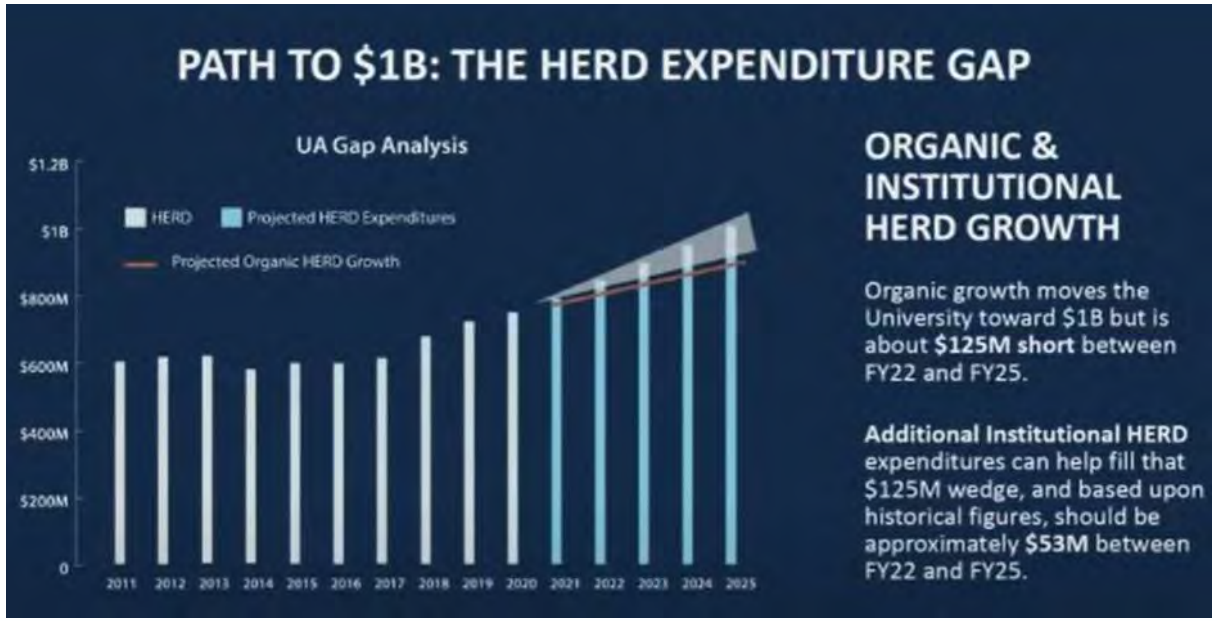
Research & Innovation Profiles

Master Planning to keep up with the University of Arizona Goals



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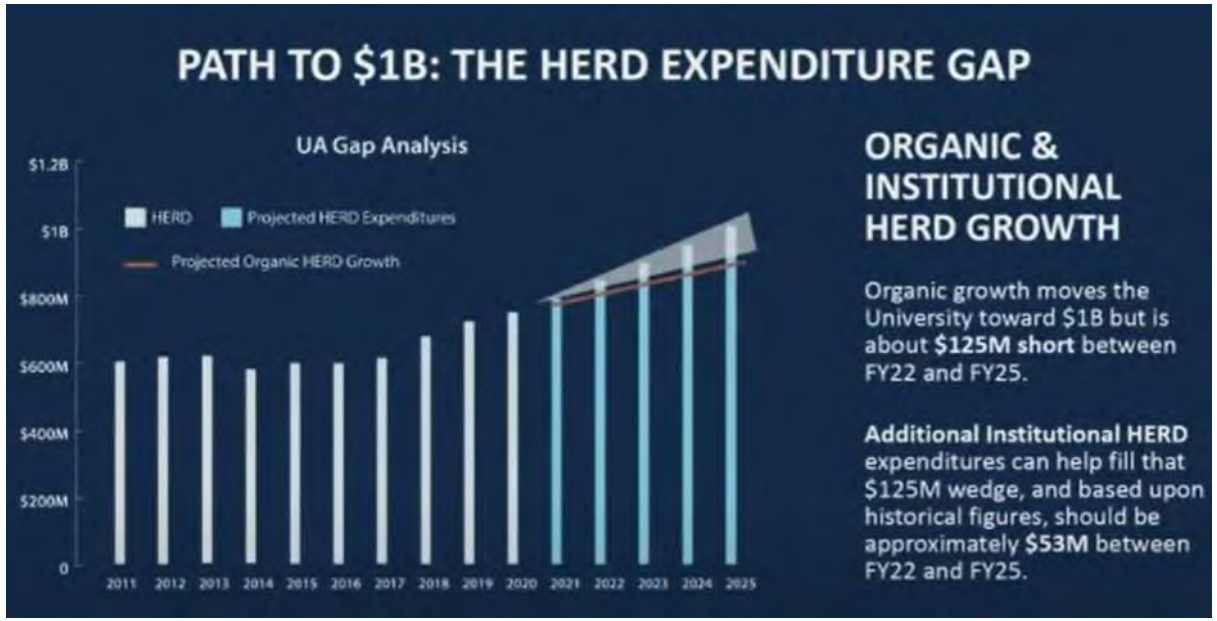


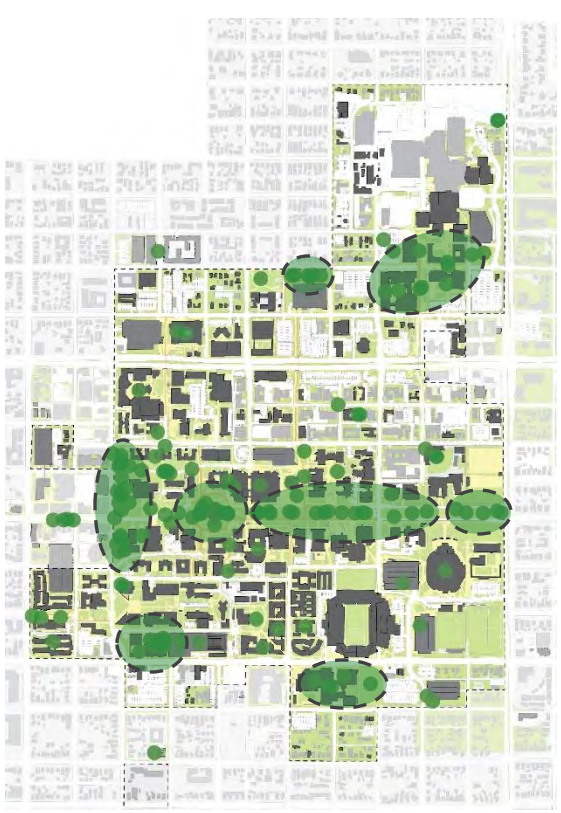
Increase R&D Expenditures to $1B

Investing in Key Research Areas:

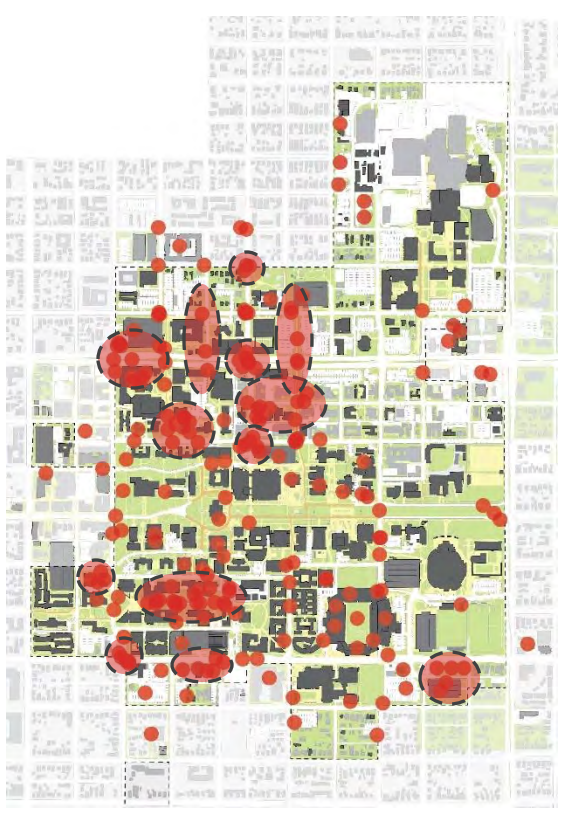
- Health Sciences,
- College of Engineering,
- College of Applied Science & Technology

Campus Quality & Functionality

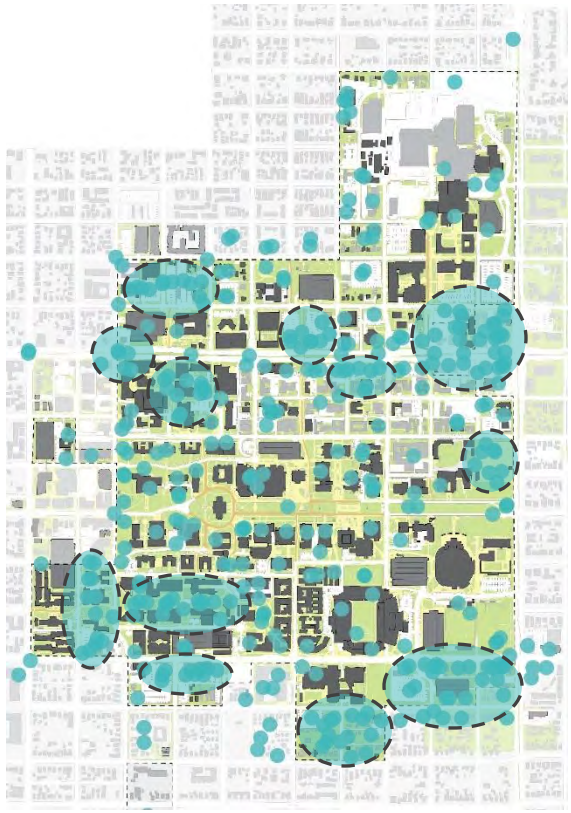
SWOT Analysis



Successful places on campus



Places for improvement



Places with unrealized potential

Places that need to be addressed

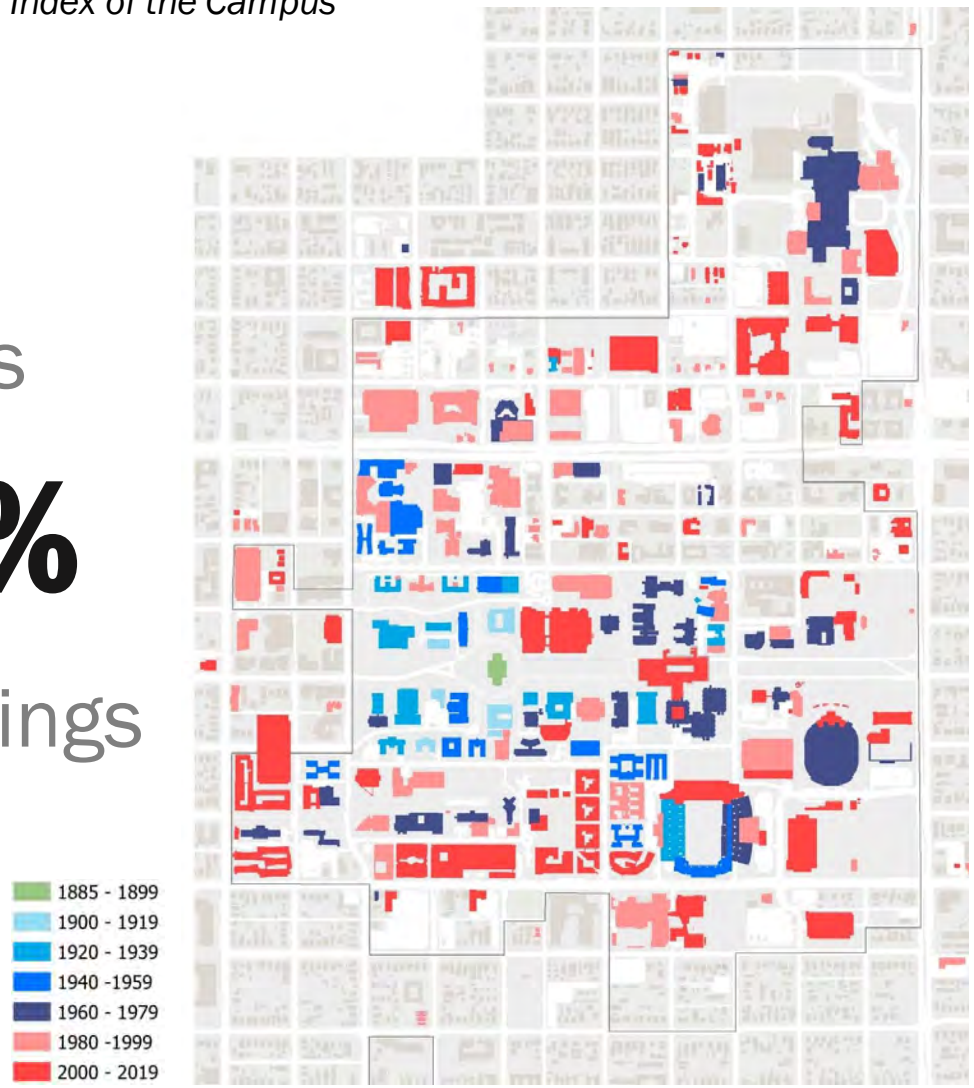
Building Conditions & Capacity

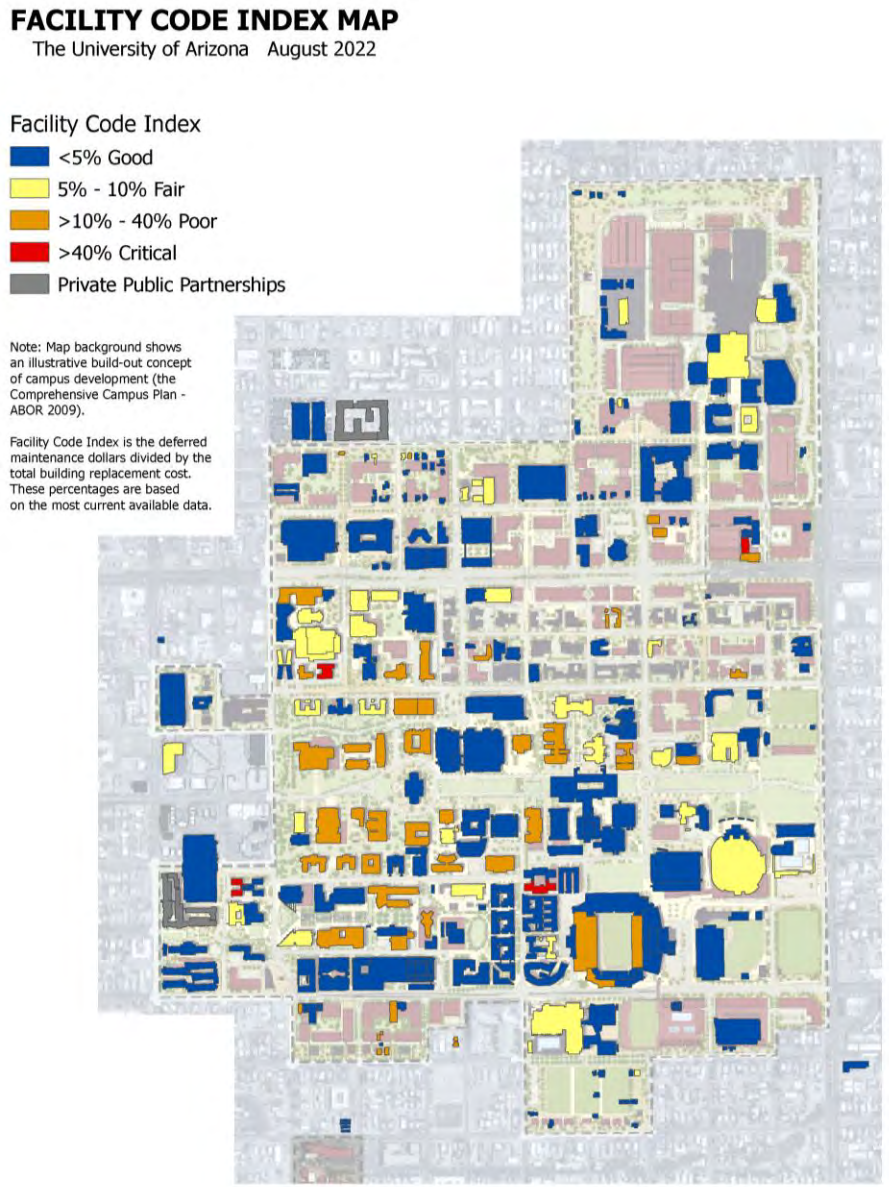
Existing Facilities Conditions Index of the Campus

50+ years

~ 45 %

of total buildings





ANALYSIS

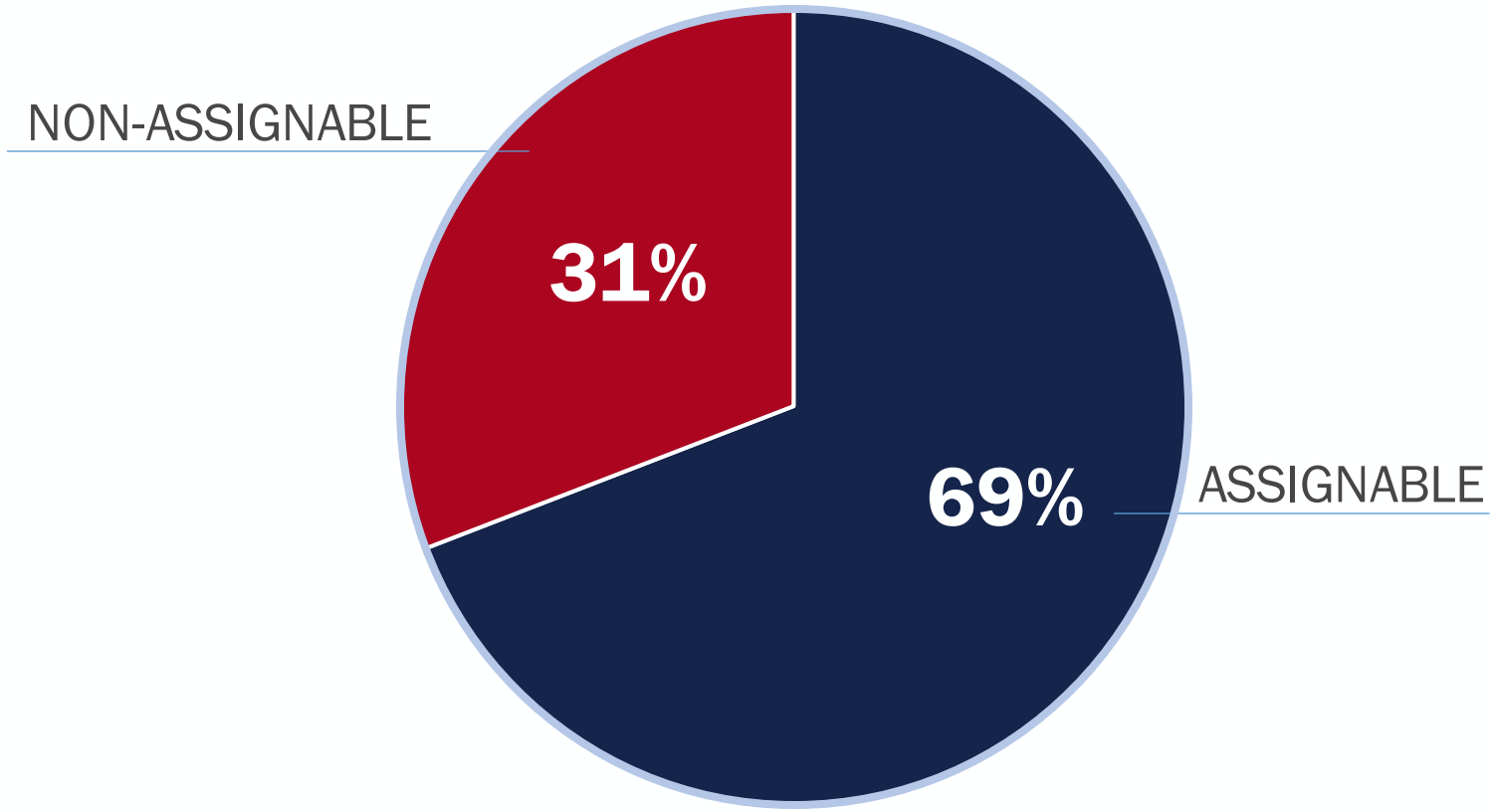
SPACE

Space

Space

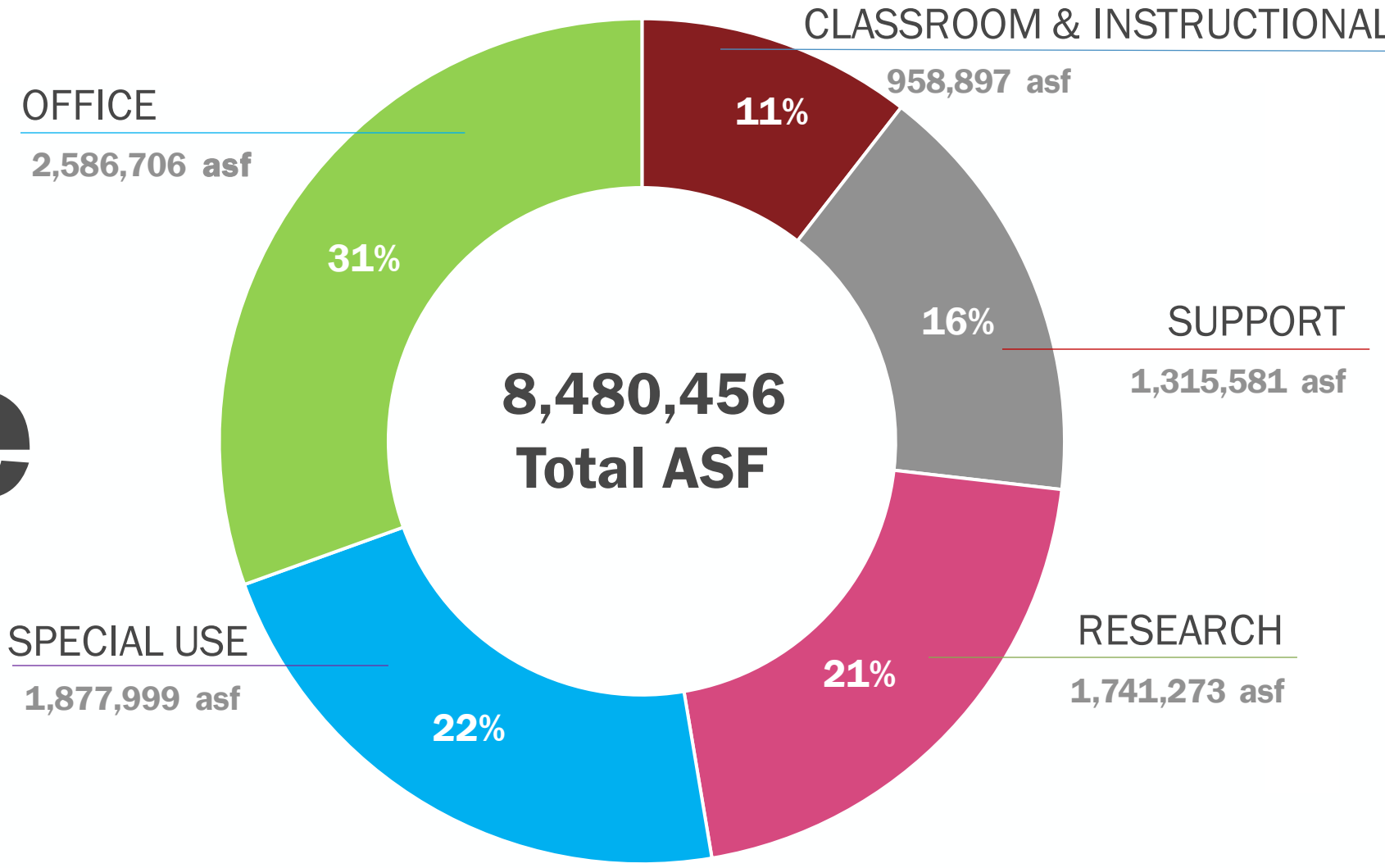
- Instructional
- Research & Innovation
- Housing
- Support/Admin

Space



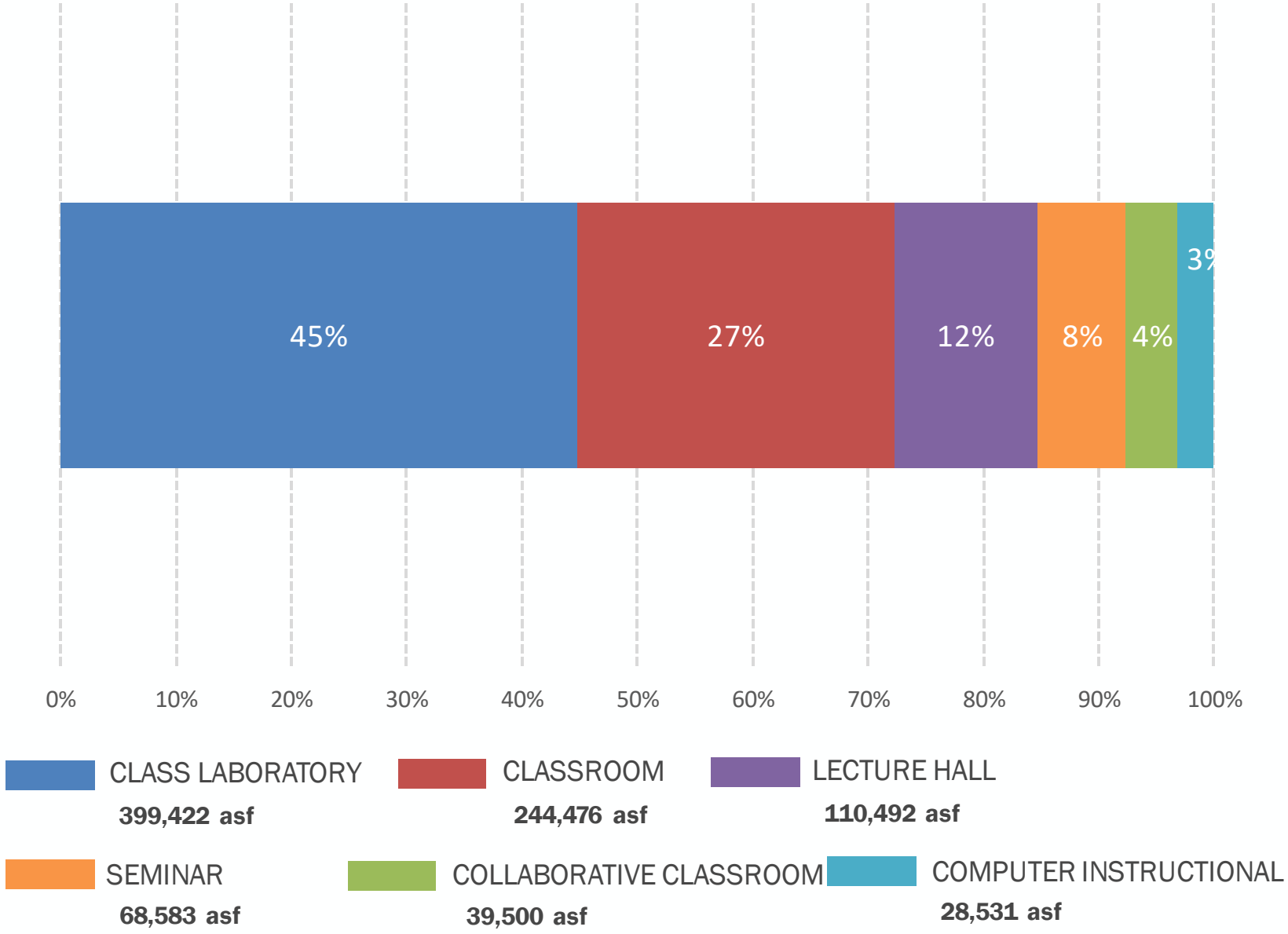
- *Data from 2022*

Space



- *Data from 2022*
- **Data excludes Housing & Banner Health*

Instructional Space



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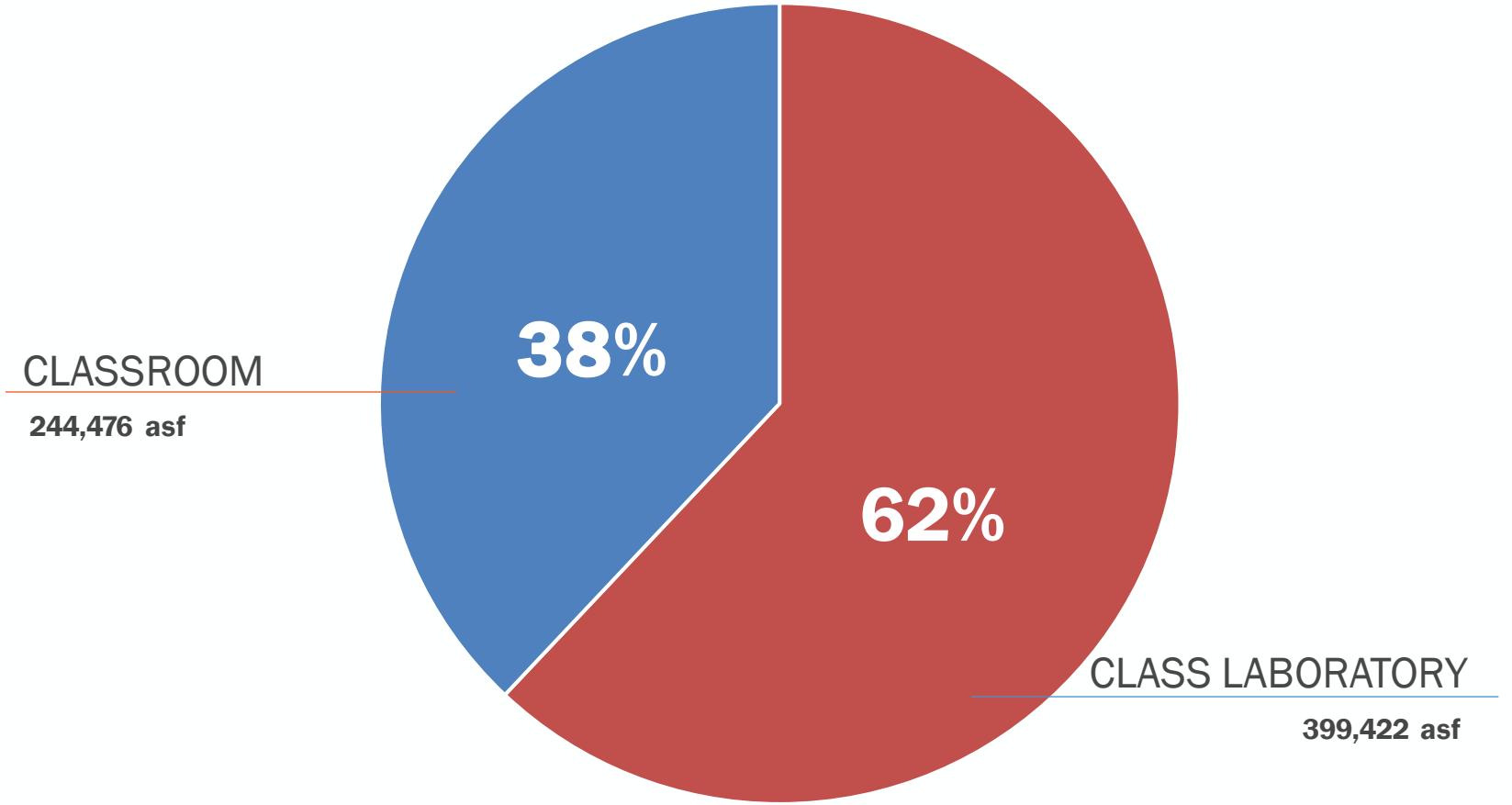
Instructional Space



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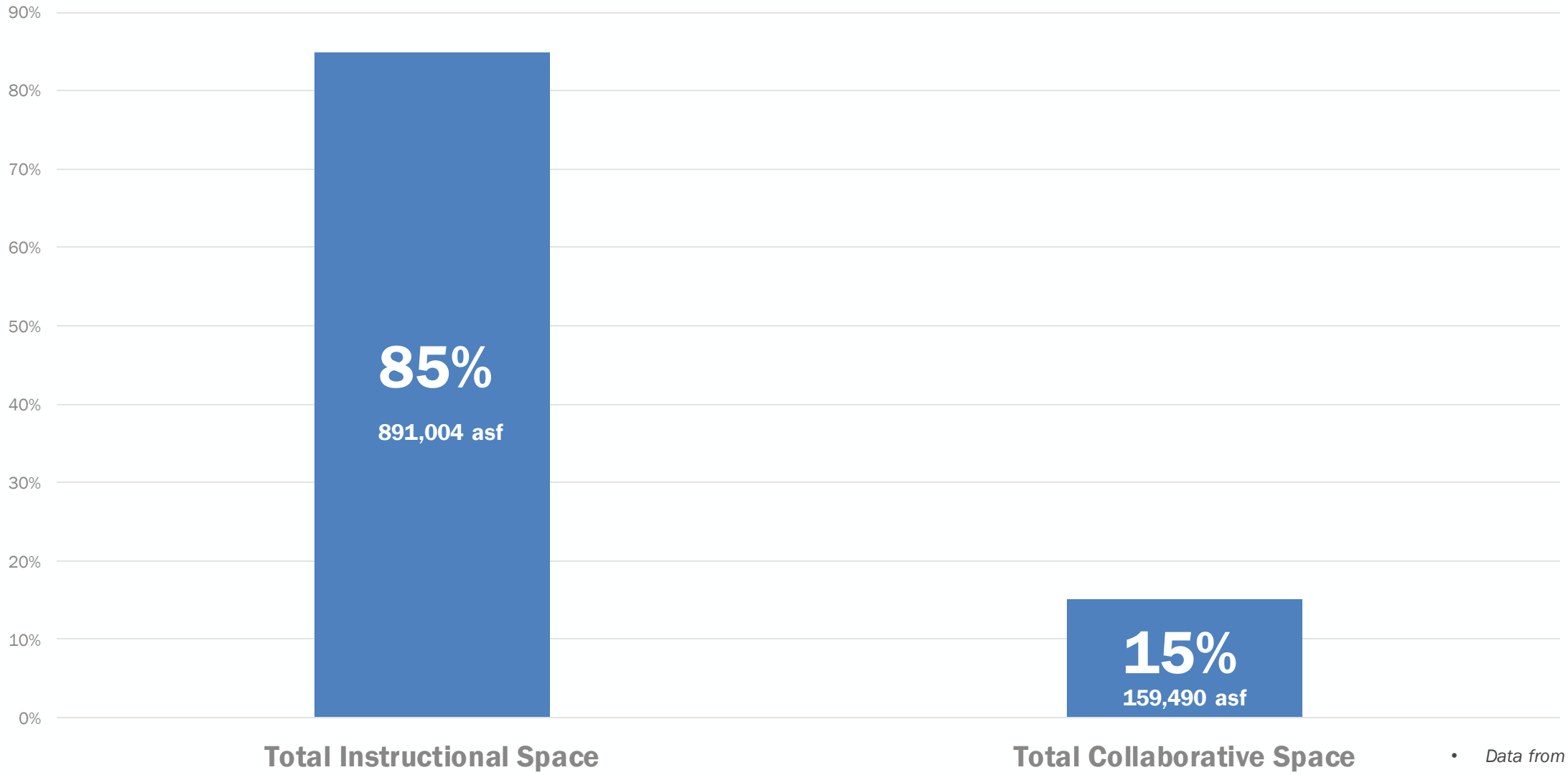
Instructional Space Distribution



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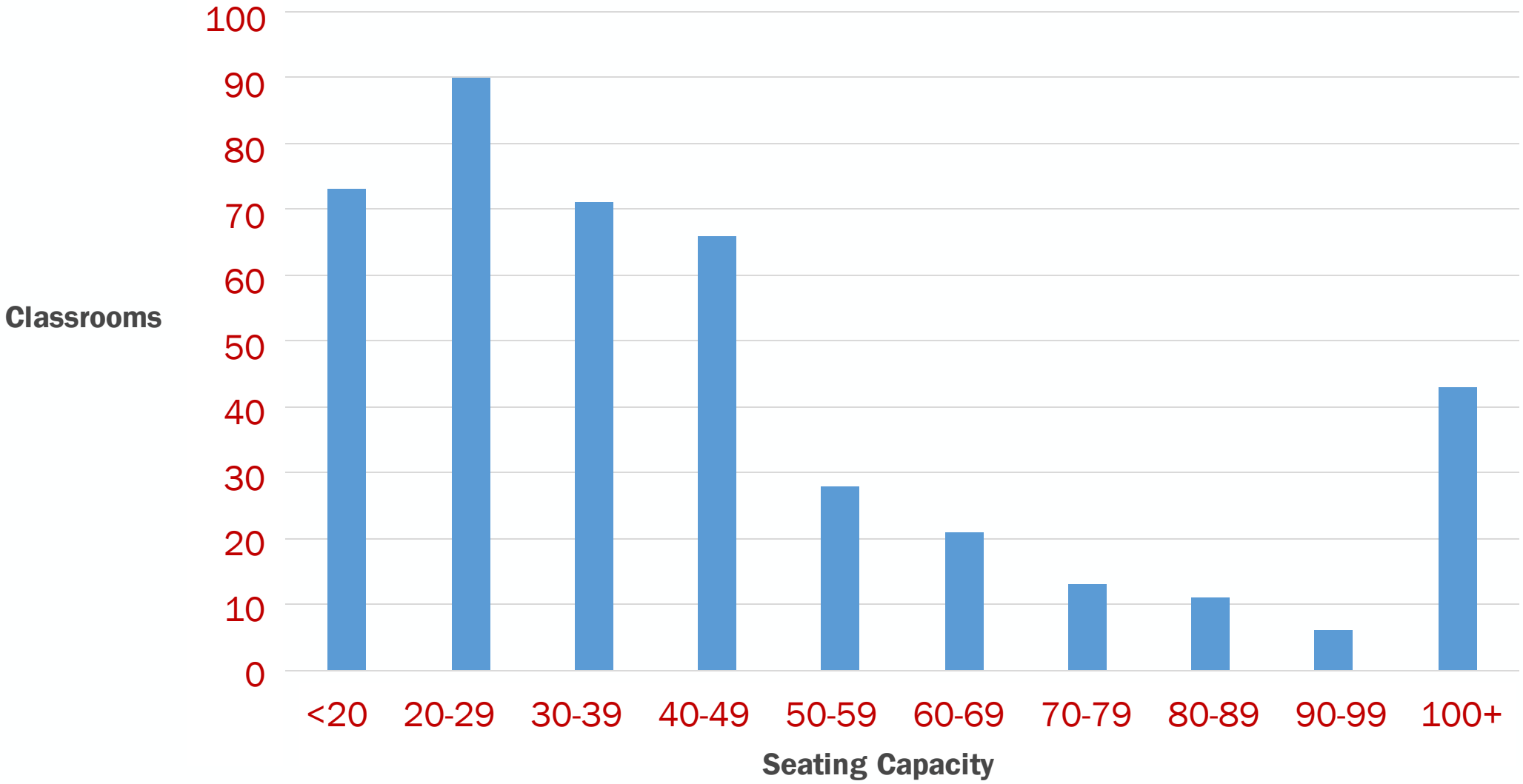
Instructional Rooms by Capacity

Space Distribution



** Data from 2020*

INSTRUCTIONAL SPACE

Campus Analysis

Instructional Space vs Enrollment Trends

Instructional Space – Campus Analysis

From 2010-2015
Total Enrollment
Increased from

38,767

to

43,088

11% increase

Classroom Space Increased by

20,606 GSF

9% increase

Class Lab Space Increased by

34,318 GSF

9% increase

Instructional Space vs Enrollment Trends

Instructional Space – Campus Analysis

From 2016-2022
Total Enrollment
Increased from

43,088

to

51,134

18.6% increase

Classroom Space Increased by

22,124 GSF

9% increase

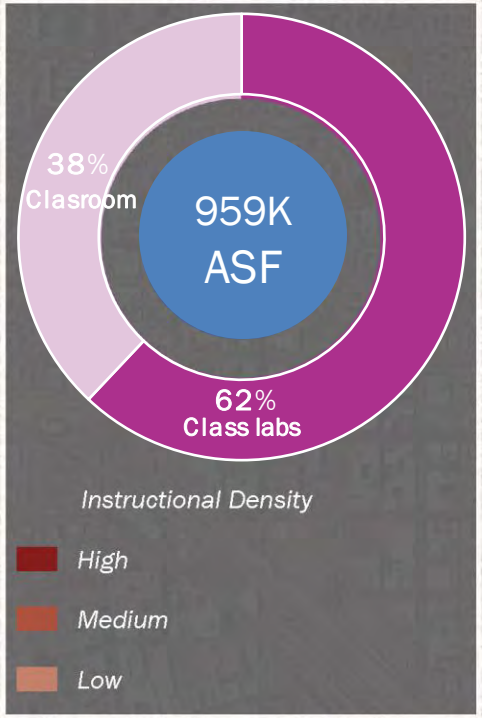
Class Lab Space Increased by

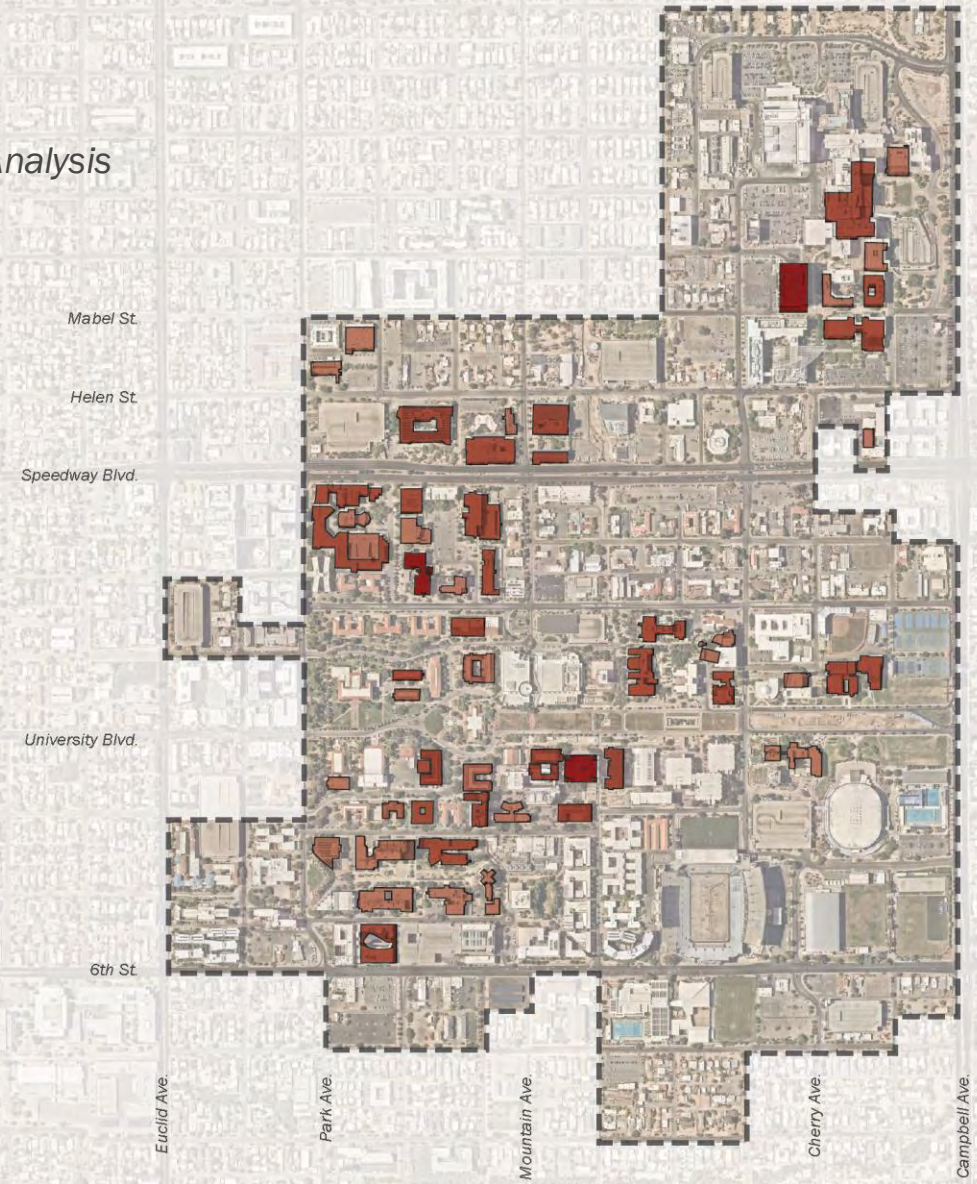
34,318 GSF

9% increase

Density

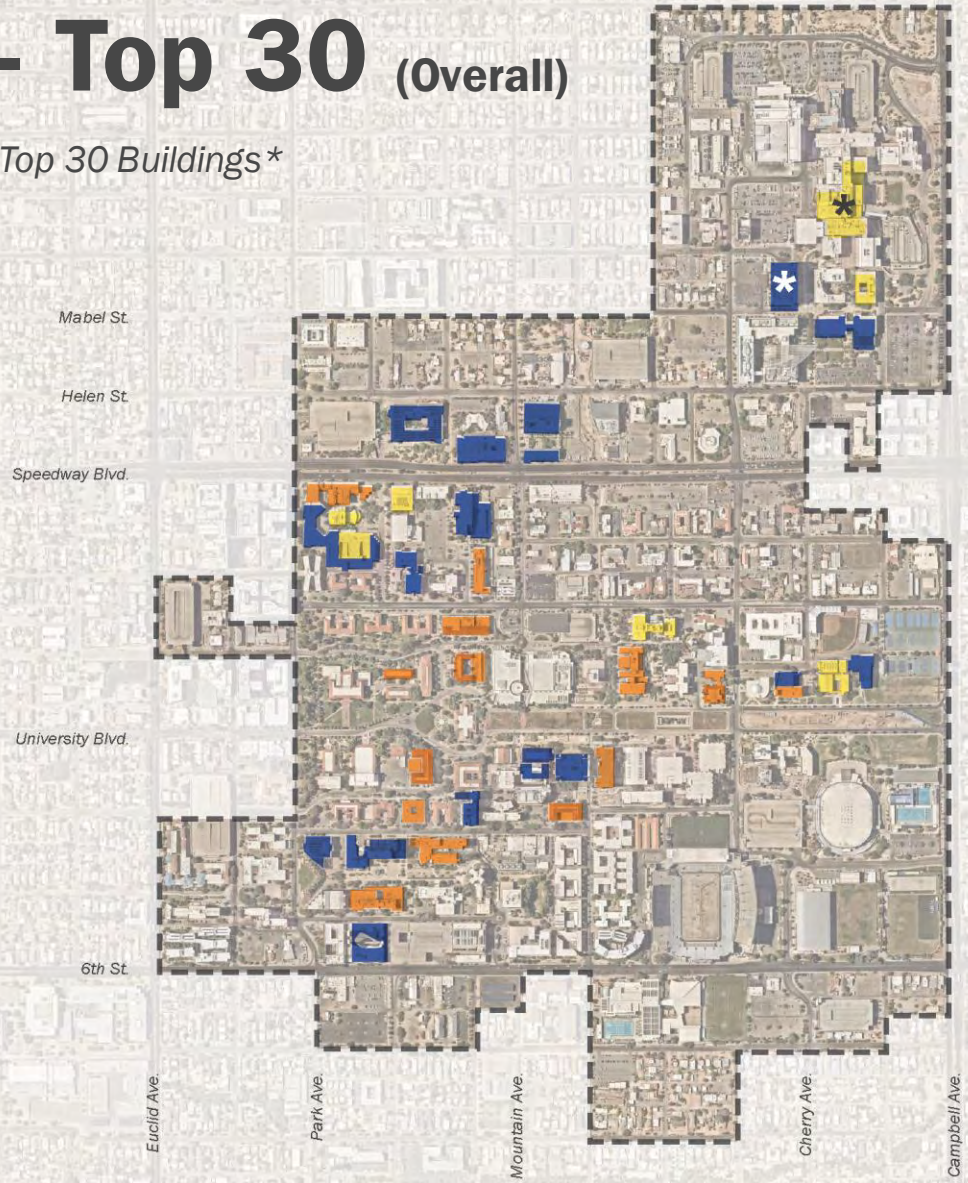
Instructional Space – Campus Analysis



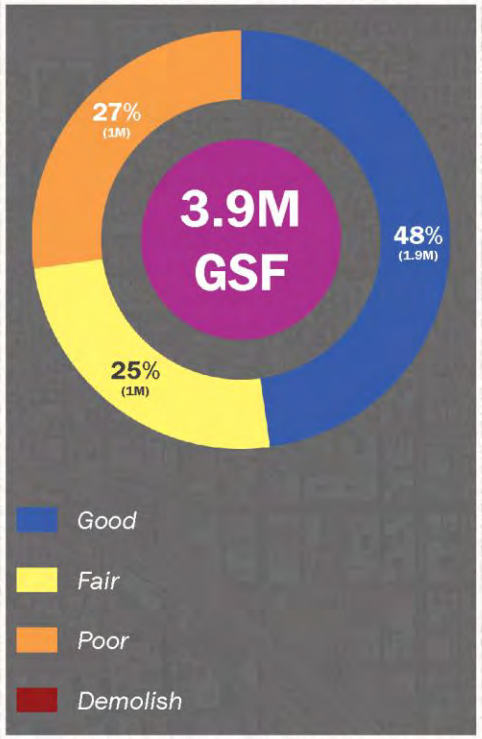


Condition – Top 30 (Overall)

*Instructional Space, Highlighted Top 30 Buildings**



Building Condition

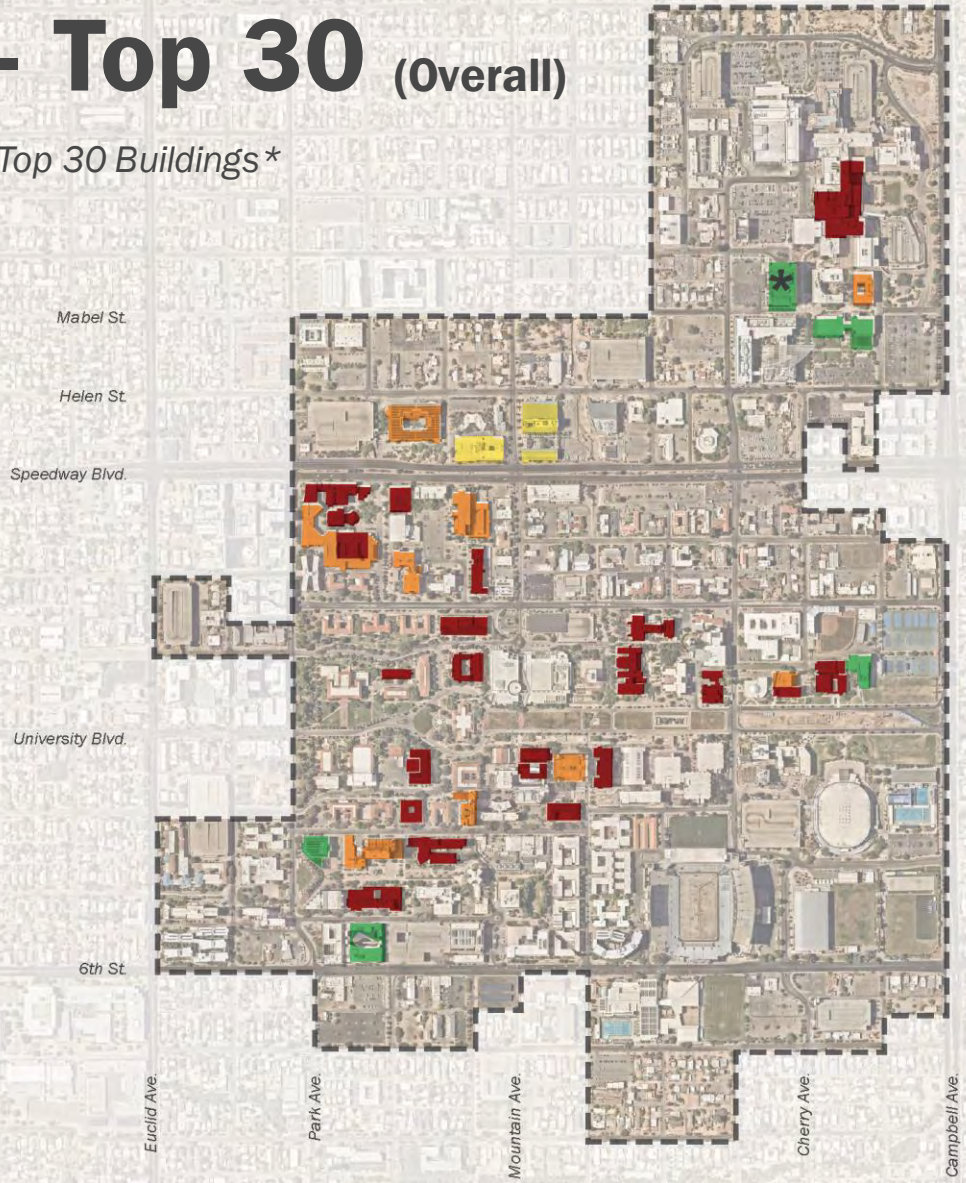


* *Banner Health is shown graphically but not included in calculations*

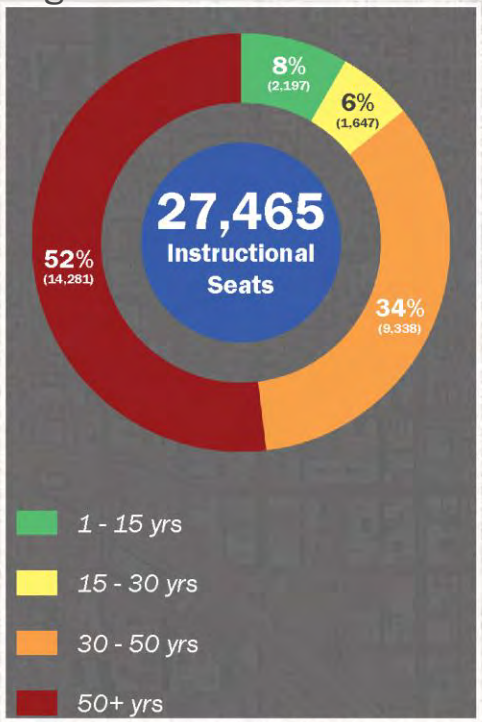
**Room Inventory Data from 2019*
FCI Data from 2022 – top 30 Instructional buildings by GSF

Condition – Top 30 (Overall)

*Instructional Space, Highlighted Top 30 Buildings**



Age and % Total Seats



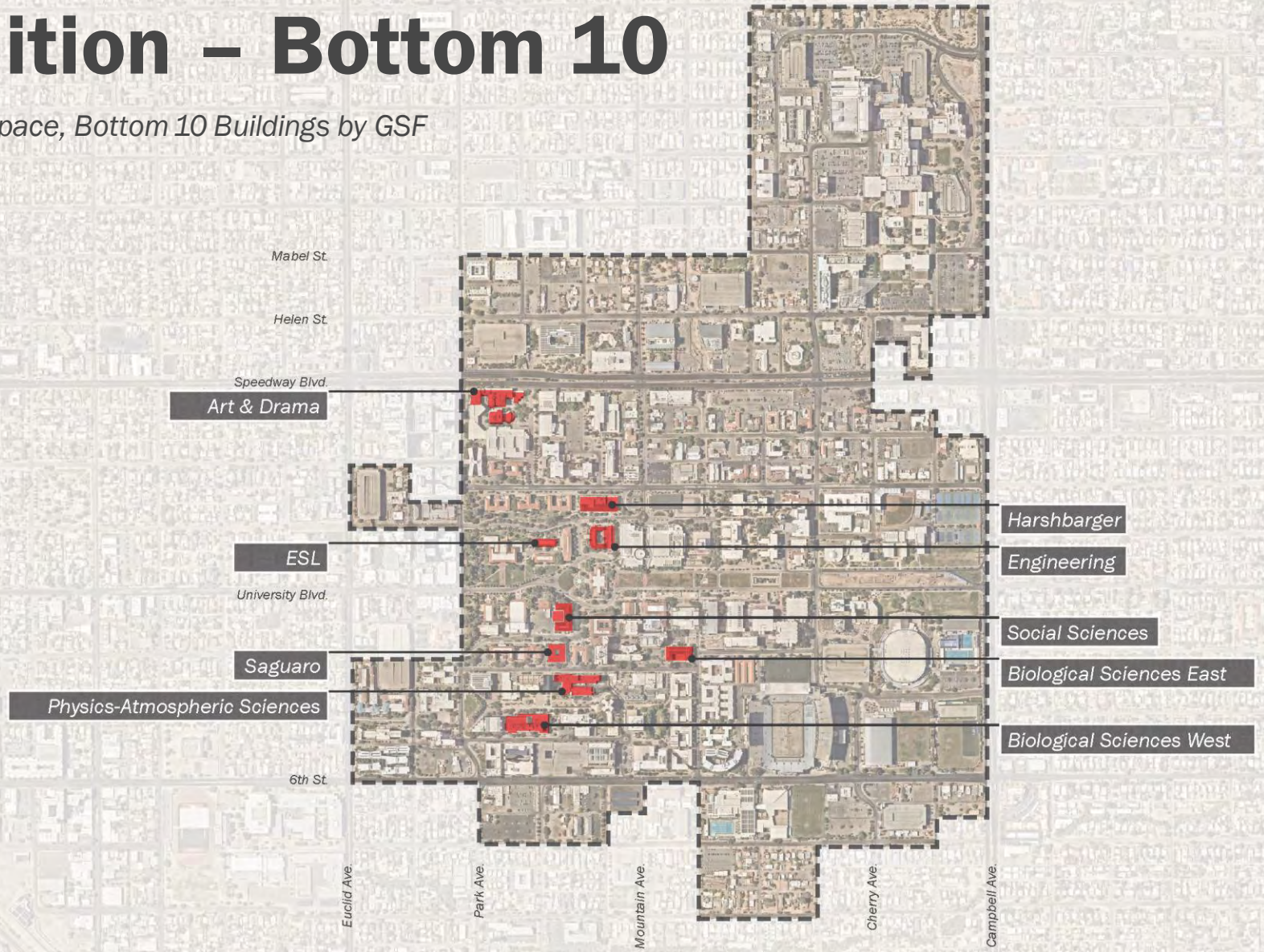
Analysis:

- *Over 50% of the seats are in the aging assets*
- *Some of those assets are undergoing redevelopment and improvement and some are forecast for near-term improvement*
- *There is a gap that requires capital planning & programming to address the aging issues*

***Health Sciences Innovation Building is shown graphically but not included in calculations**

Condition – Bottom 10

Instructional Space, Bottom 10 Buildings by GSF



Instructional Space

Academic Delivery Planning

Maintain alignment among the key factors of the enrollment profile, evolving delivery modes as well as general instructional and program specific lab needs.

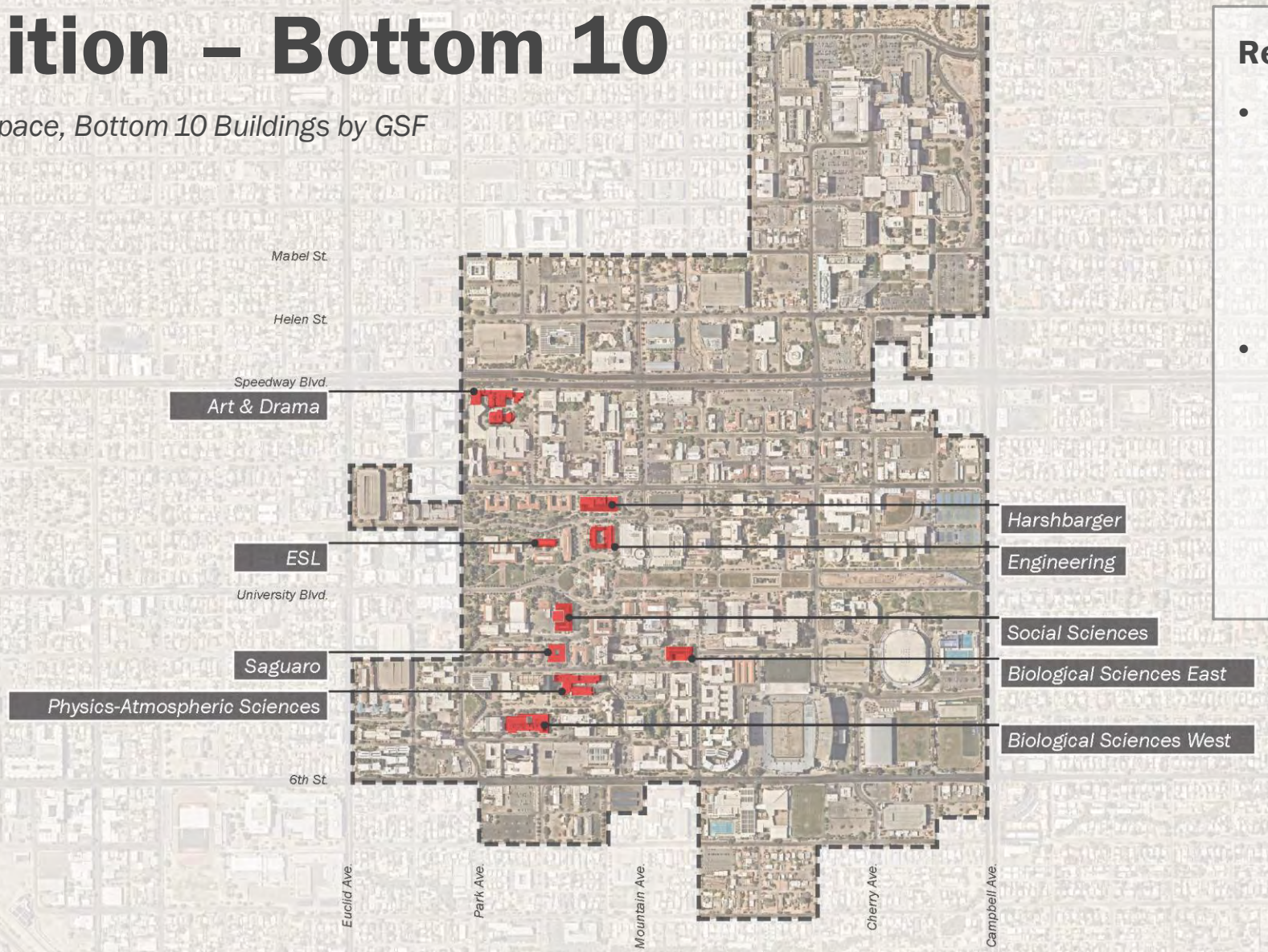
Instructional Capital Plan

Address the potential gap between the reinvented resources and new resources of the past decade. Developing capital plan to address aging buildings as well as advancing instructional resources in those buildings.

**Summary Analysis*

Condition – Bottom 10

Instructional Space, Bottom 10 Buildings by GSF

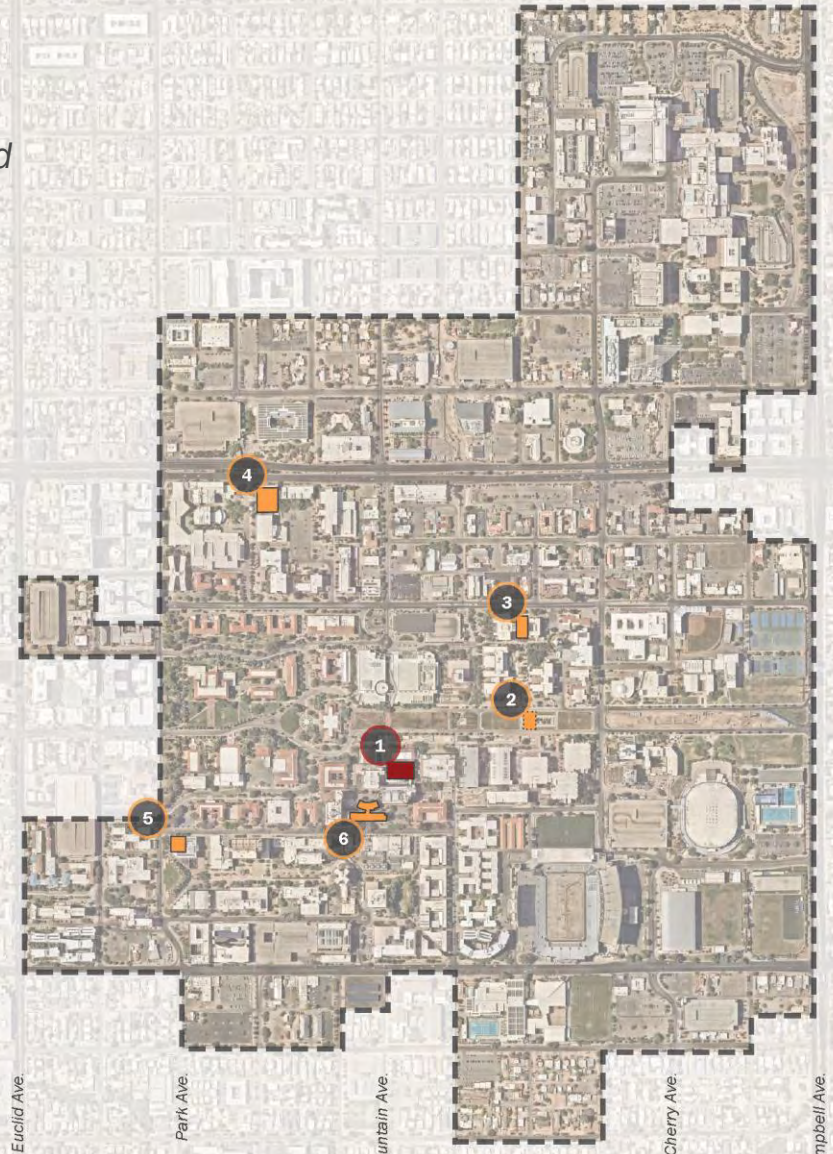


Recommendation:

- *Develop a capital and asset improvement plan addressing the classroom/ instructional resources.*
- *What can be renovated at what pace in a cost and sf /year model to support growth, what might be needed, and describe a new range.*

Projects

Instructional Space – Current & Proposed

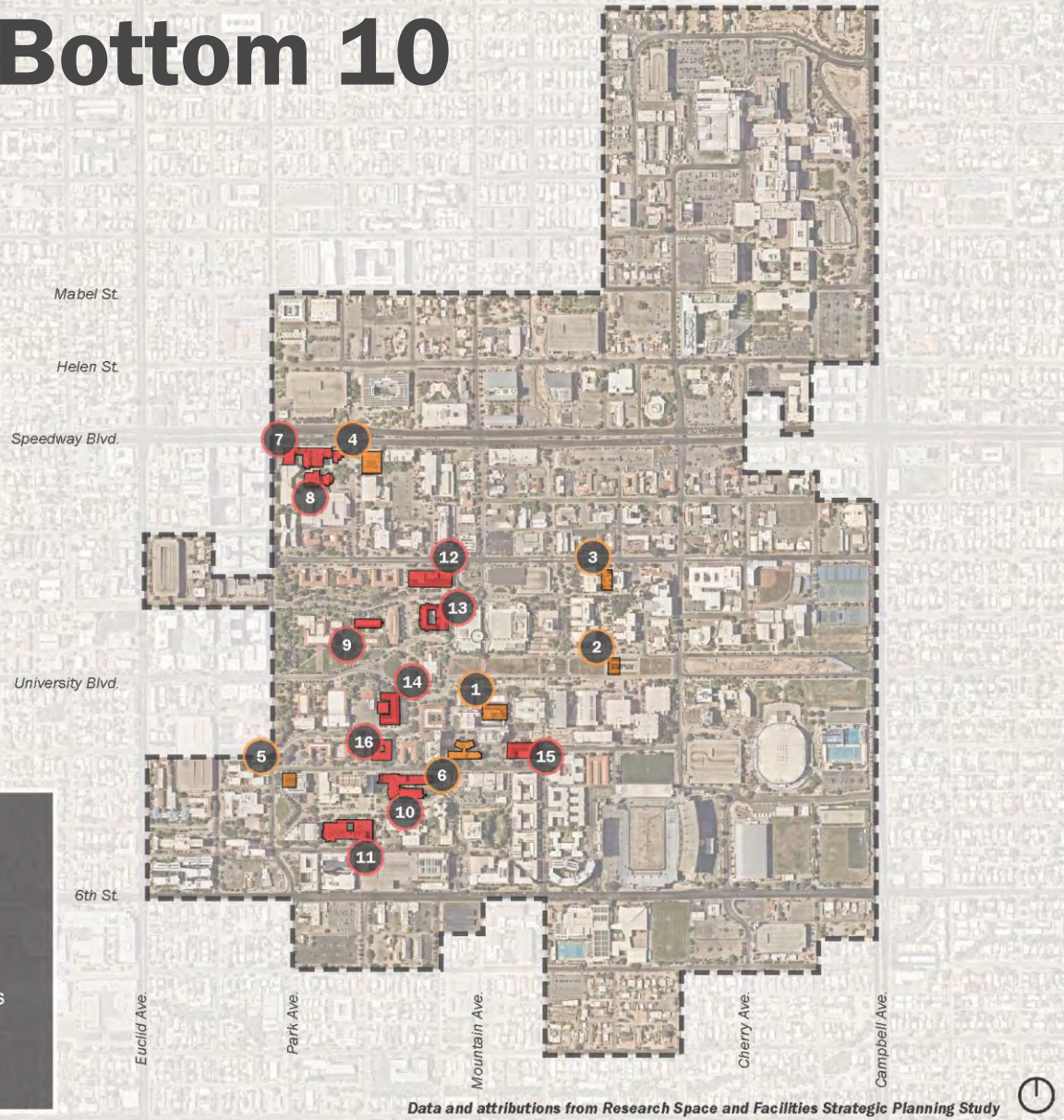


- *New Construction*
  - 1 *Chemistry Expansion - Classrooms*
- *Renovation of Existing Space*
  - 2 *ILC Bldg. - Digital Learning Lab*
  - 3 *Education - Digital Learning Lab*
  - 4 *CAPLA - Learning Enhancement Renovations*
  - 5 *McClelland Park - Retail Learning Lab*
  - 6 *Shantz*

Data and attributions from Research Space and Facilities Strategic Planning Study

Current vs Bottom 10

Instructional Space – Projects



Current Instructional Projects

1. Chemistry Expansion - Classrooms ILC Bldg.
2. Digital Learning Lab
3. Education - Digital Learning Lab
4. CAPLA - Learning Enhancement Renovations
5. McClelland Park - Retail Learning Lab
6. Shantz

Bottom 10 Instructional

7. Art
8. Drama
9. ESL
10. Physics-Atmospheric Sciences
11. Biological Sciences West
12. Harshbarger
13. Engineering
14. Social Sciences
15. Biological Sciences East
16. Saguaro

Data and attributions from Research Space and Facilities Strategic Planning Study

Instructional Space – Draft Recommendations

1. **Migration to active learning environments**, increased AV/IT needs, FF&E, more space per student, and a curriculum emphasis on the on-campus, in-person experience, put pressure on the **quality of the environments**.
2. Significant amounts of instructional space and seats are in buildings defined as "at risk" from FCI; an **analysis of both building condition and functional adequacy** is advised to determine the exact conditions and define longer term improvement or replacement needs.
3. Develop a **correlation between instructional spaces and likely enrollment profiles** to create a long-term space requirement profile. Also develop some higher and lower points to help with impacts like online (-) or class lab reqs.(+)
    I. Note the significant growth of online students and distance delivery in the past 5 years.
    II. Note: that number is being improved by the following projects (name them) leaving xyx sf – to be analyzed or renovated or replaced.
4. **Develop a capital and asset improvement plan** addressing classroom/ instructional resources: what can be renovated and at what pace in a cost and sf /year model to support growth, what might be needed, and describe a new range.
5. Develop an **analysis of key academic programs** that are likely to have stronger growth than the median. Will these have classroom or class lab impacts?
6. Develop some **masterplan opinions about classroom locations** – likely supporting hubs.

RESEARCH & INNOVATION SPACE

Research Space vs Enrollment Trends

Research & Innovation Space

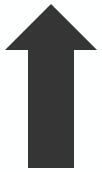
From 2010-2015 Total Research Expenditures remained at

$600M

to

$604.5

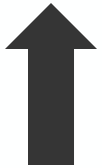
<0.5% increase



Research Space Increased by

102,234 ASF

6% increase



Research Space vs Enrollment Trends

Research & Innovation Space

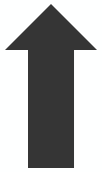
From 2016-2022 Total Research Expenditures increased from

$604.5M

to

$791 M

30.8% increase

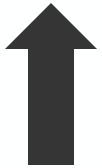


Research Space Increased by

87,852* ASF

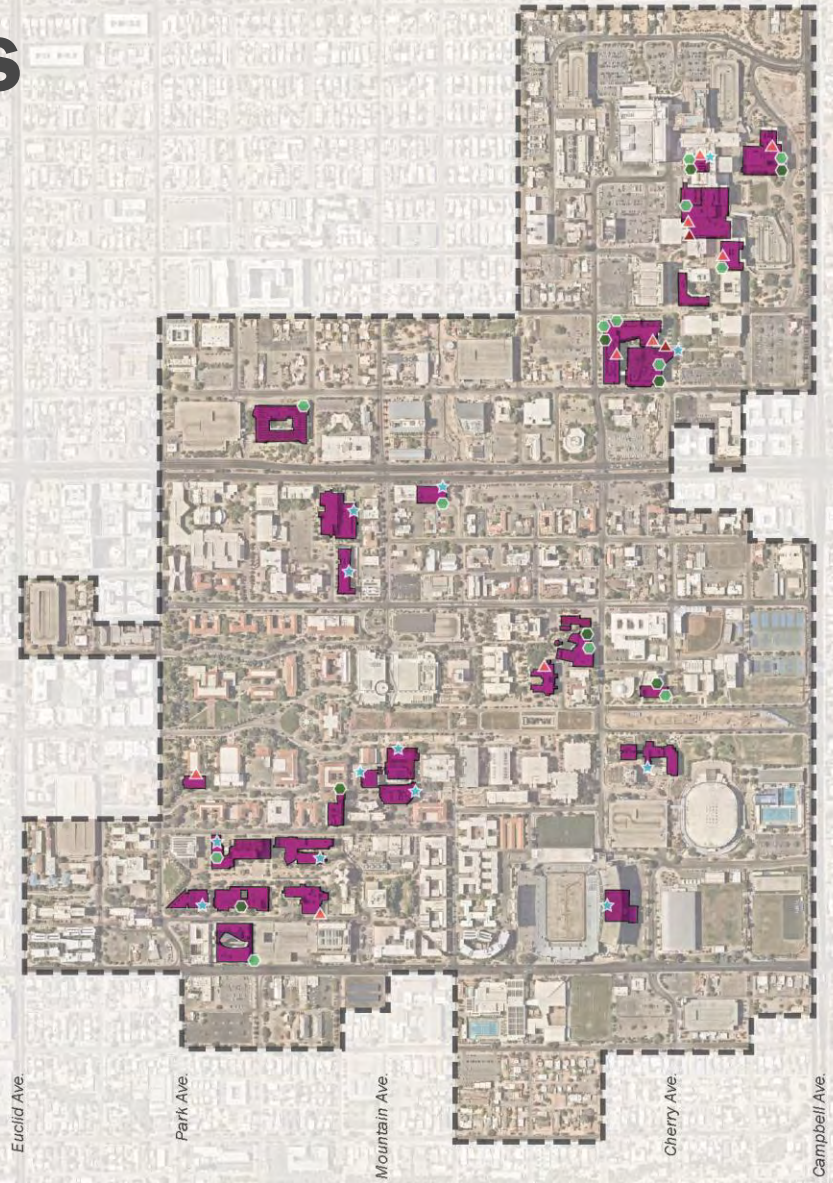
**Excludes Grand Challenges & ARB*

5% increase



Core Facilities

Research & Innovation Space

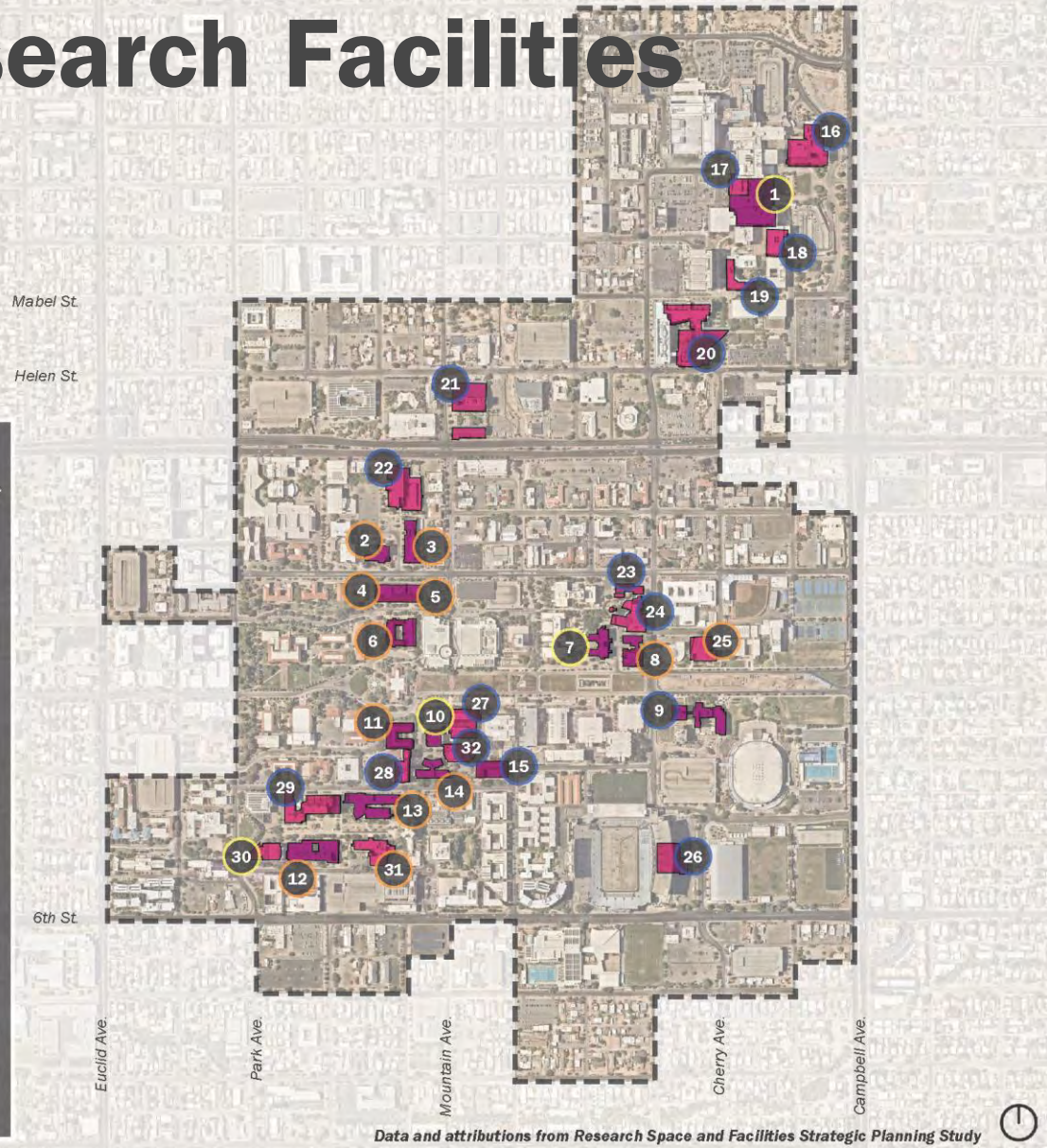


- Special Environments
- Lab Environments
  - Analytical - Data
  - Analytical - Optical Imaging
  - Analytical - Instruments
- Animal Facilities
  - Analytical - Instruments
  - Analytical - Vivarium

Data and attributions from Research Space and Facilities Strategic Planning Study

Primary Research Facilities

Research & Innovation Space



Primary Buildings

1. Arizona Health Sciences Center Basic Sciences*
2. Speech + Hearing Sciences
3. Civil Engineering
4. John W. Harshbarger Bldg.*
5. Mines + Metallurgy*
6. Engineering
7. Psychology
8. Charles P. Sonett Space Sciences Bldg.
9. Meinel Optical Sciences
10. Carl S. Marvel Laboritories of Chemistry
11. Forbes*
12. Biological Sciences West*
13. Physics - Atmospheric Sciences
14. Shantz
15. Biological Sciences East*

FCI Score

- Good
- Fair
- Poor

Secondary Buildings

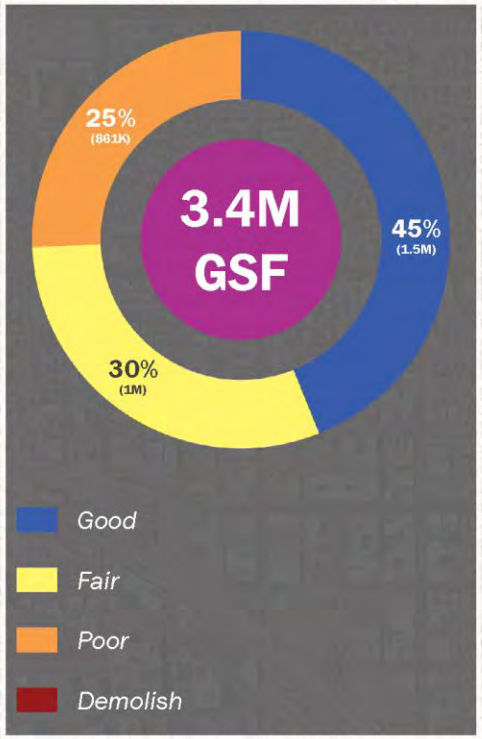
16. Sydney E. Salmon Bldg. + Leon Levy Cancer Ctr.
17. Steel Children's Research Center
18. Life Sciences North
19. Skaggs Pharmaceutical Sciences Center
20. Medical Research + Keating Bioresearch Bldg.
21. Aerospace and Mechnical Engineering
22. Electrical and Computer Engineering
23. Steward Observatory Annex
24. Steward Observatory
25. Gerard P. Kupier Space Sciences + Addition
26. Richard F. Caris Mirror Lab
27. Chemistry
28. Marley
29. Gould-Simpson
30. Life Sciences South
31. Animal and Comparative Biomedical Sciences
32. Chemical Sciences Bldg.

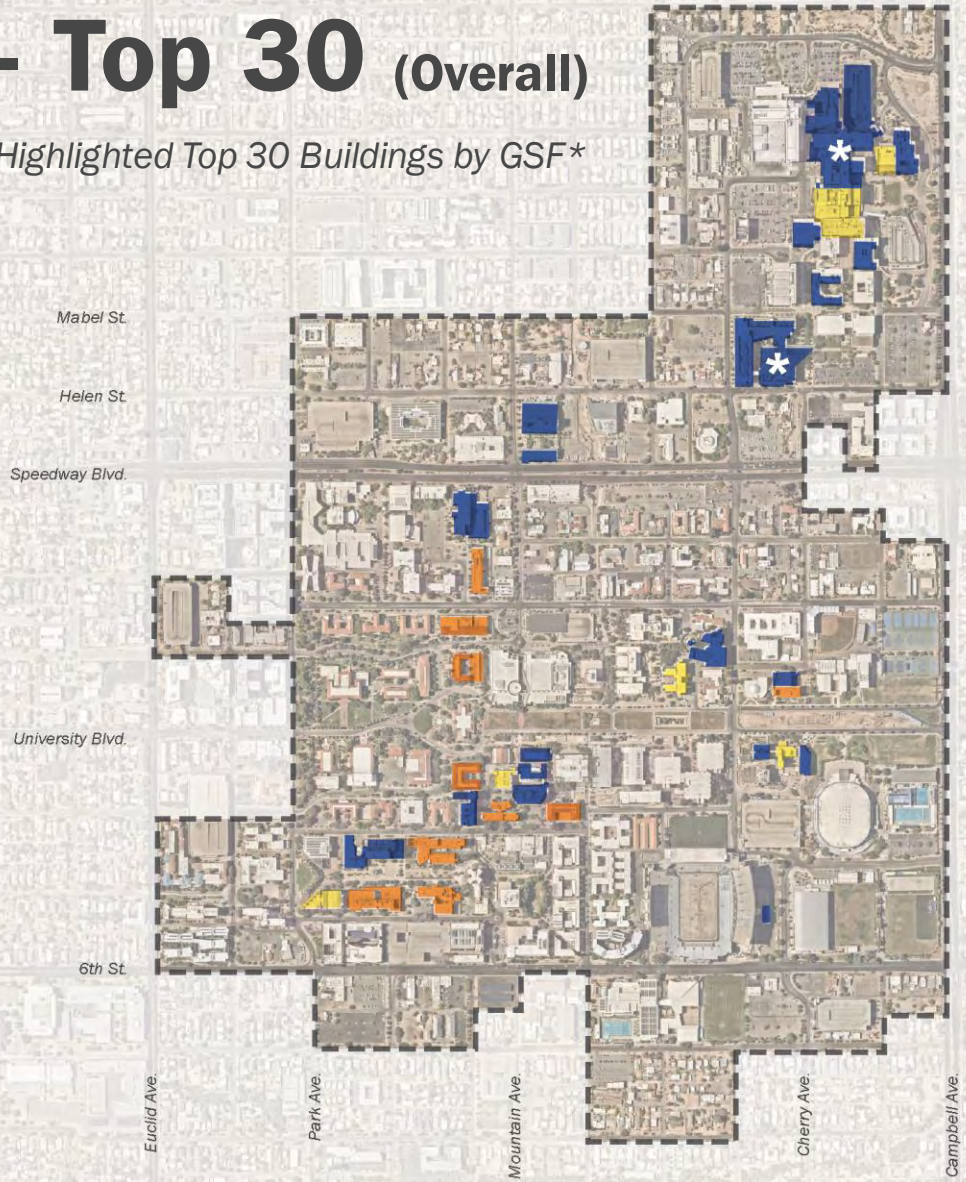
Data and attributions from Research Space and Facilities Strategic Planning Study

Condition – Top 30 (Overall)

*Research & Innovation Space – Highlighted Top 30 Buildings by GSF**

Building Condition





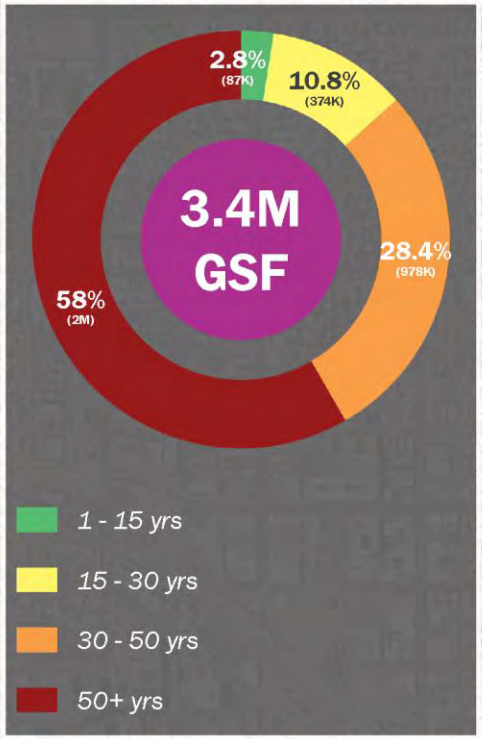
* *Banner Health is shown graphically but not included in calculations*

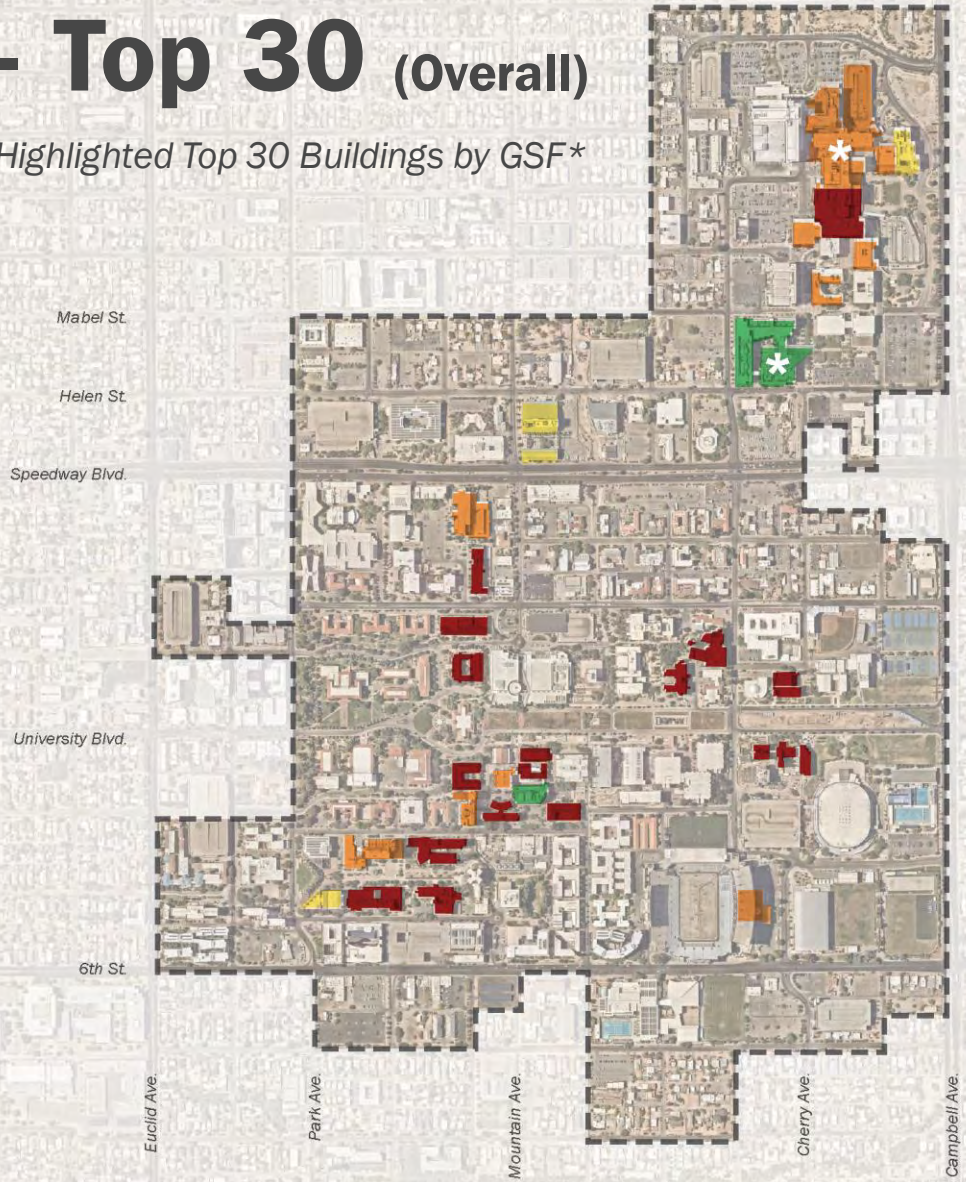
**FCI Data from 2022, Room Inventory Data from 2019*

Condition – Top 30 (Overall)

*Research & Innovation Space – Highlighted Top 30 Buildings by GSF**

Building Age



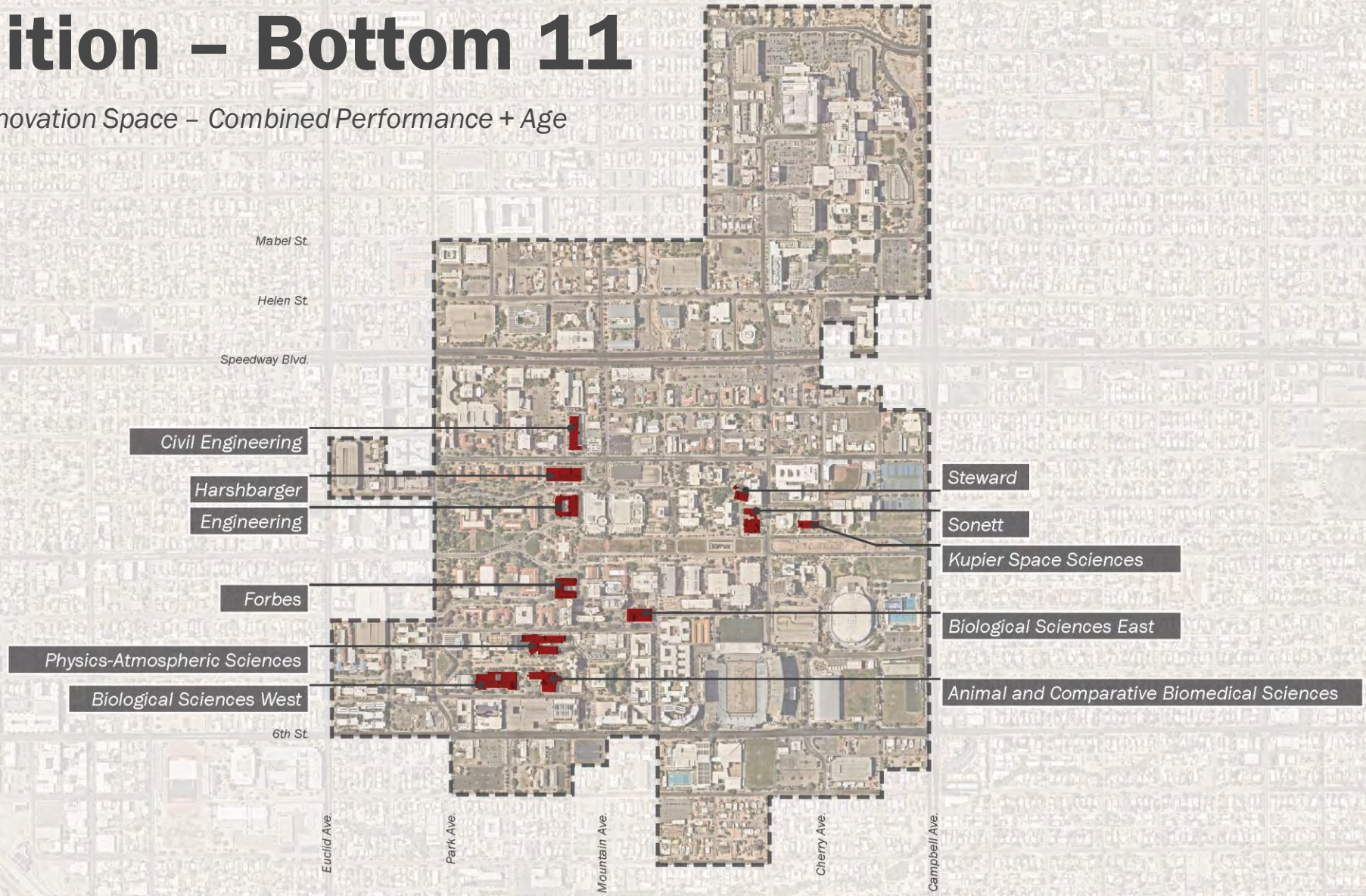


* *Banner Health is shown graphically but not included in calculations*

**Room Inventory Data from 2019*

Condition – Bottom 11

Research & Innovation Space – Combined Performance + Age



Research & Innovation

Detailed Research Program & Space Plan

Develop and maintain alignment of research profiles with space typologies and phenotype.

Capital Planning for Research-oriented Assets not recently reinvented

Address the aging and obsolescence gap – focus on 10 key buildings and sites.

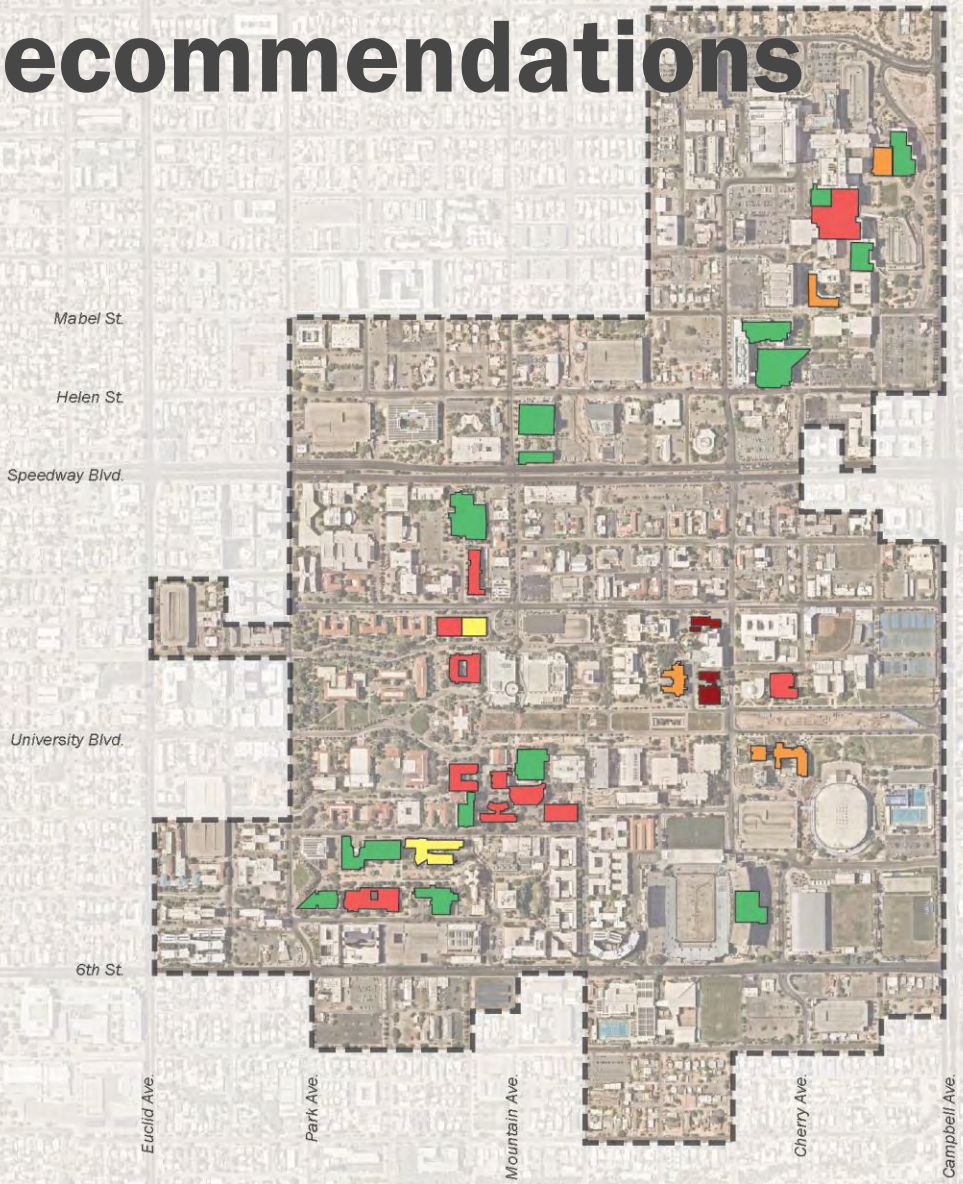
Position Research Resources to make them visible

Elevate the presence and visibility of research and innovation resources on campus through high visibility positioning.

CO Study Recommendations

Research & Innovation Space

(for reference)



Proposed Condition

- *Demolish*
- *Renovate*
- *Partial Demolition*
- *Fair Condition*
- *Good Condition*

COMPARISON OF OUR 28 BUILDINGS VS CO ARCHITECTS PRIMARY 16 + SECONDARY 18

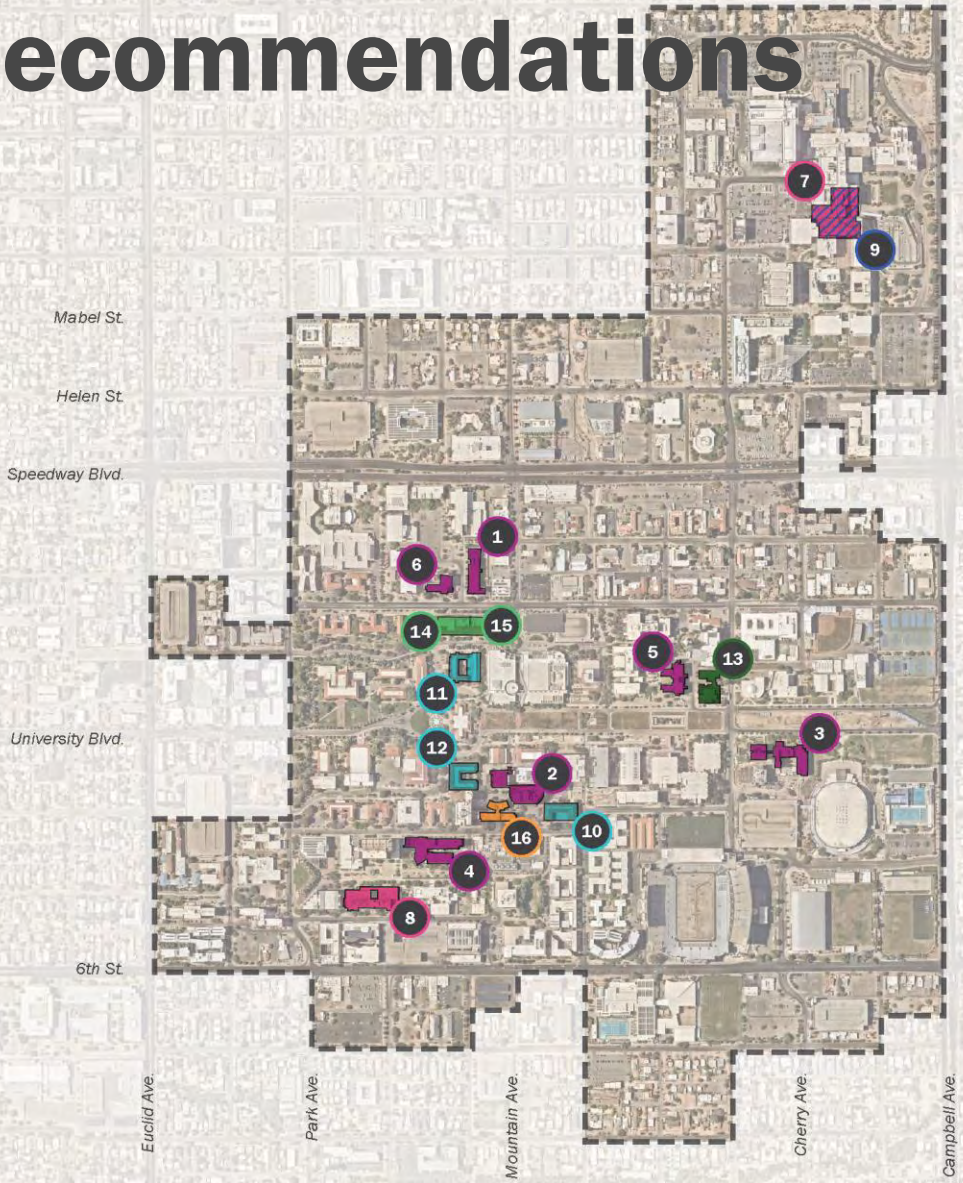
DRAFT 9-22-22

	UA "28"	CONDTION	CO PRIMARY 16
1	AHSC Basic Sciences/Clinical -	POOR - RENOVATE	AHSC Basic Sciences/Clinical Sciences
2	Bio Sciences East-	POOR-RENOVATE for non-lab?	Bio Science East
3	Bio Sciences West-	POOR - RENOVATE	Bio Science West
4	Civil Engineering-	POOR-RENOVATE/REPLACE?	Civil Engineering
5	Engineering-	POOR-RENOVATE (historic)	Engineering
6	Forbes-	POOR-RENOVATE (historic)	Forbes
7	Harshbarger-	POOR-RENOVATE	Harshbarger
8	Marvel Labs-	POOR-RENOVATE	Marvel Labs
9	Meinel-	FAIR	Meinel
10	Mines & Metallurgy-	POOR-TOTAL GUT OR DEMO	Mines & Metallurgy
11	Physics & Atmospheric Sci-PAS-	POOR-RENOVATE/PARTIAL DEMO?	Physics & Atmospheric Sciences - PAS
12	Psychology-	FAIR	Psychology
13	Shantz-	POOR – WILL BE RENOVATED	Shantz
14	Sonnett (NOT ON UA LIST)	DEMO/REPLACE	Sonnett
15			Speech
			CO SECONDARY 18
16	AME-	GOOD	AME
17	Animal Sciences (90)-	GOOD? RECENT RENOVATION	Animal Sciences (90)
18	Chemical Sciences-	POOR - RENOVATE	Chemical Sciences
19	Chemistry-	GOOD	Chemistry
20	Electrical & Computer Eng. ECE-	GOOD	Electrical & Computer Eng. ECE
21	Kuiper Space Sciences-	POOR-RENOVATE	Kuiper Space Sciences
22	Gould-Simpson-	GOOD	Gould-Simpson
23	Cancer Center-	FAIR	Cancer Center
24	Life Science North-	GOOD	Life Science North
25	Life Science South-	GOOD	Life Science South
26	Keating Building-	GOOD	Keating Building
27	Marley-	GOOD	Marley
28	MRB-	GOOD	MRB
29	Mirror Lab-	GOOD	Mirror Lab
30	Steele Children's Research -	GOOD	Steele Children's Research Center
31	Skaggs Pharmacy-	FAIR	Skaggs Pharmacy
32	Steward Obs. Annex (bldg. 64)-	POOR-EVENTUAL DEMO	Steward Observatory (bldg. 65)
33	Sydney Salmon Building-	GOOD	Sydney Salmon Building
34	BSRL-	GOOD	
35	Tree Ring Archives-	GOOD	
36	Saguaro Hall-	FAIR – RENOVATE? (Potential	

Data and attributions from Research Space and Facilities Strategic Planning Study

CO Study Recommendations

Research & Innovation Space
(for reference)



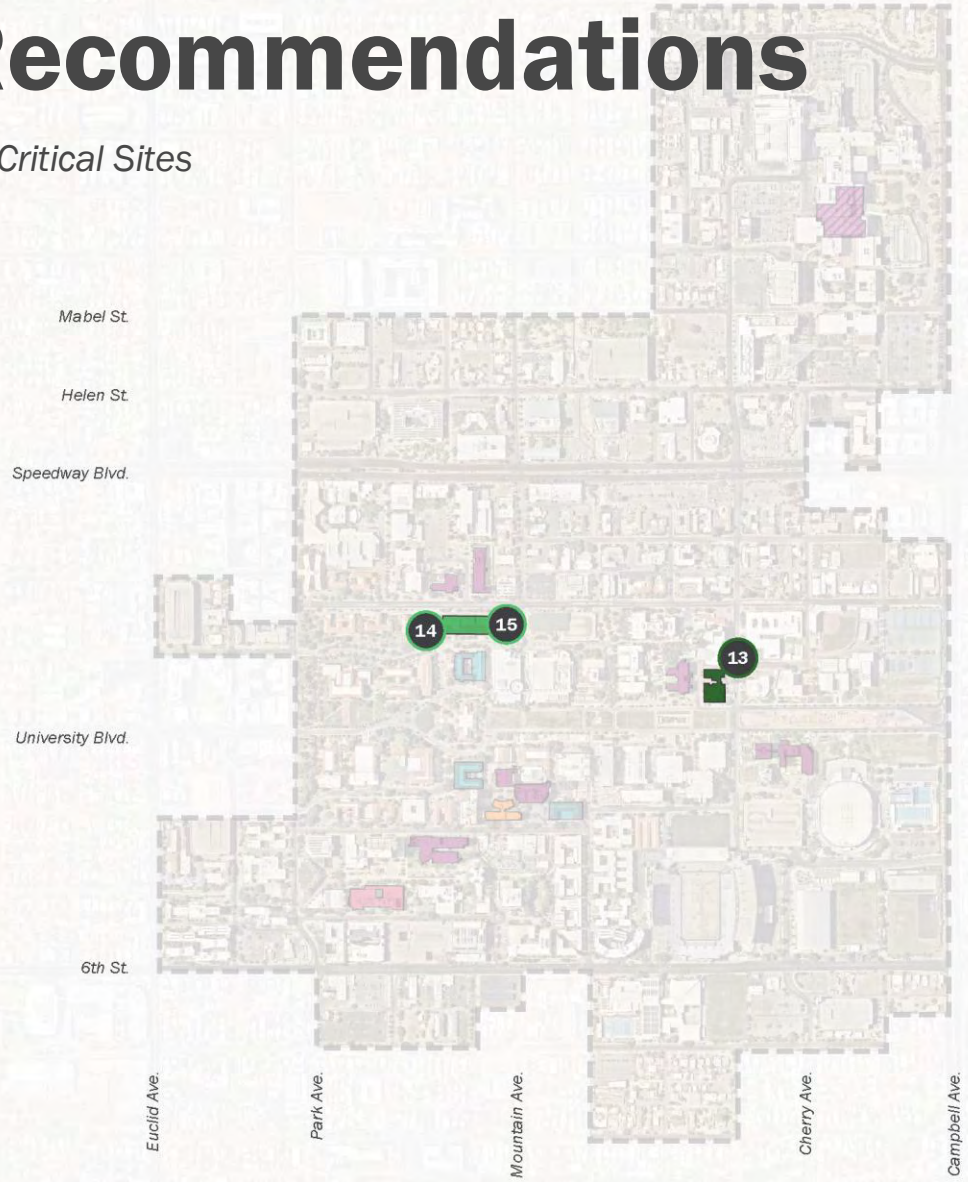
- Steady State
- Workhorse Wet
- Maximize Wet
- Re-imagine Dry
- Value of the Site
- Unique
- Potential Surge

Buildings

1. Civil Engineering
2. Marvel
3. Meinel
4. Physics-Atmospheric Sciences
5. Psychology
6. Speech
7. Arizona Health Sciences Center (Basic Sciences)
8. Biological Sciences West
9. Arizona Health Sciences Center (Clinical Sciences)
10. Biological Sciences East
11. Engineering
12. Forbes
13. Sonett
14. Harshbarger
15. Mines and Metallurgy
16. Shantz

CO Study Recommendations

Research & Innovation Space – Critical Sites (for reference)



- Steady State
- Workhorse Wet
- Maximize Wet
- Re-imagine Dry
- Value of the Site
- Unique
- Potential Surge

Critical Sites

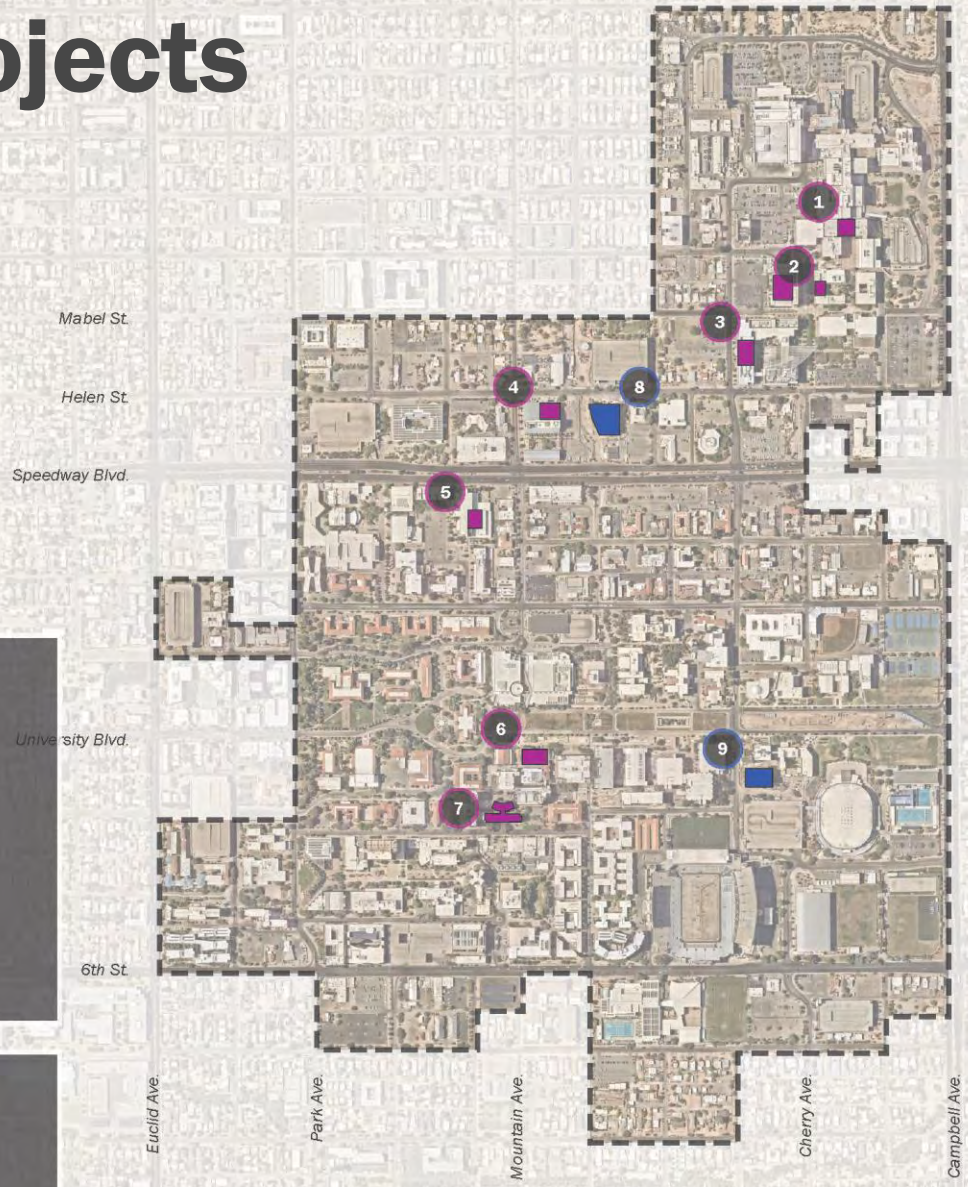
13 Sonett

14 Harshbarger

15 Mines and Metallurgy

Current Projects

Research & Innovation Space



- Renovation of Existing Space
- 1 UAHS Sleep Research Center
- 2 Pharmacy Lab Renovations
- 3 BSRL Basement
- 4 AME Wind Tunnel Complex
- 5 ECE Micro Nano Lab
- 6 Chemistry Renovations
- 7 Shantz Building Renovation

- New Construction
- 8 Applied Research Building
- 9 Grand Challenges Building

Data and attributions from Research Space and Facilities Strategic Planning Study

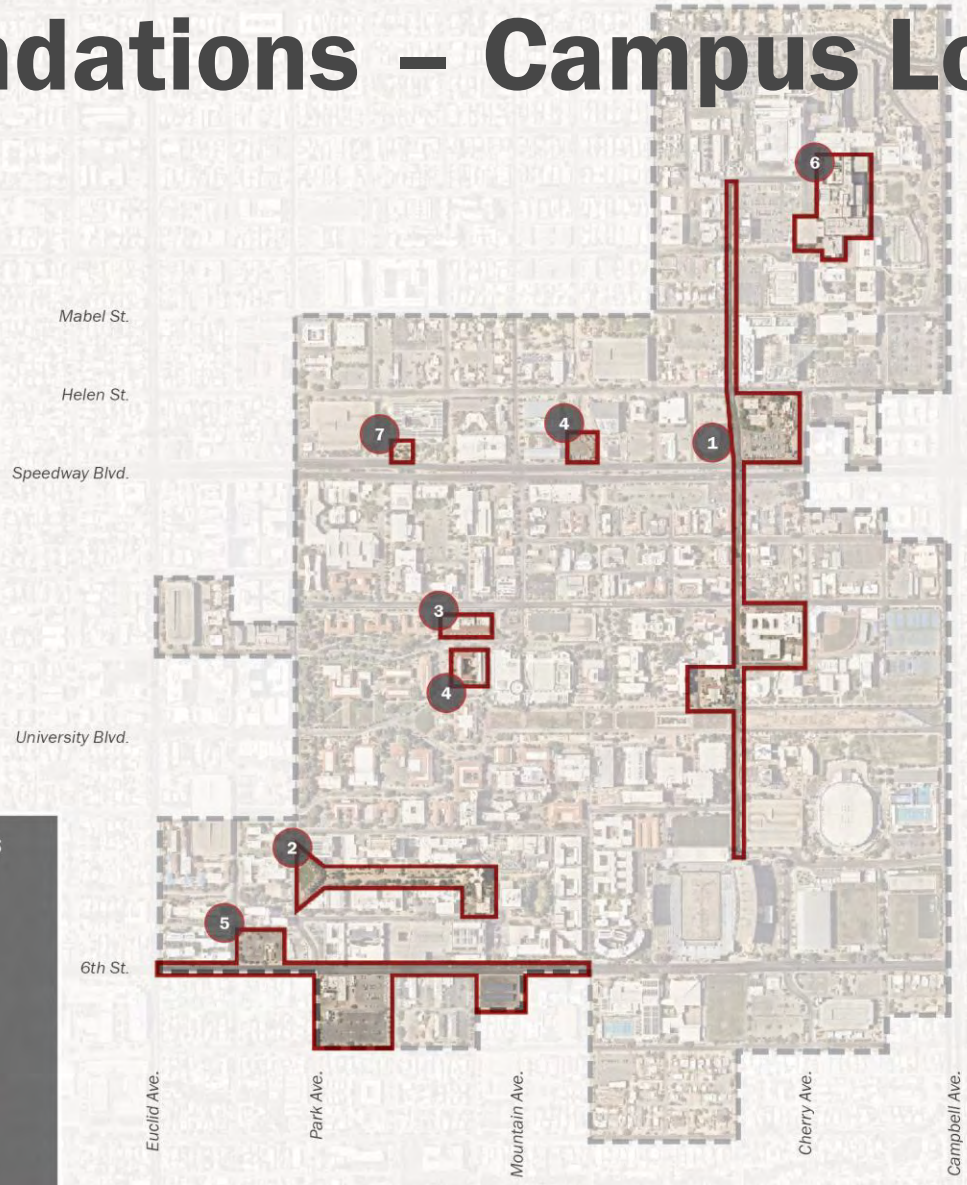
Research & Innovation Recommendations

Draft

1. Focus on the **Top "10" Buildings for transformational capacity vs. critical site benefits**.
2. **Develop a linear replacement of space** per year as a reference. Develop a plan for capital and projects in the gap.
3. **Develop key sites** for future research buildings – including various types of research alliances.
4. **Develop program profiles for Bridges** or other UA resources.
5. **Develop long-term space typology profiles** – create a balancing matrix of research typologies for current profiles and future needs.
6. Determine **future programs** that might have new research needs.
7. Look for **innovation opportunities** in creative space that might support experimentation and open access.
8. Determine the **impacts of research space growth to Gen-Ed** programs.
9. **Key campus anchors for future research** hubs in the following areas:
    - *I.* *Cherry Avenue* – potential Research & Innovation Corridor (space & astronomy - redevelopment of Sonnet as hub)
    - *II.* *Sciences Concourse* – replacement of Math & landscape improvements
    - *III.* *Engineering* – Re-imagine Harshbarger, Mines and Engineering for long-term
    - *IV.* *Sites along 6th Street* – potential infill for future development
    - *V.* *Health Sciences* – AHSC renovation

Recommendations – Campus Locations

Research & Innovation Space



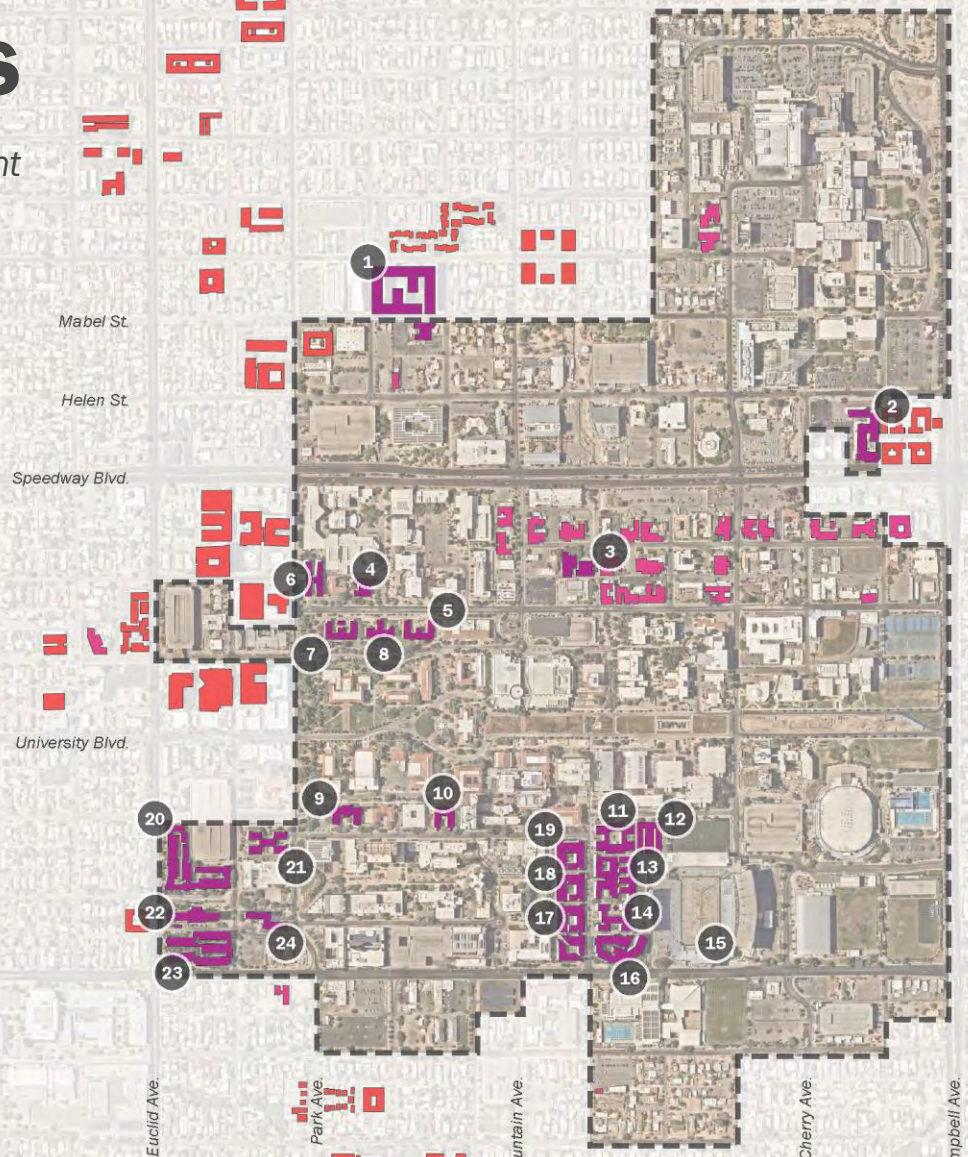
Research and Innovation Recommendations

1. Cherry Ave. - Potential Innovation Corridor
2. Sciences Concourse - Math Replacement
3. Harshbarger - Reimagine for the long-term
4. Engineering - Reimagine for long-term
5. 6th St. - Potential Infill
6. Health Sciences - AHSC Renovation
7. Arts District - Potential Innovation Partnership

STUDENT HOUSING

On-Campus

Student Housing – with Bedcount

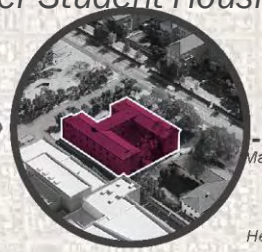


- *Off Campus Housing*
- *On Campus Housing* (4,172 beds)
- *Greek Housing*

#	Name	Bed Count
1	*Honors Village*	502
2	*Babcock*	123
3	*Pima*	74
4	*Coconino*	77
5	*Yuma*	94
6	*Manzanita-Mohave*	192
7	*Gila*	96
8	*Maricopa*	65
9	*Cochise*	89
10	*Yavapai*	87
11	*Graham-Greenlee*	170
12	*Hopi*	60
13	*Colonia de la Paz*	263
14	*Apache Santa Cruz*	182
15	*Navajo-Pinal*	81
16	*Likins*	190
17	*Villa del Puente*	156
18	*Posada San Pedro*	124
19	*Pueblo de la Cienega*	124
20	*La Aldea*	259
21	*Kaibab-Huachuca*	179
22	*Coronado*	402
23	*Arbol de la Vida*	375
24	*Arizona-Sonora*	208

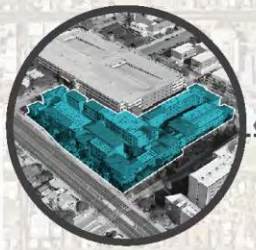
Demolition or Renovation

Student Housing – per Student Housing Master Plan



Coconino
Current: 77 beds
After Reno: 1,000 beds

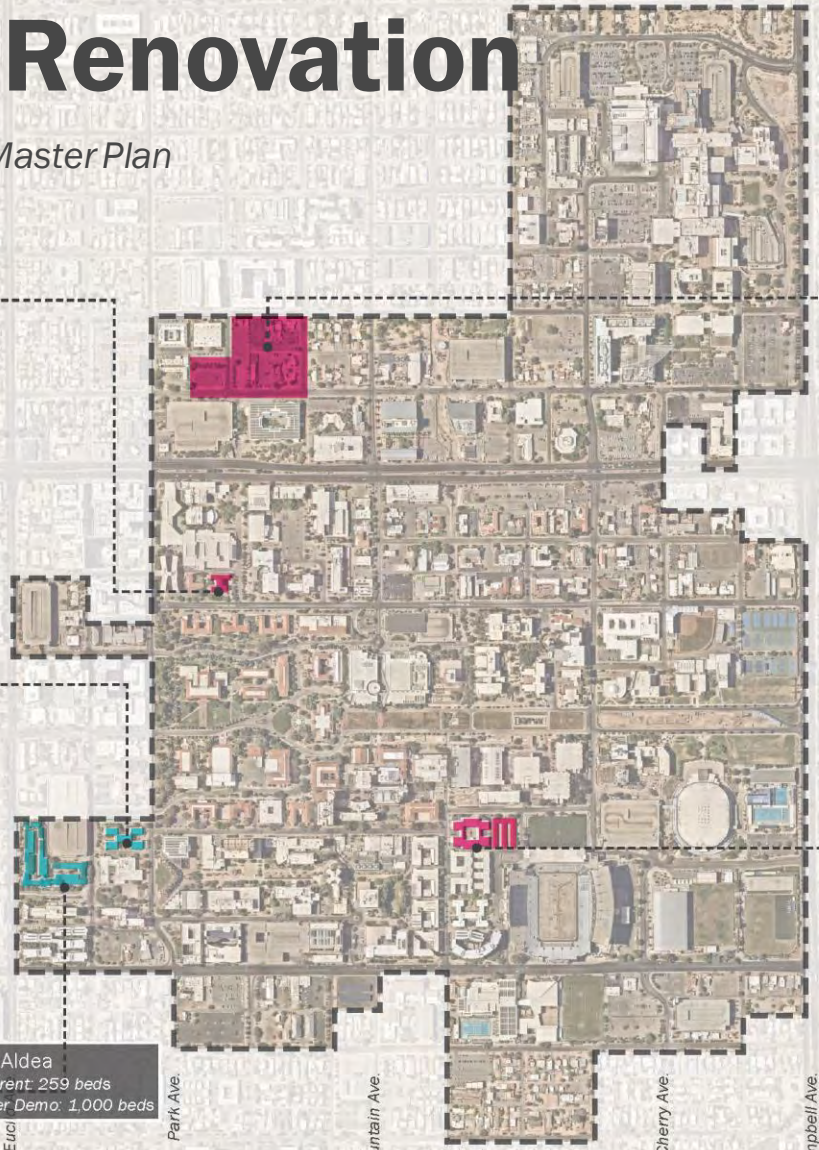
Kaibab-Huachuca
Current: 179 beds
After Demo: 1,000 beds



La Aldea
Current: 259 beds
After Demo: 1,000 beds

Honors Expansion
Current: 502 beds
Expansion: 800 - 1,000 beds

Graham-Greenlee + Hopi
Current: 230 beds combined
After Demo: 800 - 1,000 beds



Takeaways:

- Adding 800-1000 beds in next 5 years
- Adding another 800-1000 beds in next 5-10 years
- **10 Year forecast – 1600-2000 beds**

Replacement Date

- *Replace within 10+ yrs*
- *Replace within 5-10 yrs*

SYSTEMS

Systems

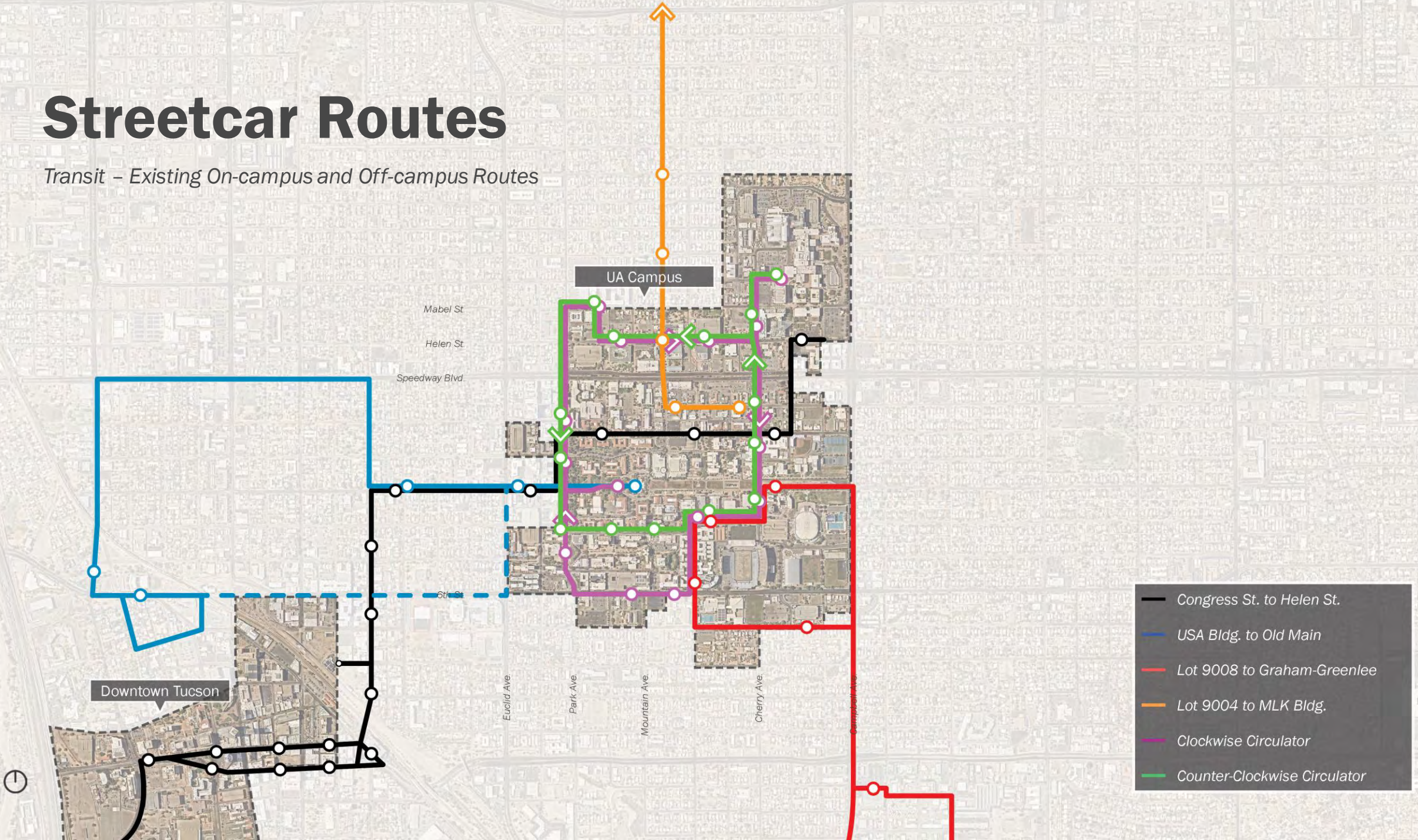
Systems

- Transit
- On-Campus Mobility
- Campus Infrastructure
- Sustainability

TRANSIT

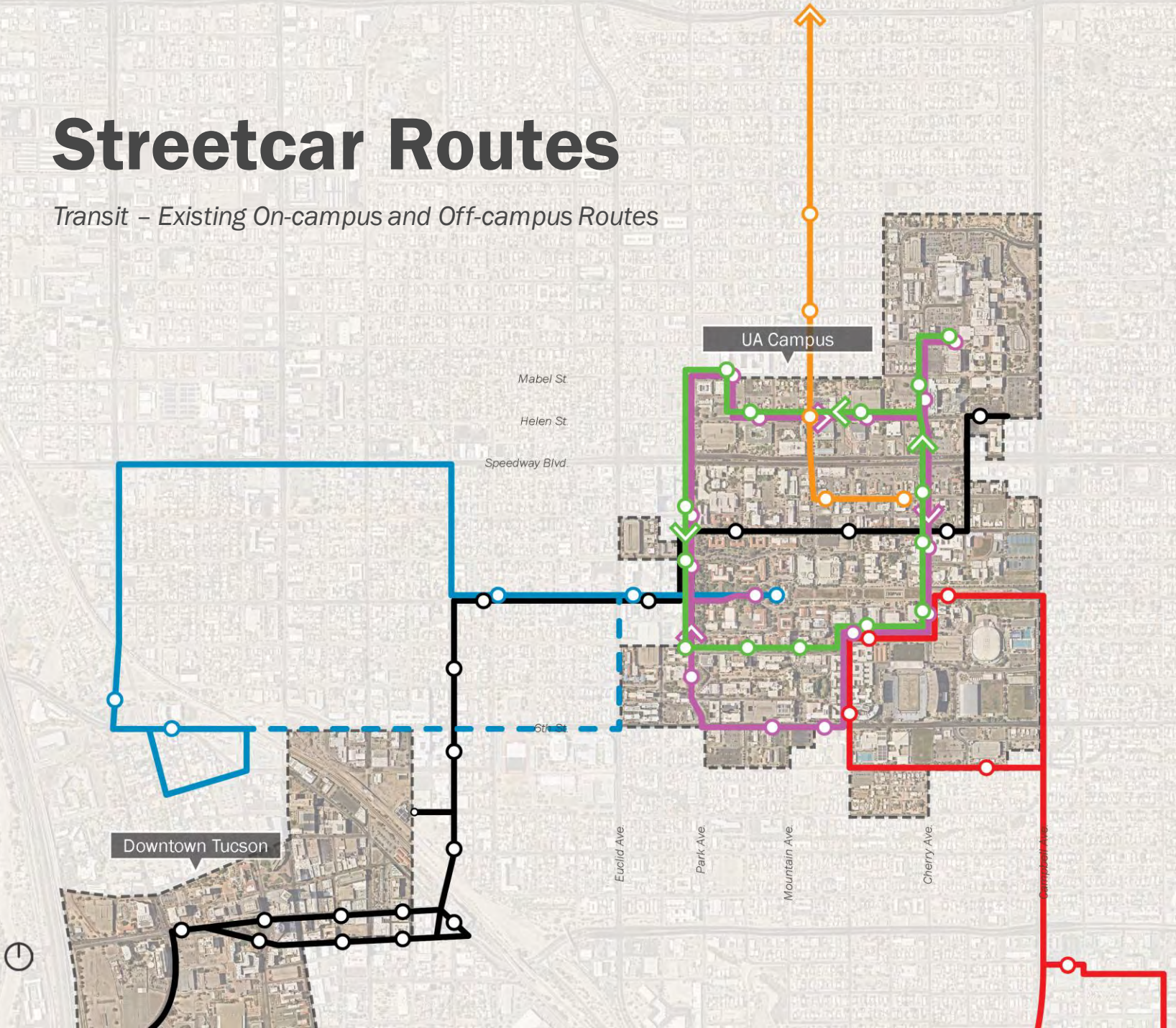
Streetcar Routes

Transit – Existing On-campus and Off-campus Routes



Streetcar Routes

Transit – Existing On-campus and Off-campus Routes



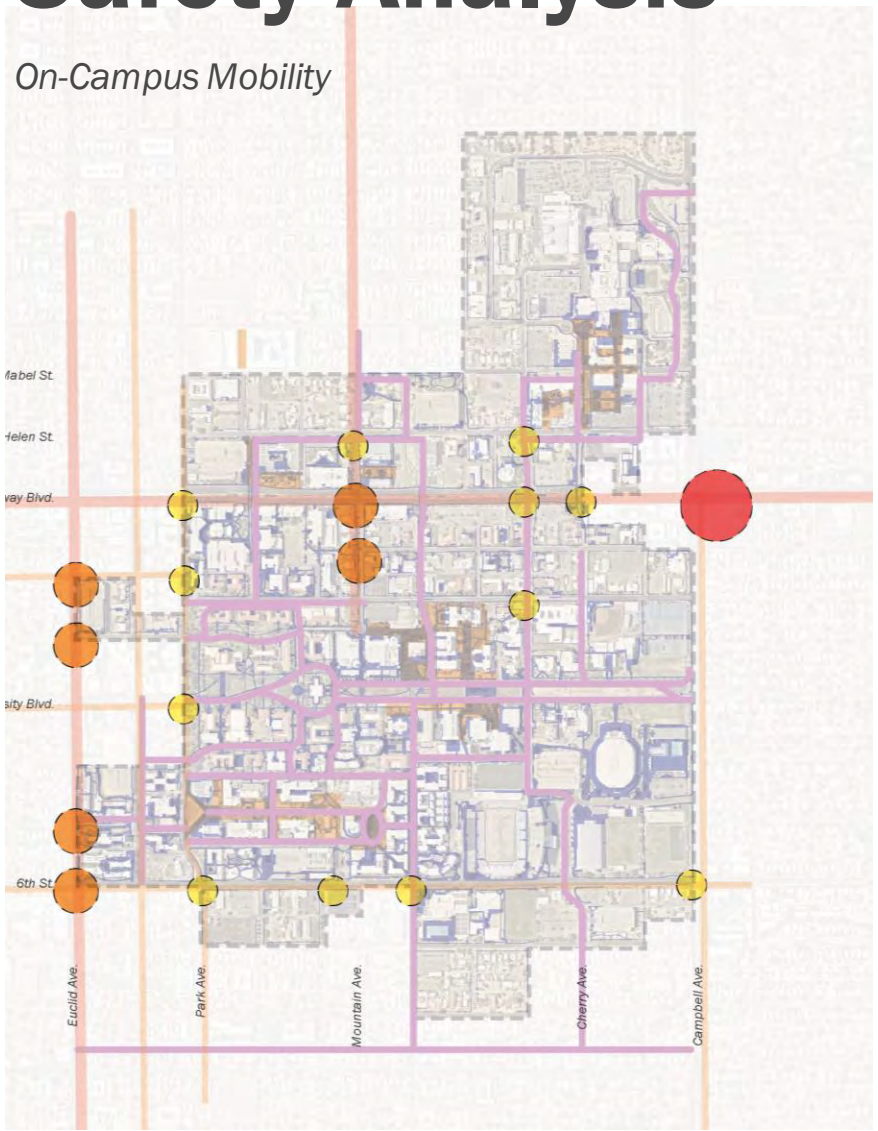
Recommendation:

Reanalyze off-campus routes for better connectivity to destinations and stops along those routes.

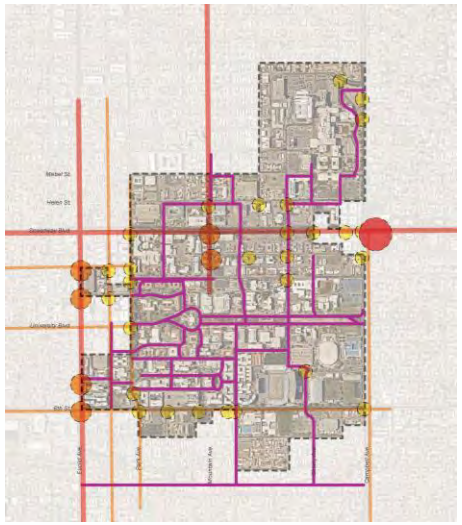
ON-CAMPUS MOBILITY

Safety Analysis

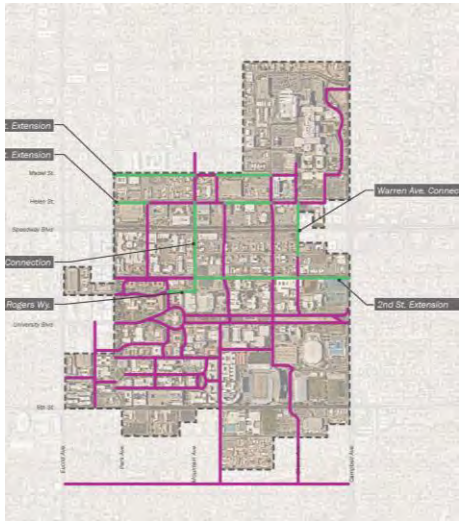
On-Campus Mobility



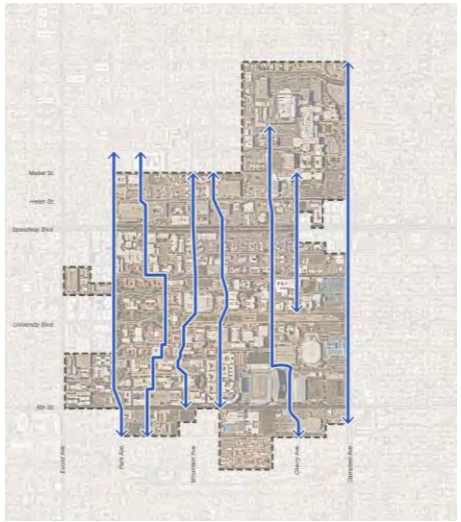
Issues Diagram



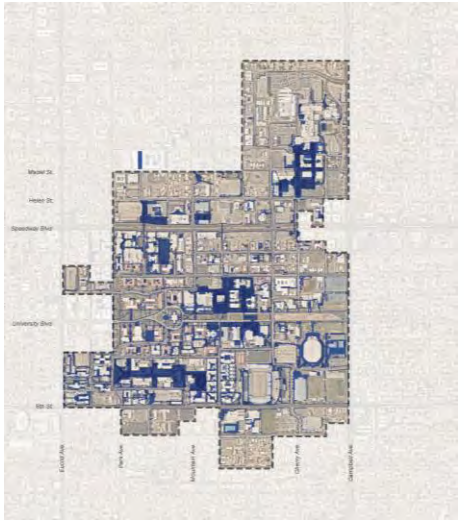
Intersections



Bicycle Connections



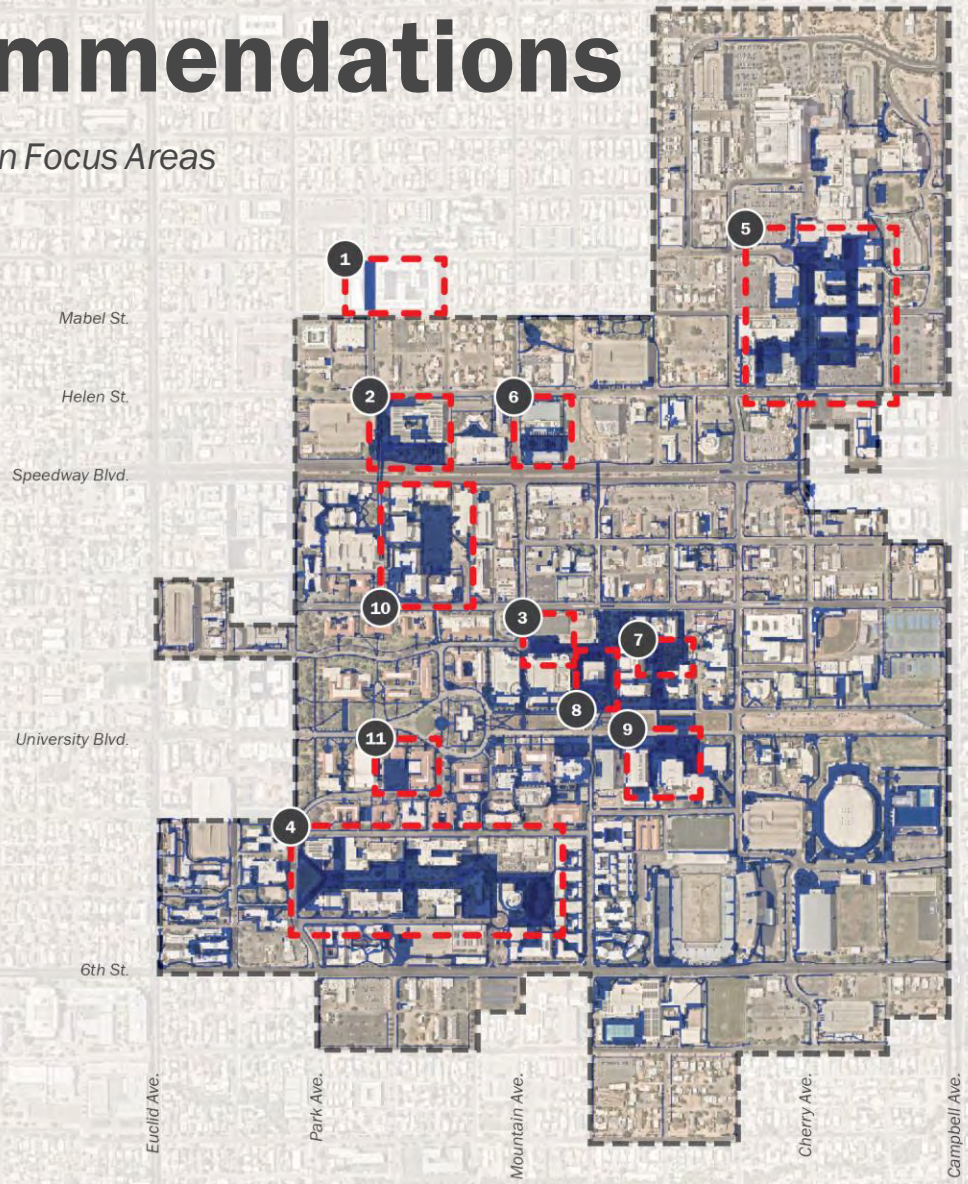
N-S Connections



Pedestrian Connections

Draft Recommendations

On-Campus Mobility – Pedestrian Focus Areas



Pedestrian Network

Significant Open Spaces

1. Honors Village Plaza
2. McClelland Plaza
3. James and Perry Rogers Plaza
4. Science Concourse
5. AHSC Academic Quad
6. AME Courtyard
7. Education Plaza
8. Alumni Plaza
9. Library Plaza
8. CAPLA Courtyard
9. Centennial Courtyard

On-Campus Mobility – Recommendations

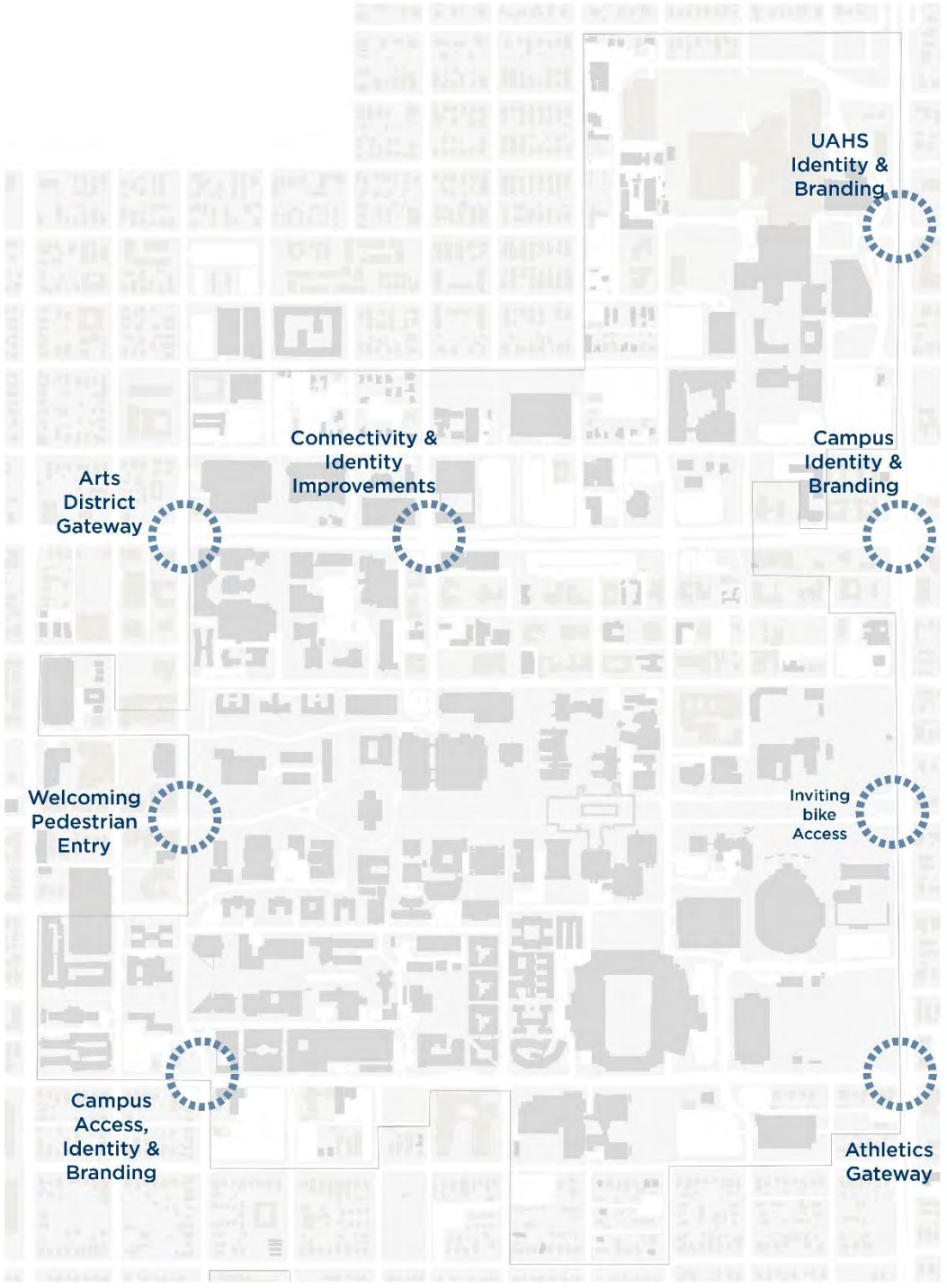
1. **Prioritize** traffic calming and traffic management for **pedestrians** along high incident streets.
2. **Improve intersections along campus edges**, notably Speedway Blvd. and Mountain Ave., Euclid Ave. and West Campus, and along Park Ave.
3. **Enhance existing connections** through branding and signage, particularly along Highland Street, Mountain Ave, Speedway Blvd and Euclid Ave. to improve the character of campus edges.
4. **Improve key north-south corridors** for enhanced service and delivery. I.e. Cherry Ave., Mountain Ave.
5. Consider impacts of on-campus enrollment and online enrollment to **determine long-term parking adequacy.**
6. **Expand the bicycle network** to create a robust bicycle network on-campus and off-campus

CAMPUS INFRASTRUCTURE

Campus Gateways

Campus Infrastructure

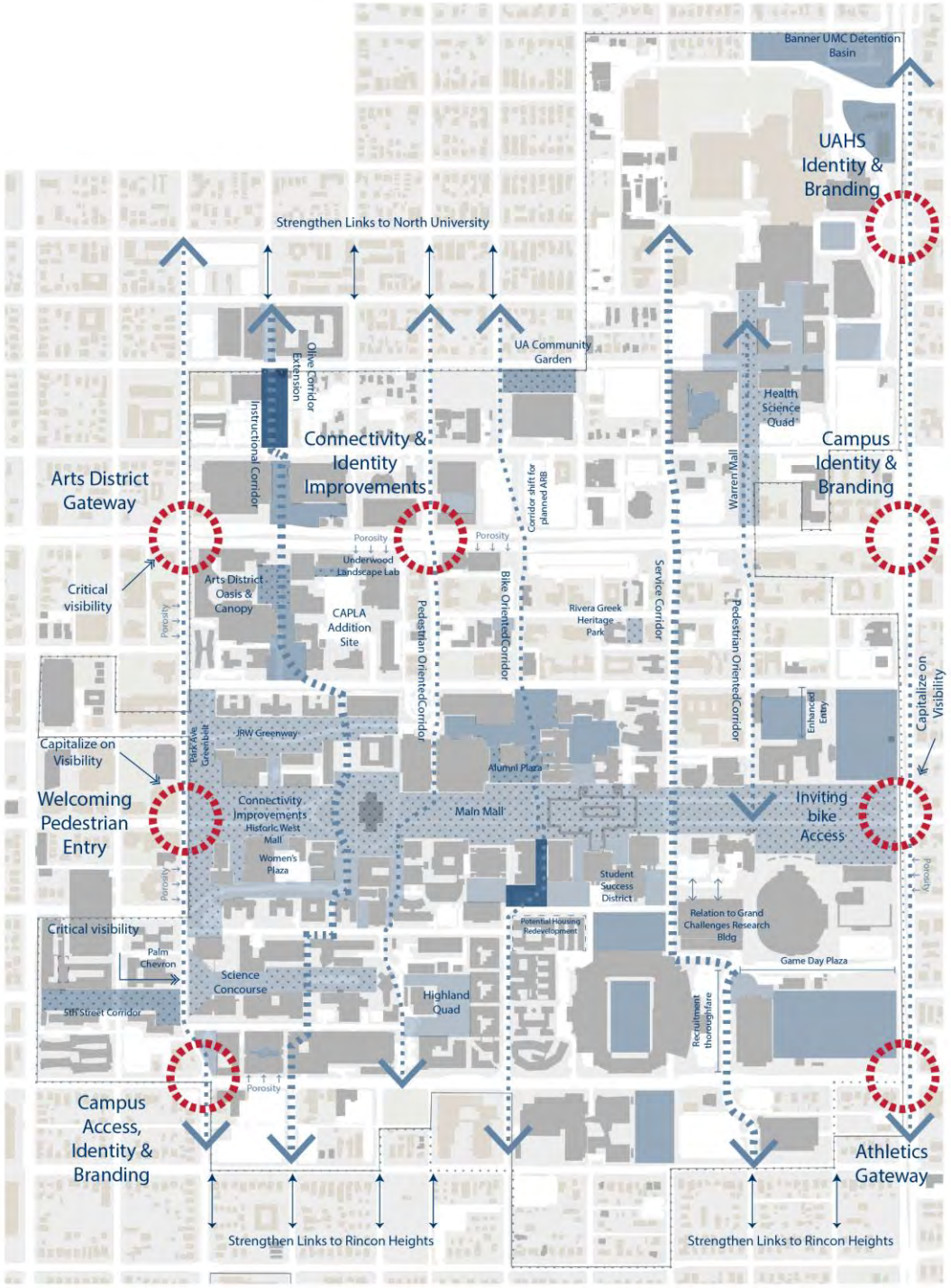
- **6th Street**
  - 6th Street & Park Ave
  - 6th Street & Campbell Ave
- **University Blvd**
  - University Blvd & Park Ave
  - University Blvd & Campbell Ave
- **Speedway Blvd**
  - Speedway Blvd & Park Ave
  - Speedway Blvd & Mountain Ave
  - Speedway Blvd & Campbell Ave
- **Adams St & Campbell Ave**



Key Campus Open Spaces

Campus Infrastructure

- Historic West Mall
- Science Concourse
- Arts District Quad
- Warren Mall
- Park Avenue Green Belt
- Highland Quad



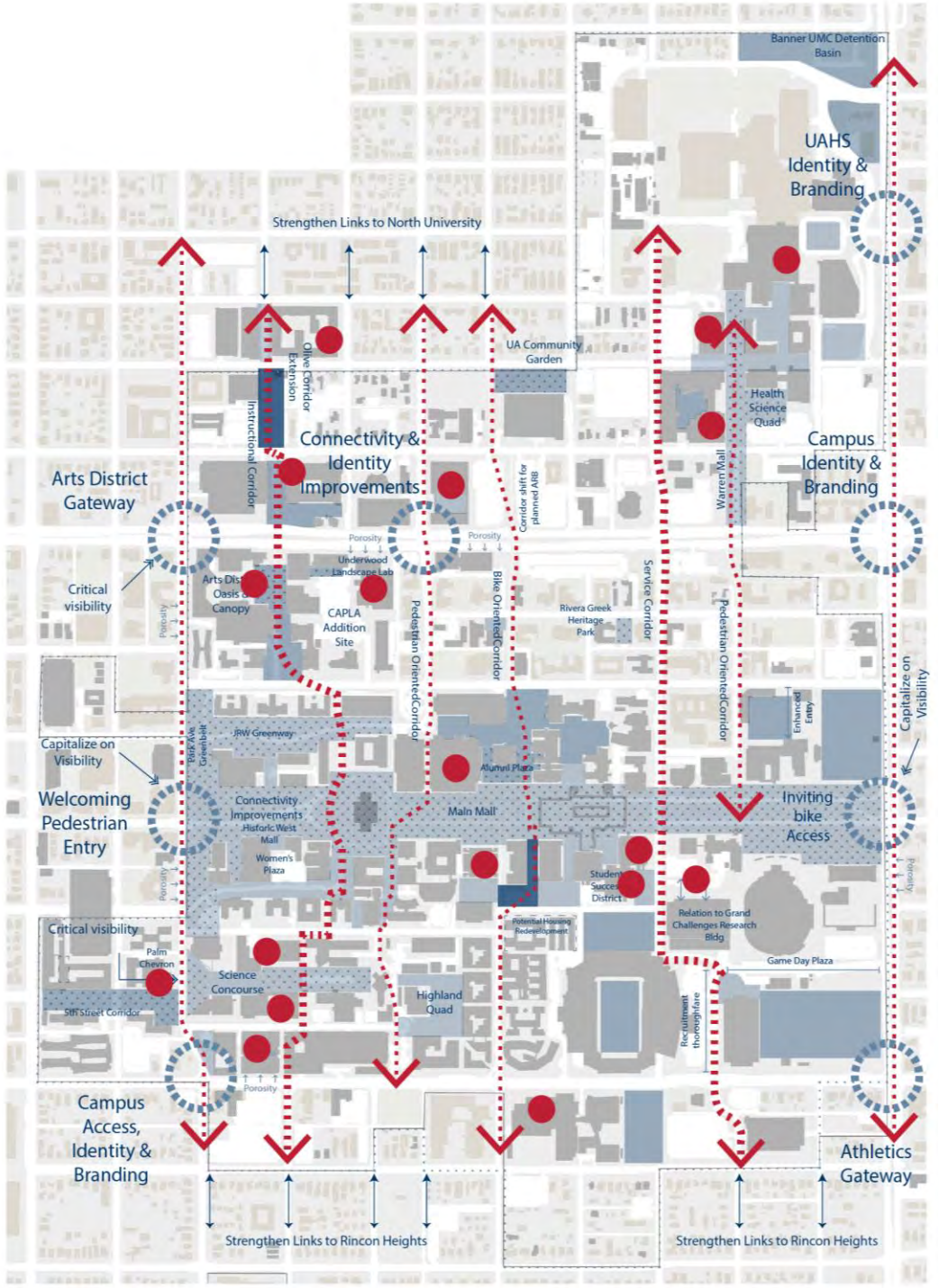
Key Open Spaces

Gateways

Key Campus Connections

Campus Infrastructure

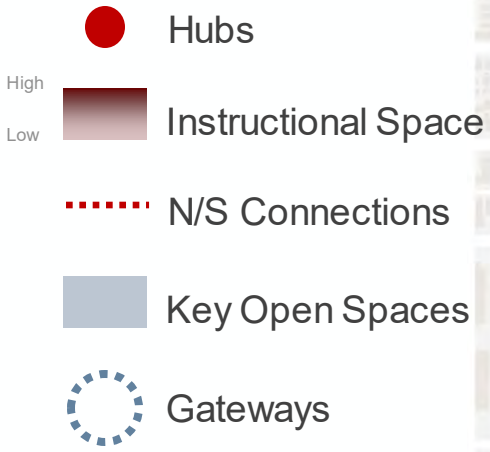
- **Olive Road**
- **Park Ave**
- **Mountain Ave**
- **Highland Ave**
- **Cherry Ave**
- **Warren Ave**
- **Campbell Ave**

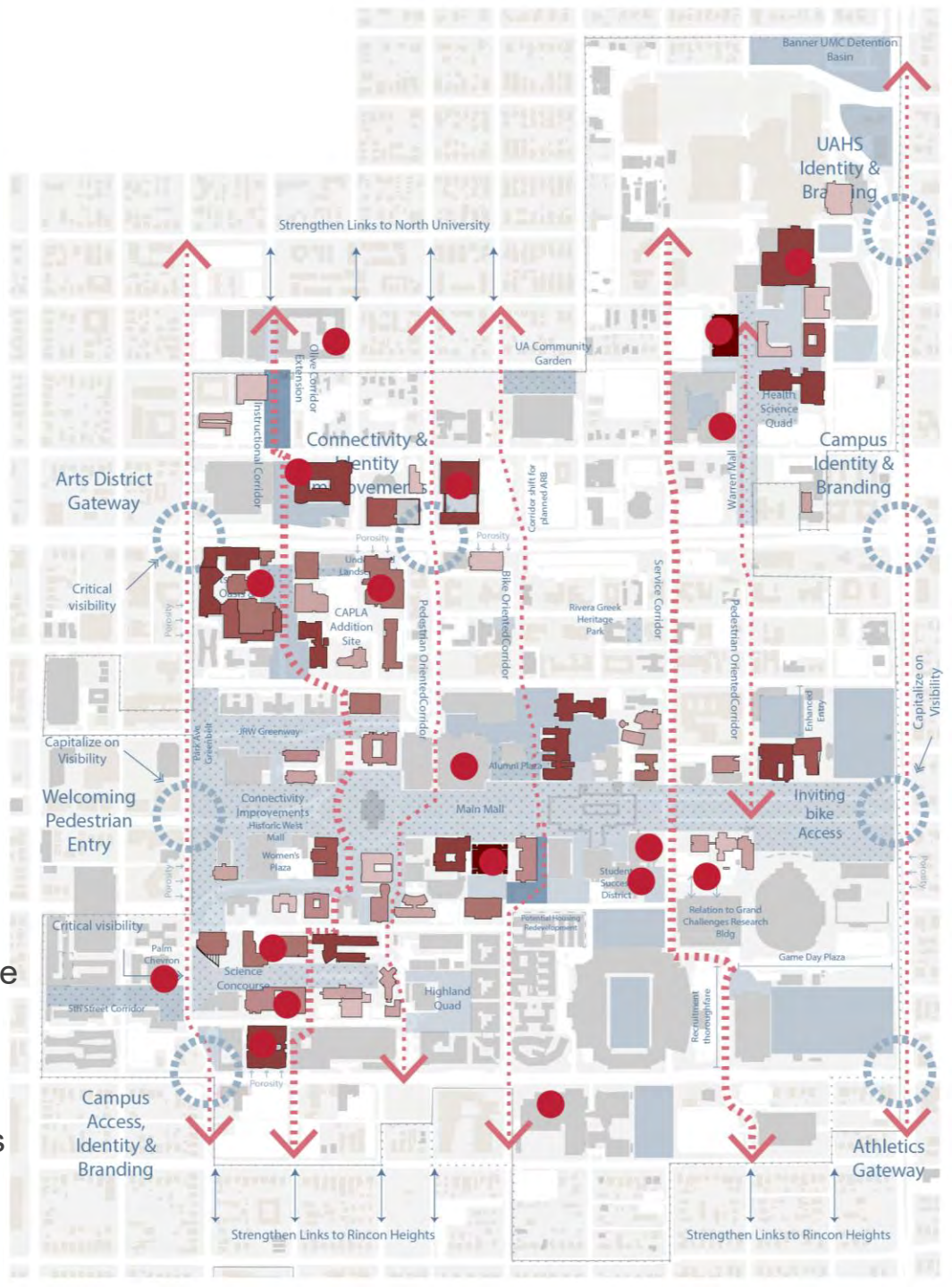


Instructional Space Overlay

Campus Infrastructure

- HSIB
- Henry Koffler Building
- ENR 2
- Arts District Buildings
- Richard Harvill Building
- Old Chem Renovation

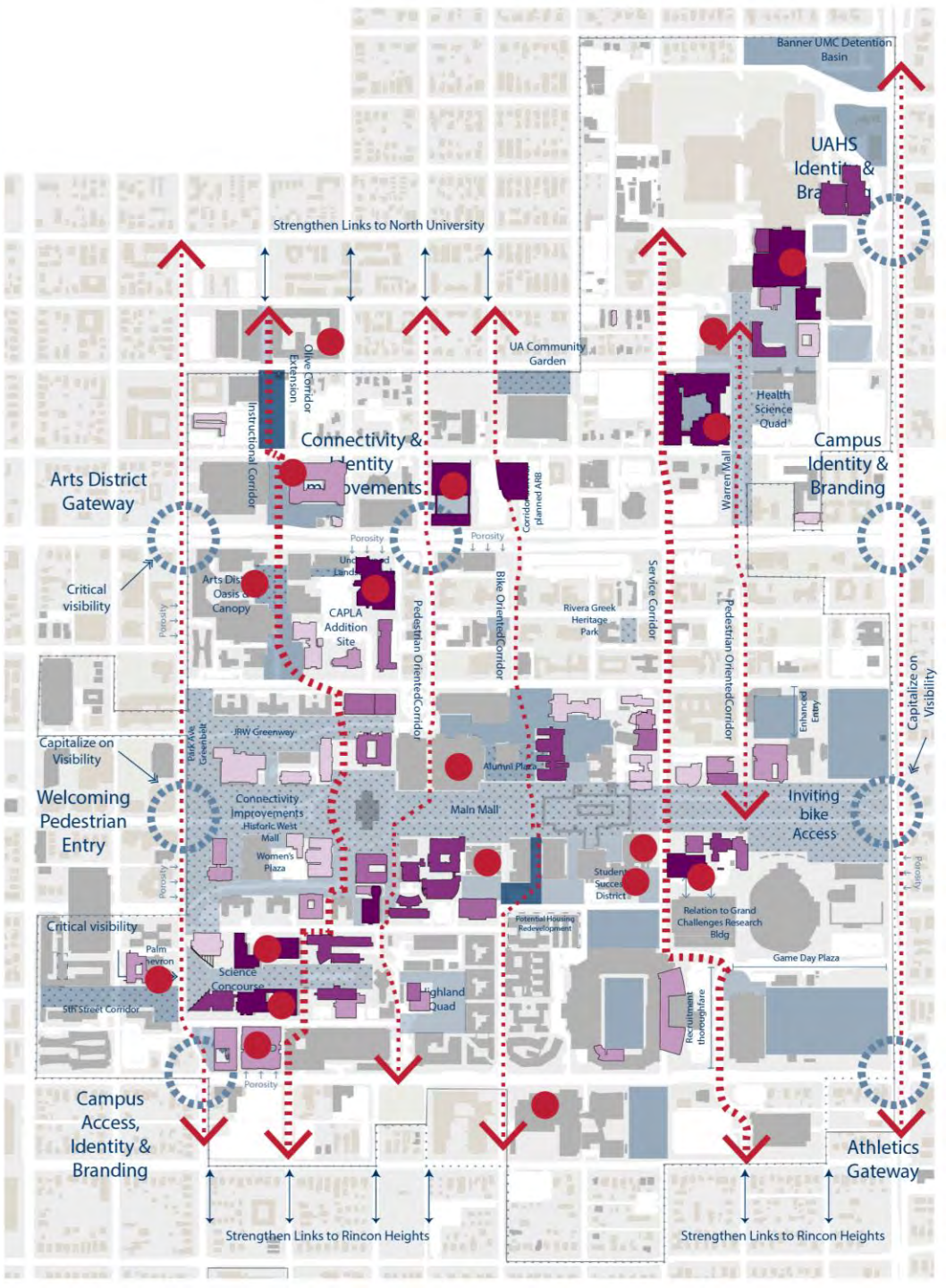




Research Space Overlay

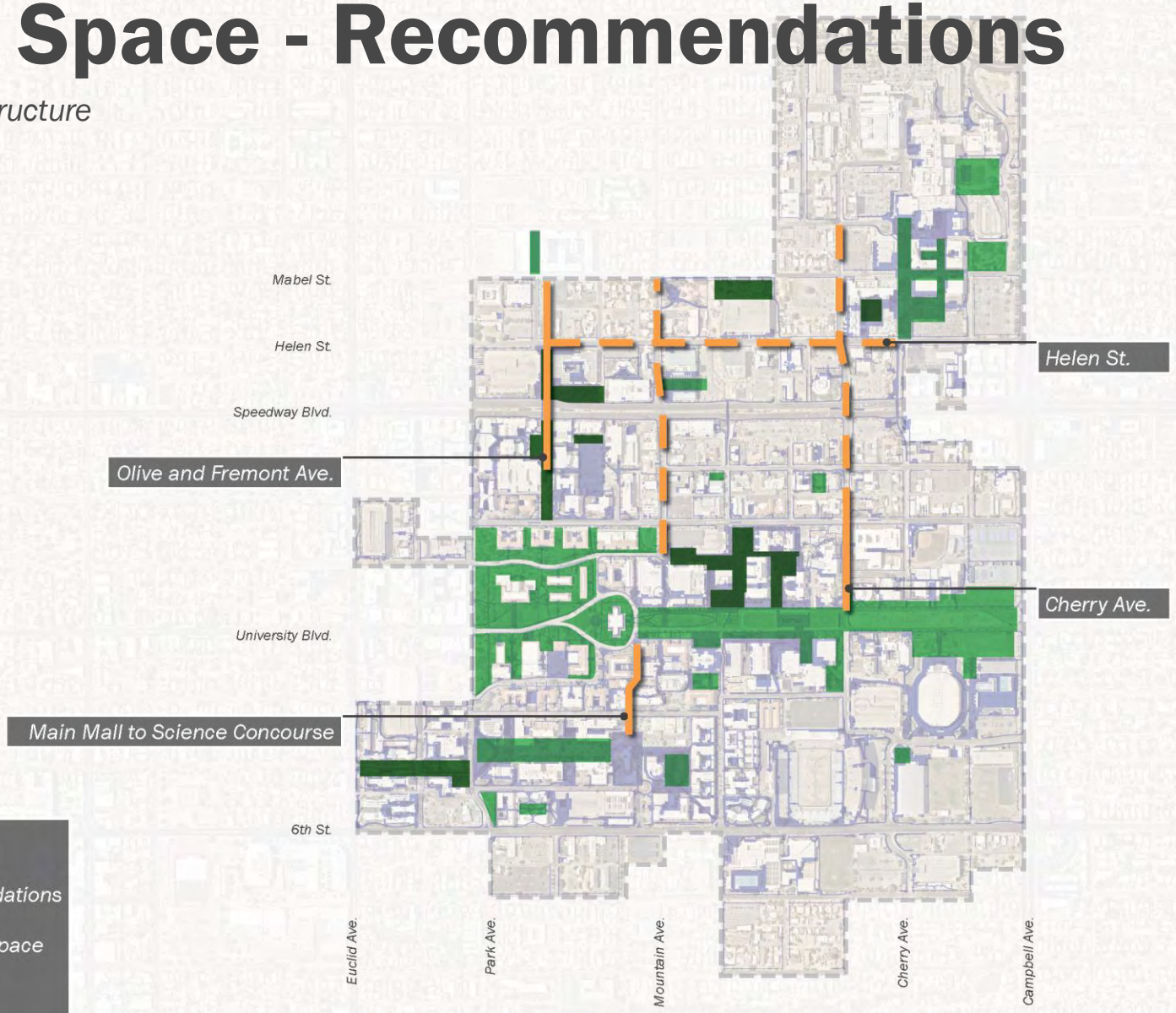
Campus Infrastructure

- UAHS Research Facilities
- BIO5
- Gould-Simpson
- Bio-Sciences West
- Marley Building
- UA Engineering Building



Open Space - Recommendations

Campus Infrastructure



Campus Infrastructure Recommendations

Campus Gateways

- **Enhance the existing gateways** with additional branding and signage opportunities focused on 6th street & Speedway Blvd.
- **Improve pedestrian resources** such as widened sidewalks, corrected ramp slopes, pavement markers for safe crossings
- **Improve signal efficiency** for pedestrian and bicycle movement.
- **Improve campus threshold experience** through improving the gateways with better shade, integrated materiality and street furniture.

Campus Open Spaces

- **Increase and enhance sustainability standards for the open spaces** through native and regenerative species, increased permeable pavement and low impervious cover.
- **Actively monitor the energy and operations** for maintenance.
- **Create flexible and adaptable outdoor environments** with various typologies and formats.
- **Create functional exterior learning and teaching resources** throughout campus.
- **Continue to increase shade and climate mitigation** across the campus

Campus Connections

- Improve, enhance, and build the character of the **North-South connections** on campus.
- **Create activators** along the connections to support outdoor learning and teaching environments.
- **Better sort and define service** access along the connectors and campus infrastructure.
- Increase the scale of **campus connections** to support growing on-campus population.

SUSTAINABILITY

Existing Initiatives

Sustainability – In-process

- Integration of Sustainability into the University Strategic Plan
- AASHE STARS Reporting
- University Climate Change Coalition (UC3)
- Large-Scale Renewable Energy Agreement
- ENR2 Rooftop Agrivoltaic Project
- Sustainability/Climate Action Plan
- Tucson 2030 District
- Student Engagement
- UArizona Community Garden
- Utility Modification Revolving Fund
- Sustainability Map

Strategic Plan Integration

Sustainability – In-process

- **Pillar II – Initiative 2.2(A)**

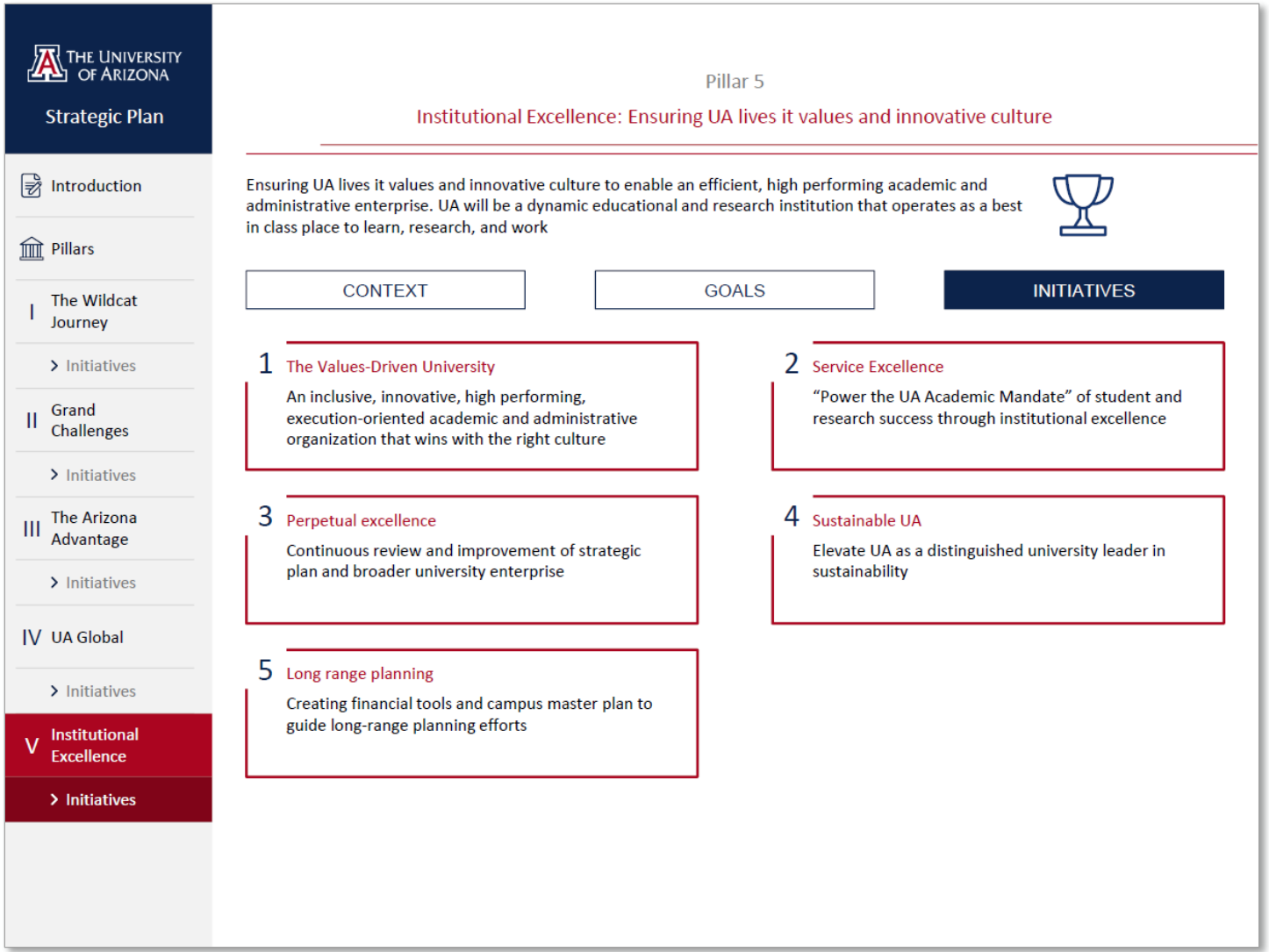
  "We are setting out to be a top ten ranked environmental university in the world. To achieve this goal we must not only excel in research on the natural and built environment but also lead in teaching, public service/community impact (i.e., land grant), and creating a sustainable campus,"

- **Pillar V – Initiatives 5.4(A)**

  "aims to advance quantifiable environmental performance and practical climate change mitigation strategies in all campus operations, while simultaneously leveraging collaborative outreach across campus and within the Tucson community."

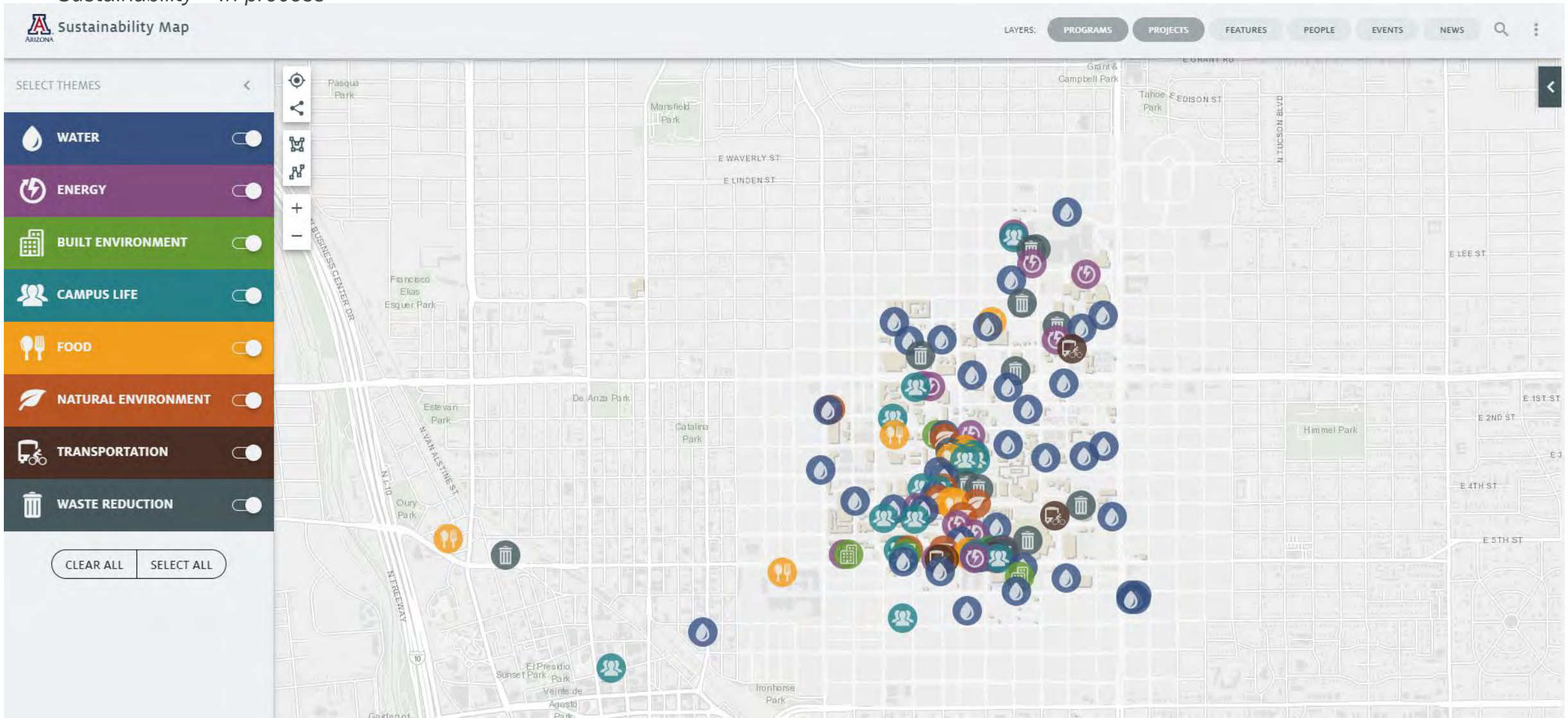
- **Pillar V – Initiatives 5.4(B)**

  "aims to integrate sustainability values and best practices into the daily activities and responsibilities of all University faculty, staff and students, while also developing and strengthening community relationships, in order to create collaborative, practical, place-based solutions to local environmental challenges."



Online Campus Map

Sustainability – In-process



Housing & Res Life Programs Report

Sustainability – In-process

WASTE DIVERSION EFFORTS

DODGE THE DUMPSTER

Dodge the Dumpster is an annual waste diversion program held during resident Move-Out in the spring. In 2018, Housing collaborated with the UA Campus Pantry and Salvation Army to collect unwanted food, toiletries, cleaning supplies, electronics, appliances, bedding, and more. Collected items were reused and diverted from the landfill.

- **794** pounds of food to the UA Campus Pantry
- **4,320** pounds of food/toiletries/cleaning supplies to the Salvation Army
- **101,000** pounds of general donations to the Salvation Army

106,114

TOTAL POUNDS OF DIVERTED MATERIALS

GREEN SPENDING

Housing makes efforts to purchase sustainable supplies in all units and areas when possible. The following information includes a total green spend, or the percentage of overall expenditures that were spent on materials with sustainable attributes.

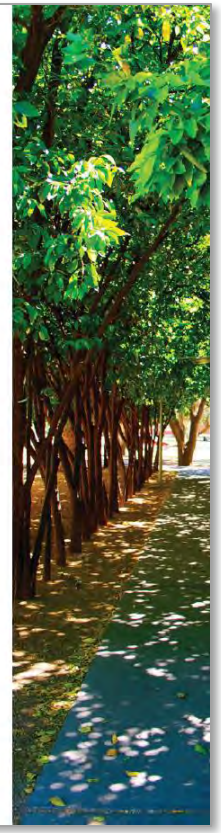
OFFICE SUPPLIES

- **31%** total green spend on office supplies*
- **12%** recycled spend
- **19%** other eco attributes/eco-labels

**data for Office Depot purchases only*

CUSTODIAL SUPPLIES

- **74%** total green spend on custodial supplies
  About **$162,000** worth of green supplies
- **12%** green spend on plastic liners
  About **$4000** worth of green supplies
- **40%** green spend on chemicals
  About **$18,000** worth of green supplies
- **96%** green spend on hand soap
  About **$30,000** worth of green supplies
- **100%** green spend on paper products
  About **$110,000** worth of green supplies



WATER & ELECTRICITY CONSERVATION EFFORTS

BATTLE OF THE UTILITIES

Battle of the Utilities is a utility reduction competition between the dorms. Students are encouraged to conserve as much water and electricity they can month over month. Housing Sustainability then calculates percent change between the months and awards three dorms as conservation leaders. Students can also choose to participate by signing an online pledge to reduce. The results from this year's competition netted a savings of:

- **98,997** kWh of electricity **(down 9%)**
  - Enough electricity to stream Netflix constantly for **200** years
  - Enough electricity to power **8** homes for an entire year!
- **494,390** gallons of water **(down 11.5%)**
  - Enough water to fill **3,744,492** bottles
  - If lined up, all bottles end-to-end would span **472.8** miles!
- **947** students signed the pledge to reduce
  - Two dorms had **26%** of their total population, the highest amount, sign the pledge to reduce: Villa Del Puente and the Cochise/Yavapai complex

WINNING 2018 DORMS

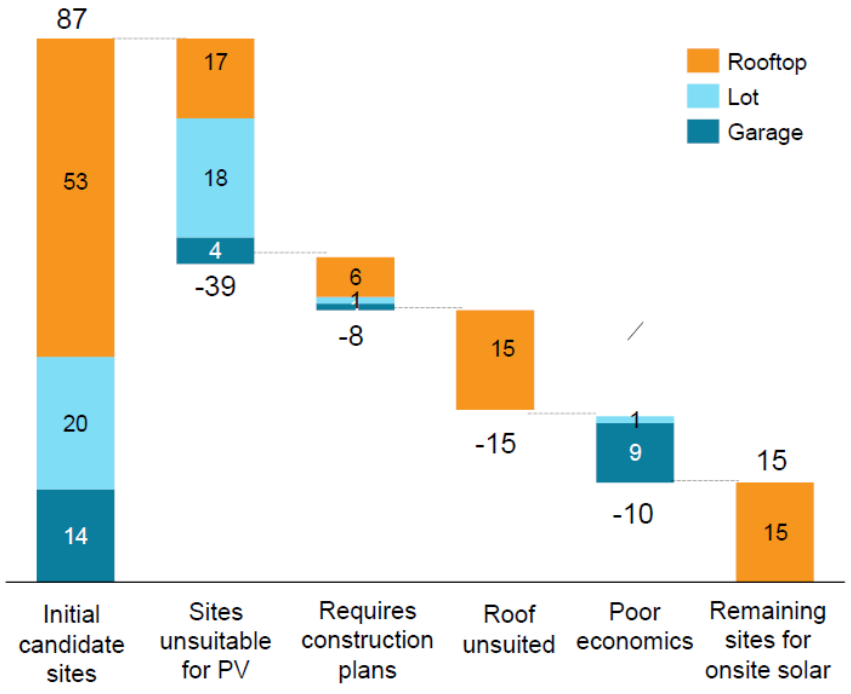
- BABCOCK
- ARIZONA-SONORA
- NAVAJO-PINAL

Renewable Strategy On-Campus

Sustainability – In-process

Optimizing a Renewable Energy Strategy for UA – Onsite Solar Solution

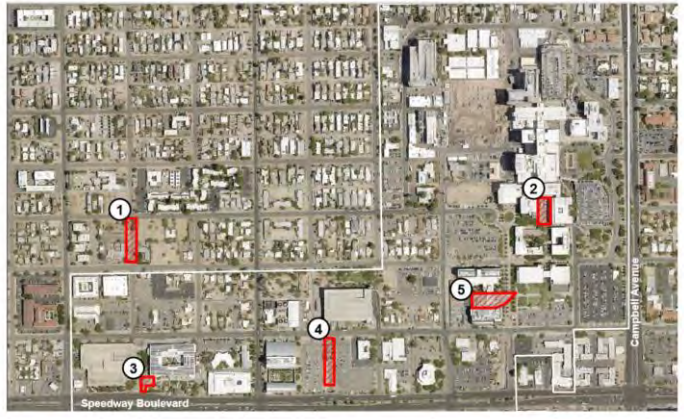
Results of onsite analysis



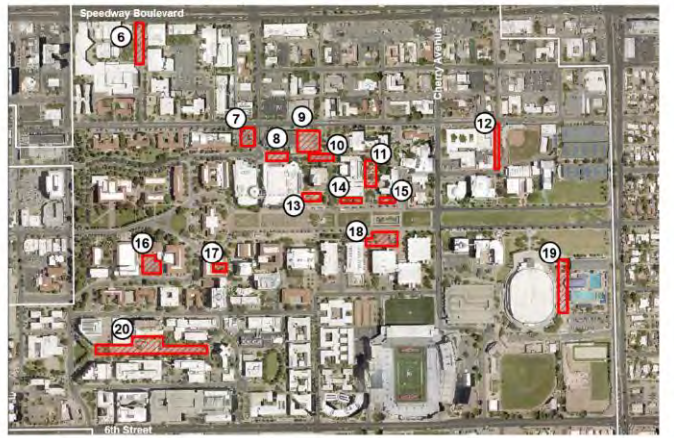
- Remaining 15 sites create **~1.3 MW opportunity** (~2,300 annual MWh)
  - **0.6 MW Main Meter, 0.7 MW AHSC**
  - Recent economics filter was updated with refreshed market pricing data, **eliminating garages/lots (3.1 MW)**
  - 2 of 15 sites are future sites; 1 of 15 is currently pursuing solar
  - Does not include Biosphere 2, UA Motor Pool, UA Warehouse, or ground-mount opportunities *(would require additional information from UA)*
- Remaining sites range in **levelized savings from ~$2.50 to $6.00 / MWh**
  - Main Meter opportunities have better economics given usage profile
  - Expected total NPV of $0.1 to $0.4M
- Small incremental onsite solar should not negatively impact TEP tariff
- Sites with unsuited roofs could be added back in with accelerated roof replacement; sites removed for poor economics could be added back in for strategic reasons

Source: UA data, CFR analysis

Potential Open Solar Sites (1/2)



Potential Open Solar Sites (2/2)



Sustainability – Recommendations

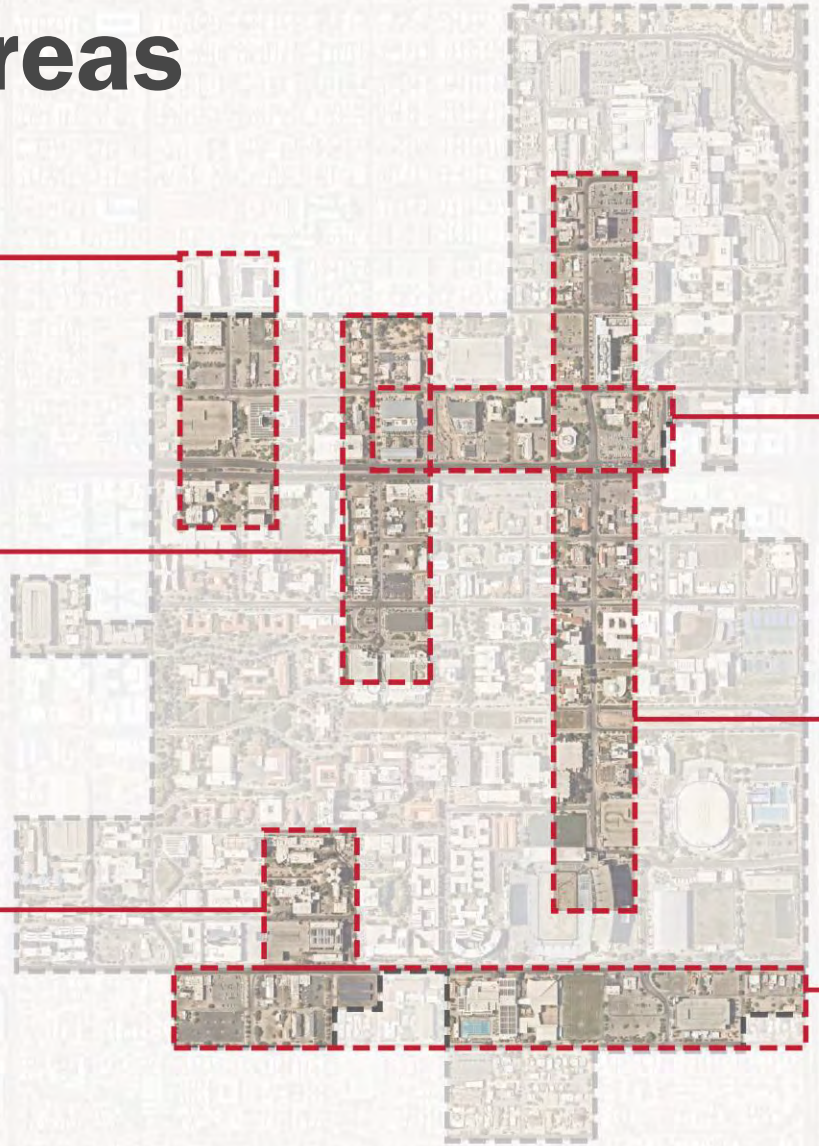
Subject to the Sustainability and Climate Action Master Plan

1. Continue to **track measurable goals** for the various initiatives to work towards the vision outlined in the strategic plan.
2. The **holistic vision including performance and policy protocols** will occur through the ongoing sustainability master plan.
3. **Recognize our work** with partners and technical resources in the community to enhance efficiencies on and off campus.
4. Continue to **create awareness and specific, targeted educational opportunities** through engagement with surrounding communities.
5. **Create promotional and educational opportunities** to communicate accomplishments and advancements.

BIG TAKEAWAYS

OPPORTUNITY AREAS

Opportunity Areas



Fremont and Olive Corridor

- *Critical section to continue to enhance connections for all modalities and especially reinforce connections to the Streetcar.*

Mountain Ave. Corridor

- *Potential future Eller expansion as a hub for both the College as well as Campus.*
- *Streetscape and intersection improvements to enhance movement across Speedway Blvd.*

Math and Sciences

- *Potential important and high-profile site embedded in a dense district of science facilities and on-campus student housing.*

Cherry and Speedway

- *Potential sites for expansion of Engineering and STEM programs.*
- *Potential identified site for STEAM with performing arts center.*

Cherry Corridor

- *Potential hub for Research and Innovation with identified key sites for redevelopment along the corridor.*

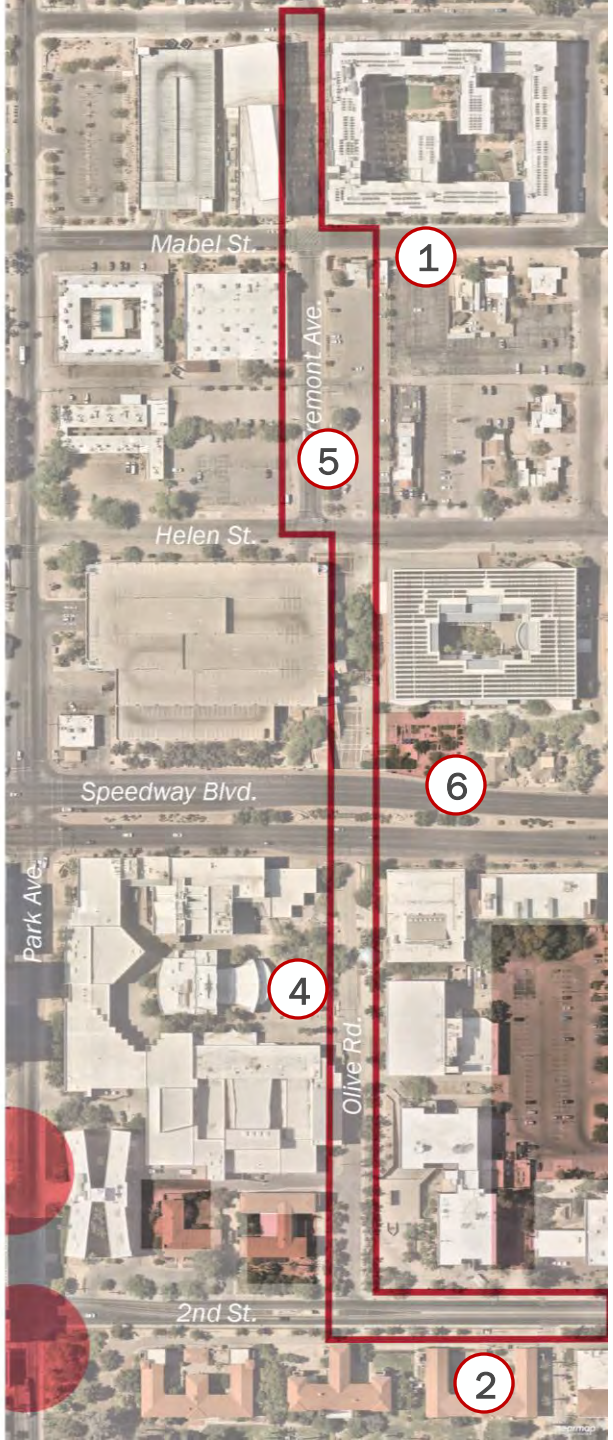
6th St. Corridor

- *Potential long-term sites provide the opportunity to create significant edge condition resources extending campus capacity.*

Olive and Fremont (Honors to Harvill)

Opportunity Areas

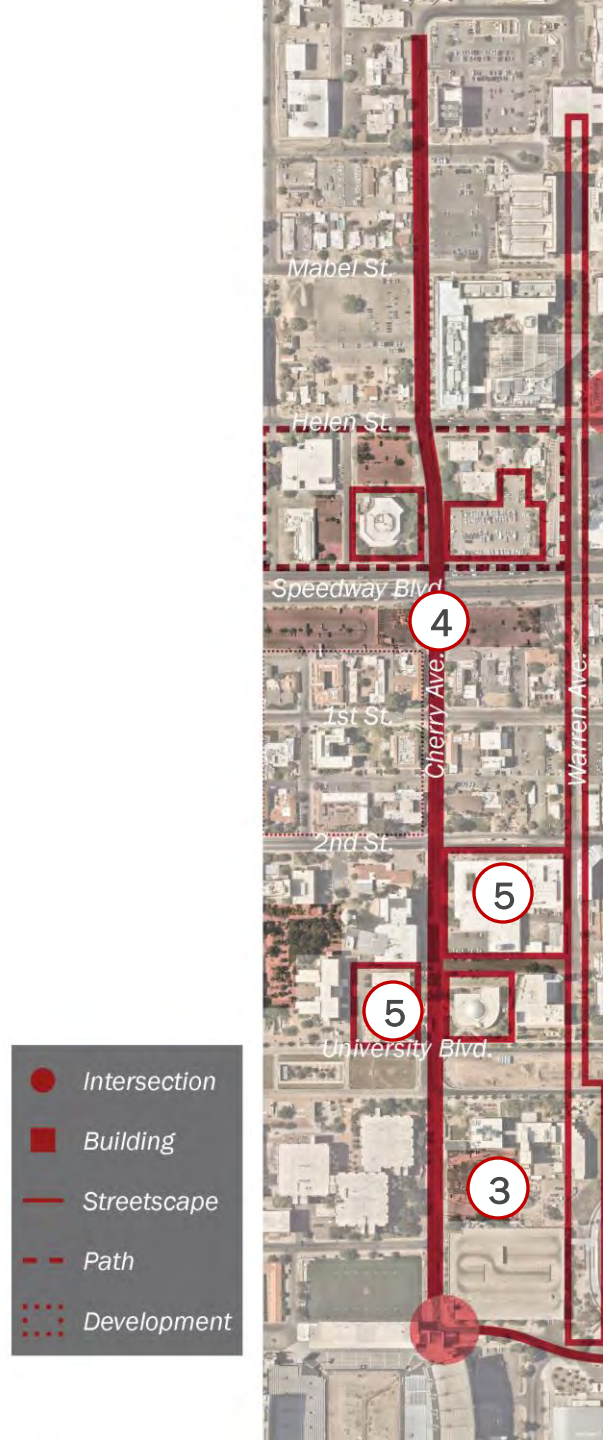
1. From Honors this is a key threshold to campus and has becomes a corridor of signature programs including Business, Arts and CAPLA and Creative Photography and anchored by Harvill.
2. Harvill as a high use cross scheduled facility it is a major hub of activity and intersectionality.
3. This is a critical section to continue to enhance connections for all modalities and especially reinforce connections to the Streetcar.
4. Build on the Arts Master Plan to create active streetscapes with larger scale civic spaces integrated into future building designs.
5. Build/create stronger connection to Honors above Helen and consider long term residential or other programs likely to emerge in this area.
6. Use the future Eller expansion as a hub for both the College as well as Campus.



Cherry Avenue

Opportunity Areas

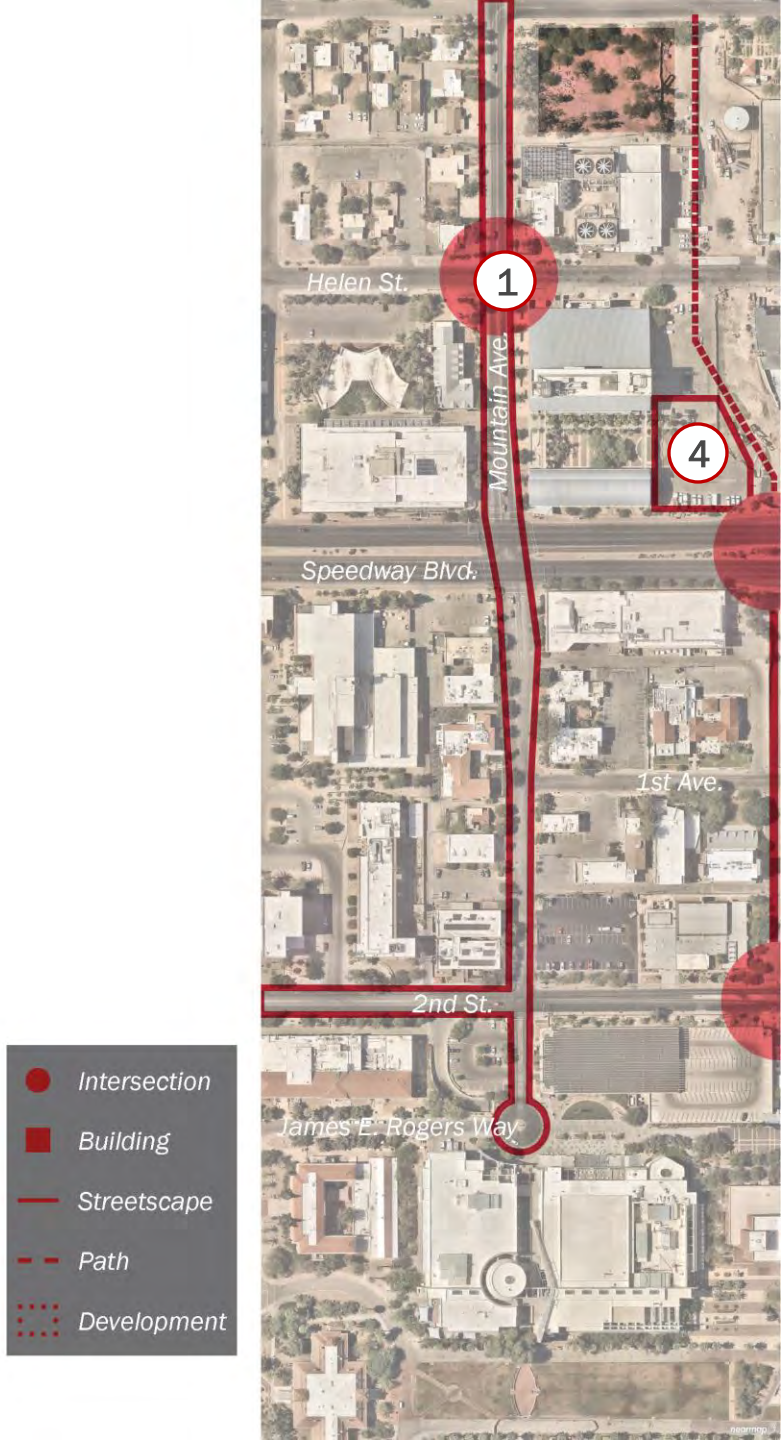
1. For Research, Innovation, and long-term capacity.
2. Over the past two decades significant development south of Health Sciences has established a complete hub for Research and Innovation and other signature programs such as Poetry.
3. The completion of Grand Challenges will establish a new anchor to the south in the center of the Campus near the Mall with Athletics' large venues as part of the backdrop.
4. The corridor connecting these two key areas is a mid to long term area of deep opportunity and program synergy.
5. Several key land areas are underdeveloped and provide long term highly accessible sites.
6. This area already supports multiple signature programs which may need larger facilities over time.
7. The position on campus allows for industry and community partnership in and effective and brand strong area.



Mountain Avenue

Opportunity Areas

1. Mountain above the north side of campus is major point of access for off campus students, faculty and staff onto Campus and often to parking. Similarly on campus users from Mabel to 2nd , add many more on campus users who are accessing the core of campus as well as east to west connections.
2. The resulting movement patterns and physical systems need some consideration.
3. The current configuration, street scape, traffic light and ped crossing require re scaling and likely simplifying. Bike, Ped and vehicle traffic overlaps and the scale of the space allotments needs to be analyzed. Likely emphasizing pedestrian and bicycle traffic.
4. Studies, proposals and recent construction North of Speedway have helped organize the threshold to campus but south of Speedway does not seem to complete supporting the patterns and scale of users.
5. Longer term planning or new projects in the area should help simplify or reroute future patterns into the pedestrian focused areas of campus.



6th Street

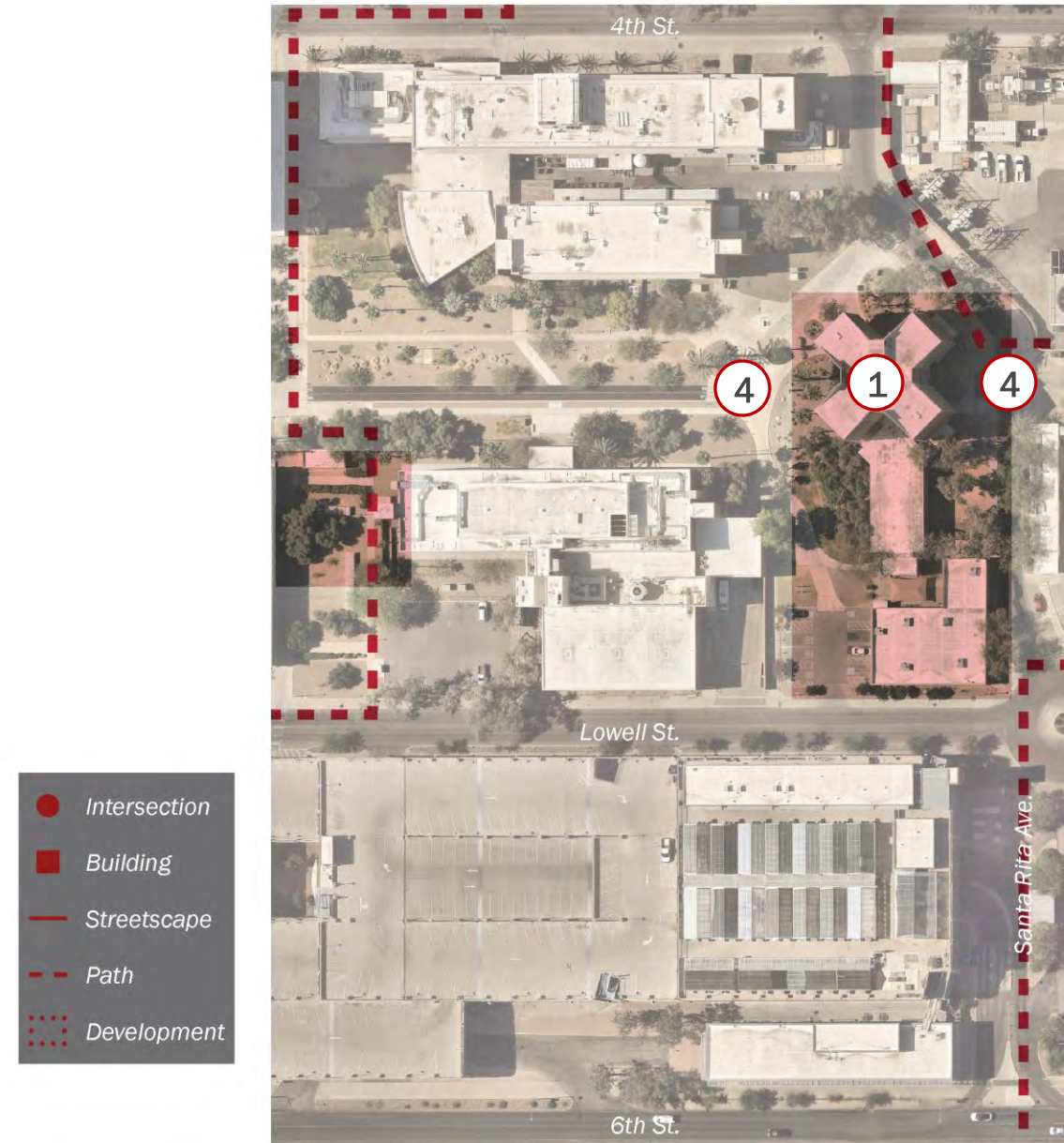
Opportunity Areas

1. Identifying campus capacity and program expansions sites.
2. Much like ENR, these future sites and resulting buildings could function in comprehensive and diverse ways.
3. Long-term, these sites provide the opportunity to create significant edge condition resources extending campus capacity.
4. The potential program options are open ended and can be seen as flexible or adaptive buildings supporting a spectrum of technical, research or instructional resources.
5. Their location on campus also supports partnership and other community engaged opportunities. These sites provide easy access and high visibility.

Science & Math

Opportunity Areas

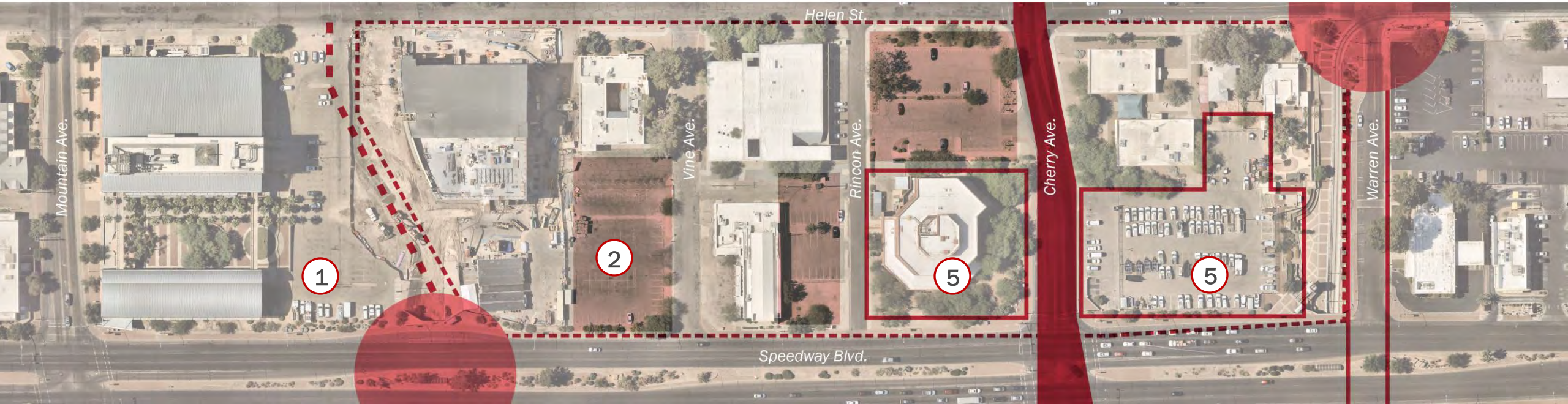
1. Signature Site and Program
2. This is an important and high-profile site embedded in a dense district of science facilities and on campus student housing.
3. The site is suitable for high profile programs as it anchors the Science Mall and is surrounding by signature programs and facilities.
4. The site offers a 360-degree access, and a thoughtful site plan could optimize the yield more effectively than the current tower.
5. It can support academic as well as research programs and could be an effective campus hub site.



Engineering at Cherry and Speedway

Opportunity Areas

1. This is an important site to optimize programmatically.
2. As engineering grows and facilities needs diversify, this site is well positioned to support the College holistically.
3. The site can also support other allied programs and become an interdisciplinary hub.
4. As a hub with high level of visibility and campus connectivity, this site could support maker spaces student resources, food and other campus amenities.
5. Improving the University's presence along Speedway is another benefit.
6. This site better realized can create greater density and leveraging the in-place infrastructure.

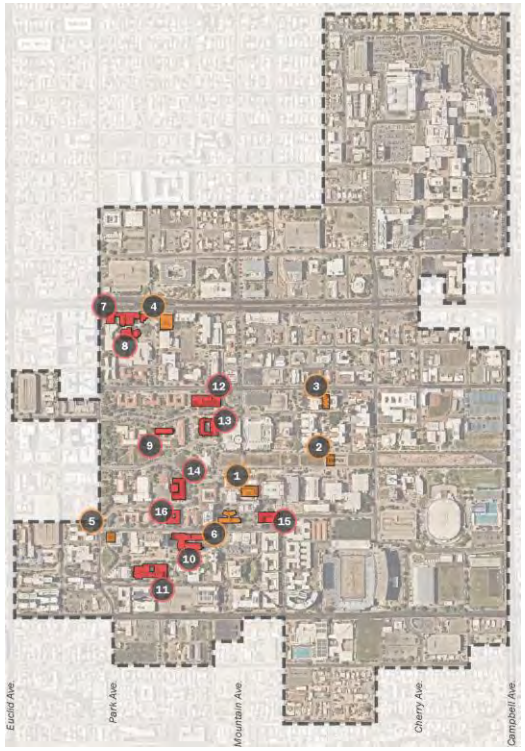


SUMMARY

Space

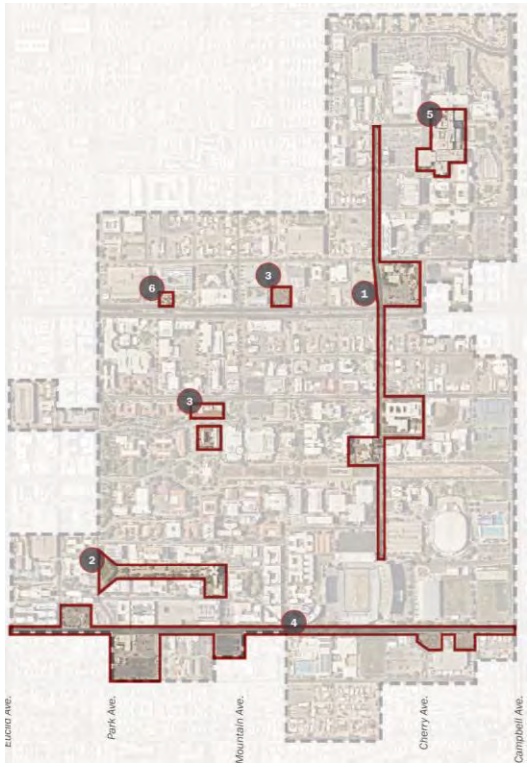
Prioritizing & Sequencing

Instructional



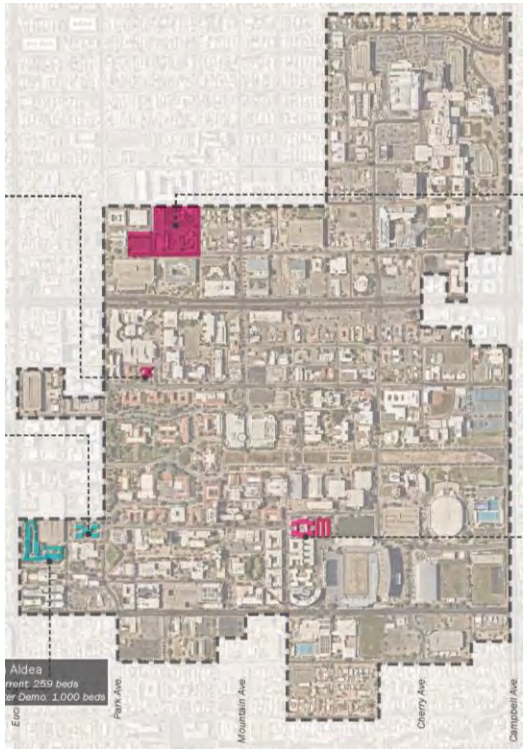
- Correlation between instructional spaces and likely enrollment profiles to determine space typology needs.
- Defining key campus anchors or nodes for instructional hubs.
- Improvement or replacement of key assets for evolving requirements..

Research & Innovation



- Campus anchors for future research projects and hubs.
- Potential sites for future research buildings – including various types of research alliances.

Housing

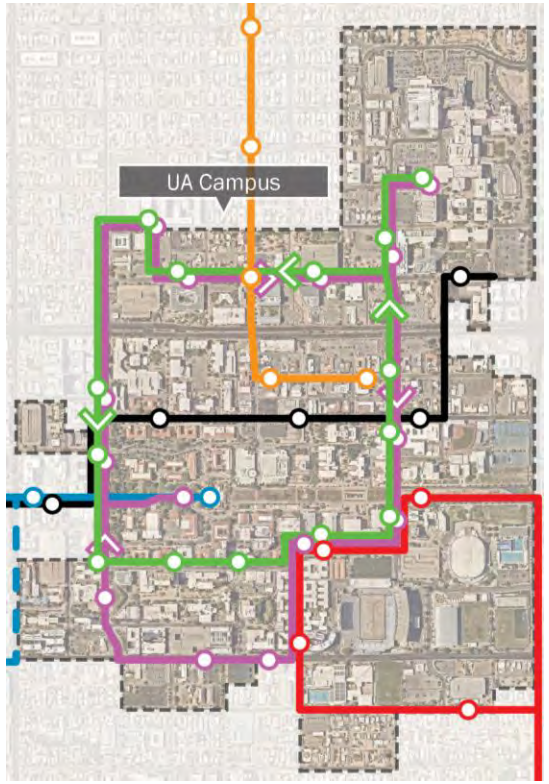


- Adding 800-100 beds in next 5 years
- Adding another 800-100 beds in next 5-10 years
- **10 Year forecast – 1600-2000 beds**

Systems

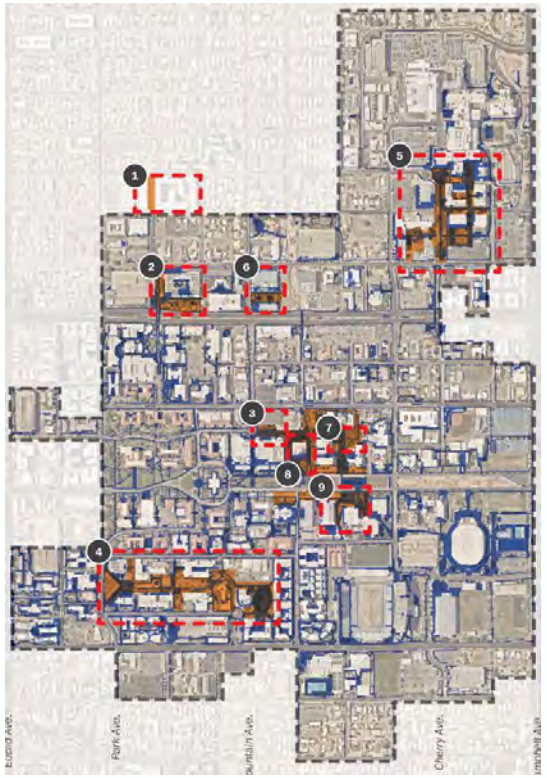
Prioritizing & Sequencing

Transit



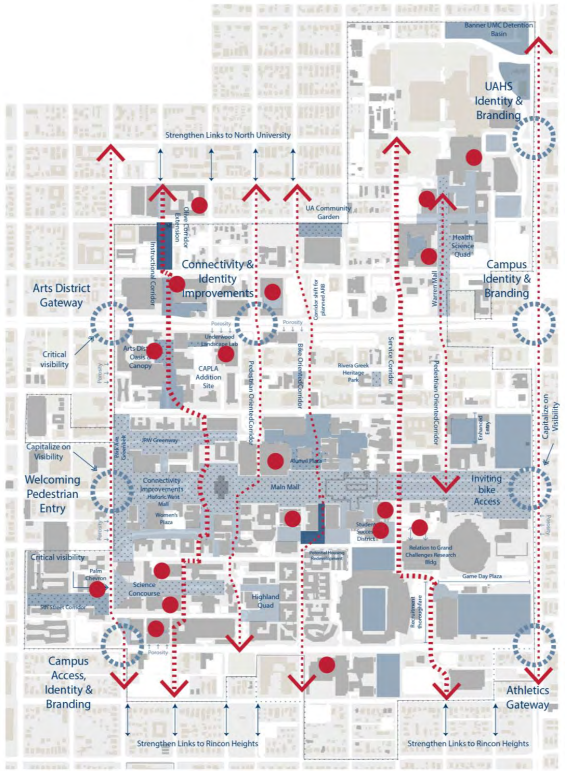
- Reanalyze off-campus routes for better connectivity to destinations and stops along those routes.

Campus Mobility



- Traffic calming mechanisms along high incident streets.
- Intersection safety improvements along campus edges.
- Improved campus safety within the internal campus streets.

Campus Infrastructure



- Enhance campus gateways with branding and identity.
- Increase opportunities for active outdoor use of space in various formats.
- Improve the character of the North-South pedestrian and bicycle corridors.

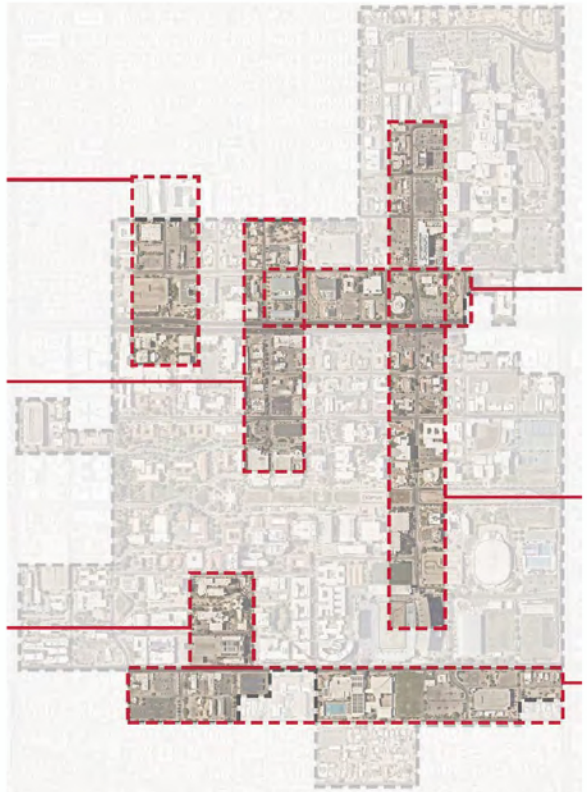
Big Takeaways

Prioritizing & Sequencing

Campus Open Space

- Create overlapping campus zones with functional hubs across the campus.

Opportunity Areas



- Key opportunity areas for campus development along with key issues that need to be addressed within the areas.

Composite Summary Recommendations

Prioritizing & Sequencing

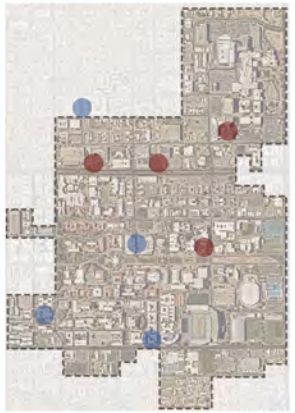
Space

Instructional

Research & Innovation

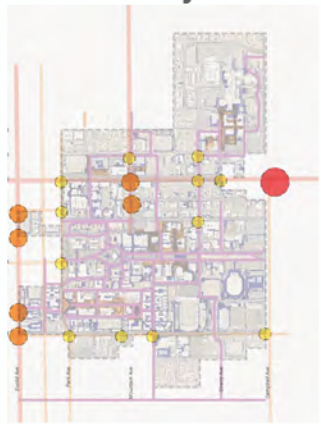
Housing

Admin/Support



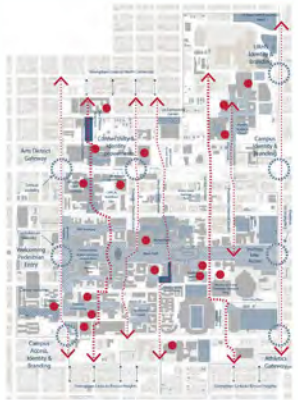
Systems

Transit & Transportation Mobility



Green Space Network

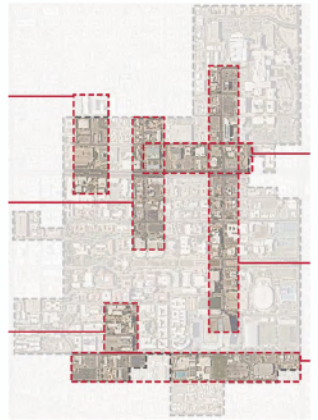
Campus Infrastructure



Sustainability

Physical Planning

Opportunity Sites



THANK YOU!