



Park Supply and Demand

Part II: Downtown Silver Spring

Sarah Latimer, Andrew Seguin, Juan Sian, Lauren Stamm
Under the supervision of Professor Chao Liu

URSP688M: Planning Technologies
Spring 2018



Contents

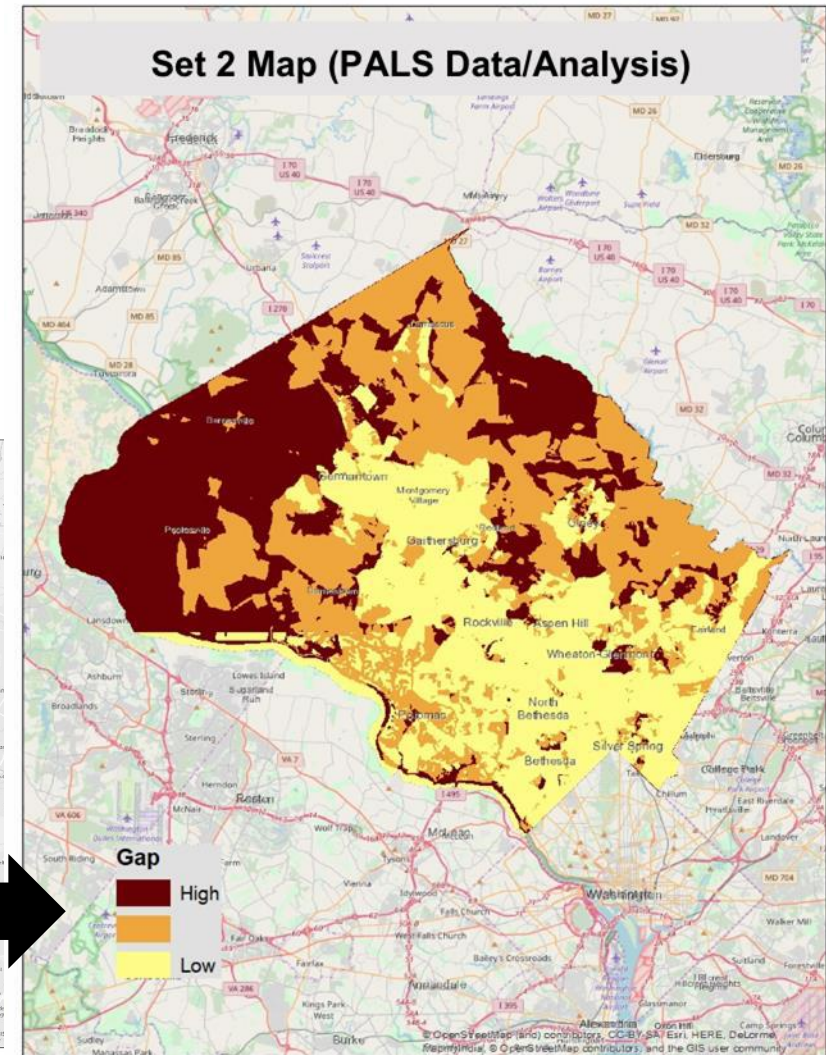
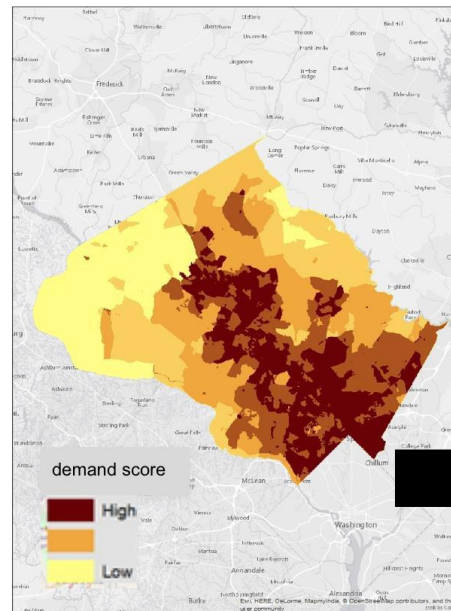
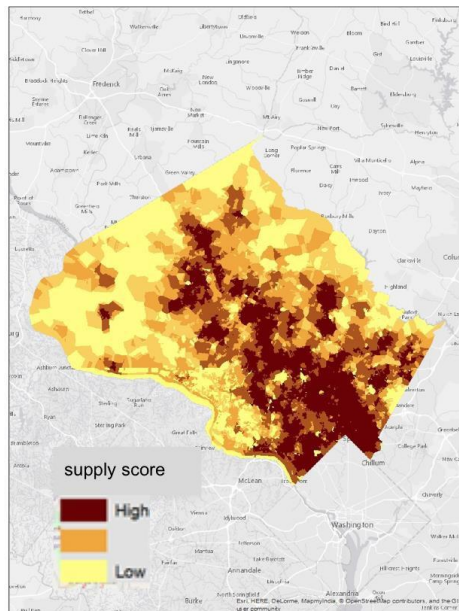
- Review of Fall Semester Work
- Background Research
- Methodology
- Conclusions

Review of Last Semester's Work

- Created an extensive one-mile walkshed and acre grid network for all of Montgomery County
- Determined determined based on employment and walkability data
- Used scoring criteria to generate separate supply and demand maps to create composite score gap map

Recommendations:

- Smaller geographic focus area
- Wider range of variables
- More complex analysis tools





Background Research

- Little academic research of media coverage
- Value of parks
 - economic value of proximity¹
 - public health and well being²
- Measuring supply and demand for parks
 - access issues across racial lines³
 - resident demand decreases past ½ mile⁴
 - ParkScore⁵

1. Harnick, Peter, and Ben Welle. "Measuring the Economic Value of a City Park System." , The Trust for Public Land, 2009. Accessed 27 Feb. 2018.

2. Larson, Lincoln R., Viniece Jennings, and Scott A. Cloutier. "Public Parks and Wellbeing in Urban Areas of the United States." *PLOS One*, PLOS, 7 Apr. 2016. Accessed 27 Feb. 2018.

3. Mock, Brentin. "For African Americans, Park Access is About More Than Just Proximity." *Citylab*, 2 June 2016. Accessed 27 Feb. 2018.

4. Safe Routes to Parks; Improving Access to Parks through Walkability." , National Recreation and Park Association, 2 June 2016. Accessed 27 Feb. 2018.

5. Bliss, Laura. "Why the Grass is Greener in Some U.S. Park Systems." *Citylab*, 2 June 2016. Accessed 27 Feb. 2018 and "ParkScore Methodology." *ParkScore 2017*, Trust for Public Land. Accessed 27 Feb. 2018.



Methodology Overview

1. Updated **demand score** with multifamily units
2. Increased **supply inventory** with privately owned parks
3. Created **automated model builder analysis**
4. Included **bikeshed** to supply calculations
5. Layered **demographic data** over final gap analysis
6. Created **accessible maps online** for public use



Incorporating Bikeability/Bikeshed Variable

Bikeability

- Cycling is an increasingly popular mode of transportation because it's:
 - Traffic-friendly
 - Environmentally-friendly
 - Beneficial for health
- A new variable of accessibility (1 mile radius)

Bikeshed

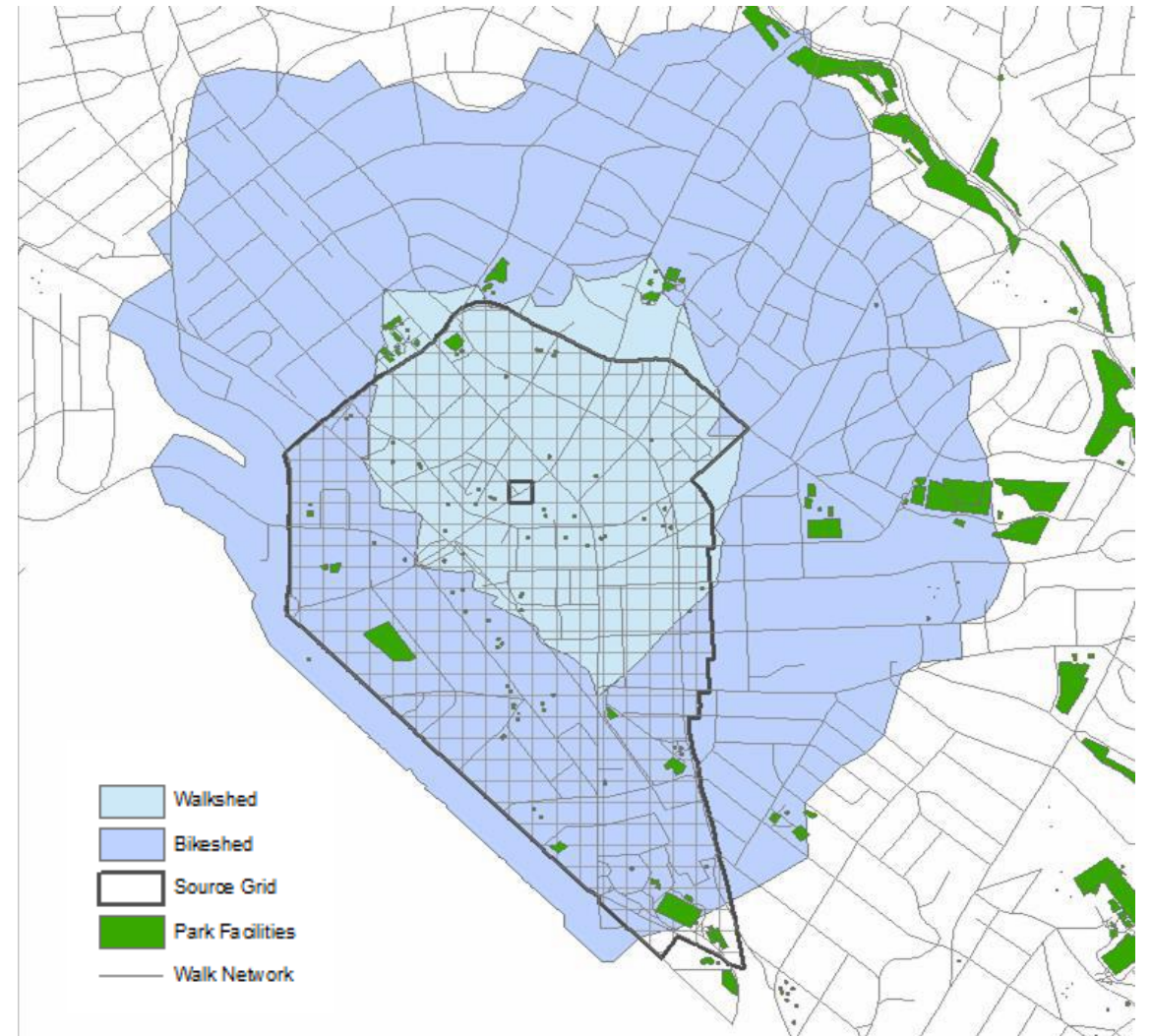
- Ran the bike iterator tool to calculate access
- Parks located within the bikeshed but outside the walkshed (donut) receive a partial score
- Other factors of impedance not included are sloped terrain and busy traffic intersections



Source: <http://www.waba.org/blog/tag/silver-spring/>

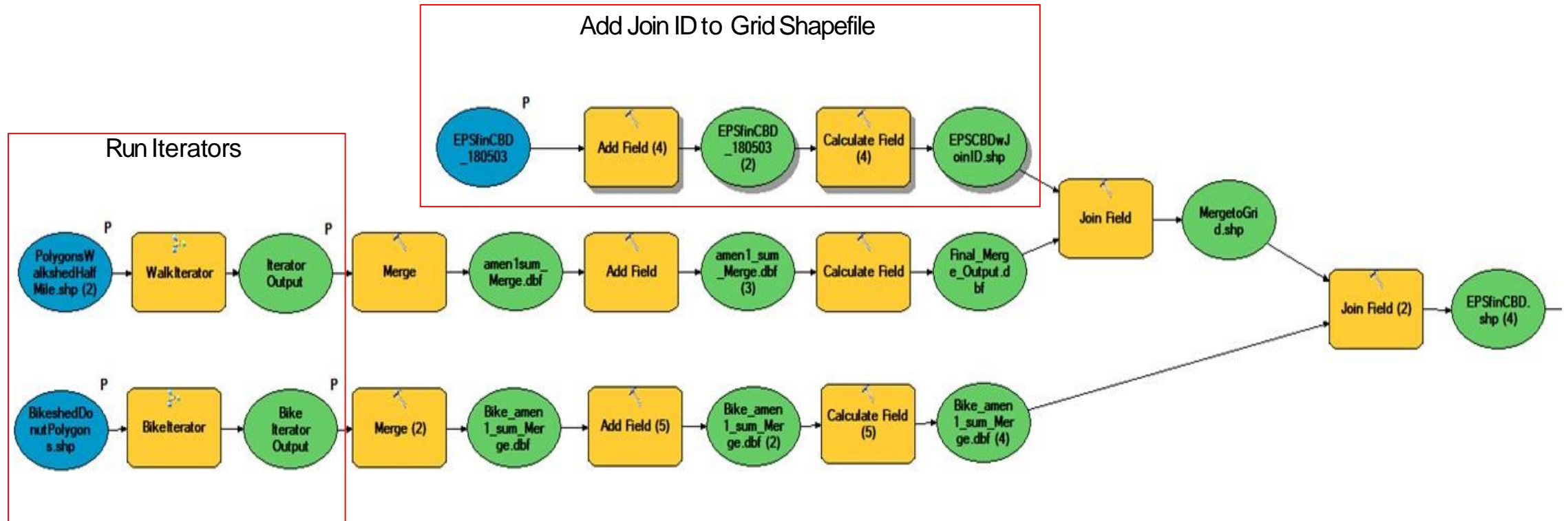
Model Inputs

- Walkshed
- Bikeshed
- Acre Grid Shapefile
 - Single Detached Units
 - Multifamily Units
- Score Lookup Table
- Facilities Shapefile



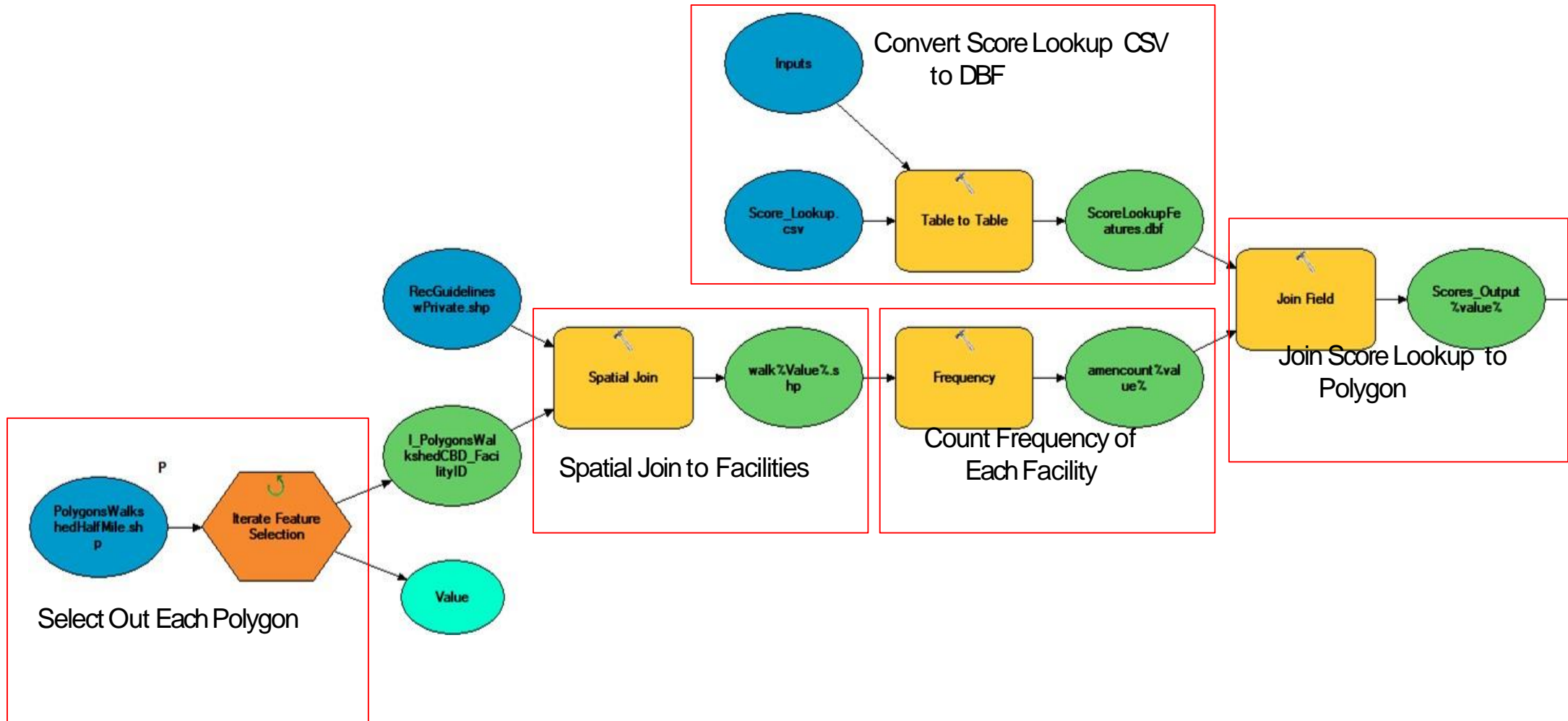


Methodology: Parent Model Pre-Iterator



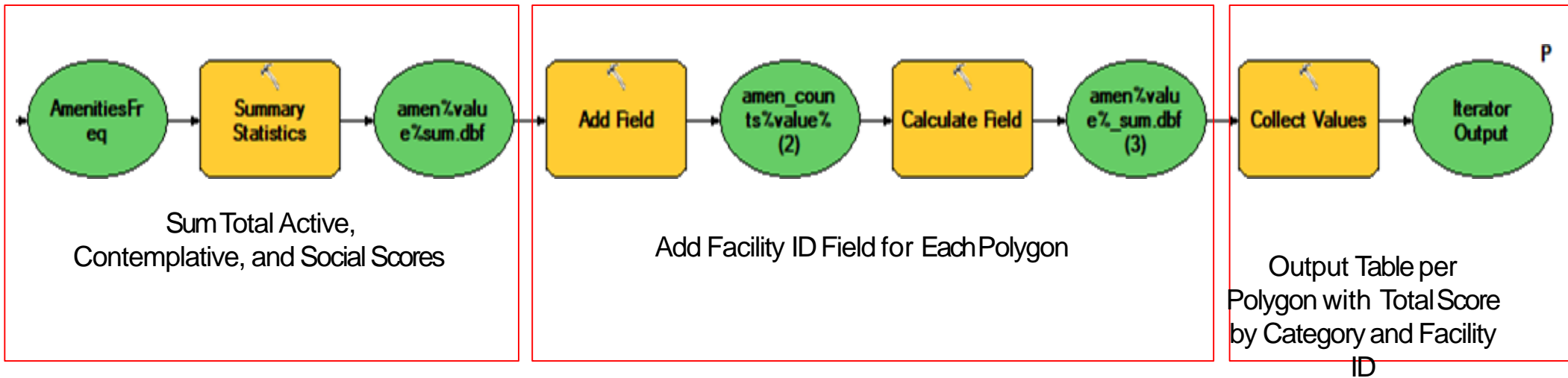
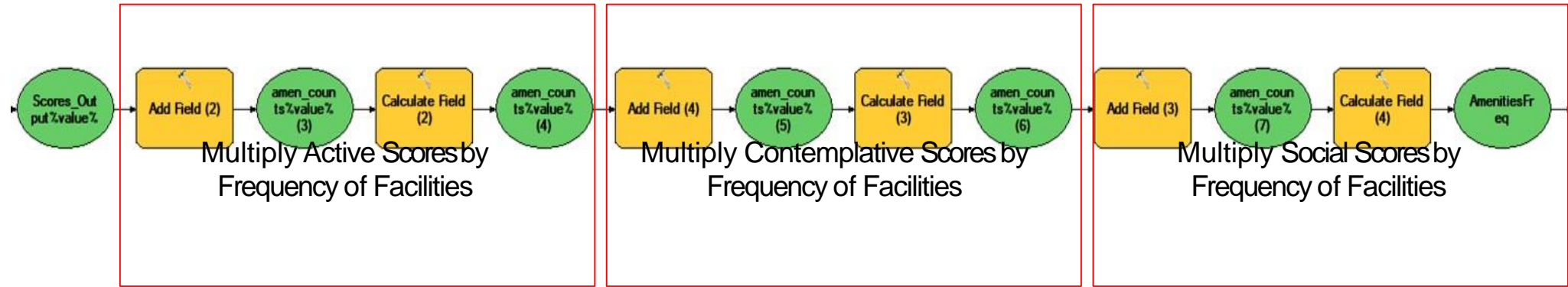


Methodology: Walk and Bike Iterators



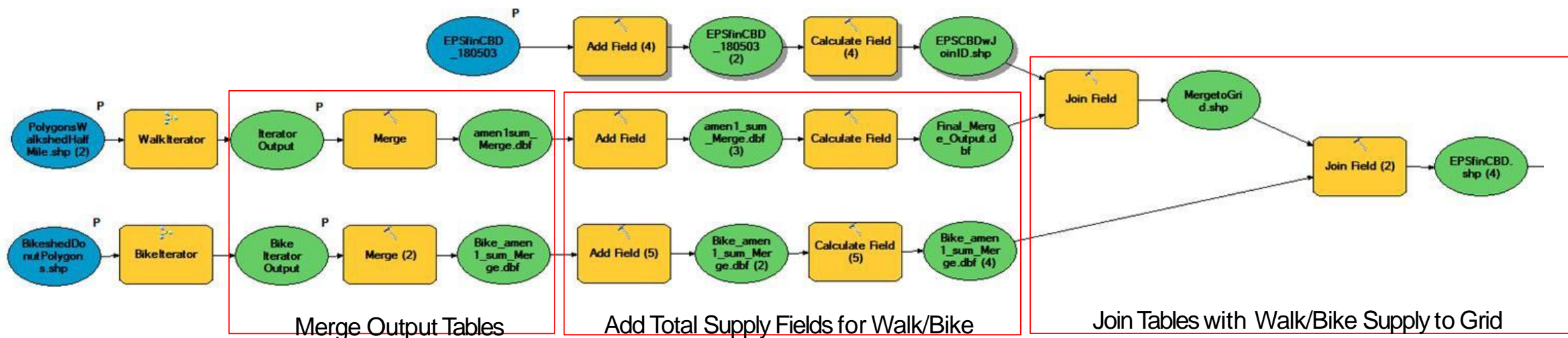


Methodology: Walk and Bike Iterators





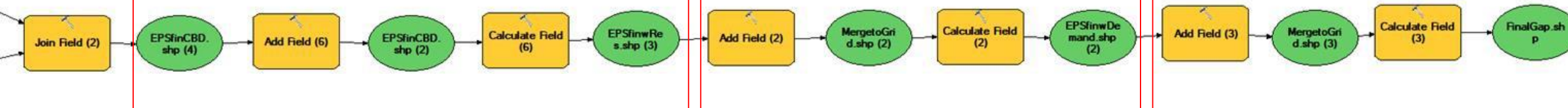
Methodology: Parent Model Post-Iterator



Calculate Total Supply Per Grid
Bike Supply + Walk Supply

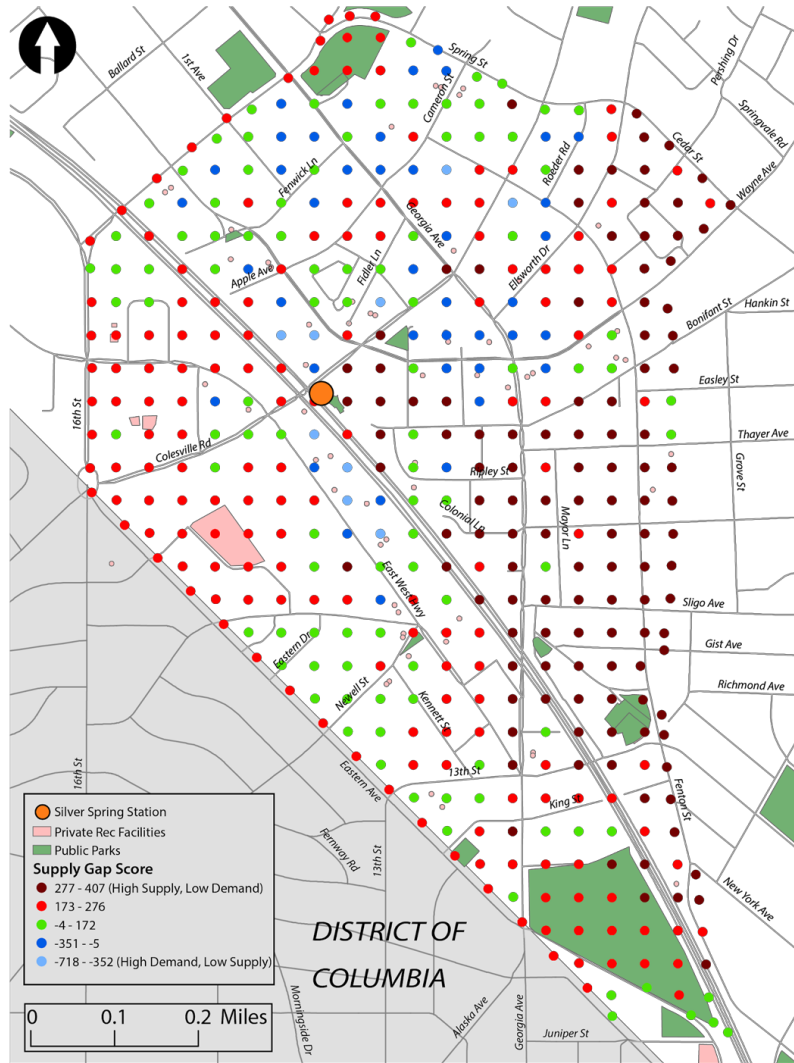
Calculate Demand Per Grid
Total Single Family + MultiFamily + Jobs

Calculate Final Gap Field
Total Supply - Demand



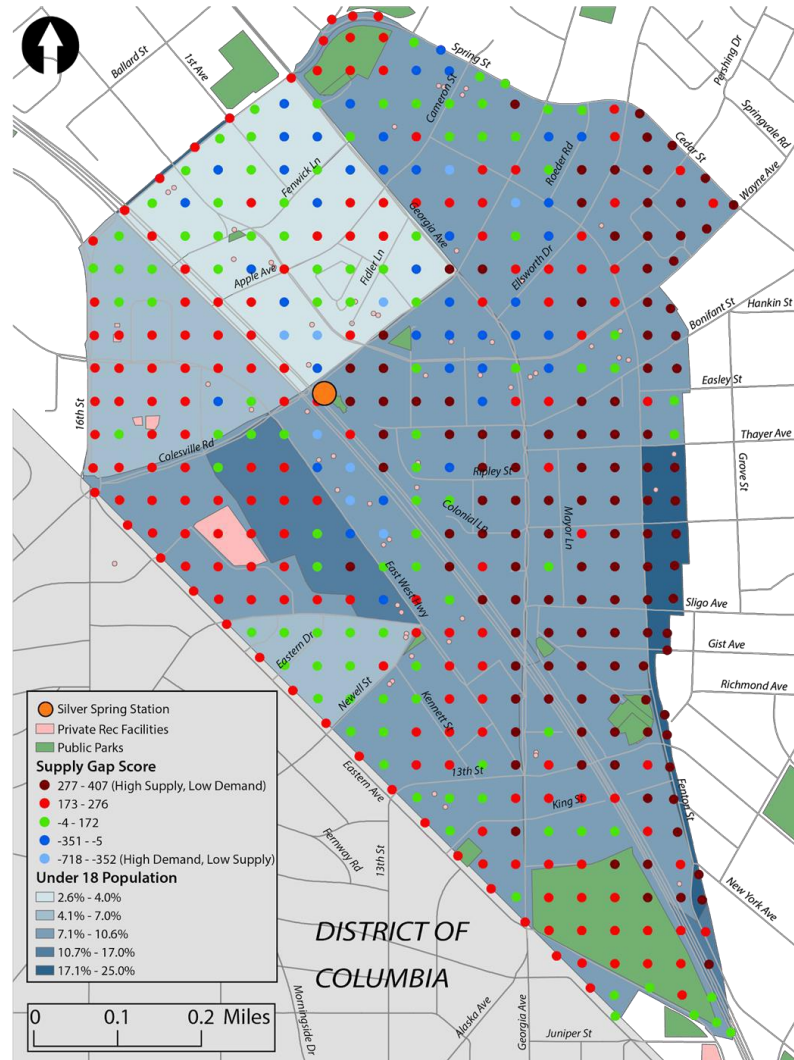


Downtown Silver Spring Supply Gap





Under 18 Population

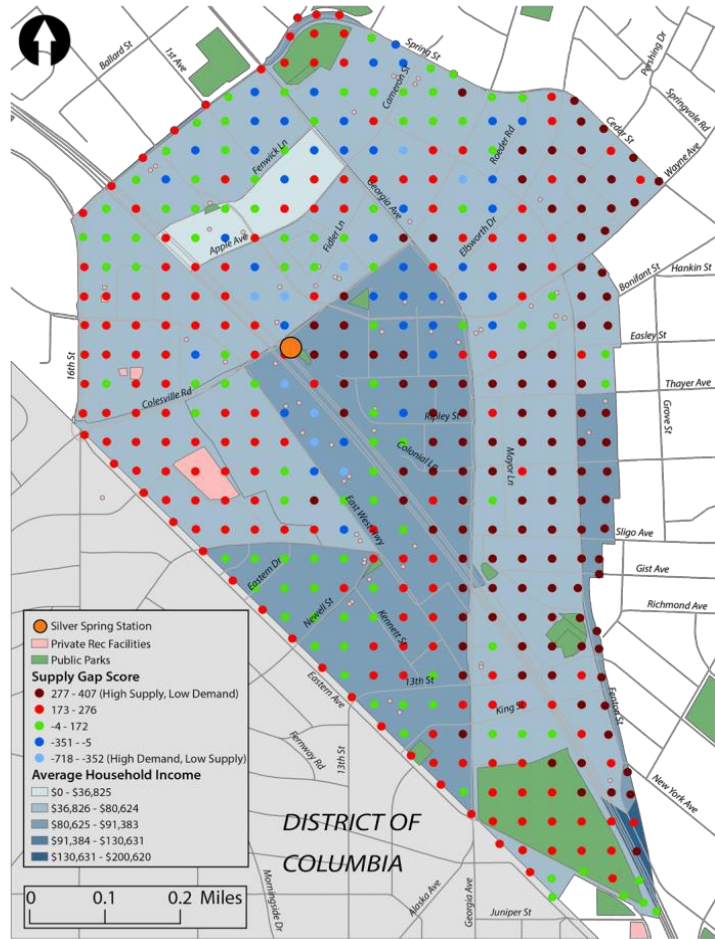


Total Under 18 Population: 3,344 (12.2%)

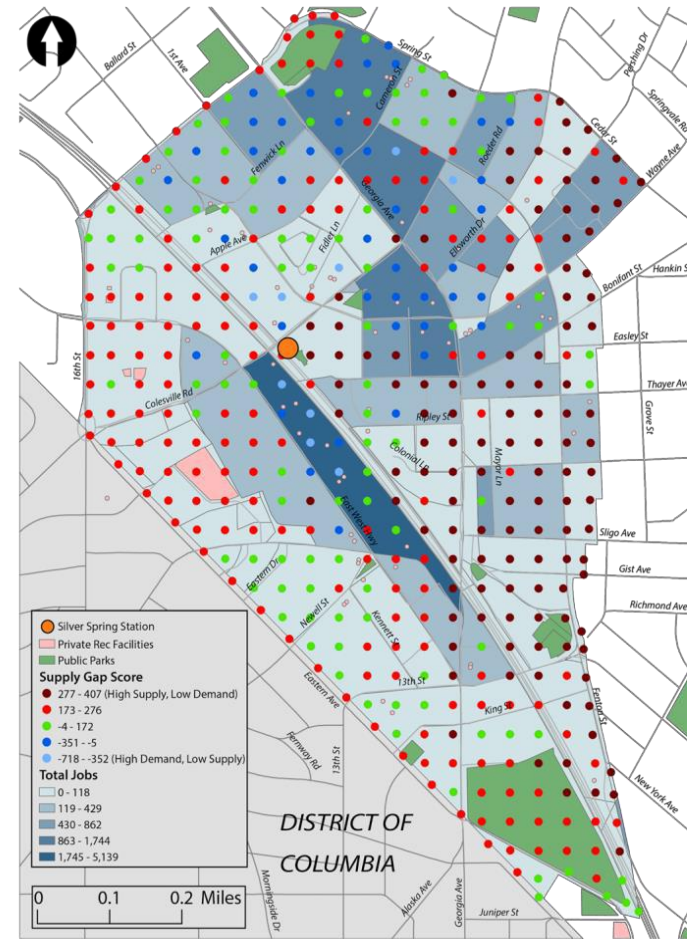
Sources: 2012-2016 American Community Survey Data; Montgomery County Planning Department



Average Income and Total Jobs



**Average Income:
\$73,501**

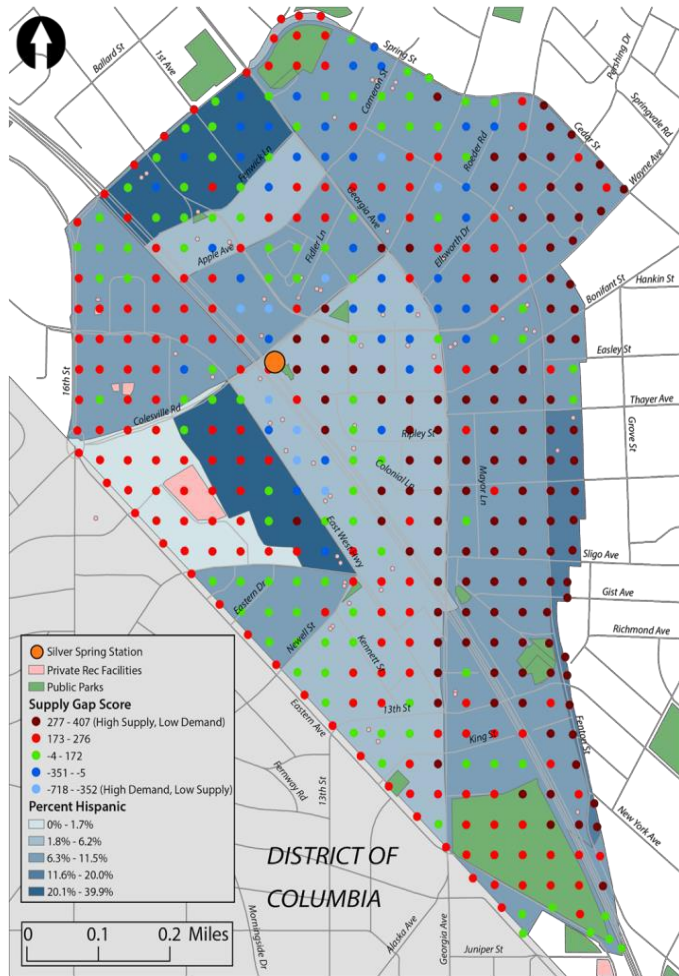


**Total Jobs:
24,073**

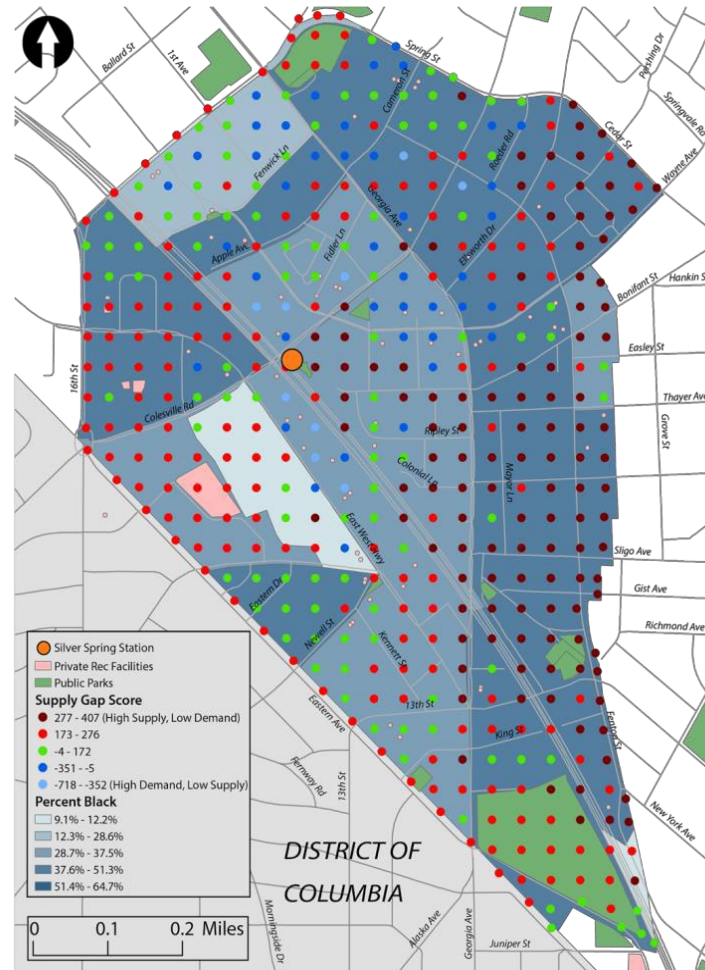
Sources: 2012-2016 American Community Survey Data; Montgomery County Planning Department



Hispanic Population and Black Population



**Total Hispanic Population:
3,124 (11%)**



**Total Black Population:
9,525 (35%)**

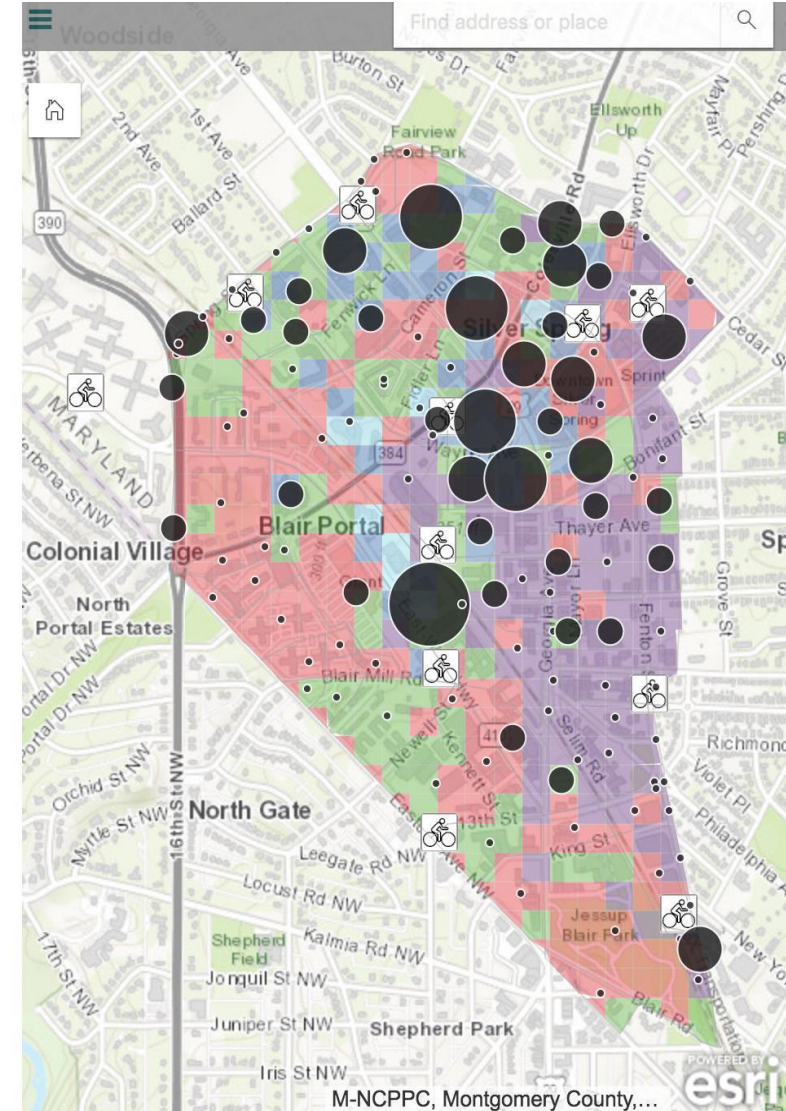
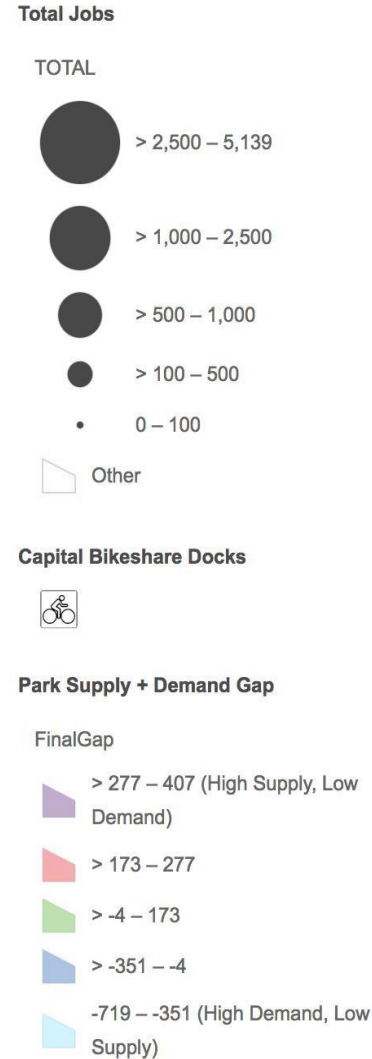
Sources: 2012-2016 American Community Survey Data; Montgomery County Planning Department



ArcGIS Online

- Publicly accessible
- Allows for addition of any ArcGIS online layers (such as Capital Bikeshare dock locations)
- All demographic layers uploaded

Link: <https://bit.ly/2INO9Uf>





Conclusions

- Supply and demand model
 - consider supply and demand variables and weights
 - Use the model to understand the impacts of additional parks
 - add trail data to better understand pedestrian access to parks
- Improving access to parks
 - improve access for people of color
 - enhance pedestrian routes to parks
 - amenitize parks to attract the local workforce
- Recommendations for future research
 - quantify racialized access gaps
 - add qualitative data variables to the model



Thank you!

Questions?