

RE-IMAGINING CLEVELAND: HOW CAN USEPA ORD HELP?

Scott Jacobs

Remediation and Redevelopment Branch
Land Remediation and Pollution Control Division
National Risk Management Research Laboratory
Office of Research and Development
United States Environmental Protection Agency

Maximizing Utility for the Re-use of Land (MURL)

Introductions...

- Project working group has included:
 - Scott Jacobs, Bill Shuster, and Brian Dyson – USEPA, ORD, NRMRL
 - Neptune and Co., Inc. – Development/support to USEPA
 - USEPA Region V
 - City of Cleveland
 - Offices: Sustainability, Economic Development, Building and Housing, City Planning, Metroparks, Public Health, Public Safety, Water Pollution Control, Traffic, Engineering and Construction, Law, Port Control, etc.
 - North East Ohio Regional Sewer District (NEORSD)
 - Community Development Corporations (!)
 - Slavic Village CDC
 - Kent State, Cleveland Urban Design Collaborative

Eliciting *Value-based* Objectives

- Workshop held with ~30 representatives from the City of Cleveland in May, 2010.
- Step 1: Discussion of Analytic Hierarchy Process (AHP) approach and process.
- Step 2: Work back from discussing *alternatives* (linear thinking!) to discussing *objectives*.
- Step 3: Incorporate progress already being made
 - ▣ Reimagining Cleveland 2019.
 - ▣ CDC's, Offices of: Economic Development, Sustainability, USEPA Region V.
 - ▣ Green City Blue Lake
 - ▣ Kent State Urban Design Collaborative
 - ▣ NEOCANDO/Case Western Reserve University

Defining the Problem

□ Results from Workshop and meetings

Cleveland wants:

- a “tool box” for land re-purpose/re-use, matrix or decision tree
- to lessen burden of property maintenance.
- to stabilize lots, “preserve and hold” for future development
- to consider lot consolidation
- competition for site use, rational for selections
- communication on city efforts for vacant properties, *visibility*
- To “put a floor under risk”
- To show how this will add value/revenues (\$)
- To bring people, jobs, revenue, and excitement back to Cleveland’s “inner-ring suburbs.”
- To re-use land resources with a master plan that will maximize the potential benefits and minimize risk.

Develop/Define a list of Fundamental Objectives

- Maximize environmental quality and sustainability
- Maximize vacant land re-use
- Maximize access to affordable, high-quality housing
- Maximize preservation of historic neighborhoods
- Maximize urban agriculture
- Minimize crime
- Maximize non-automobile transportation
- Maximize creation and enjoyment of the arts
- Maximize recreational opportunities
- Maximize community interaction
- Maximize healthy living

Developing Means Objectives, Strategic Objectives, and Measures

- For example: Maximize non-automobile transportation
 - ▣ Maximize transportation options
 - Maximize public transportation access
 - Maximize bus access
 - *Measured by distance to nearest bus stop*
 - Maximize light rail access
 - *Measured by distance to nearest light rail stop*
 - Maximize vehicle access
 - Maximize access to surface streets
 - *Measured by number of streets/road connectivity*
 - Maximize access to major road network
 - *Measured by distance to nearest highway*
 - Maximize pedestrian access
 - Maximize bike path access
 - *Measured by distance to nearest bike path*
 - Maximize walking opportunities
 - *Measured by number of sidewalks/sidewalk connectivity*

Development of MURL – Maximizing Utility for the Re-use of Land

Lots of models are available!

Here are some current products, just for surface water modeling, from the USEPA Center for Exposure Assessment Modeling (CEAM):

[EFDC](#)

[EXAMS](#)

[EXPRESS](#)

[GCSOLAR](#)

[HSCTM2D](#)

[HSPF](#)

[HSPF Toolkit](#)

[PRZM3](#)

[QUAL2K](#)

[RUSLE2](#)

[SERAFM](#)

[SWMM](#)

[Virtual Beach](#)

[Visual Plumes](#)

[WASP](#)

[WHATIF](#)

[EFDC](#)

[EXAMS](#)

[EXPRESS](#)

[GCSOLAR](#)

[HSCTM2D](#)

[HSPF](#)

[HSPF Toolkit](#)

So why do we need anymore models or tools?

Because there is Too Much Information!

Develop a platform, a model, a tool...

- What can we learn from the success of Google?
 - ▣ Make it *intuitive*, yet powerful. Simple, yet complex.
 - ▣ Should be a tool for decision makers and stakeholders to use, not a road map or master plan.
- What can we learn from the success of Facebook?
 - ▣ Your user, customer, or client must *want* the product.
 - ▣ Word of mouth may be the best advertising.
- What alternatives or options should the process attempt to weigh or consider?
- How can we engage the community, the stakeholders, and the decision makers in an open process?

So, lets build an interface that is:

- Intuitive
- Comprehensive
- Transparent
- Defensible
- Reproducible (?)

We hope to tailor this process to the site, and then use this as a platform for sharing information and to guide on-going development of a decision support process *with community involvement*.

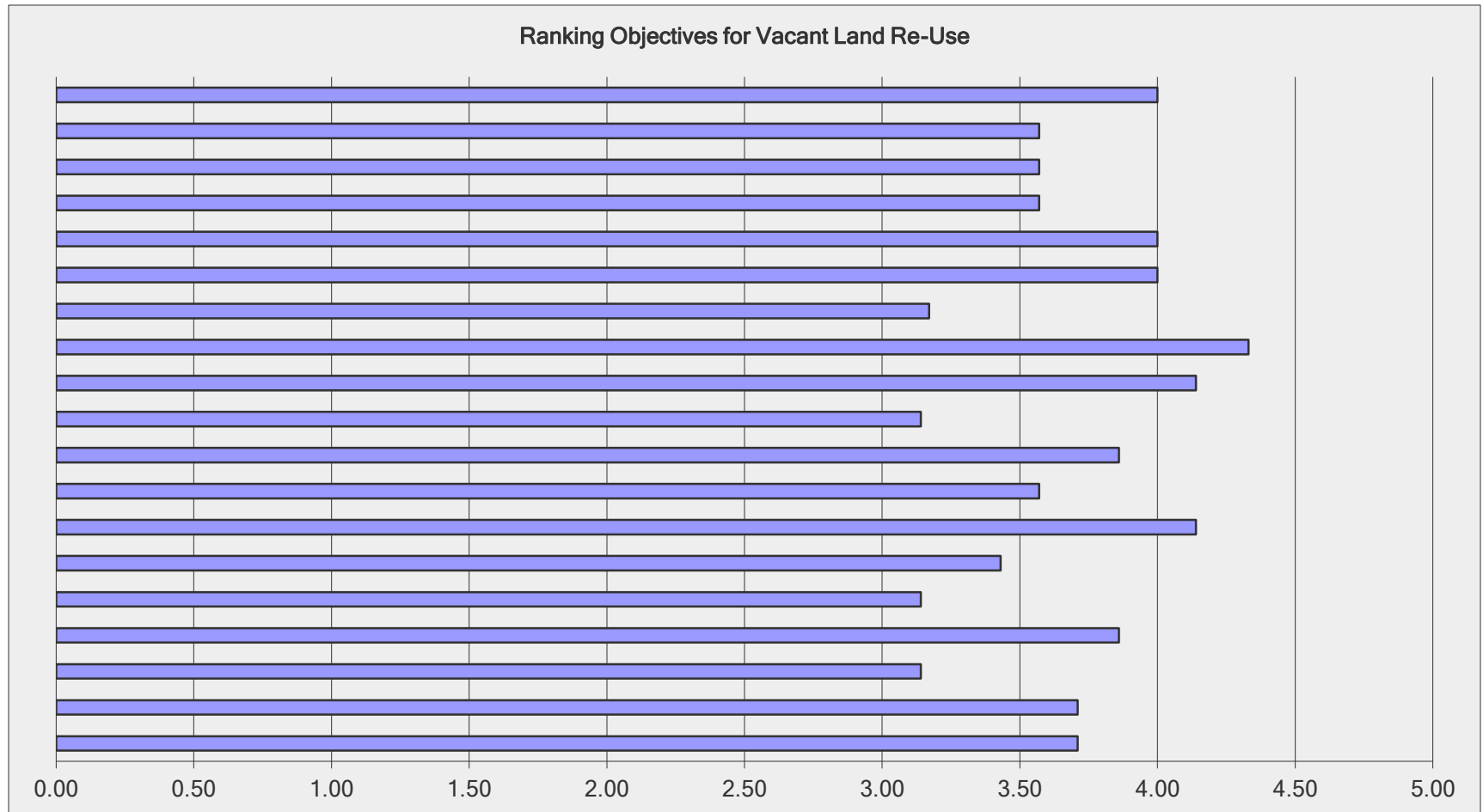
Seeking (meaningful) community participation

- Survey was designed to compare and rank fundamental and strategic objectives.
- Nine survey participants, Directors or representatives of selected CDCs.

Vacant land can be used to promote more open space, and this may include removing unused roads, alleys or other thoroughfares. In any case, use of vacant land is part of an overall transportation plan. Please rate the importance of each objective.

Answer Options	Not Important	Less Important	Important	More Important	Very Important	Rating Average	Response Count
Maximize bicycle routes.	1	0	2	1	3	3.71	7
Minimize truck traffic in residential neighborhoods.	1	0	1	3	2	3.71	7
Maximize truck access to industrial areas.	0	1	4	2	0	3.14	7
Maximize public transit service	0	2	1	0	4	3.86	7
Minimize traffic speed or volume in residential areas.	1	1	2	2	1	3.14	7
Minimize traffic speed or volume in neighborhood shopping areas.	1	1	1	2	2	3.43	7
Maximize use of mass transit.	0	1	1	1	4	4.14	7
Maximize eco-friendly buses and city vehicles.	0	1	3	1	2	3.57	7
Maximize employer incentives for mass transit use.	0	1	2	1	3	3.86	7
Maximize park-and-ride lots.	0	1	5	0	1	3.14	7
Maximize access to public transit.	0	0	3	0	4	4.14	7
Maximize shared parking lots or garages in retail districts.	0	0	1	2	3	4.33	6
Maximize construction of bicycle racks.	1	0	3	1	1	3.17	6
Maximize access to public transportation.	0	1	2	0	4	4.00	7
Maximize funding for maintenance of existing transportation infrastructure.	0	0	3	1	3	4.00	7
Maximize non-motorized transportation options for reaching workplaces	0	1	2	3	1	3.57	7
Maximize non-motorized transportation options for reaching shopping	0	1	2	3	1	3.57	7
Maximize maintenance of bus shelters.	0	1	2	3	1	3.57	7
Maximize extensions to existing mass transit lines.	0	1	2	0	4	4.00	7
<i>answered question</i>							7
<i>skipped question</i>							3

Survey Design – Generating Useful Data.



MURL-Cleveland

Overview & Map

The screenshot displays the 'Reimagining Cleveland' web application interface. The main window is titled 'Reimagining Cleveland' and features a navigation bar with 'Overview & Map' selected, and 'Step 1: Define Objectives' and 'Step 2: Evaluate Alternatives' as subsequent steps. Below the navigation bar are 'Overview' and 'Interactive Map' buttons. The central map area shows an aerial view of Cleveland with a red outline highlighting a specific area and a red dashed line indicating a path or boundary. The map is overlaid with several data layers, including green shaded areas and red dots. A 'Control Panel' on the left side lists various layers and alternatives, with checkboxes for each. The 'Layers' section includes 'Slavic Village Boundary', 'Parks', 'Bike Route', 'Bus Stops', 'Parcel Boundaries', and 'Riparian Areas'. The 'Alternatives' section includes 'Development options.kmz' and 'Total Score'. The 'Parcel Measures' section includes 'Riparian', 'Adjacent Vacancies', 'Value of Neighbors', 'Vacant Property', 'Parcel Information', 'Condition of Building', and 'Distance to Nearest Bus Stop'. Below the 'Control Panel' is a text input field for 'Add KML/KMZ:' with a search icon. The bottom of the interface includes 'Google Earth Layers', 'Find Location', and 'Options' buttons. On the right side, there are two smaller map windows, one showing a zoomed-in view of the highlighted area and another showing a different map view. The bottom right corner has an 'Options' dropdown menu.

Control Panel

Layers

- Layers
 - Slavic Village Boundary
 - Parks
 - Bike Route
 - Bus Stops
 - Parcel Boundaries
 - Riparian Areas
- Alternatives
 - Development options.kmz
 - Total Score
- Parcel Measures
 - Riparian
 - Adjacent Vacancies
 - Value of Neighbors
 - Vacant Property
 - Parcel Information
 - Condition of Building
 - Distance to Nearest Bus Stop

Add KML/KMZ:
http://

Google Earth Layers +

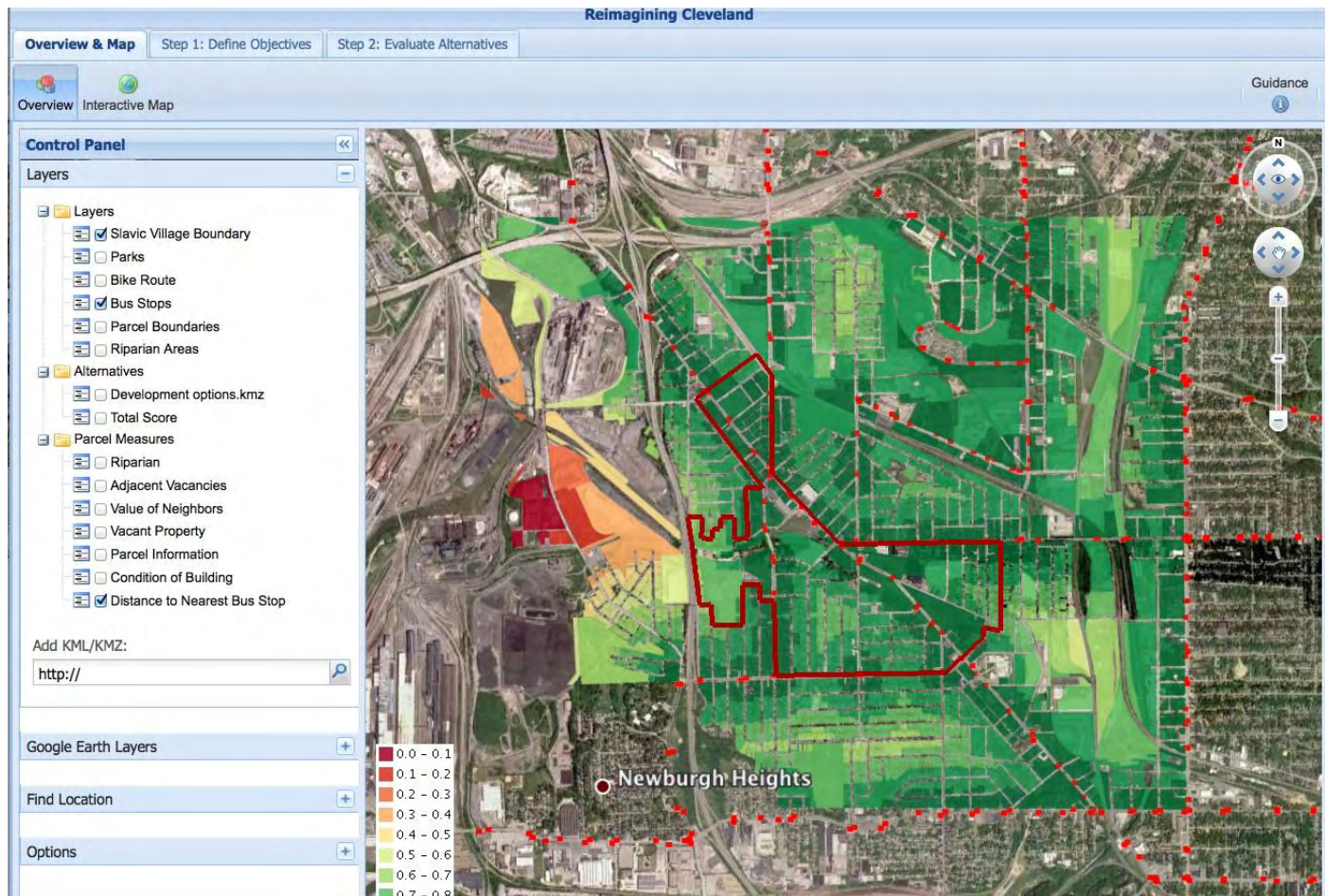
Find Location +

Options +

Newburgh Heights

MURL-Cleveland

Measures – Distance to Bus Stops



For example: Maximize non-automobile transportation

MURL – Cleveland

Defining objectives, investigating measures and considering alternatives.

Reimagining Cleveland

Overview & Map | **Step 1: Define Objectives** | Step 2: Evaluate Alternatives

Objectives | Measures Preference | Guidance

Objectives and Measures

Decision makers' and stakeholders' Fundamental Objectives can be added, deleted, and edited in the Fundamental Objectives tab. Fundamental Objectives are organized hierarchically from general (fundamental) to more specific. The aim of this refinement is to help with defining Measures that indicate achievement of an Objective and with defining Means Objectives which help in defining Management Options. Under Step 3 Means Objectives are translated to Management Options. Under Step 4 the Impact of Management Options on Measures can be estimated.

Objectives Hierarchy

Expand All | Collapse to First Level | Add | Delete | Hierarchy | Evaluate

- Reimagine Cleveland
 - Maximize neighborhood stability
 - Maximize residents connection to the community
 - Concentrate resources into residential model blocks
 - Create new residential development nodes
 - Optimize greenspace resources
 - Use Towpath trail connection, Rails to Trails, Falls, First Tee etc as marketing tool
 - Maximize neighborhood safety
 - Maximize retail, commercial, and industrial community
 - Maximize accessibility to commercial areas

Measures for assessing achievement of fundamental objectives

Delete | Edit Attribute

Attribute	Units	Best case	Worst case
Distances to Connections	Feet	25	100000

Means Objectives & Management Options (Double-click to Edit)

Delete

Objective	Management Option
Identify Potential Trail Connection Options	Connect Trails

MURL – Cleveland

Who needs this?

Who will want this?

“Decision Makers”

City of Cleveland Planning Commission

Cleveland Mayors Office of Sustainability

USEPA Region V

NEORS

- Consent Decree with USEPA to reduce CSO volume
- Green vs. Gray Infrastructure

“Stakeholders” - Citizens, business owners, residents

Scientists!

Where do we go from here?

- Expand the process: add layers, data, model outputs, etc.
- Expand from Slavic Village neighborhood to entire city of Cleveland.
- Transfer or duplicate the process in additional cities.
- Demonstrate real-world application of a decision process for vacant land re-use.
- Expand use of surveys and results in the process.

Site will be available soon at:

CLEMURL.ORG

THANK YOU!

Questions? Comments?
jacobs.scott@epa.gov