Improving Walkability and Liveability by Finding the Open Space Needle in the Dense Suburban Haystack

Thayer Young
President
Cicada Systems GIS Consulting
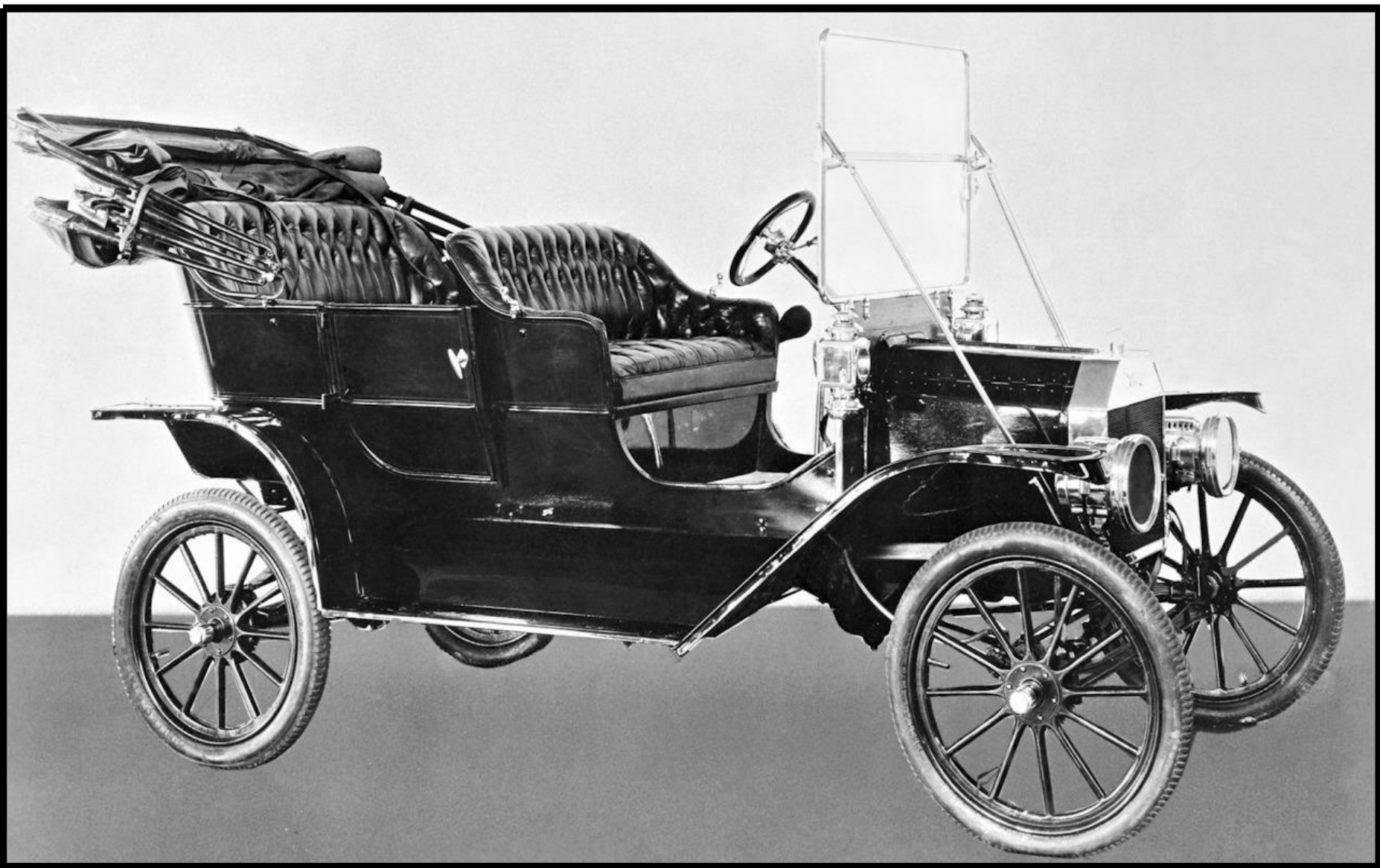
Barbara Hopkins
Executive Director
Neighborspace of Baltimore County, Inc.

Where Am I?

1908 The Model T

1913   The Mortgage Interest Deduction

TABLE 3.1. Intrametropolitan Population Growth Trends, 1910–1960

| Decade	Central-city growth rate	Suburban growth rate	Percent total SMSA[a] growth in suburbs	Suburban growth per 100 increase in central-city population
1910–1920	27.7	20.0	28.4	39.6
1920–1930	24.3	32.3	40.7	68.5
1930–1940	5.6	14.6	59.0	144.0
1940–1950	14.7	35.9	59.3	145.9
1950–1960	10.7	48.5	76.2	320.3

[a]SMSA, Standard Metropolitan Statistical Area, constituted by the central city and county-level political units of the surrounding suburban ring.
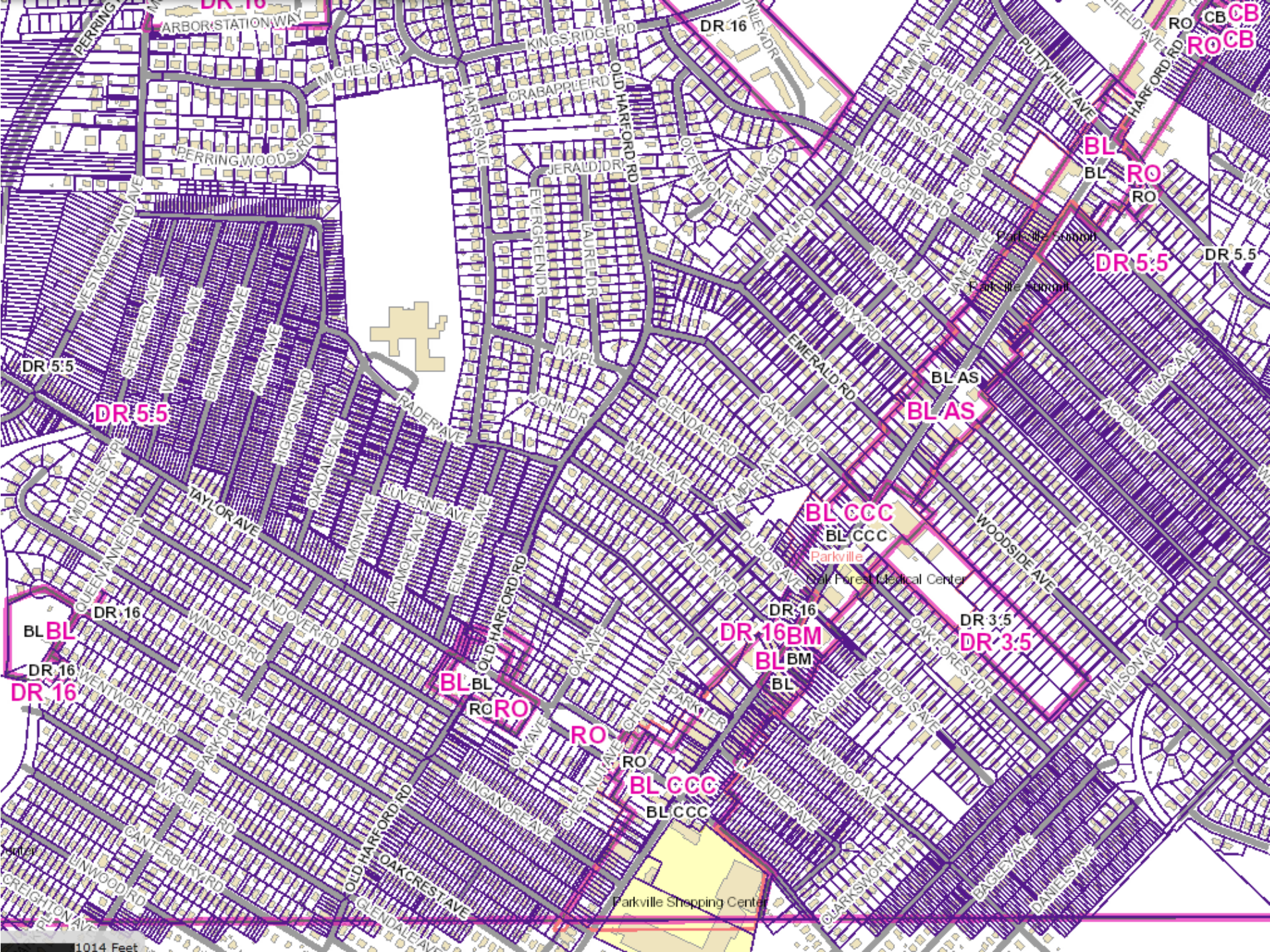Source: U.S. Census of Population.

1925   Suburban growth overtakes that of cities

EUCLIDEAN ZONING

MULTIFAMILY

SINGLE FAMILY

COMMERCIAL

INDUSTRIAL
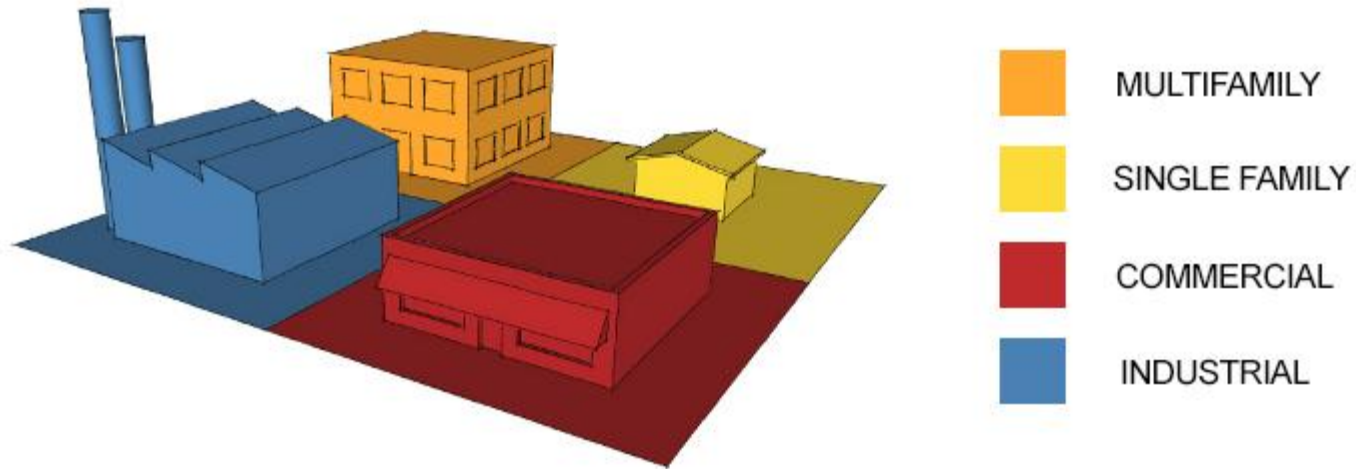
1926 Euclid v. Ambler Realty (U.S. Supreme Ct)

- Small suburban town (Euclid, Ohio) wanted to forestall big-city industry;
- Ambler wanted some residential property it owned in town to be used for industry;
- Euclid said "NO," Ambler sued, and Supreme Court upheld Euclid's use of its police power through zoning to keep these uses separate.

ARBOR STATION WAY
KINGS RIDGE RD
DR 16
DR 16
CB CB CB
RO
RO CB
MICHELS LN
CRABAPPLE RD
OLD HARFORD RD
BL
BL
RO
RO
PERRING WOODS RD
HARRIS AVE
JERALD DR
OVERMONT RD
PALMA CT
VINEYARD DR
DR 5.5
DR 5.5
EVERGREEN DR
LAUREL DR
IVAH
JOHN DR
BERRY RD
MONTA XRD
EMERALD RD
GARNER RD
SUMMIT AVE
WILLOUGHBY AVE
CHURCH RD
SCHOOL RD
JANE AVE
DR 5.5
DR 5.5
WESTMORELAND AVE
SHEPERD AVE
WENDOVER AVE
BIRMINGHAM AVE
AIKEN AVE
HICKORY AVE
OAK AVE
TRADER AVE
BL AS
BL AS
BL
DR 5.5
TAYLOR AVE
LUVERNE AVE
GLENDALE RD
MARLE AVE
ALDEN RD
DUBOIS AVE
WOODSIDE AVE
ACTON RD
WILLA AVE
PARKTOWER RD
OAKFOREST DR
BL CCC
BL CCC
Parkville
Oak Forest Medical Center
MIDDLESEX
QUEENANN RD
WENDOVER RD
HILLCREST AVE
ARDMORE AVE
ELMHURST RD
OLD HARFORD RD
OAK AVE
CHESTNUT AVE
PARKER
BL
BL
RO
RO
RO
RO
BL CCC
BL CCC
DR 16
BL
BL
DR 16 BM
BL BM
DR 3.5
DR 3.5
DR 16
WINDSOR RD
PARK SIDE
WYCLIFFE RD
WENTWORTH RD
CANTERBURY RD
OLD HARFORD RD
OAKCREST AVE
ENGLEWOOD AVE
LAVENDER AVE
CLARKSWORTH RD
WOODLAWN AVE
DUBOIS AVE
JACQUELINE LN
WILSON AVE
BAGLEY AVE
DANIELS AVE
CREIGHTON AVE
LINWOOD AVE
GLENDALE AVE
Parkville Shopping Center
1014 Feet
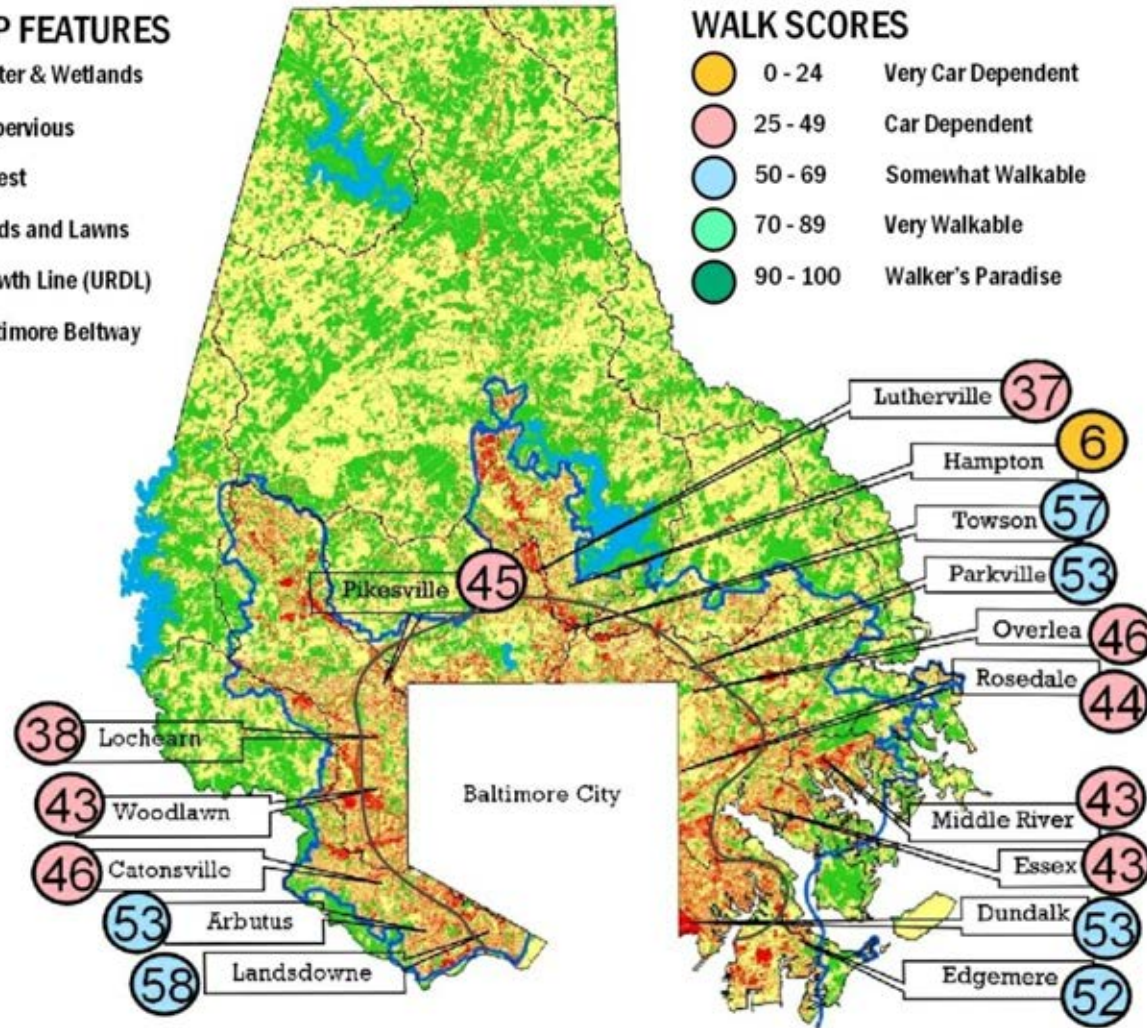
Walk Scores of Baltimore County's Inner Suburbs
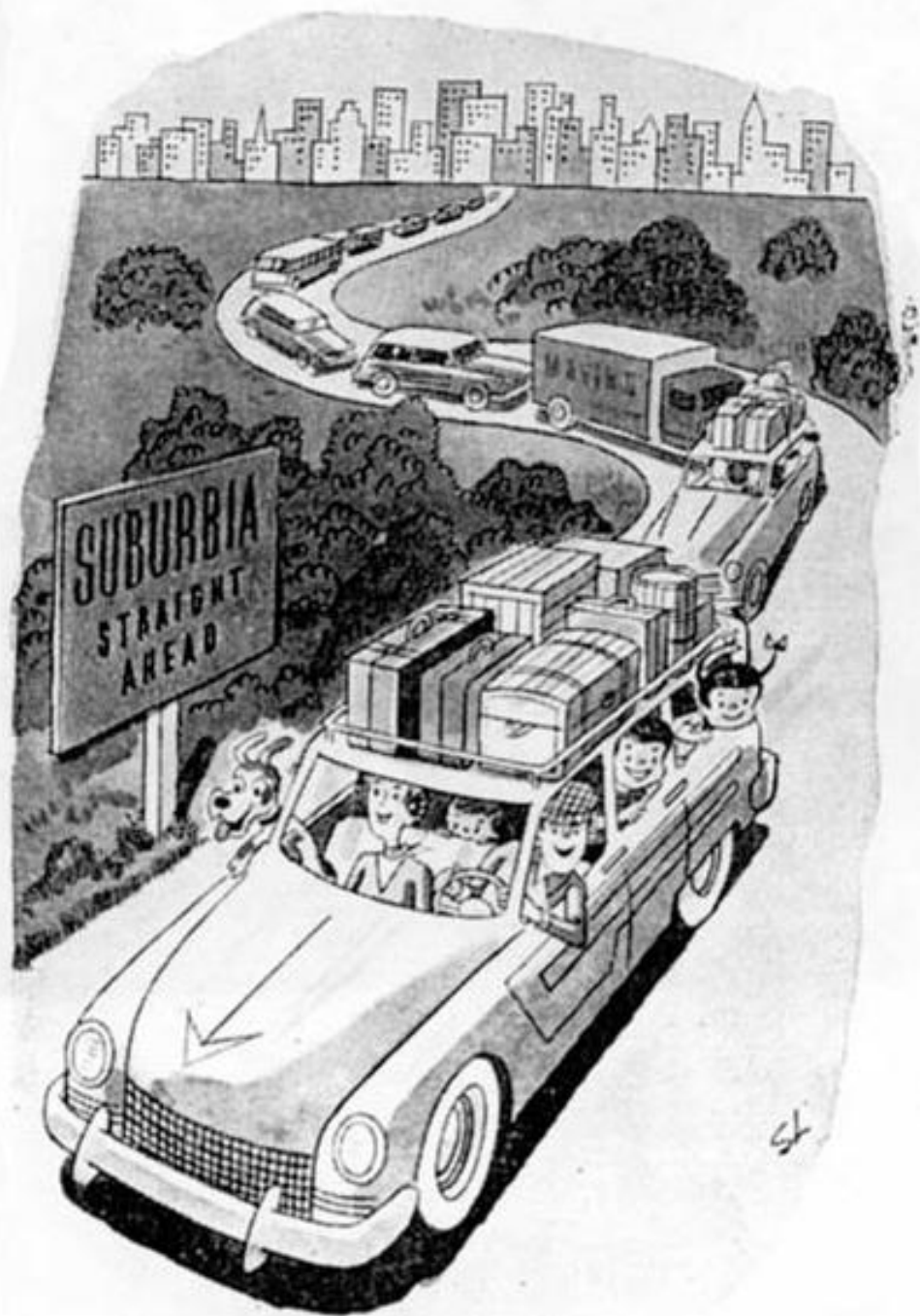
1929 Stock Market Crash

1934   Federal Housing Administration

1944 The GI Bill

1947 Levittown
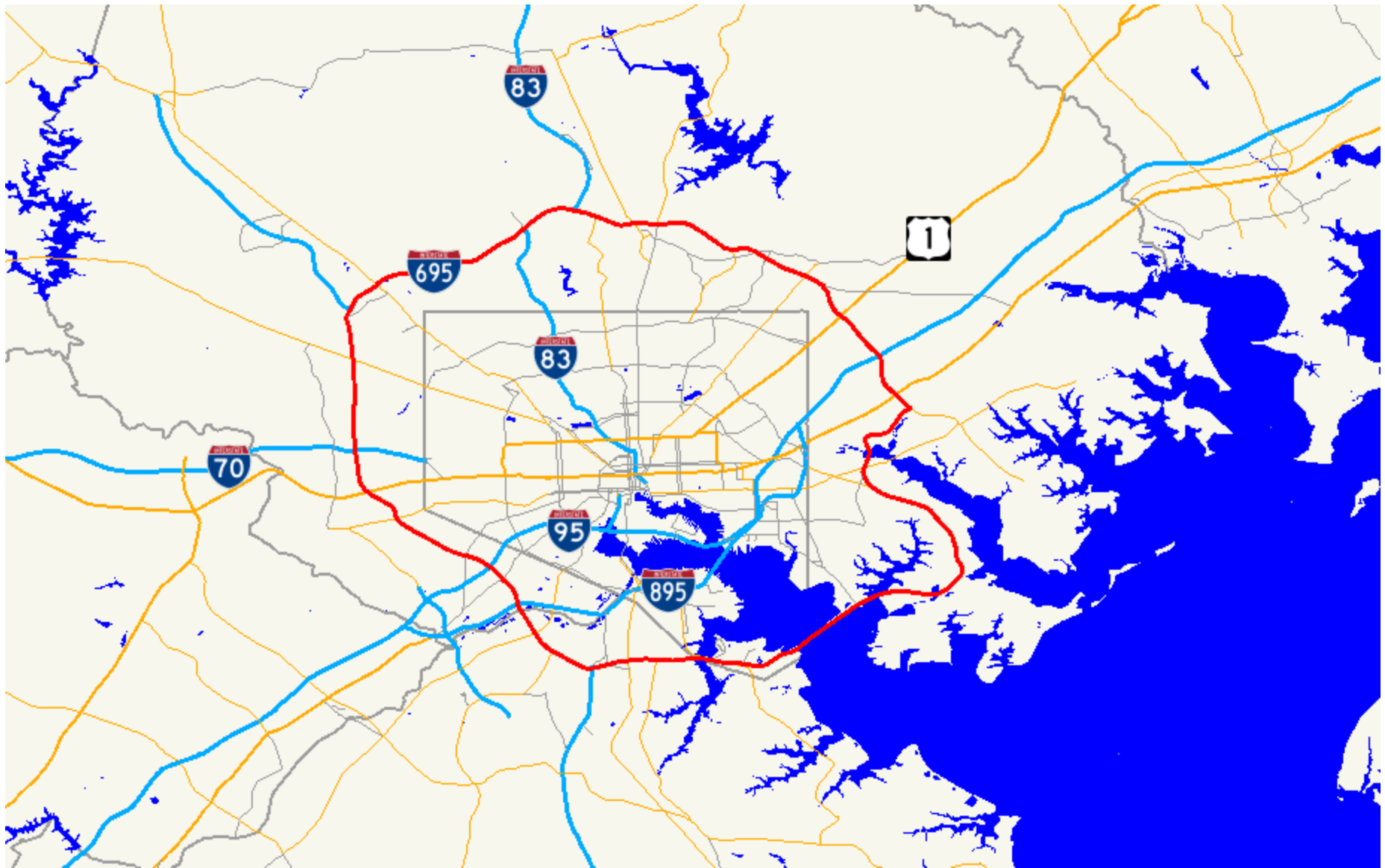
Residential Street, Inner Suburb of Parkville, Baltimore County, MD (Sept. 2014)

1957 The Baltimore Beltway

Urbanization in the Baltimore Region 1850 – 1963

LEGEND
1850
1900
1950
1963

G S W V

ROCH RAVEN RESERVOIR

LIBERTY RESERVOIR

CHESAPEAKE BAY

THE GREEN SPRING AND WORTHINGTON VALLEY PLANNING AREA
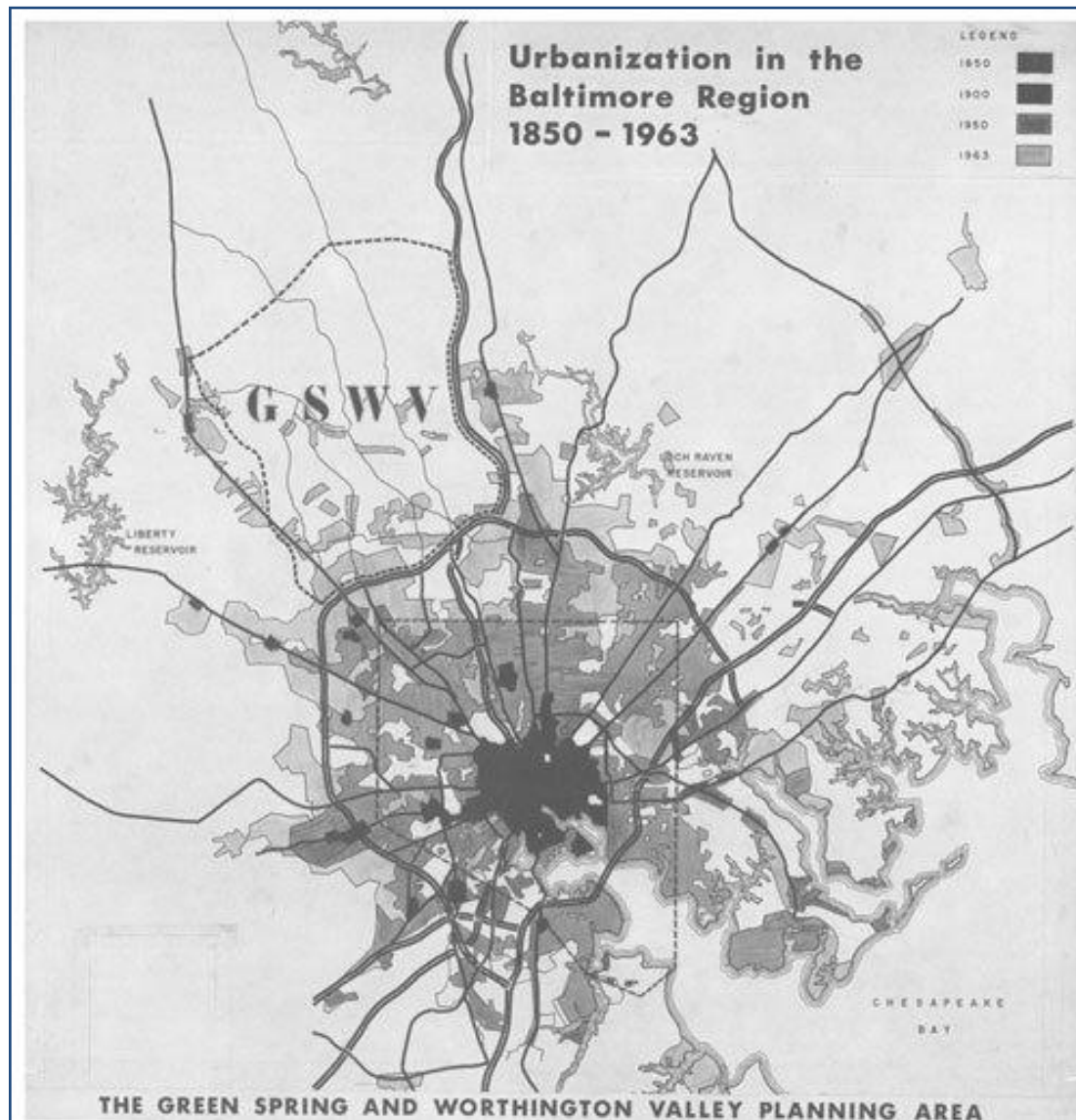
1964 The Plan for the Valleys
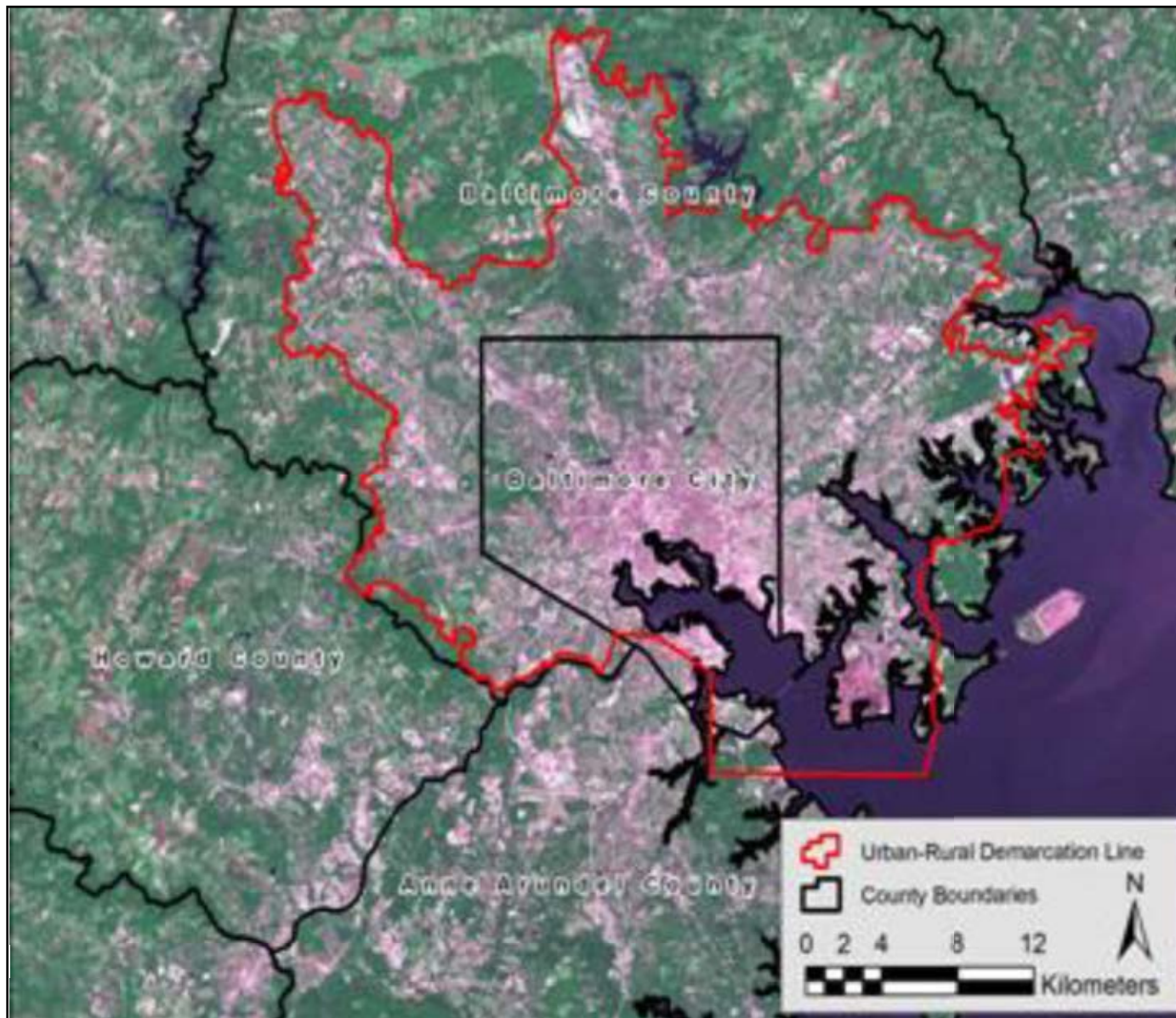
1967 Urban Rural Demarcation Line (URDL)

1970's   The Dominance of Suburban Malls

63% of residences inside the URDL have insufficient access to open space. 6.7% have no access at all.

This is based on applying the 1,000 square feet of open space per dwelling unit standard to all existing residential area within Baltimore County's Urban Rural Demarcation Line.

This map is for informational purposes only.
Data Sources:
  Maryland Department of Planning:
    Maryland Property View: parcel points
  Baltimore County Department of Information Technology:
    URDL, Parcels, Road Centerlines
  US Census: TIGER Water Area
Prepared: 09/16/2015
Analysis & Cartography by:
  Thayer Young, Gray to Green Intern
    Neighborspace of Baltimore County, Inc.

Lack of open space is a **HUGE** problem, particularly in the 1st tier suburbs

Access To Open Space Within a 1/4 mile Radius of Each Dwelling Unit

Thousands of Square Feet Open Space per Dwelling Unit

- No Access (0)
- Insufficient Access (>0 to <1)
- Sufficient Access (1 to 4)
- Plentiful Access (>4)
- No residential parcels
- Outside URDL (Urban Rural Demarcation Line)
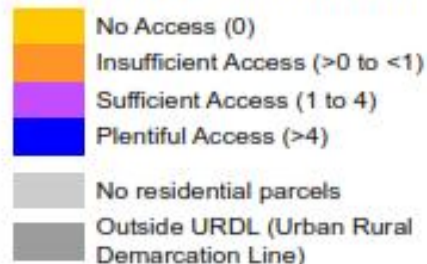
2.5 1.25 0   2.5 Miles

NeighborSpace
of Baltimore County, Inc

County Watersheds with Greatest Impervious Surface Impacts

Water running off of roofs, driveways, lawns and parking lots picks up trash, motor oil, grease, excess lawn fertilizers, pesticides, dog waste and other pollutants and washes them int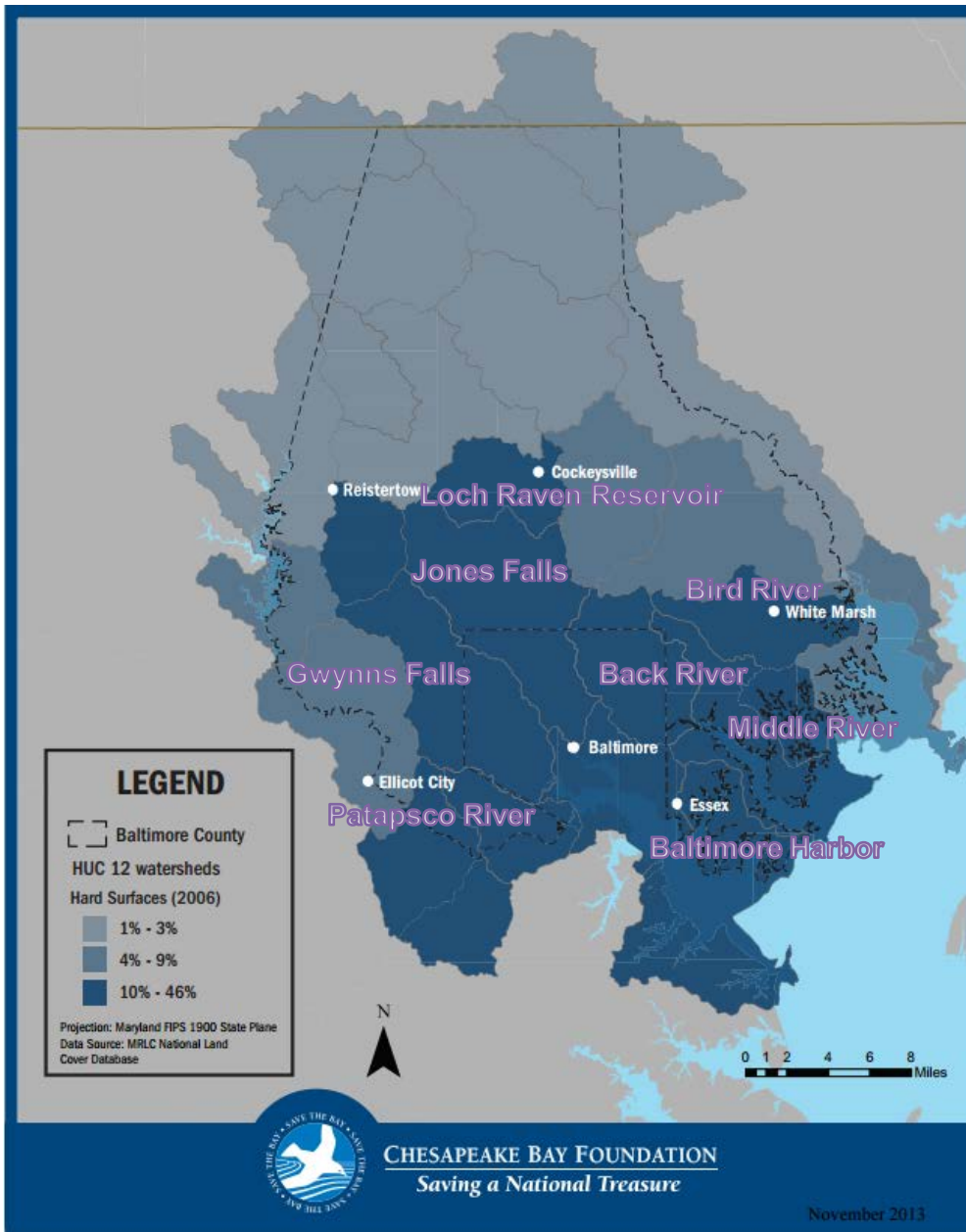o the streams and rivers flowing through our communities. This pollution causes a multitude of problems, including toxic algae blooms, harmful bacteria, extensive dead zones, reduced dissolved oxygen, and unsightly trash clusters. (Chesapeake Bay Foundation, http://www.cbf.org/document.doc?id=1866)

"Stormwater runoff is the primary cause of pollution of the County's urban water resources including the Chesapeake Bay. (Baltimore County FY2014 Adopted Operating Budget Supporting Detail, page 582).

Impaired Watersheds

LEGEND

☐	County Boundary
🟩	Nutrient Impaired
🟨	Sediment Impaired
▨	Nutrient and Sediment Impaired
🟪	Not Nutrient or Sediment Impaired
⬛	No Data
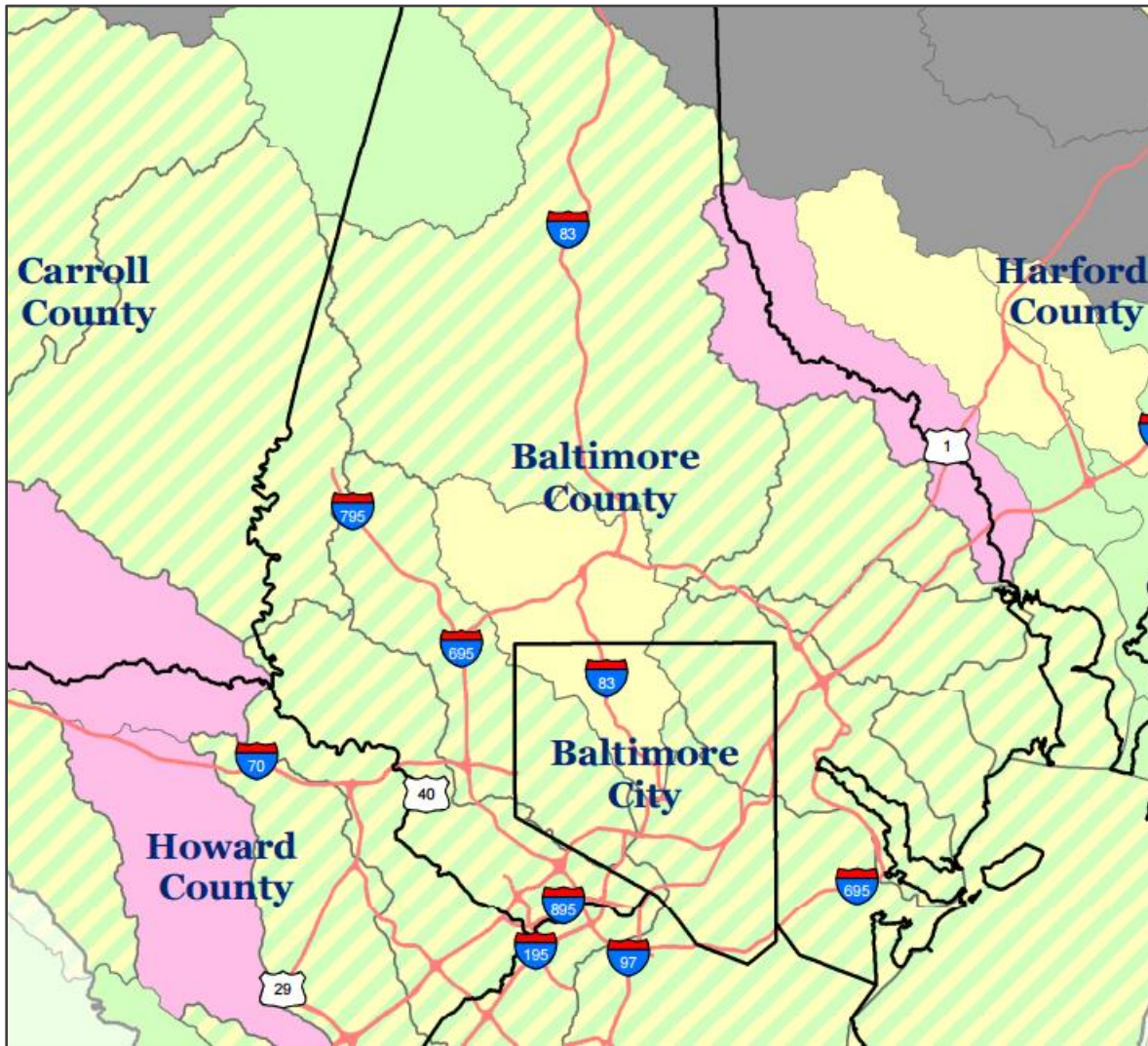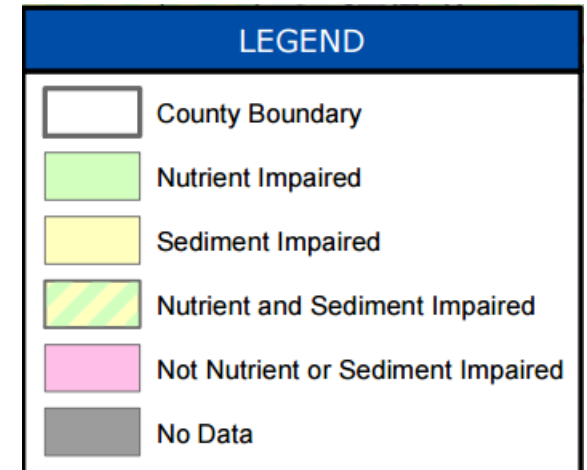
Source: Baltimore Metropolitan Council (2014)
(http://www.baltometro.org/phocadownload/Maps/Environmental/ImpairedWatershedsMax2040.pdf)

TRANSFORMING RACE AND CLASS IN SUBURBIA

DECLINE IN METROPOLITAN BALTIMORE

THOMAS J. VICINO
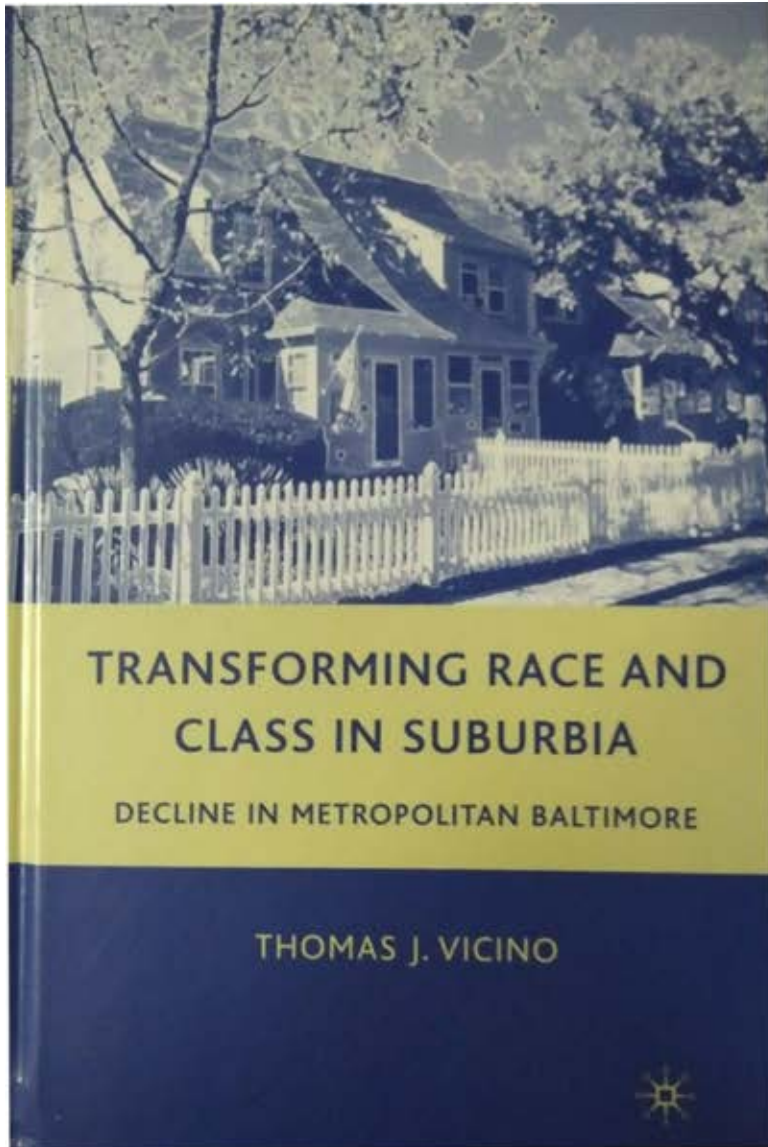
"*Without a doubt, Baltimore County ... [has] reached a crossroads. The road to more decline may be an easy path to follow. It requires doing nothing and maintaining the status quo. The road to success depends on the political and social willingness to confront the decline of its suburbs. Ultimately, the fate of first-tier suburbs rests with the people who call them home.*" p. 170

"SUBURDLIA"

Definitions of Open Space

- Legal
  - Baltimore County
  - New development
  - From engineering drawings
    - Active
      - $>20,000$ ft^2 with slope $< 4\%$ …
    - Passive
      - Slope $< 10\%$ …
    - 1,000 ft^2 / dwelling unit
    - In addition to existing open space

- Practical
  - Neighborspace / Cicada
  - Existing
  - Baltimore County's parcels: GIS_LU_COD =
    - cemetery
    - private (e.g. HOA/COA), county or state owned
      - open space
      - park
      - golf course
    - reservoir property

8.3%, or 16.9 square miles, of the land inside of the URDL can be classified as open space.

Open Space

Open Space Land Use

- Cemetery
- Open Space: County, Other Government, or Other Private
- Parks: County, State or Other and Reservoir Property
- Golf Course: Public or Private

Neighborspace Properties, in fee simple and easement

URDL (Urban Rural Demarcation Line)
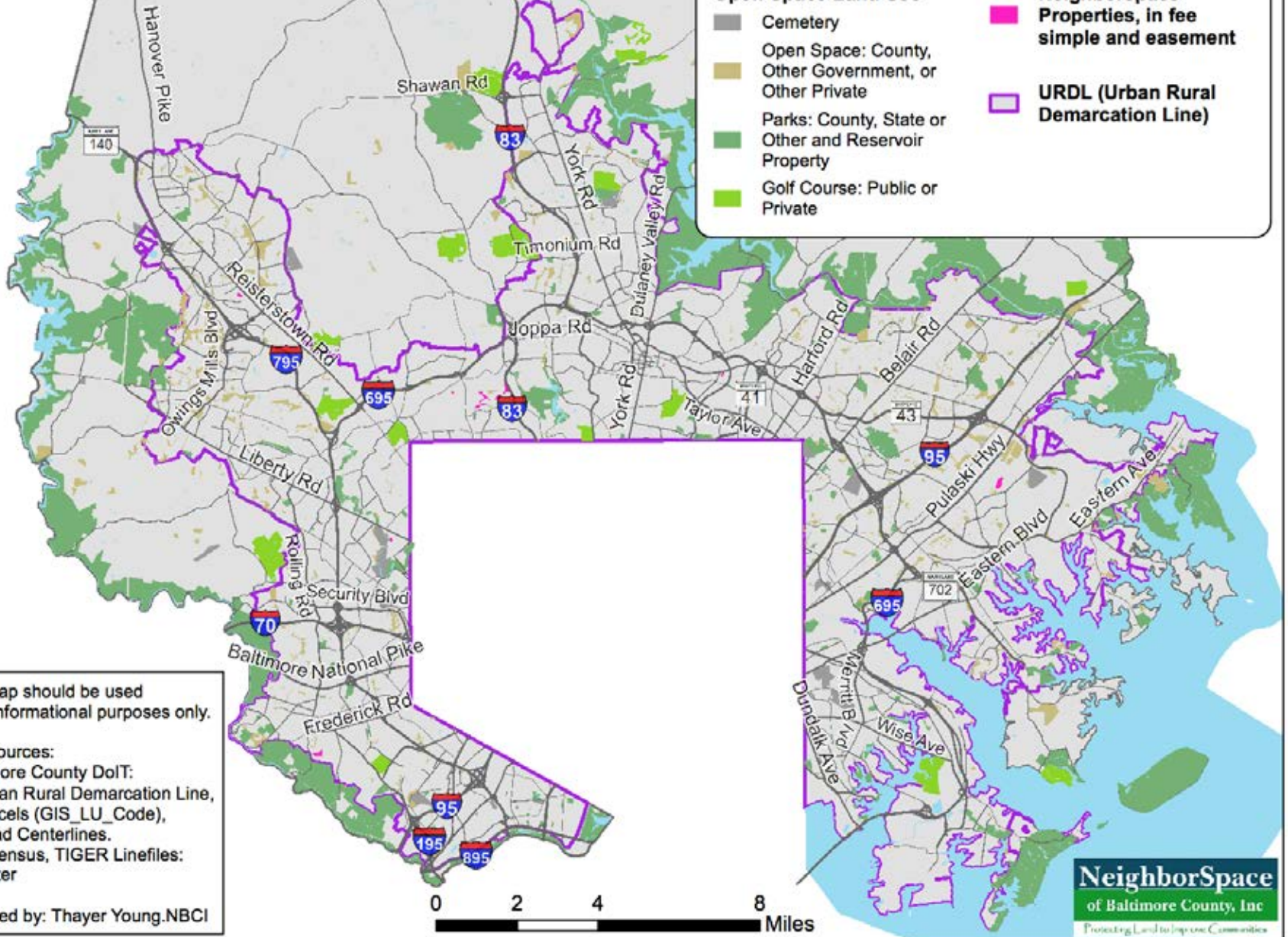
This map should be used for informational purposes only.

Data sources:
  Baltmore County DoIT:
    Urban Rural Demarcation Line,
    Parcels (GIS_LU_Code),
    Road Centerlines.
  US Census, TIGER Linefiles:
    Water

Prepared by: Thayer Young.NBCI

0 2 4 8 Miles

NeighborSpace
of Baltimore County, Inc
Protecting Land to Improve Communities

Access to Open Space, Part 1

- Balto. County Standard for new Development:
  - 1,000 ft^2 / dwelling unit

- Dwelling Unit
  - Maryland State Dept. of Assessment & Taxation
    - MD Property View
      - ATDATA
        - BLDG_UNITS
        - RESIDENT
        - APRTMENT
        - TRAILER

- 1/4 mile
  - 5 minute walking distance
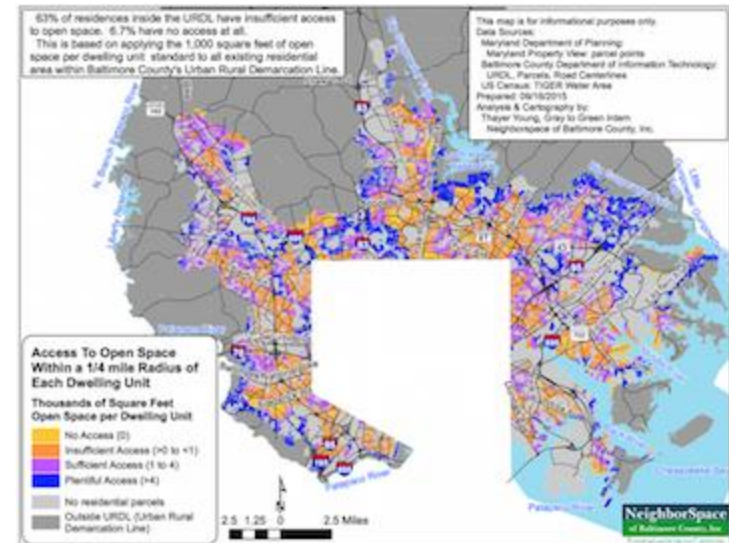
Access to Open Space, Part 2

- Calculation steps:
  1. Add up how many dwellings use each open space
  2. Divide the open space area by the number of dwellings (fraction)
  3. Add up the fractions for all open spaces a dwelling has access to.

Dwelling

2

Open Space
Area = 2 kft^2

3

Open Space
Area = 3 kft^2

Dwelling

Dwelling

1

Open Space
Area = 1 kft^2

Access to Open Space, Part 2

- Calculation steps:

  1. Count how many dwelling units use each open space
  2. Divide the open space area by the number of dwell. units (fraction)
  3. Add up the fractions for all open spaces a dwelling unit has access to.

Dwelling

A 2
D 1

Open Space
Area = 2 kft²
Dwellings = 1

Area 3
Dwellings 3

Open Space
Area = 3 kft²
Dwellings = 3

½

Dwelling

Dwelling

Open Space
Area = 1 kft²
Dwellings = 2

Access to Open Space, Part 2

- Calculation steps:
  1. Count how many dwelling units use each open space
  2. Divide the open space area by the number of dwell. units (fraction)
  3. Add up the fractions for all open spaces a dwelling unit has access to.

Dwelling

$3/3 = 1$

Open Space
Area = 3 kft^2
Dwellings = 3

$3/3 = 1$

$2/1 = 2$

Open Space
Area = 2 kft^2
Dwellings = 1

$2/1 = 2$

Dwelling

Dwelling

½

Open Space
Area = 1 kft^2
Dwellings = 2

$1/2 = ½$

Access to Open Space, Part 2

- Calculation steps:
  1. Count how many dwelling units use each open space
  2. Divide the open space area by the number of dwell. units (fraction)
  3. Add up the fractions for all open spaces a dwelling unit has access to.

Dwelling
$2 + 1 + ½ = 3 ½$ kft^2/DU

$3/3 = 1$

Open Space
Area = 3 kft^2
Dwellings = 3
$3/3 = 1$

$2/1 = 2$

Open Space
Area = 2 kft^2
Dwellings = 1
$2/1 = 2$

½

Open Space
Area = 1 kft^2
Dwellings = 2
$1/2 = ½$

Dwelling
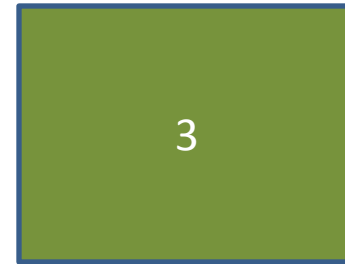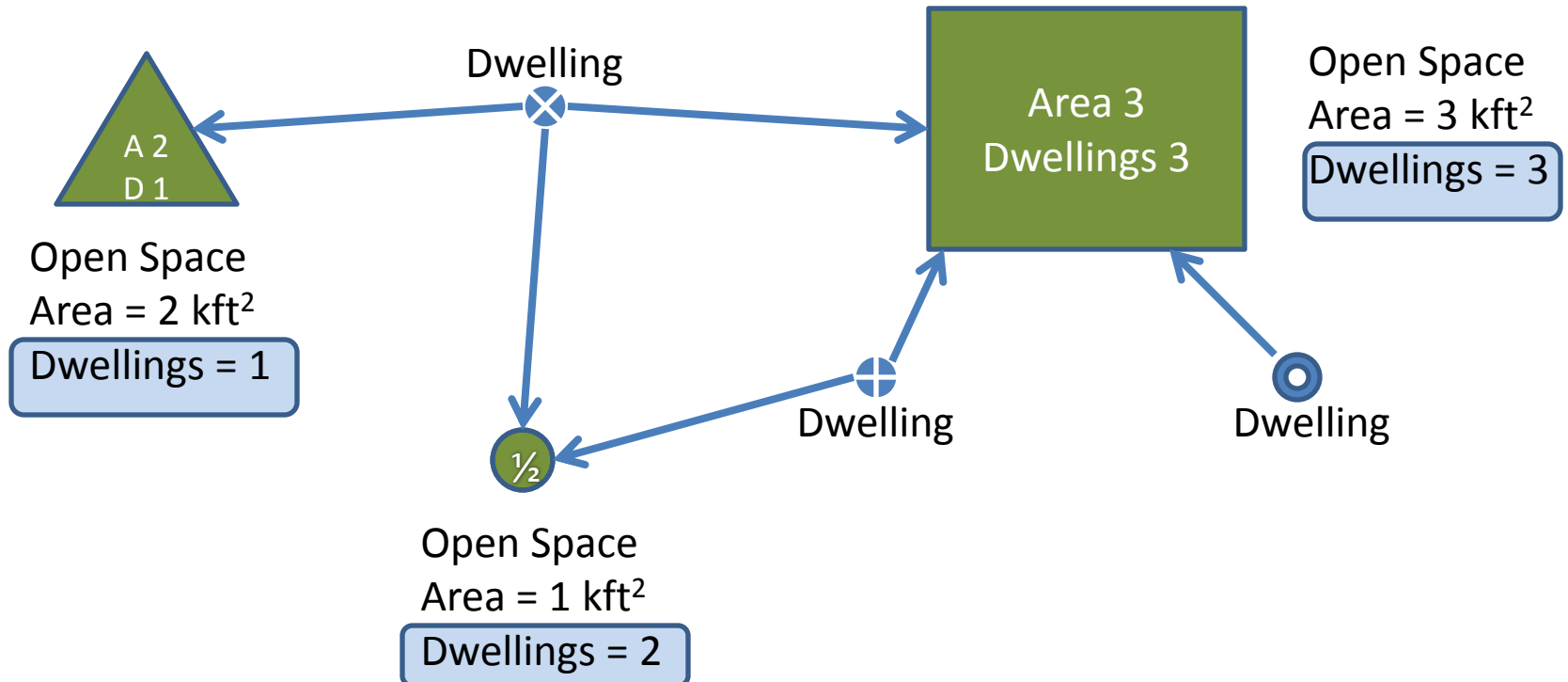$1 + ½ = 1 ½$ kft^2/DU

Dwelling
$1 = 1$ kft^2/DU
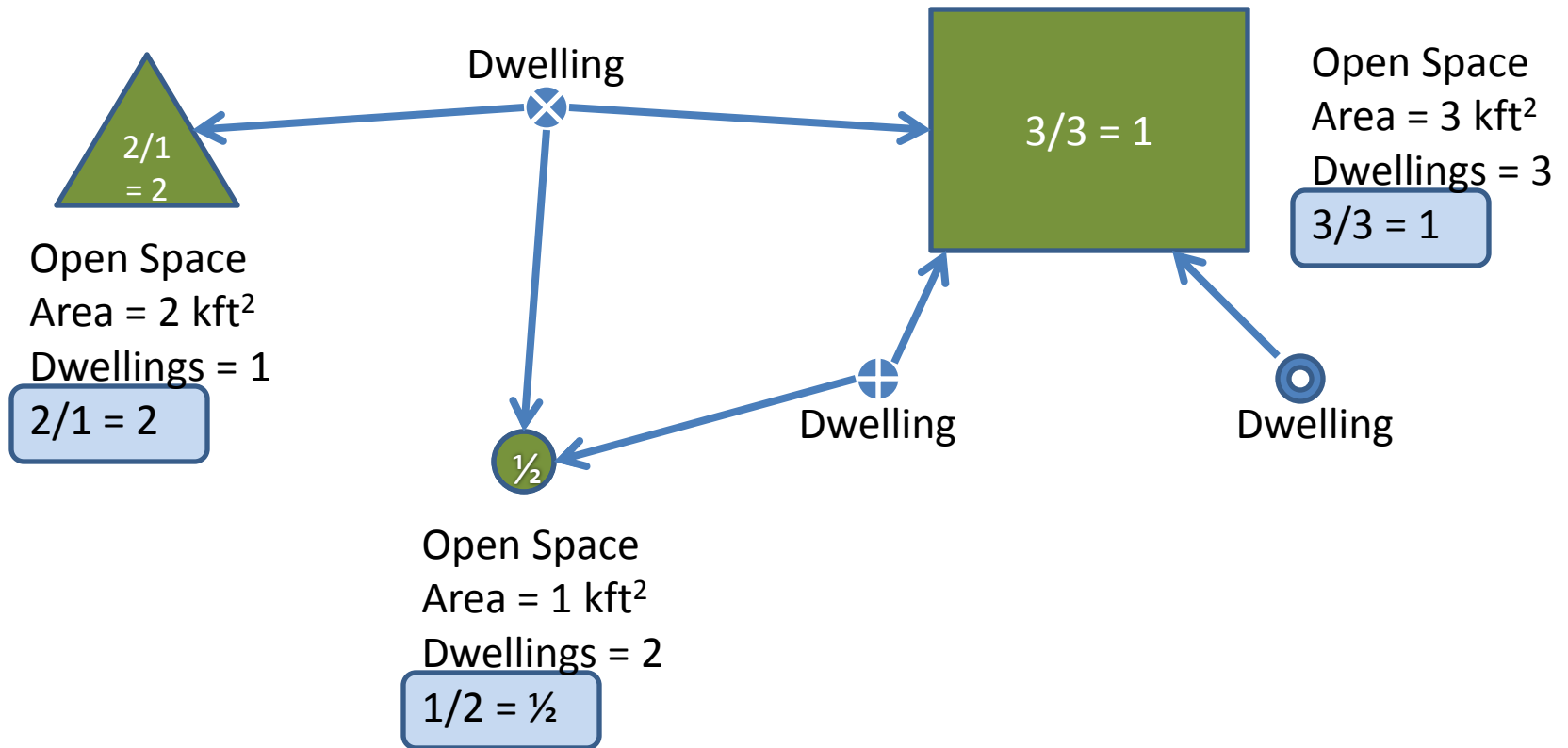
Access to Open Space, Part 2

- Calculation steps:
  1. Count how many dwelling units use each open space
  2. Divide the open space area by the number of dwell. units (fraction)
  3. Add up the fractions for all open spaces a dwelling unit has access to.

Dwelling
2 + 1+ ½ = 3 ½ kft²/DU

2/1 = 2

3/3 = 1

Open Space
Area = 3 kft²
Dwellings = 3
3/3 = 1

Open Space
Area = 2 kft²
Dwellings = 1
2/1 = 2

½

Dwelling
1 = 1 kft²/DU

Dwelling
1 + ½ = 1 ½ kft²/DU

Open Space
Area = 1 kft²
Dwellings = 2
1/2 = ½

Sufficient Access
by County's Standard

63% of residences inside the URDL have insufficient access to open space. 6.7% have no access at all.

This is based on applying the 1,000 square feet of open space per dwelling unit standard to all existing residential area within Baltimore County's Urban Rural Demarcation Line.

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Prepared: 09/16/2015
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2.5 1.25 0   2.5 Miles

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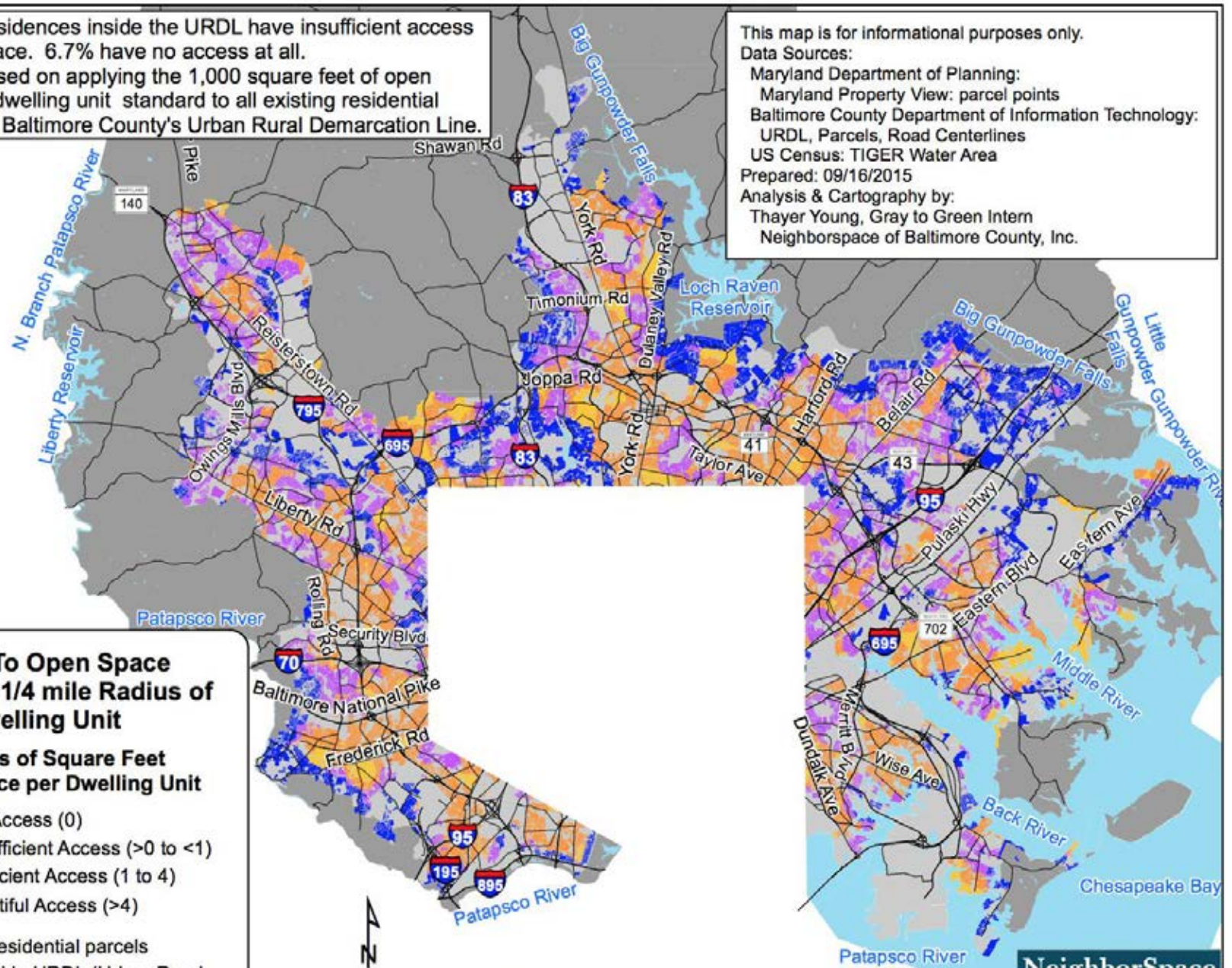
Pair Wise Comparison Model

- Existing model combines 28 indicators
  - Strager, et al. West Virginia University
- Into 3 categories:
  - Economic, Social, Environmental
  - Combined into an Overall score
  - Value of open space

- Lots of great information
- But it's hard to understand
- Need a way to filter
- And to validate it
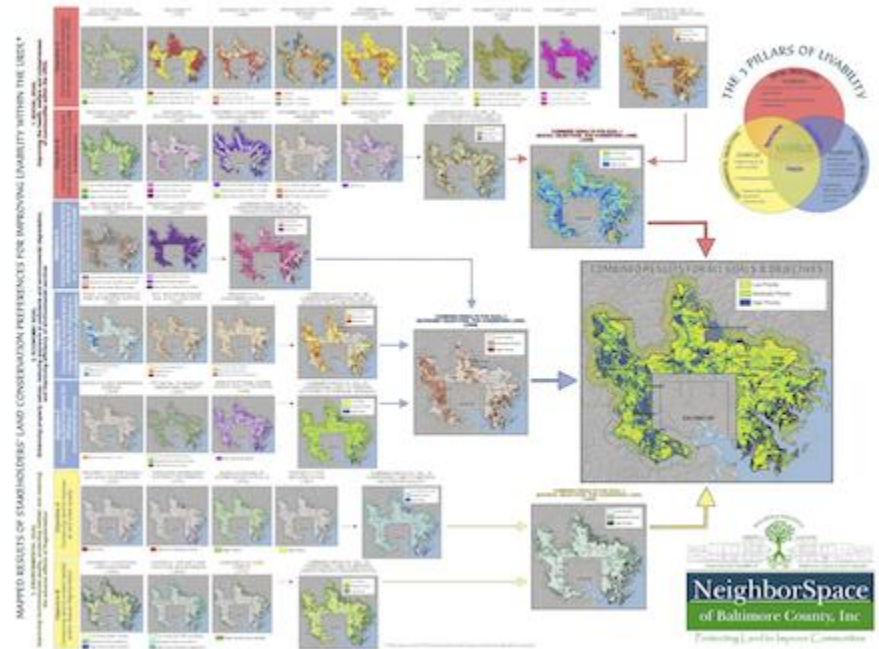
Model Calibration Part I, What and Why?

- Get a sense of reality
  - "Ground truth"
- How well does the model predict open space value?

- Three uses for calibration:
  - Test the existing model
  - Evaluate parcels offered to Neighborspace
    - e.g. by developers or landowners
    - reactive
  - Prioritize parcels for acquisition/easement
    - active solicitation by Neighborspace

Model Calibration, Part II, Where?

- Greater Towson
- Why?
  - High density
  - Low availability of open space
  - Rapid pace of development
  - Tension over setting aside OS
  - Popular desire for OS

- Greater Towson Boundaries derived from neighborhoods provided by
  - Greater Towson Council of Community Associations
  - Towson University Center for GIS

Model Calibration, Part III, How?

- Parcels with: GIS_LU_COD = 'VACANT'
- Two efforts
  - First: "Towson Ground Truth"
    - Top overall score
    - "Desktop survey" of 100 parcels
      - to find 10 worth field surveying
    - Biases
      - Selected mostly large parcels
      - Only the top end of the range

  - Second: Random sample
    - Began by combining neighboring vacant parcels
    - Excluding parcels that SDAT says have buildings
    - Desktop survey of 30 parcels
      - to find 3 worth field surveying

What about the other 90%

- Front, side and back yards.   Two randomly chosen examples are shown in pink

What's wrong with just looking at large parcels?

- Some of Neighborspace's most successful properties are small
    - Greenbrier Memorial Garden, ~1,300 ft² (0.030 acres)
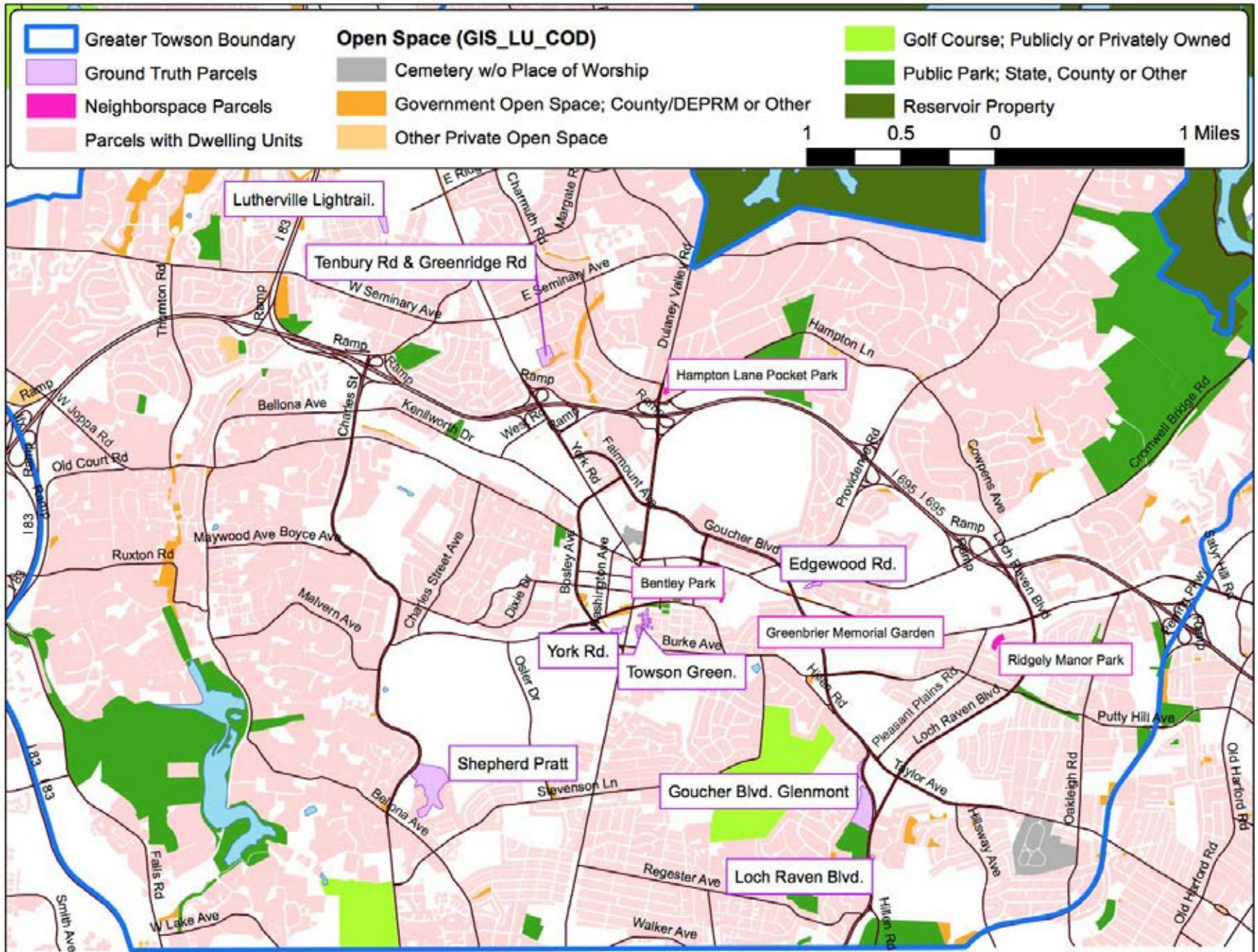   - Gwynn Oak Avenue, ~12,000 ft² (0.28 acres)

Greenbrier

Gwynn Oak

Towson Ground Truth Locations

Lots of Data

	Edgewood Rd	Goucher Blvd, Glenmont	Loch Raven Blvd	Lutherville Lightrail	Shepherd Pratt	Tenbury Rd & Greenridge Rd	Towson Green	York Rd
Parcel Count	2	4	1	9	1	1	90	3
Area in Acres	1.11	11.41	0.24	1.80	18.68	4.18	2.97	1.26
Max Overall Score	57.9	67.5	62.4	35.6	72.5	63.0	67.5	70.6
Min Overall Score	46.2	67.5	62.4	27.1	72.5	63.0	15.5	47.3
Social	100.0	69.9	100.0	36.9	98.0	90.4	100.0	97.5
Environment	20.0	61.3	20.0	14.6	38.6	23.5	36.1	53.2
Economic	54.4	78.1	75.0	74.6	93.5	96.6	63.9	57.5
Unmet OS Need, Quarter Mile, % of parcels	100.0	13.6	0.3	43.9	89.1	62.7	100.0	100.0
Can satisfy unmet OS Need, Quarter Mile, %	18.3	805.4	1924.9	90.5	148.3	203.8	13.5	23.8
Unmet OS Need, Half Mile, % of parcels	47.1	48.2	30.3	6.5	50.3	12.8	0.4	0.4
Can satisfy unmet OS Need, Half Mile, %	25.1	75.8	4.9	1163.4	192.4	270.9	1942.8	822.3
Connectivity	59.7	0.0	69.3	86.7	57.2	83.8	75.5	59.0
IA1 PARKTR	0.0	30.6	66.0	55.5	0.0	29.5	66.0	66.0
IA2 PROXSC	66.0	56.8	66.0	55.5	98.1	62.0	66.0	95.5
IA3 OPEN	100.0	100.0	100.0	33.0	100.0	100.0	100.0	100.0
IA4 PROXRE	88.7	68.8	100.0	73.0	77.5	65.8	66.0	64.1
IA5 RESDN	98.1	90.6	100.0	78.4	61.1	63.0	84.2	14.1
IA6 WALK	50.0	52.0	88.3	20.0	97.7	20.0	48.4	40.0
IA7 ACCES	100.0	85.8	100.0	84.0	98.9	94.0	100.0	100.0
IA8 NATUR	74.6	27.3	66.0	0.0	95.5	87.8	71.4	62.9
IB1 HISTO	0.0	0.0	0.0	0.0	32.9	0.0	33.0	33.0
IB2 VIEW2	76.8	0.0	52.5	32.3	33.3	0.0	0.0	0.0
IB3 CEAS	66.0	28.4	33.0	55.5	32.9	59.9	55.6	100.0
IB4 PROXR	33.0	28.4	33.0	0.0	0.0	29.7	100.0	100.0
IB5 & IIIB3 PROX EXT	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
IIA1 PROX	0.0	72.7	0.0	72.6	95.8	28.3	0.0	0.0
IIA2 RELV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IIB1 RE3	73.2	33.0	33.0	50.6	33.0	88.4	33.0	33.0
IIB2 CONT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IIB3 BUFF	0.0	100.0	100.0	66.0	18.8	66.0	33.0	33.0
IIC1 IMP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IIC1 IMP3	36.5	33.9	45.4	33.0	65.3	68.7	33.0	33.0
IIC2 NONS	36.5	34.1	45.4	33.0	65.4	68.6	33.0	33.0
IIC3 URBT	5.5	2.5	37.5	0.0	85.1	89.8	15.8	0.0
IIIA1 REF	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0
IIIA2 LOW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IIIA3 BUL	38.5	86.0	47.5	72.6	96.9	86.4	0.0	65.0
IIIA4 BUR	0.0	44.0	30.9	0.0	17.8	0.0	84.2	68.8
IIIB1 COR	0.0	0.0	0.0	0.0	0.0	0.0	84.2	0.0
IIIB2 WET	0.0	79.2	0.0	0.0	0.0	0.0	0.0	86.8
TaxID of Max Overall Score	0913920906	1900003435	0903474001	0808001911	2100011116	0903000120	2500008380	2400013002
TaxID of min Overall Score	0913920357	1900003435	0903474001	0808001912	2100011116	0903000120	2500009584	0906200640

Simplified

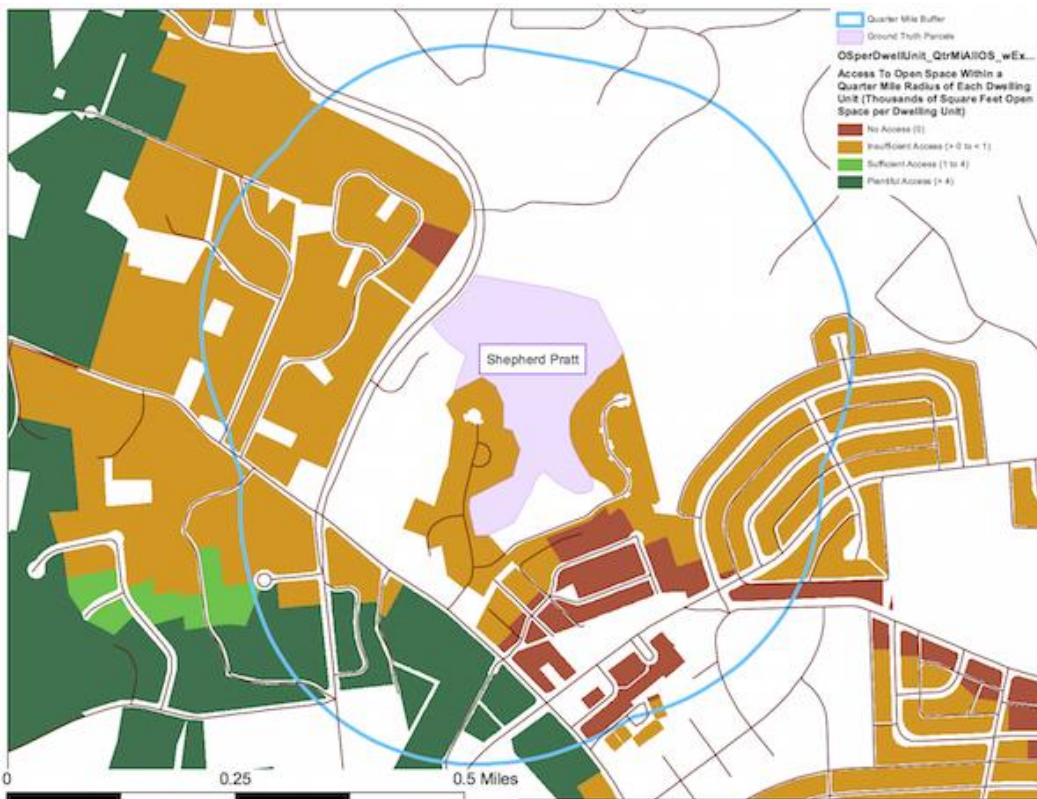|	Shepherd Pratt	York Rd	Towson Green	Goucher Blvd, Glenmont	Tenbury Rd & Greenridge Rd	Loch Raven Blvd	Edgewood Rd	Lutherville Lightrail
Max Overall Score	72.5	70.6	67.5	67.5	63.0	62.4	57.9	35.6
Area in Acres	18.68	1.26	2.97	11.41	4.18	0.24	1.11	1.80
Unmet OS Need, % of parcels	89.1	100.0	100.0	13.6	62.7	0.3	100.0	43.9
Can satisfy unmet OS Need, %	148.3	23.8	13.5	805.4	203.8	1924.9	18.3	90.5

Towson Ground Truth Results: Shepherd Pratt

	Shepherd Pratt	York Rd	Towson Green	Goucher Blvd, Glenmont	Tenbury Rd & Greenridge Rd	Loch Raven Blvd	Edgewood Rd	Lutherville Lightrail
Max Overall Score	72.5	70.6	67.5	67.5	63.0	62.4	57.9	35.6
Area in Acres	18.68	1.26	2.97	11.41	4.18	0.24	1.11	1.80
Unmet OS Need, % of parcels	89.1	100.0	100.0	13.6	62.7	0.3	100.0	43.9
Can satisfy unmet OS Need, %	148.3	23.8	13.5	805.4	203.8	1924.9	18.3	90.5

Good balance

Quarter Mile Buffer
Ground Truth Parcels

OSperDwellUnit_QtrMiAllOS_wEx...

Access To Open Space Within a Quarter Mile Radius of Each Dwelling Unit (Thousands of Square Feet Open Space per Dwelling Unit)

No Access (0)
Insufficient Access (> 0 to < 1)
Sufficient Access (1 to 4)
Plentiful Access (> 4)

Shepherd Pratt

0   0.25   0.5 Miles

Towson Ground Truth Results: York Rd

	Shepherd Pratt	York Rd	Towson Green	Goucher Blvd, Glenmont	Tenbury Rd & Greenridge Rd	Loch Raven Blvd	Edgewood Rd	Lutherville Lightrail
Max Overall Score	72.5	70.6	67.5	67.5	63.0	62.4	57.9	35.6
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Unmet OS Need, % of parcels	89.1	100.0	100.0	13.6	62.7	0.3	100.0	43.9
Can satisfy unmet OS Need, %	148.3	23.8	13.5	805.4	203.8	1924.9	18.3	90.5

Gray to green opportunity

Ground Truth Parcels

Cogar Dr
Courtland Ave
Washington Ave
Bosley Ave
Bosley Ave
W Towsontown Blvd
W Towsontown Blvd
Ramp
W Burke Ave
University Ave
York Rd
Willow Ave
Alley
Alley
Alley
Alley
Towson Green.
York Rd.
Linden Pl
Alley
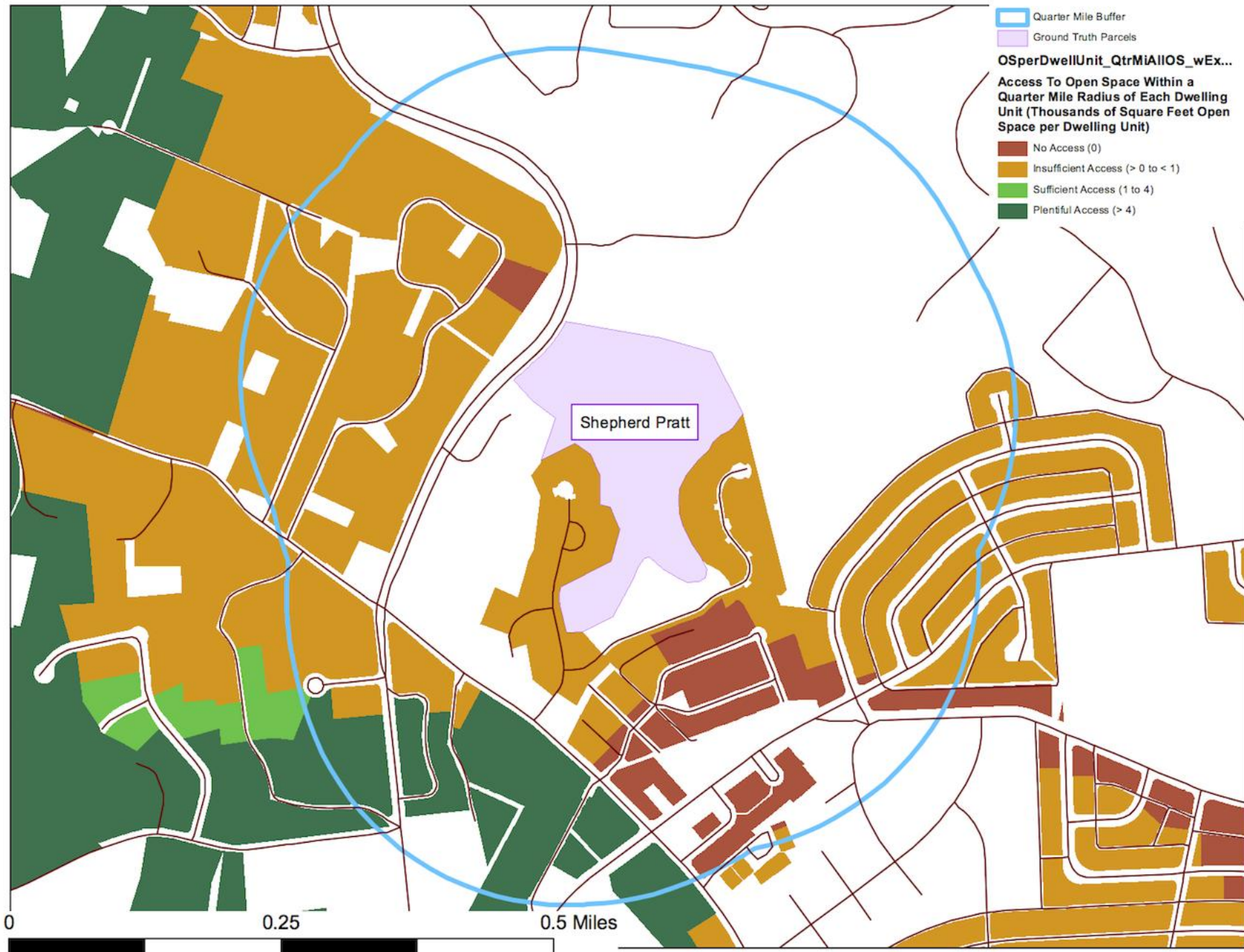Linden Pl
Alley
Meridian Ln
W Burke Ave
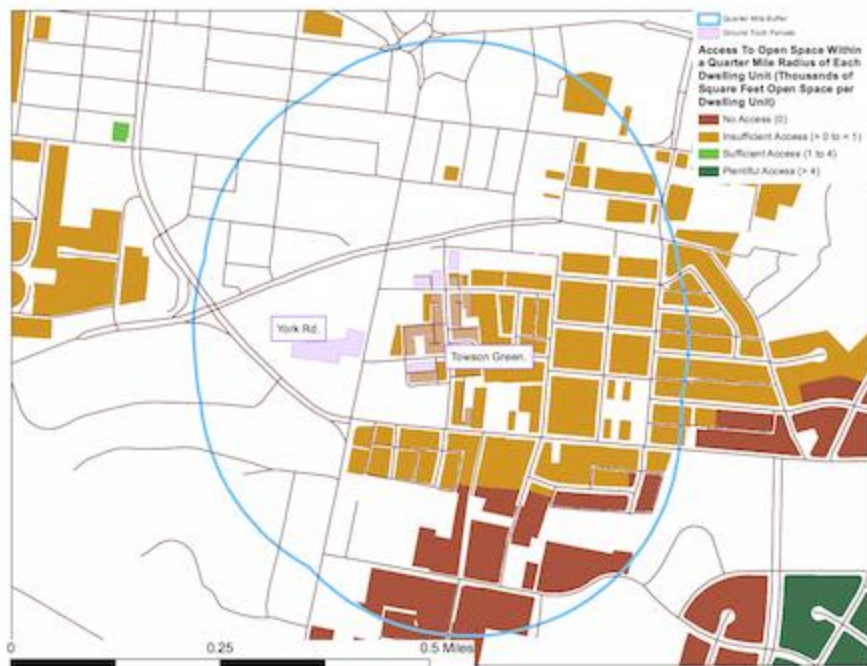Burke Ave
Alley
Barkleigh Rd
Burkshire Rd

0   0.025   0.05 Miles

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Access To Open Space Within a Quarter Mile Radius of Each Dwelling Unit (Thousands of Square Feet Open Space per Dwelling Unit)

- Quarter Mile Buffer
- Ground Truth Parcels
- No Access (0)
- Insufficient Access (> 0 to < 1)
- Sufficient Access (1 to 4)

York Rd.

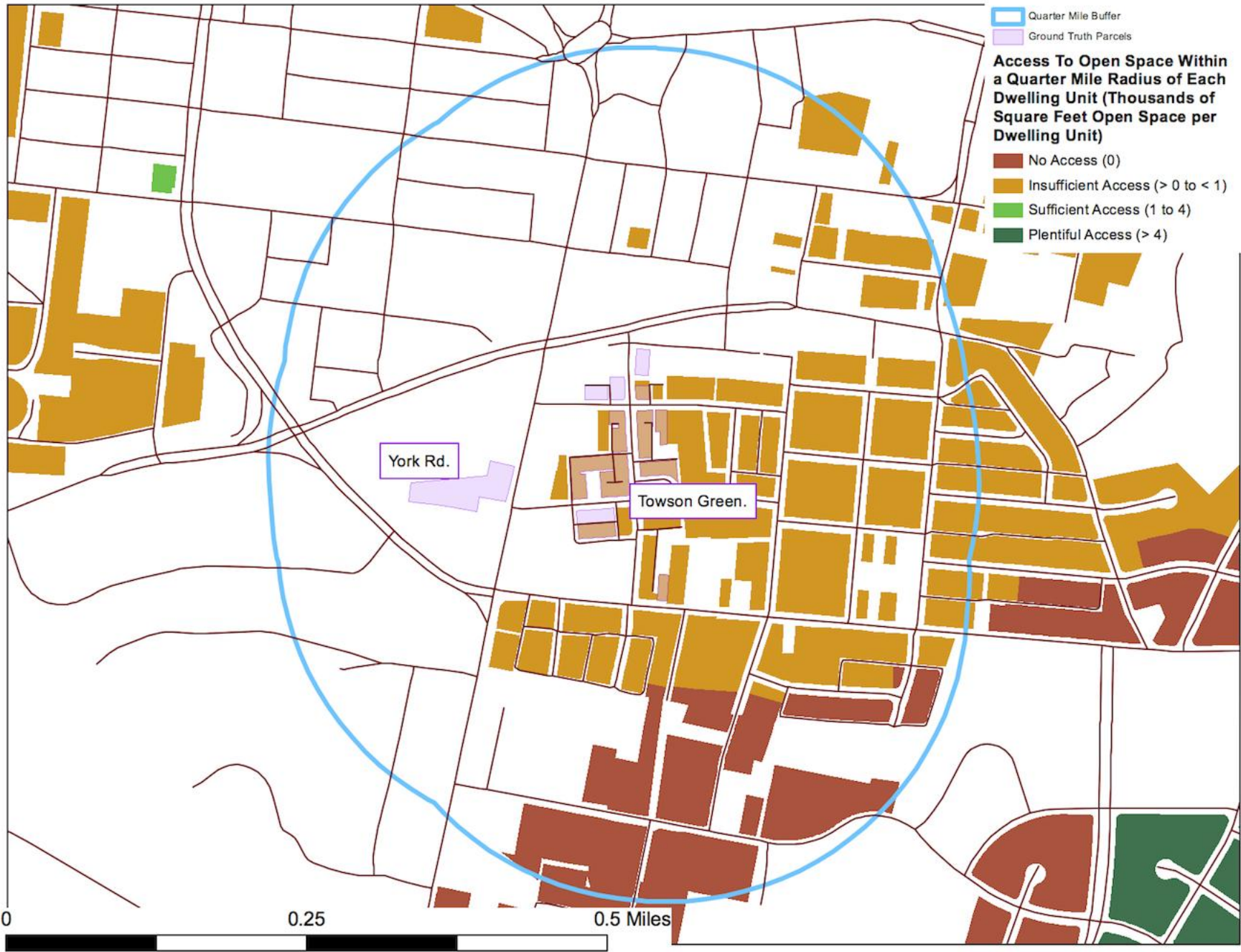Towson Green.

0   0.25   0.5 Miles
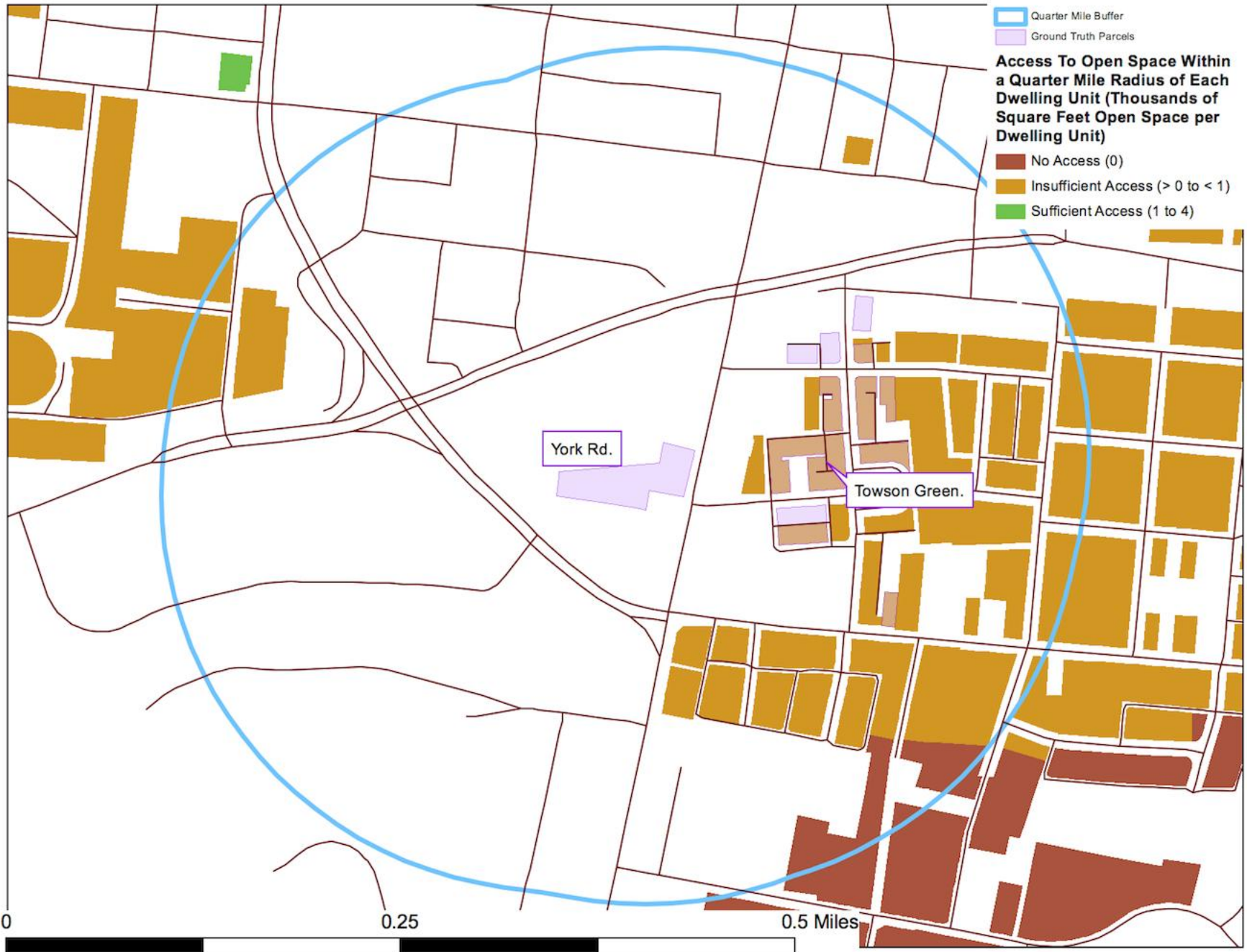
Towson Ground Truth Results: Towson Green

	Shepherd Pratt	York Rd	Towson Green	Goucher Blvd, Glenmont	Tenbury Rd & Greenridge Rd	Loch Raven Blvd	Edgewood Rd	Lutherville Lightrail
Max Overall Score	72.5	70.6	67.5	67.5	63.0	62.4	57.9	35.6
Area in Acres	18.68	1.26	2.97	11.41	4.18	0.24	1.11	1.80
Unmet OS Need, % of parcels	89.1	100.0	100.0	13.6	62.7	0.3	100.0	43.9
Can satisfy unmet OS Need, %	148.3	23.8	13.5	805.4	203.8	1924.9	18.3	90.5

Old data, has since been developed

Legend: Ground Truth Parcels

W Towsontown Blvd
E Towsontown Blvd
E Towsontown Blvd
E Susquehanna Ave
Maryland Ave
W Towsontown Blvd
Alley
Alley
Willow Ave
York Rd
Wilden Dr
Alley
Willow Ave
Alley
Alley
Towson Green.
York Rd.
Linden Ter
Maryland Ave
Linden Pl
Linden Pl
Linden Ter
Alley
Alley
Meridian Ln
W Burke Ave
Burke Ave
Alley

0   0.025   0.05 Miles

Quarter Mile Buffer
Ground Truth Parcels

Access To Open Space Within a Quarter Mile Radius of Each Dwelling Unit (Thousands of Square Feet Open Space per Dwelling Unit)

No Access (0)
Insufficient Access (> 0 to < 1)
Sufficient Access (1 to 4)
Plentiful Access (> 4)

York Rd.

Towson Green.

0   0.25   0.5 Miles

Towson Ground Truth Results: Loch Raven Blvd.

	Shepherd Pratt	York Rd	Towson Green	Goucher Blvd, Glenmont	Tenbury Rd & Greenridge Rd	Loch Raven Blvd	Edgewood Rd	Lutherville Lightrail
Max Overall Score	72.5	70.6	67.5	67.5	63.0	62.4	57.9	35.6
Area in Acres	18.68	1.26	2.97	11.41	4.18	0.24	1.11	1.80
Unmet OS Need, % of parcels	89.1	100.0	100.0	13.6	62.7	0.3	100.0	43.9
Can satisfy unmet OS Need, %	148.3	23.8	13.5	805.4	203.8	1924.9	18.3	90.5

Already has enough OS

Loch Raven Blvd.

Ground Truth Parcels

Loch Raven Blvd

Loch Raven Blvd

Collinsdale Rd

0   0.025   0.05 Miles

Goucher Blvd. Glenmont

Loch Raven Blvd.

Legend

Quarter Mile Buffer
Ground Truth Parcels

Access To Open Space Within a Quarter Mile Radius of Each Dwelling Unit (Thousands of Square Feet Open Space per Dwelling Unit)

Insufficient Access (> 0 to < 1)
Sufficient Access (1 to 4)
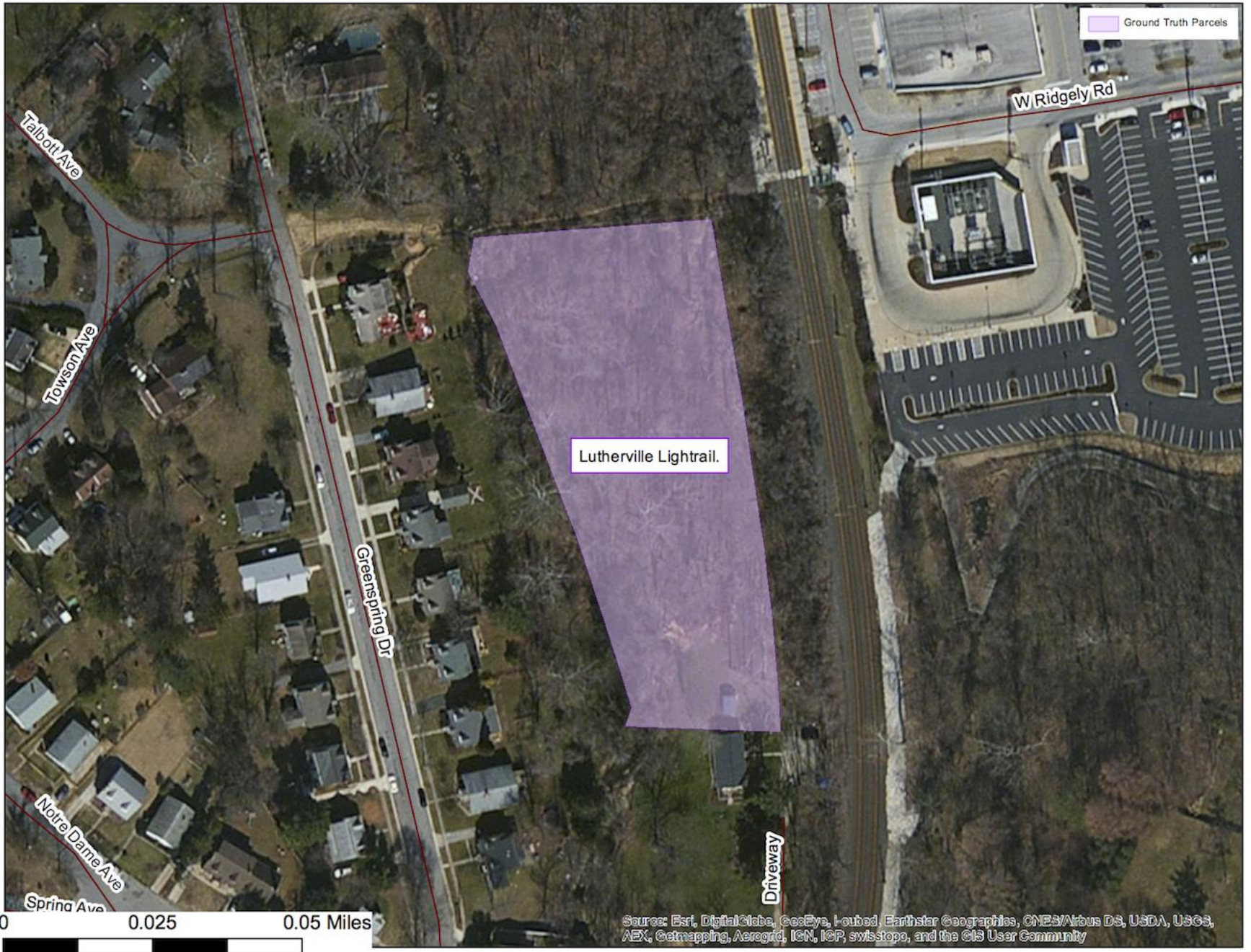Plentiful Access (> 4)

0   0.25   0.5 Miles

Towson Ground Truth Results: Edgewood Rd

	Shepherd Pratt	York Rd	Towson Green	Goucher Blvd, Glenmont	Tenbury Rd & Greenridge Rd	Loch Raven Blvd	Edgewood Rd	Lutherville Lightrail
Max Overall Score	72.5	70.6	67.5	67.5	63.0	62.4	57.9	35.6
Area in Acres	18.68	1.26	2.97	11.41	4.18	0.24	1.11	1.80
Unmet OS Need, % of parcels	89.1	100.0	100.0	13.6	62.7	0.3	100.0	43.9
Can satisfy unmet OS Need, %	148.3	23.8	13.5	805.4	203.8	1924.9	18.3	90.5

Mostly too steep. Already has a pocket park.

Ground Truth Parcels

Edgewood Rd.

Edgewood Rd

Edgevale Rd

Alley

0   0.025   0.05 Miles

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
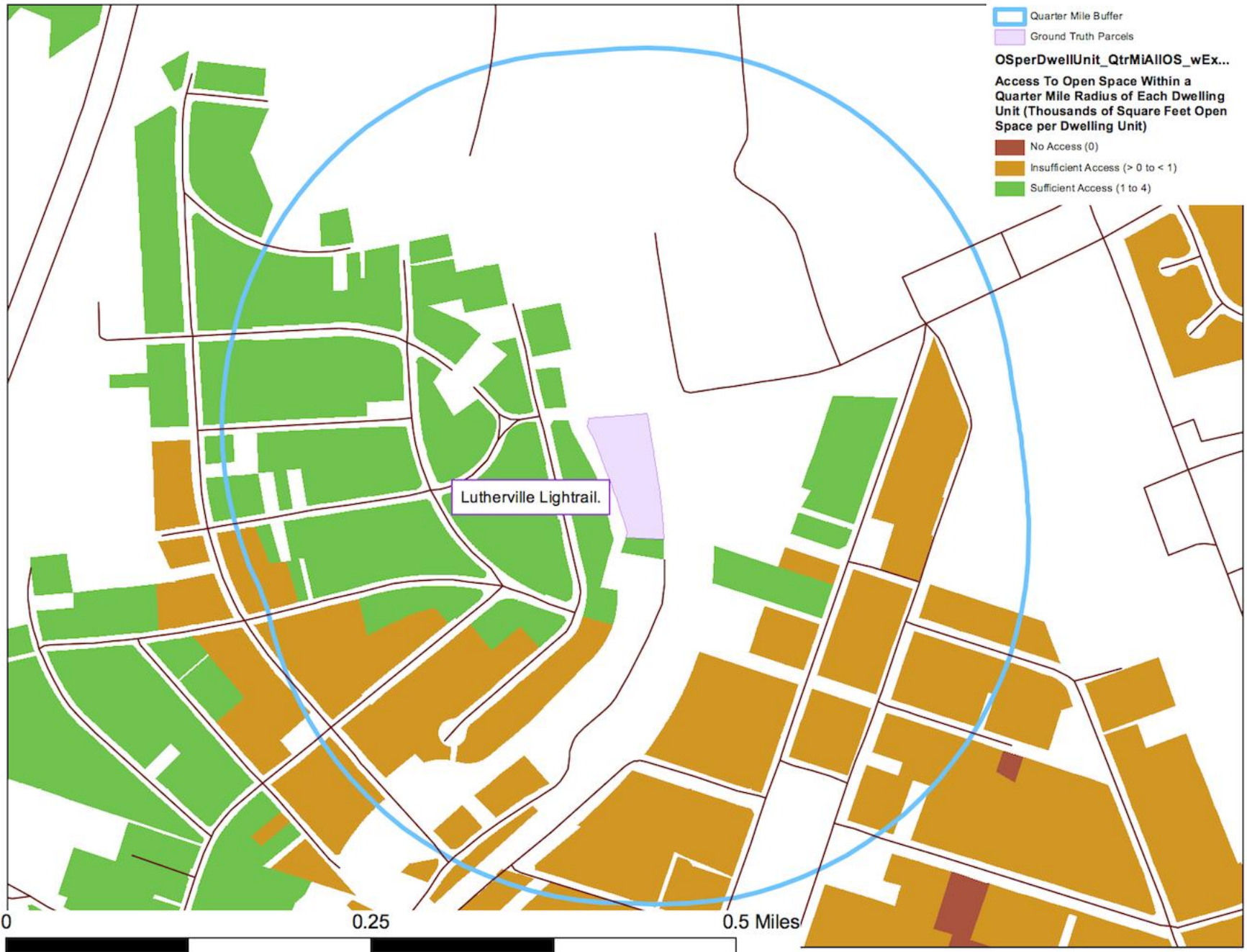
Edgewood Rd.

Quarter Mile Buffer
Ground Truth Parcels

Access To Open Space Within a Quarter Mile Radius of Each Dwelling Unit (Thousands of Square Feet Open Space per Dwelling Unit)

No Access (0)
Insufficient Access (> 0 to < 1)

0   0.25   0.5 Miles
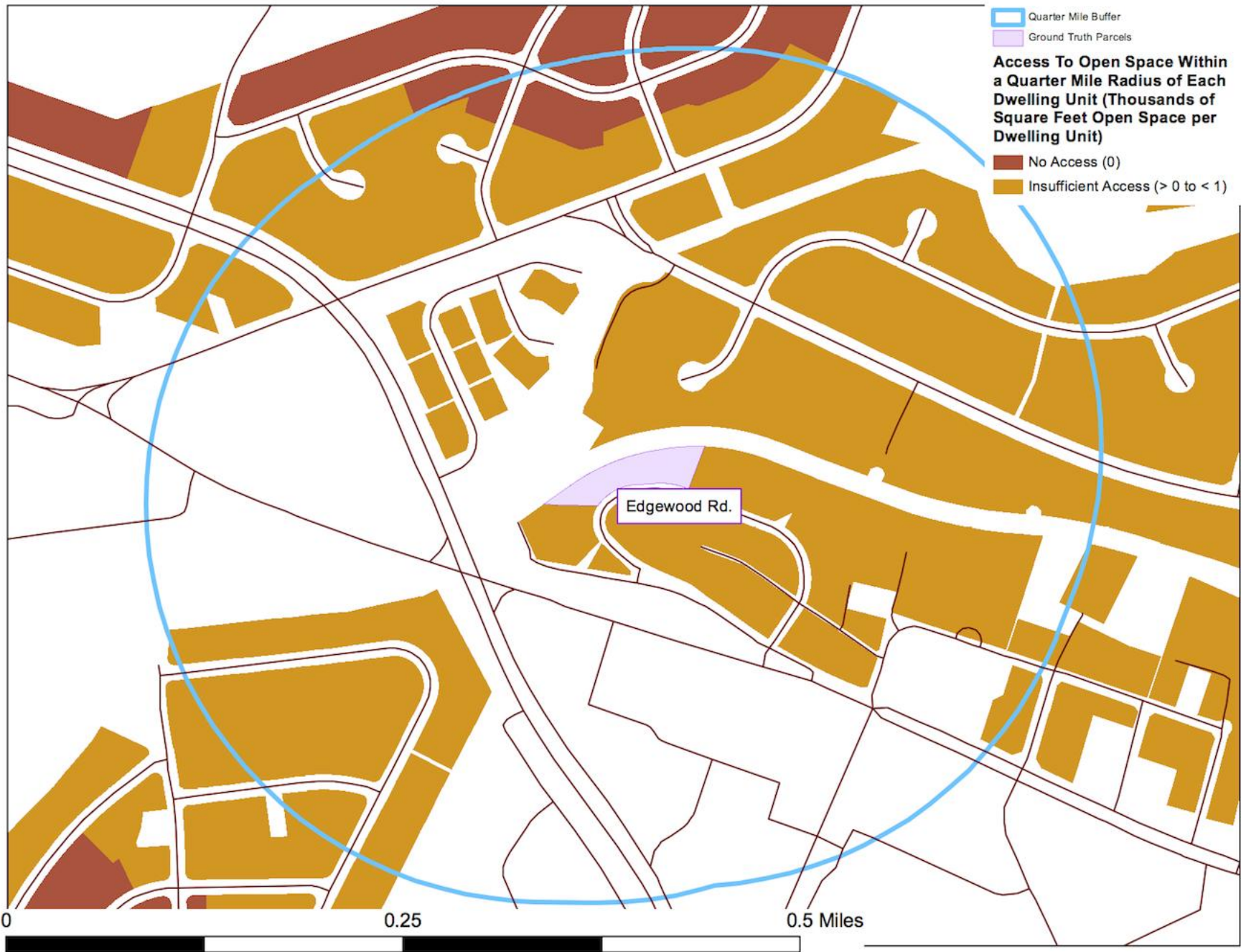
Towson Ground Truth Results: Lutherville Light Rail

	Shepherd Pratt	York Rd	Towson Green	Goucher Blvd, Glenmont	Tenbury Rd & Greenridge Rd	Loch Raven Blvd	Edgewood Rd	Lutherville Lightrail
Max Overall Score	72.5	70.6	67.5	67.5	63.0	62.4	57.9	35.6
Area in Acres	18.68	1.26	2.97	11.41	4.18	0.24	1.11	1.80
Unmet OS Need, % of parcels	89.1	100.0	100.0	13.6	62.7	0.3	100.0	43.9
Can satisfy unmet OS Need, %	148.3	23.8	13.5	805.4	203.8	1924.9	18.3	90.5

Good balance, but scored low

Lutherville Lightrail.

Ground Truth Parcels

W Ridgely Rd

Talbott Ave

Towson Ave

Greenspring Dr

Notre Dame Ave

Spring Ave

Driveway

0   0.025   0.05 Miles

Quarter Mile Buffer
Ground Truth Parcels

OSperDwellUnit_QtrMiAllOS_wEx...

Access To Open Space Within a Quarter Mile Radius of Each Dwelling Unit (Thousands of Square Feet Open Space per Dwelling Unit)

No Access (0)
Insufficient Access (> 0 to < 1)
Sufficient Access (1 to 4)

Lutherville Lightrail.

0   0.25   0.5 Miles

Towson Ground Truth Results: Shepherd Pratt

	Shepherd Pratt	York Rd	Towson Green	Goucher Blvd, Glenmont	Tenbury Rd & Greenridge Rd	Loch Raven Blvd	Edgewood Rd	Lutherville Lightrail
Max Overall Score	72.5	70.6	67.5	67.5	63.0	62.4	57.9	35.6
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Can satisfy unmet OS Need, %	148.3	23.8	13.5	805.4	203.8	1924.9	18.3	90.5

Good balance

Gray to green opportunity

Old data, has since been developed

Mostly too steep. Already has a pocket park.

Already has enough OS

Good balance, but scored low

Filtering Part I: Filtering Should Remove

- Parcels with poor or no access

- Parcels too close to residential buildings
  - Less potential for resistance from neighbors?
    - Not In My Side Yard

- Examples:
  - Internal parcels
  - Pan handle parcels
  - Narrow parcels
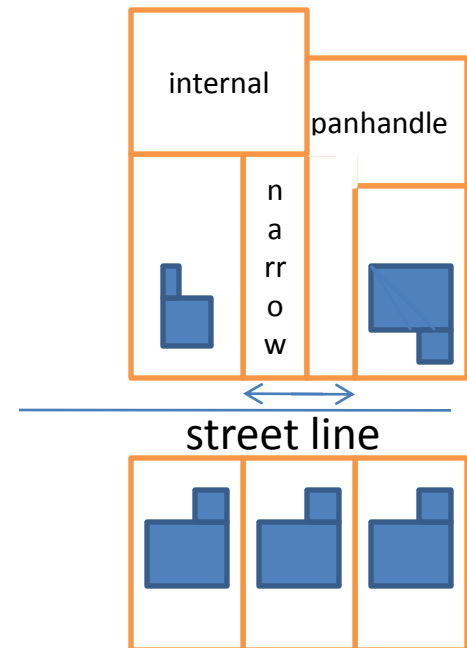
Filtering Part II: The 4 Filters

- Four criteria
  1. Length that a parcel parallels a street
     - Wider parcels have freer access
       - Not In My Side Yard
     - 40 ft seems like a minimum to keep
  2. Find and keep parcels at a dead end
     - They are perpendicular not parallel to the street
       - They fail the first test
     - But they still have good access
  3. Find parcels without steep slopes
     - 10% slope or less
  4. How much of the parcel is not too close to a residential building?
     - Remove the part that is within 50 or 100 ft.
       - Not In My Side Yard
     - Redo the above tests with the smaller parcel.

vacant

vacant

street line

Vacant
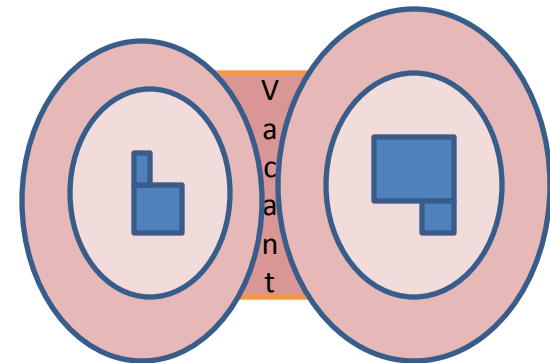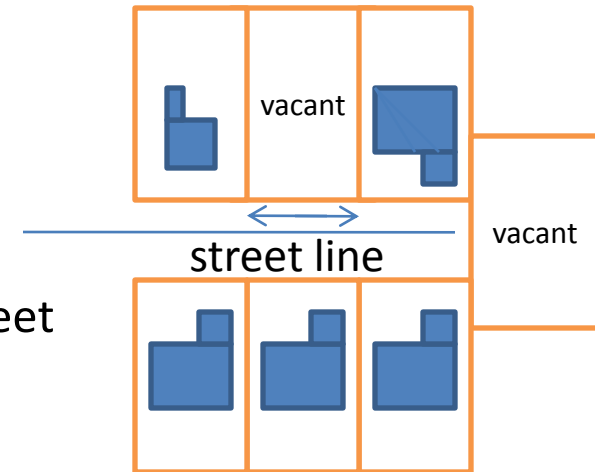
Applying the Filters

For:
1. The full parcel
2. Part of parcel not in 50ft of a residential building
3. Part of parcel not in 100ft of a residential building

Keep parcels that meet the following requirements:

Length parallel to street > 40 ft
OR A street end parcel

AND

Slope < 10%
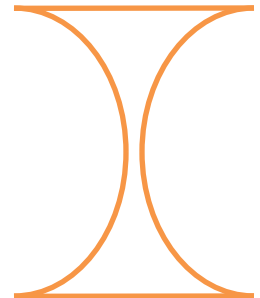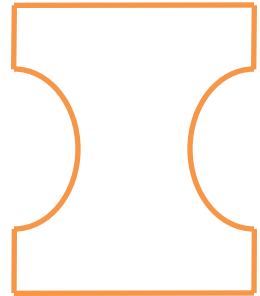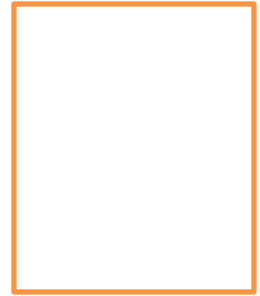
Filter Results
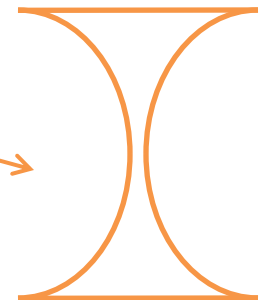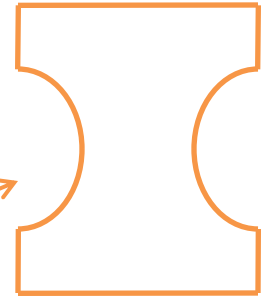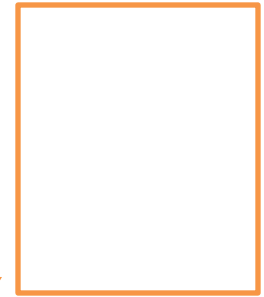
The number of parcels to consider

Drops from:

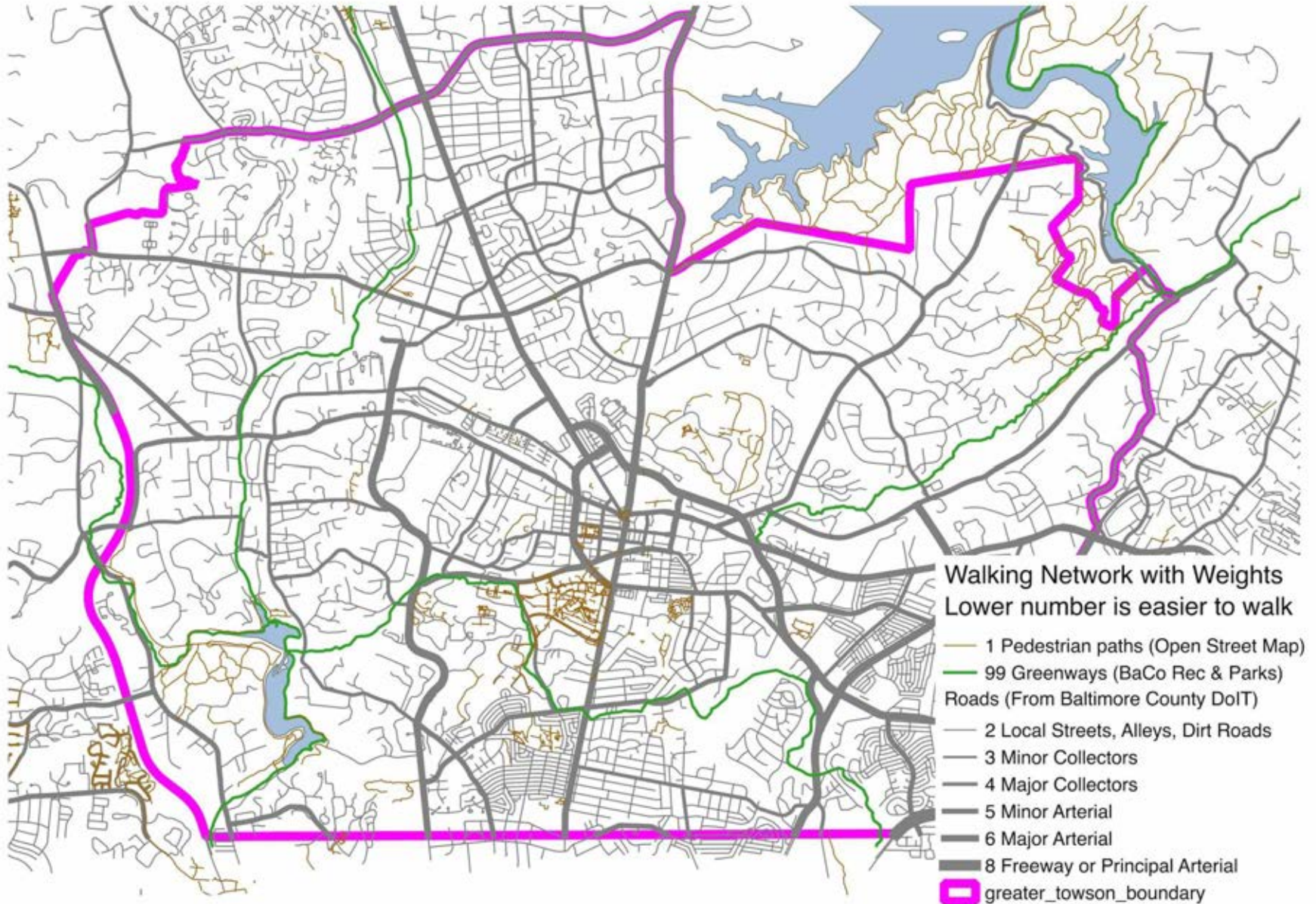376   before filtering

232   full parcel

199   not in 50 ft of resi. bldg.

130   not in 100 ft of resi. bldg.

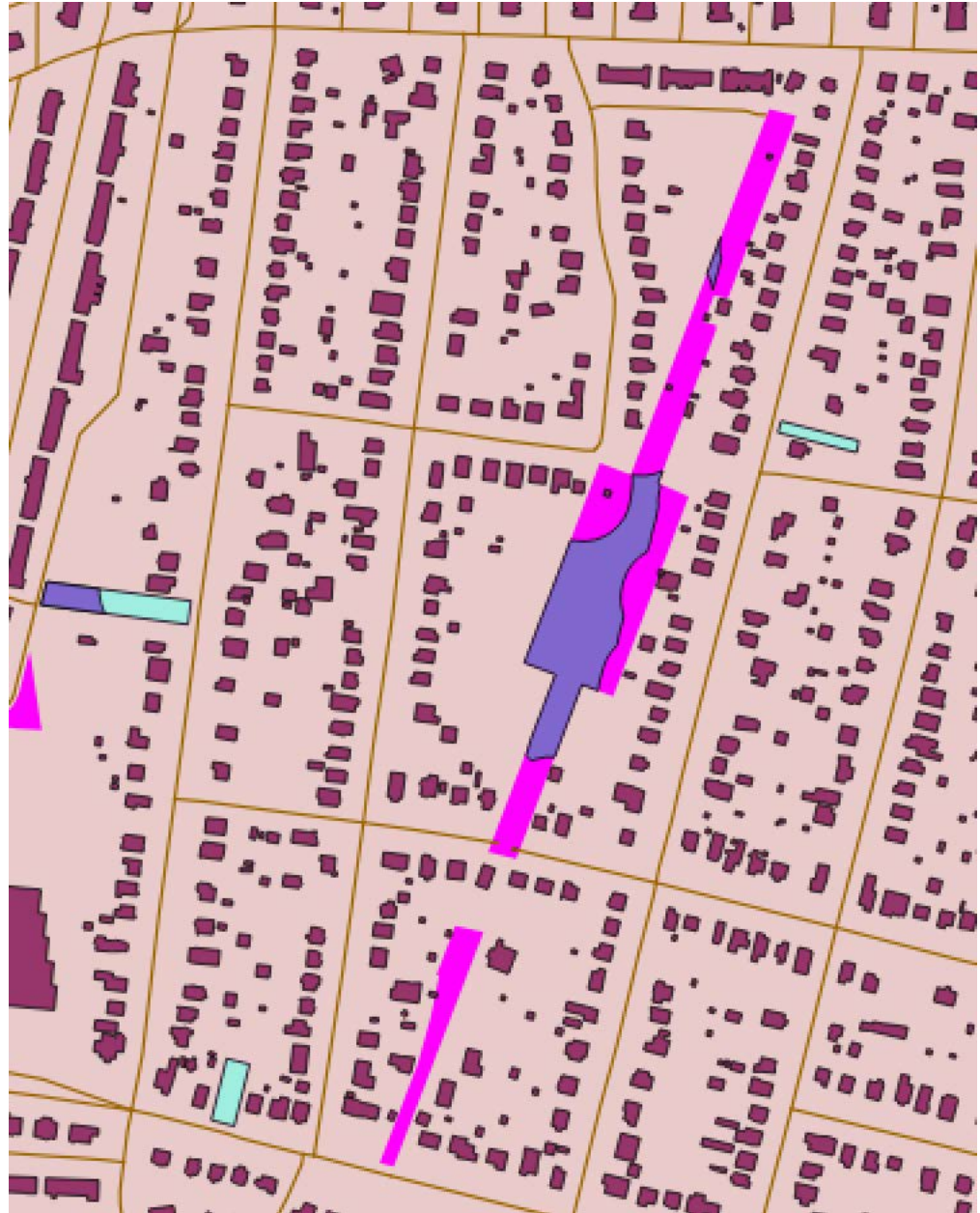Next need to evaluate scores

New Frontiers a Walking and Green Networks

Walking Network with Weights
Lower number is easier to walk

— 1 Pedestrian paths (Open Street Map)
— 99 Greenways (BaCo Rec & Parks)
Roads (From Baltimore County DoIT)
— 2 Local Streets, Alleys, Dirt Roads
— 3 Minor Collectors
— 4 Major Collectors
— 5 Minor Arterial
— 6 Major Arterial
— 8 Freeway or Principal Arterial
— greater_towson_boundary

Lessons Learned

- Work in progress

- Hard to do, but we are getting better.

- Unbiased has value but,

- Have to put your thumb on the scale
      To get something useable

Lessons Learned, Continued

- Methods for finding open space for parks may not do so well for finding OS for connectivity
  - Accounting for Not In My Side Yard may break up long thin parcels

Acknowledgements