The Use of Information Technologies in the Urban Redevelopment Process in The City of Baltimore, USA

Graciela CAVICCHIA

Graciela Cavicchia, AICP, PP; Project Director, The Reinvestment Fund, Philadelphia, Pennsylvania USA

1   ABSTRACT

In the summer of 2003, The Reinvestment Fund (TRF) and Baltimoreans United In Leadership Development (B.U.I.L.D.) prepared an Assessment and Redevelopment Plan for the Oliver neighborhood in the City of Baltimore funded by the Annie E. Casey Foundation. Oliver is neighborhood with high levels of urban deterioration and poverty. Property vacancy is over 44 percent, Aids and Hepatitis C cases are the highest in the City and drug abuse is one of the highest in the nation. Ironically, the John Hopkins Hospital is located a few blocks from Oliver (Figure 1, center). Over the last decades, this world renowned institution has expanded its campus significantly displacing low-income residents to other distressed parts of the City.

In order to create a seamless redevelopment process in which land acquisition is closely interrelated to physical design actions, TRF developed a methodology in which each parcel was evaluated and categorized by redevelopment activity (encapsulation, demolition or rehabilitation). The result of the process was a "Feasibility for Redevelopment" map used to guide physical planning actions. GIS and non-GIS databases were provided by the City of Baltimore's Office of Information Technology and other public agencies. Additional data was created by TRF by surveying over 2,400 properties. The process included the development of a 3D-GIS model for trend analysis; the creation of a spatial contiguity analysis and a cluster analysis to determine the extent to which investment should occur; and the preparation of a physical master plan including implementation strategies.

This paper is an overview of the process utilized in the creation of the Redevelopment Plan. It focuses on the use of information and its relationship to the planning and design process, and it does not provide for specifics on the planning and physical design strategies developed for the plan.

Figure 1: Left: Baltimore Inner Harbor (1.6 km from Oliver); Center: Oliver's neighbor, Johns Hopkins Hospital; Right: Oliver

2   INTRODUCTION

The redevelopment planning process for the Oliver neighborhood consisted of a two-phased effort: an Assessment Phase and a Redevelopment Phase. During the Assessment Phase, the neighborhood was studied and analyzed and included the following tasks:

- Existing Conditions Analysis: During this phase the demographic, economic, social and development analysis was performed at three levels: the larger region, the city, and the study area. This phase included the involvement of the Department of Public Works, the Housing Authority, the Planning Department, the Office of Information Technology, East Baltimore Development Inc. (E.B.D.I.), CitiStats, Baltimore Neighborhoods Indicators Alliance (B.N.I.A.), and the Department of Recreation.

- Parcel Surveys: Two surveys were administered during the assessment phase. The first survey provided information on the overall condition of the neighborhood's physical infrastructure. The second survey was disseminated to community leaders to ascertain a vision for the future of the neighborhood.

- Community Workshop: A community workshop including Oliver's block leaders and several residents was held to gather information about the neighborhood and the needs of its residents.

- Feasibility for Redevelopment Analysis: This analysis was based on gathered information from the tasks described above and the result of this effort was used to guide the design of the physical interventions in the neighborhood.

Using the result of the Assessment Phase, TRF prepared the Redevelopment Plan for Oliver. The Redevelopment Plan is a roadmap of physical interventions for future development efforts. The plan builds on local and regional strengths and, wherever possible, incorporates existing and planned initiatives in the surrounding area.

2.1 Context and Oliver

The City of Baltimore is an older industrial city with a large working class population and strong neighborhoods. The Inner Harbor (Figure 1, left) and North Baltimore are examples of established areas that are appreciating as the years progress. The fact still remains that the city has seen decades of population loss that have shaped the demographics of the entire region. The region can be described as the presence of a strong inner core, an adjacent inner ring of distressed neighborhoods, and an outer ring of stronger neighborhoods (Figure 2). Within the City of Baltimore, large areas of East and West Baltimore have been the most changed by the loss of population to the suburbs. This trend is not unique to Baltimore, but prevalent throughout older industrial American cities.

Figure 3 shows a map of a Neighborhood Condition Analysis prepared the City of Baltimore. As previously mentioned, the City generally presents a strong inner core (Inner Harbor) surrounded by an area in need of Investment and Redevelopment activities (East and West Baltimore). Finally, these areas, generally characterized by significant levels of distressed, are surrounded by stable neighborhoods (North Baltimore).
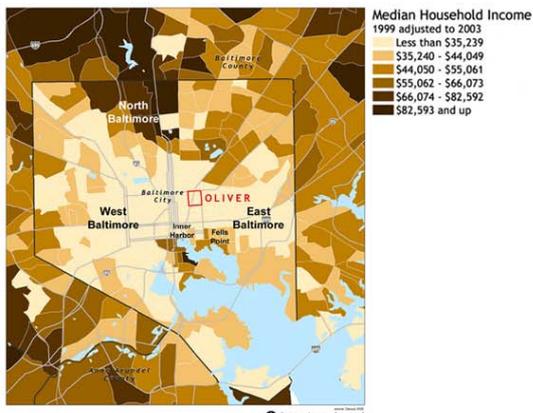

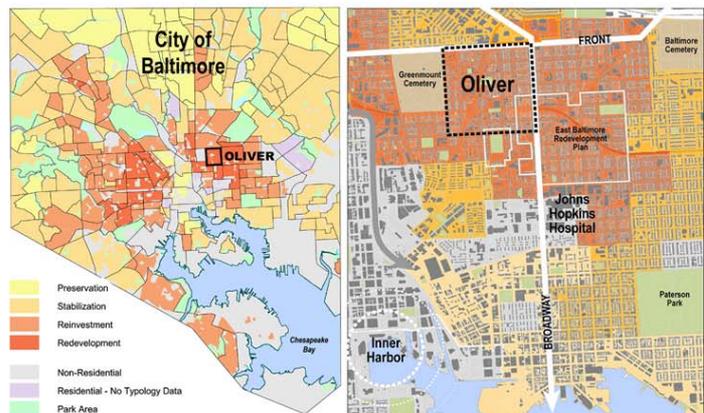Figure 2: Baltimore County Median Household Income Condition Analysis

Figure 3: The City of Baltimore and East Baltimore Neighborhood

3 ASSESSMENT PHASE

The Assessment Phase consisted of the analysis of existing conditions, the creation of property and community surveys, and the preparation of a feasibility for redevelopment mMap.

3.1.1 Analysis of Existing Conditions

Oliver is a 42 block area (160 acres/65 hectares) bounded by two major citywide corridors, North Avenue to the north and Broadway Avenue to the east. Broadway is a north-south corridor connecting Oliver and Johns Hopkins Hospital to appreciating areas east of the Inner Harbor (Figure 3, right). The study area was defined to include several blocks outside of the Oliver boundaries. This allowed initiatives in adjacent neighborhoods to factor into the overall redevelopment strategy for Oliver. The study area extends south to include the EBDI, currently creating a Biotech Center and redeveloping the neighboring community, and Johns Hopkins Hospital. GIS and non-GIS data was gathered from different public agencies or private entities including: income, poverty, aid cases, drug abuse, lead contamination, and rehabilitation activity. Figure 4 shows selected indicators for The City of Baltimore including acute poverty, number of drug treatment client, and number of aids cases.
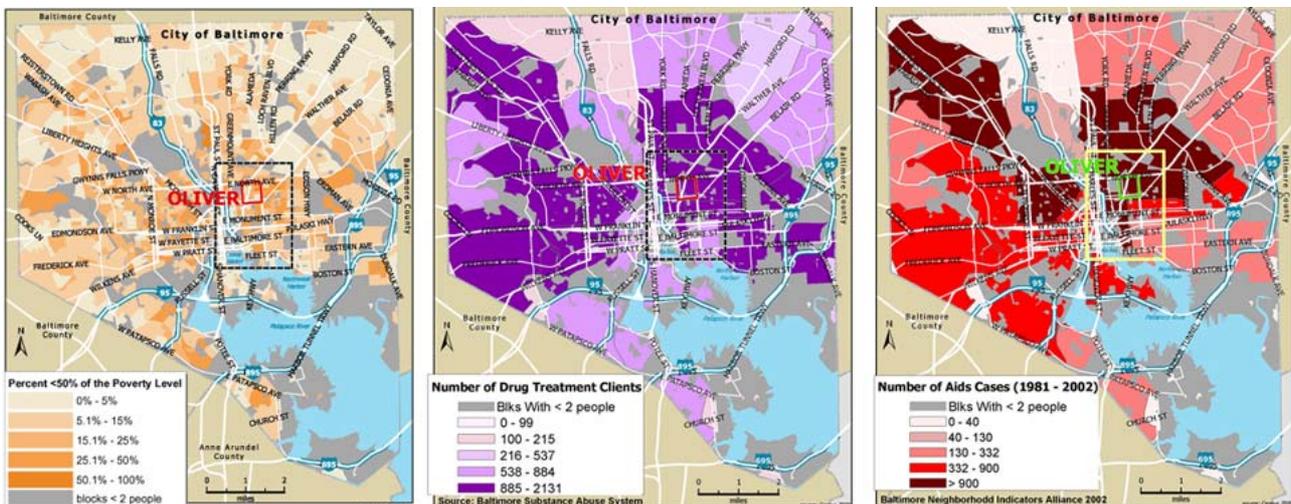

Figure 4: Acute poverty, Number of People Entering Drug Treatment, and Number of Aids Cases

3.1.2   Property Survey

The property survey was designed to gather information regarding the physical condition of Oliver and surrounding areas while other information, such as taxation, property use, and ownership, was collected from the City's Tax Assessor Office. Accurate information about the physical condition of the study area guided the selection of the redevelopment strategies in different areas of the neighborhood. Parcels were primarily categorized by the following indicators: Type of property, occupancy, evidence of recent improvements, number of stories, and architectural significance. The surveys were disseminated to community leaders who then went parcel by parcel scoring the indicators for every building within Oliver. After the survey was completed and results reviewed by the TRF, the information was linked to the GIS parcel data. Other datasets complemented the survey and included: addition and rehabilitation improvements permits, 2000-2003 sales values, assessment value, public ownership, and drug activity nodes.

Once the parcel information was collected, TRF was able to understand the pattern of distressed of those areas that were largely vacant and posed undesirable blighting influences. The survey results also revealed those areas that had stronger housing conditions and higher occupancy rates. Selected results are shown in Figures 5 and 6 below.
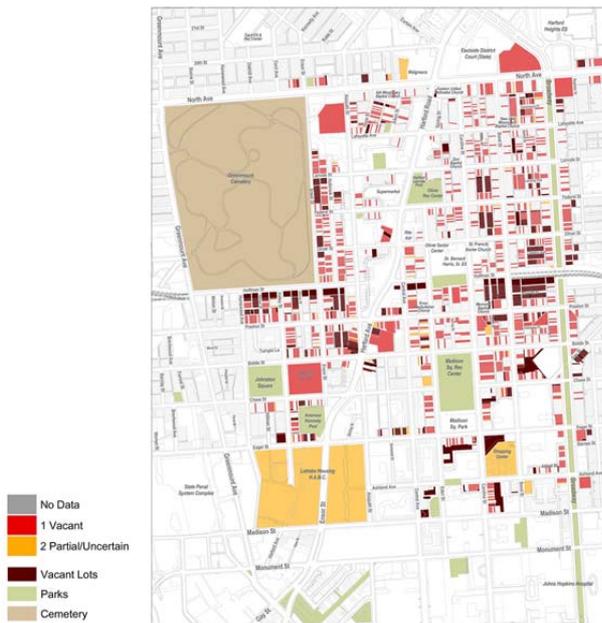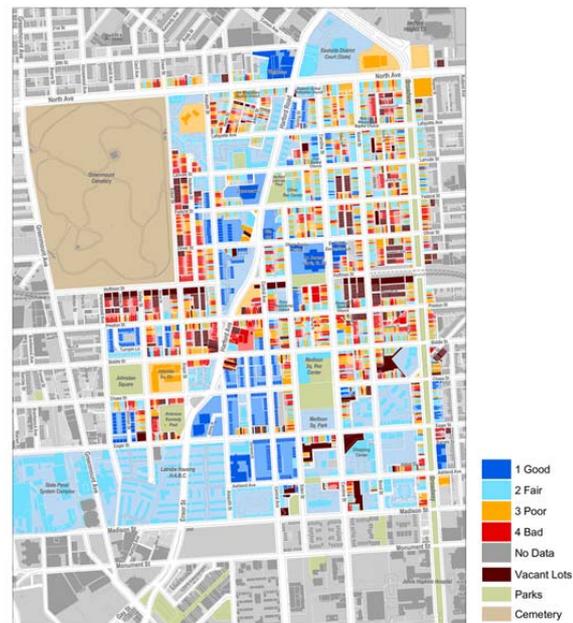

Figure 5: Vacancy Results

Figure 6: Property Condition Results

A good indicator of a neighborhood's level of distressed is the Vacancy. Results of the survey revealed that vacancies were much higher than expected by neighbors and City officials. Some of the vacancy outcomes are summarized below. :

- Total Structures in Oliver   2,309   100.0%
  - Residential   2,223   96.3%
  - Non-residential   86   3.7%
- Total Vacant Structures   782   100.0%
  - Residential   762   97.4%
  - Non-residential   20   2.6%
- Total Vacant Parcels   372

Vacant Parcels + Vacant Structures   *1,154*   *43.8%*

3.1.3   Workshop

The objective of the community workshop was to learn what residents of Oliver wanted to see integrated into their neighborhood plan. In order to accomplish this task, a questionnaire was developed and administered to 80 Oliver's community leaders. After completing the survey, attendants formed into small groups (of 7-9 people) to formulate physical and policy remedies to the issues identified in the survey.

3.1.4   Assessment Results: Feasibility for Redevelopment Analysis

The Feasibility for Redevelopment Map is the result of a cluster analysis of spatial and non-spatial variables. The result of this analysis is an assigned score by property that allowed TRF to understand the potential of different redevelopment activities throughout the neighborhood. These redevelopment activities included: Demolition, Encapsulation, Rehabilitation, and New Construction. Basically, this model allows determining the extent to which one should invest additional money for encapsulation or

write off a building and demolish it. This model is not a predictive model, as there is no way of measuring success or calibrating it. Rather, it is a model focused on decision-making at the parcel level done as an interactive exercise as we needed to determine how the different variables played out. All the variables utilized were critical to the analysis as they often play a significant role on determining physical distress.

The non-spatial variables utilized in this model included:

- Density of Vacant Parcels
- Owner-Occupancy
- Assessment Value
- Occupancy
- Publicly Owned Properties
- Building Condition

The spatial variables utilized in this model included:

- Distance to Johns Hopkins Hospital and Areas of Recent Investment
- Distance to Transportation Corridor
- Inverse Distance to Negative Assets
- Distance to Vacant Parcels

The analysis of the spatial variables was developed using the spatial analyst component of Arc-View. A density of vacancies analysis was performed first generating a score by parcel (Figure 7). A contiguity analysis was then prepared in order to understand the impact of vacant parcels on adjacent buildings. After the spatial indicators were completed, a cluster analysis using SPSS was performed. The cluster analysis combined the results of the spatial and non-spatial variables for each property. The final result was the creation of a Feasibility for Redevelopment Map (Figure 8) in which each property was assigned a score from 1 to 6. This information was then used to determine the different redevelopment activities by property. Properties with scores 1 and 2 represented new buildings or buildings in need of minor rehabilitation activity. Properties with scores 3 and 4 represented buildings in need of major non-structural rehabilitation activity. Properties assigned a score of 5 represented buildings in need of significant structural, non-structural rehabilitation activity, and/or demolition. This category represented the majority of the building stock in the neighborhood therefore showing the consistently poor urban condition. Properties assigned a score of 6 represented buildings in immediate need of demolition.
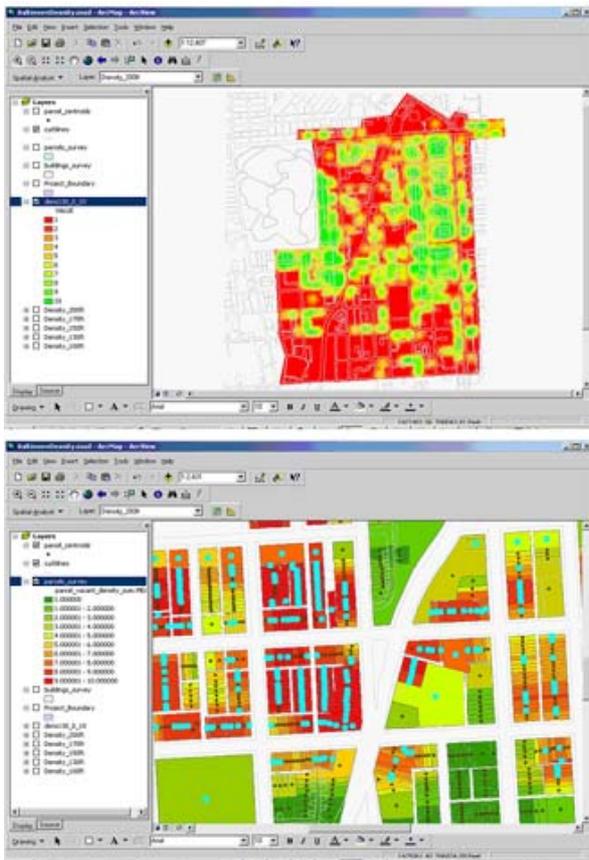

Figure 7: Analysis of spatial variables (Avencia, Inc)

Figure 8: Feasibility for Redevelopment Map (spatial + non-spatial indicators)

Once the Feasibility for Redevelopment Map was completed, a three-dimensional analysis was performed using 3D-analyst. This analysis was developed to determine the potential future of the existing housing stock if no redevelopment action was taken. The sequence of 3-D images shown in Figure 10 represents the existing built environment (left), the form of the neighborhood after the demolition of crumbing and dangerous structured (center), and the future of the remaining structures if no action is taken (right).

Figure 9: Left, Oliver and surrounding areas today; Center, neighborhood after the demolition of dangerous structures (5 yrs.); Right, future of the neighborhood if no redevelopment action is taken (over 5yrs).

3.2 Redevelopment Plan

The Assessment Phase was prepared to inform planners and designers of the issues and opportunities for action in the neighborhood. Based on the analyzed information, a set of ideas was developed to address urban stabilization in the neighborhood. In Oliver, urban stabilization can be achieved by strategically upgrading the housing stock and urban infrastructure; connecting Oliver to areas of recent investment in East Baltimore; reducing health related issues and improving safety related to the physical environment; creating a new image for Oliver that reflects the residents hope for change; and building on local strengths: Institutional, Physical, and Neighboring appreciating areas.

Figure 10: Left, Oliver Redevelopment Plan.

Figure 11: Photo-simulation of a proposed redevelopment idea.

Based on these core ideas, the following are the principles that guided the development of the physical plan (Figure 10 and 11):

- Develop a multi-center planning strategy
  a. Improving existing commercial properties
  b. Improving programs in existing recreational centers
  c. Creating new institutional uses

- Create redevelopment areas of critical mass by reconfiguring the existing urban structure.
- Create an open space strategy that resolves issues of vacancies and residual properties from recent subdivisions.
- Provide for a wide range of housing types for all income levels.
- Create strong connections and gateways to neighboring East Baltimore communities.

The core principals allowed TRF to prepare an Urban Design Strategy, a Multi-center Planning Strategy, a Housing Strategy, and an Open Space Strategy. The Redevelopment Plan proposes the following program:

- Total Proposed SF Units   1,242
  - Total New Units   1,030
  - Total Rehabilitated Units   212

- Total Demolished Units   1,252
  - Units in Bad and Poor Condition   1,130
  - Units in Fair and Good Condition   122
- Total Occupied Demolished Units   541
  - Units in Bad and Poor Condition   419
  - Units in Fair and Good Condition   122

- Total New SF High-density Units   420
- Total New SF Low-density Units   610
- Total New Multifamily Units   130
- Total Other Uses in Sq. Ft. (Institutional, retail)   61,800

- Existing Typical Block Density (dwelling units/acre)   34
- Proposed Typical Block density (dwelling units/acre)   25
- De-densification percentage   -26%

3.2.1 Phasing

The Assessment Phase was a fundamental piece of the redevelopment process that provided accurate information on each property in order to create a seamless planning-design-redevelopment process. This information has assisted in the creation of the Redevelopment Plan principles, has allowed TRF to start planning the financing piece of the plan, and has accurately informed planners and stakeholders on the best way to approach phasing. Due to the large amount of properties targeted for redevelopment, a phasing plan (Figure 12) was created that builds on current rehabilitation activity around EBDI, neighborhood strengths and potential funding available. The concept behind the redevelopment phasing strategy is described below:
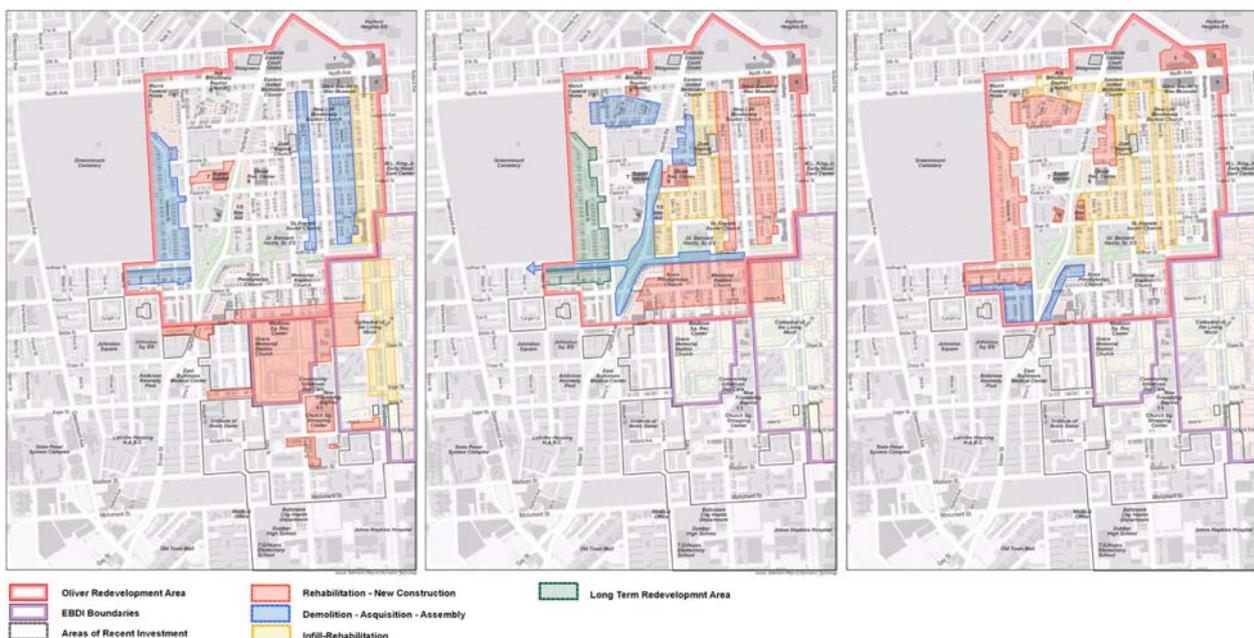

Figure 12: Left, Phase 1; Center, Phase 2; Right, Phase 3

<u>Phase 1 - Building the Bridge:</u> Phase 1 concentrates revitalization activities on the consolidation of key fringe areas within the study area. Therefore, the strategy of the first phase will be, in essence, to build a bridge from those adjacent strong areas to the borders of the redevelopment area. Other activities will concentrate on the preparation of redevelopable land in key areas within Oliver.

<u>Phase 2 – Seeding the Core:</u> The investment efforts in Phase 2 will focus much more on building strength within core areas of the neighborhood. The inner blocks' assembled and cleared land prepared during phase I will pave the way for the redevelopment activities of Phase 2.

<u>Phase 3 – Core Revitalization:</u> Phase 3 is the final phase that caps off the transformation of the neighborhood. Investment efforts in this phase will focus almost entirely in the core areas of the neighborhood and along the neighborhood's north.

3.3   Conclusions

The Oliver Redevelopment Plan builds on the core ideas in TRF's neighborhood investment work: public investment decisions should be driven by good information and the capacity to track market outcomes; investments should be organized around the recovery of self-sustaining markets; and distressed cities such as Baltimore require attention to equity and growth, such as market rate housing and the construction of new urban choices for middle income families. Based on these ideas, Oliver has the necessary assets that make it poised for a successful transformation. The assets include a significant social capital asset, large amounts of vacancies that allow critical mass redevelopment, and proximity to assets (Hopkins, areas of recent investment, public transportation, proximity to Inner Harbor). However, taking advantage of these assets requires good knowledge of the urban structure from both a physical and a real estate perspective. The ability to use and manipulate information to assist the redevelopment process in Baltimore has been critical to the creation of a plan that is already showing signs of a positive change.

The use of information technologies in the planning process in Baltimore offered an alternative to the often disjointed planning and design practices related to their actual implementation. The seamless coordination of analysis, planning, urban design, phasing and financing is critical to the creation of a framework in which investment opportunities can occur while a coherent and desirable physical development is attained.

4   ACKNOLEDGEMENTS