• Survey Results
• Transportation Demand Management
• Parking:
  o Supply/Demand
  o Supply Increase Opportunities
  o Demand Reduction Opportunities
  o Permitting & Allocation Models
  o Pricing
  o Case Studies
  o Potential Policy Directions
• Transit:
  o Regional Market: Lextran
  o Revised CATS Route System
  o Transit improvements & incentives
• Traffic Operations
• Strategic Direction Recommendations
Goals – Parking & Transit

• Permit-holders have confidence about where they can find a space
• Orderly and smooth access and egress from parking facilities
• Employee and commuter student parking within 20 minutes travel from destinations
• Resident parking within 20 minutes travel from residence halls
• Taking transit as convenient as driving; a dignified experience
• Bus stops located within a 2-to-4-minute walk of all campus destinations
• Daytime bus service run on < 10-minute headways
• Evening bus service run on < 15-minute headways
• Weekend bus service meet needs of residents & employees
• Persons with disabilities must have equal access
Survey Results
Recurrent Themes from Comments

- Safety
- Egress from parking facilities
- Search for parking making people late for work
- Parking prices
- Needs of employees with off-campus obligations
- Disability parking accommodations
- Parking inadequacy for North Campus residents
- Quality of bus stops/shelters
- Affect of Med. Ctr. growth on Ag. School parking
- Pedestrian crossings, esp. at Rose, Hilltop & Press
- Rose St.: for and against restricting vehicular traffic
- Loading/Service access

74% of responses were submitted by employees. Employees represent 30% of the university community.
Question #9: The quality of parking is defined by Cost, Convenience, and Supply. This requires trade-offs between the three. Select the ones you feel are the most important. (Choose up to 2)

Survey Results

Responses to Question 9 suggest an opportunity for a more user-responsive model, providing choices in terms of location and price.

Less than half of respondents put cost in their top two priorities

44% COST

71% SUPPLY

62% CONVENIENCE
Survey Results

**Question #13:** Below are some different ideas that have been expressed about the cost of and access to parking permits. Please indicate your level of agreement for each.

1. “There should be more permit categories to give users options with regard to price and location”

---

**Students**
- Strongly Agree: 84%
- Agree: 51%
- Neither Agree nor Disagree: 33%
- Disagree: 10%
- Strongly Disagree: 4%

**Employees**
- Strongly Agree: 67%
- Agree: 36%
- Neither Agree nor Disagree: 19%
- Disagree: 9%
- Strongly Disagree: 6%

**Medical staff**
- Strongly Agree: 76%
- Agree: 38%
- Neither Agree nor Disagree: 38%
- Disagree: 16%
- Strongly Disagree: 5%
# Survey Results

**Question #13:** Below are some different ideas that have been expressed about the cost of and access to parking permits. Please indicate your level of agreement for each.

## 2. “Price of permits should reflect the convenience and desirability of the parking location”

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>37%</td>
<td>35%</td>
<td>14%</td>
<td>9%</td>
<td>5%</td>
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<tr>
<td>Employees</td>
<td>26%</td>
<td>32%</td>
<td>16%</td>
<td>16%</td>
<td>11%</td>
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<tr>
<td>Medical staff</td>
<td>35%</td>
<td>34%</td>
<td>14%</td>
<td>11%</td>
<td>6%</td>
</tr>
</tbody>
</table>

## 3. “Price of permits should take into account ability to pay (e.g. salary).”

<table>
<thead>
<tr>
<th></th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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</thead>
<tbody>
<tr>
<td>Students</td>
<td>39%</td>
<td>26%</td>
<td>18%</td>
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</tr>
<tr>
<td>Employees</td>
<td>28%</td>
<td>29%</td>
<td>20%</td>
<td>14%</td>
<td>10%</td>
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<tr>
<td>Medical staff</td>
<td>35%</td>
<td>27%</td>
<td>18%</td>
<td>12%</td>
<td>9%</td>
</tr>
</tbody>
</table>
**Survey Results**

**Question #13:** Below are some different ideas that have been expressed about the cost of and access to parking permits. Please indicate your level of agreement for each.

4. “Pay-as-you-go permits should become more available (e.g. daily, occasional, etc.).”

<table>
<thead>
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<th></th>
<th>Students</th>
<th>Employees</th>
<th>Medical staff</th>
</tr>
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<tbody>
<tr>
<td>Strongly Agree</td>
<td>41%</td>
<td>27%</td>
<td>32%</td>
</tr>
<tr>
<td>Agree</td>
<td>34%</td>
<td>37%</td>
<td>32%</td>
</tr>
<tr>
<td>Neither Agree nor Disagree</td>
<td>17%</td>
<td>27%</td>
<td>29%</td>
</tr>
<tr>
<td>Disagree</td>
<td>5%</td>
<td>6%</td>
<td>5%</td>
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<tr>
<td>Strongly Disagree</td>
<td>3%</td>
<td>3%</td>
<td>2%</td>
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</table>

5. “Carpooling and ridesharing should be incentivized through pricing and location of permits.”

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<th></th>
<th>Students</th>
<th>Employees</th>
<th>Medical staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>31%</td>
<td>21%</td>
<td>21%</td>
</tr>
<tr>
<td>Agree</td>
<td>30%</td>
<td>33%</td>
<td>31%</td>
</tr>
<tr>
<td>Neither Agree nor Disagree</td>
<td>28%</td>
<td>32%</td>
<td>31%</td>
</tr>
<tr>
<td>Disagree</td>
<td>7%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>4%</td>
<td>6%</td>
<td>8%</td>
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</table>
Parking Supply

Annual Change in Parking Supply: Spaces Lost and Gained

# of Parking Spaces

<table>
<thead>
<tr>
<th>Year</th>
<th>Gained</th>
<th>Lost</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>2013-2014</td>
<td>(1,108)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014-2015</td>
<td>(941)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015-2016</td>
<td>1,103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016-2017</td>
<td>162</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017-2018</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2018-2019</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019-2020</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Opportunities to create new parking have not been projected beyond 2017
Parking Demand

- Undergraduate Housing Beds
- Other Employment
- BCTC Employment
- BCTC Enrollment
- HealthCare Employment
- Campus Employment
- UK Enrollment
- Total

Parking Demand
(# of additional parking spaces required)

- 2014-2015: 92
- 2015-2016: 129
- 2016-2017: 107
- 2017-2018: 205
- 2018-2019: 107
- 2019-2020: 110
Total Parking Supply and Demand, by Year

- Supply
- Demand Calculated

2013 peak occupancy
Supply/Demand

Total Parking Supply and Demand, by Year

Total # of Parking Spaces

- Supply
- Demand Calculated
- 2013 peak occupancy

Axis Title

Graph showing the total parking supply and demand from 2013-2014 to 2019-2020.
Supply Opportunities

Opportunities for new parking, short & long-term: lot enhancements, new garage(s)

• Expansion of existing lots
• New lots
• Expansion of existing garage(s)
• New garage(s)

• Systematically and regularly evaluating opportunities for acquisition of land for parking
Transportation Demand Management: Policy Menu

Residential policy
- On-campus/near campus living
- Catchment zones
- Local living incentives for employees

Enhanced transit system
- Frequent headways 7 days/wk
- Efficient routes
- High-quality bus tracking app
- Enhanced bus shelters
- Park-and-ride

Enhanced walking and cycling infra
- Pleasant, safe, shaded walks
- Minimal street crossings
- Protected bike lanes
- Ample bike parking
- Bike share program

Vouchers and Incentives
- Free/discounted transit passes
- Pre-tax transit deduction
- Pay not to park rebates/vouchers
- Peak spreading

Ride sharing
- Car-sharing/short-term rental
- Carpooling incentives
- On-demand vanpool

Pricing policy
- Tiered permit pricing
- Peripheral parking incentives
- Cash-back incentives
Parking Triangle

- Hunting License Permit
- All parking lots available to entire campus community
- Spaces are in high demand and not everyone can find a spot.

Inexpensive

- Tiered permit pricing
- Higher price to park closer to campus core
- Spots are guaranteed

Convenient

- Parking located at the periphery of campus
- More spots available

Sufficient
Every lot and space available to anyone part of campus community. Parking is available on a **first-come, first-served basis** and is not guaranteed if supply is limited.

Lots designated for **specific groups** of people (e.g., students, faculty)
- Employees
- Resident Student
- Commuter Student

Lots designated for specific groups of people with **reserved spaces** offered at a premium.

Parking assigned by **zone**, providing choice with regard to price and convenience. Reserved spaces also available.

Hunting Permit

Group

Reserved

Zone
Permit fees can vary across the following categories:

**INDIVIDUAL CHARACTERISTICS**

*Relation to University*
- Price varies across different groups such as, Faculty/Staff, Resident Student, Commuter Student

*Employees*
- Annual Compensation
- Full time vs. Part Time
- Seniority

*Students*
- Resident vs. Commuter

**LOCATION AND ACCESS**

*Zone Pricing*
- Parking located closer to campus core are more expensive than those located at the campus periphery

*Reserved Parking*

**Transportation Demand Management**
- Discounts for ridesharing
- Discounts for occasional parking
Parking Fee Benchmarking

Commuter Student
Annual Permit Fee
Unreserved core parking

Florida State
Missouri
Michigan
Florida
LSU
Tennessee
University of Louisville
Virginia Commonwealth
South Carolina
Georgia State
Kentucky
Alabama
North Carolina State
Texas A&M University
Georgia
Ohio State
Georgia Tech
Wisconsin
Minnesota

Surface
Garage
Core vs. Remote Parking Fees
(student surface lots only)

No Price Differential

Price Differential

<table>
<thead>
<tr>
<th>Institution</th>
<th>Core Fee</th>
<th>Remote Fee</th>
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</thead>
<tbody>
<tr>
<td>Florida State</td>
<td>$24</td>
<td>$250</td>
</tr>
<tr>
<td>Georgia Tech</td>
<td>$50</td>
<td>$271</td>
</tr>
<tr>
<td>Kentucky</td>
<td>$100</td>
<td>$180</td>
</tr>
<tr>
<td>Minnesota</td>
<td>$150</td>
<td>$180</td>
</tr>
<tr>
<td>South Carolina</td>
<td>$200</td>
<td>$180</td>
</tr>
<tr>
<td>Tennessee</td>
<td>$250</td>
<td>$180</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>$300</td>
<td>$180</td>
</tr>
<tr>
<td>Virginia Commonwealth</td>
<td>$350</td>
<td>$180</td>
</tr>
<tr>
<td>Missouri University of Louisvile</td>
<td>$400</td>
<td>$180</td>
</tr>
<tr>
<td>Michigan</td>
<td>$450</td>
<td>$180</td>
</tr>
<tr>
<td>Alabama</td>
<td>$500</td>
<td>$180</td>
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<tr>
<td>North Carolina State</td>
<td>$550</td>
<td>$180</td>
</tr>
<tr>
<td>Georgia</td>
<td>$600</td>
<td>$180</td>
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<tr>
<td>Ohio State</td>
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<td>$180</td>
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<tr>
<td>LSU</td>
<td>$700</td>
<td>$180</td>
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<tr>
<td>Wisconsin</td>
<td>$750</td>
<td>$180</td>
</tr>
<tr>
<td>Georgia State</td>
<td>$800</td>
<td>$180</td>
</tr>
</tbody>
</table>
Case Study: University of Michigan, Ann Arbor

ZONE PARKING

PERMIT TYPES

Gold
Employees only
Reserved Parking

Blue
Employees only

Yellow
Employees & Students

Orange
Employees & Students

ANNUAL PERMIT FEES BY TYPE

Gold: $1,577
Blue: $667
Yellow: $153
Orange: $76
Case Study: University of Wisconsin, Madison

FLEX & PARK AND RIDE PARKING

PERMIT TYPES

- **BASE**: permit holds for a specific parking lot / garage. Availability not guaranteed for everyone.
- **WEEKDAY FLEX**: Available for employees that commute using alternative modes of transportation, but need to drive to campus from time to time. Approximately 10% of all employees hold this permit.
- **CARPOOL**: permit holders have priority assignment.
- **UW PARK & RIDE**: (off map) 2-3 miles away from campus. UW provides shuttle service to and from campus.
- **MADISON METRO FREE PARK AND RIDE**: (off map) 4-8 miles away from campus. Lots served by Madison Metro Transit System.

ANNUAL PERMIT FEES BY TYPE

<table>
<thead>
<tr>
<th>Permit Type</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>$1,199</td>
</tr>
<tr>
<td>Weekday Flex</td>
<td>$653</td>
</tr>
<tr>
<td>Carpool</td>
<td>$653</td>
</tr>
<tr>
<td>UW Park &amp; Ride</td>
<td>$265</td>
</tr>
<tr>
<td>Madison Park &amp; Ride</td>
<td>Free</td>
</tr>
</tbody>
</table>

No annual permit fee, max $8/day
Case Study: Stanford University

**TDM PROGRAM: Commute Club**

Employees and students choosing to commute to campus by alternate modes of transportation or by carpooling receive the following rewards:

- **Up to $300 / year in cash**
- Carpools & Vanpools receive reserved spaces
- Access to Stanford’s Ridematching Services
- Emergency Ride Home Program
- Up to $102 / year in Zipcar driving credit
- Enterprise Rent-A-Car vouchers
- 8 daily parking permits available for purchase
- Receive $50 for each referral
- Eligible for additional prizes

Between 2002 to 2011, the percentage of employees driving alone to campus dropped from **72% to 46%**. The drive alone rate for all university commuters is currently at 38%.

<table>
<thead>
<tr>
<th>Commute Club Annual Savings in Parking Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRIVE ALONE</td>
</tr>
<tr>
<td>Avg. Permit Price</td>
</tr>
<tr>
<td>$500 voucher</td>
</tr>
</tbody>
</table>

Between 2002 to 2011, the percentage of employees driving alone to campus dropped from **72% to 46%**. The drive alone rate for all university commuters is currently at 38%.
• 24,000 off-campus students: travel demand
• Travel demand not met by transit (or other modes) becomes parking demand
Commuter student residences vs. Lextran routes

- Lextran route system serves off-campus students
- Issue is quality of service (route efficiency, frequency, bus tracking app, rider experience)
LexTran: Service Recommendations

Partner with Lextran to:

• Make bus routes efficient
  – Streamline routes (e.g. straighten circuitous routes)
  – Space stops every two to three blocks
  – Consolidate service onto high-frequency routes

• Integrate a high-quality, real-time bus tracking app with CATS

• Develop a voucher program providing students and employees free Lextran and CATS passes

• Upgrade bus fleet
  – GPS-based stop announcements
  – Express and local service
  – On-bus bicycle racks
  – Quiet, smooth, low-emitting buses
### Case Study: Stanford University

#### Daily ridership (academic year)
- Stanford: 8,600 per day
- UK: 3,800 per day

#### Student enrollment
- Stanford: 16,000
- UK: 29,000

#### Peak hour frequency
- Stanford: every 6 mins (Line X/Y)
- UK: every 15 mins (Blue route)

#### Non peak hour frequency*
- Stanford: every 25 mins (Line X/Y)
- UK: none (separate night route)

*Service runs nightly until 2:30am*
Case Study: University of Michigan

<table>
<thead>
<tr>
<th></th>
<th>Michigan</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily ridership (academic year)</td>
<td>13,000 per day</td>
<td>3,800 per day</td>
</tr>
<tr>
<td>Student enrollment</td>
<td>44,000</td>
<td>29,000</td>
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<tr>
<td>Peak hour frequency*</td>
<td>every 10 mins (Bursley-Baits route)</td>
<td>every 15 mins (Blue route)</td>
</tr>
<tr>
<td>Non peak hour frequency</td>
<td>every 15 mins (Bursley-Baits route)</td>
<td>none (separate night route)</td>
</tr>
</tbody>
</table>

* Express and local service provided
<table>
<thead>
<tr>
<th></th>
<th>Texas</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily ridership (academic year)</td>
<td>25,500 per day</td>
<td>3,800 per day</td>
</tr>
<tr>
<td>Student enrollment</td>
<td>52,000</td>
<td>29,000</td>
</tr>
<tr>
<td>Peak hour frequency*</td>
<td>every 10 mins</td>
<td>every 15 mins</td>
</tr>
<tr>
<td></td>
<td>(Route 640)</td>
<td>(Blue route)</td>
</tr>
<tr>
<td>Non peak hour frequency</td>
<td>every 40 mins</td>
<td>none</td>
</tr>
<tr>
<td></td>
<td>(Route 640)</td>
<td>(separate night route)</td>
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## Case Study: University of Wisconsin

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<thead>
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<th>Wisconsin</th>
<th>UK</th>
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<tbody>
<tr>
<td>Daily ridership (academic year)</td>
<td>20,000 per day</td>
<td>3,800 per day</td>
</tr>
<tr>
<td>Student enrollment</td>
<td>43,000</td>
<td>29,000</td>
</tr>
<tr>
<td>Peak hour frequency*</td>
<td>every 6 mins (Route 80)</td>
<td>every 15 mins (Blue route)</td>
</tr>
<tr>
<td>Non peak hour frequency</td>
<td>every 45 mins (Route 80)</td>
<td>none (separate night route)</td>
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</table>
CATS: Service Recommendations

- Consolidate myriad routes into single two-way loop
- Space stops every two to three blocks
- Align CATS and Lextran bus stops
- Run daytime buses on ≤ 10-minute headways
- Extend evening and weekend service, on ≤ 15-minute headways at peaks
- Provide comfortable, well-designed, protective bus shelters
- Post real-time arrival information at major bus stops
Existing Lextran and CATS system

- Multitude of routes causes confusion and dissipates service frequency
- Stops are spaced too densely, slowing down service
- Lextran and CATS stops do not always align

- Stop served by multiple routes
- Stop served by single route
- Lextran route
- CATS route
Proposed CATS Two-Way Loop

- Single, two-way loop

Clockwise route stop
Counter clockwise route stop
Proposed CATS Two-Way Loop

- Potential additional routes include: Rose St. trolley, Greg Page Loop, Med Ctr. parking shuttle
Proposed CATS Two-Way Loop

- Most of campus would be within a 4-min walk from a bus stop
Goals – Parking & Transit

• Permit-holders have confidence about where they can find a space
• Orderly and smooth access and egress from parking facilities
• Employee and commuter student parking within 15 – 20 minutes travel from destinations
• Resident parking within 15-20 minutes travel from residence halls
• Taking transit as convenient as driving; a dignified experience
• Bus stops located within a 2-to-4-minute walk of all campus destinations
• Daytime bus service run on < 10-minute headways
• Evening bus service run on < 15-minute headways
• Weekend bus service meet needs of residents & employees
• Persons with disabilities must have equal access
Recommended Policy Direction

• The parking permit system should be re-designed to give more choice options with regard to price and location. **but only IF**
  • Parking supply and demand are balanced. **which means BOTH**
    • New parking must be created, with the costs that entails, which will increase the cost of parking. This must not compromise the University’s commitment by to the integrity of its campus landscape and important open spaces. **AND**
    • The University community must make sincere and concerted efforts to reduce dependence on Single Occupant Vehicles through Transportation Demand Management. **ALSO:**
    • Campus transit routes should be restructured to allow more frequent and predictable service, resulting in faster door-to-door transportation.