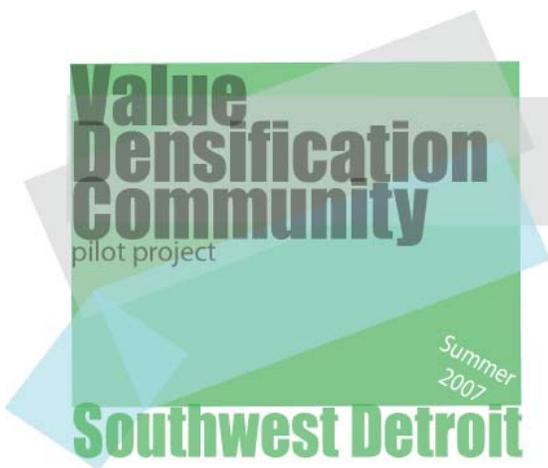# City of Worth: Value Densification Community Pilot Project (VDCpp)

CONSTANCE C. BODUROW

Lawrence Technological University

This paper describes applied research that continues Prof. Constance Bodurow's previous peer reviewed and disseminated research: + D IND DEV: Industrial Spatial Logic and the Transformation of the City. In that work, Bodurow documents the distinct spatial logic to North American industrial development, driven primarily by the location of infrastructure, which expresses itself legibly within the City over time. Through research, graphic documentation, and analysis of the industrial spatial logic and development history of infrastructure and industry in Regional Detroit (focusing on places of "making" and the infrastructure that serves them and the uses that cluster around them), Bodurow's research identifies the progression of land use in the City over 150 years and suggests strategies for future regeneration. By focusing on the areas of the city that are not only transforming in the post-industrial era, but are still inhabited, Bodurow proposes a new regeneration strategy. This new strategy is based on the spatial and infrastructure analysis but more importantly, is guided by a diverse interpretation of value - inhabitation, cultural, and infrastructure - resulting in an alternative direction for urban and architectural form.

"Value Densification" is Bodurow's own term and recommended approach for future urban form and investment in Detroit (and other post-industrial Cities), focusing on the few neighborhoods where inhabitation, infrastructure, cultural, and employment assets are in evidence. The Value Densification Community Pilot Project (VDCpp) engages Southwest Detroit, with the support of the community, as the first and most promising of these neighborhoods, creates a digital model that vividly reveals its assets and density, empowers the community at a critical moment to direct its future, prompts a civic dialogue, expands existing partnerships, and creates rich pedagogic opportunities.

INTRODUCTION

Project Context

Regional Detroit[1] has, for the last 100 years, served as the center of the global automotive industry. The growth of the industry was accompanied by explosive immigration, wealth generation, and low-density residential development within a vast municipal boundary of 137 square miles. Detroit is generally know as North America's most racially, economically, and geographically polarized region, with an impoverished center city, that has steadily lost population and economic base since 1950[2]. For several decades, Detroit has provided a unique canvas for design investigation and theory – amounting to a morbid curiosity of the

City's exaggerated abandonment, disinvestment, and social condition. Landscape Urbanism[3] and Shrinking Cities[4] proponents identify Detroit's abandonment as its primary asset and argue that a globalized economy dictates dispersed urban form. Currently, Detroit is transforming its post-Industrial / post-Fordist cultural landscape and economy through an emergent, yet highly subsidized, development economy. To date, civic leaders have employed a conventional re-development strategy, focusing on the Lower Woodward Corridor and East Riverfront, Sports Stadia and Casino investment - leaving the City's neighborhoods to varying levels of community development capacity. My assessment questions the effectiveness of both approaches, and argues that a balanced, sustainable, dense, and urbane form is still possible, based on an analysis of Detroit's development and spatial legacy, and guided by a broader interpretation of value.

Background + Approach

> Value: "the regard that something is held to deserve: importance or worth."
> ORIGIN ME: from OFr., fem. past part. Of valoir 'be worth', from L. *valere*.
> Oxford English Dictionary, Eleventh Edition, 2004

My research is based on a life long investigation of Detroit: perhaps the most acute manifestation of a shared urban condition in our post-Fordist, post-industrial world. For my purposes, however, Detroit is a City of *worth*.

I am primarily interested in the duality inherent in contemporary industry and the social, cultural and economic conditions that it has generated: not merely the past positive and negative impacts of industry, but more significantly its potential role as a "protagonist" for the future[5]. As an urbanist, I am interested in the future of urban form. Fundamentally, I believe that the City should be the most desirable location for human habitation: beautiful, equitable, and sustainable. In my current research, which is just beginning to make form based recommendations, my emphasis is initially on the latter. Given my research context, I believe that a collective civic dialogue on balancing growth, equity, and sustainability is necessary: where and how will we redevelop (densify) and support resident populations with capacity, services, and investment? How can

aspects of the post-industrial city be understood, communicated, and leveraged in service of equity and sustainability? I wish to reveal data about pieces of the city in order to convince community, political, and economic leadership to embrace a broader interpretation of value. This broader interpretation subsumes the economic and elevates the human [inhabitation], cultural [place] and infrastructure [ecosystem] value[6]. Each criteria is purposely chosen:

human [inhabitation]: post-industrial cities such as Detroit are often characterized by significant population loss. However, Detroit does have neighborhoods that are characterized by stable, even growing populations. Concentrations of inhabitation serve as the primary criteria.

cultural [place] – post-industrial cities have layers of both built and narrative heritage (continuum). Concentrations of such resources and embedded meaning become the second criteria.

infrastructure [ecosystem] – post-industrial cities are rich with investment in infrastructure that support the manufacturing and movement of goods and services and the human settlement associated with these activities. This infrastructure defines the natural and built eco-system of the City. I employ an expansive interpretation of infrastructure as "Green, Blue and Gray": Green infrastructure describes both natural flora and fauna and their related habitats, and also man-made landscape and greenway networks. Blue infrastructure describes the watersheds and wetlands on and near which industry is typically located. Gray infrastructure is entirely man-made, including highways, roads, rails, digital and other surface and sub-surface systems.

Of course each of these criteria have been, and continue to be, of importance to location and therefore to conventional real estate and economic value (we operate, after all, in a capitalist system). What I believe to be unique in this approach is my suggestion that our design processes begin with this new triumphrite of value. In order to make value [assets] and the concentration of value more understandable and accessible to community and decision makers, I decided to convey this expanded notion of value as density in three dimensions. Certainly aspects of the

built environment are typically conveyed in this manner, but attempting to document and convey the density and energy of social and cultural values and capacity, is a newer approach that few (if any) have employed. If we collectively accept inhabitation, cultural, and infrastructure value as fundamental criteria in our future urban design investigations and interventions, how would it change the face of urban form? The mapping of our Cities? Decisions for the concentration of resources and capacity? Location of future investment, and therefore, density? What are the implications for the future of urban form? My research attempts to address all of these questions, and in doing so, empower the community to make more equitable and sustainable decisions. My primary intent is to prompt a new way of interpreting, illustrating, and leveraging the urban assets and, in doing so, positively influence future urban form.

I believe that the key to Regional Detroit's future is a commitment to a collective dialogue about priorities- where should investment and development be concentrated? We need to return to the region's strong 20th century design and planning ethic. The answer to this question of priorities, in my opinion, is a focus on the districts and neighborhoods of our City where residents are concentrated, in addition to the current strategy of focusing on downtown and riverfront districts. These neighborhoods not only have passionate and committed residents, but infrastructure and cultural value that might catalyze regional regeneration. This strategy implies a very different urban form than we have had in the 20th century, but perhaps a more sustainable and hopeful one.

Theory + Analysis

> Density = mass
>   volume
> Density: n. 1 the degree of compactness of a substance. 2 the quantity of people or things in a given area or space.
> ORIGIN C17: from Fr., *densite* or L. *densitas, from densus 'dense'.*
> *Oxford English Dictionary, Eleventh Edition, 2004*

Much has been published in the post-modern era extolling the theoretical, conceptual, and practical virtues of density.   Jane Jacobs began the argument in the 1960s. After languishing during decades of unabated urban sprawl, Rem Koolhaas revived the focus on the center city, and praised

Manhattan's density and the desirable "culture of congestion" that it generates[7]. More recently urbanists such as Winy Maas have focused on the complexity of the city and have promoted density (especially in cities experiencing exponential growth) as a way to address contemporary global ecological and quality of life challenges. More mainstream endorsements from the Congress for New Urbanism (and proponents of transit-oriented development), the American Institute of Architects[8], and the Urban Land Institute - identify density as a viable alternative to urban sprawl, generating increased livability and sustainability in urban areas.   However, the majority of these theoreticians and practitioners have focused solely on the built environment. Only urbanist Teddy Cruz has suggested, based on the strict and limited interpretation of urban density as strictly massing and Floor Area Ratio (FAR) at the 2006 Venice Biennale, that we must begin to examine the density of social exchanges[9] as a way of understanding and analyzing the complexity of the City. To communicate the issues of complexity and density in the city, urbanists such as Winy Mass[10]   and Michael Batty[11] , have created proprietary digital modeling techniques to examine multifarious urban data sets and illustrate the impacts of choice. I largely agree with both the current theoretical and practical schools of density, and wish to expand the dialogue. At the same time that density is being promoted, a parallel theoretical movement has emerged.   Landscape Urbanism[12] documents decentralizing populations and investment, cities sprawling ever-outward, and the resultant waste and abandonment of the core. Proponents identify landscape as the primary "actionable" element for the design disciplines. I challenge the Landscape Urbanists' assumption that a globalized economy dictates dispersed urban from, and argue that balanced, equitable, sustainable, dense, and urbane development is still possible in the Post-Industrial City. So, I come to my own focus on (and definition of) urban denity:

Value Densification – my own term – is a focus on investment and development in neighborhoods and districts where inhabitation, infrastructure and cultural value are in evidence.

I identified this term at the conclusion of my pre-viously peer reviewed and disseminated research:
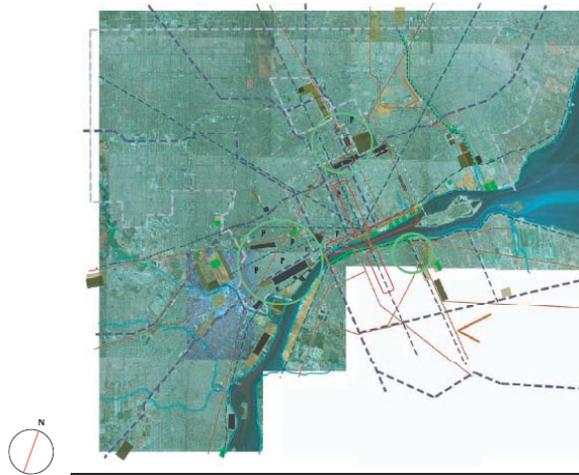
Figure 1 Value Densification: Recommended Pilot Community Projects (green circles from left to right): Southwest Detroit, North End, Glengarry Marentette-Windsor.

+ D IND DEV: Industrial Spatial Logic and the Transformation of the City[13]. In this research, I focused on the distinct spatial logic of North American industrial development, driven primarily by the location of infrastructure, which expresses itself legibly within the City over time. Through research, graphic documentation, and analysis of the industrial spatial logic and development history of infrastructure and industry in Regional Detroit (focusing on places of "making" and the infrastructure that serves these sites and the uses that cluster around them), I identified the progression of land use in Detroit over 150 years. Figure 1 is the final diagram in a series, illustrating this progression, with an analysis overlay.

The astounding pattern that is evident in this analysis is that everything that is not brown on the map – every other land use with the exception of the CBD which comprises less than 10 square miles – is residential or residential support[14]. This means the vast majority of the 137 square miles of Detroit's municipal boundary is low scale residential! This is the spatial pattern that the explosive growth and wealth generation of the 20th century automobile industry created. It is incredibly legible – the vast, single-family, low-rise residential development pattern – all supported by a handful of key manufacturing and employment centers.

One must address the issue of scale in analyzing Detroit's municipal land area. To provide perspec-

tive, the entire land areas of Manhattan, Boston, and San Francisco can all fit within Detroit's borders, with land leftover[15]. The immense immigration, housing development, and wealth that the automobile industry generated in the 20th century are most legible here in Regional Detroit. Residential (largely single family) is the predominant land use within our 137 square miles. With the decline of manufacturing jobs over the last 30 years, the residential neighborhoods began to deteriorate and therefore have become the predominant image of our city, and our challenges, around the world. Detroit's 40,000 vacant properties are more easily understood in this context.

I conclude that future policy and legislation should identify and document areas of the region that meet "value densification" criteria, and develop programs to support future investment in these areas. Public and private sector cooperation can focus on Regional Detroit's core – the neighborhoods that are in proximity to job centers, growing populations, rail infrastructure, recreational resources, and sites and buildings that provide opportunity for both adaptive reuse and new construction[16].

Current public and private sector revitalization strategies focus on Detroit's riverfront and financial districts. An alternative regeneration strategy for Detroit's future urban form, inspired by this research and analysis, argues that density is still possible in the Post-Industrial City. Foci and opportunities are identified through proximity to continued (expanded) "places of making" and a diverse interpretation of value - inhabitation, infrastructure, and cultural. Such areas, as noted in Figure 1 (the green circles), include Southwest Detroit, the North End/Hamtramck, and Glengarry Marentette in Windsor. However, I firmly believe that the approach, methodology and the digital interface described in this paper is replicable and can be used across the global post-industrial landscape.

Southwest Detroit is in particular an excellent example of such a district. The neighborhood is characterized by new immigration and population growth, a cogent cultural heritage, and longstanding, effective community-based development organizations. Southwest also contains large employment centers (Ford Rouge Complex, Severstal

and National Steel, et al), is rich in "Green, Blue and Gray" infrastructure (Detroit and Rouge River Watershed, Michigan Central, et al), and cultural and historic sites. This is in stark contrast to the conventional redevelopment approach that Regional Detroit's civic leadership has pursued to date – focusing investment and attention on the increasingly gentrifying Lower Woodward Corridor and the East Riverfront (Figure 1: red rectangles).

PROCESS AND PARTICIPANTS

In January 2007, I received an opportunity to continue my research: the University of Detroit Mercy (UDM) Master of Community Development (MCD) Program[17] offered a modest faculty research grant. My proposal was to focus on developing the notion of "Value Densification" in one of the few Detroit neighborhoods where inhabitation, infrastructure, cultural, and employment assets are in evidence. The Value Densification Community Pilot Project (VDCpp) engages Southwest Detroit, with the support of the community, as the first and most promising of these neighborhoods, creates a digital model that vividly reveals its assets and density, empowers the community at a critical moment to direct its future, prompts a civic dialogue, expands existing partnerships, and creates rich pedagogic opportunities.

I cultivated a relationship with the Southwest Detroit Development Collaborative (SDDC) comprised of Community Development Corporations (CDCs), Volunteer and Human Service Organizations in Southwest Detroit, including the Southwest Detroit Business Association, celebrating 50 years

of serving the Southwest Detroit community, as client. The VDCpp Team included colleagues in Architecture, Urbanism, and Civil Engineering as research partners and continues a three-year Urban Design collaboration. Funded Architecture and Civil Engineering students served as research assistants. The VDCpp was launched in May 2007 and delivered final Phase I recommendations in August 2007[18]. The international collaboration was essentially a "virtual" collaboration, with weekly "skype" internet conferences, and only one face-to-face meeting in Warsaw in May with a portion of the Team. Working files of all types were posted and reviewed on a project ftp site established by Warsaw Polytechnica University. The collaboration proved to be worthwhile, but challenging. Establishing research and computer infrastructure, long distance communication (including the six hour time difference!), making operational essential technology to support virtual collaboration (ftp site, in particular), even summertime vacation schedules, were all time consuming and made project momentum difficult to maintain.

Project Outcomes

The Team's grant application proposed five project outcomes for Phase I and indicated direction for Phase II of the VDCpp, including:

1: Digital Interface and 3D Build Out Analysis of the Southwest Detroit community and the West Riverfront, focusing on two measures of density: Physical (FAR), based on existing fabric, "as of right" zoning and land use, and future opportunities for densification; and Social exchanges/acre[19], the formal and informal human interactions that occur within a neighborhood and generated from living, working, studying, worshipping, shopping organizing, advocating, etc. The foundation of this interactive, digital model will be community assets, including: existing/growing population (Human), advocacy and implementation capacity (Organizational), infrastructure, including the planned greenway network and the preferred alternatives for the Detroit Intermodal Freight Terminal (DIFT), and the Detroit River International Crossing (DRIC); + cultural (Physical); and employment centers (Economic); SDDC public access to the digital interface is planned for posting to the organization's website in Winter 2008.

2: Community Empowerment for the SDBA and GCDC during the most critical development debate for the city/region (current decision making for the DIFT and DRIC and where to densify and invest) by revealing impacts and benefits.

3: Establishment of collaborative community relationships for the UDM MCD (future HOPE coursework enhancements, service and Capstone opportunities).

4: Prompting of a Civic Dialogue about future urban form and priorities for investment in the City/Region through community engagement and media exposure.

5: PHASE II (if additional funding is obtained): Recommendations for a new neighborhood model (future urban form + community development direction) for neighborhood/City/Region and work with additional city neighborhoods that meet the VDC criteria.

STUDY AREA

Southwest Detroit is (and has been) a vibrant piece of Regional Detroit, and is currently transforming socially, physically and economically. The neighborhood's location on the Detroit River, an international border with Canada, and at the junction of major highway and rail infrastructure has defined its heritage and, to some extent, its future as a critical regional transportation hub. The Port of Detroit, the Ambassador Bridge to Canada and other major regional transportation infrastructure is located within neighborhood boundaries. Because of this, the neighborhood has experienced a disproportionate amount of regional infrastructure investment, and is currently the location of several massive scale proposals, such as the DIFT and DRIC[20]. Like most of the Region, the Southwest neighborhood experienced explosive growth in the early-mid 20th century prompted by immigration for high wage auto jobs and declined with the consolidation and downsizing of the industry. Remnants of its vast industrial heritage are still intact and functioning within and adjacent to its boundaries (Ford Rouge Plant, Severstal Steel, National Steel, La Farge Cement, etc.). Currently, Southwest Detroit is enjoying another immigration boom, and is the only neighborhood in the City proper that is adding population, due largely to its growing Hispanic population.   Southwest is also the most diverse neighborhood in Detroit, with a demographic profile that includes African American, Hispanic, Arabic and white ethnic groups[21]. Because of this growth and diversity, Southwest Detroit enjoys a vibrant commercial base, centered along the West Vernor corridor. The community is served by highly skilled advocacy and development organizations, currently engaged in large scale planning initiatives (both in their own and others' control), for infrastructure, housing, greenways and other community amenities.

The study area for Phase I was agreed upon in the initial client group meeting in May 2007. The study area of the VDCpp is a subset of Southwest Detroit USA as determined and identified by the community, and indicated in the Gateway Communities Development Collaborative (GCDC) General Development Plan[22]: The Lodge Freeway (M-10) to the east, Michigan Avenue to the north, Wyoming (Detroit boundary) to the west, and the Detroit River to the south (in yellow). The Phase I focus area was identified in July after assessment of existing data availability and project resources, and is indicated on the figure as a red dashed line. The overall SDDC boundary (add text) is indicated in red.

SCOPE OF WORK

The primary goal of the VDCpp is to create a three dimensional (3D) digital interface (model and data base) that is a powerful tool for measuring, illustrating and envisioning three dimensional density. The VDCpp digital interface captures and illustrates community assets through two measures of density:

Physical : Floor Area Ratio [FAR] — portraying, in three dimensions, the existing condition of built form (footprints/building massing/infrastructure) in the study area, and therefore the density of existing and proposed built and natural features of the study area, including infrastructure.

Social Exchanges – portraying, in three dimensions, at least one data set/indicator in each of the four MCD development concentrations: Human, Organizational, Physical, and Economic (HOPE), to attempt to model human interactions on various levels.

Our funders in the UDM MCD program wanted to insure that the digital interface will allow users to interact with the data that is being mapped. In order to meet the criteria of providing benefit to the full MCD Program, they identified as very important that users without any special technical knowledge would be able to independently engage the research in a meaningful way.

The intent of the VDCpp is to provide a useful, relevant, accessible tool for the UDM MCD program, the Southwest Detroit community, and (if further funding is identified) other neighborhoods and communities in Regional Detroit and across North America. It was always the Team's hope that the MCD grant would assist in creating the framework for the digital interface and an initial database that will be accessible by students and community organizations for future use, manipulation, and augmentation. To that end, we considered three primary approaches for the creation of the digital interface, all of which are compatible with the highly accessible "Google Earth-Sketch-Up" software:

- The first approach would utilize Auto-CAD;
- The second approach would utilize Sketch-Up with Google Earth Pro KML data base;
- The third approach would utilize Sketch-Up with Google Earth Pro and GIS Arc View (Access data base).

Because Auto-CAD does not have an interactive data base capability, the second approach struck the project team, at the initiation of the project, to be most accessible by all parties. KML would allow us to create a rich attributes database using either a simple text file or an Excel Spreadsheet, and Google Earth eliminates the need for original GPS coordinate work that GIS might require. Using Sketch up does not preclude doing more sophisticated modeling work at a future date. One can easily Import 2D and 3D Auto CAD (.dwg or .dxf files) into Sketch up, and export out 2D and 3D Sketch Up elements back to CAD. If a future GIS interface is desired, Google Earth /Sketch Up has the interface with Arc View files. An added plus is there is no need to develop a dedicated website (just add a link to existing websites), as Google Earth allows anyone with access to a computer/the web to view all project results.

In the end, we decided to use Google Earth Sketch – Up Pro, so that the model and data is easily accessible to both MDC students, the SDDC, and the community[23]. However, as the Team began to build create the digital interface (model and data base), GIS (Arc Map) was ultimately employed to create the HOPE data tables that were then exported to kml/kmz and Google Earth. Digital interface layer generation procedures are described in the following section.

SCHEDULE : PHASE I SUMMER 2007

The UDM MCD Faculty grant was awarded in April 2007 and the project was launched in May 2007, when the VDCpp Team established assignments and began research and data collection. In July, we initiated the creation of the digital interface (data base and model) and held an SDDC Board presentation and input session. In August, the team will review progress, conduct analysis using the digital interface as a tool, make recommendations for opportunities for increased density, and complete Phase I. Phase II scope and funding is projected but still pending at the time of publication.

RESEARCH METHODOLOGY

The research methodology employed for the VDCpp has four primary areas of focus: data collection and review, creation of the digital interface, analysis, and design recommendations. Prof. Bodurow led the overall research effort, providing strategic direction, managing Team assignments, client group interface, and data collection and review, analysis, and recommendations. Research Assistant Kafer supported the creation of the Physical (FAR) layers in Sketch-Up Pro for the digital interface, coordinating the Detroit and Warsaw Team's contributions. Prof. Lechowski led the Warsaw team's contribution to the creation of the digital interface with Research Assistants Sanders and Twarogowska sharing the generation of the majority of the 3D modeling of the Physical (FAR) layers and recommendations. Prof. Hoback led the creation of the HOPE layers for the digital interface, working primarily in GIS and assisting in merging the Google Earth and Sketch Up layers, with support from Research Assistant Crane. Aidan Chopra, Sketch-Up Evangelist for Google Earth, provided critical technical assistance for the project.

Data Collection + Review

Our abbreviated project timeframe led us to a focus on existing on obtaining data sets in order to save time creating "net new". The first two months were devoted to gathering and review of plans that the client group has generated to date[24]. The Team also focused on gathering the other Planning Initiatives for the study area, focused primarily on major infrastructure investments, including the Regional Greenway Network (6 separate segments[25]); Detroit Intermodal Freight Terminal (DIFT); Detroit River International Crossing (DRIC); Detroit Economic Growth Corporation's (DEGC) West Riverfront District Plan; and Southeastern Michigan Council of Government's (SEMCOG) Detroit to Ann Arbor Regional Rail Link [Michigan Avenue and Fort Street alternatives]. In addition, the client group provided existing digital photograph of various sub-neighborhoods within the study area.

Data collection for the physical model included obtaining disparate digital file formats, including the SDBA base (which provided streets, rail, and parcel lines only) which had to be converted from GIS, Sanborn Maps (for the Vernor Corridor only)[26], MDOT base (s) for a large area south of the I-75 right of way, and DEGC West Riverfront Plan – the only digital resource in two and three dimensions[27].

In gathering the HOPE Data, we focused on several sources, including:
H: Population Change; Source: US Census Population 1990 + 2000
O: Non-profit and partner investments; Source: SDDC
P: Cultural Assets, Schools and Churches; Sources: White Pages and the Southwest Detroit Business Directory 2007, and for designated historic districts and sites, Source: State of Michigan Division of History, Arts, and Libraries (HAL).[28]
E: Employment assets – job centers (employers and number of jobs) in and adjacent to the Study Area; Source: City Connect; Land Use: State of Michigan.

Creating the Digital Interface: Existing Conditions

Our objective was to create the digital interface in layers for optimum flexibility and usability. The
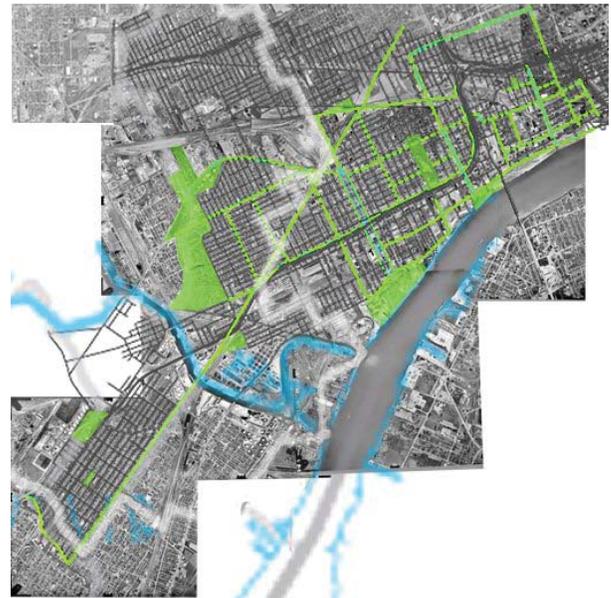

Figure 2: Study Area and Green, Blue + Gray Infrastructure (VDCpp Team)

Team first worked in two dimensions, then three, and then overlaying the three dimensional data to conduct our analysis. Once digital files were collected, the Team began "stitching together" existing two-dimensional plans. Obtaining existing digital files proved challenging for this area of Regional Detroit. Few public agencies had digital files. Those that did have only a portion, as with MDOT, which had the largest swath of the study area in 2D AutoCAD format. Team Research Assistants spent some time "stitching together" such digital resources, but ultimately spent disproportionate amounts of time digitizing the building footprints and extruding the massing models in order to create the existing condition in two and three dimensions.

Another step in "stitching together" existing plans was the consolidation and mapping of the study area's "Green, Blue + Gray" infrastructure, including the Detroit + Rouge River Watersheds, the Planned Greenway Network (6 separate links), Roads, and Rails. The resulting diagram is a composite - see Figure 2 - which the VDCpp Team called "a neighborhood ecosystem". Ultimately, Green, Blue + Gray infrastructure, including the Port of Detroit, and the preferred alternatives for the DIFT and the DRIC, and the proposed Greenway|Parks network, were modeled in Sketch-Up.

3D modeling for the digital interface proved to be very labor intensive, though the Google Earth/ Sketch Up software made modeling less complex than working in Auto CAD and converting the files. Team Research Assistants divided the study area and worked in zones, working from east to west and beginning with the Vernor Corridor, then Fort Street, and then Michigan Avenue, Rosa Parks, etc. (see Figure 6). One existing resource provided the keystone for the modeling. The DEGC West Riverfront Plan 3D Sketch up model[29] provided a vital geographic reference, onto which all other 3D models were hung.

In creating the 3D models, Team Research Assistants followed an agreed upon procedure: open Google Earth, locate the appropriate aerial view of the study area; Open Sketch Up, select "get current view", which brings the aerial view into Sketch Up (successive aerial "graphs" automatically geo-reference in Sketch-Up!); Trace the footprints and extrude to appropriate heights using digital photo resources or from the oblique photography of the study area on the very current "Microsoft LiveLocal.com". Given the time frame, lack of travel budget, and virtual nature of the work, few site visits were conducted. The Team was working at a very gross level in Phase I, so we focused on creating simple massing models of existing buildings. Only a handful of buildings received more accurate modeling. Existing resources from Google Earth 3D Warehouse, such as Tiger Stadium and Michigan Central Station, were also brought into the digital interface.

Creating the three dimensional layers to describe "social exchanges" inherent in the existing condition is perhaps the most original aspect of the VDCpp to date. The Team and lead Google Earth staffers are unaware of similar use of the freeware for modeling this type of data for the purposes of community development and urban design, though modeling census data has been pursued through Google Earth[30]. The VDCpp Team wished to ensure that the data collected included a broad range of issues (human, economic, and organizational assets in addition to the physical) and a level of depth as well, with more than one measure for each category. Given the modest funds available for the project, the Team's strategy in Phase I was to limit original research and strategically identify existing data sets of highly relevant met-

rics in each of the four "HOPE" categories. We decided to focus on data that the community already themselves generated, had access to, and/or has identified as relevant and therefore gathered in their recent planning work. The theoretical basis for the VDCpp is "neighborhoods where inhabitation, infrastructure, cultural, and employment assets are in evidence". Therefore, we identified the following initial metrics for which to collect data and illustrate in social exchanges in three dimensions:

Human: existing/growing population

Organizational: community development capacity of existing non-profit organizations;

Physical: aspects of the cultural landscape, especially historically significant resources.

Economic: job centers (emphasizing high wage jobs).

We believe that this is a rich set of information for such a modest grant. Once the digital interface/ data base is established through the grant work, additional metrics in each of the HOPE areas can easily be added in the future (by the project team with additional funding, through MCD student course work, or by the community/client groups). Such successive use would prove the relevance and usefulness of the digital interface as a tool.

The Team decided to create the HOPE data within a grid of the 34 Census Tracks in Study Area[31]. In some cases, data was available and therefore represented in a finer grain at the Block level. This census track grid was created in GIS, and then data was exported. The majority of the data was supplied by the client group, through SDDC's Five Year Investment Summaries, 2002-2006[32], a separate and community led data gathering initiative that nicely supported the objectives of the VDCpp and allowed the client to view their work in three dimensions. Employment and cultural assets data came from various data sources (see below). Initially, we agreed to create an overall data set for each of the four HOPE layers and a varied amount of more detailed data sets within each. The metric for illustrating density (height of extrusions) varied by HOPE category, for instance, for Housing, the Team chose units produced vs. total investment. At the time of publication, the following HOPE data sets had been integrated into the digital interface:

H: Human assets: Population Change 1990-2000;
O: Organizational Assets: SDDC Housing Projects (units added); and all Non-profits in Study Area;
P: Physical Assets: Cultural (designated Historic Sites and Districts, Churches, Schools);
E: Economic Assets: Employers + Numbers of Jobs (Overall data and in four specific data categories: services, retail, manufacturers, transportation).

The generation of the "HOPE Layers" was led by a Detroit based Civil Engineering Professor. As with the Physical (FAR) layers, the creation of each HOPE layer followed an agreed upon procedure: Data was retyped into Excel tables and checked for accuracy. The Excel tables where then converted to ARC Map, and then exported to create a .kml/.kmz file[33], which arrays the data in Google Earth by census track. Data can be arrayed as points, polygons, or buffers radiating around points. Extrusion heights were prescribed and varied from 0-4,000 feet, depending on the objectives of data illustration. These attributes created the three dimensional polygons that display when the .kmz files are opened in Google Earth. Extrusions have been generated for data in each of the HOPE categories. The following figures illustrate H: Population Change and E: employment (number of jobs), each by census track.

Analysis

Once the digital interface was largely complete, with the majority of Phase I physical (FAR) and HOPE layers modeled, the Team's next step was to conduct analysis. Our intent was to illustrate and investigate where the community's assets and density overlay and intersect. Our hope was that the tool that we created, and our analysis diagrams would vividly illustrate where both physical and social density concentrations are prevalent. The Team was struck by the richness of the data collected in the digital interface, and found that infinite pairings of layers are possible. The Team identified a series of initial cogent and relevant pairings in pursuing this analysis, and welcomed input from the community. Each analysis diagram served to either confirm current community direction or point to new opportunities. More importantly, each also implied differing direction for future density and investment.
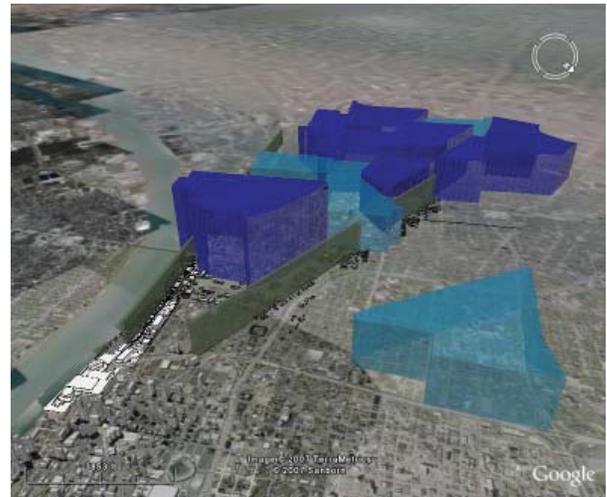

Figure 3: Analysis Diagram: Population growth with proposed light rail corridors on Michigan Avenue and Fort Streets (VDCpp Team)

Figure 4: Analysis Diagram: Employment Assets with Green-Blue-Gray infrastructure (VDCpp Team)

Given the short time frame of Phase I, the Team decided to focus on distinct analysis themes. These thematic analysis exercises were each driven by a discreet variable, including: population assets, land use and housing assets, employment assets, and the proposed Greenway|Parks network. The analysis combinations are infinite, but the number of illustrations allowed for this publication are not! The following analysis diagrams are a select illustration of the possible combinations. Each of the analysis diagrams illustrates the versatility of the digital interface, allowing for, and displaying, a

Figure 5: Analysis Diagram: Employment Assets (with individual employer points in red) with proposed Light Rail Corridors along Michigan and Fort (VDCpp Team)

mix of HOPE layers, Green-Blue-Gray Infrastructure, and the Physical Model. See Figures 3-5.

In addition to using the digital interface for analysis, the Warsaw Team created an analysis diagram in order to evaluate the structure of commercial density in the Phase I study area. This diagram illustrates the concentrations of retail and commercial density along Vernor, Fort, and Michigan Avenue at the eastern end of the study area. Polygon heights indicate low, medium and high density, as indicated by lot coverage.

Design Recommendations

As Urbanists, it was our intent to use the VDCpp digital interface to make gross level urban design recommendations. As a result of our analysis, the Team has modeled opportunities for future density and investment in the study area. The SDDC Plan Recommendations (updated in 2004) indicated a number of areas for future density, including nodes along the Michigan and Vernor Corridors; the "Bow Tie" area where the rail lines intersect; and the Livernois | Dragoon corridor south of the I-75 right of way to Fort Wayne and the River.

The Team supports the client group's initial instincts. However, one intent of the VDCpp is to prompt a new way of interpreting, illustrating, and leveraging the neighborhood's assets and, in doing so, positively influence future investment and

density decisions. The digital interface analysis diagrams illustrate, at minimum, three obvious and interesting urban form, design and policy opportunities:

- Both SDDC housing investment and the planned Greeway|Parks network are not necessarily located where the community has concentrations of growing population.
- The large scale DRIC and DIFT present themselves as ominous philosophical and physical obstacles to the community's vision for future mixed use redevelopment. More specifically, the analysis reveals that the current alternatives for the DRIC Plaza A preclude the community's plan to develop the Livernois | Dragoon corridor to the river.
- Employment and commercial uses are not dramatically concentrated in any particular portion of the study area, but do align along the Michigan and Fort Street corridors.

Through our analysis and urban design expertise, our own recommendations as we complete Phase I and pursue future Phases of the VDCpp, focus on Michigan Avenue corridor and a swath between Rosa Parks and I-75 south to the river. This chevron/galon shaped area is where a high concentration of assets and opportunities converge for the community: physical and social density as defined by the data in the digital interface, community-identified future nodes of density, as-of-right zoning, and opportunities indicated by existing and proposed infrastructure assets, particularly the proposed Greenway|Parks network and light rail corridors. Our preliminary recommendations for future density are presented in Figures 6 and 7. These diagrams illustrate massing of proposed density at the scale of the block[39]. We are illustrating a densified "high spine" along the Michigan Avenue corridor west from Michigan Central Station. The spine emphasizes opportunities for Transit Oriented development (TOD) with nodes at Michigan Central Station, West Grand Boulevard, and Livernois. This density proposal is supported by Michigan Avenue's designation as one of two study alternatives for the Ann Arbor to Detroit Rail Link[40]. Additional density is proposed to connect Michigan Central Station and vicinity to the West Riverfront through an expanded urban public space network which expands upon the community's the proposed Greenway Network. This section of proposed density creates a civic al-

Figure 6: Future density and investment: Michigan Avenue – West Riverfront

lee, flanked by another high spine along St. Anne Street, which serves as a connective spine establishing the visual and physical link between the historic station, historic St. Anne's church, and the future development of the West Riverfront.

These initial recommendations give the Team hope for the relevance of the VDCpp interface as a design and community development tool, both for the community and the region. We look forward to the opportunity to continue our work in Phase II of the project, after an evaluative period informed by critical distance. The Team's recommendations are a preliminary step in illustrating and proposing a dramatically different urban form for Regional Detroit: one that is guided by a diverse interpretation of value and predicts a hopeful future through balanced, equitable, sustainable, dense, and urbane design and community development.

ENDNOTES

1. Regional Detroit, as the author prefers to define it, crosses an international border (the Detroit River), and encompasses southeastern Michigan, USA and Windsor/Essex County Ontario, Canada.

2. See Charles Waldheim's Landscape Urbanism Reader, 2006, for an overview of the field, and Stalking Detroit, by Georgia Daskalakis, Charles Waldheim, Jason Young - 2001, for an overview of Waldheim's proposed direction for Detroit.

Figure 7: Future density and investment: Michigan Avenue – West Riverfront , with downtown Detroit (Renaissance Center, et al from Google Earth 3D Warehouse) and West Riverfront District Plan (Chan Krieger, 2007) in the foreground.

3. The German Federal Government's well funded initiative to study this phenomenon; Detroit was one of six cities worldwide highlighted in the research initiative and exhibition. See www.shrinkingcities.de

4. + D IND DEV: Industrial Spatial Logic and the Transformation of the City, October 2006.

5. See KM3, Excursions on Capacity, MVRDV (Winy Maas, et al) - December 2005, Actar

6. Neighborhood Support includes retail/commercial (generally along the radial streets of Michigan, Gratiot, Grand River), Schools, Churches, Parks, Cemeteries, etc.

7. As Steven Vogel at UDM has documented.

8. In 2007, Detroit Mayor Kwame Kilpatrick announced his administration's "Next Detroit Neighborhoods Initiative", that will funnel funding from a consortium of private foundations to six Detroit neighborhoods dispersed across the city. Selection criteria were not publicly available, and each designated neighborhood's social, physical, economic, and capacity conditions varying widely. Southwest Detroit was not among the neighborhoods designated, though the North End was. See http://www.ci.detroit.mi.us/HomePage/NextDetroit.htm

9. VDCpp Team

10. Social Exchanges as suggested by Teddy Cruz, Woodbury University School of Architecture. See Architecture of the Borderlands, AD Architectural Design, Editors Teddy Cruz, Anne Boddington - 1999
11. The DRIC alone, if built as proposed, will consume

over 300 acres of the Delray neighborhood. See www.partnershipborderstudy.com.

12. US Census Bureau, 1990 and 2000 Census.

13. Smith Group, GCDC General Development Plan Update 2004, page x

14. Go to http://earth.google.com/kml/ for more information and examples of this program.

15. The GCDC Development Summary Plan (2002, and 2004 Update), by the Smith Group; the Michigan Avenue, the Mexican Town, the West Vernor Highway (obtain complete titles, attributes).

16. The Southwest Detroit Greenway Network is comprised of: the Corktown-Mexicantown, Springwells, Rouge Gateway, Fort Street (48217), and Vernor segments.

17. Plans created by SDDC members include: Gateway Communities Development Collaborative (GCDC) General Development Plan and Appendicies, 2002, Update 2004, by The Smith Group/JJR; MABA Michigan Avenue Retail Revitalization Plan, 2003, by University of Michigan School of Urban and Regional Planning; Mexicantown Hubbard Communities Implementation Plan, 2007, by Zachary + Associates; DEGC Detroit West Riverfront District Plan, 2007, by Chan Krieger Associates; Wayne County West Vernor Highway Pilot Study, 2002, by Wayne County Division of Jobs and Economic Development, et al.

18. MDOT, DEGC, and SEMCOG are each conducting planning initiatives in the study area.

19. Phase I budget prevented the Team from acquiring 2D and 3D digital Sanborn Map resources.

20. In some cases, the Team used data from non-data originators, including CityConnect for Employment and Erick Barnes, Associate Professor of Sociology and Criminal Justice, UDM, for Churches and Non-profits.

21. West Riverfront model by Chan Krieger, Cambridge, MA, 2007 for DEGC. This 3D model is based on what has been shown in the West Riverfront planning process to date.

22. Google Earth/Sketch Staff assertion, May 2007.

23. US Census Tracks: 5209-5264

24. Housing, Education, Commercial/Economic Development, Public Safety/Environmental, Infrastructure, and Parks and Greenways.

25. KML is a file format used to display geographic data in an Earth browser, such as Google Earth. KML uses a tag-based structure with nested elements and attributes and is based on the XML standard. KMZ is the zipped version of KML.

26. Note that this is not intended as building design – but as a gross level massing and density recommendation for the district and major civic and connective spaces. Next steps would provide for specific design recommendations.

27. Southeastern Michigan Council of Governments (SEMCOG) is currently leading this $100 million Federally Funded Study.