User Manual

Version: 1.0
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1 Overview

1.1 About P4SBU

P4SBU – Parking for Stony Brook University – is a smart, user-friendly parking reservation platform designed to help students, faculty, and staff efficiently find, reserve, and manage parking on campus. It offers real-time availability, secure reservations – single or multiple spots, secure payments, and an admin approval process for enhanced security.

Whether you're a student rushing to class or a staff member attending a meeting, P4SBU helps you park smarter and faster.

1.2 Key Benefits

- **Save Time:** Reserve a spot before you arrive and skip circling for parking
- **Data Driven:** Occupancy data and predictive analytics help users choose the best lot
- **Integrated Navigation:** Turn-by-turn wayfinding from a user's current location to their reserved spot
- **Wallet-Free Checkout:** Securely store payment methods for one-tap reservations.
- **Eco-Friendly:** Reduced searching means lower emissions campus-wide

1.3 Who Should Read

This manual is written for:
- Everyday drivers (students, faculty, visitor) who need parking at SBU
- Administrative staff responsible for managing lots, permits, and analytics
- Support and operations teams who handle user questions and system maintenance

2 Key Features

- **Sign up/Login** where admin approval is required to login successfully
- **View Available Spots** in real-time
- **Reserve Spots** in advance with time-based filters
  - **Reserve Single Spot** for a certain amount of time
  - **Reserve Multiple Spots** for events (requires approval from admin)
- **Admin Portal** to manage user approvals, lot approvals, and monitor lot occupancy
- **Google Maps Integration** for navigation support
- **Personalized Wayfinding Algorithm** to find the 5 closest parking lots to the user
- **Parking Lot SVGs** to allow users a personalized experience when choosing which spot to choose in the parking lot
- **Email Notifications** upon reservation, approval, or status changes
- **Help** forms for ease of use and feedback

3 Getting Started

3.1 System Requirements

Tᴛ *Platform*	*Minimum Version*
Web (Chrome, Edge, Firefox, Safari)	Latest –1 release
iOS/Android	iOS 14 / Android 11
Network	Stable 4G/LTE or Wi-Fi

3.2 Account Types

Tᴛ *Role*	*Default Permissions*
Student	★ Search & Reserve Student Parking Lots ★ Pay Fee ★ Cancel ★ View History & View Fines ★ Reserve Spot for Semester/Year ★ Give Feedback
Faculty	★ Search & Reserve Faculty Parking Lots ★ Pay Fee ★ Cancel ★ View History & View Fines ★ Reserve Spot for Semester/Year ★ Give Feedback
Visitor	★ Search ★ Reserve One Spot (for the day/few hours) ★ Pay Fee ★ Cancel ★ Give Feedback
Admin	★ All User Privileges ★ Lot/Spot Management ★ Analytics ★ Manual Overrides ★ User Management ★ View Feedback

3.3 User Roles

- Students & Faculty:
    - Can create an account using their SBU email address
    - Must be approved by an admin before logging in
    - Can search, filter, reserve parking spot(s), leave feedback, pay their fines/reservations
        - Student can only reserve spots in a student parking lot
        - Faculty can only reserve spots in a faculty parking lot
    - Can view upcoming reservations and past reservations
    - Can view pending fines or charges
    - Can view their favorite location (most booked parking spot), total hours parked, total reservations, and total amount of money spent
- Visitor:
    - Can create an account using their preferred email address
    - Must be approved by an admin before logging in
    - Can search, filter, and reserve one parking spot for the day or a few hours
    - Can leave feedback and pay the reservation fee
- Administration
    - Can log into the **Admin Dashboard**
    - Ability to approve or reject new account registrations
    - Ability to approve or reject event reservations
    - Ability to add or remove users and parking lots
    - Monitor lot availability and manage parking spaces
    - View user analytics and forecasting

3.3 Creating an Account

1. Go to https://p4sbu-client.onrender.com/ and click **Create Account**
2. Select your role/user type → Student, Faculty, Visitor
3. Enter a Username → at least 5 characters long
4. Enter a Valid Email Address
5. Enter a Password & Confirm → should include at least 8 characters, a number, and a special character
6. Enter your 9-digit SBU ID → if you are affiliated with Stony Brook University
7. Enter your Driver's License Number
8. Add Vehicle(s) → model, year, license plate
    a. You can add up to 5 vehicles when creating an account
9. Enter your Phone Number and Address
10. Click **Create Account**

3.4 Logging in

1. Wait for an email → this will be sent once an admin approves your account
2. Log in with your credentials
3. Click **Sign In**

4 Core Concepts

4.1 Lots, Groups, Spots

- **Lot:** A physical parking area (e.g., "Student Activities Center", "Administration Parking Garage")
- **Group:** Logical collection of lots (e.g. "Main Campus", "South Campus")
- **Spot:** Individual parking space with unique Spot ID

4.2 Real-Time Features & Concurrency

- **Real-Time Availability:** Real-time data integration ensures that the recommendation reflects current parking conditions, minimizing the risk of suggesting an already full lot
- **Real-Time Spot Locking:** Multiple users may attempt to reserve the same parking spot simultaneously so the system uses a mechanism to lock the spot while the reservation is in progress
- **Real-Time Forecasting:** To help users plan ahead, the system forecasts parking lot occupancy based on historical data
- **Predictions:** If a user reserves a spot in the same lot multiple times, it will suggest it in the future as a favorite spot so it's easier for the user to reserve a spot in that location instead of going through the whole search process again
- **First Come, First Serve:** If two users both try to reserve the last available spot, the one who completes their transaction first should succeed while the other receives a "spot unavailable" notification

4.3 Payments & Fines

- **Payment Process:** The user will be redirected to Stripe where they can save their credit card information for faster processing and pay now or later (given a deadline)
- **Late Payments:** User can receive fines for late payments
- **Payment Tickets:** Users can view and pay any outstanding parking tickets or violations associated with their account

5 Dashboard

After logging into your account, you land on your ***Dashboard***.
- **Search** → in header & on the main page
    - Will redirect you to our search for parking page
    - Display on the left allows change of reservation time and filters type of lot
    - Display on the right shows a map of campus & allows interaction with parking lots for availability
- **Reservations** → in header & on the main page
    - Will redirect you to the view reservations page that will allow you to see your current reservations, regular spots, or event registrations
- **Event** → in header & on main page
    - Will redirect you to our search for parking spot page, except will allow you to book multiple spots and create a reservation for an event
    - Can filter by number of spots, zones, price, etc.
- **Pay** → in header and on main page
    - Will redirect you to the payment methods page that will allow you to view your payment methods and add new ones
- **Tickets** → in header and on main page
    - Redirection to parking tickets page to view and manage your parking violations
    - Will display total tickets, pending tickets, paid tickets, and overdue tickets
- **Help** → in header
    - Will redirect you to the help page with commonly asked questions and ways to contact someone for more help
    - Can leave feedback in the bottom
- **Dark/Light Mode** → in header
    - Allows you to switch between preferred display settings
- **User Button** → in header
    - Allows you to:
        - Change your email
        - Change First & Last Name
        - Add/Change SBU ID
        - Change Driver's License Number
        - Add/Change Vehicle Information
        - Change Phone Number
        - Change Address
    - Click **Save Changes** to update your information
- **Recent Activity** → on main page
    - When you make reservations or payments, they will appear under recent activity

- **Notifications** → main page
  - Any notifications will be present here, including a Welcome message!
- **Miscellaneous** → main page
  - Can view total hours parked
  - Total reservations
  - Total money spent
  - Favorite location (based on the lot that has the highest number of visits by you)
- **Footer**
  - Company information → about us, our team, contact
  - Resources → FAQs, Help Center, Campus Map
  - Legal → Terms of Service, Privacy Policy, Cookie Policy
  - Social Media → Github, LinkedIn, Twitter (X)

6 Using the Application as a User

6.1 Searching for a Parking Spot

- Click on **Search** in the header or **Search for Parking** on the main page
- Select a **date**, **start** and **end** time for your reservation
- Filter if needed
- If you are familiar with campus and the parking lots
  - Pinch and scroll on the map to zoom
  - Click on a parking lot that is highlighted in red
  - View open and reserved parking spots, click on the spot you want to reserve
- If you are unfamiliar with the parking lots
  - Type the preferred building name or destination in the search bar
  - It will display the 5 closest parking lots and the designated spot as well as:
    - Walk Time
    - A view details button: hourly rate, spot type, reservation time, availability, lot hours
    - Reserve spot button
    - Get Directions button

6.2 Reserving a Singular Parking Spot

- Once you search for a building/destination and it displays the closest spots, click **Reserve**
- You will be redirected to a new page that will allow you to edit the start and end time of your reservation
- The price will be listed for the reservation
- You can click **Cancel** to cancel your reservation or create it by clicking **Cancel Reservation**
- Once you click **Create Reservation**, the *My Reservations* page will be loaded where you can see all your reservations (including the one you just made)
- Your reservation will be under **Pending** because it must get approved by an admin

6.3 Cancelling or Modifying a Parking Spot
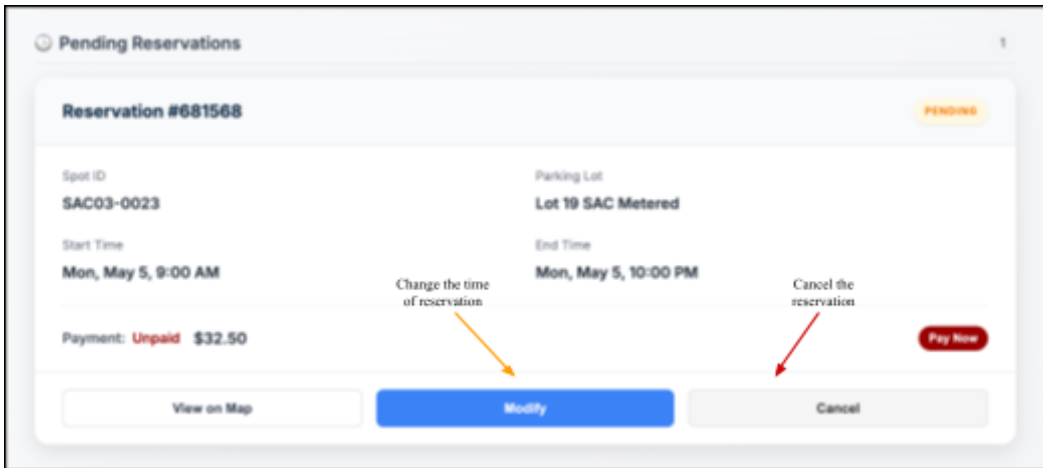
Once you make a reservation and it is pending approval, you can modify the timing of your reservation or cancel it with the simple click of a button

6.4 Adding Payment Methods
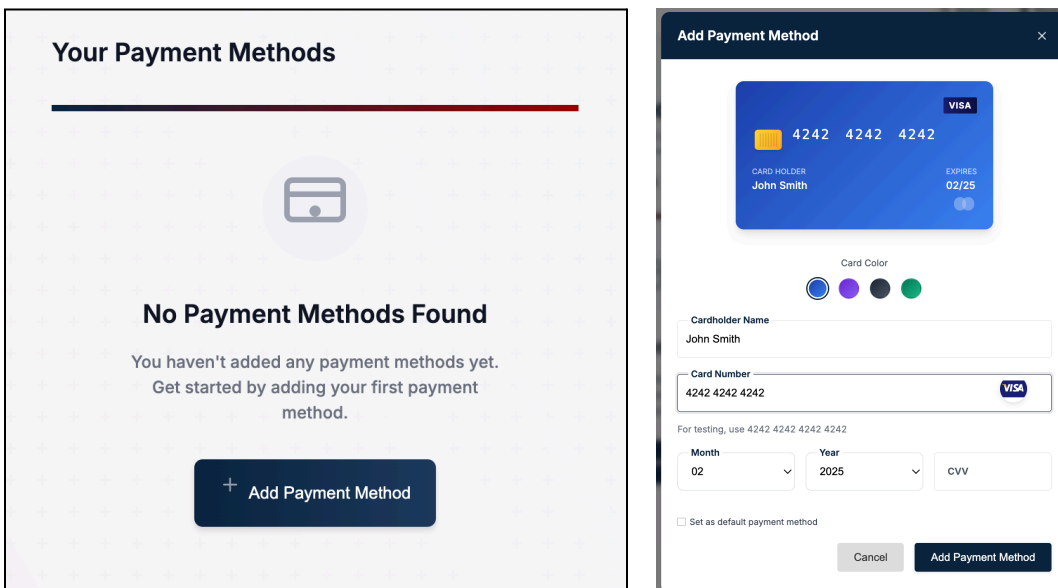
- Click on the **Payment Methods** box on the main page or the **Pay** button in the header
- You will see a section called *Your Payment Methods* with no cards
- Click **Add Payment Method** to add a card (you can add multiple)
- Fill out your card information thoroughly
- Click **Add Payment Method** to save it

6.5 Viewing & Paying Tickets
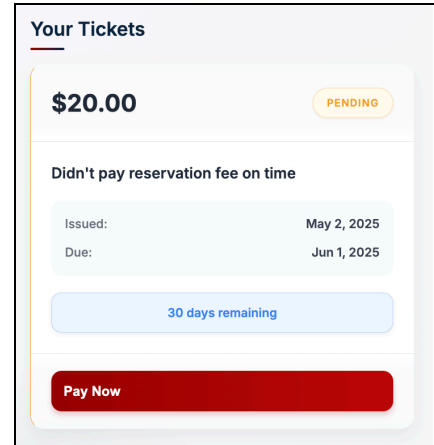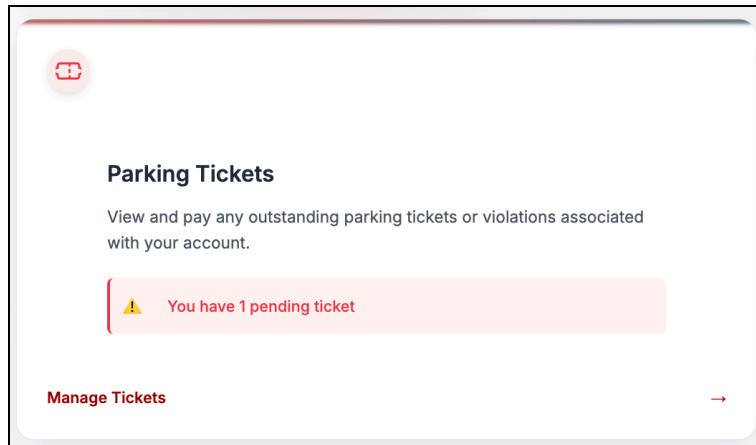
- Any outstanding tickets will be viewable on the dashboard, but to access the tickets page you can click on **Parking Tickets** on the dashboard or **Tickets** in the header
- You will be able to view your tickets, a due date, a countdown, and a button to **Pay Now**
- If you click **Pay Now**, a confirmation will pop up asking if you want to pay the fee
- If you choose to pay now, it will redirect you to Stripe and ask you to fill out your card information
  - Once verified, the payment will go through and the user will be sent an email confirmation (if they select it)

6.6 Reserving Spots for an Event

Note ⚠: Events *must* be booked 1 week in advance!
- Click on **Event Reservations** on the dashboard or **Events** in the header
- Select a **date**, **start** and **end** time for your reservation
- Specify the number of spots needed for the event & filter if needed
- If you are familiar with campus and the parking lots:
  - Pinch and scroll on the map to zoom
  - Click on a parking lot that is highlighted in red
  - View open and reserved parking spots, click on the spots you want to reserve
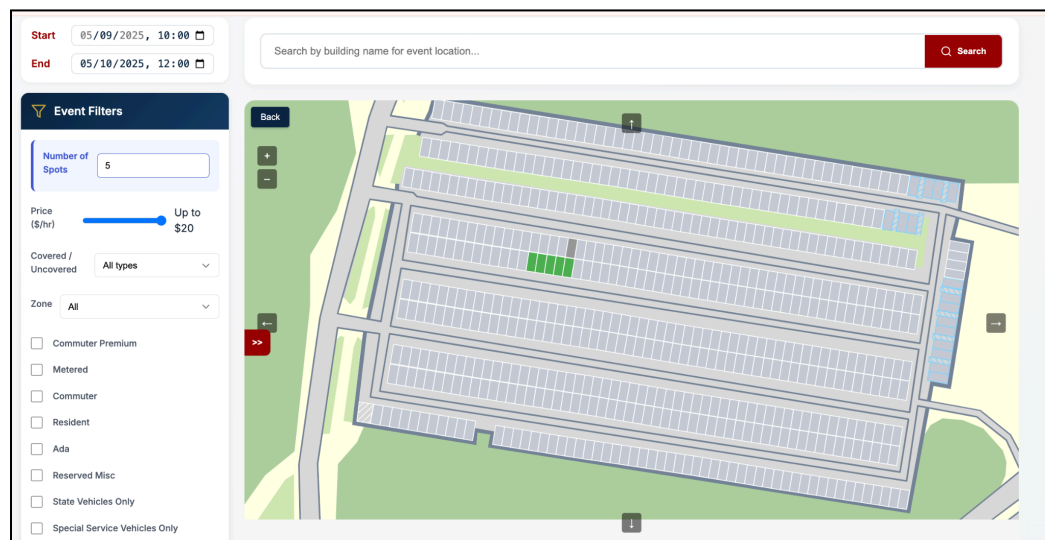
- If you are unfamiliar with the parking lots
  - Type the preferred building name or destination in the search bar
  - The closest lots will be generated and will allow you to select the spots you want
  - Once the desired parking spots have been chosen, click **Continue to Reservation**
  - A popup screen will show the timing, spots chosen, selected lot, and estimated price for confirmation
  - Add an **Event Name** and a **Description**
  - Review all the information & click **Submit for Approval**
  - An admin will have to approve the event

6.7 Getting Help & Giving Feedback

- Click on the **?** (Question Mark) Icon in the header
- The Help page has a search bar where you can look up topics
- There's a button for User Guide, which will link this manual
- There's a list of Frequently Asked Questions (FAQs)
- The bottom of the page offers Live Chat, Email Support, Phone Support, and a place to leave your Feedback, which will be routed to the administrator

6.8 Changing Display

- Click on the 🌙 (Moon) icon to switch to **Dark Mode** and click the 🌞(Sun) icon to switch to **Light Mode**

6.9 Updating Profile & Account Settings

- Click on the **User** icon in the top right corner (of the header)
- You can update the following information:
  - Email Address
  - First Name & Last Name
  - SBU ID Number
  - Driver's License
  - Adding/Removing Vehicles
    - Vehicle model, year, plate number
  - Phone Number & Address
- Click on **Save Changes** to put your changes into effect

6.9.1 Logging Out

- Click on the **User** icon in the top right corner (of the header)
- Click on **Log Out** in the bottom left corner of the pop up

7 Using the Application as an Administrator

7.1 Logging In

- Enter the credentials of an administrator
  - We can give you these credentials privately if you are approved to be an administrator

7.2 Dashboard

- The dashboard will display the Pending Requests (users that need approval), Approved Requests, Rejected Requests, and Activity (all the information managed)
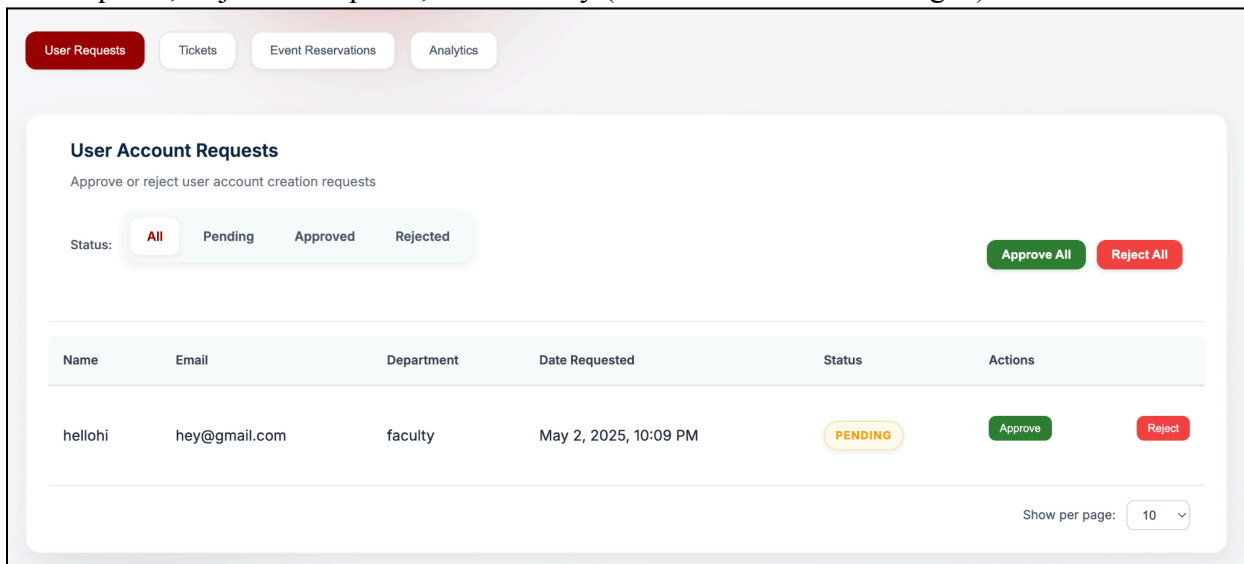
- There's 4 tabs:
  - User Requests will display the following information:
    - Email address
    - Department
    - Date the account was created
    - Status of the account → Pending
    - Actions → approve or reject the account that was created
  - Tickets display the following information:
    - Issuing a ticket
      - Email address → of the user you want to give a ticket to
      - Amount ($) → the amount the user will pay
      - Due Date → The date the fee is due by
      - Reason → reason for the ticket

- Issue Ticket → click on button once the ticket info has been filled out
  - ■ Viewing Tickets
    - Can view all tickets, pending, paid, and overdue tickets
- ○ Event Reservation
  - ■ Can approve or reject requests for multiple parking spots for events
- ○ Analytics Dashboard
  - ■ Can view analytics from the last *7 days*, *30 days*, *90 days*, and *1 year*
  - ■ Displays *Total Revenue*, *Total Reservations*, *Average Reservations* (per day), *Peak Day* (which displays the day with the most reservations)
  - ■ Displays Daily Reservation Trend → chart
  - ■ Displays a graph for the Revenue by Lot, Parking Lot Usage, Top 5 Lots
  - ■ Allows you to download the analytics as a CSV, Excel Sheet, PDF, or Print

7.3 Manual Override

- Admins may override a reservation or mark a spot/parking lot as unavailable in case of emergencies

8 Payments

8.1 Supported Methods

- Credit/Debit (Visa, MasterCard, Amex)
- Apple Pay / Google Pay

8.2 Adding a Payment Method

- Click on the **Payment Methods** box on the main page or the **Pay** button in the header
- View the section called *Your Payment Methods*
- Click **Add Payment Method** to add a card (or add multiple)
- On Stripe, fill out card information thoroughly & save it

8.3 Setting a Default Payment Method

- In the **Payment Methods** tab, select a saved card, click **Set as Default**

8.4 Refund Policy

- Full refund provided for cancellations greater than an hour before reservation time start
- Refunds post to the original method within 3 business days

9 Notifications

Tᴛ *Alert Type*	*Trigger*	*Delivery*
Account Approval	Admin Approving Account	In-App, Email
Reservation Confirmation	Successful Booking	In-App, Email
Expiry Reminder	10 mins before end time	Email
Lot Closure	Maintenance & Events	In-App Banner, Email
Refund Issued	Cancel or auto-refund	Email

10 Accessibility & Localization

10.1 Color-blind Friendly View

- Toggle **Accessibility Mode** in the Settings page to switch to patterns + high-contrast colors

10.2 Language Settings

- English (default) | Español | 中文 | all coming soon

11 Troubleshooting & FAQ

11.1 Troubleshooting

Issue	*Possible Cause*	*Solution*
Cannot Log In	Wrong password	Use 'Forgot Password' to reset
No Spots Available	Peak Hours	Try a different lot or adjust time range
Payment Declined	Card Expired	Update card in Wallet
Vehicle Unregistered	Got a new vehicle	Go to user settings and add new vehicle/change or remove existing vehicle

11.2 FAQs

- How do I cancel my parking reservation?
  - Go to the reservations tab, find the reservation, click Cancel
  - Note ⚠️: cancellations made less than 24 hours before the scheduled time may be subject to a cancellation fee
  - You'll receive a confirmation email once your cancellation is processed
- Can I extend my reservation time?
  - Yes, go to reservations, find your active reservation, click "Extend"
  - If the extension option is unavailable, it means the parking spot is already reserved for someone else after your time slot
- What payment methods do you accept?
  - We accept major credit cards (Visa, MasterCard, American Express, Discover), debit cards, Apple Pay, and Google Pay
  - For students and faculty, you can also link your SBU account for direct charges
  - All payment information is securely stored using industry-standard encryption
- How do I get a receipt for my parking?
  - Receipts are automatically sent to your email after each transaction
  - You can also view and download your receipts at any time by going to "Payment Methods" in the main navigation and clicking on "Transaction History"
  - From there, you can filter by date and download receipts in PDF format
- What are the campus parking hours?
  - Campus parking hours vary by lot
  - Most general lots are available 24/7, while faculty and restricted lots have specific hours of operation

- ○ You can see the hours for each lot when you search for parking
- ○ Premium lots typically operate from 6:00 AM to 11:00 PM, while resident lots are available 24/7 for permit holders
- Why is the website not loading properly?
  - ○ If the website is not loading properly, try clearing your browser cache and cookies, or try using a different browser
  - ○ Make sure your internet connection is stable
  - ○ If problems persist, please contact our support team at support@p4sbu.edu with details about the issue, including screenshots if possible

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Note ⚠️: For unresolved issues, open **Support Chat** in-app or email **support@p4sbu.com**

12 Feedback & Contribution

We welcome any feedback and bug reports! Use the feedback mechanism in the Help/Support page to let us know.

13 Legal & Privacy

P4SBU complies with **FERPA** and **PCI-DSS** standards. Data is encrypted at rest (AES-256) and in transit (TLS 1.3). See the full **Privacy Policy** in the app for details on data collection and retention.