DENSITY & ANNEXATION: BALTIMORE CASE STUDY

A study of the crossroads of annexation, population density, Atlanta, Columbus, and Baltimore

1

REINVEST IN REMINGTON

A look into one of Baltimore's neighborhoods undergoing revitalization.

2

REINVISIONING DOWNTOWN SALISBURY: PARKING LOT #1

How ESRI's City Engine helped a neglected surface parking lot realize its potential.

3

REINVISIONING DOWNTOWN SALISBURY: PARKING LOT #10

How Trimble's SketchUp can further help city leaders work to attract investment.

4

SPOTLIGHT COMMUNITIES: STORYMAPS

Two neighborhoods in Maryland are depicted using ESRI's Online StoryMaps. Videos and narrative help tell the story of these two areas undergoing redevelopment.

5

TRANSIT-ORIENTED DEVELOPMENT & THE PURPLE LINE

State investments are increasingly being funneled into transit-oriented development projects. How can county & municipal leaders find the necessary resources to seek funding?

6

MARYLAND: CURBING SEPTIC SPRAWL

A poster finalist at the 2013 ESRI International User's Conference depicts the steps and data needed to ascertain the legality of locally-adopted Septic Tier maps.

7

APPLICATION OF POLICY

The Sustainable Growth & Agricultural Preservation Act of 2012 requires a large amount of geospatial data analysis to ensure compliance.

8

DEVELOPING AN AERIAL VIEW: INSTRUCTIONAL POSTER SESSION

This poster, presented as part of a Lightning Round Session at the 2014 TUgis Conference, outlines the integration of multiple software applications.

9

ANDREW

Andrew Bernish is an urban planner living in Baltimore, Maryland. Employment and educational experience researching, designing, and writing within the public, private, academic, and international sectors. Broad software skill set encompassing both design layout and geospatial data analysis. Passioniate about learning and teaching.

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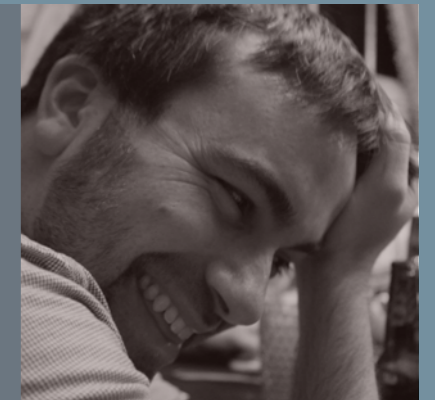
Density & Annexation: Baltimore Case Study

BACKGROUND

As part of the lead up to the work MDP performed for Infill, Redevelopment, and Revitalization at the request of the Governor & Lieutenant Governor, the planning & analysis division at MDP examined density and annexation. In particular, a 1948 Baltimore City ballot referendum passed that prohibited the city from annexing any additional land. Therefore the only way to increase the city's population (and tax base) is from within. However other cities are able to annex land and indeed have done so as a means of increasing their tax base. This leaves their respective populations less dense.

ROLE

Researched population figures and historical annexations. Completed the geospatial analysis and designed the maps.

If Baltimore Annexed Like Atlanta...
Baltimore Would Add 142K Acres To Become a 194K Acre City

Legend
- Existing Baltimore City Boundary Line
- If Baltimore Annexed As Much As Atlanta
- Surrounding County Boundary Lines

0 — 5 — 10 Miles

Atlanta has annexed ~63K Acres since 1950 - a 273% increase. If Baltimore annexed at this rate, it would be 194,270 Acres. Presently it is 52,028 Acres.
{Expansion visualized by Census Block into PFA's}
Source: GIS Atlanta

Map 1

Baltimore's Footprint Inside Atlanta
Atlanta Would Contract by 48,671 Acres to Meet Baltimore's Density of 11.94 person/acre

Legend
- Existing Atlanta City Boundary Line
- Atlanta's Size With Baltimore's Density
- Surrounding County Boundaries

0 — 5 — 10 Miles

Based on 2010 US Census Data, Atlanta would only be 3 quarters its existing size with Baltimore's density of 11.94 Persons/Acre. Thus using Atlanta's existing population of 442,091 with Baltimore's density, Atlanta would shed 48,671 acres

Map 2

If Baltimore Annexed Like Columbus, Ohio...
Baltimore Would Add 233K Acres To Become a 285K Acre City

Legend
- Existing Baltimore City Boundary Line
- If Baltimore Annexed As Much As Columbus
- Surrounding County Boundary Lines

0 — 5 — 10 Miles

Columbus has annexed ~112K Acres since 1950 - a 449% increase. If Baltimore annexed at this rate, it would be 285,489 Acres; Presently it is 52,028 Acres.
{Expansion visualized by Census Block into PFA's}
Source: Sierra Club, Ohio Chapter

Map 3

THE MAPS

The three maps were created using a combination of density and annexation rates.

Map 1: Atlanta has increased its city land size by 273% since 1950 (through 2010). If Baltimore had annexed at this rate and inc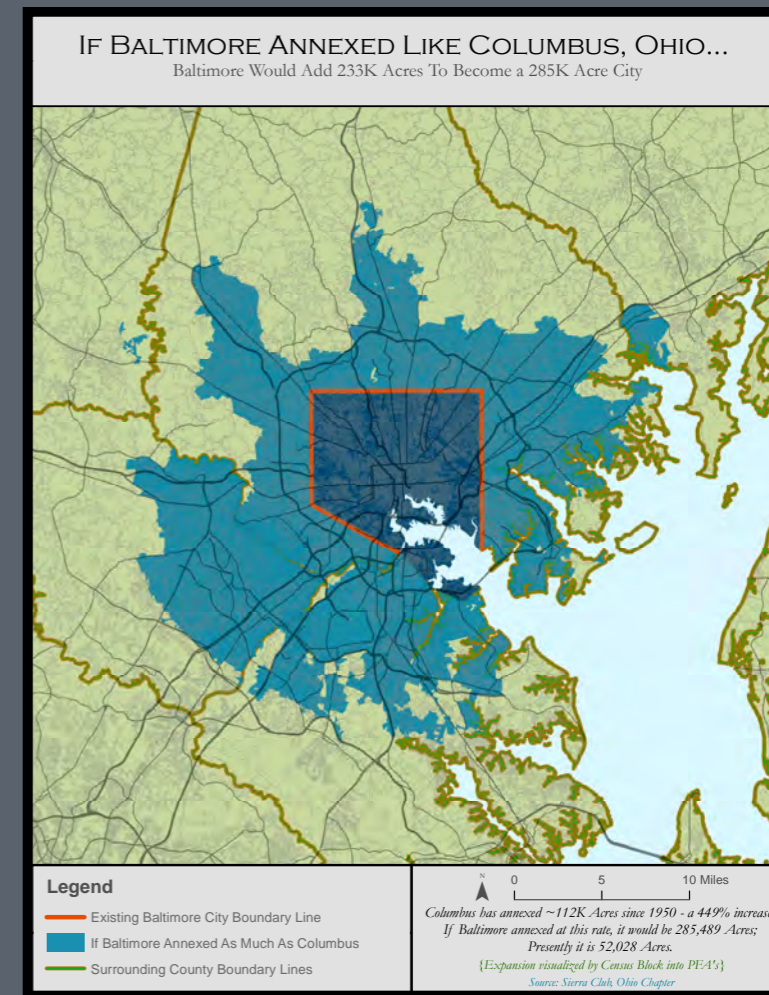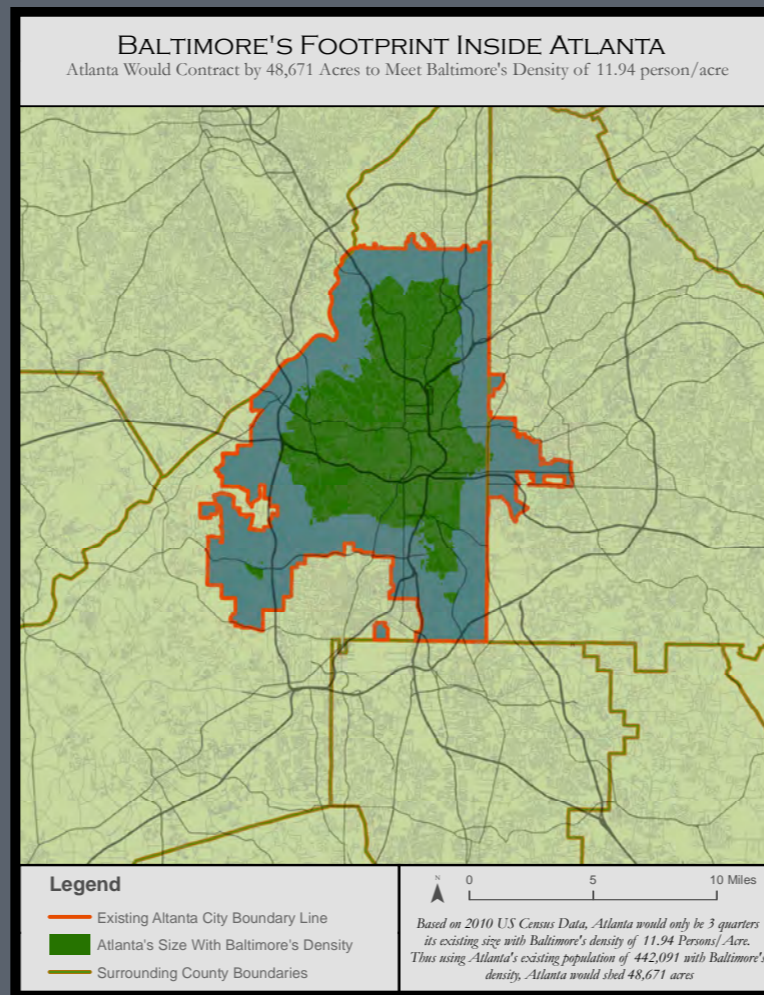reased its land by 273%, today it would be 194,000 acres. The population expansion is shown through the Priority Funding Areas (PFAs) - the areas most likely to receive population gains first.

Map 2: Baltimore's Density (as of the 2010 Census) is 11.94 persons/acre. If Atlanta existing population (2010) of 442,091 lived at that density, Atlanta would be a fraction of its current size.

Map 3: Columbus has increased its city land size by 449% since 1950 (through 2010). If Baltimore had annexed at this rate and increased its land by 449%, today it would be 285,000 acres. The population expansion is shown through the Priority Funding Areas (PFAs) - the areas most likely to receive population gains first.

Reinvest In Remington

BACKGROUND

Maryland Department of Planning focused on the neighborhood of Remington in Baltimore City in order to highlight a neighborhood undergoing redevelopment and infill revitalization due, in part, to Maryland State Historic Tax Credits to the Miller's Court Building. In order to highlight this neighborhood, community leaders, business owners, and residents were interviewed. Data was analyzed and the project was presented in multiple formats including a video fly-through.

ROLE

Constructed every building in the Remington neighborhood from the basic building footprint shapefile using ESRI ArcMap & City Engine. Constructed select detailed existing buildings using Trimble SketchUp, and compiled video fly-through with pop-up narratives using Google Earth Pro Movie Maker. Presented this work at the 2014 Maryland Chapter of the American Planning Association's Annual Meeting and Dinner September 18, 2014.

Static Map Outlining key buildings to be recreated in detail in SketchUp

Screenshot from Aerial Fly-Through Video
Video Available: http://bit.ly/Remington_Video1

Aerial View of 3D buildings constructed throughout the neighborhood of Remington

Buildings constructed in ESRI City Engine and Trimble SketchUp (Placed into Google Earth) include depiction of Miller's Court

Reinvisioning Downtown Salisbury (Parking Lot #1)

BACKGROUND

Salisbury, MD is the most populous city on Maryland's Eastern Shore. In 2013, City officias sought guidance from the Maryland Department of Planning to visualize potential mixed-use developments on two city-owned parking lots.
This is the work done for Parking Lot #1
The city requested a basic unadorned building concept for Parking Lot #1 that adhered strictly to zoning ordinacne

ROLE

Reviewed City Zoning Ordinances to determine allowable densities and setbacks. Employed ESRI City Engine (in combination with bulding footprints and LiDAR data) to construct base models of mixed-use building. Refined base models in SketchUp to represent existing iconic buildings and model potential mixed-use facades. Imported objects into Google Earth and created fly-through video animation.
Presented this work at the ESRI's 2014 International User's Conference in San Diego July 16, 2014.

Street Map with Parking Lot #10 Highlighted

Parcel in Context with surrounding buildings constructed

Fly-Through Video: http://bit.ly/1yiuMaZ

Example of City Building Detailed

Street Vista
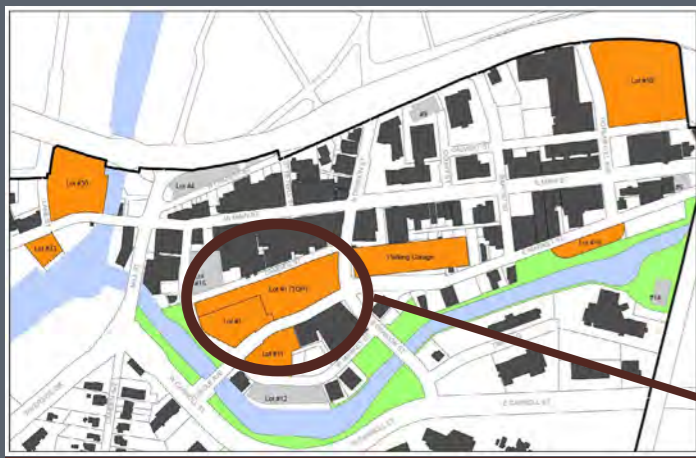
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Street Map with Parking Lot #10 Highlighted

Fly-Through Video: http://bit.ly/1uWWqVc
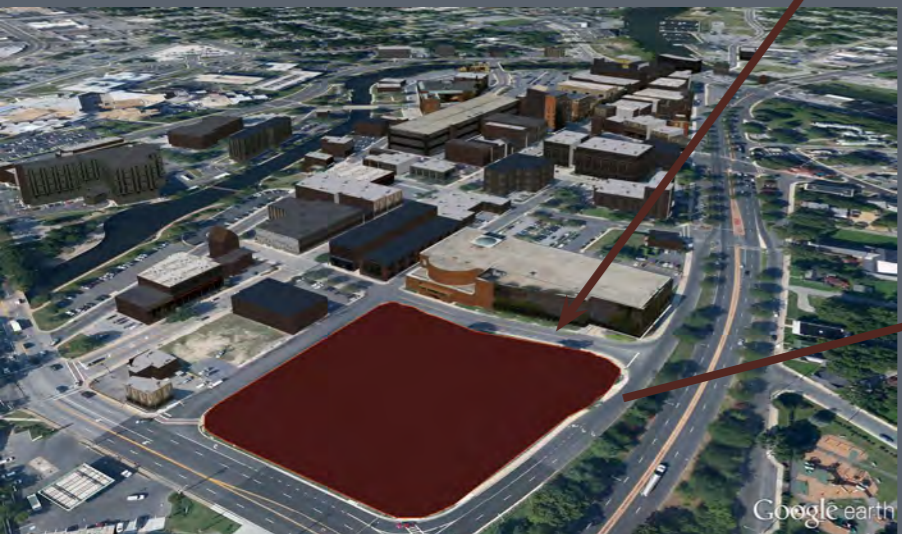
Parcel in Context with surrounding buildings constructed

Alternate Possibility Presented: Civic Building

PROJECT INFORMATION:
Project Information:

BACKGROUND

Beginning in late 2013, Maryland Department of Planning announced that it would begin a series entitled *Spotlight Communities.* The first two communties featured, Salisbury & Remington each had 3D visualizations completed (as outlined in this portfolio). A central component of the *Spotlight Community Series* is the interactive Online Story Maps.

ROLE

Designed the interactive online story maps. Worked with city leaders (Council Members, Developers, Residents) to obtain text, photo, and desired information. Created 3D analysis and video (as depicted in this portfolio), worked with communications team to complete video interviews with residents and business owners.
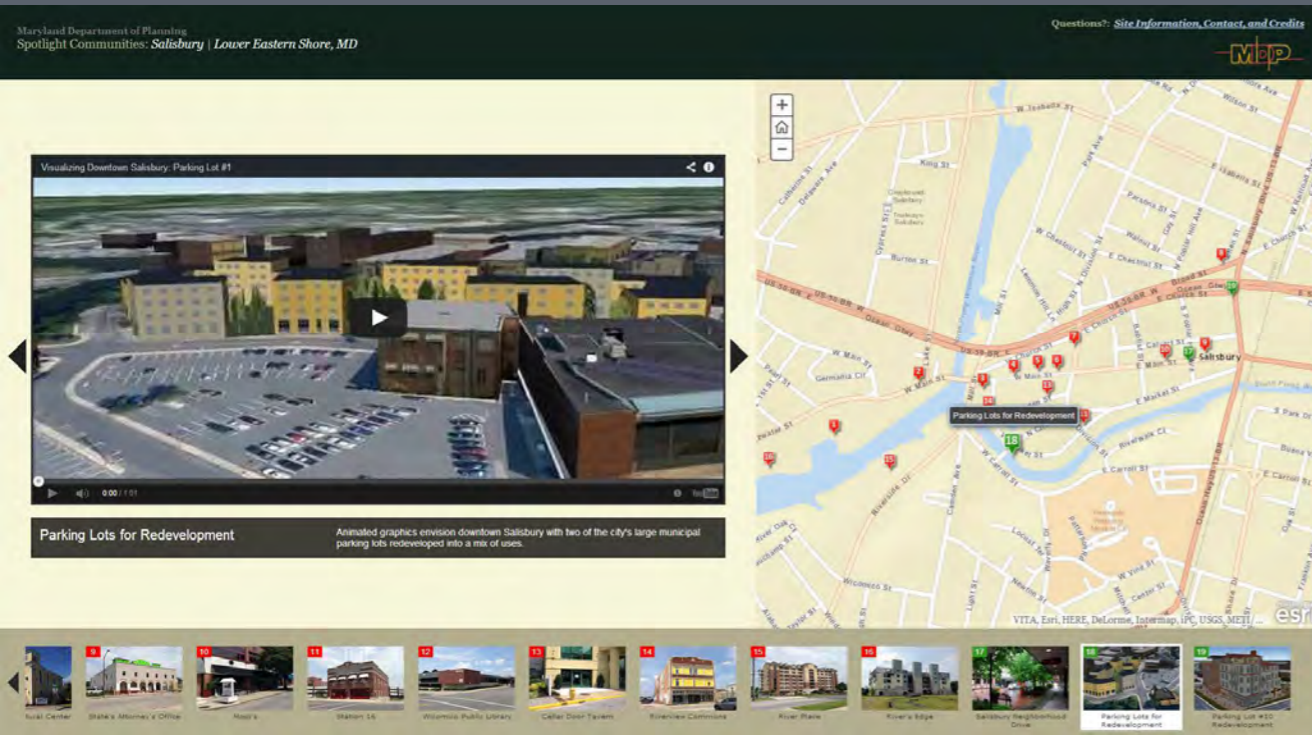
Salisbury Story Map: The Salisbury Story Map illustrates the highlights of the downtown redevelopment occurring in the most populous city on Maryland's Lower Eastern Shore. City Council members, the Mayor, and business leaders helped select different areas to showcase and provided input for the text. Two 3D videos accompany the pictures and depict city-owned parking lots to undergo infill redevelopment. A hyperlapse video tours the downtown streets.

http://mdpgis.mdp.state.md.us/SpotLightCommunities/Salisbury/index.html
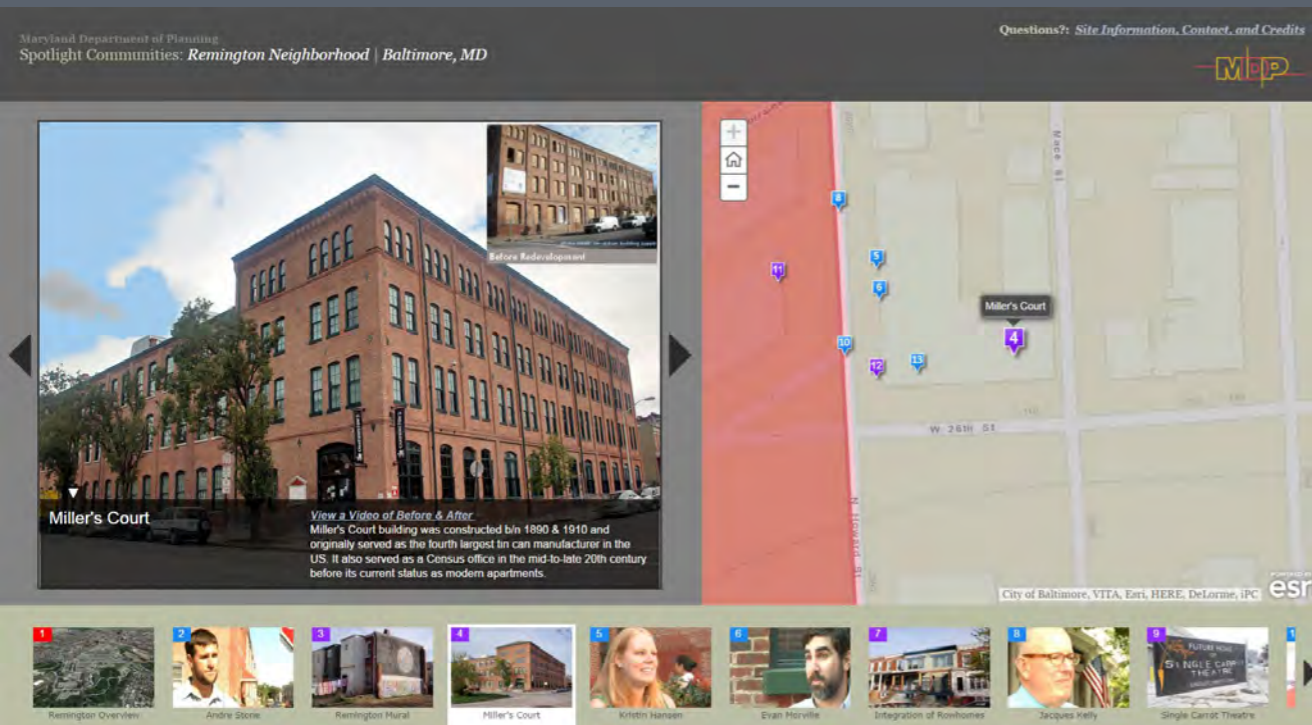
Remington Story Map: The Remington Story Map allows viewers to visit some of the existing and upcoming developments in "Baltimore's Neighborhood of the Year" (City Paper, 2013) . Community leaders, developers, the Single Carrot Theatre owners, residents, and a Baltimore Sun Reporter provide videotaped interviews about the neighborhood. A 3D video accompanies the pictuers and text. A hyperlapse video tours Howard Street on the eastern side of Remington.

http://mdpgis.mdp.state.md.us/SpotLightCommunities/Remington/index.html

# Transit-Oriented Development (TOD) & The Purple Line

BACKGROUND

As part of the Governor & Lieutenant Governor's request for a report on Infill, Redevelopment, and Revitalization, Transit Oriented Development has become a key avenue by which funds can be channeled to County & Municipalities to develop around transit. In addition, the state of Maryland has been organizing a Corridor Plan for development proposals along the Purple Line .

ROLE

Designed a series of static maps for stops along the Purple Line depicting state Targeted Growth & Revitalization areas, DHCD Sustainable Communities, and State-Designated TOD sites. Presented these maps to the Smart Growth Subcabinet on 9/17/2014 to springboard a Corridor Plan Coalition. Constructed and maintain an interactive online TOD map containing a host of tools local leaders can utilize to pursue funding related to TOD sites from state programs.
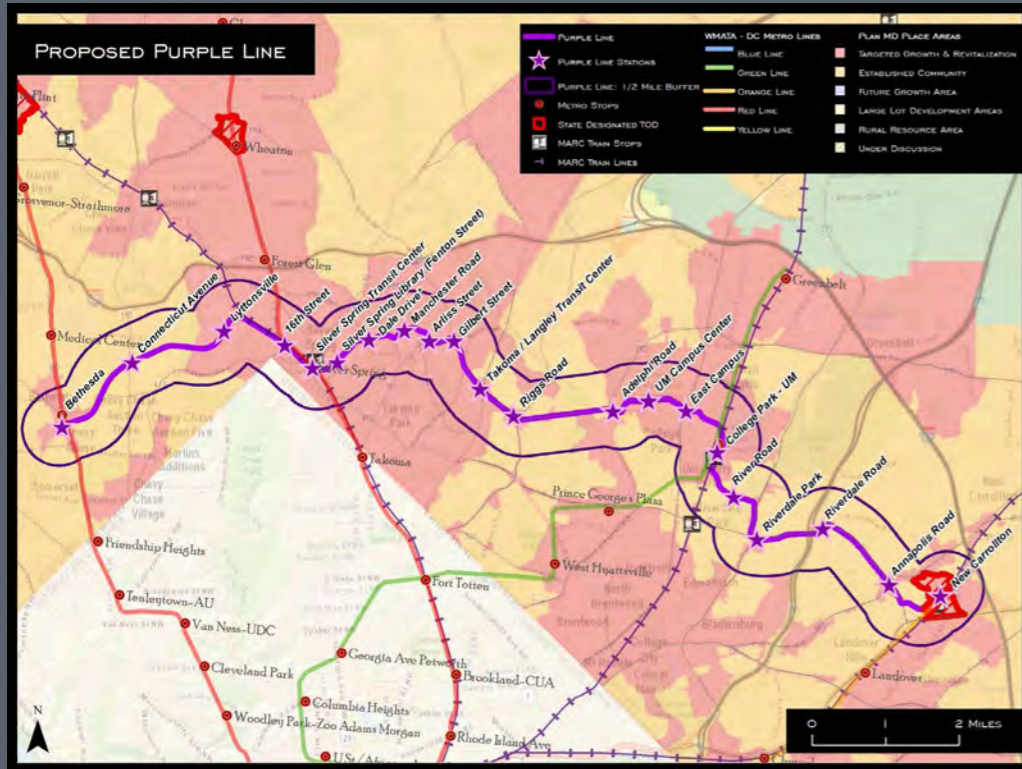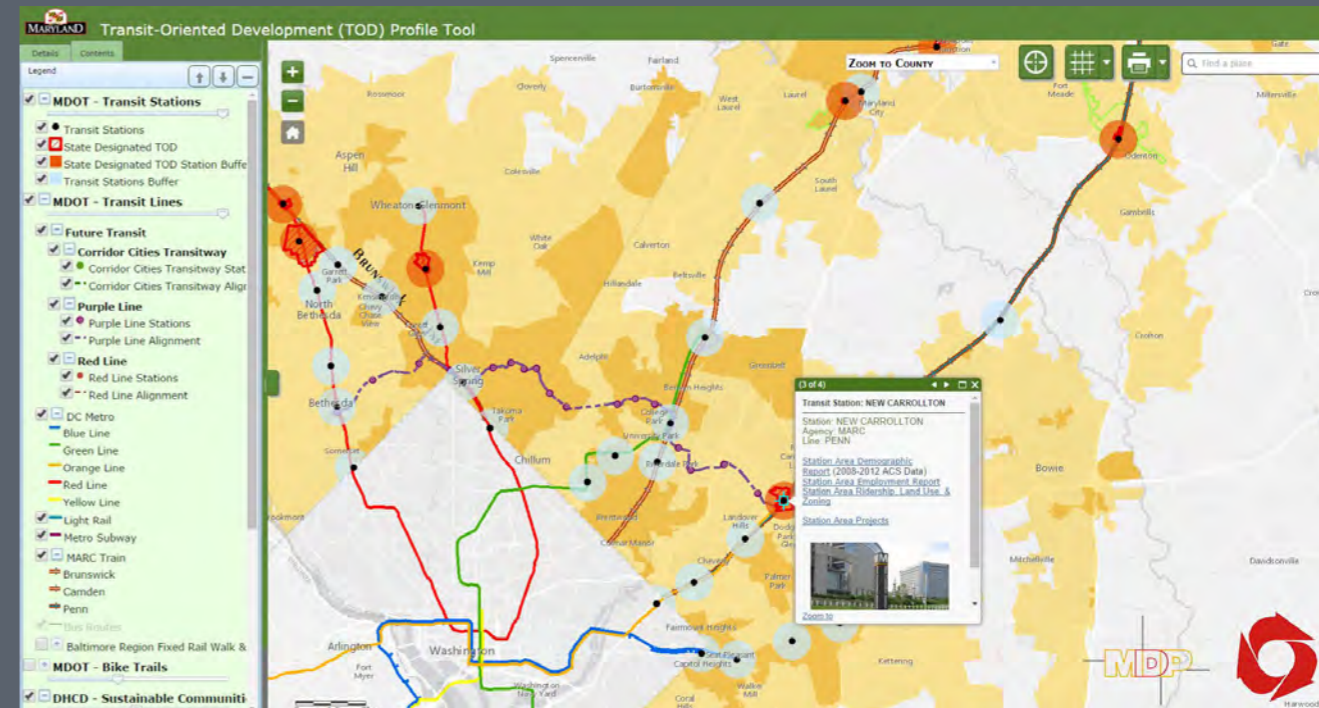

Purple Line Static Map Depicting Entire Route
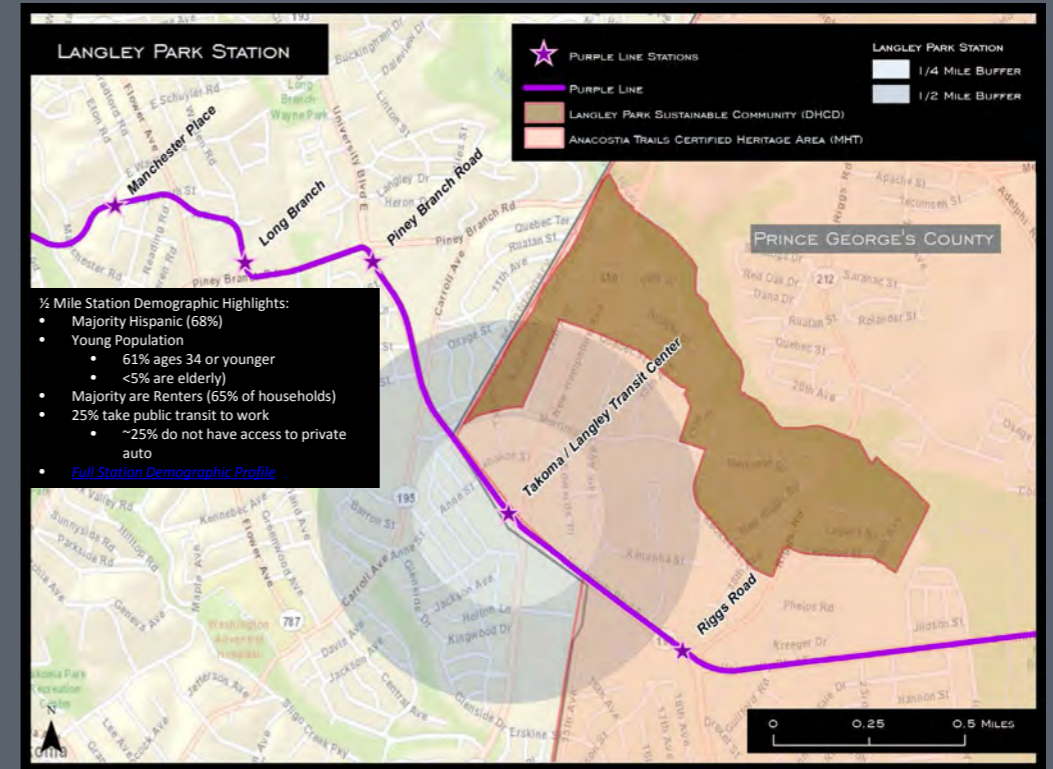
Purple Line Static Map Depicting Entire Route
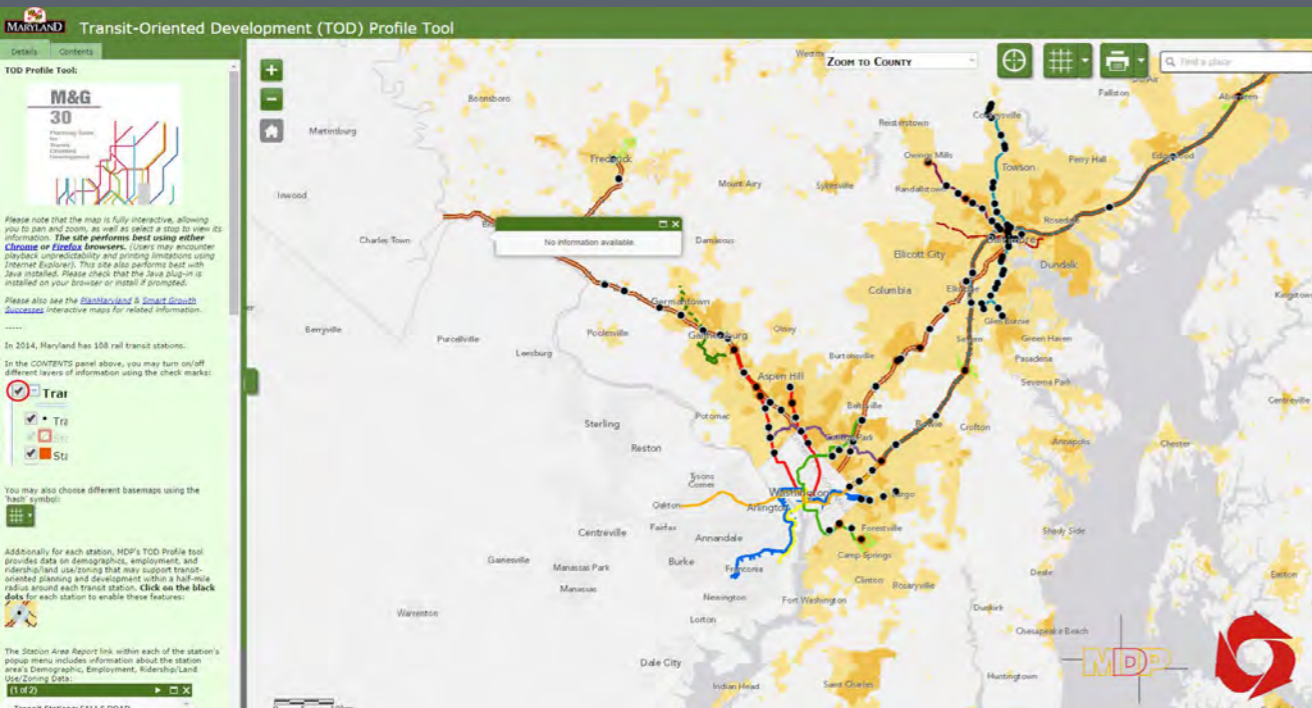
Screenshot from TOD Online Mapping Tool

Screenshot from TOD Online Mapping Tool

Project Information:

BACKGROUND

Maryland passed the Sustainable Growth & Agricultural Preservation Act of 2012 and reduced the amount of development possible on septic systems throughout the state. As part of the implementation of this act, every county and municipality in Maryland must draft a Septic Tier Map in order to continue to develop any major subdivisions on septic systems. Every adopted map is reviewed by the Maryland Department of Planning to ascertain if the adopted map meets the criteria of the law. This review process requires a high level of collaboration with the counties and intricate geospatial data analysis.

ROLE

Designed the map illustrating the review process and data required for ascertaining whether adopted maps are in compliance with the legislation. This map was a finalist at the 2013 ESRI International User's Conference in San Diego.
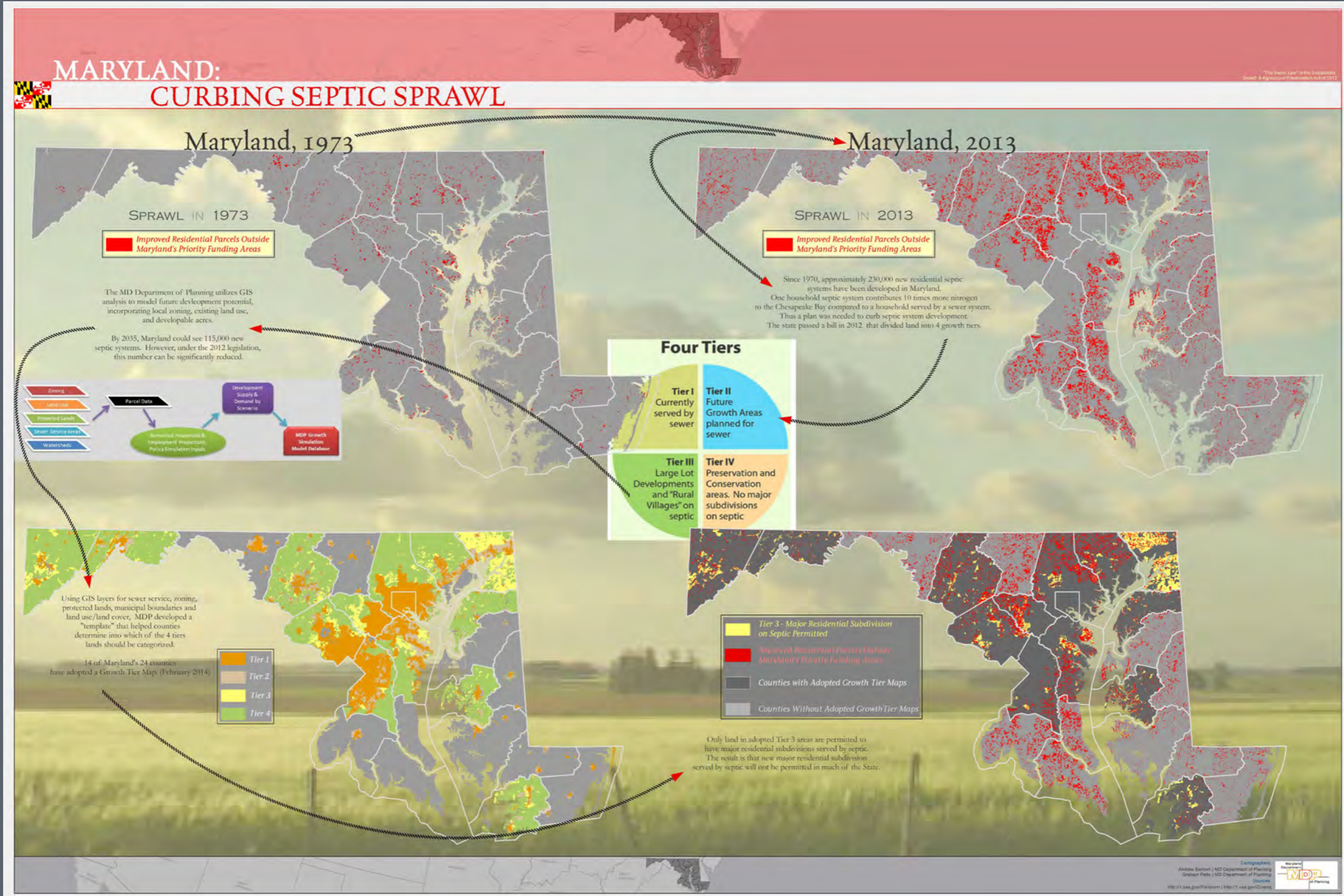
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ROLE

Conducted over two dozen county and municipality map reviews for compliance with the legislation. Have communicated technical and substantive feedback with county staff as well as advocacy groups. Delivered presentations for county officals outlining areas of concern. Created online interactive map to assist counties create compliant maps. Created and maintain online interactive map charting county adoption and subdivision regulations.
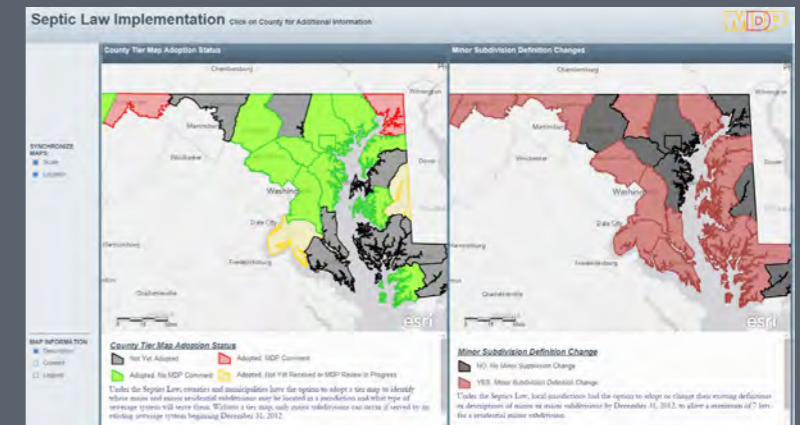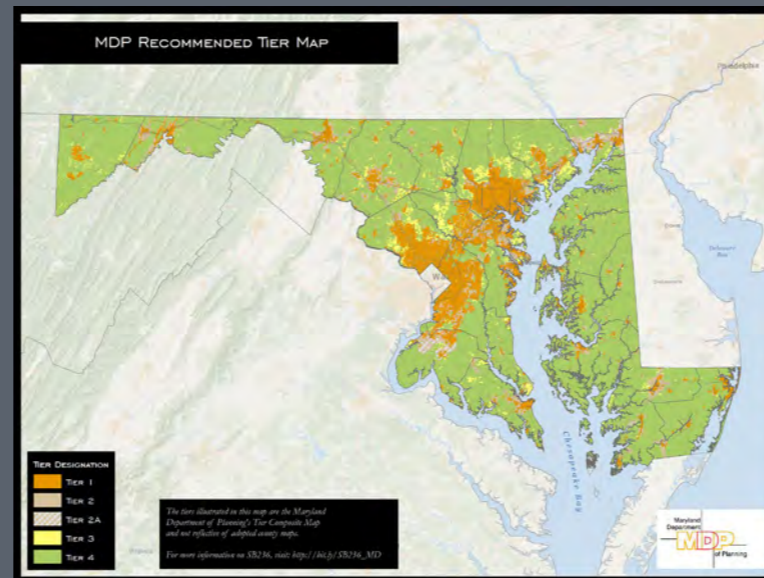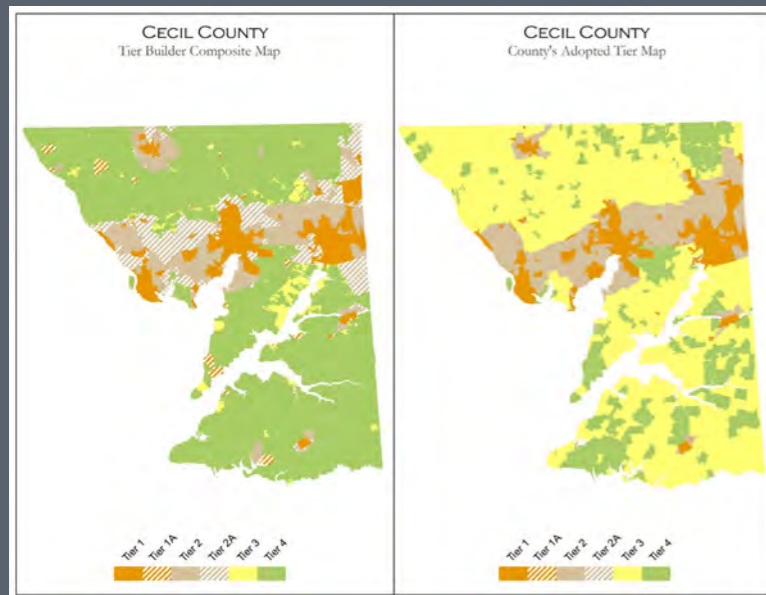
Map 1: Representation of the Maryland Department of Planning's Tier Builder Composite (Recommended Septic Tier Designations) compared to an adopted county map.

Map 2: Depiction of statewide recommend septic tiers based on legislation criteria.

Map 3: Screenshot of the online interactive map charting county adoption and subdivision regulations.
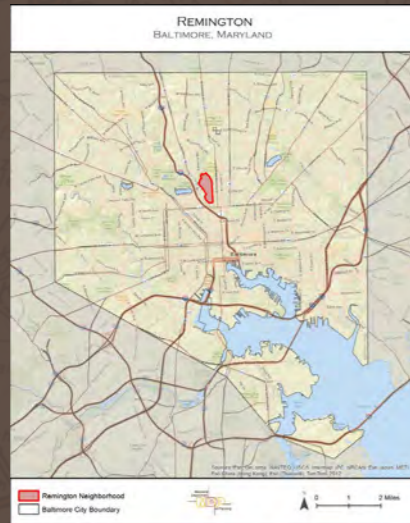
BACKGROUND

Based on the work done for the neighborhood of Remington, Maryland Department of Planning delivered a lightning talk during the poster session at the TUgis Maryland Geospatial Conference on March 18th, 2014. Following the lightning talk, instruction was provided on the techniques used to develop the project.

ROLE

Designed the poster for the Lightning Round event at the 2014 TUgis event. Presented the lightning round and provided follow-up instruction on the techniques employed.

Developing an Aerial View
Integrating ArcMap, City Engine, SketchUp, & Google Earth

Poster & presentation: AndrewBernish@Maryland.gov (Maryland Department of Planning)

Google's existing 3D imagery models stop at 25th street

Remington's Boundary is in blue

In this example, we obtained building footprints from Open Baltimore (data.baltimorecity.gov) as a shapefile.

Other services for footprints exist and building LIDAR is ideal.
(We used building LIDAR in Salisbury).

At this point the footprints can be used and analyzed in ArcMap.

Attribute data can provide the number of building stories and also the type of buildings and other information that can be used in CityEngine to create rules for extrusion.

The example used will be the Remington Neighborhood in Baltimore City.
Our Department was tasked with creating a visual depiction of what had been occurring in terms of revitalization. This project was shared with the public (E.g., Developers, Neighborhood Groups, Legislators, etc). Therefeore we wanted to virtually take the viewer to the area.

Unfortunately Google Earth's existing 3-dimensional building layer stops at 25th street in North Baltimore (and is non-existent in many other parts of the world).

The problem is CityEngine is a form of 'brute force' without providing an easy way to individualize textures or unique details (plus it requires some significant JS programming).

Fortunately, CityEngine enables export to SketchUp (via KMZ). In SketchUp, georeferncing the models and adding Google Street View imagery is relatively easy and you can create a 3-dimensial neighborhood look realistic
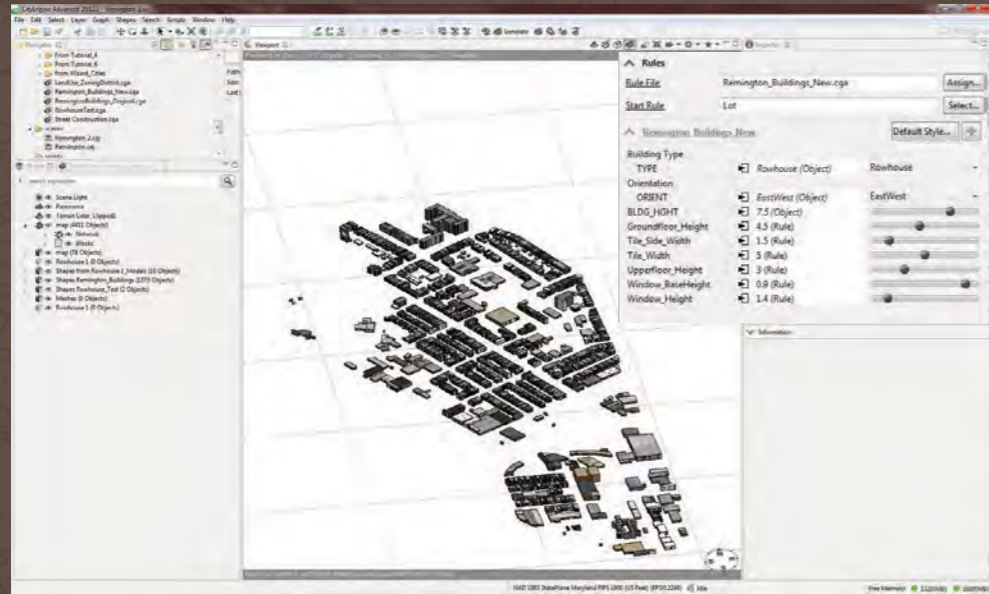
Shapefiles can be imported into CityEngine and the attributes such as building type and # of stories are used to create rule files that can dynamically extrude buildings into 3-dimensions.

SketchUp files, in turn, export easily as georeferenced KMZ files that can be opened in Google Earth.
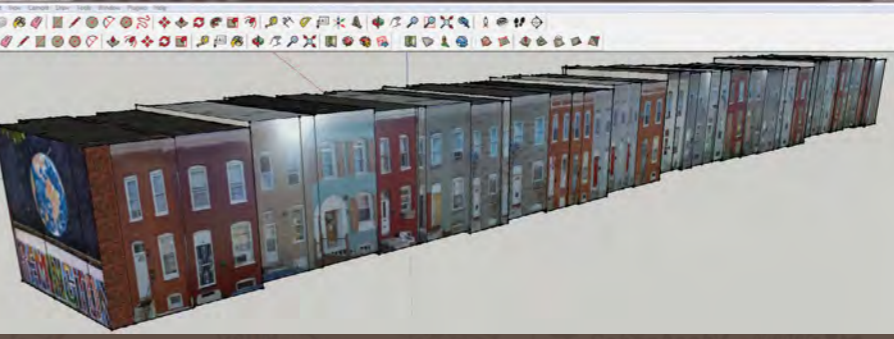
With the neighborhood created and imported into Google Earth, you can use Google Earth movie maker to create a 'fly-through' video of an area with annotations.