Community Development Visualization

UCB Data Analytics Project 2

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Theme

Reston,VA is a fast developing area within Fairfax County, VA. The impetus for the development in this area is the recent extension of Washington Metro.

A 2014 Planning Study has re-planned this area to transform this area to include a vibrant mix of uses, with the majority of future development focused near the station locations.

The master Plan created three new Transit Station Areas (TSA). Each TSA is further divided into Districts and Sub-Districts. The master Plan has guidance as to how specific areas within these TSA redevelop.

Legend

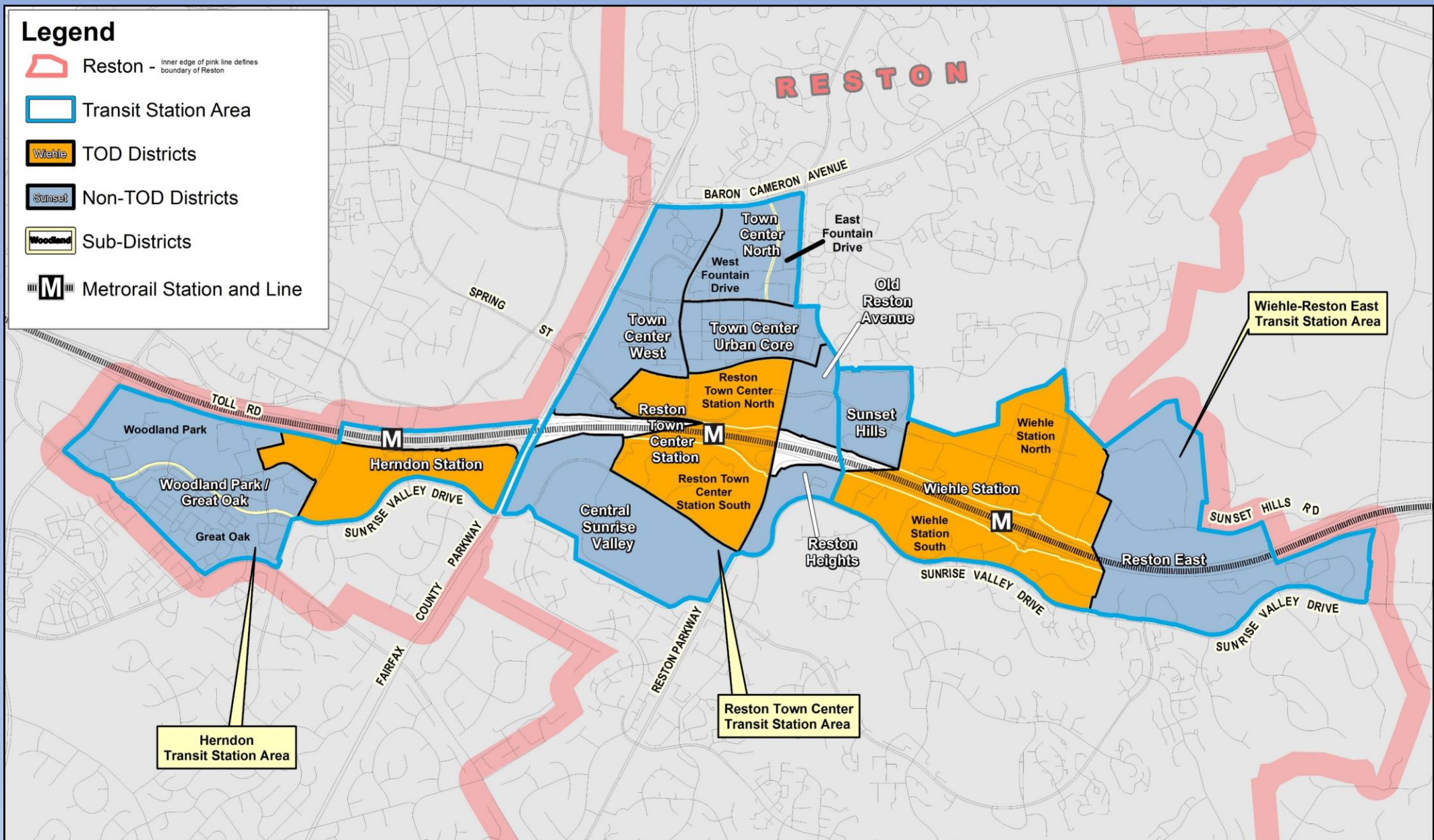- **Reston** - Inner edge of pink line defines boundary of Reston
- **Transit Station Area**
- **Wiehle** TOD Districts
- **Sunset** Non-TOD Districts
- **Woodland** Sub-Districts
- **M** Metrorail Station and Line

RESTON

BARON CAMERON AVENUE

Town Center North

East Fountain Drive

West Fountain Drive

SPRING ST

Old Reston Avenue

Wiehle-Reston East Transit Station Area

Town Center West

Town Center Urban Core

TOLL RD

Woodland Park

Reston Town Center Station North

Sunset Hills

Wiehle Station North

Herndon Station

Reston Town Center Station

Woodland Park / Great Oak

SUNRISE VALLEY DRIVE

Wiehle Station

Wiehle Station South

Great Oak

Central Sunrise Valley

Reston Town Center Station South

Reston Heights

Reston East

SUNSET HILLS RD

FAIRFAX COUNTY PARKWAY

RESTON PARKWAY

SUNRISE VALLEY DRIVE

SUNRISE VALLEY DRIVE

Herndon Transit Station Area

Reston Town Center Transit Station Area

Reston Transit Station Area Transit Oriented Development Districts and Sub-Districts

G:\projects\ocp\pd\env_wetlands\Wetlands_Board_Maps\WB17-W-001\Map6a_Reston_Corridor_Transit_Oriented_DIST_SUB-DISt_Exp_tsa_2-17-2017.mxd

Map prepared by Fairfax County
Dept. of Planning & Zoning
2/17/2017

½ Miles

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Analytics paradigm

- This tool will help the County staff and citizens to monitor the current and future development potential/activity for any given area in the TSAs and analyze if the Plan's long-term goals are met.

- In addition, this tool will let the users to engage in scenario building activity to understand the impacts of specific development plans.

Coding approach

- Full stack web application for a dashboard page with multiple charts
- Github (https://github.com/indranik/Project2) repository from day one
  - Proposal in README.md
  - Use of git Issues to define and assign tasks
  - Use of git branches to merge updates via pull requests and approvals
- JS library not used in class:
  - Slider package
  - Menu styling and title animation
  - Leaflet.shapefile and Leaflet.groupedLayers

Data munging techniques

- Dataset includes:
  - Fairfax County's Tax Records and Plan Buildout and development pipeline data in csv,shapefile and sqlite db formats
- Flask app:
  - JavaScript logic for DOM elements manipulation
    - Use of d3/svg for graphics controls
    - Use of POST/GET methods for data transfer: from user selection to logic for data filtering and calculations and data display.
  - SQLite database for data manipulation
    - Use of SQLAlchemy for creating session to retrieve data
    - Use of db functions like sum to process over the data.
  - Pandas for shaping data to the Web
    - Final data manipulation for Web display of user selections

Final Visualizations

- User input components:
  - Dropdown list selection
  - Map layers
  - Slider

- Visualizations
  - Table summary data
  - Gauge
  - Map pins
  - Bar plots