

Using ArcGIS in Points Of Distribution (PODs) Planning

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Background

State and local emergency planners need to determine the numbers and locations of the Points of Distribution (PODs) before the pandemic event.

PODs are required to provide prophylaxis to the entire population within 48 hours.

The biggest challenge facing planners is determining how to allocate their limited PODs staff.



Programs to assist in PODs layout and staff distribution

- **Bioterrorism and Epidemic Outbreak Response Model (BERM)**
- **Clinic Planning Model Generator**
- **RealOpt**
- **Maxi-Vac 1.0 and Maxi-Vac Alternative**
- **Center for Emergency Response Analytics**



Where should they be located?

CDC's planning guidelines for community-based mass prophylaxis indicate that the sites' locations should be guided by the knowledge of:

- local population
- proposed location of stockpile and distribution sites
 - ✓ Size
 - ✓ Security
 - ✓ Access
 - ✓ Storage
 - ✓ Facility support
 - ✓ Communications



ArcGIS could help greatly in location selection process

- 👍 Census population with updated and projected information
- 👍 Police stations
- 👍 Local government facilities
- 👍 Schools and churches
- 👍 Others

Virtual maps can also be incorporated



ArcGIS could help greatly in location selection process (continue)

- Health facilities – hospitals, nursing homes, special needed facilities.
- Transportation – High ways, public transportation routes.
- Political boundaries – municipal, school district boundaries.
- Demographic information – population clusters, race ethnicity and special language needs.
- Surveillance information

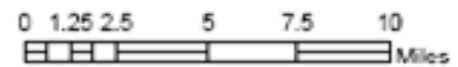


MontCo Municipalities and Census Blocks Boundaries



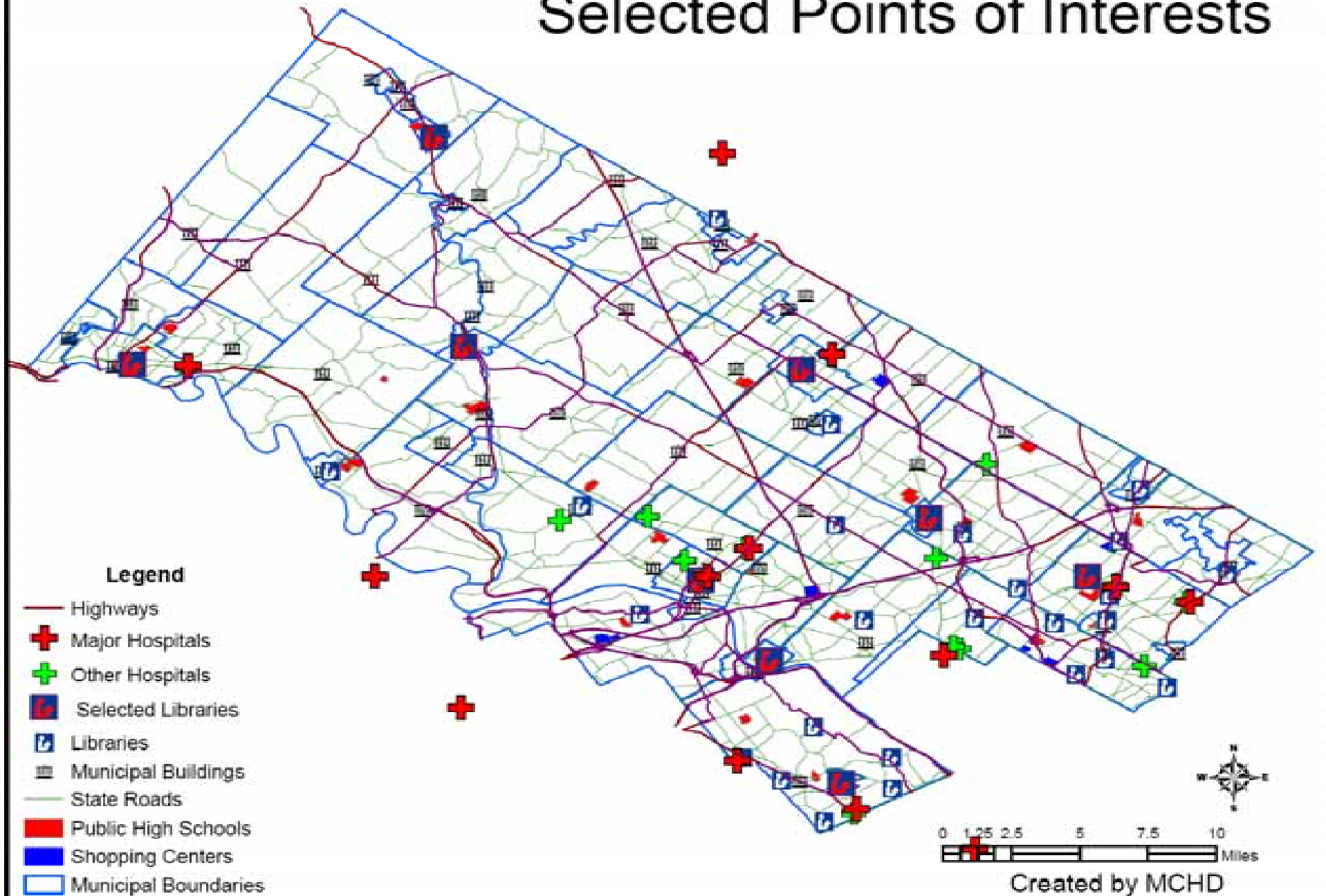
Legend

- ▬ Municipal Boundary
- ▬ Census Block

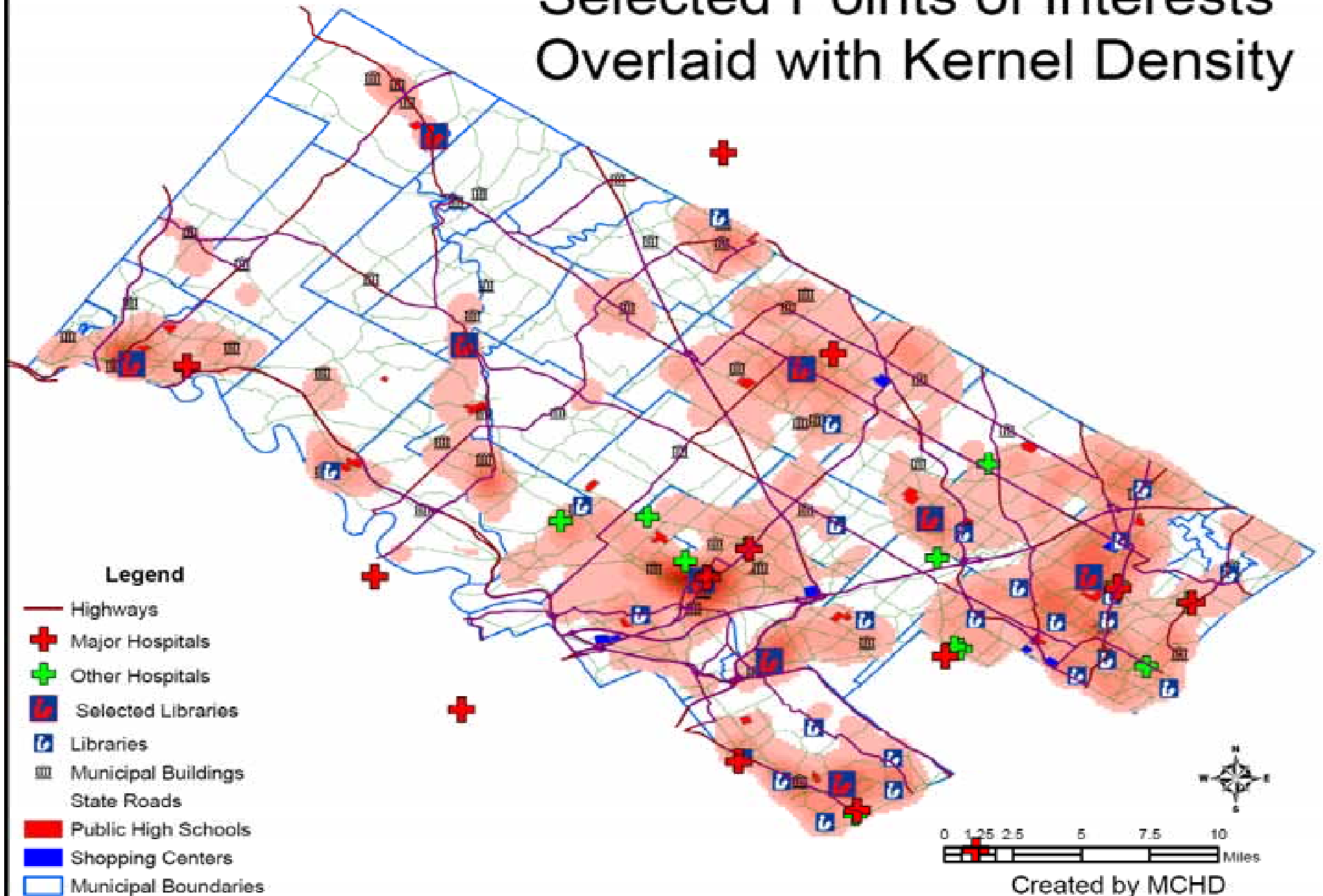


Created by MCHD on 1/29/07

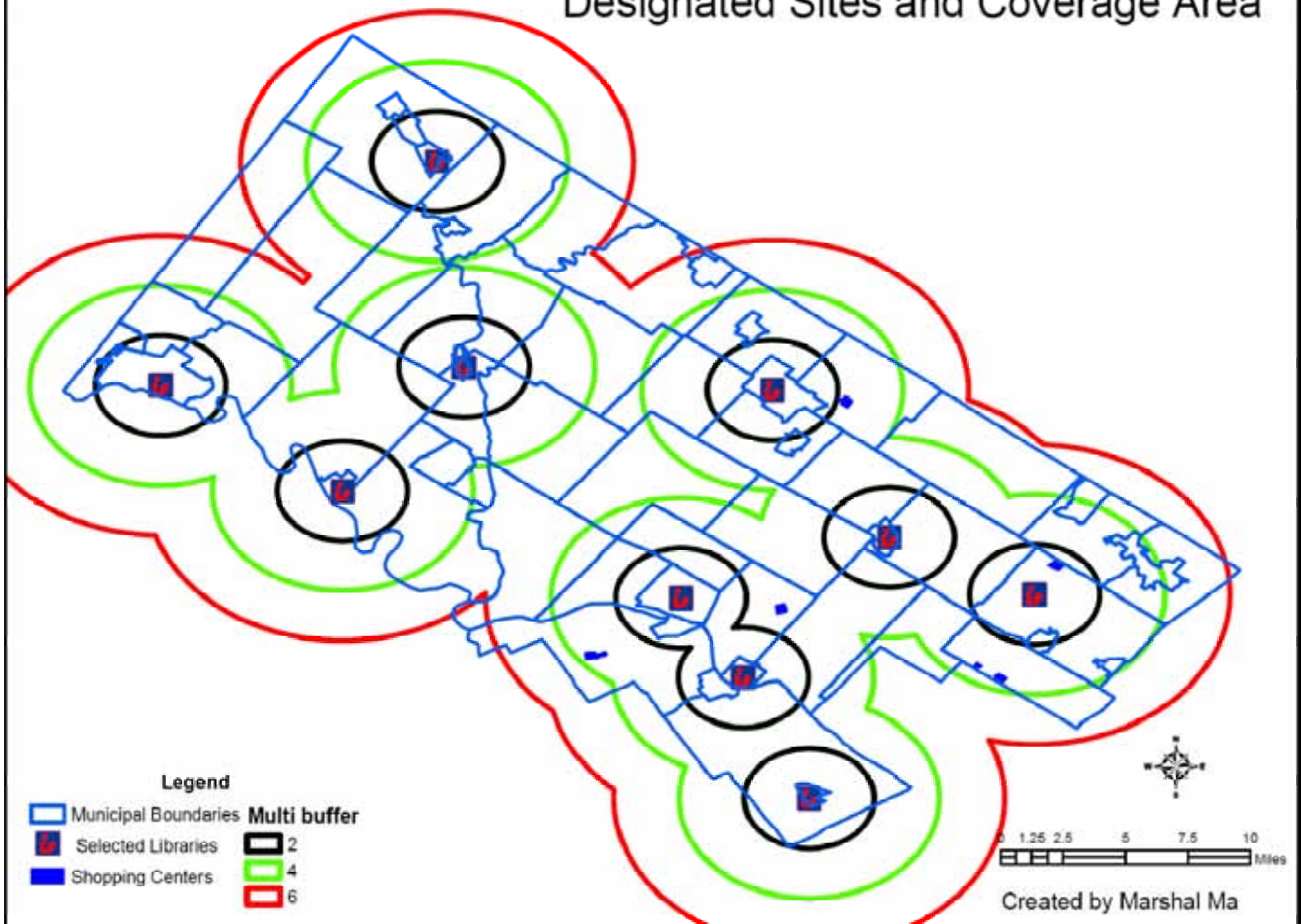
Selected Points of Interests



Selected Points of Interests Overlaid with Kernel Density



Designated Sites and Coverage Area



blockpop.mxd - ArcMap - ArcEditor

File Edit View Insert Selection Tools Window Help

Georeferencing Layer: KernelID_CBc1 Geostatistical Analyst

1:2,023

Editor Task: Create New Feature Target:

Construction: Horizontal Text: Text Symbol:

Layers

- Selected Libraries
- Join_Output_4
- CBCentroid_Features_Pro
- Libraries
- Municipal Buildings
- mcgis.DBO.MontcoRoads
- mcgis.DBD.MontcoRoads
- censusblock_Dissolve2
- Multi buffer distance
 - 2-mile
 - 1-mile
 - 6-mile
- Shopping Centers

Legend

Measure

Line measurement
Segment: 357.073208 Feet
Length: 357.073208 Feet
Sum Lengths: 357.073208 Feet

75°20'21.881"W -40°7'18.122"N 6.26 3.83 Inches

The image is a screenshot of the ArcMap software interface. At the top, the title bar reads "blockpop.mxd - ArcMap - ArcEditor". Below it is a menu bar with "File", "Edit", "View", "Insert", "Selection", "Tools", "Window", and "Help". A toolbar contains various icons for navigation and editing. The main map area displays an aerial photograph with several green lines representing a 2-mile buffer and a red line representing a 1-mile buffer. A "Measure" dialog box is open over the map, showing the following text: "Line measurement", "Segment: 357.073208 Feet", "Length: 357.073208 Feet", and "Sum Lengths: 357.073208 Feet". On the left side, the "Layers" panel is visible, listing several layers including "Selected Libraries", "Join_Output_4", "CBCentroid_Features_Pro", "Libraries", "Municipal Buildings", "mcgis.DBO.MontcoRoads", "mcgis.DBD.MontcoRoads", "censusblock_Dissolve2", "Multi buffer distance" (with sub-items for 2-mile, 1-mile, and 6-mile), and "Shopping Centers". A "Legend" window is also present at the bottom of the map area. The status bar at the bottom shows the coordinates "75°20'21.881"W -40°7'18.122"N" and the scale "6.26 3.83 Inches".

Staff Distribution and Attendants Expectation

Approximately how many people will attend each site?

Estimation based on the population distribution in the county and their direct proximities to each location.

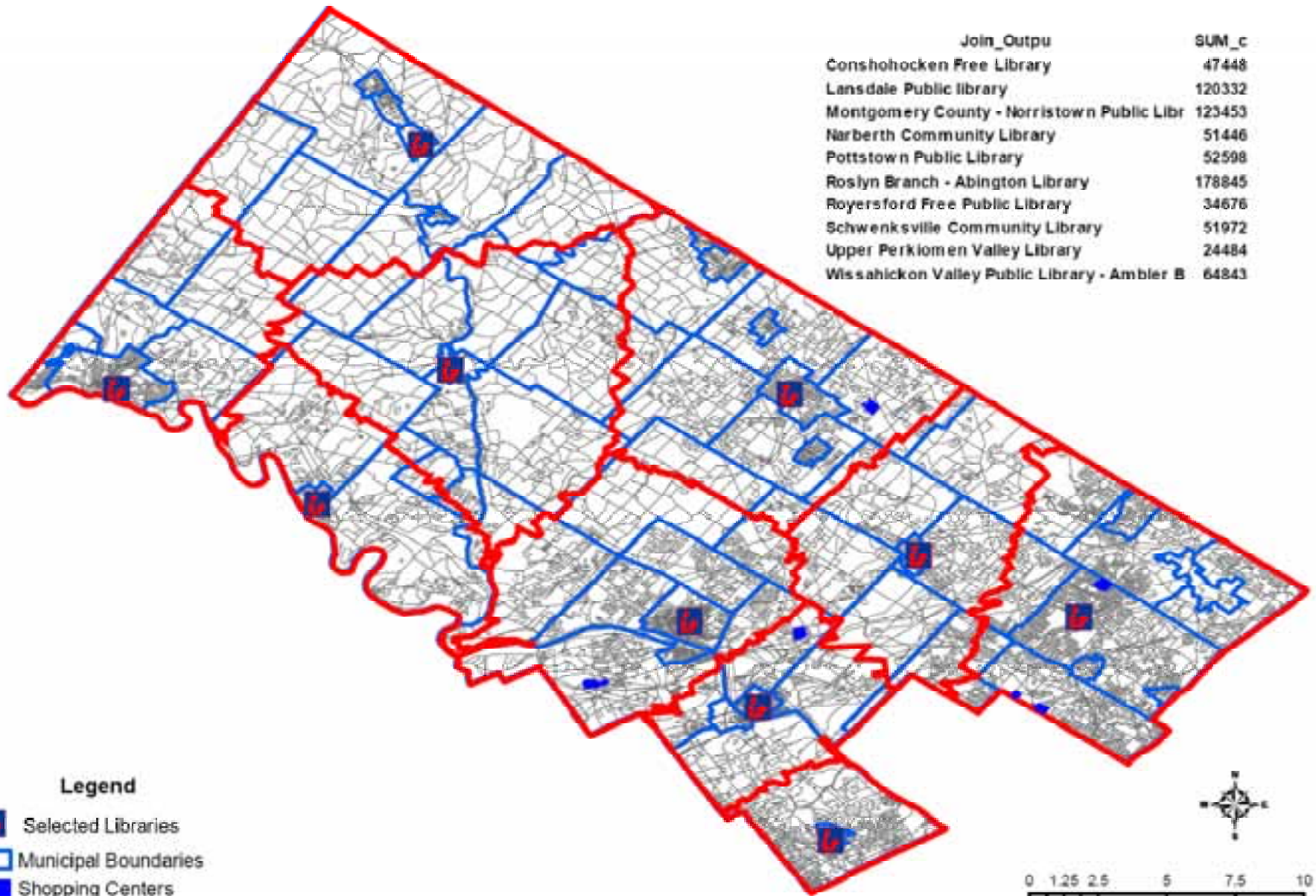
Network analysis may provide greater accuracy.

Census block centroids are used to measure the distance.



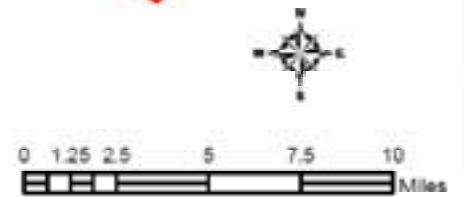
Designated Sites and Blocks with Population

Join_Outpu	SUM_c
Conshohocken Free Library	47448
Lansdale Public library	120332
Montgomery County - Norristown Public Libr	123453
Narberth Community Library	51446
Pottstown Public Library	52598
Roslyn Branch - Abington Library	178845
Royersford Free Public Library	34676
Schwenksville Community Library	51972
Upper Perkiomen Valley Library	24484
Wissahickon Valley Public Library - Ambler B	64843



Legend

- Selected Libraries
- Municipal Boundaries
- Shopping Centers
- censusblock_Dissolve2
- censusblock



Created by Marshal Ma

Limitation and Improvement

No actual data verify the accuracy of the prediction – Annual flu clinic data were not available at the time of the analysis.

Direct proximity were used instead actual driving or walking time.

Up-to-date block population data are not free and have to be purchased.



THANKS!

Questions?

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