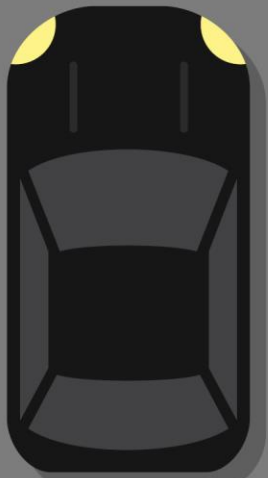
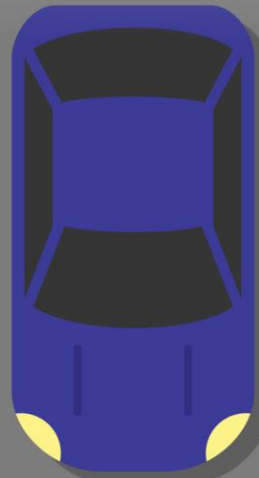
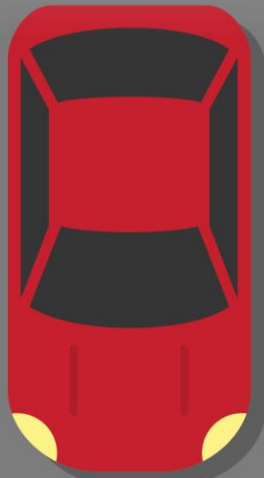


# PUT A LID ON IT!



**PARKING  
DEVELOPMENT  
OPTION** in a time of  
**Parking Demand Uncertainty**

Presented by:

John Shaheen



Sanjay Pandya  
P.E., &  
Dennis Burns,  
CAPP



July 2019

## Session Overview

- Introductions
- Defining a “parking lid” / Benefits of parking lids
- Lids as an approach to future demand reduction
- WSU campus overview/WSU’s interest in parking lids
- The “Parking Lid Assessment Project”
  - Analysis Summary
  - Review of Sites and Concept Designs
  - Refining Preferred Concepts
- Where to from here for WSU?



## Defining a “Parking Lid”

- A one supported level over an existing surface lot
- Can have an internal ramp from level to level or can take advantage of site topography to provide access to parking lid level from adjacent roadways
- Can be of traditional concrete construction or steel construction
- Can be permanent or “temporary”
- Can be designed for vertical or horizontal expansion



# Benefits of “Parking Lids”

- Less costly than multi-level structures
  - No elevators, No mechanical, No ramps (if external roadway utilized)
  - Little or no architectural façade treatment
- Ability to fund
  - General obligation bonds
  - Internal institutional financing
- Reduced “cost per net space gained”
  - Retains majority of existing surface parking
- Better distributes parking supply across campus



# Benefits of “Parking Lids”

- Can target high demand areas with smaller incremental supply additions
- Reduces concentration of traffic and associated costs (CSU example)
- Enables “ramping up” of revenue and rates
- Is one potential strategy for “not over-building parking supply”



# PUT A LID ON IT!

## Examples of Parking Lids

Liberty Center  
Tempe, AZ

A multi-building office complex supported by multiple one- supported level parking structures.

By placing the parking in multiple single supported level structures, proximity to parking for the office building tenants is enhanced,



# PUT A LID ON IT!

## Examples of Parking Lids

Liberty Center  
Tempe, AZ



# PUT A LID ON IT!

## Examples of Parking Lids

Liberty Center  
Tempe, AZ



# PUT A LID ON IT!

## Examples of Parking Lids

Liberty Center  
Tempe, AZ





# PUT A LID ON IT!

## Examples of Parking Lids

Kroc Center

Coeur d'Alene, Idaho



# PUT A LID ON IT!

## Examples of Parking Lids

University of Alaska Anchorage

Anchorage, Alaska



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# WSU Campus Overview



# WSU Campus Overview

- Located in Pullman, WA; “Hilly” terrain
- 20,000 FTE enrollment
- Land grant institution
- Rural and agricultural surroundings
- Urban-like densities on campus
- Transportation Services is a self-supported auxiliary
- Zone permit system/LPR adoption
- 8,100 parking spaces; 800 spaces/4 garages



## Background

- 2015 Comprehensive Transportation Plan results
  - Conducted by Kimley-Horn Associates
- Predicted increased demand of over 300 spaces within 5 years
- Since then, a “lull” in building and enrollment growth
- Until...



# Evolving Parking Demand Needs

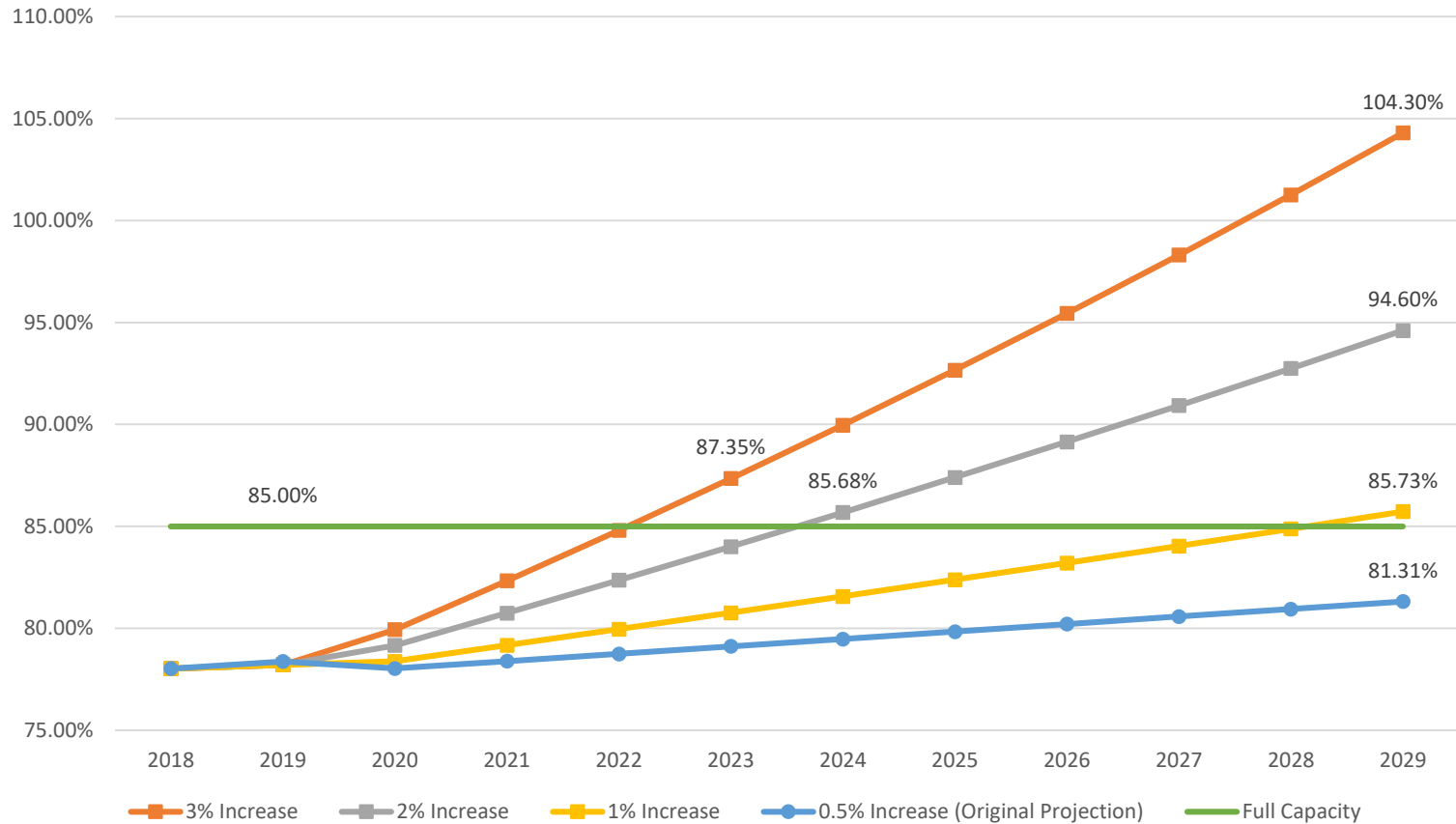
- 2016-2018 Moderate enrollment growth less than 0.5 percent
- Parking supply expected to be adequate up to 2028 at 0.5% growth
- Fall 2018 spike in enrollment of 3.6%
- Accelerated need for additional parking supply by 7 years
- See supply/demand chart at 1%, 2%, 3% enrollment growth trend



# PUT A LID ON IT!

## Background

Projected Occupancy



**PUT A LID ON IT!**

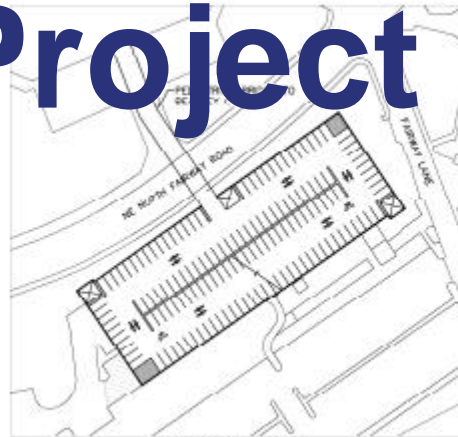
# WSU "Parking Lids" Project Overview



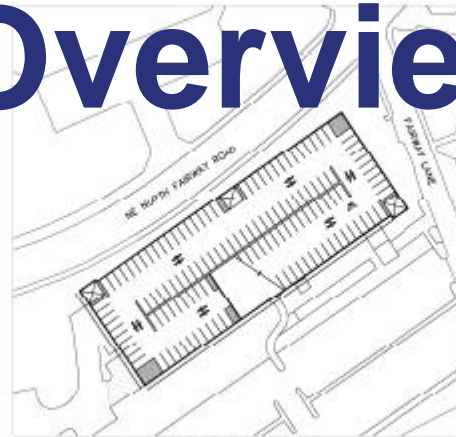
LEVEL 1 LAYOUT



LEVEL 2 LAYOUT



LEVEL 3 LAYOUT



LEVEL 4 LAYOUT



PARKING STALL COUNT SUMMARY			
LEVEL	SPACES (8.5x19 STALLS)	ARFA (SF)	PARKING EFFICIENCY
LEVEL 1	131	4010	309
LEVEL 2	147	4294	292
LEVEL 3	145	4294	289
LEVEL 4	130	4017	284
TOTAL*	553	18615	293

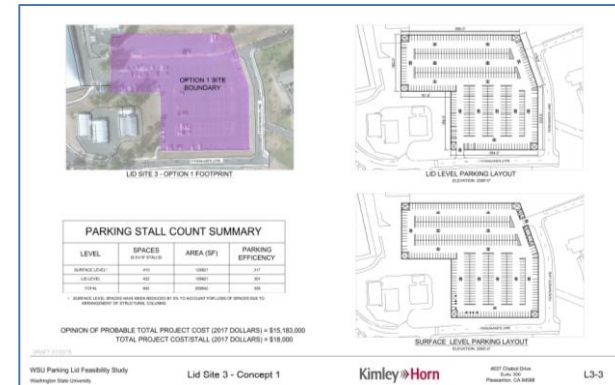
\* NOTE: THE TOTAL NUMBER OF SPACES HAS NOT BEEN REDUCED TO ACCOUNT FOR LOSS OF SPACES DUE TO ADA ACCOMMODATION OR PLACEMENT OF STRUCTURAL COLUMN.

OPINION OF PROBABLE TOTAL PROJECT COST (2017 DOLLAR) = \$22,329,000  
 TOTAL PROJECT COST / STALL (2017 DOLLARS) = \$40,000



## WSU “Parking Lids” Project Overview

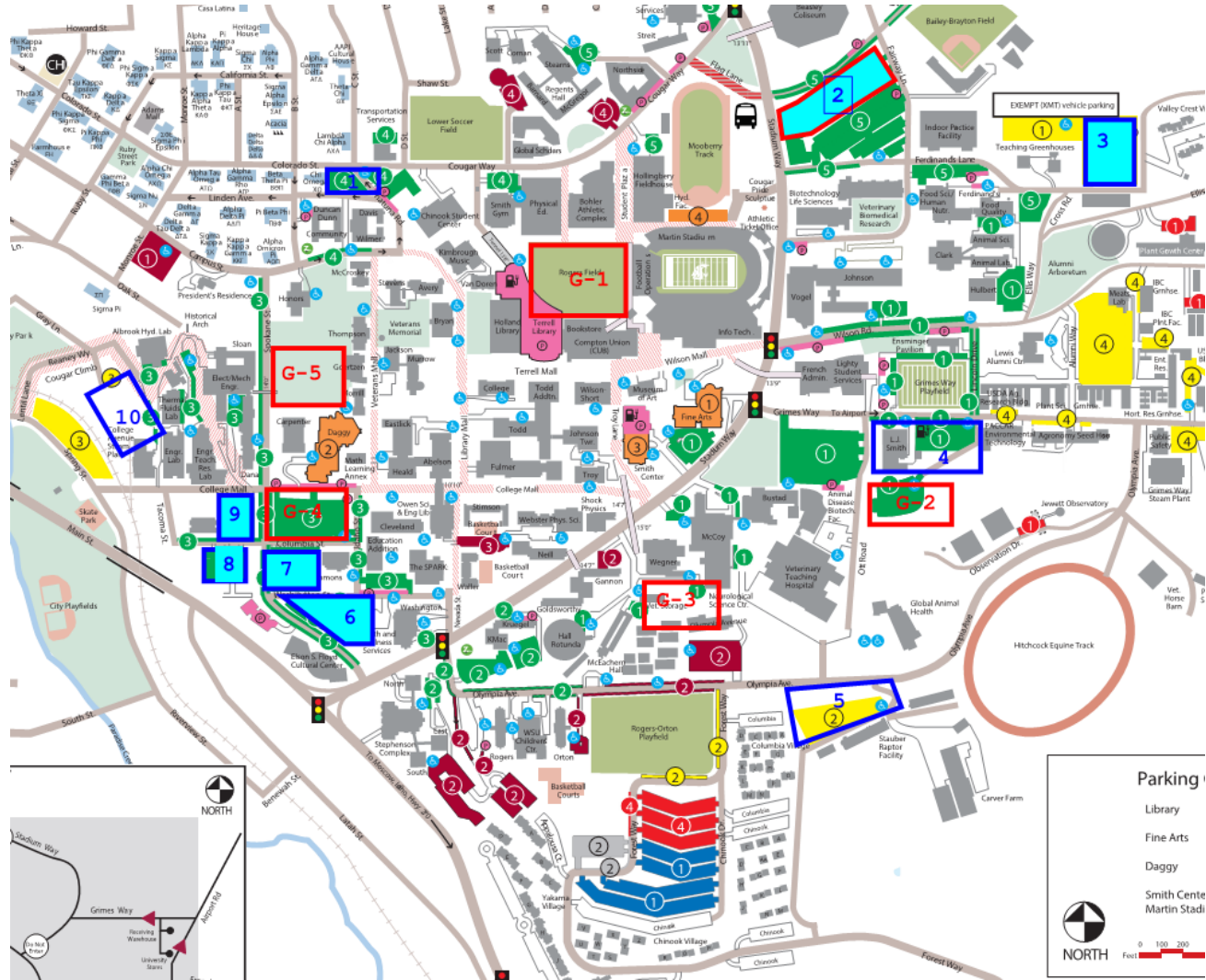
- Kimley-Horn developed preliminary design concepts for parking lid structures on multiple sites located on the campus of Washington State University (WSU) in Pullman, WA.
- Five additional sites were evaluated for more traditional, multi-level garage concepts.



# PUT A LID ON IT!

## WSU Project Overview

- Candidate Sites



# WSU Project Overview

## ■ Elements of Site Assessment

- Evaluate vehicular & pedestrian access to site
- Review site topography
- Conduct a site visit
- Account for site landscape and building setback requirements to define building footprint
- Develop parking layouts utilizing agreed upon parking geometrics
- Prepare parking lid/garage concept drawings



# WSU Project Overview

- Elements of Site Assessment
  - Prepare planning level opinions of probable cost for each lid/garage concept based on \$/sf unit pricing from RS Means and other historical cost data
    - Site demolition, prep including utility relocation
    - Tree removal and landscape restoration
    - Building construction
    - Design and construction contingencies
    - Owner soft costs



# WSU Project Overview

- Elements of Site Assessment
  - Compare and contrast key attributes of each site's lid/garage concept:
    - # of net new parking spaces provided
    - Parking efficiency (sq. ft./stall)
    - Site and parking lid/garage access and circulation
    - Relationship to adjacent buildings and roadways
    - Sites relationships to demand generation
    - Project cost/cost per space



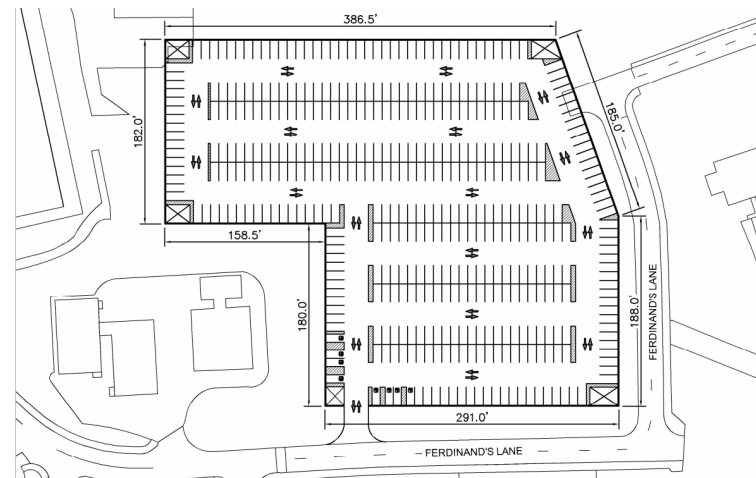
# PUT A LID ON IT!

## WSU Site # 3

- Currently a surface lot with 310 parking spaces
- 3 concepts to provide a parking lid over the existing the surface lot were developed
- Provides a 100 ft. set back from indoor practice facility to allow for future expansion of this building
- Access to surface level from northeast corner of site and to lid level from the south off of Ferdinand's Lane
- Concept #2 provides 853 new parking spaces with 302 sq.ft./stall design efficiency. Net gain of 543 parking spaces.
- Proximity to high demand areas.



LID SITE 3 - OPTION 2 FOOTPRINT

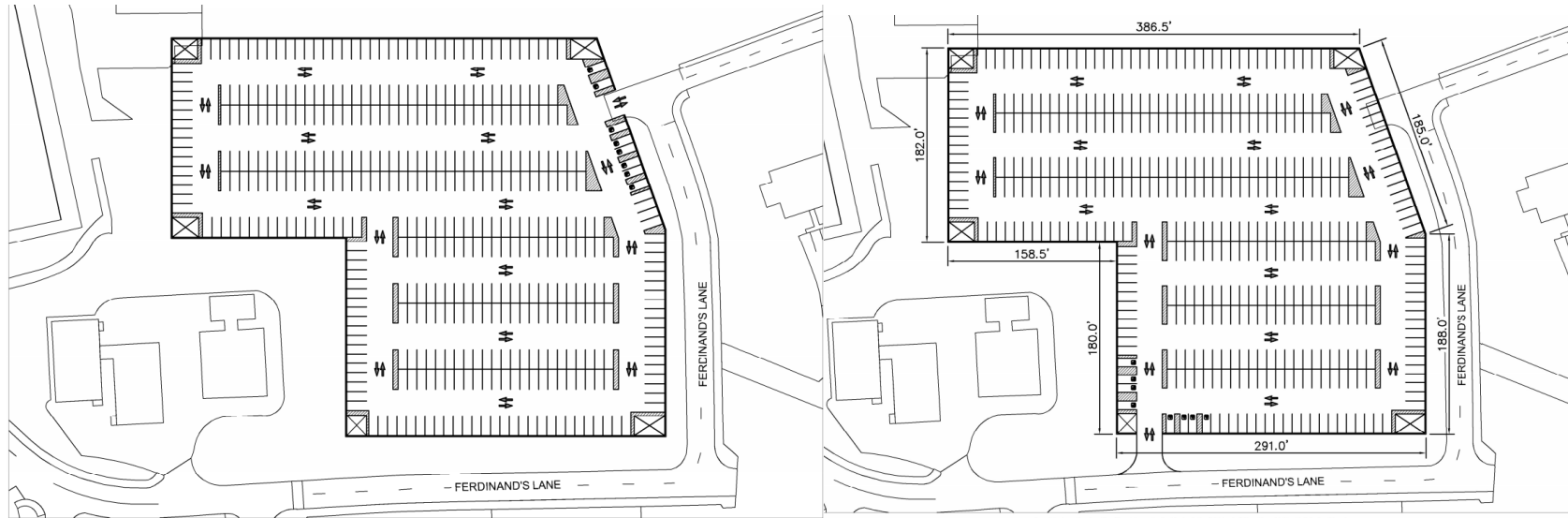


LID LEVEL PARKING LAYOUT  
ELEVATION: 2580'-0"



# PUT A LID ON IT!

## WSU Site # 3



**SURFACE LEVEL PARKING LAYOUT**  
ELEVATION: 2565'-0"

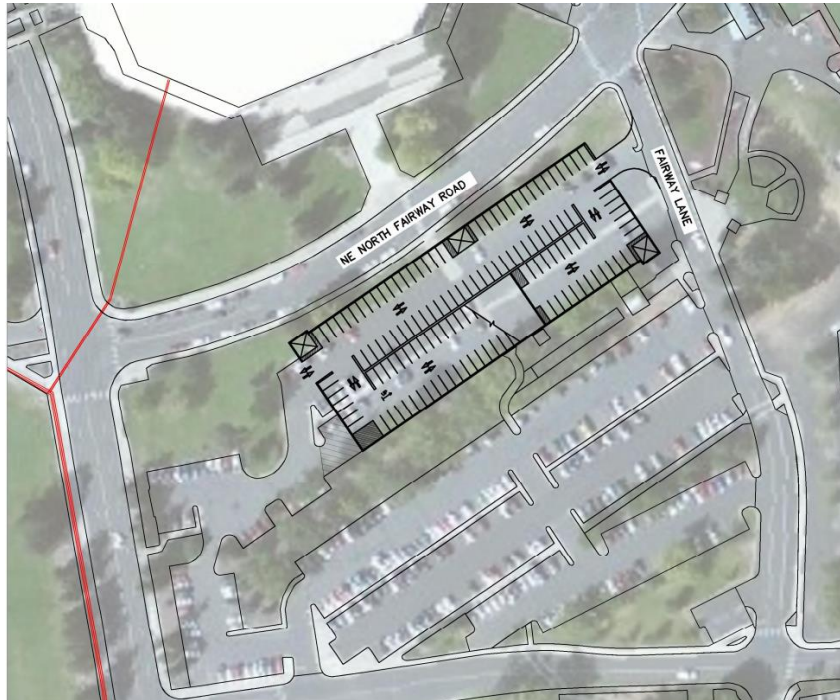
**LID LEVEL PARKING LAYOUT**  
ELEVATION: 2580'-0"

Item	Estimated Cost	Cost Per Stall
Base Construction Cost	\$8,335,000	
Design Contingency @ 15%	\$1,250,000	
Construction Contingency @ 15%	\$1,250,000	
Total Construction Cost	\$10,835,000	\$12,700
Owner Soft Costs (@40%)	\$4,334,000	
Opinion of Probable Total Project Cost (2017 Dollars)	\$15,169,000	\$17,800



# PUT A LID ON IT!

## WSU Site # 2



- Currently a surface lot with 450 parking spaces
- Concept is to provide a 4 Level Garage on northern portion of the surface lot.
- Maintains a significant portion of existing parking spaces
- Garage provides 558 new parking spaces with 298 sq.ft./stall design efficiency
- Provides a net gain of 420 parking spaces

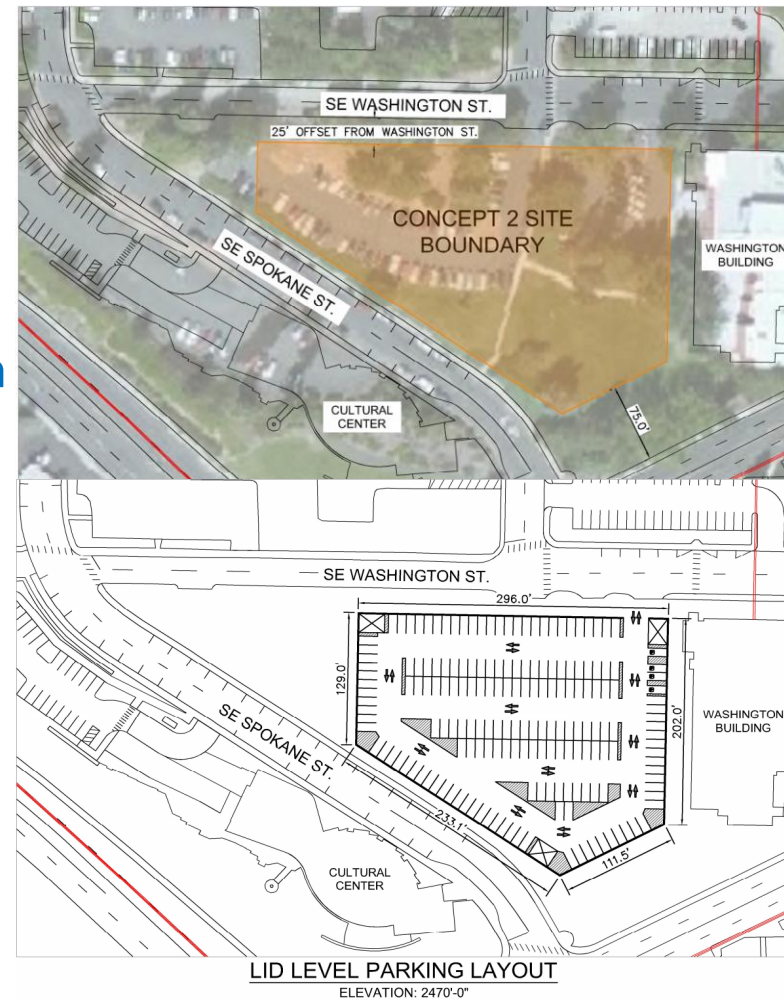
Item	Estimated Costs	Cost Per Stall
Base Construction Cost	\$12,269,000	
Design Contingency @ 15%	\$1,840,000	
Construction Contingency @ 15%	\$1,840,000	
Total Construction Cost	\$15,949,000	\$28,600
Owner Soft Costs (@40%)	\$6,380,000	
Opinion of Probable Total Project Cost (2017 Dollars)	\$22,329,000	\$40,000



# PUT A LID ON IT!

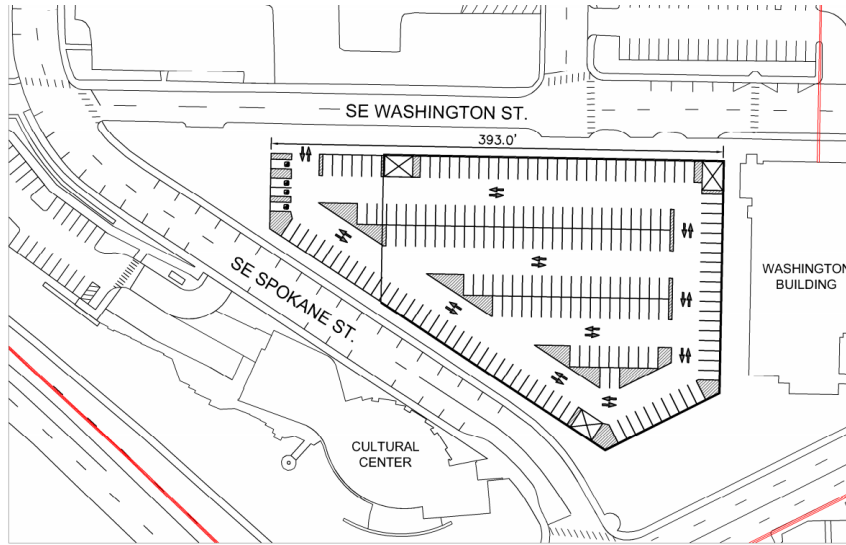
- Currently a surface lot with 90 parking spaces
- 3 concepts to provide a parking lid over the existing the surface lot were developed.
- Eastern portion of site is at higher elevation than western portion of site
- Lid level elevation was chosen to match entry in to existing Counseling Services Building to the east. This results in a top of lid level bumper wall elevation of 25 ft. on west end of structure.
- WSU wanted 15 to 25 ft. setback from Washington St. on the north to save as many of the existing trees as possible.
- Access to surface level and to lid level from the north off of Washington St.
- Provides 385 new parking spaces with 338 sq.ft./stall design efficiency.
- Net gain of 295 parking spaces.

## WSU Site # 6

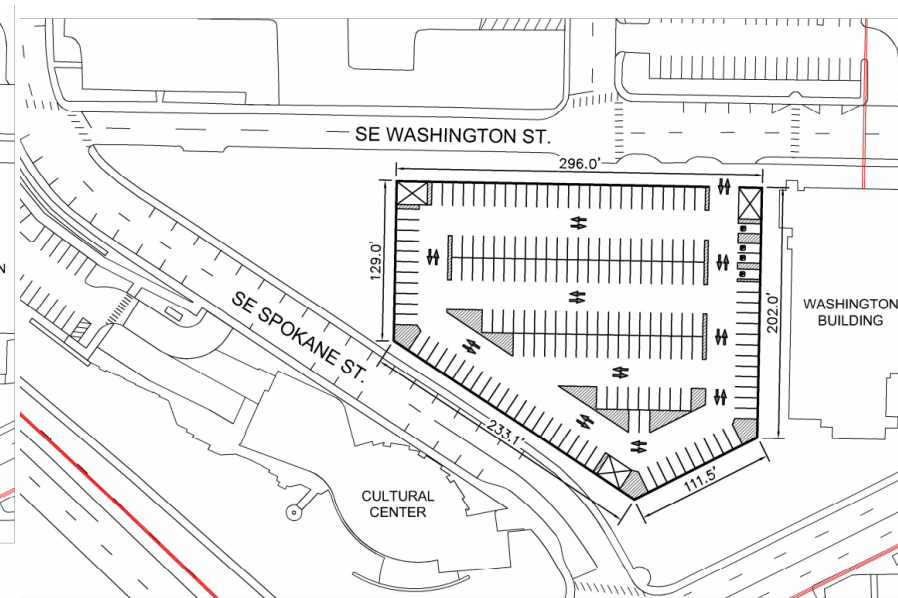


# PUT A LID ON IT!

## WSU Site # 6



**SURFACE LEVEL PARKING LAYOUT**  
ELEVATION: 2450'-0"



**LID LEVEL PARKING LAYOUT**  
ELEVATION: 2470'-0"

Item	Estimated Cost	Cost Per Stall
Base Construction Cost	\$4,420,000	
Design Contingency @ 15%	\$663,000	
Construction Contingency @ 15%	\$663,000	
Total Construction Cost	\$5,746,000	\$14,900
Owner Soft Costs (@40%)	\$2,298,000	
Opinion of Probable Total Project Cost (2017 Dollars)	\$8,044,000	\$20,900



# PUT A LID ON IT!

- Currently a surface lot with 110 parking spaces
- 3 concepts to provide a parking lid over the existing the surface lot were developed.
- Eastern portion of site is at higher elevation than western portion of site
- Lid level elevation was chosen to match the elevation of Spokane St. to the east.
- 15 ft. setbacks from Spokane and Columbia Streets
- Site constraint included a electrical/communication box along west side of site
- Access to lid level from the northeast corner of site off of Spokane St. and to the surface level at northwest corner off of Columbia St.
- Provides 242 new parking spaces with 317 sq.ft./stall design efficiency.
- Net gain of 132 parking spaces.

## WSU Site # 8



LID SITE 8 - OPTION 1 FOOTPRINT

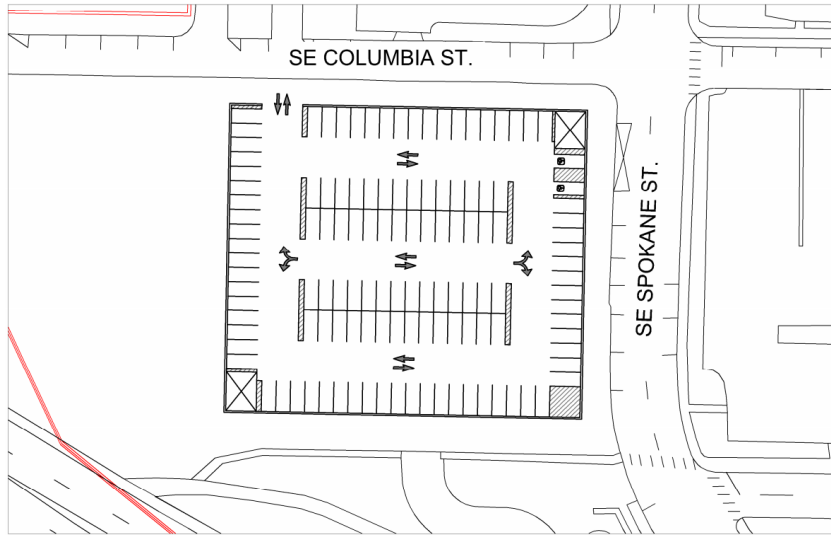


LID LEVEL PARKING LAYOUT  
LID SURFACE TO MATCH ELEVATION OF SPOKANE ST. (-2445'-0")

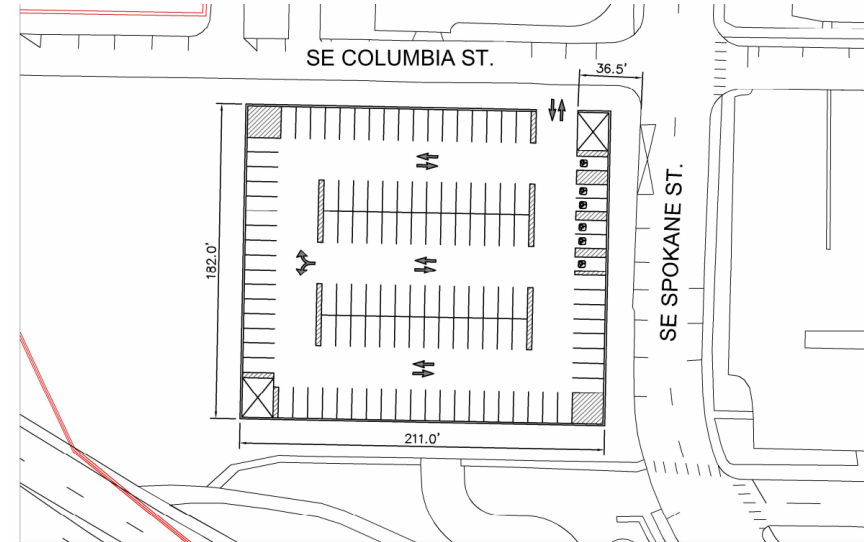


# PUT A LID ON IT!

## WSU Site # 8



**SURFACE LEVEL PARKING LAYOUT**  
ELEVATION: 2425'-0"



**LID LEVEL PARKING LAYOUT**  
LID SURFACE TO MATCH ELEVATION OF SPOKANE ST. (~2445'-0")

Item	Estimated Cost	Cost Per Stall
Base Construction Cost	\$2,327,400	
Design Contingency @ 15%	\$349,000	
Construction Contingency @ 15%	\$349,000	
<b>Total Construction Cost</b>	<b>\$3,025,000</b>	<b>\$12,500</b>
Owner Soft Costs (@40%)	\$1,210,000	
<b>Opinion of Probable Total Project Cost (2017 Dollars)</b>	<b>\$4,235,000</b>	<b>\$17,500</b>



**PUT A LID ON IT!**

# Where to From Here?



# Sites Assessed & Project Goals

- WSU Parking Expansion Study
- WSU revised expansion goals
- Add 500 –600 new parking spaces
- Develop multiple options for consideration
- Timing and cost to be determined based on enrollment growth trend
- Sites Assessed
  - 19 sites
  - Some lids, some multi-level structures
  - Previously studied surface parking sites also included in planning



# Where to From Here?

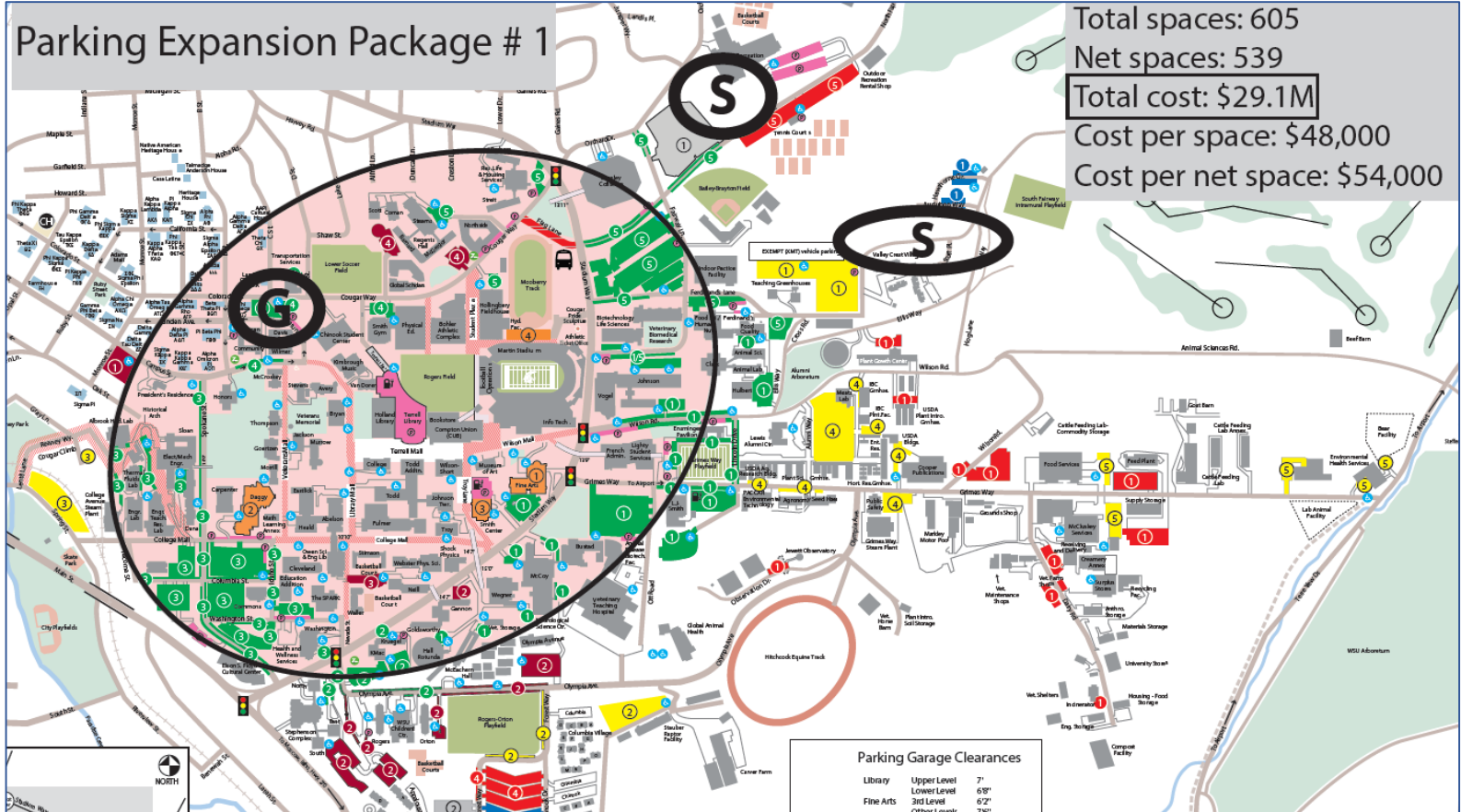
- Develop expansion “packages”
- “Institutionally” review and evaluate each
- Determine timing of development / track growth trends
- Determine financing and revenue needs
- Develop multi-year rate and financial plan
- Inform, campaign, lobby.



**PUT A LID ON IT!**

# Parking Expansion Options

## Parking Expansion Package # 1



Total spaces: 605  
 Net spaces: 539  
 Total cost: \$29.1M  
 Cost per space: \$48,000  
 Cost per net space: \$54,000

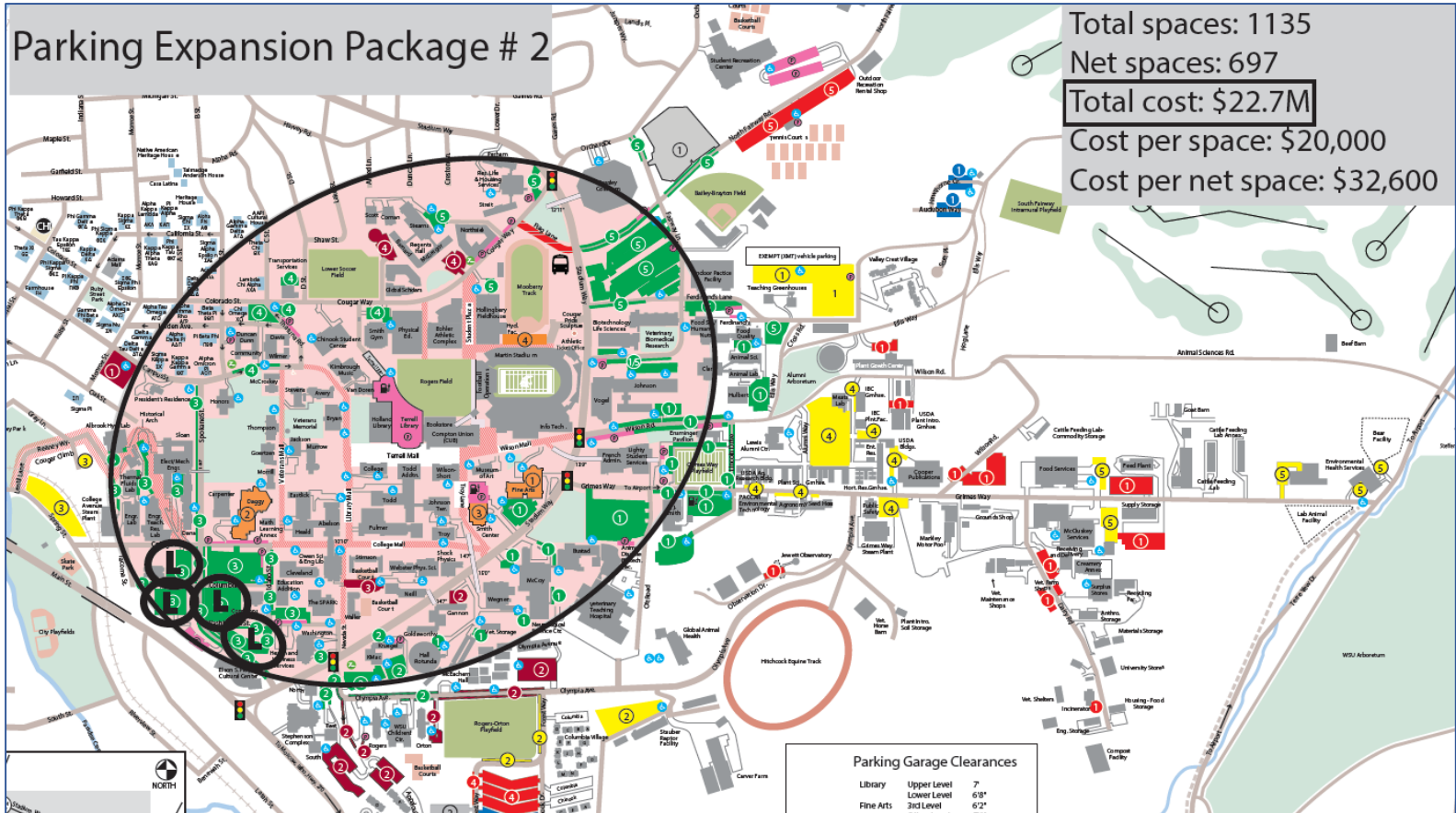
### Parking Garage Clearances

Library	Upper Level	7'
	Lower Level	6'8"
Fine Arts	3rd Level	6'2"
	Other Levels	7'0"



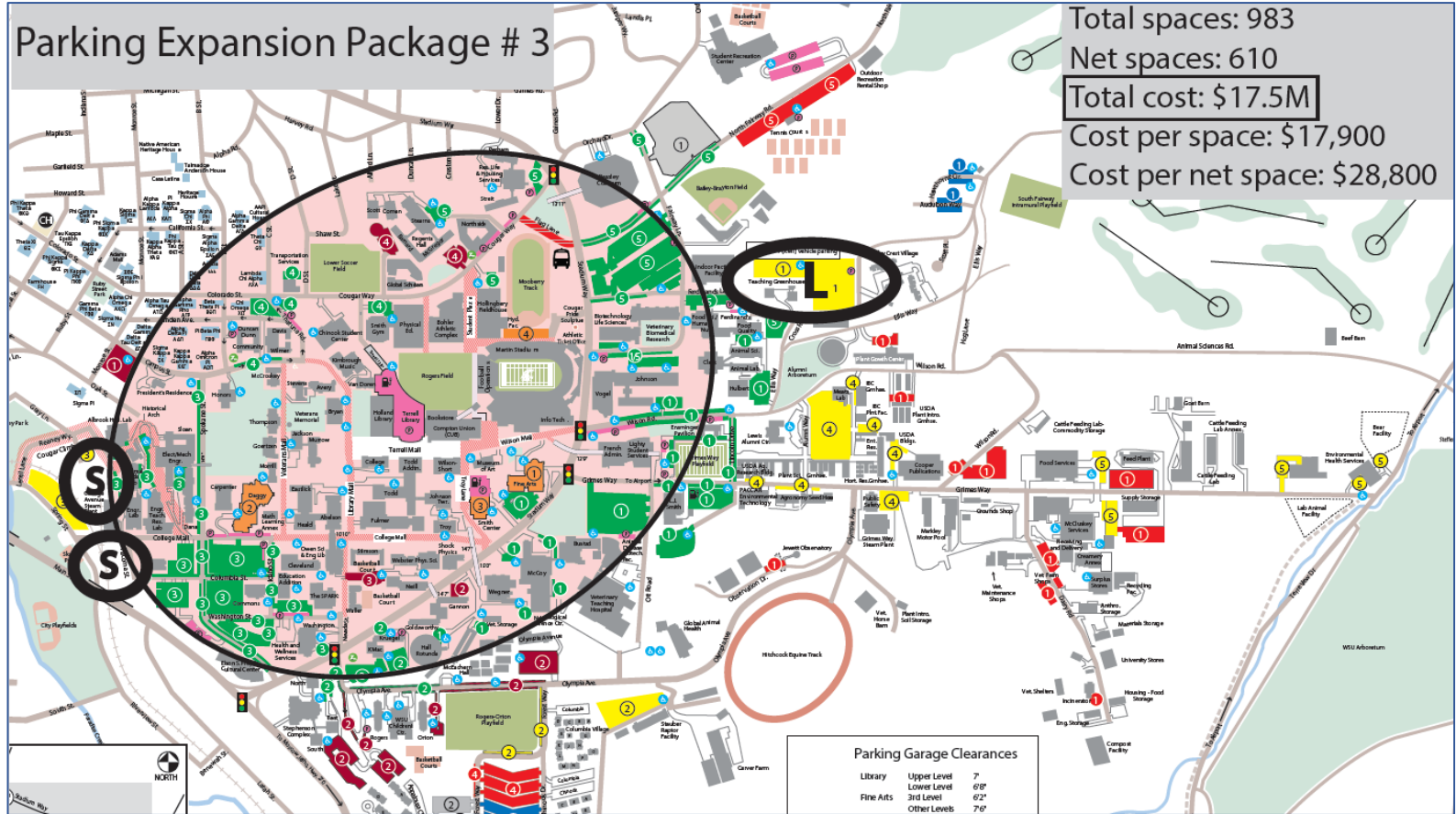
PUT A LID ON IT!

# Parking Expansion Options



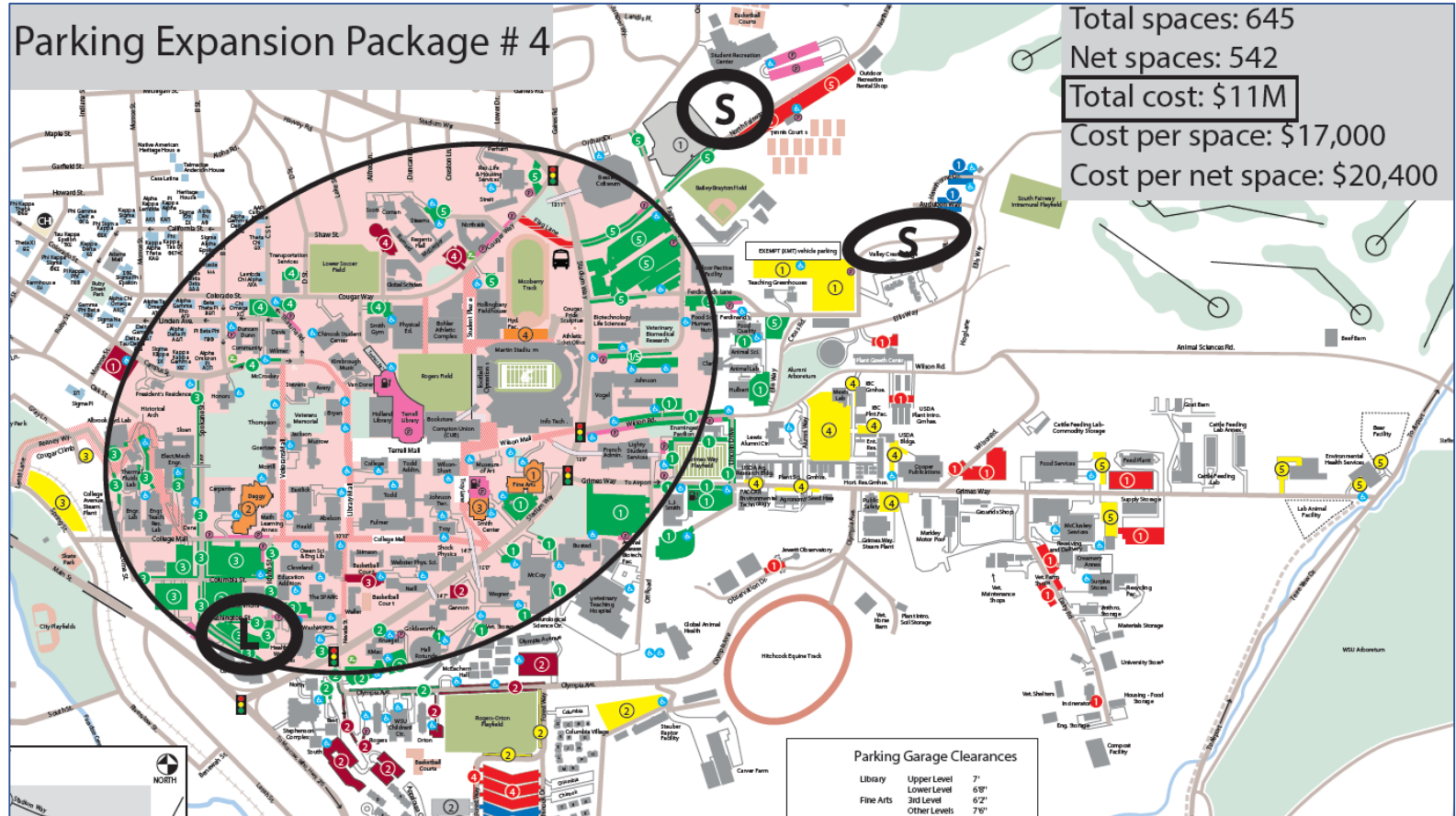
**PUT A LID ON IT!**

# Parking Expansion Options



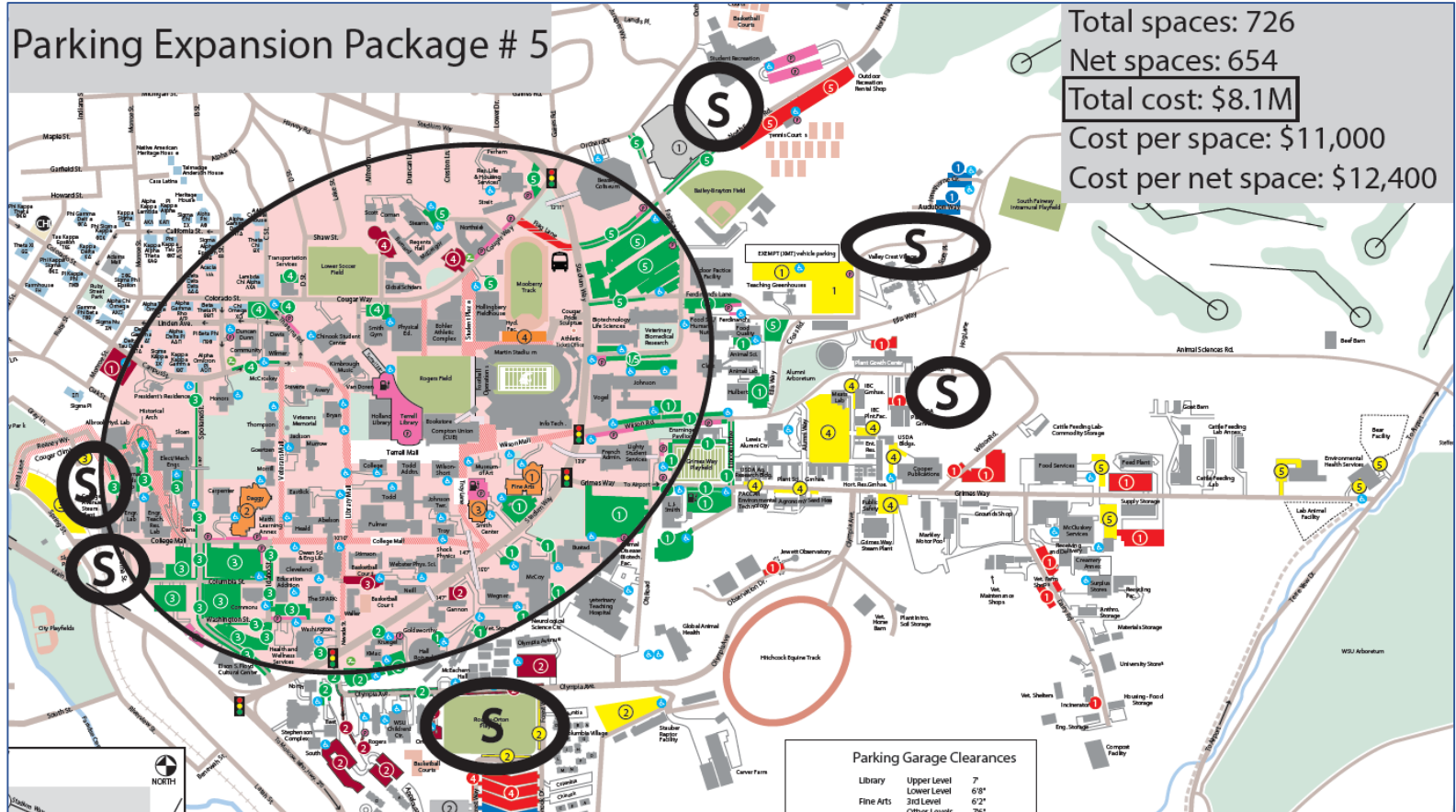
**PUT A LID ON IT!**

# Parking Expansion Options



**PUT A LID ON IT!**

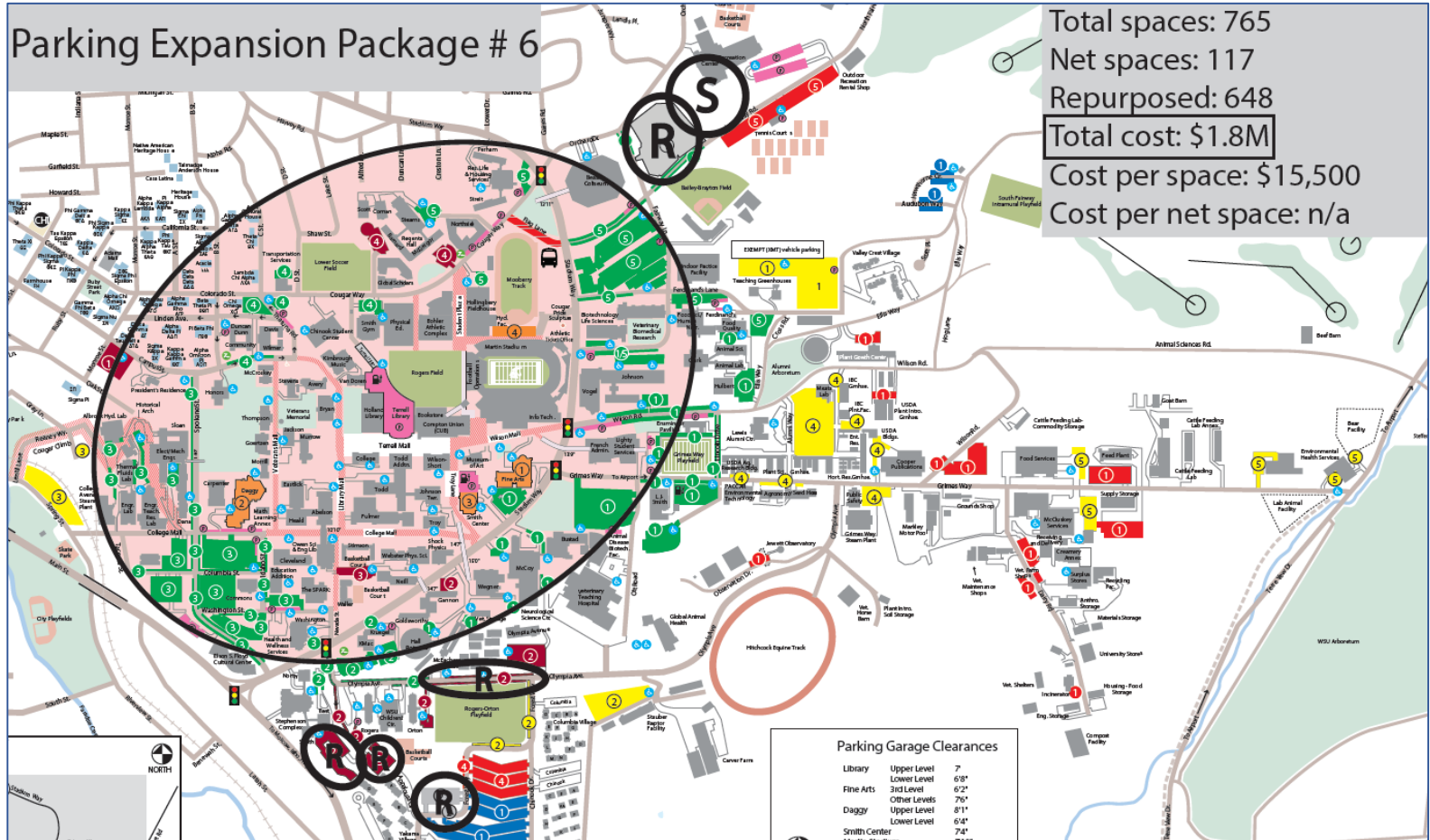
# Parking Expansion Options



PUT A LID ON IT!

# Parking Expansion Options

## Parking Expansion Package # 6



Total spaces: 765  
 Net spaces: 117  
 Repurposed: 648  
**Total cost: \$1.8M**  
 Cost per space: \$15,500  
 Cost per net space: n/a

### Parking Garage Clearances

Library	Upper Level	7'
Library	Lower Level	6'8"
Fine Arts	3rd Level	6'2"
Fine Arts	Other Levels	7'4"
Daggy	Upper Level	8'1"
Daggy	Lower Level	6'4"
Smith Center		7'4"



PUT A LID ON IT!

Thank You!

QUESTIONS / DISCUSSION

Kimley»»Horn

