



SACRAMENTO STATE

Dude, You're all out of Parking Spaces
(Mobile Enabled Commute 101)

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Sac State is in a period of unprecedented growth

- Enrollment is currently 30,800 students
 - Parking occupancy on-campus routinely reaches 95-100% during first month of Fall Semester (Fall 2016)
- Faculty/Staff approx. 4,000
- Community Engagements, Sports Attendance and Conferences on the rise...

AND NOW

- 4 significant construction projects...



Student Housing II



Student Housing II

416 Number of Beds
Jan-16 Construction Started
Oct-17 Construction Ends

- Approximately 350 Parking Spaces displaced in Lot 2 (Res/Faculty and Staff)
- Creates 165 Parking Spaces Demand



Union Expansion



Union Expansion

Dec-16 Construction Starts

Aug-18 Construction Ends

- Negligible Parking Impacts
- Impacts to Bicycle and Pedestrian Pathways as well as Bike Lockers



Science II



SACRAMENTO STATE
Redefine the Possible

Science II

Jun-17 Construction Starts

May-19 Construction Ends

Approximately 260 Faculty/Staff Parking
Spaces Displaced



Parking Structure V



Parking Structure V

1,750

New Parking Spaces

May 19, 2017

Construction Starts

May 17, 2018

Construction Ends

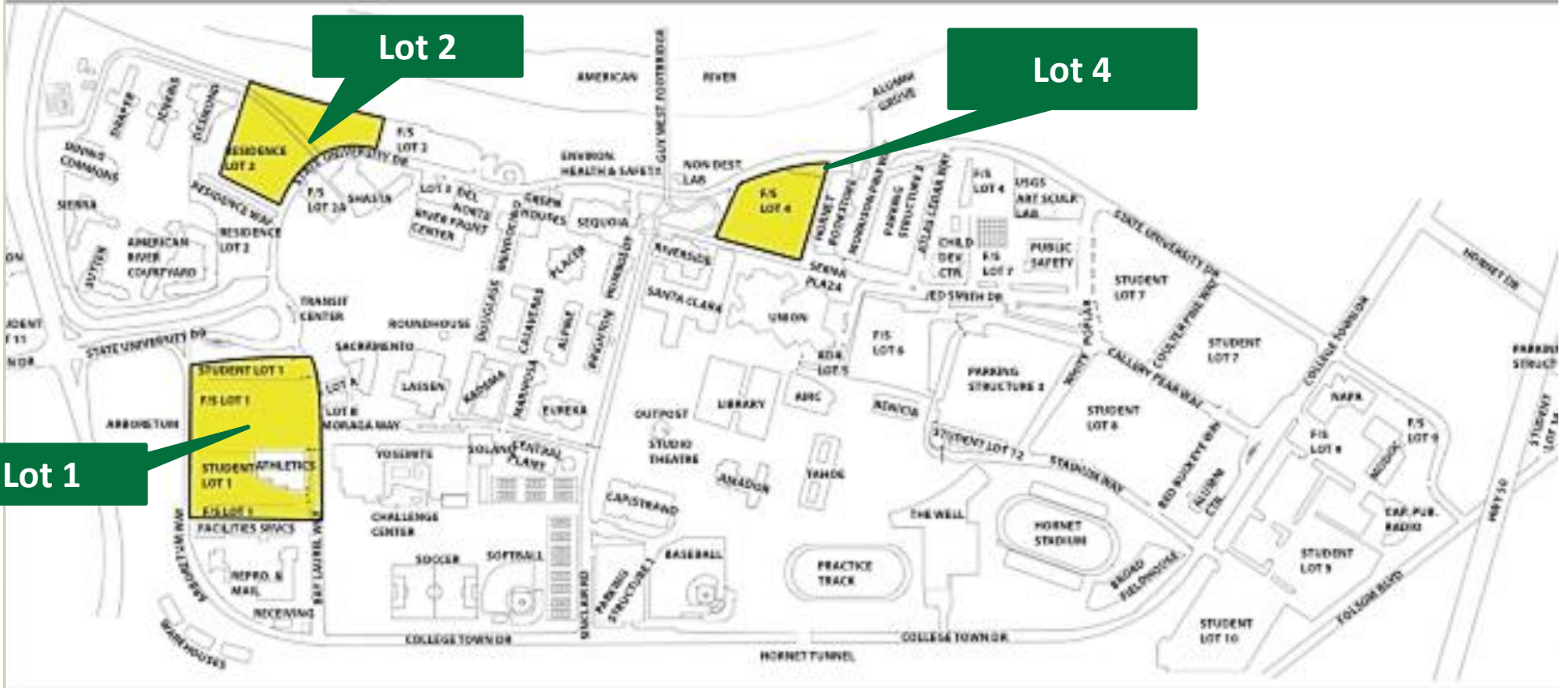
Approximately 650 Parking Spaces Displaced

Approx 450 Faculty/Staff

Approx 200 Student/Visitor



Parking Lots Affected by Construction



The Challenge

- Parking Demand is rising
- Parking Assets are fixed and not likely to grow significantly over time
- Students do not always plan ahead 😊
- Faculty and Staff have the same issue 😊
- Fixed Guidance Systems are very expensive



Investment in Alternative Transportation

- Regional Transit Pass
- BikeShare partnership with SACOG
- Bike Infrastructure (green bike lanes, protected parking, inner campus pathways)
 - League of American Bicyclists – Bike Friendly University
- Rideshare
- Campus Operated Shuttle System
- ZipCar on Campus



The “Sac State App” (Sac State Mobile)

- Our answer to disseminating real-time information to inform commute choices
- We have the data!
- Our Commuters are interested
- Informing our Commuters may change behaviors over time (FYE Project)



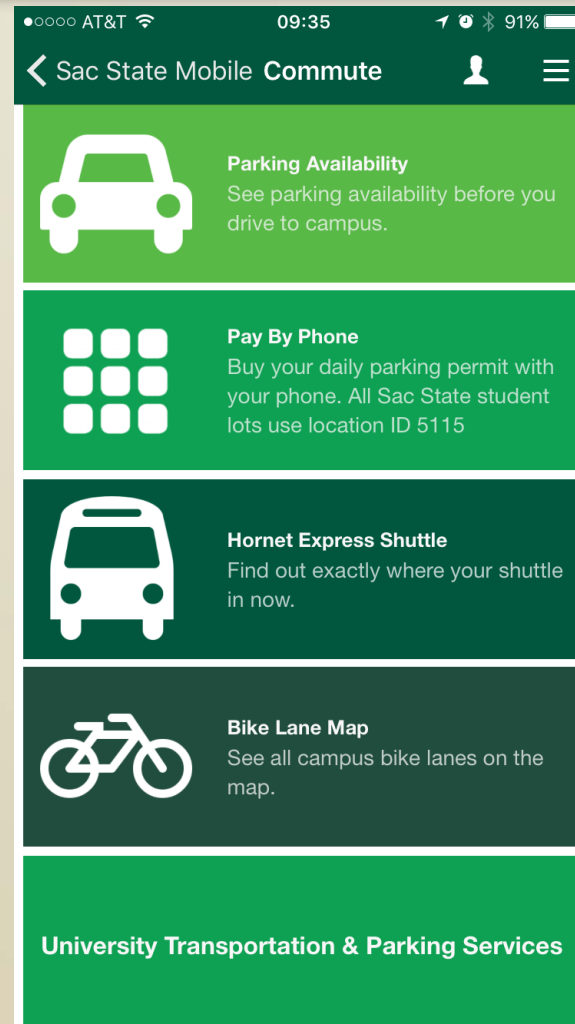
Access to UTAPS Homepage

Convenient access to the UTAPS homepage through the app.

To Download the App:

➤ csus.edu/mobile

- **Campus Map**
- **Live Parking Availability**
- **Mobile Payment**
- **Bike Lane Map**
- **Real-time Shuttle Tracking**



Sac State Mobile - Pay by phone

No cash required,
automatic alerts, instant
top-ups.

Download Sac State
Mobile and start paying
by phone!

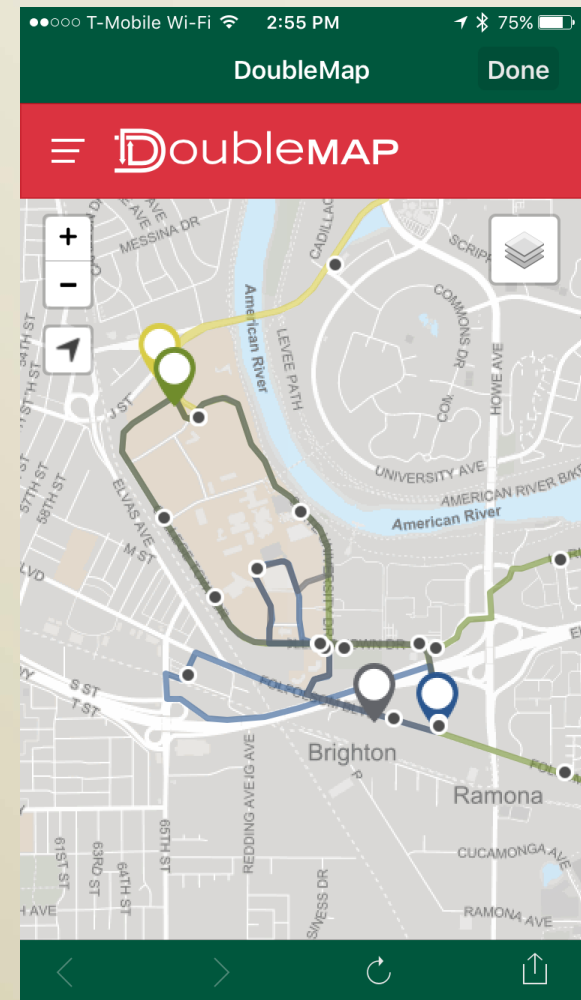
pay by phone SACRAMENTO STATE

- 1** download the Sac State App
- 2** select Parking and Transportation Icon and then PayByPhone
- 3** sign in or create an account and use Location ID **5115** (student lots only)

Or call PayByPhone at 1-866-234-7275

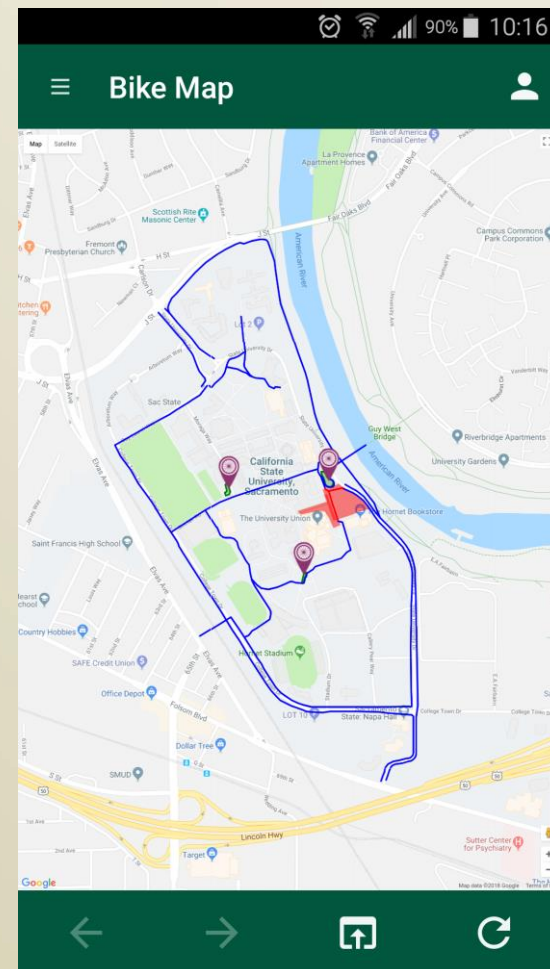
Sac State Mobile – Shuttle Tracking

- Know when your shuttle is coming.
- Maybe you can have that extra bowl of cereal, and maybe you can't
- Now you know



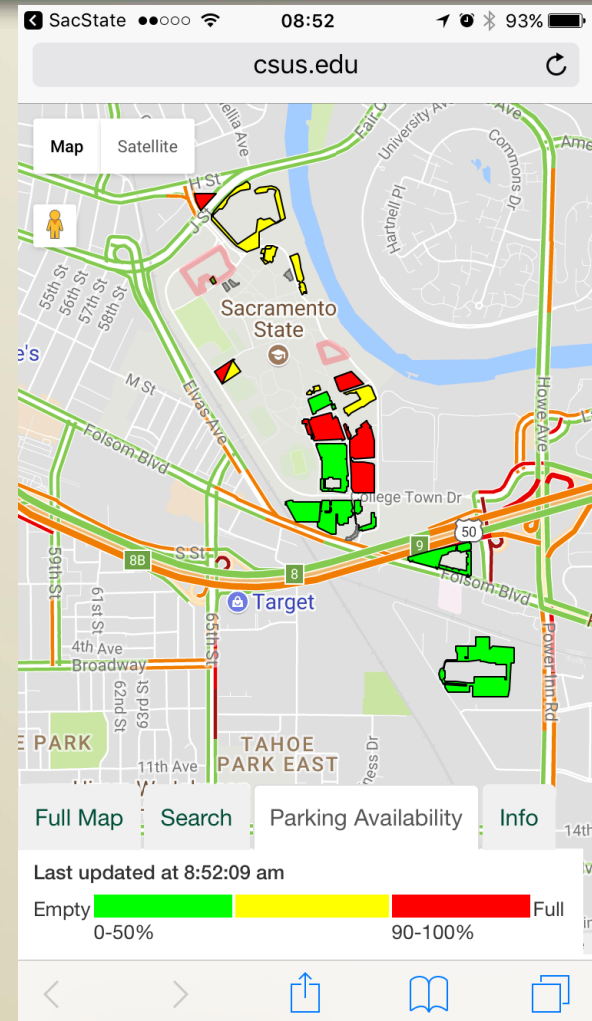
Sac State Mobile - Bike Lane Map

- Plan your bike route around campus using this bike lane map.
- Soon to show Occupancy data



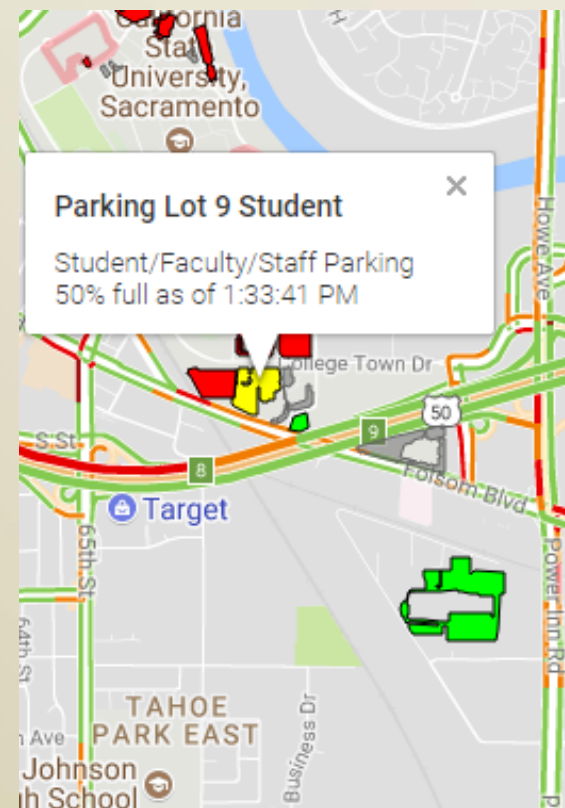
Sac State Mobile - Live Parking Availability

- This color-coded campus map shows which lots have room and which are filling up.
- Head to a green or yellow lot for a better chance at finding a spot.
- Traffic Conditions too!



Sac State Mobile - Live Parking Availability

More info available if
you're curious



Sac State Mobile – Statistics

- New App Launched Spring 2014
- 40,000+ total downloads
- Available on Android & IOS platforms

Most popular screens >

Screen	Views	%
Home (home_lp/index)	135,036	57.2%
Parking/Transportation (parkingtest/i...	32,061	13.6%
Events (calendar/events)	16,154	6.8%
Sign in (kurogo_login/index)	5,339	2.3%
Event Detail (calendar/detail)	4,955	2.1%
Search Results (search/search)	4,514	1.9%

Top screens as ranked by views in the currently selected timeframe



Sac State Mobile - Live Parking Availability

Technologies Leveraged

- Kurogo Mobile Framework
- JavaScript/Google Map API
- JSON formatted data with CORS
- T2 Systems for parking management
- Induction-loop traffic detectors



T2 Parking system

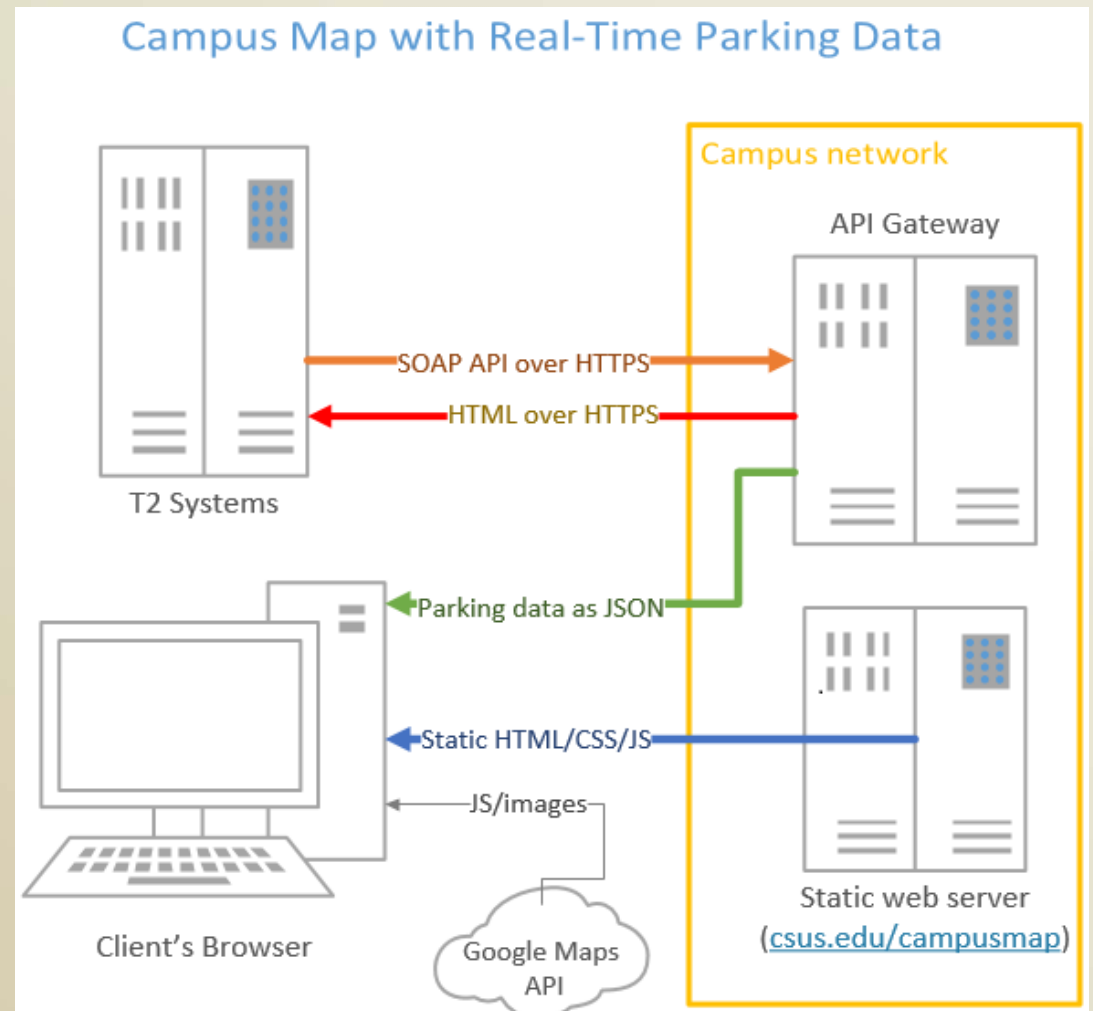
- Proprietary parking system that can handle all aspects of parking permitting, fines, and monitoring.
- Receives data from parking sensors on campus and stores it in a database.
- mobile app used by our parking enforcement officers has a “Stall Count” feature that was *almost* useful for tracking occupancy
- API with read-only access to occupancy data
- Web interface with write access

The screenshot shows a mobile application interface for 'Stall Count'. At the top, the status bar displays 'Verizon LTE', '11:47 AM', and battery level. The app header includes a 'Back' button, the title 'Stall Count', and a 'Save' button. Below the header is a section titled 'LOCATION INFORMATION' with three fields: 'Facility', 'Area', and 'Type', each with a right-pointing chevron. The next section is 'COUNT', which features a blue 'Empty' button and a white 'Full' button. Below these buttons is a numeric input field showing '0', flanked by minus and plus signs. The final section is 'COMMENTS', which shows a count of '32' and a large empty text area for input.



Data flow diagram

- API gateway queries T2, writes mobile data back to proper tables in T2 to use for occupancy
- API gateway reformats the SOAP/XML from T2, reformats it into JSON
- Client's browser fetches updated lot occupancy data and JS is used to style the map



The Sac State App – in conclusion

- We've had "Less complaints" with less parking on-campus (higher occupancy) than ever!
- Clearly, parking is available – even remote lots seem closer if you know there are spaces
- Future initiatives include:
 - RideShare Matching
 - Commute Mode Collection
 - Incentives Program
 - Regional Transit Planner / Bike Route Planner
 - Bike Compound Occupancy
- Sharing collected data – Class Registration Process



Thank you for your time!



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Redefine the Possible