



A Tool for the Future

Chesterfield County Sidewalk Inventory & Planning Tool



TIMMONS GROUP
ENGINEERING | DESIGN | TECHNOLOGY



Starting Point

If the County had \$1,000,000...

A large, semi-transparent orange arrow pointing downwards from the orange box to the grey box.

**...which pedestrian project
should we choose?**



Project Goals

01

Map Existing
Sidewalk Data for all
major roads
(non-neighborhood)

02

Create a
Countywide
Sidewalk
Masterplan

03

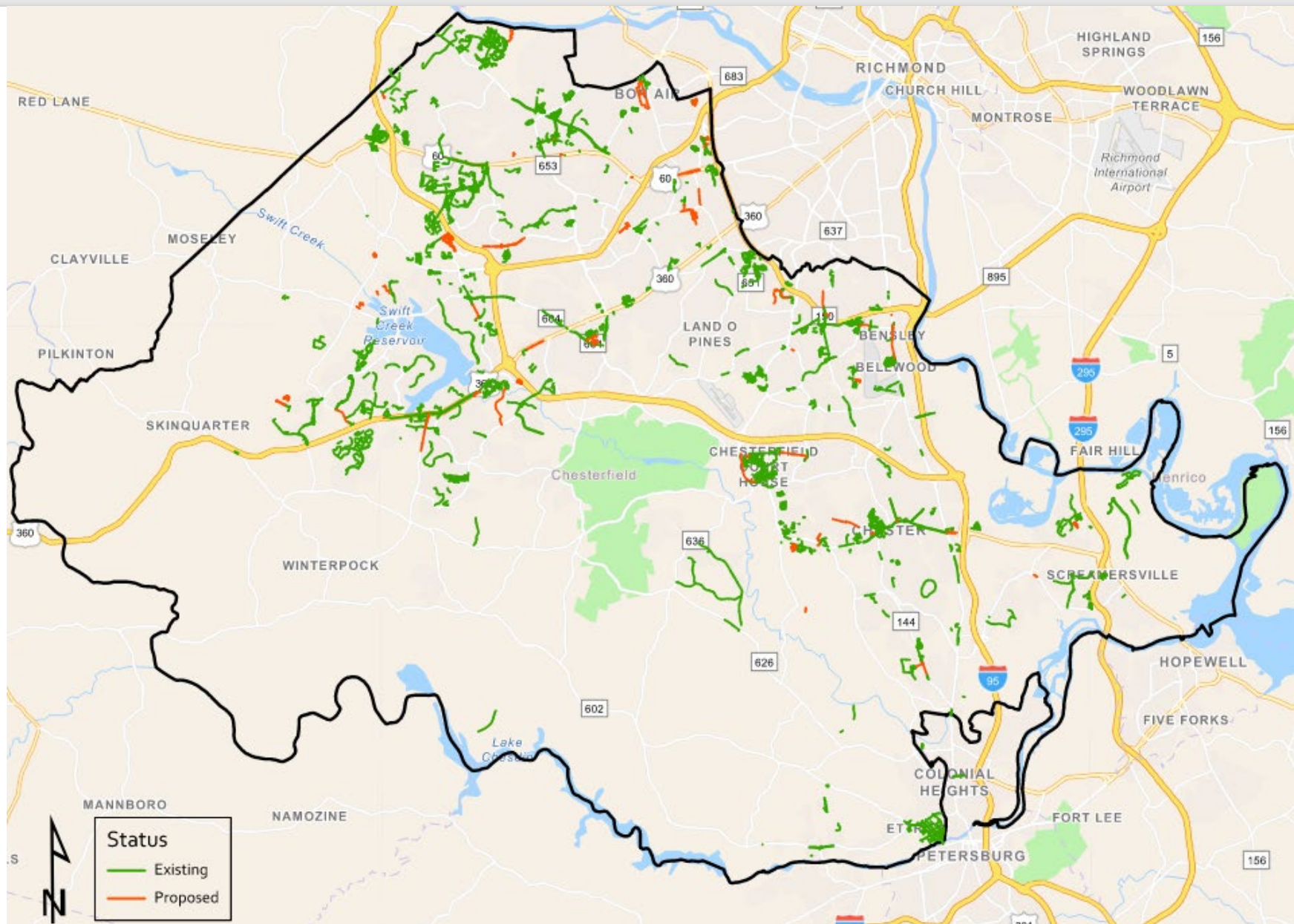
Utilize
Demographics and
Proximity Analysis
to prioritize
sidewalk segments

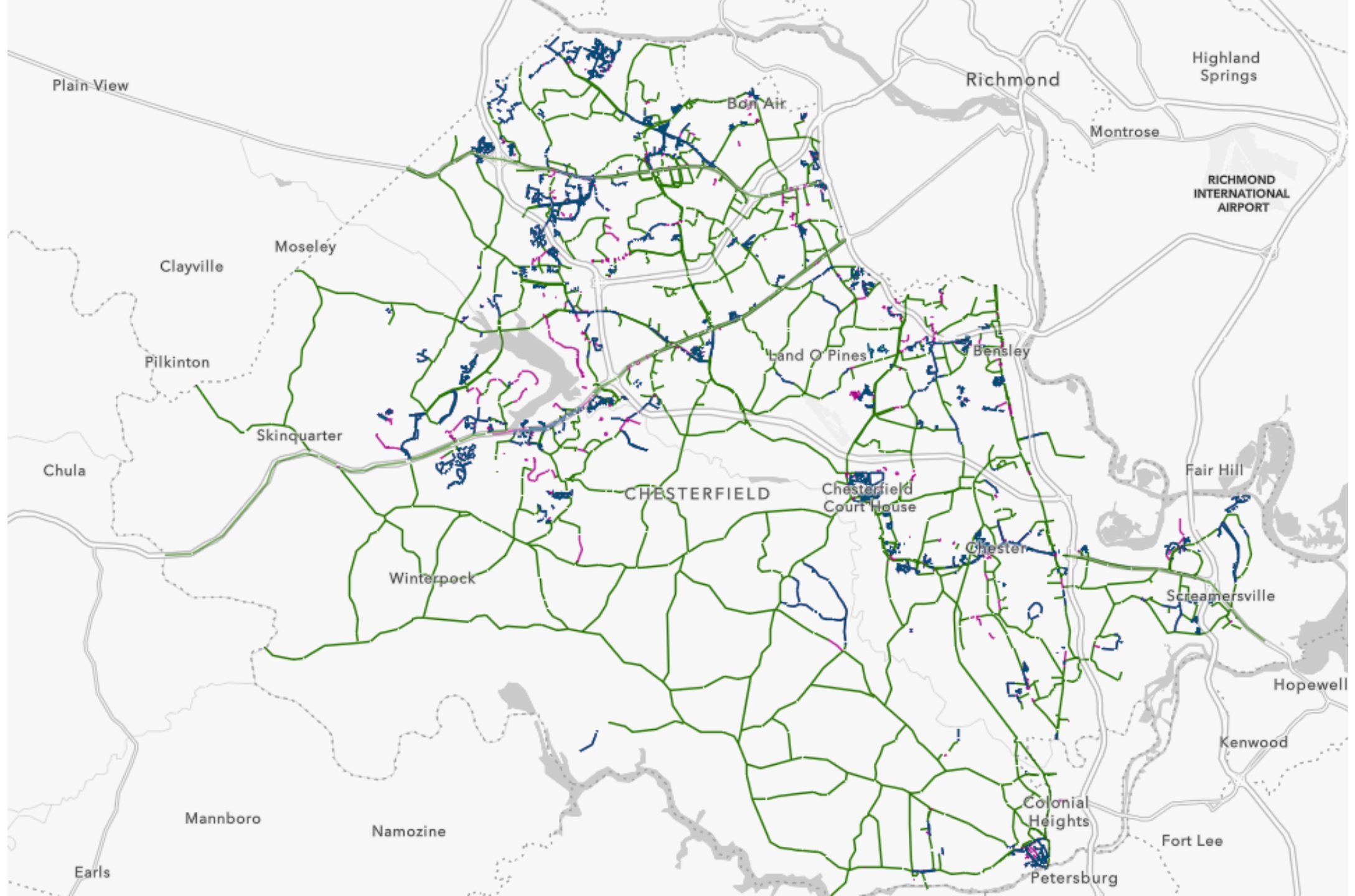


Length of Sidewalk
1,410,899.83ft
267.22mi

GIS Data Validation and Update

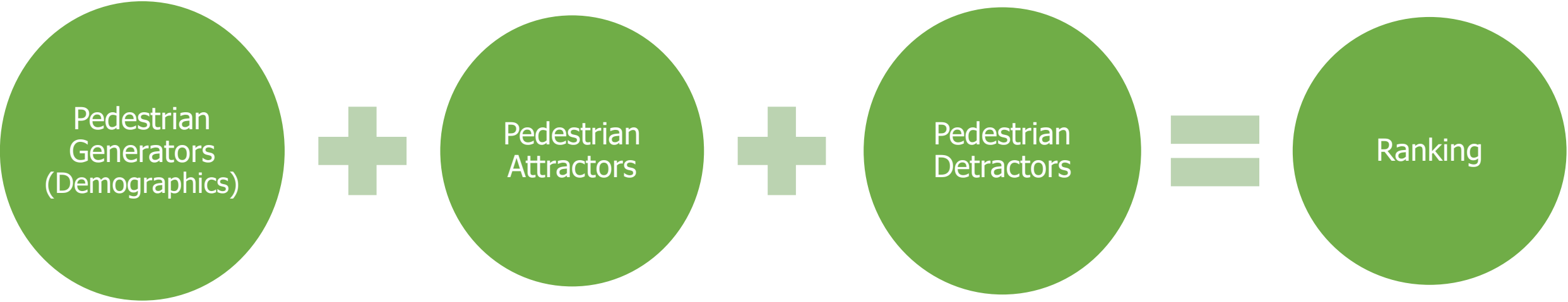
- Validate existing GIS sidewalk data and update inventory using available Google imagery
- Utilize VDOT Roadway Surface Condition Inventory to capture sidewalk locations on arterials/collectors





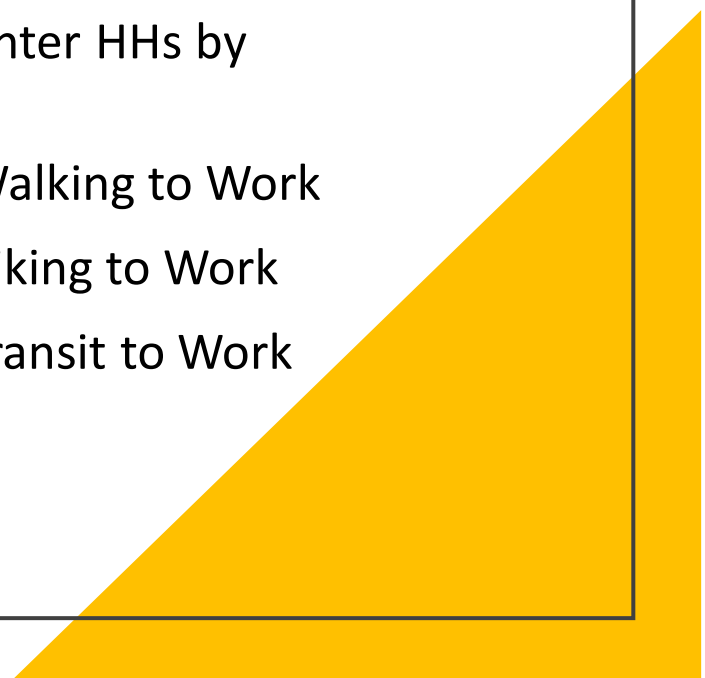


Pedestrian Priority Model

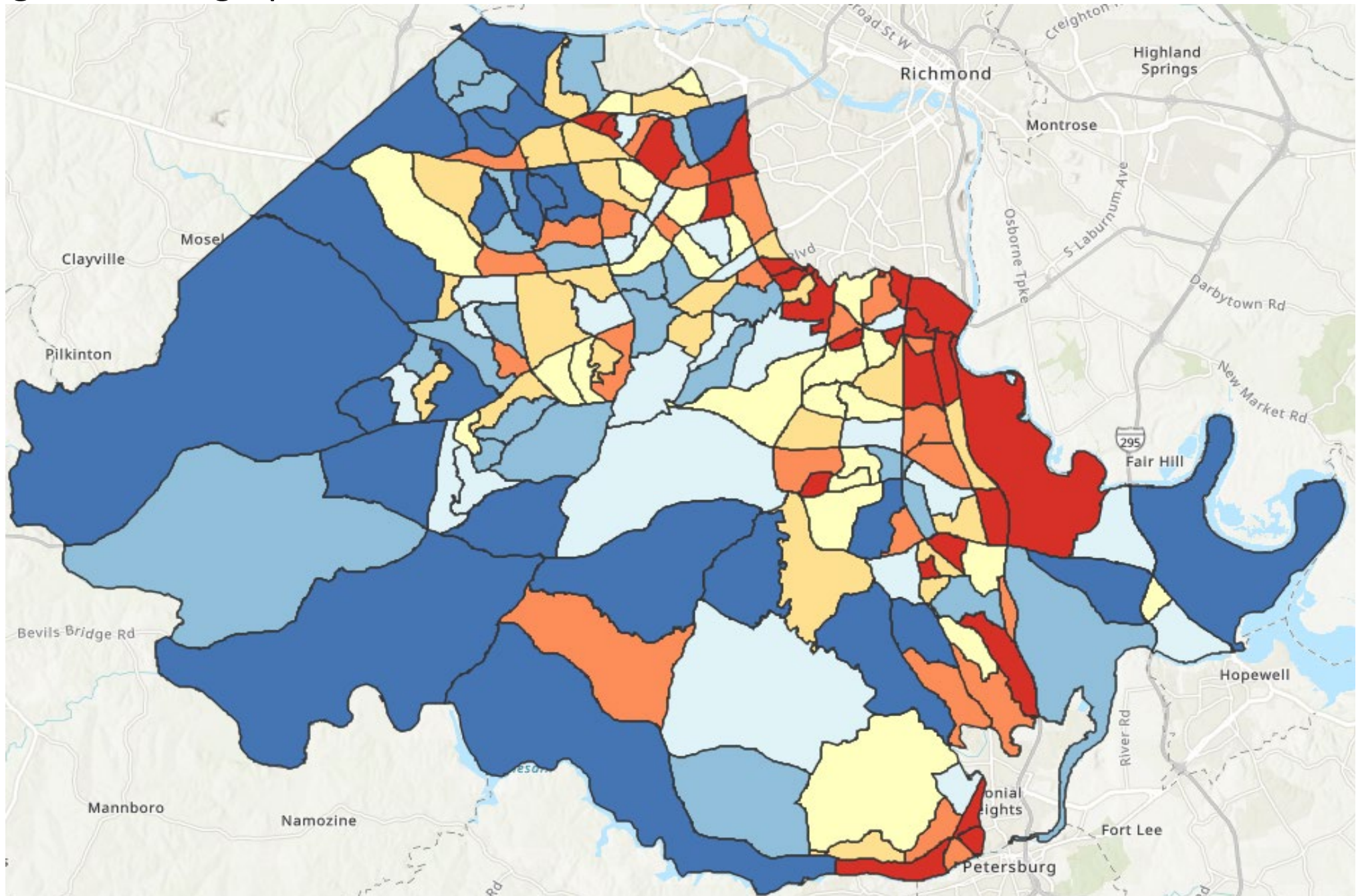




Demographic Model

1. 2019 Median Household Income
 2. 2019 Low-Moderate Income (LMI)
 3. 2019 Population Density
 4. 2019 Employed Population (16+)
 5. 2013-2017 ACS Owner/Renter HHs by Vehicles Available: 1 or 0
 6. 2013-2017 ACS Workers Walking to Work
 7. 2013-2017 ACS Workers Biking to Work
 8. 2013-2017 ACS Workers Transit to Work
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Visualizing the Demographic Model



Pedestrian Priority Model

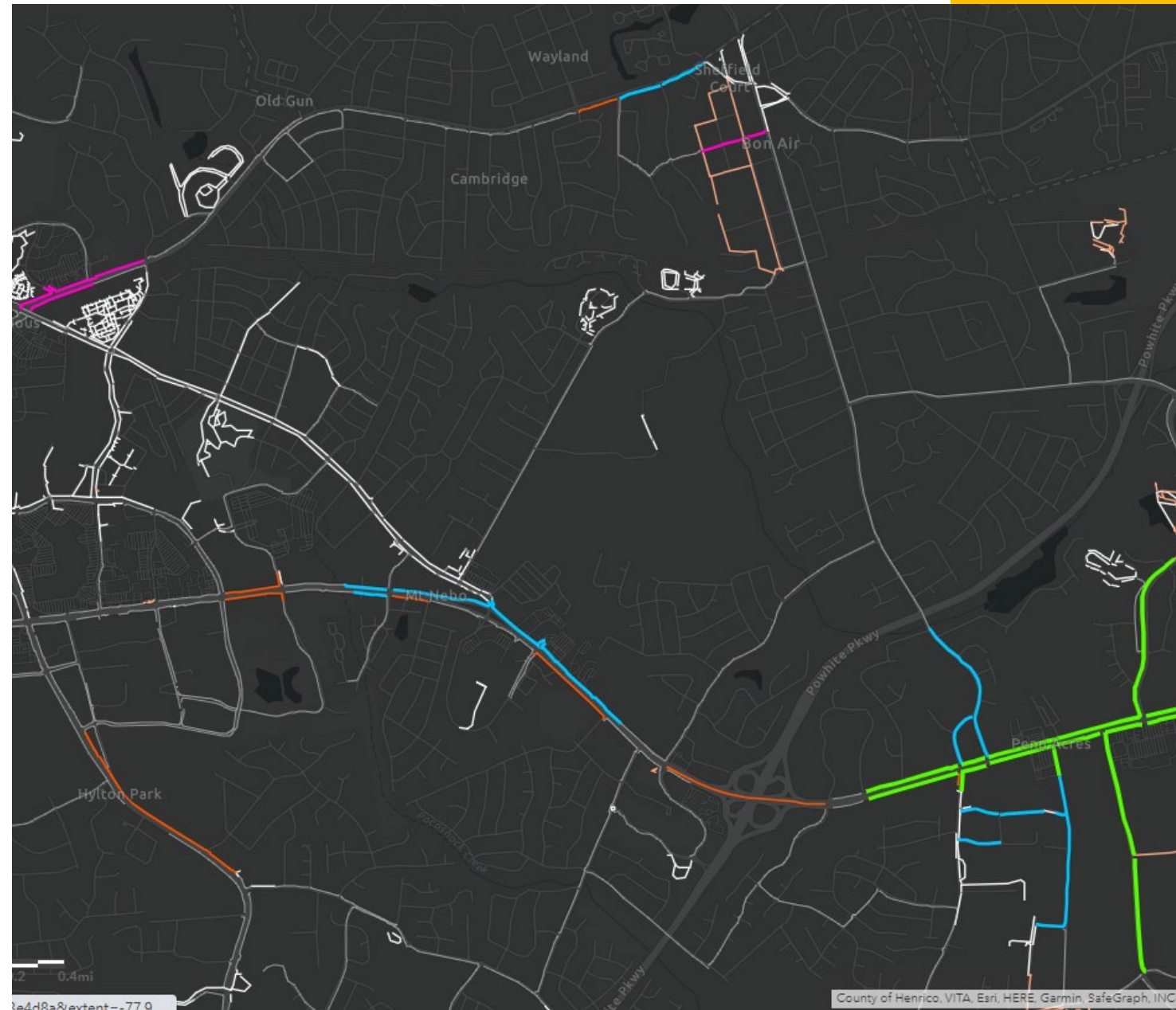
Pedestrian Attractors	Points
Transit Stops	5
Community Centers	3
Neighborhood/Community Retail < 10	2
Neighborhood/Community Retail > 10	4
Elementary Schools	3
Middle Schools	2
High Schools	2
County Services	2
Libraries	2
Post Offices	1
Colleges	1
Parks and Recreation	1

(1/2 Mile Proximity)

Pedestrian Detractors	Points	Weighting	Final Score
Pedestrian Crashes per Year (1/16 mile buffer applied to each crash)			
1+	3	3	9
0.5 - 0.9	2		6
0 - 0.5	1		3
0	0		0
Average Daily Trips (ADT)			
> 45,000	3	2	6
35,000 - 45,000	2.5		5
25,000 - 35,000	2		4
15,000 - 25,000	1.5		3
10,000 - 15,000	1		2
5,000 - 10,000	1		2
< 5,000	0.5	1	
Speed Limit			
> = 45 MPH	3	1	3
35 - 40 MPH	2		2
30 MPH	1		1
< = 25 MPH	0		0

Data Publication and Map Product Creation

- Creation of ArcGIS Online Database
- Includes Existing, Proposed, & Ranked Sidewalk Segments
- Displays all data in one location for County staff to share and plan



Data Publication and Map Product Creation



US Route 360 – Brad McNeer Parkway to Commonwealth Center Parkway (EB) Overall Project Score: 30.97

Overall Project Rank: 8

Project Length: 1,254 Linear Feet

Project Build Type: E_Shared_Use_Path

Build Type Rate/Linear Foot: \$290

Estimated Budget: \$370,000

Generator Score: 6.97

- Demographic Ranking: 58 of 168

Adjacent Functional Classification:
Principal Arterial

Magisterial District: MATOACA

Attractor Score: 9

- Businesses within 1/2 mi: 54

- Schools within 1/2 mi: 0

- GRTC stops within 1/2 mi: 1

- All other POI within 1/2 mi: 0

Detractor Score: 15

- Adjacent Speed Limit: 45

- Adjacent Average Daily Traffic (ADT):
76,000

- Pedestrian involved crashes within
1/16 mi. (Since 2013): 3



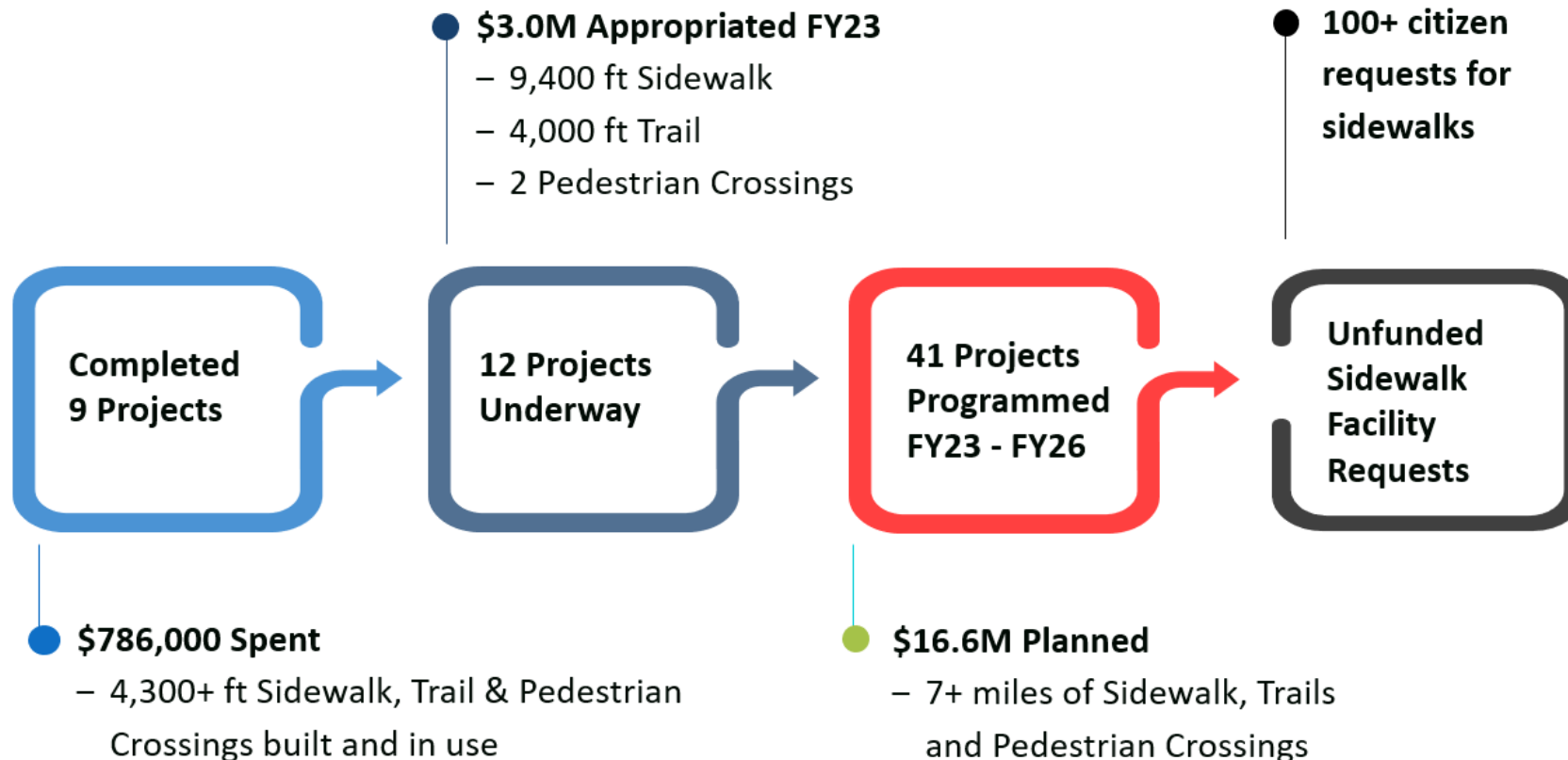
County Sidewalk Tool Implementation

How is the county using the tool for upcoming projects?



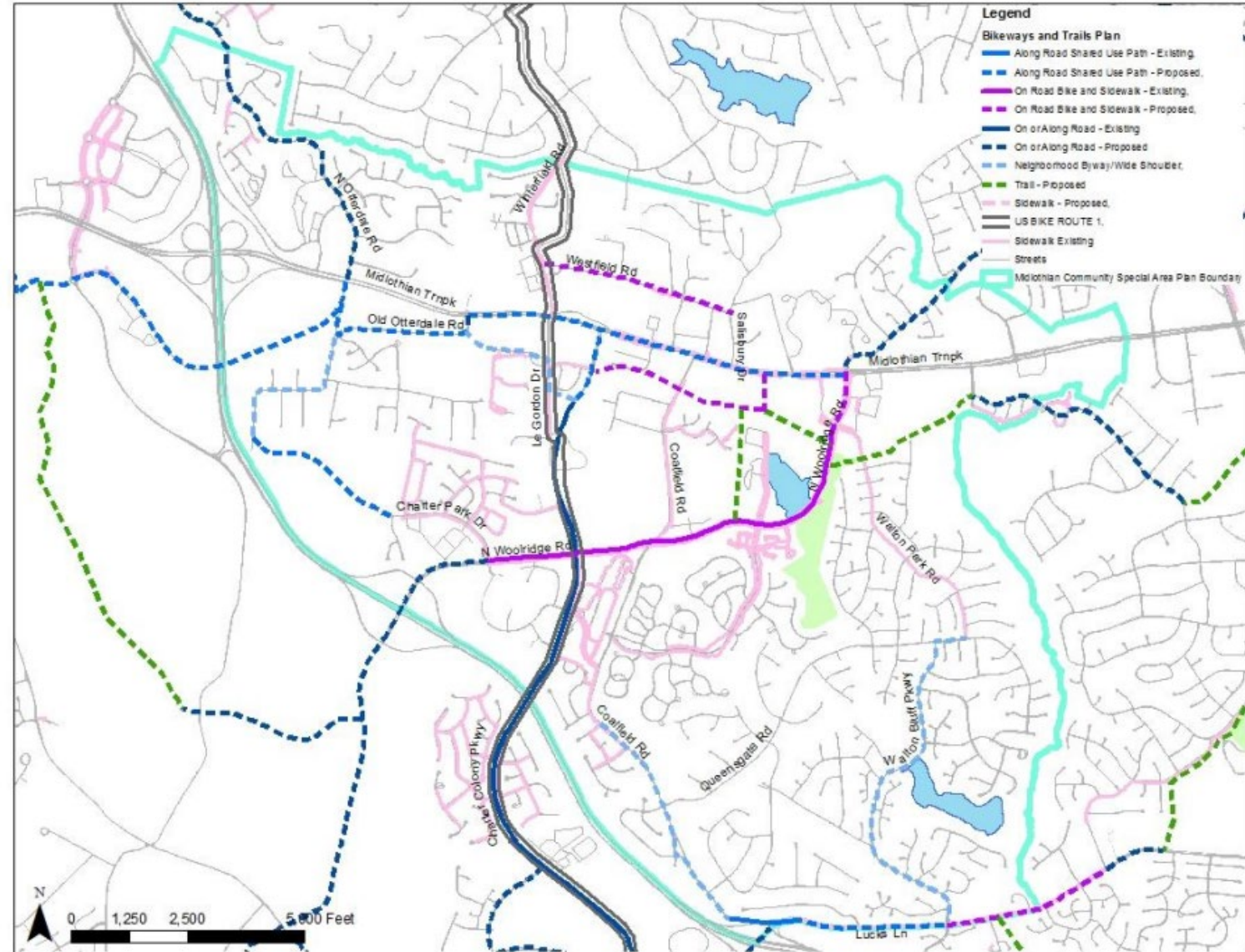
Community Connectivity Sidewalk Funds (CCSF)

- Goals: pedestrian focused, logical connections, fast project delivery
- Funds programmed across 5 magisterial districts
- Board of Supervisors have ultimate approval



Special Area Plan (SAP) Implementation

- Example: Midlothian Community SAP
- On-going discussions with the SAP Implementation Committee
- Starting with high-ranking segments along RT 60 through the “Village” area



Other Examples and Take-Aways

- Citizen requests
- Data driven
 - Helps us not miss key segments, comprehensive
 - Helps us not be emotional
- Iterations to refine tool
 - “Useability” tweaks
 - Ranking pedestrian crossings - underway
 - Future updates: crash data, \$/LF, revisit weighting of pedestrian crashes

CHESTERFIELD COUNTY SIDEWALK IMPLEMENTATION PLAN

Demographic and Spatial Analysis

April 2020

Prepared For:
Chesterfield County, VA



TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.



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Other Examples and Take-Aways

- Not a hard list
 - Top projects on primary routes
 - Established commercial areas, RW costs can be greater than CN costs, utilities
 - Been successful bundling with other corridor improvements
 - Ex: Lee Street, Ranked #5 in Matoaca District
 - Too expensive due to conflicts
 - Existing sidewalk provides some access
 - Lack of citizens/board member requests
 - Not never, just not right now





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Project Story Map

<https://storymaps.arcgis.com/stories/1d3d50895c5e4120a5f34f4e2d08bfd6>



Q & A

