Accessibility Analysis of Elder Care in Suburban Communities

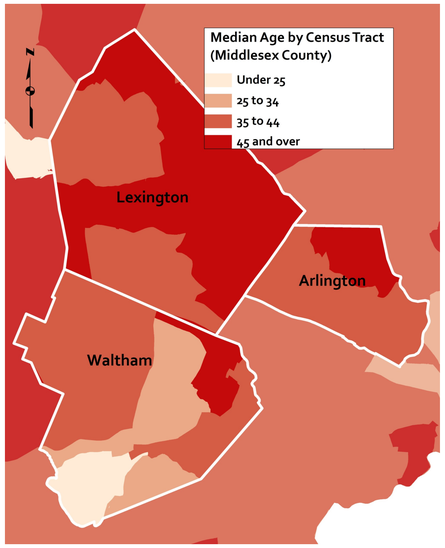
Objective

Across the U.S., previously homogenous and family-centered suburbs are changing. Census data shows that suburbs are getting older as Baby Boomers age, and boomers are staying in those locations. But are the suburbs prepared? This project explores the readiness of suburban communities in Greater Boston and their ability to accommodate an older population unable to rely on driving for access the services they need. The analysis will examine the services crucial to the elderly population within a one-mile radius of nursing homes, rest homes and assisted living facilities. A point value will be assigned to each service and an overall accessibility score will be generated for each facility, and for each of the suburban communities in the analysis.

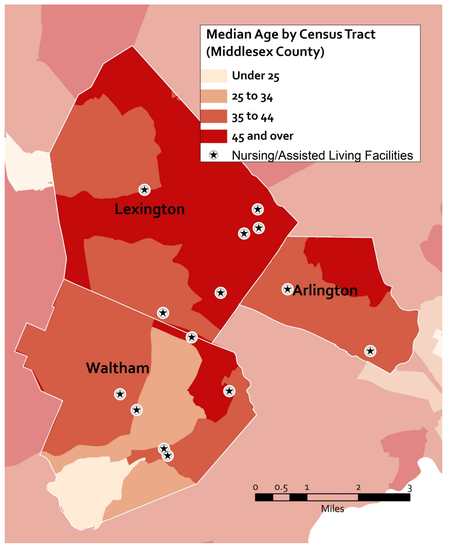
Approach and Methodology

The analysis required two main steps.

The first was identifying adjacent suburban towns for the analysis. Data for all counties immediately surrounding Boston — Plymouth, Essex, Bristol, Norfolk and Middlesex— were reviewed at the census tract level for median age and percent of population over 55. Middlesex County showed the clearest distinction of highest median age across the adjacent towns Lexington, Arlington and Waltham.



Map 1-1: Median age of by census tracts.



Map 1-2: Nursing and assisted living facilities.

The second step was an accessibility analysis of the 14 elder care facilities in Lexington, Arlington and Waltham based on their proximity to hospitals, doctors' offices, pharmacies, groceries and public transportation.

The facilities were awarded points each time they appeared within a one-mile radius. The points system was developed for this project based on importance of those services, and their frequency. For example, hospitals are most important, but are also the least important As a result, they received the highest point value. Bus stops, although important, are numerous when they do appear, and so received the lowest point value for each instance.

	Reason	Points
Hospitals	Medical care	5 points
Doctors' offices	Medical care and wellness	3 points
Pharmacies	Medical care and wellness	2 points
Groceries	Food access	1 point
Public transportation	Access to transportation	0.1 points

Table 1: Reason for inclusion and scoring system of critical elder access points.

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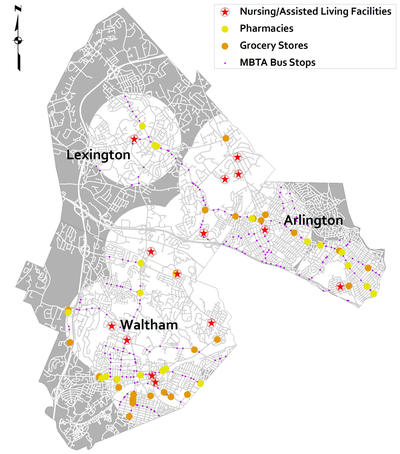
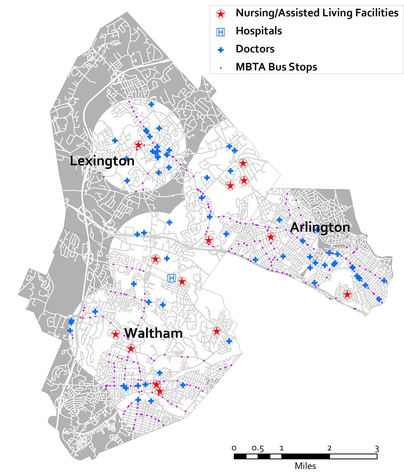
Data Sources: MassGIS, ReferenceUSA, U.S. 2010 Census, TIGER, Tufts Data Server

Projected Coordinate System: NAD 1983 State Plane Massachusetts Mainland FIPS 2001



Map 2-1: Pharmacies, grocery stores and bus stops within a one-mile radius of elder care.



Map 2-2: Hospitals, doctors and bus stops within a one-mile radius of elder care.

All points were mapped in the towns of Lexington, Arlington and Waltham and shown in relation to elderly living homes. For each of the 14 facilities, a count of services within a one-mile radius was done using spatial joins.

Nursing/Assisted Living Facility	Town	Hospitals	Doctors	Pharmacies	Grocery Stores	Bus Stops
Maristhill Nursing and Rehab Center	Waltham	0	8	5	18	101
The Leland Home	Waltham	0	8	5	18	108
Piety Corner Nursing Home	Waltham	0	5	4	2	78
Larchwood Lodge Nursing Home	Waltham	0	7	2	2	72
Marquadt Nursing Center	Waltham	1	1	0	2	12
Arlington Rest Home	Arlington	0	16	5	4	60
Meadow Green Nursing Home	Waltham	1	3	3	1	12
Brookhaven at Lexington	Lexington	1	7	3	1	17
Pine Knoll Nursing Center	Lexington	0	5	0	2	47
Park Avenue Nursing Home and Rehab Center	Arlington	0	7	2	6	84
East Village Rehab and Nursing Center	Lexington	0	6	0	3	34
Lexington Health Care Center	Lexington	0	5	1	2	29
Fairlawn Nursing Home	Lexington	0	4	0	1	0
Dana Home of Lexington	Lexington	0	19	3	0	44

Table 2: Count of services within one-mile radius of nursing and assisted living facilities.

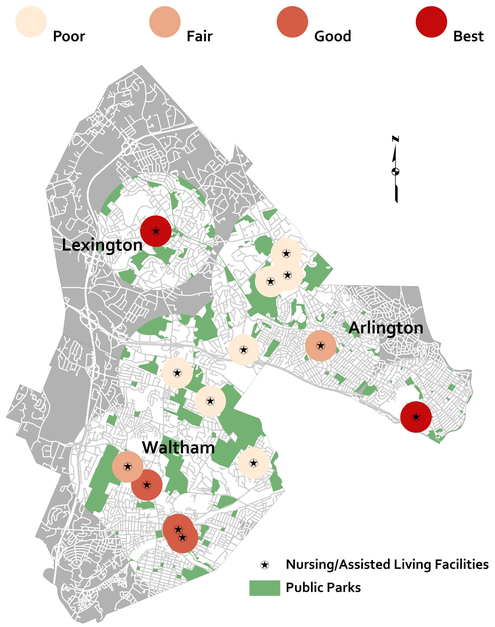
The points system was applied to all facilities based on the services within one mile. The facilities were then mapped based on their cumulative scores. Map 3-1 displays all nursing and assisted care facilities, with the darkest colors representing those with the highest accessibility score (Table 3). This map also shows public parks within a one-mile radius of each elder home to provide a sense of exercise and socialization opportunities within the area.

Map 3-2 displays the elder care facility scoring against the median age of each census tract in Lexington, Arlington and Waltham.

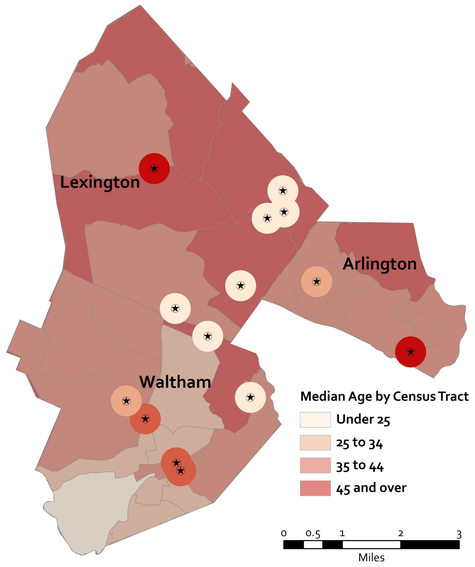
Findings

Of the 14 facilities assessed, five scored in the Good or Best category for accessibility, and seven scored Poor. In averaging out the scores, Arlington had the highest average score with 56. However, Arlington only has two elder living facilities. Waltham, with six elder living facilities, scored second with an average of 38. Despite a lower median age in most parts of the town, Waltham's two lowest scoring facilities in the oldest part of the community. Lexington's six facilities had the lowest overall average score of 32 points.

Comparing these results to the median age of these towns, Lexington stands out as the community that provides the poorest access for the residents of their elder care facilities. Given the trend that this community is aging, Lexington residents will require better access as the community ages.



Map 3-1: Accessibility scores shown by location and public park access.



Map 3-2: Accessibility scores shown by median age.

Nursing/Assisted Living Facility	Town	Points
Arlington Rest Home	Arlington	68
Dana Home of Lexington	Lexington	67
The Leland Home	Waltham	63
Maristhill Nursing and Rehab Center	Waltham	62
Park Avenue Nursing Home and Rehab Center	Arlington	39
Brookhaven at Lexington	Lexington	35
Larchwood Lodge Nursing Home	Waltham	34
Piety Corner Nursing Home	Waltham	33
East Village Rehab and Nursing Center	Lexington	24
Meadow Green Nursing Home	Waltham	22
Pine Knoll Nursing Center	Lexington	22
Lexington Health Care Center	Lexington	22
Fairlawn Nursing Home	Lexington	13
Marquadt Nursing Center	Waltham	11

Table 3: Accessibility scores by elder care facility.