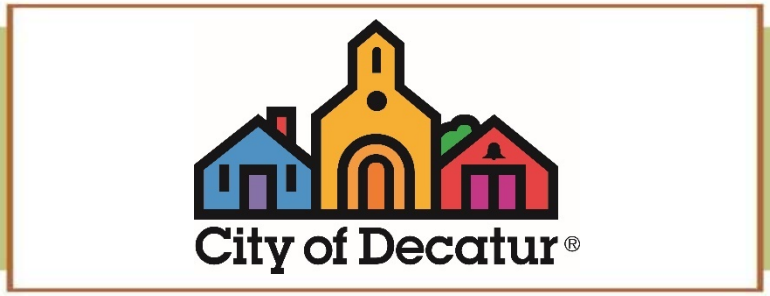

CITY OF DECATUR

PARKING INVENTORY UPDATE

Prepared by
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INTRODUCTION

In 2009 the City of Decatur underwent a parking inventory and survey[1] "analyzing existing parking in downtown Decatur to recommend strategies for maximizing usage while maintaining commitment to businesses and alternate modes of transportation". The survey studied the total number of spaces, the type of spaces available, the price of each space, and the relative daily occupancy of spaces.

The 2009 study came to the conclusions that the different management types, prices, and time limits have created a confusing landscape for parking. Decatur's 2017 Community Choices (CC) application requested assistance with updating the 2009 inventory, adding street parking counts, and generating GIS data to ultimately be used for smart parking technology. To reduce confusion, implement advanced technologies, and improve air quality, the city hopes to implement a downtown-wide smart parking technology system. In pursuit of smart parking technology, the city of Decatur hoped to aggregate current data on the street parking, surface parking and decks. This report covers the results of the updated survey in addition to some example best practices for smart parking technology utilized in other cities.

REVIEWED REPORTS

Prior to beginning data collection, the ARC team reviewed the 2007 *Community Transportation Plan* (CTP) and the 2009 *Parking Inventory and Policy Recommendations* report to establish context for the direction of parking in downtown Decatur. The CTP recommended prioritizing curb space management, off-street management, and regulation development. With those goals in mind the city pursued the 2009 parking inventory to understand the current stock and to provide recommendations on future management practices to mitigate perceptions on a lack of parking in the downtown area. The 2009 study elaborated on the recommendations from the CTP and provided more concrete examples of possible solutions including the following:

- New meter technologies
- Incentivizing street parking beyond the identified downtown core
- Implementing a Transportation Management Association or Parking Brokerage
- Improving parking conditions including signage and lighting
- Constructing a new public parking facility
- Encouraging shared parking
- Unbundling residential parking

[1] Lytle, Andrea. *Parking Inventory and Policy Recommendations for the City of Decatur*. (April 30, 2009).

METHODS

To understand the current landscape of parking in downtown Decatur, the ARC team went through a three-step process for data collection. Since the data from the 2009 parking inventory was not available to the ARC team, the baseline data had to be recreated. This three-step process included field collection preparation, a field survey, and data cleaning. Data collection centered around creating polygons in ArcGIS that represented the parking lots and points that represented the street parking spaces with associated data about the parking characteristics. The steps outlined below cover the conceptual and technical aspects of the data collection and creation process. While the ARC team wasn't able to collect occupancy data from the individual lots or decks due to time limitations, it requested information from SP+ Parking, which manages four parking decks and two surface lots. The summary of that occupancy and pricing data is in Appendix B.

FIELD COLLECTION PREPARATION

To prepare for the field, the ARC team went through a shapefile with polygons from the original survey. They added the missing parking lots and decks and merged the polygons with the 2009 lot name, the number of spaces, parking restrictions, and cost. Additionally, since the 2009 survey, the downtown parking district boundary had been expanded (Figure 1) meaning that more polygons needed to be drawn.

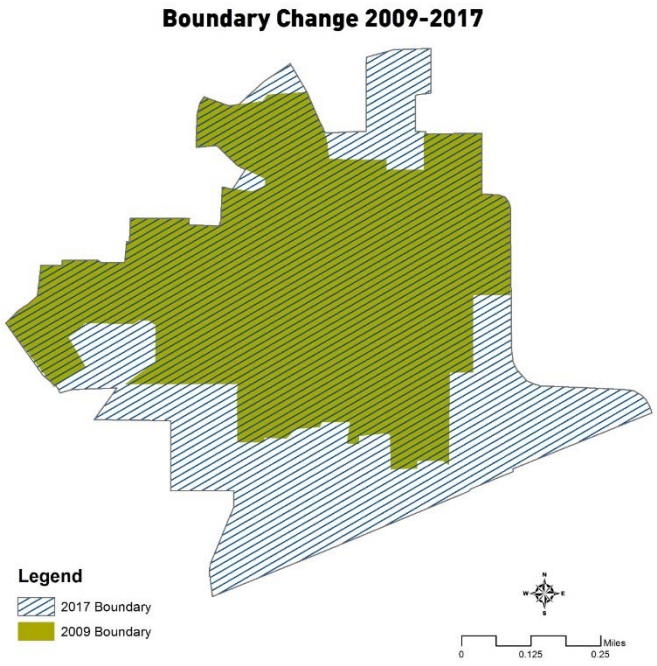


Figure 1: This map shows the boundary change that occurred between 2009 and 2017. The green area denotes the 2009 boundary and the blue striped area denotes the expanded 2017 boundary.

Once the polygons representing the parking lots found in the 2009 survey were updated, using Bing aerial imagery and ArcMap we outlined parking lots and decks, both private and public that had been added since 2009 or were not included in the first survey boundary. As an additional request from the CC application, Decatur wanted to collect data on street parking spaces. Using the Bing aerial imagery and Google Street View, each street space was mapped, and represented by point data.

After the points and polygons were created to represent the parking spaces, surface lots, and decks, to capture the feature class attributes, the ARC team developed a feature class breakdown with the type of data needed and the ideal information to be captured in the field for each attribute. This breakdown can be found in Appendix A. For parking decks, we broke down the classification further into decks that were attached to buildings, stand alone, or under buildings. For surface lots, the ARC team included everything that appeared to be a surface lot from big private and public lots to smaller private lots. Since this study aimed to capture all parking spaces in the downtown boundary, it was necessary to capture those private lots. This study did not capture private home garage spaces attached to single family homes.

To allow for field collection capabilities that updated the data in real time, the ARC Research and Analytics group adapted the parking lot polygon layer and the street parking space point layer into a Spatial Database Engine (SDE). With the SDE the ARC team created a program in the ArcCollector app for the field collection component. The app included the two feature classes and the attributes relating to each feature class so that while on site, the ARC team could update the feature classes live.

Field Collection

With the available data from the 2009 survey and the added points and polygons captured from the aerial imagery, the ARC team completed four days in the field verifying and updating the data. The four dates were July 12th, 17th, 18th, and 19th in 2017. Four ARC team members used the Arc Collector app with the SDE database to simultaneously update the fields seen in Appendix A. Once in the field each team member used a clicker to count each parking space in the surveyed lots and street spaces. We revisited all lots and decks from the 2009 survey to verify that the original count was current and to note where differences had occurred. In addition to space counts we recorded who managed the different lots and decks and the maximum daily price

Data Cleaning

After the collection of field data, the ARC team reviewed and edited the data to ensure that street names matched up and that there weren't any outstanding errors due to misuse of the ArcCollector app. Additionally, given that this data was counted manually, there is potential for human error in the clicker counts, although it is likely minimal.

The downtown area also has many plots under construction that include future street, lot and deck parking spaces. To best account those spaces, the ARC team pulled the site plans for the construction sites to get future parking conditions. These numbers should be updated should anything change.

FINDINGS

Parking Decks and Surface Lots:

In total, this survey identified 17 parking decks and 131 surface lots (Figure 1) compared to the 2009 survey, which identified 14 decks, and 56 surface lots. Within the 2009 boundary the total number of spaces in decks and lots increased by 245 spaces. This is largely due to the expanded definition of what qualifies as a parking lot for this survey. Additionally, 2 previous surface lots were transformed into parking decks (the Alexan and the Callaway lot). This change can be seen in maps found in Appendix C.

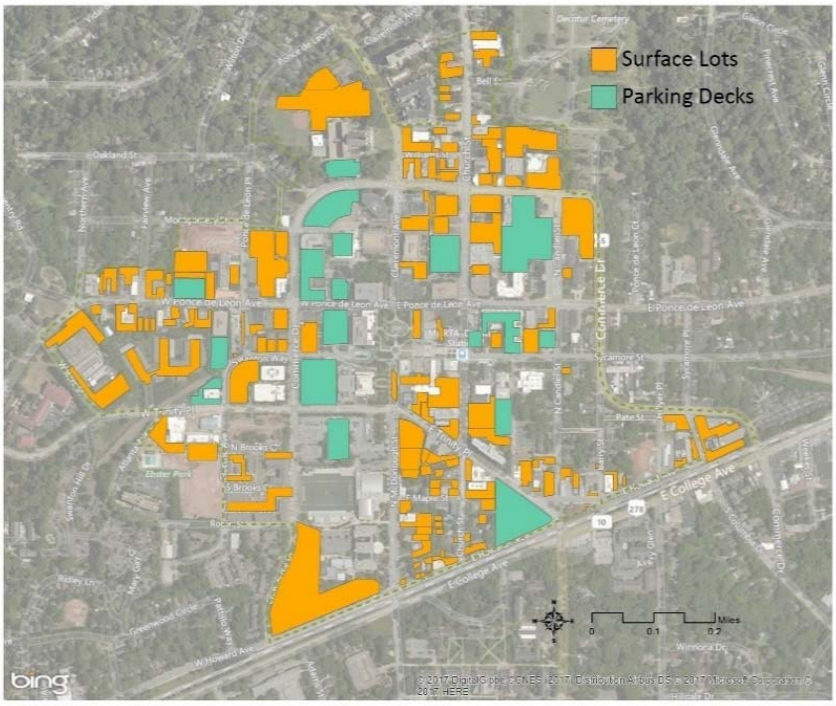


Figure 2: This map shows the breakdown of parking type by surface lot and parking deck.

The supplemental database provides a breakdown of the lot name, the lot address if it was apparent, the maximum daily lot fee, the number of spaces, lot access and management if it was apparent. After the data collection, the total number of spaces housed in surface lots or parking decks was 10,532 spaces. Given the expanded boundary and the addition of spaces not previously categorized as surface lots, there were 1,647 more spaces in lots and decks that were counted in this parking inventory.

Of the parking decks that charged a fee, the maximum daily rate ranged from 6$ per day to 15$ per day. And of the nine surface lots that charged a fee, their daily maximum rate ranged from 3$ per day to 15$ per day. Additionally, two of the surface lots had a 2 hour maximum, where they charge 2$ per hour.

Street Parking:

As mentioned before, street parking was not counted in the previous iteration of the survey. To understand the street parking landscape, each space was identified as reserved or unreserved, who managed it, and the price. In total, 679 individual spaces were cataloged. Of the 679 street spaces, 428 were unreserved, 175 were reserved, and the rest were undefined as they were under construction. Most of the reserved spaces were adjacent to housing units (both public housing and private housing) and some spaces were reserved for handicap parking. Of the unreserved spaces that charged for parking, all were managed by ParkMobile.

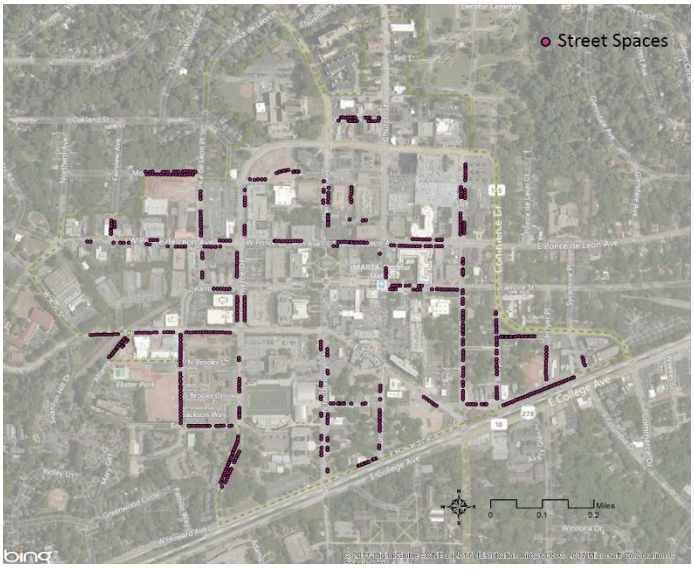


Figure 3: This map shows the individual street parking spaces in the Downtown Decatur parking boundary.

	Parking Lots and Decks (# of Lots and Decks)	Parking Lots and Decks (# of Spaces)	Street Parking Spaces (metered and non-metered)
2017 Count	148	10,532***	679
2017 Count in 2009 Boundary	83	9,130***	339
2009 Count	70	8,885*	300+**

Table 1: This table shows the breakdown of the number of lots, decks, and spaces based on the parking boundary.

* Values pulled from the 2009 survey.

** Total street spaces not counted in 2009 survey. The 2009 survey however, mentioned that "the City of Decatur operates and maintains over 300 on-street metered parking spaces in the downtown area".

*** Needs to be updated with number of spaces from the garage by Decatur High School.

SMART TECHNOLOGY EXAMPLES

Smart technologies can support the efficient use of current parking stock by providing users with current information on parking availability and location. The following are a couple examples of how cities have reshaped the conversation around parking and how smart parking technologies were employed. Additionally, all three examples showcase ways of thinking about how to implement smart parking technologies within the existing infrastructure.

Charlotte Parking Collaborative: http://www.reconnectingamerica.org/assets/Uploads/Charlotte-TOD-Parking-Strategies.pdf

Charlotte experienced many similar challenges with their parking structure, in which the common conception is that there was not enough parking. Like downtown Decatur, 95% of their parking supply is privately owned making it challenging to coordinate parking at a city scale. As a mitigation tactic, Charlotte employed their *Charlotte Parking Collaborative.* This parking collaborative aims to achieve the following: "The Charlotte Parking Collaborative is currently being implemented with a real time Parking and Wayfinding System that overcomes the perception that parking is not readily available in Charlotte's CBD. The project conveys the feeling of a parking "system", helps visitors find venues and parking more easily, and will facilitate balancing the parking supply with growing transit service while providing congestion mitigation and air quality benefits." This approach is a multifaceted approach that addresses the need to coordinate efforts with private entities to implement a user-friendly wayfinding strategy.

SF Park: http://sfpark.org/

In 2008 San Francisco passed legislation to begin a pilot phase for SF*park.* SF*park* helps drivers find parking quickly, look at their destination parking ahead of time, and creates demand-responsive pricing to encourage individuals to pursue parking in underutilized areas and at non-peak hours. The pilot phase was evaluated in 2014, which saw parking availability and access improve, greenhouse gas emissions reduced, vehicle miles traveled reduced, and average pricing reduced. To implement this strategy, SF*park* used sensors for each on-street space, and sensors at the entrance and exit gates for parking garages to track the total number of spaces available. Additionally, like the current ParkMobile pay by phone, SF*park* employed a pay by phone technology to allow customers to add time without returning to the meter. As part of this pilot project, SF*park* collected data which could possibly be used to pursue a similar pilot program in Downtown Decatur.

SF*park* provides a good project innitiation and implementation outline as follows:

1. Project initiation
2. Planning and analysis
    a. High level requirements gathering
3. Construction iterations
    a. Design
    b. Development
    c. Integration and testing
4. Implementation and installation
5. Operations and maintenance
6. Project Closure

This framework could help downtown Decatur think about the various steps that would be needed to develop an implementation and testing plan for smart technology to ensure successful integration. While downtown Decatur is not as large in scale as San Francisco is, the lessons learned can still help to inform the process.

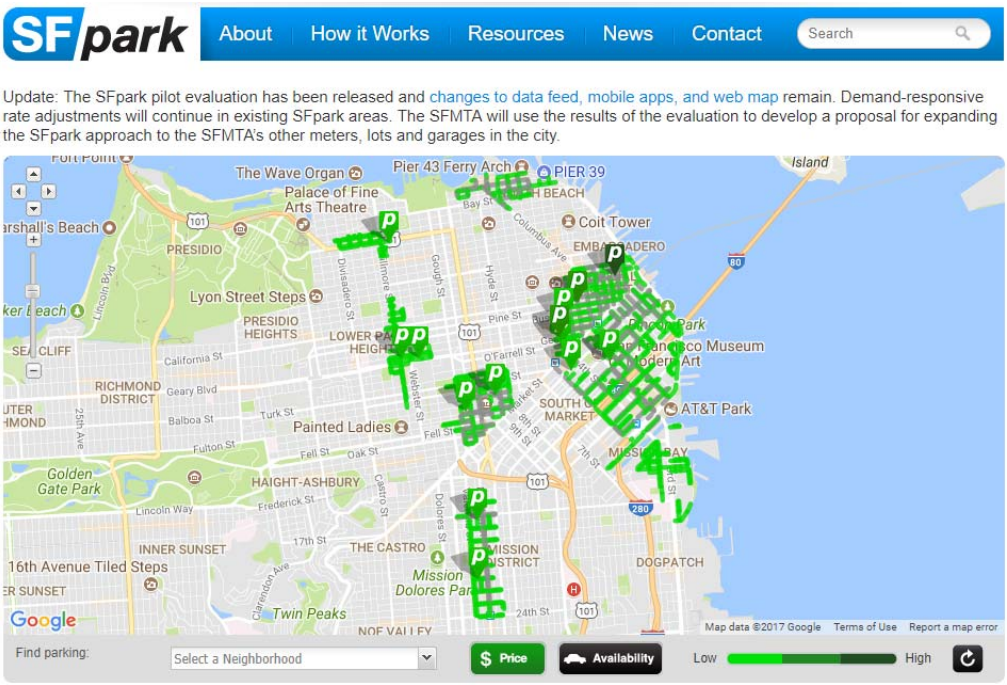


Figure 4: This image was taken from sfpark.org as an example of their user interface for their smart parking technology. It shows both the street parking and the parking decks that are monitored. Included in this map is availability and pricing by location. The parking scope here was captured in their pilot study.

LA Express Park: http://www.laexpresspark.org

Similar to SF*park,* Los Angeles implemented a smart parking system that employs "new parking meter technology; parking space vehicle sensors; a real-time parking guidance system; an integrated parking management system; and the LADOT Parking Management Center." LA Express Park used a suite of three parking apps. One of the apps used is ParkMobile to allow customers to pay by phone. This app has already been implemented in downtown Decatur, making the model that they follow, possibly easier to implement. The other two apps were Parker and Parkme to help individuals find the spaces.

All three of these examples employ a common framework that allows them to implement the technology successfully.

- ***Public-Private parking coalition*** – Given that most parking decks and lots are privately owned, implementing a downtown-wide technology would require a shared agreement amongst the private parking managers and the city.

- ***Smart parking technology*** – Each space, lot and deck needs a way to track and project occupancy and pricing. Both LA Express Park and SF*park* used sensors in street spaces and sensors at entrances and exits to parking decks and lots.
- ***User app*** – These apps help drivers find and pay for the spaces.
- ***Data collection*** – Inherent in smart parking technology is data collection to help inform price adjustments and occupancy studies.

CONCLUSION

This survey primarily focused on collecting the data on current parking infrastructure that exists including parking lots, parking decks, and street spaces within the expanded downtown Decatur parking boundary. Since the 2009 survey, ParkMobile was implemented to help meter street parking, parking signage was added next to public parking decks, and the downtown parking boundary was expanded. These are examples of how the city of Decatur has begun to implement recommendations from the CTP and the 2009 survey. Combining and elevating those improvements with the updated parking inventory will help implement additional smart parking technology in downtown Decatur for more effective management of parking in Decatur.

Included separately from this report is the raw data collected during the survey. This data includes both the raw street parking points and the parking deck and lot polygons. Since 2009 this data hadn't been updated until this inventory was completed. To ensure continued successful management of parking in downtown Decatur, continually updating the data will help track long term trends in parking space development, removal, and pricing. Additionally, through the pursuit of good relations with private parking managers and future smart technologies, parking occupancy data will become more readily available to help inform future parking strategies.

While ARC doesn't have specific technology brand recommendations for implementation, the smart technology examples listed above can provide a great framework for thinking about the inputs required for smart technology in Decatur. SF*park* provides the most extensive analysis of their implementation strategies that should help inform the process for Decatur if Decatur decides to pursue increasing the existing smart parking technology infrastructure. After determining the best framework for smart parking technology in downtown Decatur, the city can then determine which technologies would be best suited for implementation.

APPENDICES

APPENDIX A: FEATURE CLASS DATA BREAKDOWNS

Lot/Deck Feature Class Breakdown:

- Geotag Lot/Deck – Physical location (not a field)
- Name of Lot/Deck – (TEXT – 100 Characters)
    - Try to match to 2009 Parking inventory Names when possible.
    - If it's a new lot, name it based on the business associated or the street address.
- Lot Type (DROP DOWN)
    - Surface Lot
    - Parking Deck – Stand Alone
    - Parking Deck – Under Building
    - Parking Deck – Attached to Building
- Manager of Lot/Deck (TEXT – 100 Characters)
    - If an easily identifiable lot manager (ie. Lanier Parking) is apparent, add that name here
- Price (STRING) Lot Fee (80)
    - Maximum Daily Price
- Access (DROP DOWN)
    - Public
    - Customer Only
    - Monthly
    - Resident
    - Other
        - Other could be a mixed public/resident lot.
- Number of Spaces (SHORT INTEGER)
- Lot Entrance Street or Address (TEXT – 75 Characters)
    - This should be the street where the entrance to the deck/lot is.
- Comment (TEXT – 200 Characters)

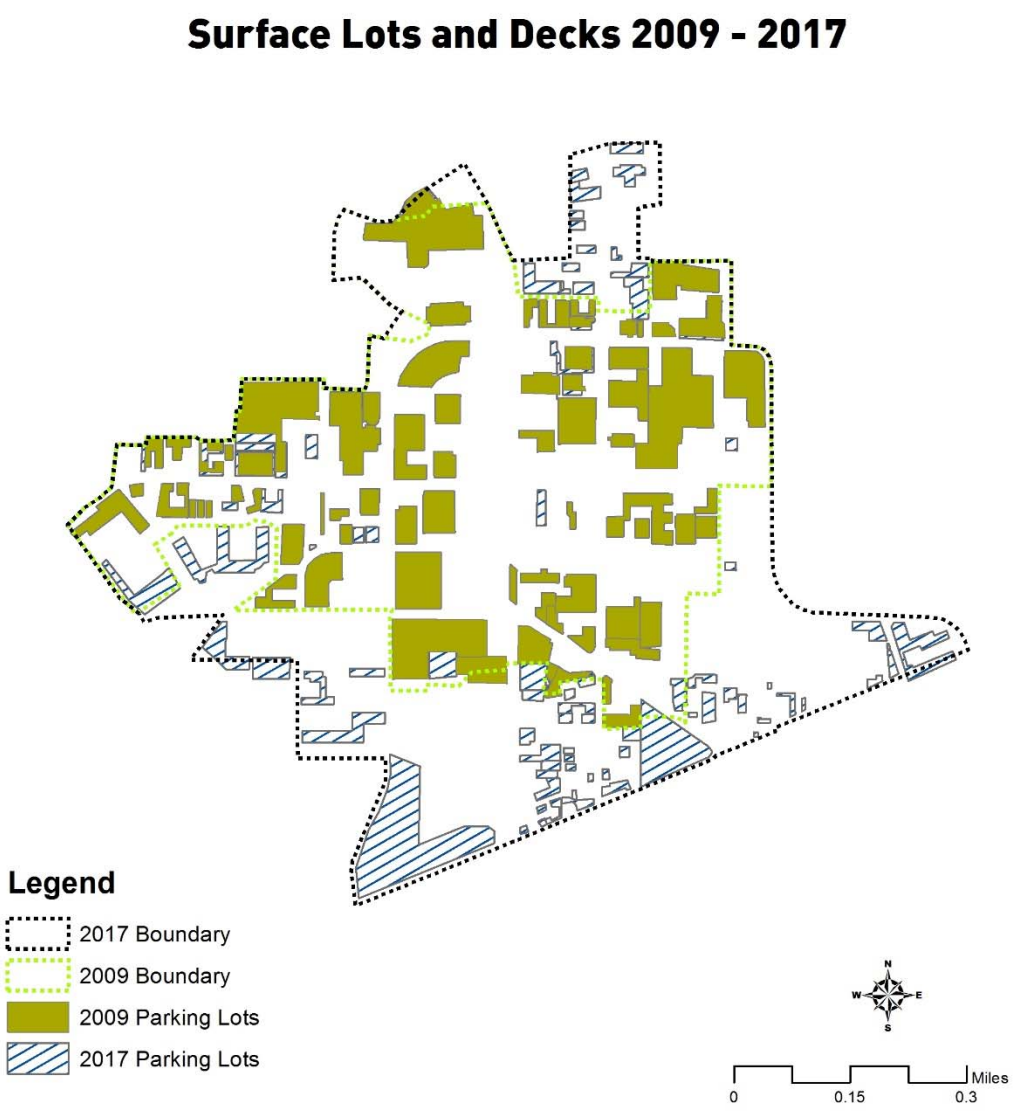
Street Space Feature Class Breakdown:

- Geotag Space– Physical location (not a field)
- Street Name (TEXT – 100 Characters)
- Manager of Space (TEXT – 100 Characters)
    - Which company is listed on the shared tower parking or on the meter?
- Price (STRING - 80) Fee
    - Price per hour
- Time Limit (STRING - 50)
    - Write in the following format with the maximum listed: 2 Hour, 4 Hour
- Vehicle Type (DROP DOWN)
    - Car
    - Scooter Only
- Reserved (DROP DOWN)
    - Yes
    - No
- Comment (TEXT – 200 Characters)
    - If the street spot is handicap, write that in the comments section
    - Write what type of reserved the spot is: Resident, Permit only, Customer, etc.

APPENDIX B: SP+ PARKING MANAGEMENT BREAKDOWN

Location	250 E Ponce*	235 E. Ponce Lot **	320 Church Street Lot **	Decatur Conference Center Deck **	One West Court Square Deck*	Alexan 1133
Address	*250 E. Ponce*	*235 E. Ponce*	*320 Church St.*	*130 Clairmont Ave*	*153 Swanton Way*	*1133 Commerce Dr*
Facility Type	Garage	Surface	Surface	Garage	Garage	Garage
Transient Rates	0 to 10 min Free	Monday-Sunday $2.00 – Up to 30 Min	$3.00 - 30 Min.	Each 30 Min $1.00	0 - 20 min $1.00	0 - 20 min $1.00
	Each add'l 20 minutes $2.00		$10.00 – 3 Hour		Each Add'l 20 Minutes $1.00	Each Add'l 20 Minutes $1.00
	3 Hours after 5pm	Monday-Sunday. $4.00 Up to 1 Hour		Overnight $12.00		
		Monday - Sunday $6.00 Up to 3 hours				
		Monday-Sunday $8.00 – Up to 12 Hours				
		7 Days a Week				
Max Rate	$10.00	$15.00	$15.00	$8.00	$10.00	$12.00
Lost Ticket	$15.00	NA	NA	$15.00	$15.00	$30.00
Early Bird	NA	NA	NA	NA	NA	N/A
Night / Weekend	$5 after 5pm, up to 3hrs	$5.00 to $7.00	Same as Week Day	Same as Week Day	Same as Week Day	Same as Weekday
Total Number of Spaces	895	50	102	261	493	563
Peak Occupancy for Weekdays	75%	85%	94%	65%	90%	65%
Peak Occupancy For Weekends	65%	74%	98%	54%	60%	45%

APPENDIX C: MAPS



Boundary Change 2009-2017