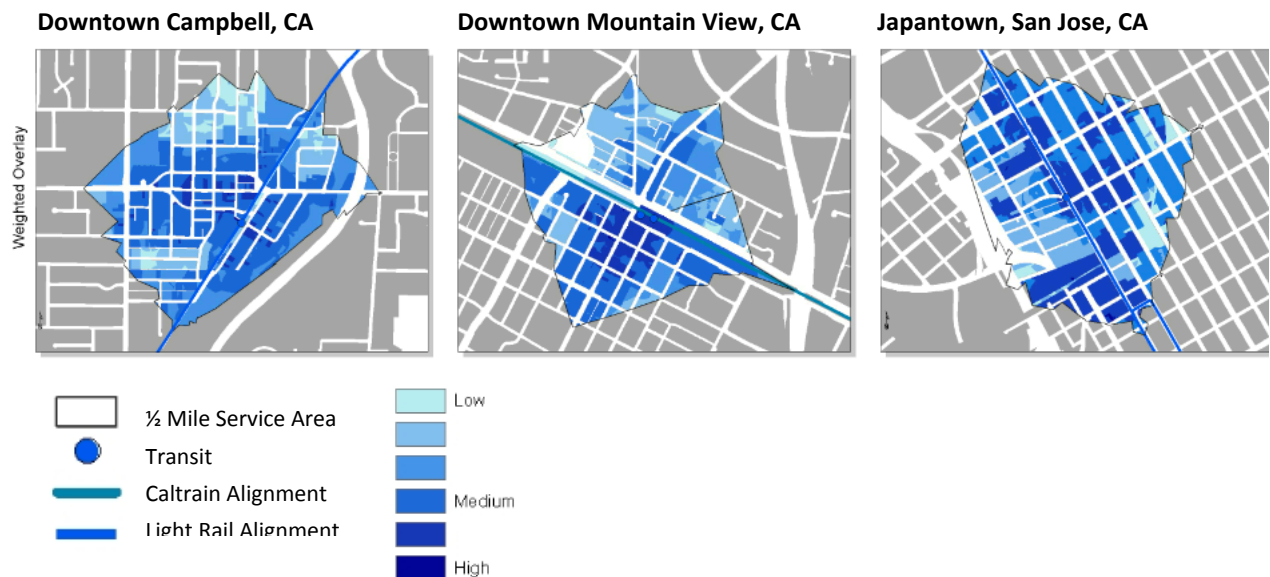

Removing a Barrier to the Financing of Transit-Oriented Development via a Standardized Evaluation Tool for Debt Capital Lenders

Jorge Rick Gosalvez
December 2010



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Financing of Transit-Oriented Development
via a Standardized Evaluation Tool for Debt Capital Lenders**

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by
Jorge Rick Gosalvez
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Abstract

Transit-oriented development (TOD) projects are complex in nature and a challenge to finance. Several variables and stakeholders are involved and a plausible reason why TODs are difficult to finance is a lack of universally accepted definitions, standards, or roadmaps.¹ To better understand why TOD projects are a challenge to finance, this study focuses on lending institutions, examining strategies and practices employed by bankers to derive capital allocation decisions.

The study confirms that no standard of evaluating TODs exists. Moreover, the study highlights that the term TOD is often used interchangeably to address either an individual project or a plan area. Hence, without a common definition or method to compare TODs, independent stakeholder analyses often differ between and among financier groups, resulting in funding gaps.

This research explores the most conservative TOD financier evaluation practices - those of banking institutions - and investigates how TOD financiers can use a geospatial information system (GIS) tool to track and measure land use changes to predict and compare theoretical land values according to common industry practices and the Five Ds of TOD.² Through an extensive review of literature and series of interviews, the study investigates debt capital financier practices to identify and extract a set of decision-making criteria deemed valuable for analyzing TOD opportunities. Identified variables are categorized according to the Five Ds of TOD and applied to a GIS medium.³ The result is a series of maps that allows for comparison of predicted land values for similar TOD plan areas to one another.

Three Bay Area TOD areas are examined (Downtown Mountain View, San Jose's Japantown, and Downtown Campbell). Independently, analyses allow for comparison of case study areas by map type. However, when placed side-by-side, maps allow for correlation analysis of planning and appraisal elements. Findings suggest that although TOD projects and areas differ, a positive relationship between property desirability exists for areas that have achieved approved TOD plan objectives. An additional analysis comparing predicted values to actual property values for 2009 verifies findings.

Although findings suggest a positive relationship between desirable land and planned areas, in the absence of reliable data, research can only propose theoretical models. Therefore, the intent of this research is to explore noticeable patterns by analyzing common variables shared between the three case study areas, and recommend a supplemental tool that will help remove a barrier to the financing of TODs via a supplemental evaluation tool for debit capital lenders. Due to the lack of an agreed upon evaluation technique and data collection method, resistance to a new tool will likely be high and require several iterations prior to acceptance. Therefore, this research is intended to provide an initial foundation regarding the concept of what a standard TOD evaluation model could do and offer recommendations for future research.

¹ Hank Dittmar and Gloria Ohland, *New Transit Town: Best Practices in Transit Oriented Development*, Washington, DC: Island Press (2004): 9.

² Robert Cervero and Richard Lee, "Research Basis for Proposed Criteria of the TOD Housing Program: Appendix A," California Department of Housing and Community Development and the California Department of Transportation (2007): 2.

³ This paper uses ESRI's ArcGIS, which is a software tool that allows for spatial analysis of similar TOD projects and plan areas.

The Problem

Transit-oriented development is a challenge to finance, which creates a barrier to TOD development. One reason TODs are complex to fund is that no common means to assess TOD opportunities exist. Therefore, evaluations are at the discretion of individual stakeholders, a fact that all too often renders unique estimations of TOD project values.

Variations in value stem from differing interpretations of what TOD is perceived to be. For example, planners and policy makers often use the term TOD to mean a planned area, whereas developers and bankers often consider TOD a project near transit. However, in conversation the term TOD is often used interchangeably to mean a planned area or project near transit. Furthermore, how financing stakeholders analyze opportunities differs considerably; methods are tailored to achieve individual objectives. Therefore, with no standard means to evaluate TOD among the various financing stakeholders, ambiguity and discrepancies regarding what the value of a TOD opportunity should be will persist. Hence, a common means for evaluating TOD opportunities is needed to address TOD financing challenges.

Intended Audience

This report targets planners, practitioners, developers, financiers, and decision makers who evaluate funding opportunities for TOD projects in transitioning areas.

This topic of evaluation is intended as a preliminary analysis for the following land use stakeholders and decision makers listed below. Further integration should be explored as data is not readily available. However, the results of this study are useful to lenders and policy makers interested in better understanding how TOD plans impact property values over time. Additionally, this research might appeal to local and regional governments interested in better understanding how lenders approach TOD opportunities. Interested stakeholders might include:

- Urban Planning Academics
- Bankers
- Developers
- Economic Development Officers
- Elected Officials
- Planners
- Policy Makers

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1. Introduction – Is Everyone On Board with the TOD Train?

As growing attention is placed on carbon emissions, population growth, and land use patterns, transit-oriented development (TOD) is receiving much consideration by government agencies as one possible solution to address these issues.⁴ However, TODs are not developing quickly because projects are capital intensive and risky to finance.⁵

Studies exist that explore TOD financing options from both a governmental and a developer's perspective.⁶ However, governments and developers are but two of the primary funding stakeholders required to finance complicated, expensive, and large scale TOD projects. In a recent study conducted by the Federal Transportation Authority, it was found that banks are instrumental to the implementation of TODs.⁷ Thus, banking institutions are often required to finance TOD projects. However, little analysis has been conducted that explores the topic of financing TODs from a lender's perspective. This paper focuses on a review of TOD financing evaluation considerations from a lender's perspective, because the lack of information regarding banker perceptions of TOD value poses a fundamental capital funding challenge to the success of TOD projects.

Christopher B. Leinberger of the Brookings Institute asserts that "learning how this system works [the banking institution's product evaluation system], and how it may be influenced to accept different models, should be one of the top concerns of advocates of change [for walkable urbanism]."⁸ In line with Leinberger's argument, other studies also claim that if a common analysis technique were developed and used by TOD funders to evaluate projects, it could lower risk valuation factors across stakeholders and remove the behavior bias involved in discretionary evaluation techniques.^{9,10} Therefore, if a standard existed for evaluating TOD opportunities based on the most conservative financing stakeholder's decision-making criteria, it would reduce variation between valuation methods and should remove a barrier to the financing of TOD projects.

To begin to address TOD financing challenges, this paper defines what TOD is, who the players are, and how projects are financed. To accomplish the above, this section of the report defines what problem this research will investigate, the study's relevance to planning, methodology employed, who financing stakeholders typically are, how stakeholders define TOD, how projects are financed, and how the remainder of the report is structured.

⁴ Transportation Research Board of the National Academies, "Transit-Oriented Development and Joint Development in the United States: A Literature Review," *TCRP Report 52* (2002): 2.

⁵ Dena Belzer, "TOD Financing: Public Private Partnership," presented at 2009 TOD MarketPlace, San Jose, CA, September 24, 2009, www.todmarketplace.org.

⁶ Andrew P. Bayster, *Capital Structure in Mixed-Use Development* (master's thesis, Massachusetts Institute of Technology, 2005) <http://dspace.mit.edu/bitstream/handle/1721.1/33190/65470890.pdf?sequence=1> (accessed February 8, 2010).

⁷ Transportation Research Board of the National Academies, "Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects," *TCRP Report 102* (2004): 89.

⁸ Christopher B., Leinberger, The Brookings Institute, "The Need for Alternatives to the Nineteen Standard Real Estate Product Types," *Places Magazine* (17), No. 2 (August 2005): 24.

⁹ John Niles and Dick Nelson, "Measuring the Success of Transit-Oriented Development: Retail Market Dynamics and Other Key Determinants," *Paper presented at American Planning Association 1999 National Conference*.

¹⁰ Joseph V. Rizzi, "Behavioral Basis of the Financial Crisis," *Journal of Applied Finance* 18, (2) (Fall): 84-96 (2008).

Research Questions

In an effort to better understand how TOD lenders evaluate projects, and in hopes of creating a common thread of understanding among funders, this paper attempts to address the following questions:

What factors do debt capital lenders consider when determining whether or not to support a TOD proposal, and how do these factors differ from lender to lender? Would a GIS based tool that incorporates best debt capital decision-making practices adequately address lender evaluation factors and potentially create a common method for analyzing TOD opportunities?

This study proposes two main hypotheses:

- a. Lenders do not follow a standard format for determining whether or not to support a TOD project, but similar capital decision-making factors exist.
- b. Common practices used for underwriting TOD opportunities can be applied and analyzed using a geospatial medium; a common model would enable lenders to analyze TOD opportunities and likely result in a greater number of realized TOD projects.

Relevance to TOD Urban Development

TOD is one possible solution to attain smart growth objectives and environmental emission targets. Thus, as communities and policy makers continue to advocate for more compact, pedestrian-friendly, and transit-supportive development, planners are increasingly challenged to accommodate more efficient urban infill development, such as TOD. Critical to the successful implementation of any TOD are financing terms and sources. Lenders are essential to the effective construction of TOD projects because a lack of debt funding can render developments unfeasible. Therefore, identifying what debt capital lenders review and consider essential when determining whether or not to loan funds would effectively identify a baseline for creating a standard evaluation method, which in turn would lower funding barriers to TOD projects. In essence, developing an awareness of decision-making factors bankers consider when determining whether or not to support TOD is critical to the potential development of TOD projects.

Additionally, by reviewing evaluation criteria identified as critical by the most conservative funding stakeholder group, which is bankers, this study explores the potential of a common tool for evaluating similar TOD projects. A common conservative evaluation method adopted by debt capital funders would likely result in a greater number of TOD projects being funded. In short, an analysis and compilation of criteria that debt capital financiers value should provide a baseline from which to analyze TOD opportunities using a GIS medium.

Methods Overview

To address the research questions posed, this study performs three analyses. The first analysis examines current literature to identify common variables lenders consider when evaluating TOD investment opportunities. The second analysis, interviews, identifies best practices among lenders. Both analyses are used to identify common evaluation factors lenders consider when deriving capital allocation decisions to establish a baseline for comparing similar TOD projects. Using identified lender-underwriting criteria as a baseline for evaluation, the third analysis uses the baseline to compare three similar TOD planned

areas in the Bay Area (Downtown Campbell, Downtown Mountain View, and Japantown in San Jose) to explore GIS as a potential tool for comparing similar TOD plans and projects in differing geographic locations.

Study areas were selected because each city has approved documents describing focus areas as either exhibiting TOD principles or as having plans to incorporate TOD principles.^{11,12,13} Furthermore, case study locations were selected according to this paper’s definition of TOD, which conforms to the MTC Resolution 3434 definition of a “transit facility”¹⁴ and to the Dittmar and Ohland definition of a “Suburban Neighborhood” (Table 2).¹⁵ However, before similar areas could be compared, datasets were normalized to ensure an accurate comparison of variables. For example, land use codes

varied by agency and were therefore simplified to high-level categories that may have included multiple sub-categories within each city.^{16,17,18} Additionally, real estate data were analyzed and grouped by use type within and outside of a half-mile walkable service area from rail stations. Refer to Chapter 3 *Comparing Similar TODs: Bay Area Case Studies* of this report for a discussion regarding data preparation techniques for GIS analysis.



Figure 1 - TOD Case Study Locations

Source: GIS data by Valley Transit Authority. Figure created by author.

Normalizing data is a technique used to simplify data to a common factor for reliable comparison. Recognizing the need for a national standard for land parcel data, Congress created the Federal Geographic Data Committee to coordinate, organize, and sponsor the creation of a national land parcel database that could be used for emergency and economic purposes. For More information visit:

www.fgdc.gov

Study objectives were to identify pertinent data, analyze its relevance, and leverage findings to synthesize information to make recommendations for future TOD opportunity analysis.

¹¹ City of Campbell, “Downtown Campbell Development Plan & Standards,” Planning Design Guidelines (2006) www.ci.campbell.ca.us/Planning/Resources/DowntownDevelopmentPlan.pdf (accessed October 7, 2009).

¹² City of Mountain View, “Downtown Precise Plan,” City Planning and Zoning Precise Plans (May 2004) <http://www.ci.mtnview.ca.us/civica/filebank/blobdload.asp?BlobID=2768> (accessed October 7, 2009)

¹³ City of San Jose, “San José 2020 General Plan,” City Planning (May 2008) www.sanjoseca.gov/planning/gp/2020_text/Pdf_version/2009/GPChp5_2009-12-01.pdf (accessed October 10, 2009): 185-186.

¹⁴ Metropolitan Transportation Commission, *MTC Resolution 3434 Transit-Oriented Development (TOD) Policy for Regional Transit Expansion Projects*, Oakland, CA, Adopted July 7, 2005, www.mtc.ca.gov/planning/smart_growth/tod/TOD_policy.pdf (accessed February, 3, 2010).

¹⁵ Dittmar and Ohland, 38.

¹⁶ Peter Folger, “Issues Regarding a National Land Parcel Database,” *Congressional Research Service 7-5700, CRS Report for Congress, R40717* (July 2009): 3.

¹⁷ Peter Folger, “Geospatial Information and Geographic Information Systems (GIS): Current Issues and Future Challenges,” *Congressional Research Service 7-5700, CRS Report for Congress, R40625* (June 2009): 2.

¹⁸ Federal Geographic Data Committee (FGDC), “National Geospatial Advisory Committee (NGAC),” www.fgdc.gov/ngac (accessed October 28, 2010).

Definition, Stakeholders, and Financing

Defining Transit-Oriented Development (TOD)

Depending on whom you ask, the definition of TOD varies; however, common details exist. For example, planning and policy stakeholders agree that TOD areas provide a rich mix of land uses high in density, with a layering of commercial and public amenities within a half-mile walking distance to quality high frequency transit.^{19,20} In the context of planning, Robert Cervero further defines TOD as exhibiting five common characteristics originally referred to as the “3 Ds of TOD,” which has evolved to the “5 Ds of the built environment and TOD.” The Five Ds of TOD are density, distance, destination, diversity, and design.^{21,22,23} Despite the fact that developer and lender stakeholders acknowledge some TOD planning principles as a benefit to their projects, they do not always consider plans as part of their evaluation process view. Thus, no standard definition for TOD exists among funding stakeholders.

Cervero’s Five Ds of TOD:

1. Density
2. Distance
3. Destination
4. Diversity
5. Design

Publications concur that no common definition for TOD exists.²⁴ In a Federal Transit Administration (FTA) sponsored Transit Cooperative Research Program (TCRP) report to Congress, TOD is defined as dense, pedestrian-friendly, and transit-supportive development, yet finds that no universally accepted definition of TOD exists among stakeholders.²⁵ Moreover, Cervero finds that “TOD is viewed and defined differently throughout the United States, with its most common traits being compact, mixed-use development near transit facilities and high-quality walking environments.”²⁶ Table 1 shows how TOD definitions vary by source. Furthermore, even the definition of what constitutes a transit facility may not be consistent among TOD evaluators. For example, the Metropolitan Transportation Commission defines a transit facility as a heavy or light rail system, bus rapid transit system, or ferry service, but this definition is not accepted by all policy, planner, developer, or lender stakeholders and may vary by organization.²⁷ Consequently, although common characteristics exist, the definition and scope of what a TOD is varies depending on whom you ask.

The New Transit Town advocates reserving the term TOD for location efficient, diverse, destinations that exhibit a synergy between transit nodes and planned areas and provide a return on public investment.

The Metropolitan Transportation Commission’s Resolution 3434 defines acceptable TOD transit facilities as: heavy rail, light rail, ferry, and bus rapid transit nodes.

¹⁹ Center for Transit Oriented Development, “About,” www.reconnectingamerica.org/public/tod (accessed January, 15, 2010).

²⁰ TCRP Report 52, 2.

²¹ Robert Cervero and Kara Kockelman “Travel Demand and the 3Ds: Density, Diversity, and Design,” *Transportation Research Part D*, Vol. 2, (1997): 199-219.

²² Cervero and Lee, 2.

²³ Robert Cervero, Olga L. Sarmiento, Enrique Jacoby, Luis Fernando Gomez, and Andrea Neiman, “Influences of Built Environments on Walking and Cycling: Lessons from Bogotá,” *International Journal of Sustainable Transportation* 3:4 (2009): 208.

²⁴ Transportation Research Board of the National Academies, “Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects,” *TCRP Report 102*, Table 1.1 (2004): 5-6.

²⁵ TCRP Report 102, 97.

²⁶ Robert Cervero. “Transit Oriented Development in America: Contemporary Practices, Impacts, and Policy Directions,” University of California, Berkeley (2004): 2.

²⁷ MTC Resolution 3434, 2.

Table 1 - Example TOD Definitions by Institution

Institution	TOD Definition	Source
Academia	A walkable area in close distance to transit that incorporates a designed balance of density and diversity to create a destination. ²⁸	U.C. Berkeley, Robert Cervero
Academia	Higher-density development patterns that promote projects and plans that create walkable distances to services and amenities supported by transit. ²⁹	University of Minnesota, Charles D. Carlson
Academia	Planned areas that account for the location efficient placement of homes in close proximity to transit as to create access both locally and regionally to a rich mix of uses that creates value capture opportunities for sustainable development and place making. Various TOD topologies exist depending on the context they reside in (Table 2). ³⁰	New Transit Town
Academia	The creation of denser, mixed use activity nodes connected by high quality public transportation. ³¹	American Planning Association
Congress for the New Urbanism	A pedestrian, bike, and auto friendly area served by transit that is diverse in population and land use that creates a sense of place and a complete neighborhood that balances the needs and desires of residents. ³²	Congress of the New Urbanism, Peter Calthorpe
Developer	Convenient and walkable mix of uses, including housing, employment, services, entertainment, and transit. ³³	Urban Land Institute, TOD MarketPlace Report
Government	There is no universally accepted definition of TOD because development that would be considered dense, pedestrian-friendly, and transit-supportive in a middle-size city in the Midwest would be viewed quite differently in the heart of Manhattan or the District of Columbia (see Table 1.1 of TCRP 102 Report for example definitions). ³⁴	Transit Cooperative Research Program Report 102.
Lender	Not recognized as one of the 19 standard real estate product types. Considered a hybrid of types that is compact development near transit.	Interviews
Non-Profit	Location efficient higher-density mixed-use development within walking distance – or a half-mile – of transit stations that creates a sense of place, boosts transit ridership, and generates revenue for public and private sectors. ³⁵	Center for Transit-Oriented Development
Non-Profit	Residential and commercial centers designed to maximize access by transit and non-motorized transportation, and with other features to encourage transit ridership. A TOD neighborhood has a center with a rail or bus station, surrounded by relatively high-density development, with progressively lower-density spreading outwards. ³⁶	American Planning Association, APA PAS Report No. 468 1996

Recognizing the need for a clear definition, Hank Dittmar and Gloria Ohland published *The New Transit Town*, to reduce ambiguity regarding what TOD should mean for different U.S. communities.³⁷ The authors collaborated with industry experts to evaluate issues and

²⁸ Cervero and Kockelman, 1.

²⁹ Charles Carlson D, "Financing Transit-Oriented Development: Barriers in Four Geographic Contexts," *University of Minnesota* (2009): 3.

³⁰ Dittmar and Ohland, xii-39.

³¹ Niles et al, 1.

³² Congress of the New Urbanism, "Peter Calthorpe on Smart Neighborhood Building," www.cnu.org/node/3687 (accessed June 5, 2010).

³³ Urban Land Institute, "2009 TOD MarketPlace Report," San Francisco (2009): 3.

³⁴ TCRP Report 102, 6.

³⁵ Center for Transit Oriented Development, "Center for TOD", ReConnecting America, <http://reconnectingamerica.org/public/tod> (accessed July 2, 2010).

³⁶ Maya Morris, "Creating Transit-Supportive Land-Use Regulations," *Planning Advisory Service Report No. 468*, Chicago, American Planning Association (1996).

³⁷ Dittmar and Ohland, 38.

recommend definitions and strategies for advancement. The book is now considered the industry standard for TOD topologies.

In a forward by Peter Calthorpe, he attempts to frame the scope of TOD by stating that TOD “is regional planning, city revitalization, suburban renewal, and walkable neighborhoods combined”, arguing that TOD is not an individual project, but rather a plan that must account for the context within which it will occur.³⁸ Therefore, Calthorpe asserts that TOD encompasses a planned area comprising a number of independent projects oriented around transit.³⁹

Expanding on Calthorpe’s interpretation of TOD and recognizing that no standard definition for TOD exists, Dittmar and Ohland argue that the term TOD should be reserved for projects that contribute to a TOD plan by addressing the following five objectives: location efficiency, rich mix of choices, value capture of public investment, place making, and synergy between transit node and place.⁴⁰ The authors go further and categorize TOD area types based on environmental, transit, and contextual surroundings (Table 2). Clearly, the authors advocate for a definition of TOD that encompasses a planned area, not just a single project; this notion that TODs are a mix of transit supportive uses is typically shared by planners and policy makers and a concept this paper will adopt.⁴¹ Dittmar and Ohland’s New Transit Town TOD Topology guidelines provide an outline for consistently defining six types of TOD-planned areas found in the U.S. In an attempt to compare similar TOD areas, this paper considers New Transit Town TOD Topology guidelines to select three case study areas. Case study areas selected for this paper adhere to the TOD Topology suburban neighborhood category.

In contrast to planners and policy makers, who prefer to define TOD using a broad scope that entails a planned area and mix of uses, developers and lenders favor limiting the definition of TOD to the project with which they are affiliated. Furthermore, whereas some developers may be open to the concept of mixed-use, bankers prefer familiar and proven projects that limit the mix of uses to one product type. For example, in a study conducted by Joseph Gyourko and Witold Rybczynski, it was found that bankers, in particular, specialize in perceived risks of a particular product type, and often separate the mix of uses in TOD projects to evaluate them individually.⁴² Hence, a dichotomy exists regarding the definition of TOD. Where planners and policy makers often define TOD on a plan-by-plan basis that comprises a mix of uses, developers and bankers typically differ in their definition, defining TODs on a project-by-project basis, often dissecting projects into individual component parts for analysis.⁴³ Therefore, in order to evaluate decision-making factors TOD financing stakeholders consider essential, this paper will combine how planners and policy makers view TOD with how developers and lenders view TOD.

³⁸ Ibid, xii.

³⁹ Ibid, xii.


⁴⁰ Ibid, 22.

⁴¹ MTC Resolution 343, 1.

⁴² Joseph E. Gyourko and Witold Rybczynski, “Financing New Urbanism projects: Obstacles and Solutions,” *Housing Policy Debate* 11 (3): 741.

⁴³ Marie Venner and Liisa Ecola, “Financing Transit-Oriented Development: Understanding and Overcoming Obstacles,” *Transportation Research Record: Journal of the Transportation Research Board*, Transportation Research Board of the National Academies, Washington, D.C., No. 1996 (2007): 17-24.

Table 2 - The New Transit Town: TOD Typology

 = TOD topology used for case studies

TOD TYPE	LAND-USE MIX	MINIMUM HOUSING DENSITY	HOUSING TYPES	SCALE	REGIONAL CONNECTIVITY	TRANSIT MODES	FREQUENCIES	
Urban Downtown	Primary office center	>60 units/acre	Multifamily	High	High	All modes	<10 minutes	
	Urban Entertainment Multifamily housing Retail		Loft					Hub of radial system
Urban Neighborhood	Residential	>20 units/acre	Multifamily	Medium	Medium access to downtown	Light-rail	10 minute peaks	
	Retail		Loft			Streetcar	20 minute off peaks	
	Class B commercial		Townhome			Subregional circulation	Rapid bus	
Suburban Center	Primary office center	>50 units/acre	Multifamily	High	High access to downtown	Rail	10 minute peaks	
	Urban Entertainment Multifamily housing Local office		Loft			Subregional hub	Streetcar	10-15 minutes off-peak
			Townhome				Rapid bus	
							Local bus	Paratransit
Suburban Neighborhood	Residential	>12 units/acre	Multifamily	Moderate	Medium access to suburban center	Light-rail	20 minute peaks	
	Neighborhood retail Local office		Townhome			Access to downtown	Rapid bus	30 minute off peaks
			Single family				Local bus	
							Paratransit	
Neighborhood Transit Zone	Residential	>7 units/acre	Townhome	Low access to center	Low	Local bus	25-30 minute	
	Neighborhood retail		Single family			Paratransit	Demand responsive	
Commuter Town Center	Retail center	>12 units/acre	Multifamily	Low	Low access to downtown	Commuter rail	Peak service	
	Residential		Townhome			Rapid bus	Demand responsive	
			Single family					

Source: Hank Dittmar and Gloria Ohland, *The New Transit Town*, 38.

To investigate decision-making criteria lenders employ when evaluating TOD opportunities, one must understand what product types lenders consider to be “standard” and refer to when evaluating the feasibility of TOD projects. According to Christopher B. Leinberger, there are nineteen standard real estate product types lenders are comfortable with; of those, only one type includes a mix of uses. The rest generally comprise a single use type that fall into one of two categories: income or for sale products (Table 3).⁴⁴

Income products are developed and leased to generate income for property owners. Examples include apartment, commercial, office, or retail buildings. For sale products are constructed and sold to new property owners. Examples include single-family homes, town homes, and condominiums. A fundamental difference between income and for sale product types is how and when lenders will be repaid. Bankers that lend on for sale property are typically paid back faster than those that lend on income property.

⁴⁴ Leinberger, “The Need for Alternatives to the Nineteen Standard Real Estate Product Types,” 24.

Table 3 - Nineteen Standard Real Estate Product Types

Income Products		
1) Office	2) Industrial	3) Retail
4) Build to Suit Office Mixed Use Urban Office/Retail/Restaurant Medical Office Multi-Tenant Office	5) Multi-Tenant Bulk Warehouse Build-to-Suit Industrial	6) Grocery Anchored Neighborhood Center Big Box Anchored Power Center Lifestyle Center
7) Rental Apartments	8) Miscellaneous	9) Hotel
10) Garden Apartment Urban Apartments	11) Self-storage Mobile Home Park	12) Budget Motel

For-Sale Products		
13) Entry Level	14) Move-Up Housing	15) Luxury Housing
16) Retirement	17) Resort/Second Home	18) Hotel
19) Includes a variety of segments (i.e. assisted living, independent, etc.)		

Source: Christopher B. Leinberger, 'The Need for Alternatives to the Nineteen Standard Real Estate Product Types', 27.

Although TOD encompasses a mix of the product types described by Leinberger, lenders typically define and evaluate product types individually. Bankers fund what they know, and lenders do not recognize TOD as a product type.⁴⁵ Thus, as mentioned previously, project simplification is often required to parse mixed-use projects into discrete parts that conform to the standard real estate product types. By breaking use types, bankers are able to assess component parts individually and make loan determinations on a case-by-case basis by use type. Lenders may loan on one or all use types in a TOD project, depending on underwriting analysis and bank strategies.

Bankers underwrite simplified product types to reduce uncertainty and risk. The relationship between funds and risk is inversely proportional, hence, the riskier the project, the less willing a lender is to fund it.

To mitigate default risk and improve payback, bankers underwrite to conservative secondary market standards. Doing so improves the likelihood a banker's loans can be resold on the secondary mortgage market, thus ensuring financial returns. When lenders choose to fund part of a TOD, funding gaps occur and alternative components require auxiliary funding sources. The end result of this process yields differing perceptions of value due to the fact that no clear interpretation of TOD exists, raising the question: is TOD a product type, a mix of product types in a project, or a mix of products in a planned area?

⁴⁵ Venner and Ecola, 17.

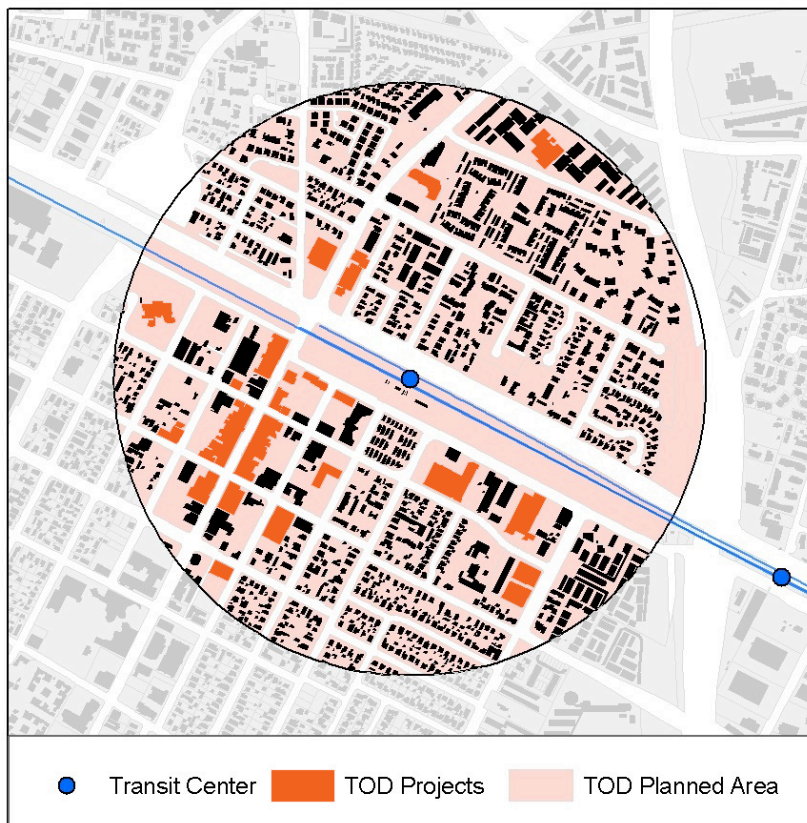


Figure 2 - TOD Plan Area and TOD Projects, City of Mountain View

Source: City of Mountain View, CA. Figure created by author (2010).

For the purposes of this paper, TOD is defined in two parts. First, *TOD plans* refers to approved plan areas that conform to MTC Resolution 3434. Second, *TOD projects* refer to developments within approved TOD plan areas that comply with TOD plans. TOD plan areas comprise many TOD projects (Figure 2).

Financial Stakeholders: Who Pays for TOD?

TOD plans impact communities, agencies, businesses, and patrons. TOD plans are regional in nature and include a compilation of mixed-use and single-use TOD projects. Therefore, a variety of stakeholders are required to assess, plan, and implement a successful TOD district. U.S.

TOD financing stakeholders can be categorized into three groups: governments, developers, and lenders (Figure 3).⁴⁶ This section reviews who the key U.S. TOD financing stakeholders are and what they value (Figure 7), followed by a focused discussion regarding the lenders' role and why they are pivotal partners for financing TOD projects.

The first group, governments, typically must champion and fund TOD related developments by creating specific area plans, then subsidizing projects to bring these plans to fruition.⁴⁷ Government investment programs include funding for infrastructure projects, tax increment financing (bonds), tax credits, development loans, and planning grants.⁴⁸ By helping to reduce uncertainties related to TOD, government agencies hope to catalyze private developments in TOD-planned areas. Therefore, governments support TOD development for a variety of reasons, such as to raise property values to accomplish community and policy objectives related to economic and environmental issues.

Aside from transportation agencies, most state and regional governments focus their energies on planning and limit involvement with TOD projects. Alternatively, transit and local agencies are often intimately involved with TOD infrastructure developments and individual TOD projects. For example, metropolitan transportation agencies such as the MTC

⁴⁶ Envision Central Texas Community Design Committee, "Mixed-Use Matters: Our Cities, Our Region, Our Future," (2009): 3.

⁴⁷ TCRP Report 52, 3.

⁴⁸ Metropolitan Transportation Commission, "Transportation Improvement Program (TIP)," www.mtc.ca.gov/funding/tip/ (accessed May 1, 2010).

in Oakland, California, and METRO in Portland, Oregon, have established TOD programs to help fund key infrastructure projects required to enable approved TOD plans. Project examples include pedestrian bridges, sidewalks, and traffic-calmed intersections.

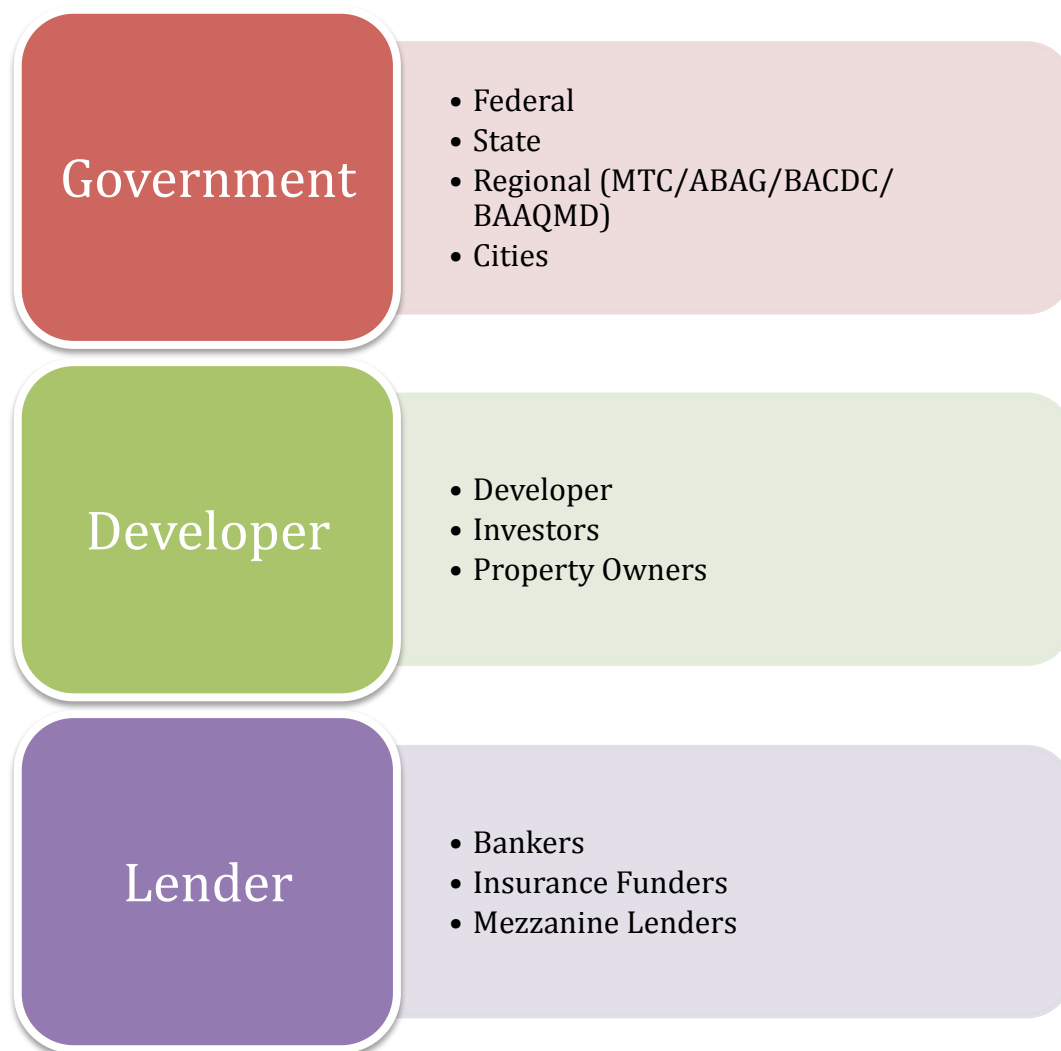


Figure 3 - TOD Financing Stakeholders

Source: Figure created by author (2010).

The second group, developers, moves forward with infill opportunities when projects are both feasible and can be profitable. When a developer determines that a project has potential for profitability, they assume the lead and manage TOD projects through completion. The developer becomes the TOD project owner and coordinates with various stakeholders to navigate a project through complexities and barriers to completion. As such, developers must be intimately familiar with regulations and capital requirements. However, as previously discussed, developers prefer to limit their exposure to projects they have assumed ownership for, and thus avoid taking responsibility for planned-area projects beyond their control.

The final group, debt capital lenders, is generally the most conservative and reserved when evaluating whether to fund a TOD. Lenders are not directly involved with the planning,

management, construction, or maintenance of TOD projects. In fact, bankers are risk averse and not in the business of real estate, nor speculation, instead preferring to limit participation to lending to shovel-ready projects. That said, lenders approach funding TOD projects conservatively and often include mechanisms for recourse to protect their investment and ensure repayment.

TOD Financing Structures: How TOD Projects Are Funded

The following section provides a brief discussion regarding typical TOD financing options.

Capital, General

Real estate transactions require a certain amount of capital to make a project viable. This is known as the “capital stack,” which is composed of equity capital and debt capital. When available debt and equity capital funds are not sufficient to cover costs, project funding gaps exist and alternative financing mechanisms are required (Figure 4). Gaps exist because TOD projects are often mixed-use and therefore do not conform to any of the nineteen standard real estate product types. Thus, conventional financing is not always available.

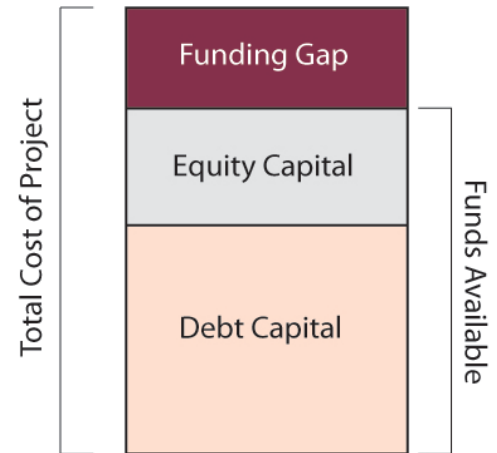


Figure 4 - Capital Stack and Project Funding Gap

Capital can include multiple funding sources for each category. For example, equity capital is typically generated from non-lender sources, such as cash, land, tax credits, investor capital, etc. Debt capital funding is generated through loans such as construction, mezzanine, or permanent loans.⁴⁹ Figure 5 illustrates a potential equity structure.

Private Capital

Figure 5 illustrates a common practice in lending; in order to fund a complicated real estate development, multiple funding sources are required and bankers often require developers to contribute a 20% or greater equity stake in the project known as “having skin in the game.”⁵⁰ The columns to the left describe the types of stakeholders that might be involved. The columns to the right describe an example of equity and debt capital splits for a possible project. In the layered column, green stacks represent equity funders, including the developer and investors. In the same column, the dark orange stack represents the primary lenders, which may include construction and permanent financing loans. Construction lenders may or may not offer financing for a permanent loan, in which case alternative funding sources are required. The light orange stack also represents a type of debt capital. This funder, known as a mezzanine lender, often closes the gap in capital requirements. Mezzanine lenders can participate as equity or debt capital contributors. However, in difficult markets, mezzanine funders are scarce. This example demonstrates a TOD project funding structure comprising of five financiers, three of which are equity funders and two of which are debt funders. Furthermore, the figure demonstrates a commonly applied debt financing criteria of 20% equity contribution. It is important to note that the amount of

⁴⁹ Bruce Kirsch, *Principal, Real Estate Financial Modeling*, “Demystifying the Excel Pro-Forma,” ULI Professional Development Webinar (January 11, 2010).

⁵⁰ *Ibid.*

equity contribution is negotiable and may vary from lender to lender. However, having skin in the game instills lender confidence and helps debt capital financiers mitigate concerns of default risk; when developers have equity in a project, they are less likely to walk away.

Debt + Equity = Total Sources of Funds (TDC)			% of Equity	% of TDC	Equity % of TDC	Debt % of TDC
SAMPLE CAPITAL STRUCTURE	EQUITY	Developer Sponsor Equity	2%	0.4%	20%	
		Developer Partner Equity	8%	1.6%		
		Third Partner Investor Equity	90%	18%		
	DEBT	Mezzanine Loan		15%	80%	
		Senior Loan		65%		

Figure 5 - General Principle of Capital Structure (80% Debt: 20% Equity)

Source: Figure developed by report author using data acquired from Bruce Kirsch, ULI Real Estate Financial Modeling seminar.

Creative financing solutions occur in both equity and debt capital instruments. However, in an economically depressed market, such as 2007-2010, banking institutions revert to conservative underwriting standards to ensure loan repayment, thus requiring greater equity contributions to fund development, so developers often rely on government programs to address funding gaps.⁵¹

⁵¹ Bayster, 12.

Public Capital

Appreciating the need to increase TOD financing options, governments and developers have initiated efforts to address funding challenges. For example, more and more TOD projects are structured as *public-private partnerships* (PPP), *joint developments* (JD), or *joint ventures* (JV). The PPP is a partnership between agencies and private developers to enable redevelopment, whereby each party leverages its own expertise.⁵² The JD is a business relationship between an agency that retains ownership of the land and a third party who builds the project in exchange for site access and equity ownership in the project.⁵³ The JV is a partnership whereby participants share risk, responsibilities, and resources in exchange for joint control and an equal share of the project's profits or losses.⁵⁴

Although an increasing number of TOD projects are structured to share resources and responsibilities among stakeholders, due to the number of complexities and risks associated with TOD plans and projects, government agencies typically must assume initial investments to catalyze development. For example, in a review of successfully financed TOD projects, the authors found that, "the majority of first-generation TOD projects have needed a boost of public investment."⁵⁵ Thus, if governments aspire to implement TOD plans, they must sponsor projects within their plans to mitigate risks and generate interest.

Public Financing Tools

Sustainable TOD development is an essential building block for the Bay Area's response to State climate change, land use, and transportation bills. Recognizing the fact that governments must champion their plans, agencies have created programs to lower the barriers to entry for TOD projects and improve the likelihood that development will occur. Hence, various government agencies, individually and in cooperation, have implemented several tools and incentive programs to promote TOD development. For example, in 2007, the Association of Bay Area Governments (ABAG), Metropolitan Transportation Commission (MTC), Bay Area Air Quality Management District (BAAQMD), and Bay Conservation and Development Commission (BCDC) created a regional development and conservation strategy to promote a more sustainable pattern of smart growth and compact development

TOD Financing Tools:

Public Subsidy Options

Federal Sources:

- Low Income Housing Tax Credits
- Home Funds
- Community Development Block Grant Funds
- New Markets Tax Credits
- American Recovery and Reinvestment Act Funds
- HUD Office of Community Sustainability

State Sources:

- Prop 1C Funds

Regional Sources:

- MTC's TLC Program
- ABAG's PDA and FOCUS Funds

Local Sources:

- Tax Increments
- Other General Fund Revenues

Figure 6 - Government Grant and Funding Programs

Source: Belzer, 2009 TOD MarketPlace.

⁵² American Planning Association, "Policy Guide on Public Redevelopment," Adopted by Legislative and Policy Committee (2003): 3.

⁵³ TCRP Report 52, 2.

⁵⁴ Center for International Finance and Development. "What are Joint Ventures?," The University of Iowa (2007) www.uiowa.edu/ifdebook/faq/faq_docs/Venture.shtml (accessed May 18, 2010).

⁵⁵ Dittmar and Ohland, 89.

in the Bay Area.⁵⁶ This strategy, known as the FOCUS initiative, encourages incentive-based cooperation among various stakeholders to achieve community, mobility, and environmental goals within identified Priority Development Areas (PDA) poised for TOD. These TOD sites are identified and nominated by local agencies and are pivotal development opportunities for addressing regional TOD initiatives.⁵⁷ PDA site projects are eligible for FOCUS grant funds. Through its efforts, the FOCUS program has helped reduce barriers to planning, designing, funding, and building TOD projects in the Bay Area.

Another example of government championing TOD development includes the Portland METRO TOD program, which funds infrastructure and TOD projects in order to demonstrate demand for TOD products in TOD plan areas. In turn, this catalyzes development.⁵⁸ However, FOCUS and METRO funds are only two examples of available resources governments have created to help accomplish transit-supportive initiatives. Several other incentive programs and tools are available to TOD developers (Figure 6). However, even with these programs, funding gaps still persist, and alternatives are needed to address TOD financing challenges.⁵⁹

Value Capture: Leveraging Future Dollars to Build Today

Another mechanism government agencies have explored to fund and catalyze TOD plans and projects is *value capture*, a method that pays for TOD-related infrastructure projects by recapturing future premiums generated on property values from improvements through tax collections.⁶⁰ To fund TOD plans through value capture, agencies generally implement one or a combination of four strategies. Value capture strategies include: special assessment, tax increment financing, joint development, and developer impact fees.⁶¹ The first strategy, *special assessments*, is taxes collected from parcels identified as receiving a direct benefit from a public project in an assessment district. The second strategy, *tax increment financing*, is a mechanism agencies can use to capture the difference in future property and sales tax growth as a result of agency-sponsored development. The third strategy, *joint development*, is a cooperative development between public and private organizations, generally on government-owned land. The fourth strategy, *developer impact fees*, is assessed on new developments in an effort to address the costs of public service expansion to identified jurisdictions. Since value capture relies on future premiums generated and recaptured through taxation, it is a financing method that is limited to government agencies and public projects. Thus, TOD projects funded through value capture indirectly affect funds for private TOD developments by establishing a precedent for TOD in an area, which in turn reduces uncertainty associated with TOD development in the area.

TOD projects are complex, have long life cycles, and often require several funding sources. Therefore, capital structures are diverse and often unique to individual projects. Although

⁵⁶ Bay Area Association of Governments (ABAG), Bay Area Air Quality Management District (BAAQMD) Metropolitan Transportation Commission (MTC), and San Francisco Bay Conservation and Development Commission (BCDC), FOCUS: Bay Area Focused Growth, www.bayareavision.org (accessed January 20, 2010).

⁵⁷ Ibid.

⁵⁸ Portland Metro, "Metro's Role – Breaking Down Market Barriers, Fostering Public Private Partnerships," *Transit-Oriented Development Program*, 1.

⁵⁹ Belzer, "TOD Financing: Public Private Partnership," Presentation for the 2009 ULI TOD MarketPlace.

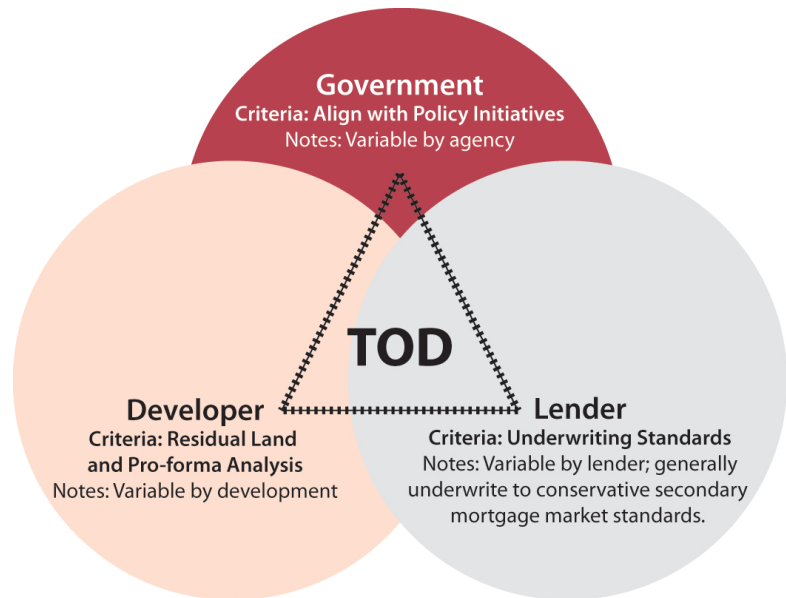
⁶⁰ Nadine Fogarty, Nancy Eaton, Dena Belzer, and Gloria Ohland, "Capturing the Value of Transit," Center for Transit-Oriented Development (November 2008) www.reconnectingamerica.org (accessed December 24, 2009).

⁶¹ Ibid, 21.

governments are making efforts to address funding gaps to activate development in planned areas, banks remain cautious.

Where Lenders Fit Into the Problem

No standard method for evaluating TOD projects exists for debt capital financiers. Lenders are free to define how they evaluate opportunities and determine risk and reward thresholds. Thus a large degree of subjectivity applies with regard to how lenders evaluate TOD opportunities. This is partly due to the dichotomy of definitions and the fact that mixed-use TOD projects do not conform to conventional product types that lenders are comfortable with. TOD developments are difficult to finance. Hence, a lack of available debt becomes a major impediment to the development of TOD projects, consequently tilting the funding landscape in favor of single-use conventional land use patterns.⁶²



Three components required to fund TOD; however, no common means of evaluating TOD opportunities exists between or among stakeholders. Furthermore, variability exists within each stakeholder category.

Figure 7 - TOD Financing Stakeholder Evaluation Triad
Source: Figure created by author.

Since financiers are at liberty to analyze opportunities as they deem appropriate, incongruent valuations exist.⁶³ Assorted definitions yield varying judgment criteria for each stakeholder's analysis, which result in differing perceived values for TOD projects. Whereas the banking industry focuses its efforts specializing in underwriting techniques to predictably evaluate return on investments for a single product type, governments typically examine TOD projects based on attainment of policy objectives, and developers generally evaluate TOD ventures based on feasibility that a project will be profitable (Figure 7).

Although strategies and analysis tools may vary by funding stakeholder, overlap exists. For example, developers analyze real estate opportunities by conducting a residual land analysis to determine the amount that can be paid and still turn a profit. Land values calculated are then used to conduct pro-forma analysis that is used to estimate income. Both developers and bankers rely on pro-forma analysis as one method for evaluating TOD opportunities. Conversely, governments often measure the value of public projects based on attainment of policy objectives and ability to fund projects. Evaluation strategies and techniques are discussed in greater detail in Chapter 3 of this report. Therefore, intrinsic to the fact that

⁶² Leinberger, "The Need for Alternatives to the Nineteen Standard Real Estate Product Types," 25.

⁶³ John C. Hwang, "How to Underwrite Mixed-Use: Examining a Downtown Case Study." *Commercial Mortgage Insight* (April 2001): 4.

financiers approach opportunities independently, diverging perceptions of value often result between stakeholder groups as well as among bank evaluation methods.

This research explores common strategies and practices implemented by the conservative banking industry when evaluating TOD project opportunities. The goal of this research is to identify trends and establish recommendations for future TOD project evaluation alternatives.

Report Structure

The remainder of this report is organized into four chapters that describe the study's research and findings. Per the methodology, the first step in establishing a baseline is to understand what financiers consider essential information when determining whether or not to finance a project. Therefore, Chapter 2 of this report discusses existing research and interview findings to examine what stakeholders value about TOD projects and why.

Chapter 3 uses relevant lender consideration factors identified in Chapter 2 to establish a baseline and examine three similar Bay Area case study areas using GIS.

Chapter 4 discusses the results of the GIS comparative analysis, summarizes the examination technique, discusses study limitations, and recommends strategies for addressing how the process could become standard.

The final chapter concludes the study by synthesizing findings and offering insights into potential future research opportunities for moving forward, followed by a summary of conclusions and recommendations.

In addition, reference and supporting information is appended to the report in separate bibliography and appendix sections attached.

2. Background: TOD Financing – A Lender’s Perspective

Through a combination of literature review and interviews, this chapter explores what financing stakeholders value about TOD, followed by an evaluation of current lending practices to illustrate challenges associated with the financing of TODs. The chapter focuses on how lenders evaluate opportunities, beginning with a discussion regarding bankers’ perceptions of TOD, followed by an exploration of critical evaluation factors and tools lenders implement when deciding whether or not to fund TOD opportunities. The chapter concludes with a summary of best practices and common considerations employed by the banking industry.

Existing Research on TOD Financing and Lending Practices

In order to begin to analyze financing complexities related to TOD projects, one must understand how financing is structured among the various stakeholders, as well as how they perceive and value TOD opportunities. As previously discussed, three primary TOD development financiers exist: the developer who typically contributes equity; governments who can contribute capital, equity, and in rare cases debt; and lenders who typically contribute debt financing in the form of construction or permanent loans.

Developers recognize planning principles associated with TOD projects. However, they construct projects based on feasibility, profitability, and market demand, not planning theory. Though developers shoulder some level of risk with regard to speculation development, often developers build to address market demand. If the real estate market demanded and would pay for projects that exhibited TOD urban principles, developers would strive to meet the demand. Research conducted by Cervero found that “while many developers embrace TOD as a concept, when it comes to securing conventional debt financing, there was a general agreement that TOD offers little help.”⁶⁴ Therefore, a challenge with TOD is identifying where demand exists. Although walkable urban development, such as TOD, is a proven model in existing urban locations (for a variety of reasons, such as existing infrastructure, density, services, and amenities), it is not proven in transitioning suburban areas that often lack a critical mass to support stand-alone projects.⁶⁵ Thus developers, though potentially interested in walkable urban projects, are risk averse when it comes to developing “pioneering projects,” often because there is little or no debt capital available.

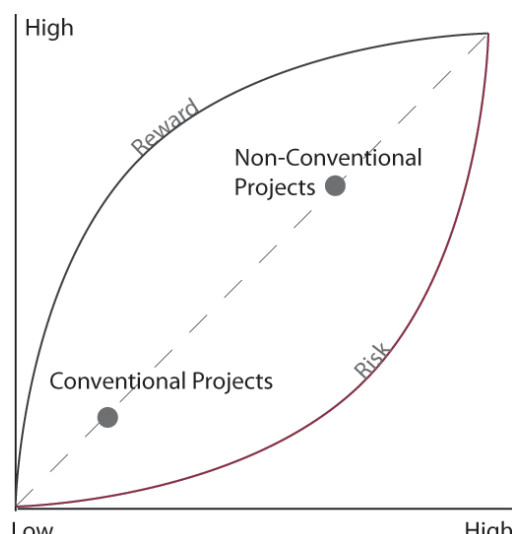


Figure 8 - Investment Risk Reward Model
Source: Figure created by author.

Alternatively, governments approach the topic of TODs from a different perspective. First, governments often view TODs as a community benefit that accomplishes a variety of objectives. For example, Christopher B. Leinberger of the Brookings Institute argues that a

⁶⁴ Cervero, “Transit Oriented Development in America: Contemporary Practices, Impacts, and Policy Directions,” 8.

⁶⁵ Joe Cortright, “Walking the Walk: How Walkability Raises Home Values in U.S. Cities,” *CEOs for Cities* (August 2009): 2.

pent-up demand for urban areas exists and contends that walkable urban development will be a key driver for [U.S.] economic recovery as well as attaining carbon emission targets.⁶⁶ Another example of governments' perception toward TOD can be seen by the FTA, that describes TOD as a possible solution to densification – “with its convenient mix of housing, employment, services, entertainment, and transit – TOD is an essential tool for carrying out smart growth policy objectives.”⁶⁷ Thus, governments endorse TODs because they aim to achieve a number of goals related to efficient use of land, transit-supportive development, and densification that aligns with local objectives. Appendix A highlights 2008 California legislation that collectively supports the creation of TOD. Additionally, governments typically refer to TOD as a planned area composed of individual projects. Thus, governments tend to perceive TOD as an aggregation of projects that adhere to urban design principles that align with community objectives. Though projects and plans must generally identify funding mechanisms, profitability is not a consideration or a requirement when government agencies determine whether or not to support TOD projects.

In contrast to governments, prevailing banking practices do not account for TOD as a stand-alone product type, or a planned area. In fact, lenders evaluate opportunities on a case-by-case basis, breaking apart mixed-use projects into their component parts for consideration. Opportunities are evaluated referring to historical and current market conditions, not future planned conditions, as lenders prefer not to lend on speculation projects, referred to as *pioneering projects*.

Pioneering projects are speculative due to the fact that few or no comparable projects exist locally; thus little or no proof exists to substantiate the projects being proposed. Lenders are cautious with regard to new development models such as TOD because without comparables to validate a market demand for new development concepts, new product types are simply too risky.⁶⁸ In fact, lenders interviewed believe that the concept of TOD, by itself, is not enough to warrant demand.⁶⁹ Moreover, lenders argue that residents do not aspire to live in TODs, but rather communities that offer desirable amenities, lifestyle choices, and services. Although TOD can accomplish market demands, in general, lenders mention that buyers do not search for properties based on urban planning definitions.⁷⁰ Instead, buyers look for opportunities that offer convenience. As the market does not evaluate opportunities based on urban planning definitions, neither do lenders. Cervero echoes lender statements and finds that “loan decisions are governed by fundamentals, not urban planning concepts.”⁷¹ Thus, although bankers have become more aware of TOD projects, the lending process remains highly institutionalized and compartmentalized, favoring well documented, well understood product types, of which TOD currently is not.⁷²

⁶⁶ Christopher B. Leinberger, “The Brookings Institution: The structural Shift in Building the Built Environment,” presented at 2009 TOD MarketPlace, San Jose, CA, September 24, 2009, www.todmarketplace.org.

⁶⁷ TCRP Report 52, 2.

⁶⁸ Bill Van Viet, Network for Oregon Affordable Housing (HOAH), interview by author, September 3, 2010.

⁶⁹ Bonnie Anderson, Shorebank Pacific, interview by author, August 17, 2010.

⁷⁰ Margaret Schrand, Wells Fargo Bank, interview by author, August 21, 2010.

⁷¹ Cervero, “Transit Oriented Development in America: Contemporary Practices, Impacts, and Policy Directions,” 8.

⁷² Venner and Ecola, 23.

Funding Layers

When a single debt capital lender will not finance a project, additional funding sources must be secured. As in any lending agreement, an inverse risk-reward scale exists; the higher the risk, the greater the expected reward, ergo pioneering/speculation projects warrant higher rewards should lenders be interested in burdening the potential risk of funding the project (Figure 8). Since bankers do not recognize mixed-use TOD, and typically consider TOD opportunities pioneering projects, developers often must pay a premium to fund components of TOD projects. Breaking up projects to establish multiple funding agreements makes it difficult for developers to secure financing sources for projects. These gaps can be addressed by additional equity, government funds, and/or secondary debt capital sources for product types not financed. The greater the number of financiers, the greater the number of variables, and thus the greater the complexity a project is for the developer. Multi-layer financing is common for complicated projects. However, due to the increased number of variables, it is intrinsically complicated in itself to manage and to ensure feasibility.

In healthy lending markets, when capital is insufficient to pay project costs, mezzanine loans can be used to bridge funding gaps (Figure 5). However, in down markets, mezzanine funding is scarce and government programs are often required to address financing gaps. In poor economic markets, loans are challenging to secure because absorption rates are not predictable and debt capital lenders who rely on expected returns are risk averse. Thus, financing projects such as TOD in down markets is a challenge; they are classified as *pioneering projects* when outside of urban cores, and market factors make it difficult to reliably predict demand, resulting in funding gaps.

Absorption is the rate at which product inventory is absorbed by the market.

Funding gaps exist when equity and debt cannot cover costs. As discussed previously, equity is generated from a combination of investment options, including capital contributed by a developer, referred to as having “skin in the game.”⁷³ The details of equity contributions are beyond the scope of this paper.

The Role of Debt in Funding TODs

This paper reviews two types of debt capital that lenders employ: construction and permanent lending instruments. The first type of debt capital this paper addresses is *construction lending*. Construction loans are temporary financing arrangements, negotiated to finance the construction of a project.⁷⁴ Lenders perceive construction loans as riskier than permanent loans because the asset is in flux and not income ready. Therefore, a lender might finance the construction of a project at a higher rate than a permanent financing, and require a shorter payback term generally due upon the completion of construction. Construction lenders can negotiate first right of refusal on the permanent loan and therefore may not act as both the construction and permanent lender. Regardless of whether the construction lender opts to provide permanent financing or not, construction loans are generally paid out and refinanced to a permanent loan after the agreed upon terms are reached.

⁷³ Marguerite Moyet, KeyBank Real Estate Capital, interview by author, July 30, 2010.

⁷⁴ Carlson, 7.

The second type of debt capital this paper addresses is *permanent lending*. Permanent financing is secured near the completion of the agreed upon construction loan. Permanent loans are called so because they lend on a constructed project for a long period of time.⁷⁵ At the stage where permanent loans come into play, the project has developed a tangible good that is soon to be or is immediately available for the market; as such, permanent loans are inherently less risky than construction loans and therefore offered at a lower interest rate than construction loans.

In brief, structuring both construction and permanent loans financing for TOD projects in transitioning areas, is complicated due to the number of variables and parties involved, as well as lack of comparables available. Therefore, lenders view TOD projects as new models (pioneering projects) plagued with uncertainty. To mitigate risks, lenders avoid pioneering projects that are not “shovel ready” and well understood. In the following sections, this paper moves beyond lending strategy and explores critical analysis factors debt capital lenders consider when determining whether or not to fund TOD projects.

Subjectivity in Lending

Although proximity to transit has been shown to positively influence property values, studies allude to the fact that no standard for evaluating TOD exists.⁷⁶ For example, in a Department of Transportation TCRP 102 Report to Congress, the study finds that no standard method of TOD valuation exists or is shared by the various banking institutions, including review of risk factors.⁷⁷ This is particularly true for the lending industry that does not recognize mixed-use TOD as a product type.⁷⁸ Without a benchmark or regulation to guide evaluation practices, lenders are free to individually determine how to assess TOD. There are pros and cons to this approach. For example, it is a benefit that debt capital funders have the discretion to decide what level of risk and reward they should accept. On the other hand, without a benchmark or control, current evaluation models vary and fail to advance walkable urban development outside of urban cores. Therefore, as the table below indicates, underwriting guidelines vary among banks and yield variable debt capital options for TOD projects. Table 4 summarizes the main themes found through the interview process, including consistent approaches, concerns, and messages between TOD financiers.

⁷⁵ Ibid.

⁷⁶ Roderick B. Diaz, “Impacts of Rail Transit on Property Values,” Booz Allen & Hamilton Inc. (May 1999).

⁷⁷ TCRP Report 102, 102.

⁷⁸ Venner and Ecola, 17.

Table 4 - Common TOD Themes and Perspectives Among Interview Groups

TOD Financing Stakeholder			
Topic	Policy Maker	Lender	Finding
Definition of TOD	TOD is a neighborhood or planned area with a mix of uses and developments within a ½-mile walking distance to high frequency, high quality rail or bus rapid transit.	TOD is an individual real estate project near identified transit center. Projects may be single-use or mixed-use.	Policy makers consider TOD a planned area that comprise TOD projects and adhere to urban planning principles. Lenders consider TOD as individual projects near transit.
Role in Funding TOD	Agencies fund infrastructure-related projects and may fund individual pioneer projects. Public investment strategies are to catalyze private investment.	Lenders fund construction and permanent loans, including TOD. In healthy markets secondary lenders may subordinate position for higher risk loans.	Agencies fund TOD related projects to catalyze interest in a planned area in hopes of establishing a market and proving market demand. Agencies also provide funds to bridge funding gaps between project costs and available capital. Lenders provide debt capital for proven markets.
TOD Financing Structure	Agencies are often called upon to address funding shortfalls. Lending or granting money subordinate to debt capital.	Lenders require primary position to preserve payback. Lenders require an equity contribution from the developer and prefer agency involvement in complicated projects, such as TOD.	Agencies fill the funding gaps to achieve policy objectives. Lenders are conservative and require primary position to better ensure payback.
Value of Debt Capital	Agencies consider lenders an integral player for the successful implementation of TOD.	Debt capital is typically required to make projects viable.	Agencies and lenders acknowledge that debt capital is essential to successfully achieve TOD plans.
TOD Analysis Approach	Agencies perceive and approach TOD opportunities independently, generally to achieve policy objectives.	Lenders approach TOD the same as any other real estate opportunity. Real estate transactions are unique, therefore require individual evaluation. Analysis models may be similar, but a great degree of subjectivity in lending exists.	Real estate is unique. Although some methods of analysis are applicable to multiple transactions, no common method of analysis exists between or among funding stakeholder groups.
How TODs Are Perceived	Agencies view TOD-planned areas positively and one possible solution for addressing global warming, transportation, and land use objectives.	Lenders believe that commuter habits revolve around the automobile and therefore do not recognize TOD outside of core urban areas. However, lenders do consider transit an amenity that complements real estate yet lacks enough benefit for citizens to abandon cars and demand for parking.	Agencies and lenders are at odds with regard to the value proposition of TOD.
TOD Funding Agreements	Agencies offer funding for TOD projects based on a defined scope. Although various components to a project may be eligible for additional funding, once an agreement is established it is generally fixed. New funding agreements are required to address projects outside of the originally agreed upon scope.	Lenders fund projects based on well-defined, well-understood product types. Terms and conditions are negotiated first and remain fixed through the life of the agreement. Adjustments only occur when problems arise.	Both agencies and lenders shield investments from exposure of undefined circumstances by clearly defining project scopes and establishing predictable results based on terms and conditions.

Topic	Policy Maker	Lender	Finding
Lender Evaluation Models and Best Practices	Policy makers interviewed are unfamiliar with lender profitability models.	Lenders interviewed conduct due diligence to assess loan-to-cost (LTC), loan-to-value (LTV), and debt service coverage (DCR) calculations. Additionally, lenders investigate borrower information to determine probability of default risk associated with a developer and/or project.	Lenders apply systematic qualitative and quantitative analysis to determine opportunity risk factors. Common quantitative analysis applied by lenders interviewed includes: LTV, LTC, DCR (Refer to the lender ration calculations section of this paper on page 32 for definitions).
Essential Factors for Lender Evaluation	Policy makers interviewed are unfamiliar with essential factors lenders require for project evaluation.	Lenders interviewed require similar information, including: developer experience, developer cash reserves, developer history, developer credit history, project plan/design, pro-forma analysis, appraisal, market conditions report, and developer contribution.	Though some of the information is proprietary, market information is readily available to policy makers for tracking project performance within planned areas over time. For example, inventory turn-over, building permits, and vacancy rates. Therefore it is possible for policy makers to measure the success of approved plans as a means of proving that TOD plans yield increases in property values.
TOD Project Risk Factors Lenders Consider	Policy makers interviewed are unfamiliar with what risk factors lenders consider when determining to support a TOD project.	First and foremost, lenders determine likelihood of payback. To mitigate risks, lenders do not lend on speculation projects that are not shovel-ready. Furthermore, risks are mitigated by proper up front analysis as well as negotiating payback and recourse terms.	Lenders have a fiduciary duty to their investors to protect and grown investments. The best way for lenders to ensure payback to invest in low risk ventures that meet reward objectives. Thus, lenders are conservative to abate risks. TOD or mixed-use urban projects in non-urban areas are risky because they are neither well understood, nor proven in non-urban markets. To prove that a market exists comparables must exist. However, lenders have no desire to pioneer unproven areas often relying on government to seed the area and catalyze development.
How Lenders View the Role of a Specific Plan with Regard to Financing	Policy makers interviewed are not aware whether or not lenders evaluate specific plans, however, were hopeful that lenders take specific plans into consideration.	Some lenders consider specific plans a priority, while others did not, often depending on the lender's familiarity with the planning process. However, almost all considered specific plans a benefit for instilling confidence; specific plans ensure entitlements and demonstrate government support. Lenders review high-level plans, but heavily rely on developers being familiar with site opportunities, constraints, and plans.	Ambiguity exists regarding the effectiveness of specific plans and what role they play in the lending process. Lenders exposed to pioneering project opportunities tend to be familiar with and care more about project opportunities lying within approved specific plan areas. However, underwriting standards review specific plans to confirm entitlements, permits, and approvals.

Topic	Policy Maker	Lender	Finding
TOD Plan-to-Plan Comparison	Policy makers interviewed are familiar that lenders appraise the market based on comparables, but do not believe that lenders compare TOD specific plans to one another. In markets that lack comparable TOD projects, agencies often champion projects in hopes of catalyzing development by creating comparables.	Projects, not plans, are compared and proximity to opportunity sites is key. Lenders prefer to evaluate proximal comparables; proximity to a project is an indicator of market conditions. However, appraisers may look at similar projects in other areas if proximal comparables are not available. For example, lenders may review other specific plan examples to become familiar with concepts that have worked.	Without data demonstrating that a correlation between the impacts TOD plans have on market rates over time, lenders will continue to rely on conventional appraisal methods that review snapshots of information rather than plan progression and plan impacts over time.

Source: Interviews by author. Table created by author.

Major interview findings conclude that: subjectivity exists among lenders, comparables are essential for validating market demand, and debt capital financiers are risk averse and slow to change. Therefore, it can be argued that due to the complexity and ambiguity of TOD projects among bankers, debt financing continues to challenge developers.

The Role of Underwriting in Financing TODs

Lender underwriting benchmarks are conservative thresholds independently established to mitigate the risks associated with loan paybacks, afford syndication,⁷⁹ and avoid secondary mortgage buybacks.⁸⁰ Though debt capital funders establish their own assumptions and thresholds for evaluating lending opportunities, most rely on underwriting standards set forth by large secondary mortgage organizations such as Federal National Mortgage Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac). In essence, banks implement underwriting tools that aim to ensure that safe and secure loans are issued and maintained.⁸¹

Syndication occurs when a loan is provided or resold by a group of lenders, but supervised by one or few banks (syndicator). Banks that administer syndicated loans are known as arrangers because they arrange, negotiate, implement, and manage the loan. The advantage of syndicated loans is an increased access to debt capital, but a single source servicer.

By combining bank policies and strategies with underwriting analysis, underwriters are able to establish the terms and conditions its debt capital funders are willing to lend upon, as well as the amount. Through a series of lender interviews, it was discovered that two key considerations are accounted for when determining underwriting standards. First, lenders establish underwriting standards to mitigate default risks, ensure syndication, and safeguard the ability to package loans for the secondary mortgage market. Second, to ensure syndication, lenders set underwriting standards to the most conservative option. Thus, underwriting standards are conservative and are established to mitigate loan default risk and improve loan payback.

One strategy for ensuring loan payback is to package loans as *collateralized mortgage obligations* (CMO) and resell them to investors on the secondary mortgage market.⁸²

⁷⁹ Dictionary of Real Estate Terms, 6th ed. s.v. "Syndication," 440.

⁸⁰ Bart Hutchins, U.S. Bank, interview by author, July 12, 2010.

⁸¹ Freddie Mac, "Supplemental Mortgage Standard Delivery, Full Underwriting Checklist: Exhibit 1 – Section 1.2," (May 2010).

⁸² Dictionary of Real Estate Terms, 6th ed. s.v. "Collateralized Mortgage Obligation (CMO)," 85.

However, according to lenders interviewed, current market conditions have contracted the secondary mortgage market to a few core mortgage purchasers, such as Fannie Mae, Freddie Mac, Federal Housing Administration (FHA), and the Department of Housing and Urban Development (HUD). In strong markets, CMO investors include: banks, hedge funds, insurance companies, pension funds, mutual funds, government agencies, and central banks. Thus, for bankers to mitigate risks and improve the likelihood of loan paybacks, they underwrite to conservative Freddie Mac standards.⁸³ Loans that conform to these standards are referred to as “conforming loans.” Although some latitude exists within each bank for proven and reputable developers with significant equity in tough markets, debt capital funders revert to low risk proven lending practices.

The secondary mortgage market model favors residential property and does not like to credit debt capital funders for income property. Furthermore, the secondary mortgage market prefers not to take loans with more than ten percent commercial in a mixed-use project. Therefore, debt capital funders are challenged to parse and package components to reduce risk and improve viability of payback. Non-performing real estate-owned properties are liabilities to banks that are not in the business of real estate, but rather lending. Banks avoid having to absorb potentially non-performing or risky loans as part of their real estate portfolio. Therefore, when banks evaluate project components that are likely difficult to resell based on conservative underwriting standards, developers must explore alternative financing methods.

Though banks and lending institutions often carry performing real estate assets on their books, banks are not in the business of real estate. Banks lend money based on the assumption they will be paid back, and therefore attempt to avoid the costly and resource intensive process of having to take control of non-performing property. According to lenders interviewed, when debt capital funders must exercise their first deed of trust note to ensure payback, it is often at a loss and most often does not match performance expectations.

Recaptured underperforming assets can be difficult to resell, further straining payback expectations and investor relations. Thus, to abate loan default risk and foreclosure, lenders apply conservative underwriting standards and proven due diligence methods to mitigate risks.

Lenders mention that underwriting standards attempt to address the following questions:

1. Who – who is asking for the money and who is involved?
2. What – what are the financials of the project? Are they realistic? Is the project feasible? Does the project meet or exceed objectives?
3. What – what are the financials of the borrower? If the market does not support the project, can the developer fund the loan payback?
4. Where – where is the project? Is it a pioneering project or an infill project?
5. When – if the numbers work out, when can the loan be paid back?

⁸³ Freddie Mac, “Loan Prospector Documentation Matrix,” (August 2010).

To answer these questions lenders analyze the following data and conventional underwriting practices:

1. Review of product type
2. Location/neighborhood analysis
3. Review of borrower contribution, or “skin in the game”
4. Borrower credit analysis
5. Borrower net worth analysis (asset documentation)
6. Borrower liabilities, judgments, and liens
7. Borrower reputation analysis (past project track record and personal information)
8. Project feasibility (based on pro-forma analysis best, base, and worst case)
9. Site Due Diligence (i.e., does the site have a clear title, any covenants, conditions, and/or restrictions (CC&R), or other encumbrances?)
10. Appraisal/comparative market analysis

Underwriting tools rely on historical data to extrapolate trends and validate market demand. Inherent to analysis of historical data is the absence of speculation and future planning, a clear disparity between how planners and bankers perceive TOD projects. Of the lender evaluation models discussed, the most suitable for GIS is the comparable appraisal model. Thus, for the purposes of GIS analysis, this research focuses on comparable analysis of similar TOD-planned areas by accounting for critical lender evaluation criteria to compare like TOD projects.

Critical TOD Evaluation Factors: Best Practices for Measurable Data

Debt capital funders finance projects they believe are profitable enough to repay loans. To safeguard loan payback, lender TOD evaluation considerations include a combination of qualitative and quantitative analysis to determine risk control, developer credit analysis, project considerations, and enforcement of standards. Lenders interviewed reinforced the fact that they rely on conventional construction and permanent lending evaluation techniques when determining whether or not to support TOD projects.

Measurable lender evaluation considerations include:

1. Comparable market analysis (sales price or price per square foot by use type)
2. Estimated income stream (Pro-forma based on comparables and pre-leases)
3. Sale income
4. Square footage
5. Market absorption rates
6. Pre-leases (for income property, save apartments)
7. Clear title
8. Change in market rates (year to year)
9. Competition total number of square feet by use type within a TOD area

Lenders collect this data to conduct analysis and determine the terms and amounts of debt financing they are willing to loan. Ratio analysis includes:

1. Loan-to-Value (LTV) = loan amount / appraised value⁸⁴
2. Loan-to-Cost (LTC) = loan amount / estimated cost⁸⁵
3. Debt Service Coverage Ratio (DCR) = net operating income / total debt service⁸⁶

Additional analysis includes:

1. Pro-Forma Analysis
2. Feasibility and Sensitivity Analysis (best, base, and worst case scenarios)
3. Borrower Credit Analysis

Due to the number of differentiating variables involved with TOD projects, analysis techniques are compounded. Therefore, to improve reliability of market demand estimates and predictability of loan payback, debt capital financiers focus on investment opportunities narrow in scope.⁸⁷ Thus, TOD with its mix of uses is more likely to be financed when simplified into its component parts and presented as groups of stand-alone conventional product types. As a result, a TOD project may have more than one lender: one for each product type, as well as one for the construction loan and one for the permanent loan. Once a project is broken-up into a discrete, well-understood product type, lenders refer to conventional underwriting mechanisms to evaluate opportunities.

Debt Service Coverage Ratio (DCR) is the net operating income divided by total debt service. DCRs less than one imply a deficit of property incomes or inability to cover annual debt obligations.

Contrary to lender underwriting models, which are market-based snapshots, planners and policy makers refer to economic, community, and environmental analyses in an attempt to estimate potential future impacts of proposed projects. In attempting to predict potential impacts, planners and policy makers often analyze projects with a degree of speculation. This approach differs from underwriting models that review history in attempt to avoid speculative analysis. Another fundamental difference between how planners and lenders value TODs is the definition of scope. However, similarities exist in analysis techniques that are considered valuable sources of data for both policy makers and debt capital funders. Table 5 lists the variables both planners and lenders consider when evaluating TOD opportunities.

Table 5 - Common TOD Analysis Variables

TOD Planners/Policy Makers	TOD Debt Capital Funders
1. Square foot by use type	1. Square foot of project
2. Mix of uses	2. Comparables
3. Tax increment	3. Sales history
4. Tax base	4. Vacancy rate
5. Access to services	5. Access to amenities

⁸⁴ Freddie Mac, "Single-Family Seller/Service Guide: Mortgage Submission Schedule," Vol 1. Form 11 www.freddiemac.com/sell/forms/pdf/11.pdf (accessed October 10, 2010).

⁸⁵ Federal Reserve Bank of San Francisco, "Single Family Development," a lecture on Community Development www.frbsf.org/community/resources/ncrc08/ncdls/singlefamilydevelopment.pdf (accessed August 15, 2010).

⁸⁶ Dictionary of Real Estate Terms, 6th ed. s.v. "Debt Coverage Ratio," 116.

⁸⁷ Ibid, 96.

Comparable Appraisal Analysis

Lenders rely on property appraisals to align market conditions with profitability evaluations. Appraisers consider several factors when determining the estimated value of a property, none more important than review of comparables.⁸⁸ Appraisers rely on comparables to reflect market demand for property types. Variables appraisers consider when conducting comparable analysis include: property type, lot size, square footage, number of rooms, and number of bathrooms.⁸⁹ Ideally, appraisers prefer to compare identical properties next to each other that sold or are for sale at identical time periods. Proximity and similarity are key for accuracy of comparables. Therefore, accounting for variables essential to comparables will prove pivotal to the success of a TOD Plan-to-Plan evaluation tool.

Comparable Market Analysis (CMA) is a relative valuation method that compares variables shared by similar products in similar markets. CMA assumes that markets are typically efficient and therefore similar products have relatively similar value. Reliable CMA depends on inventory turnover, thus recent transactions of similar product most accurately reflects market demand. In real estate, products should be geographically similar to reflect external influences on the product.

TOD Financing: A Lender's Perspective - Lessons Learned

TOD policy makers and TOD lenders do not perceive or analyze opportunities the same way. Further complicating TOD debt capital financing opportunities is the fact that much subjectivity exists in lending practices. However, this research demonstrates that experienced lenders generally approach TOD opportunities the same way as any other real estate project and that sources of data overlap whether evaluating TOD on a planned area scale or on a project-by-project basis.

In review, common practices employed by TOD lenders include the collection of data to conduct the following evaluations:

1. Loan-to-value limits by property type
2. Loan-to-cost
3. Debt service coverage
4. Feasibility and sensitivity analysis
5. Borrower credit analysis
6. Comparable appraisal analysis

Of these common practices, this paper focuses on *comparable market analysis* (CMA). CMA is a method lenders rely on to measure markets and appraise properties. Although planners do not typically conduct profitability analyses on individual projects, planners and policy makers rely on market information to analyze economic opportunities. Thus, this research considers overlapping data sources used by both government and debt capital analysts in order to extract variables for GIS analysis. Overlapping variables include: product types, price per square foot by type, total square feet of use type by area, as well as proximity to comparables, amenities, and transit.

⁸⁸ Dictionary of Real Estate Terms, 6th ed. s.v. "Comparative Market Analysis (CMA)," 90.

⁸⁹ Freddie Mac, "Form 70: Uniform Residential Appraisal Report," Seller Forms (March 2005).

3. Comparing Similar TOD Plans: Bay Area Case Studies

This chapter discusses how lender evaluation criteria can be used to track and compare similar TOD areas using ArcGIS. First, the chapter examines the importance of comparing like TOD types based on similar variables. Second, the chapter refers to commonly used lender TOD project rating criteria to establish a baseline for evaluating comparable projects in comparable TOD areas. Third, the chapter will demonstrate how simplified data can be used to create a common method of evaluating projects in comparable TOD areas using ArcGIS. Finally, the chapter will conclude by implementing the methods discussed to analyze three similar TOD Bay Area case studies based on 2009 market data: Mountain View; Japantown, San Jose; and Downtown Campbell.

Selecting Similar TOD Types and Comparing Them to One Another

Although TOD evaluation considerations differ depending on who is analyzing the opportunity, this paper considers a debt capital lender perspective to compare three similarly planned TOD areas to one another for appraisal purposes. However, in order to compare TOD-planned areas to one another, first, areas must be similar, and second, areas must have comparable projects that are tracked using consistent variables.

To ensure planned areas are similar, this research applies MTC Resolution 3434 and the New Transit Town TOD topology to define TOD projects as a development within a half-mile of heavy or light rail in a suburban neighborhood (refer to Table 2 in Chapter 1).^{90,91} TOD-planned districts are composed of many TOD projects. Thus to ensure conforming project variables between case study areas, data is normalized and plugged into a consistent baseline.

Lender Considerations: Defining a Baseline

To establish a baseline, this paper reviews the most conservative TOD financier analysis criteria: lender underwriting and appraisal standards. A baseline built from conservative lending practices that are also measurable by other TOD financing stakeholders would prove a common method for measuring and reviewing TOD opportunities by type and planned area type over time. Therefore, the goal of defining a baseline is to create a common method from which to compare TOD projects and thus planned areas to one another.

The absence of a baseline renders comparison of non-adjacent TOD projects difficult. To create an apples-to-apples comparison that allows for reliable evaluation of different TOD projects from comparable areas, this research isolated measurable TOD analysis variables in Chapter 2 that are shared by both policy and banking stakeholders. Table 6 itemizes these shared criteria and lists overlapping measurable variables.

⁹⁰ MTC Resolution 343, 1.

⁹¹ Dittmar and Ohland, 38.

Table 6 - TOD Evaluation Baseline

Planners/Policy Maker Considerations	Debt Capital Funder Considerations	TOD Planned Area: Measurable Baseline
<ol style="list-style-type: none"> 1. Square foot by use type 2. Mix of uses 3. Tax increment 4. Tax base 5. Proximity to services 6. Density 7. Design 	<ol style="list-style-type: none"> 1. Square foot of project 2. Comparables 3. Sales history 4. Vacancy rate 5. Proximity to amenities and services 	<ol style="list-style-type: none"> 1. Lot coverage by use type 2. Price per square foot by use type 3. Mix of Comparable Uses 4. Walkability and design 5. Proximity to amenities (transit, parks, services, etc).

Independently, these factors address market conditions bankers and policy makers rely on to make decisions. Therefore, this report refers to these collective variables as the “baseline.” To analyze these evaluation factors, the baseline is applied to a GIS analysis comparing three similar TOD planned areas.⁹²

Normalizing the Data

Evaluation data for land use and real estate can be collected from independent sources such as City, County, State, transit agency, and Multiple Listing Services. Due to the fact that there are varying sources with differing methods of tracking data, comparing geographically separate but similar TOD areas and projects to one another is not possible; varying sources yield unique data sets. For example, land use data regulated by local agencies is not consistent among cities. Furthermore, real estate market data can differ from vendor to vendor. Therefore, in order to effectively compare TOD projects to one another, data must be similarly structured. Refer to Appendix G for a detailed list of data sources and data preparation description.

For this analysis, data sets are collected from nine sources (Table 7). GIS data sets come from: The U.S. Census Tiger Project, The City of Campbell, City of Mountain View, City of San Jose, Valley Transit Authority (VTA), Walkscore.com, MLSListings.com, CoStar.com, and San Jose State University Department of Urban and Regional Planning archives and agreements. Real estate data sets can be acquired from MLSListings.com and CoStar.com.^{93,94} Due to the small study area for each TOD area, property sales data are limited to a one-mile radius from transit centers for 2009. File sources and attributes are specified in the table below (Table 8). Additionally, lease and vacancy data were not readily available for the case study areas.

⁹² ESRI ArcGIS Editor 9.3.1, Network and Spatial Analyst Extensions are used for GIS analysis.

⁹³ MLSListings, Multiple Listings Service, Santa Clara County www.mlslistings.com (accessed January 23, 2010).

⁹⁴ Costar Group, Commercial Listings Service www.costar.com (accessed February 5, 2010).

Table 7 - GIS Data Sources

Source	Department/URL	Relevant Datasets
U.S. Census	Tiger Maps	CA Counties (for inset map)
City of Campbell	City of Campbell Planning	Zoning, Parcel, Building Footprint, Roads, & GP Maps in TOD
City of Mountain View	City of Mountain View Planning	
City of San Jose	City of San Jose Planning	
Valley Transit Authority (VTA)	Planning	VTA Transit lines and stations
Walkscore.com	www.walkscore.com	Amenities within a half-mile radius of transit
MLS Listings	www.mlslistings.com	One-mile radius property value search for properties sold in 2009
CoStar	www.costar.com	

Table 8 - GIS Data Layers

Source	Dataset Layers	Attributes
VTA	Light Rail Stations	Japantown, Mountain View, and Campbell Stations
VTA	Light Rail	Baypoint-Santa Teresa Line, Mountain View-Baypoint, and Vasona
VTA	Bay Area Roads	Name and route for Network Analyst
City of San Jose	Zoning Region	Zoning
City of San Jose	Parcel APN Join	GP, Zoning, Parcel and APN
City of Mountain View	Parcels with Zoning GP LU	APN, Area, Land use and Zoning Label
City of Mountain View	Mountain View Parcel	
City of Campbell	Parcels; Zoning; GP	
City of Campbell	Parcel	
Walkscore.com	Location based search function	Amenities located within a half-mile radius of transit centers
MLSListings	Location based search function	Sold price; 2009-Q1 2010; 2000ft radius of transit center
CoStar	Location based search function	Properties sold in 2009; \$/sqft calculated based on sales price/building sqft; 1 mile search radius from transit centers

Unfortunately, local agency datasets are not coordinated between agencies and therefore do not match.⁹⁵ This problem exists because land use decisions are made at a local level and cities often define unique variables to meet local needs. Thus, city data do not necessarily match between adjacent jurisdictions. Although several programs exist to create, manage, and collect parcel data, no single dedicated program for the development of a nationwide parcel dataset within the U.S. exists.⁹⁶ As a result, cities often have different classifications for land uses and building types. Thus, data from varying cities cannot readily be compared to one another.

To effectively compare data from varying sources, it must be simplified to create a common denominator for evaluation. To normalize data between cities, common variables must be isolated and matched to baseline guidelines. Hence, city use codes should be normalized to the lowest common land use code shared between cities. For example, if a city has three categories for single-family residential dwelling units (DU) and another city only has one, the city data with three categories should be reclassified to match the lowest common use code. Furthermore, land use codes can be further complicated by color codes. Therefore, to more easily compare land use types using GIS, color codes for use types should also be standardized. The result is one use and color code that defines a consistent single-family

⁹⁵ National Academies, *National Land Parcel Data: A Vision for the Future*, National Research Council (U.S.), Committee on Land Parcel Databases: A National Vision, (Washington D.C.: National Academies Press, 2007): 58.

⁹⁶ Ibid 57.

residential use for all cities. Having common variables between cities allows for reliable comparison of land uses (Figure 9).

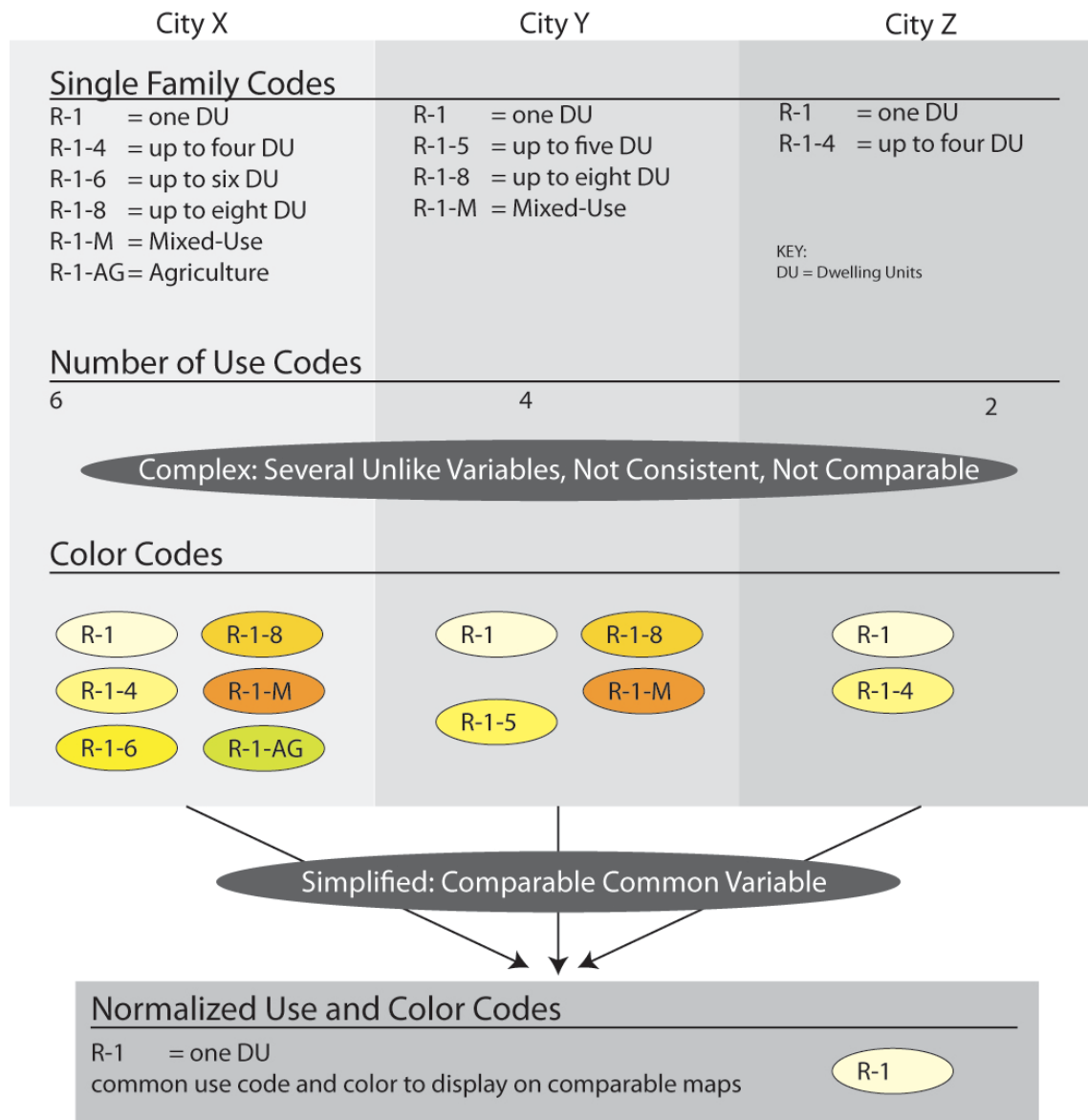


Figure 9 – Normalizing Single-Family City Codes to a Common Variable

Source: Figure created by author.

The result of normalizing use codes for the case study areas is a consistent, comparable variable set for all three case study areas. Normalized variables are simplified to reflect comparable land use types for the three study areas, aggregating land use types per the highest common variable for all three case study areas (Appendix F). This “matching” of land use codes is conducted on zoning codes and used by GIS to join native parcel attribute tables allowing for consistent symbology of all three TOD areas.

IMPORTANT: ArcGIS 9.3 only recognizes Excel 2007 or older.

With common variables for all three case study areas, the next step is to calculate and append price per square foot to parcel maps using MS Excel and GIS.⁹⁷ To do this, real estate

⁹⁷ Microsoft Excel 2008 for Mac.

sales data must be downloaded from MLSListings for residential sales data and CoStar for sales commercial sales data. Search results are exported to a spreadsheet where the data are prepared for import into ArcGIS.⁹⁸ Once datasets are normalized and prepared, data analysis can occur. The next section discusses the logic and analyses applied.

Analysis: Comparing Three Bay Area TODs

The GIS analysis applies normalized data to evaluate baseline factors to compare three similar Californian Suburban TOD market areas for 2009 (Figure 1 in Chapter 1). The purpose of doing a GIS-based comparative analysis is to geospatially compare similar TOD-planned areas by comparing similar characteristics, such as surface area coverage and product mix of property types to predict their respective price per square foot within a walkable service area of transit centers. Per the New Transit Town TOD Topology guidelines for suburban neighborhood TOD (Table 2), three Santa Clara County TOD case study areas are selected.

Table 9 - TOD Case Study Areas and Transit Type

	TOD Area	City	Transit Center Mode
1	Downtown Mountain View	Mountain View, CA	Heavy and Light Rail
2	Japantown/Ayer	San Jose, CA	Light Rail
3	Downtown Campbell	Campbell, CA	Light Rail

Two ArcGIS extensions are implemented: Network Analyst and Spatial Analyst.⁹⁹ Analysis results are presented in the next chapter, which examines findings to make recommendations for effective implementation. For detailed GIS parameters by extension type see Appendix I.

Walkable TOD service areas are defined by Network Analyst as a 10-minute (1/2-mile) walking distance from selected transit centers per Table 9. Three independent analyses for the three case study areas are conducted to estimate the impacts of TOD planning on property values, which are then used to populate a spatial analysis of TOD elements. To accomplish this, ArcGIS Spatial Analyst is used to calculate a weighted overlay for existing conditions and quality of life factors to estimate plausible locations that should command higher price premiums. The spatial analysis, in effect, estimates which properties should be valued highest according to the Five Ds of TOD planning. It is important to note that data must first be reclassified to normalize datasets and allow for overlay analysis. Therefore, data layers are reclassified to a 1 to 10 scale. Weighted GIS attributes are listed in Table 10. Variables that reflect TOD goals are given high values. For example, properties closest to transit centers are given a value of 10. With individual attributes reclassified for each of the Five D layers, the weighted analysis can be conducted. An assumed weighted influence on value is applied to each layer and the model can be run.

⁹⁸ GIS Data Preparation: Prior to adding the spreadsheets to GIS, files need to be converted to .dbf files so the APN field type can be defined as "string." Once the three .dbf files are created they can be added to ArcGIS and joined to the appropriate parcel shapefiles based on the APN field. To simplify data size, area clips are applied. The results are three one-mile parcel maps for all three TOD areas.

⁹⁹ ArcGIS Network Analyst uses defined paths to calculate routes, networks, and travel ways. This paper uses ArcGIS Network Analyst to calculate 10 minute walkable service areas surrounding transit stations. ArcGIS Spatial Analyst uses raster image data to calculate and estimate relationships between variables. This paper uses ArcGIS Spatial Analyst to study relationships between TOD variables.

Table 10 - ArcGIS Spatial Analyst Attributes and Weights

TOD Spatial Analysis Attribute Weights

	Five Ds of TOD Category	Map Representation	GIS Data Attribute	Rule	Assumed Weighted Influence on Value	Value Assignment Assumption
1	Diversity	Polygon	Land Use Type	Zoning (low value for low density uses)	30%	The lower the anticipated number of patrons, the lower the value. The more access to service, the more desirable.
2	Destination	Point	Amenities	Proximity to amenities	25%	The more amenities available, the more desirable.
3	Distance	Point	Transit Center	Proximity to Transit	20%	The more transit options, the more desirable.
4	Design	Polygon	Intersections	Number of intersections	15%	The more intersections, the more permeable/ walkable and more desirable.
5	Density	Polygon	Building Coverage	Building Footprint/ Parcel Size	10%	The higher the building coverage, the denser and the more valuable.
					100%	

Source: Cervero and Lee, "Research Basis for Proposed Criteria of the TOD Housing Program," 2.

Source: Cervero et al, "Influences of Built Environments on Walking and Cycling: Lessons from Bogotá," Table 1, 210.

Summary of GIS Baseline Analysis:

- Diversity and Use - Land use mix and land use area.
- Existing Conditions - Building footprint area coverage by use type.
- Quality of Life - Transit Center proximity to services and amenities.
- Prime Real Estate – Spatial analysis of TOD plan elements to estimate location of highest valued properties.
- Reality Check – Review of residential and commercial sales demonstrating the average price per square foot by use type for each service area.

4. A TOD Evaluation Tool for Lenders: Results and Recommendations

To develop a common method of analysis for stakeholders to evaluate TOD, evaluation criteria must be agreed upon. This chapter will discuss findings and recommendations of the analyses focusing on one aspect of the most conservative financier analysis criteria, a comparable market analysis.

TOD Plan to TOD Plan Analysis Results

This research identifies main themes and perceptions to synthesize a baseline for TOD plan comparison and appraisal framework. Leveraging available data in the context of the defined baseline, a series of analyses are conducted to compare price per square foot of property values by property type in similar TOD areas.

Five GIS map analyses are conducted to evaluate impacts of land use on property values. Thirty-nine maps are created that incorporate baseline variables to analyze the Five Ds of TOD for each case study area.

Quick Fact: to conduct ArcGIS spatial analysis all data must be converted to raster format. Data is typically created and stored in two formats:

Vector is data structure used to store spatial data comprised of lines and arcs with beginning and end points that meet at nodes.

Raster is a data structure that divides a geographic area into a matrix of cells, each of which possesses a value that describes the data set (e.g. elevation, land value, etc.)

The first three analyses explore whether or not case study areas are similar in type by examining land use mix, building coverage, and available amenities in case study areas. The fourth analysis leverages analyses one through three and assigns value weights (per Table 10) to baseline variables to predict most valuable land areas (Figure 17). The fifth analysis compares the results of analysis four to actual 2009 residential property values sold in price per square foot (Figure 18). Findings indicate that a GIS spatial analysis weighted overlay tool can accurately predict desirability of properties based on the variables analyzed. Results of the analyses are displayed and described below. For a detailed description of each GIS analysis, including data inputs, preparation, and results, refers to Appendix G.

GIS Analysis 1: Land Use Mix (Comparing Normalized Land Use Codes)

The first series of maps evaluates land use mix and land area coverage within walkable service areas as an indicator of area diversity and design (Figure 11). To compare land use mix of case study areas, thirteen normalized land use mix variables are evaluated (Appendix F). Not all thirteen codes appear in each of the case study areas; however, five common land uses exist in all three case study areas (Table 11).

Land uses are evaluated on a parcel basis (Figure 10). Planned development accounts for the highest percentage of parcels in Downtown Campbell (62%) and Mountain View (43%) and accounts for 43% of total parcel area for all three case study areas. Conversely, high density residential accounted for the largest percent of parcels in Japantown, San Jose (31%) and

¹⁰⁰ Melbourne School of Engineering, "Introduction to GIS," Department of Geomatics, www.geom.unimelb.edu.au/gisweb/GISModule/GISTheory.htm (accessed September 3, 2010).

residential properties account for 36% of total parcel area for all three case study areas (Figure 10).

Table 11 - Parcel Area by Normalized Type

Zoning Code	Definition	Downtown Campbell TOD (Acres)	% of TOD	Downtown Mountain View TOD (Acres)	% of TOD	Japantown TOD, San Jose (Acres)	% of TOD	In All 3 Study Areas (Y/N)
1	C Commercial	0.66	0.3%	10.74	6.4%	5.15	2.8%	Y
2	CN Commercial Neighborhood			1.53	0.9%	8.90	4.9%	
3	CO Commercial Office	1.03	0.5%	0.28	0.2%	19.16	10.5%	Y
4	HDR High Density Residential					56.17	30.7%	
5	I Industrial					15.50	8.5%	
6	LDR Low Density Residential	34.53	17.2%	9.04	5.4%	29.59	16.2%	Y
7	MDR Medium Density Residential	5.54	2.8%	57.56	34.2%	2.66	1.5%	Y
8	MH Mobile Home			1.80	1.1%			
9	MU Mixed-Use	13.05	6.5%			6.07	3.3%	
10	No Data Available	3.83	1.9%	8.84	5.3%			
11	OS Open Space/Parks Planned	16.86	8.4%					
12	PD Development	124.98	62.3%	71.30	42.4%	39.68	21.7%	Y
13	PF Public Facility			7.00	4.2%			
Total Acres		200.48	100%	168.08	100%	182.87	100%	
No. of Uses Codes		8		9		9		

Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Normalized by author.

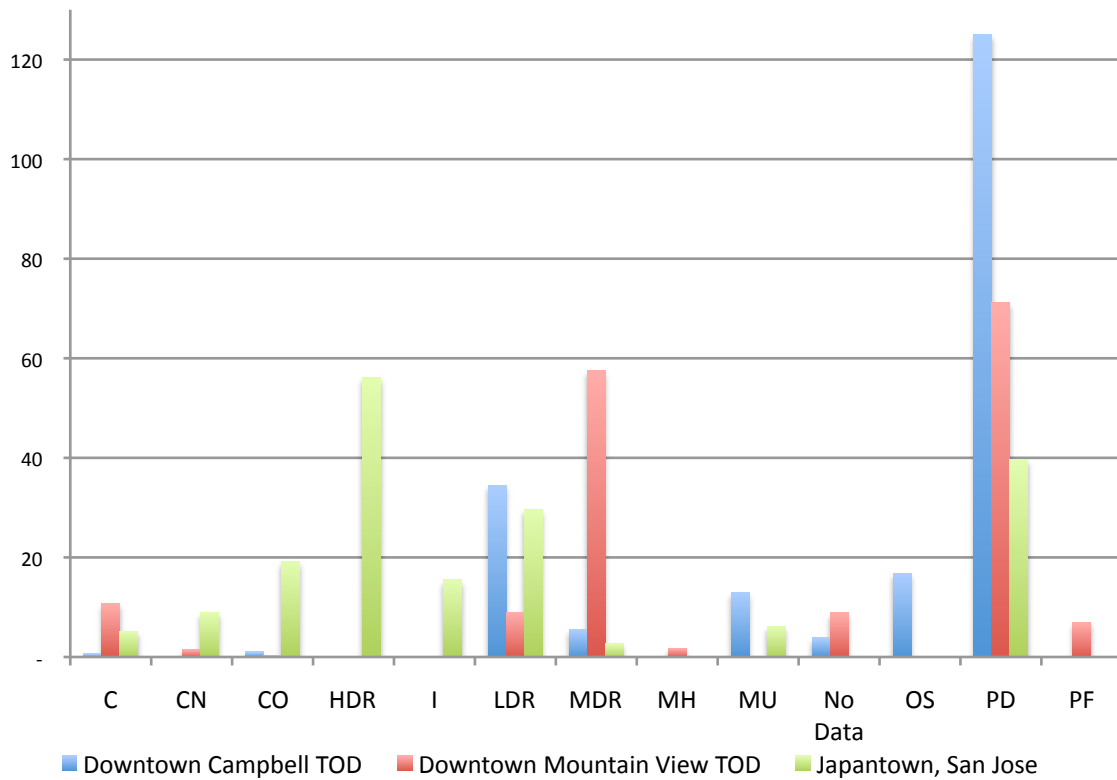


Figure 10 - Land Use Mix (Acres)

Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Normalized by author.

TOD service area acreage varies for all three study areas (Table 12). Mountain View has the least walkable area surrounding transit centers, which includes 237 acres within ½-mile walking distance of transit and 168 acres of parcels, followed by Japantown, San Jose with 268 acres within ½-mile walking distance of transit and 183 acres of parcels, and Downtown Campbell with 260 acres within ½-mile walking distance of transit and 200 acres of parcels. By subtracting the number of parcel acres from total acres within ½-mile walking distance of transit, one is able to estimate right of way dedicated to infrastructure. Right of way for each area also varies between 23% for Campbell and 32% for Japantown.

Table 12 - Service Area Right of Way Calculations

	½-mile Service Area (Acres)	½-mile Service Area Parcels (Acres)	½-mile Service Area ROW (Acres)	% of ROW
Campbell	260	200	60	23%
Mt. View	237	168	69	29%
JPN Town	268	183	85	32%

Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Normalized by author.

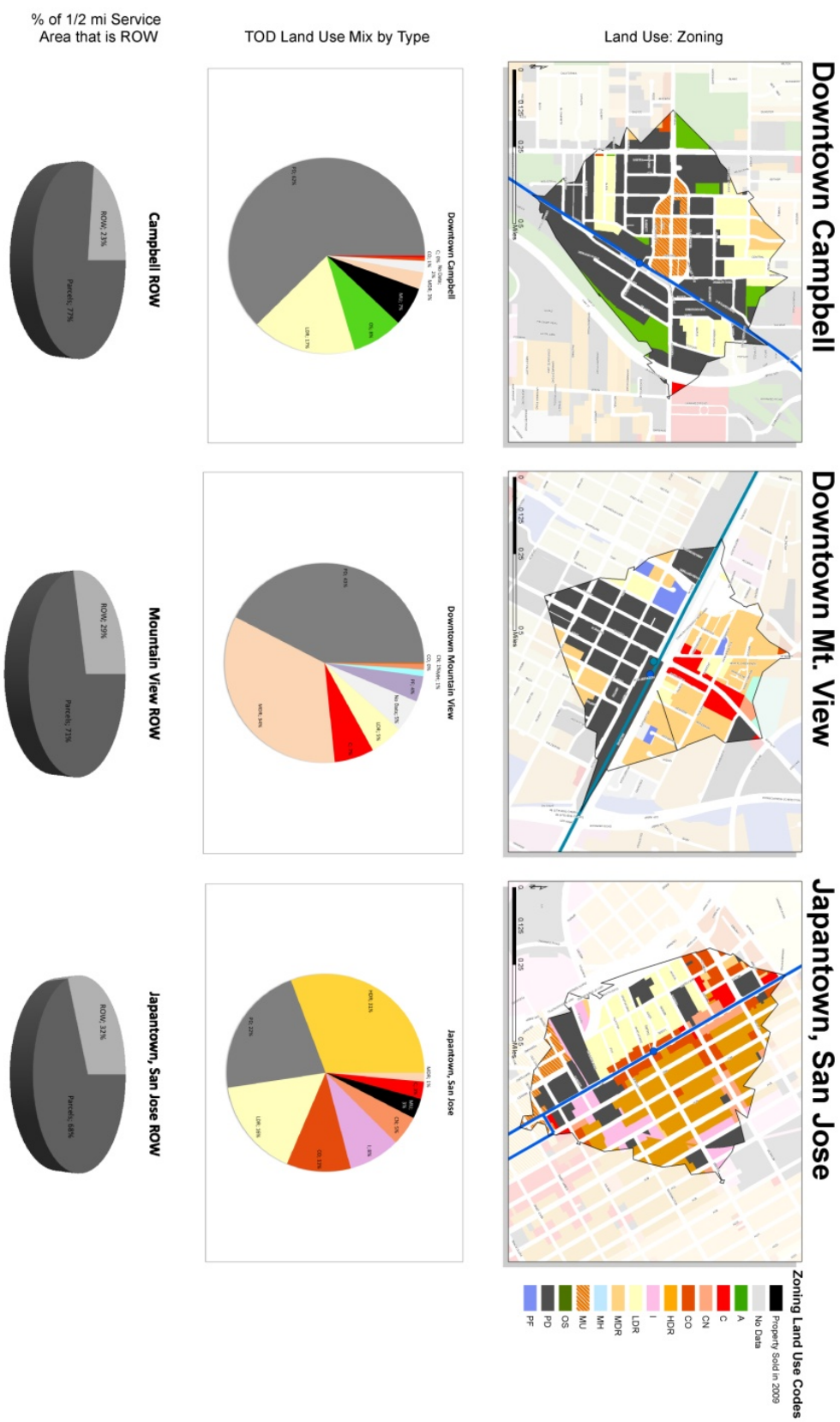


Figure 11 - TOD Land Use Analysis
 Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Normalized by author.

Findings of analysis one demonstrate that a diverse mix of uses exist within a ½-mile walkable service area for all three case study areas. Although not identical, overlapping use types include planned development, commercial, residential, and right of way land uses. By analyzing all three-service areas, planned development parcels account for 43% of total parcel area, followed by residential parcels, which account for 36% of parcel area. The remaining parcel area is fairly evenly distributed among the remaining use types accounting for 1% to 3% of parcel area for all three-study areas per use. Thus, this analysis corroborates the claim that the three case study areas are similar in character and therefore comparable.

GIS Analysis 2: Parcel Coverage (Building Envelope/Parcel Area = Coverage)

The second series of maps illustrates the building coverage for case study areas as an Figure 12). Due to incomplete datasets, partial digitization of Japantown and Downtown Campbell is required. Therefore, data may not be accurate, but approximate.

Parcel coverage can be calculated by taking the total building shape area by type and dividing it by the parcel area on which it resides (Table 13). Parcel coverage area by building type varies by location. Mountain View has the least amount of uncovered land of the case study areas, with 28% parcel coverage. Japantown has the most with 37% parcel coverage.

Table 13 - Parcel Coverage Calculation

Zoning Code	Definition	Downtown Campbell (Acres)	% of TOD	Downtown Mountain View (Acres)	% of TOD	Japantown, San Jose (Acres)	% of TOD
C	Commercial			3.28	6.9%	1.39	2.1%
CN	Commercial Neighborhood			0.41	0.9%	3.40	5.0%
CO	Commercial Office	0.25	0.4%	0.05	0.1%	6.98	10.4%
HDR	High Density Residential					20.89	31.0%
I	Industrial					4.56	6.8%
LDR	Low Density Residential	12.00	17.7%	2.79	5.9%	10.00	14.8%
MDR	Medium Density Residential	1.82	2.7%	17.61	36.9%	0.46	0.7%
MH	Mobile Home			0.67	1.4%		
MU	Mixed-Use	6.90	10.2%			2.48	3.7%
No Data	No Data Available			0.07	0.1%		
OS	Open Space/Parks	3.03	4.5%				
PD	Planned Development	43.76	64.6%	21.95	46.0%	17.19	25.5%
PF	Public Facility			0.84	1.8%		
Bld Coverage (Acres)		67.76	100%	47.67	100%	67.35	100%
Parcel Acres		200.48		168.08		183.87	
Parcel Coverage Ratio		34%		28%		37%	
1/2 TOD Service Area		260		237.00		268	
1/2 TOD Service rea Coverage Ratio		26%		20%		25%	

Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Normalized by author.

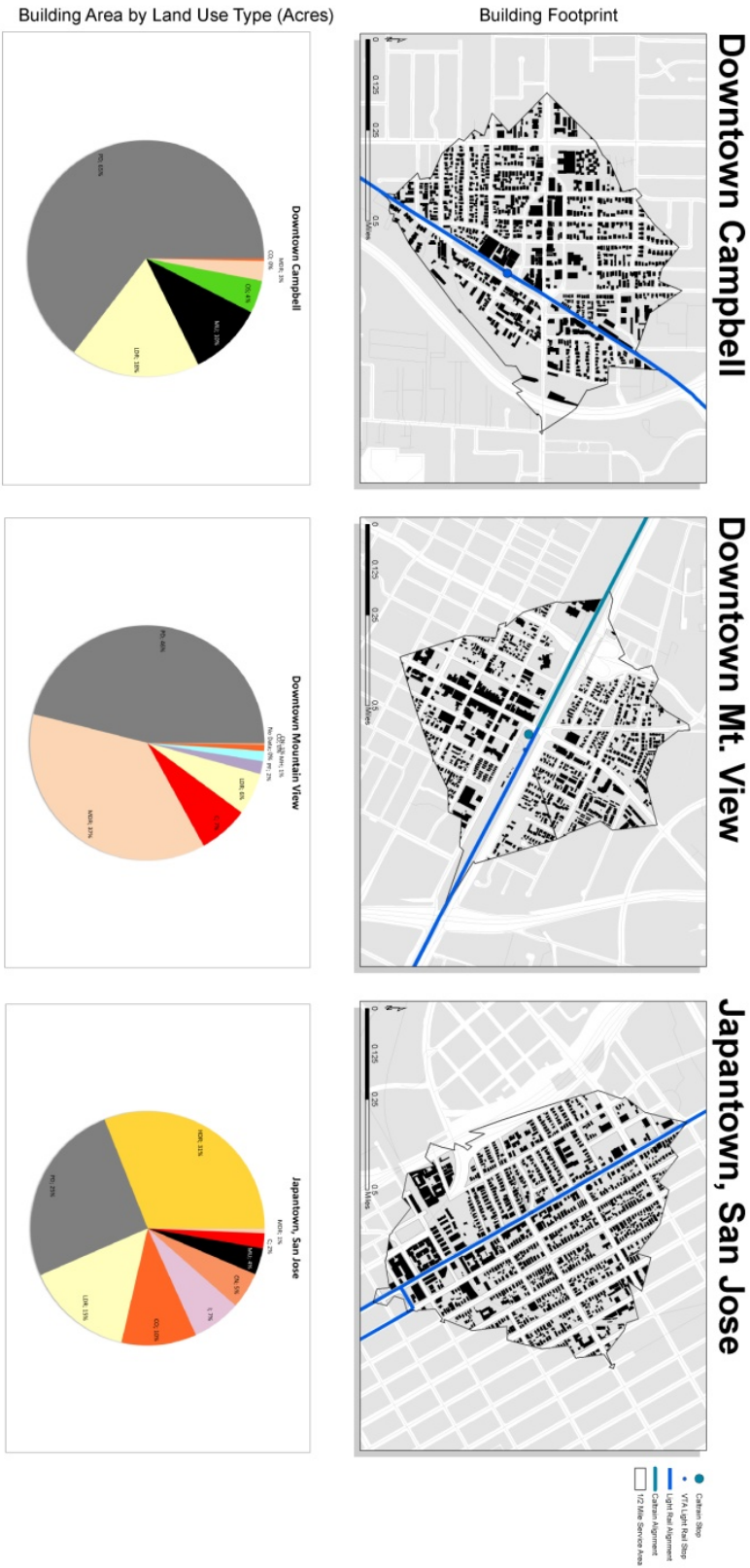


Figure 12 - TOD Parcel Coverage Analysis

Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Normalized by author.

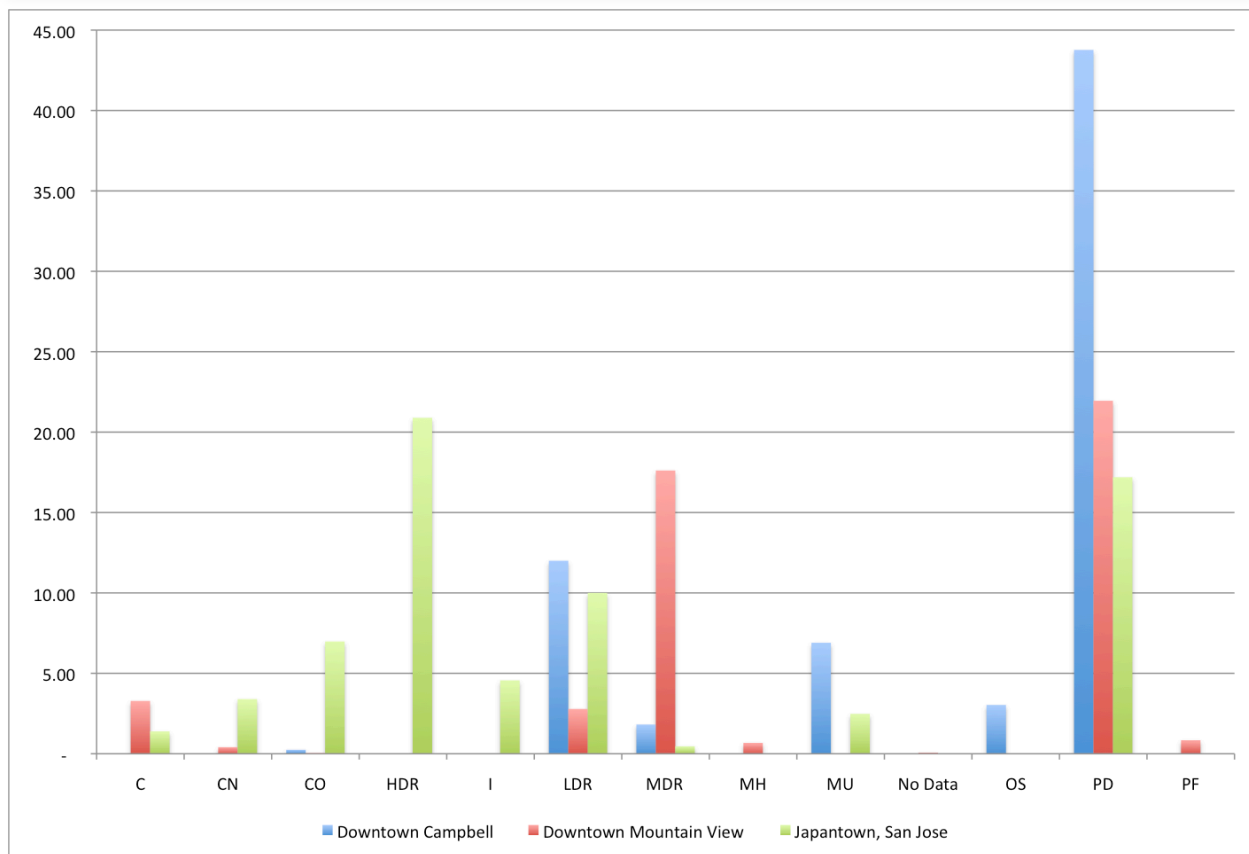


Figure 13 - TOD Building Coverage in Acres by Land Use Type

Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Normalized by author.

Findings of this analysis demonstrate that approximately 33% of parcel area for all three study areas are built-out and that a 9% parcel coverage variance exists between Mountain View and San Jose Japantown (37% and 28%, respectively). Parcel coverage ratio is an indicator of density. What this analysis confirms is that case study areas are similar in density type. Looking at the data a different way, considering the percent of total land covered by buildings, the findings demonstrate a tighter 6% variance between total land built on within a ½-mile walkable service area for all three case study areas. Therefore, parcel and land coverage ratios are similar and further support the fact that the case study areas are similar and therefore comparable.

GIS Analysis 3: Amenities (Using Walkscore.com to Evaluate Destination)

The third series of maps evaluates properties and their proximity to services and amenities, an indicator of diversity and destination desirability (Figure 15). Proximity to amenities is a valuable indicator of desirability; studies have found a positive relationship between property values and access to walkable amenities.¹⁰¹ Studies identify walkscore.com as a reliable and convenient measure for estimating property access to walkable amenities.^{102,103} Therefore, walkscore.com data for TOD case study areas are analyzed using GIS to evaluate walkability of the selected TOD areas. Table 14 lists walkscore.com amenities evaluated in

¹⁰¹ Gary Pivo and Jeffrey D. Fisher, "The Walkability Premium In Commercial Real Estate Investments," *Real Estate Econ* (February 2010).

¹⁰² Walkscore, www.walkscore.com (accessed May 6, 2010).

¹⁰³ Carr, Lucas, Shira Dunsiger, and Bess Marcus, "Validation of Walk Score for Estimating Access to Walkable Amenities," *British Journal of Sports Medicine* (April 2010).

this paper and Figure 14 illustrates the Walkscore ranking system. Important to note is that walkscore.com evaluates walkability by conducting a radius analysis “as the crow flies,” whereas this paper uses ArcGIS Network Analyst to evaluate walkability of TOD areas by analyzing walking paths and roads.

Table 14 - Walkscore.com Amenities Analyzed

1	Restaurants	6	Parks	11	Banking
2	Coffee	7	Books	12	Hospitals
3	Groceries	8	Bars	13	Fitness
4	Shopping	9	Entertainment	14	Bike Shops
5	Schools	10	Post Offices	15	Child Care

Source: www.walkscore.com (accessed May 28, 2010).

Walk Score	Description
90-100	Walker's Paradise — Daily errands do not require a car.
70-89	Very Walkable — Most errands can be accomplished on foot.
50-69	Somewhat Walkable — Some amenities within walking distance.
25-49	Car-Dependent — A few amenities within walking distance.
0-24	Car-Dependent — Almost all errands require a car.

Figure 14 - Walkscore.com Ranking System

Source: www.walkscore.com (accessed May 28, 2010).

Figure 15 demonstrates clear amenity clusters in downtown areas in the study areas. All three TOD areas are rated “very walkable” or “walker’s paradise” and thus deemed extremely desirable and accessible (Table 15).



Figure 15 - Proximity to Amenities Analysis

Source: Upper maps: generated by the author based on walkability scores and amenities data from walkscore.com (2010). Lower maps: walkscore.com, [Amenities data for the three study areas based on the amenities list in Table 14] (2010), www.walkscore.com (accessed May 30, 2010).

Table 15 - Proximity Analysis Matrix

Walk Score	95	98	85
Walkscore Rank	Walker's Paradise	Walker's Paradise	Very Walkable
No. of Unique Locations w/in 1.2mi of Transit	182	147	185
No. Transit Centers	1	2	1
Transit Type	Light Rail	Heavy and Light Rail	Light Rail
No. Unique Locations w/in 1/4 mi Service Area	39	26	2
No. Unique Locations w/in 1/2 mi Service Area	66	49	45
No. Unique Locations w/in 3/4 mi Service Area	99	68	77
Score Based on	Closest Property Recorded in Walkscore.com to Transit Center		
Address Used	300 Orchard City Dr, Campbell	750 W Evelyn Ave, Mountain View	499 N 4th St, San Jose

Source: walkscore.com

Findings of this analysis demonstrate clear clusters of amenities within close walking distance to transit and within ½-mile case study walkable service areas. Though not identical rankings, this analysis supports the fact that the three case areas selected are very walkable or better for pedestrians and therefore similar in type.

GIS Analysis 4: Weighted Overlay Analysis (Evaluating the Five Ds of TOD)

The first three analyses show that the TOD study areas are similar in type and therefore likely comparable. With confirmation that study areas are comparable, the fourth series of maps uses an ArcGIS Spatial Analyst weighted overlay to predict land desirability values using the following parameters identified in Chapter 3: land use, proximity to amenities, proximity to transit, proximity to right of way intersections, and lot coverage (Table 10).

An overlay analysis allows for assignment of values to different variables that can then be evaluated to identify study area locations of highest and lowest weight. In order to facilitate a weighted overlay analysis using ArcGIS Spatial Analyst, datasets must be converted from vector to raster format. Thus, to prepare variables defined in Table 10 for weighted overlay analysis, datasets must be independently rasterized.

Once rasterized, a weighted overlay analysis can occur. Datasets are categorized and analyzed according to Cervero's Five Ds of TOD (Table 10). Higher weights are assigned to parcels with higher density allowances that promote increased foot traffic and patron turnover. Proximity to transit and amenities also receive higher weights. The number of intersections was used as an indicator of permeability and thus walkability; the greater the number of intersections, the greater the walkability and thus the higher the assigned weight. Analysis weights and relation to the Five Ds is summarized in Table 10. Applying the spatial weighted analysis to datasets results in the theoretical identification of desirable property locations according to the Five Ds of TOD (Figure 17). The analysis results in three comparable estimates of property value.

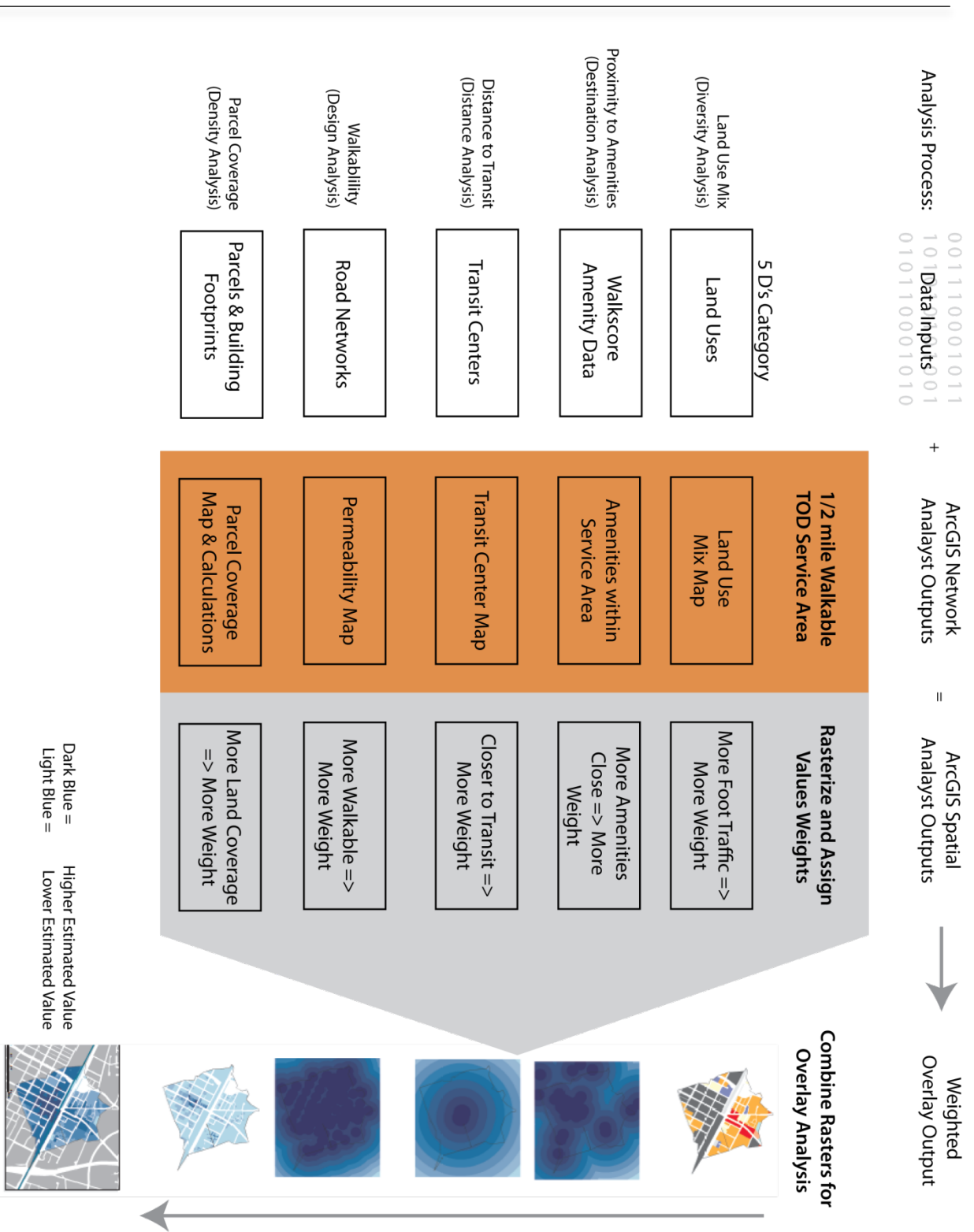


Figure 16 - Five Ds of TOD Weighted Overlay Analysis Process
 Source: Figure and methodology by author.

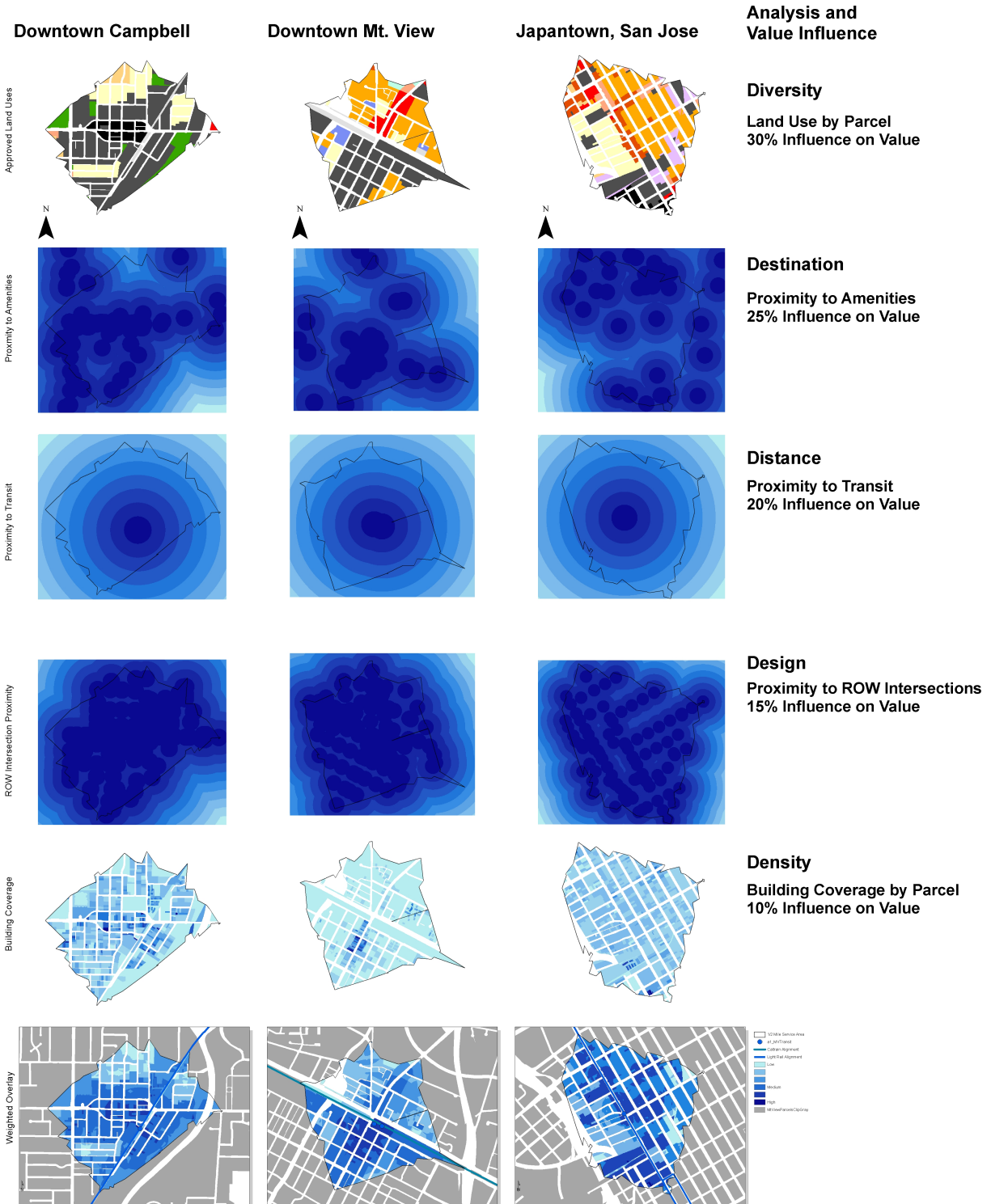


Figure 17 - Five Ds of TOD Weighted Overlay Value Analysis
 Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Normalized by author.

Findings of this analysis (Figure 17) predict “value hot spots” (dark blue areas) according to the weighted variables analyzed from Table 10. In essence, the analysis estimates locations where property values should theoretically be highest. Findings also imply that more valuable areas are located in or adjacent to planned downtown areas.

To investigate this, a trend interpolation analysis is conducted using ArcGIS Spatial Analyst to compare 2009 residential properties sold within a one-mile radius of case study transit areas (Figure 18). The trend interpolation analysis results in a smooth surface raster that represents gradual trends in residential property values over a study area. It does so by capturing coarse-scale patterns in data. In this example, 2009 residential real estate values (price per square foot) are used as data inputs from which to extract trends.

The trend interpolation analysis illustrates a trend that planned TOD areas have a positive impact (darker blue colors) on property values the closer properties are located to planned areas (red boundary areas). This finding is consistent with work conducted by the University of Minnesota and ReConnecting America, demonstrating a positive relationship between property values and proximity to planned transit centers (Figure 18).¹⁰⁴

¹⁰⁴ Edward Goetz, Kate Ko, and Aaron Hagar, “West-Side Story: Differential Impact of the Hiawatha Light Rail Line on Property Values in Minneapolis” (presented at Lambda Alpha International, University of Minnesota, Waseca, MN, September 16, 2009).

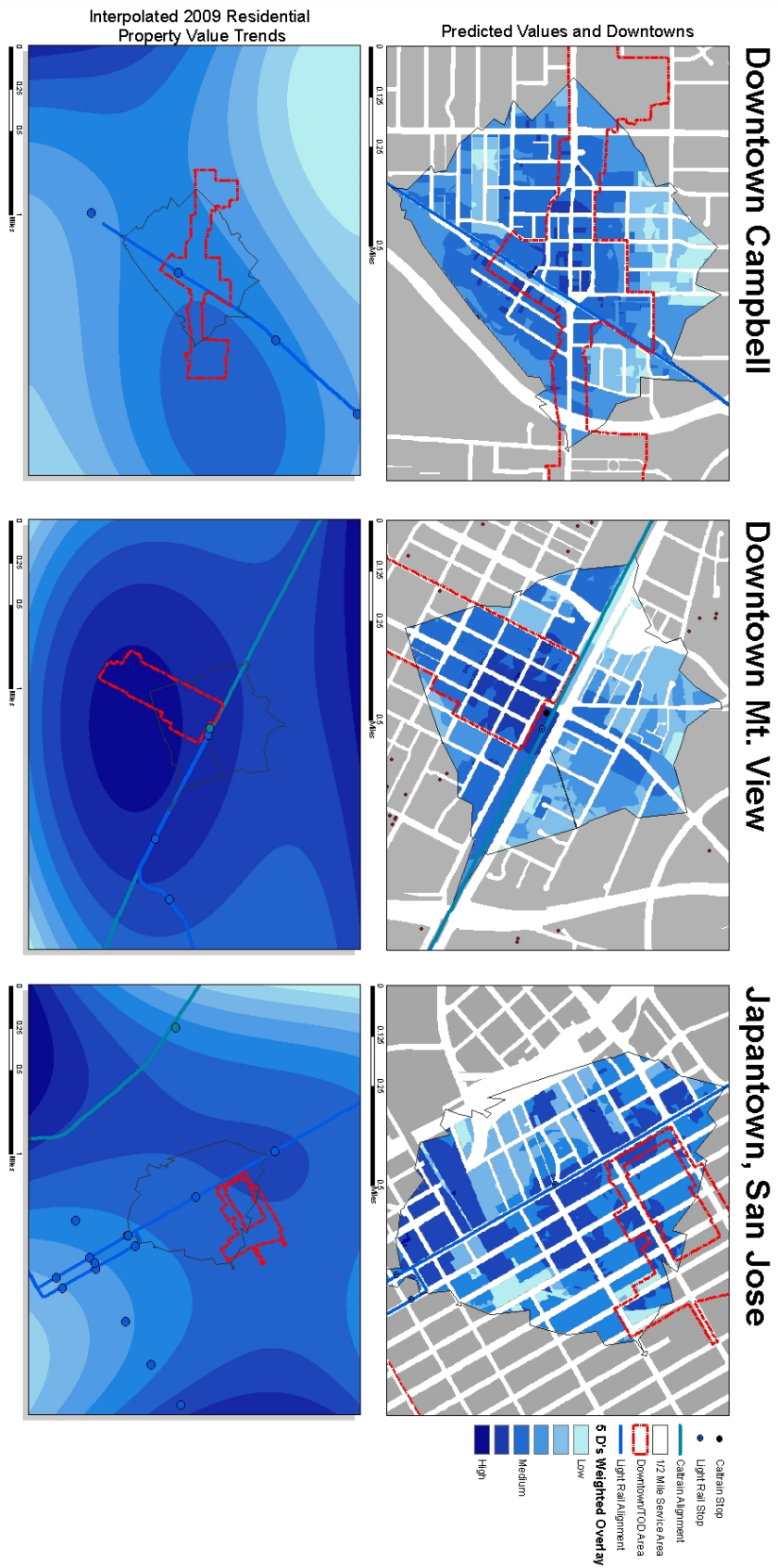


Figure 18 - Predicted Property Desirability of Case Study Areas According to the Five Ds of TOD
 Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Normalized by author.

Important to note is that the analysis focuses on assigning relative weights within the ½-mile walkable study area for the weighted overlay and within a one-mile radius of transit centers for the interpolation analysis. Therefore, these analyses do not account for external influences. For example, Japantown is located less than one mile northwest of Downtown San Jose. Findings support the notion that Downtown San Jose is likely influencing desirability in the southeast Japantown case study area. However, to determine the validity of the weighted overlay analysis, predicted values must be compared to actual property values. Analysis five compares predicted value “hot spots” to actual property values sold in 2009.

GIS Analysis 5: Predicted Value Hot Spots versus Actual Real Estate Values

The fifth analysis compares actual residential property values sold in 2009 (price per square foot) to the theoretical weighted overlay value predictor from analysis four. In 2009, a total of 634 properties were sold within a one-mile radius of the case study transit centers (Table 16). This paper focuses on residential sales because for all three TOD study areas, residential sales accounted for 87% of properties sold in 2009 and sales information is available for each study area.

Table 16 - Number of TOD Properties Sold in 2009

All Real Estate Data	Residential	2009 Sales	Non-Residential	2009 Sales	Properties Sold	2009 Sales
Downtown Campbell	136	\$76,145,654	26	\$29,256,000	162	\$105,401,654
Downtown Mountain View	220	\$146,577,311	19	\$52,086,888	239	\$198,664,199
Japantown	193	\$73,734,237	40	\$21,714,768	233	\$95,449,005
Total	549	\$296,457,202	85	\$103,057,656	634	\$399,514,858

Source: MLSListings (2010).

Residential properties are compared by price per square foot regardless of residential type. The purpose of this analysis is to compare estimates of the spatial analysis to actual values (Figure 19).

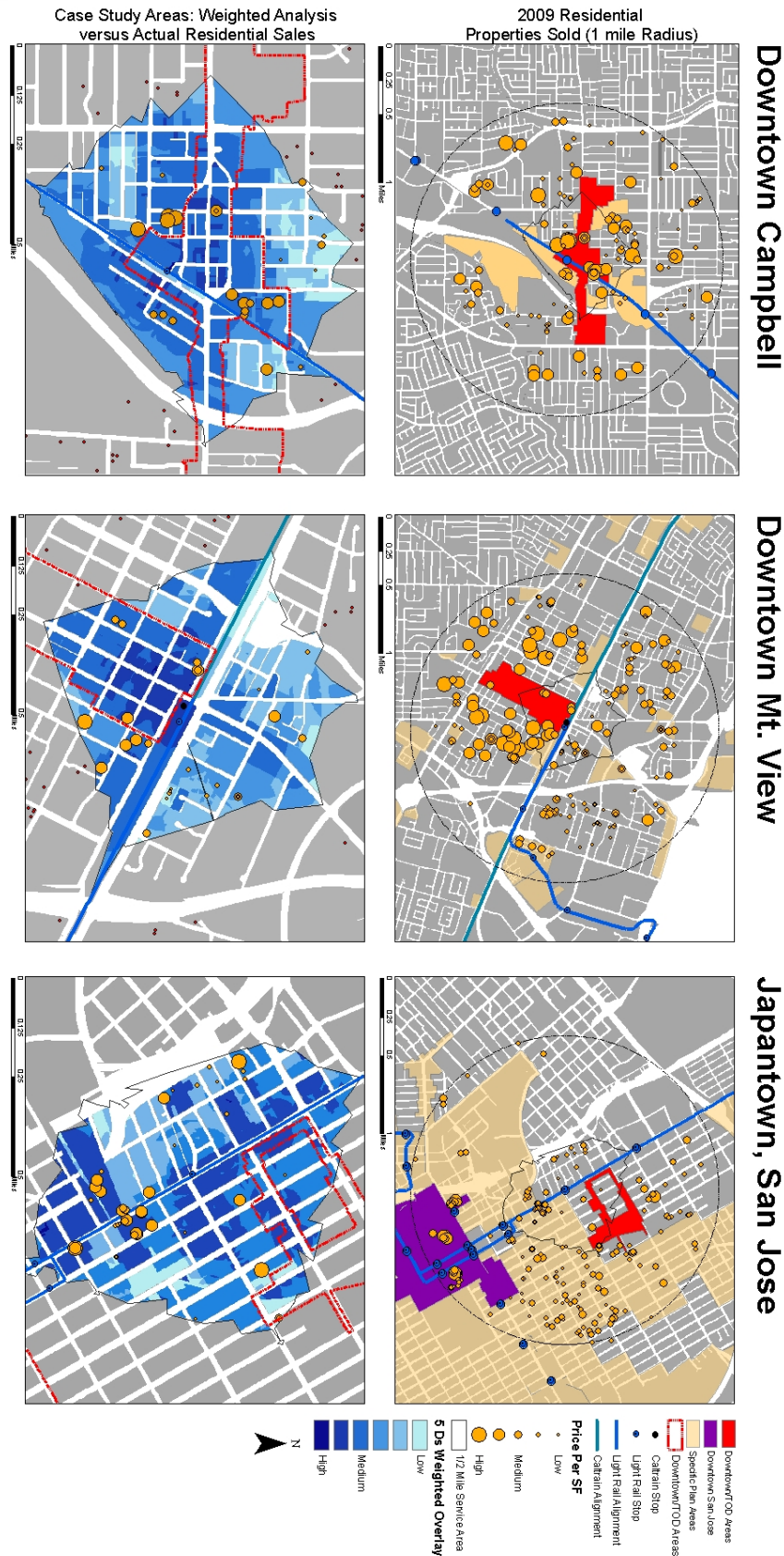


Figure 19 - 2009 Residential Real Estate Sales in Case Study Areas versus Predicted Desirability
 Source: City of Campbell, City of Mountain View, and City of San Jose Planning Departments. Real estate data from MLSListing (2010).

Figure 19 illustrates that property in or near planned areas command higher property prices. Additionally, findings demonstrate that the weighted overlay is a reliable predictor of desirability as correlated to higher property values. Though anomalies exist, higher price premiums are consistently found in theoretically more desirable areas. Therefore, this finding suggests that applying a weighted analysis tool for predicting plan impacts on property values is theoretically possible.

Analysis 6: Property Values Within ½-mile TOD Service Area and 1-mile Radius of Transit

Although similarities exist between property values, absolute property values differ by location (Figure 20). This analysis reviews 2009 sales data to explore trends for property values within the ½-mile TOD service area and compares them to properties sold within a one-mile buffer of transit centers but outside of the TOD walkable service areas. The purpose of this analysis is to investigate whether properties within walkable service areas do in fact command a price premium over properties outside of the TOD service area. Refer to Appendix L for detailed information regarding 2009 real estate sales for case study areas within a mile of transit centers.

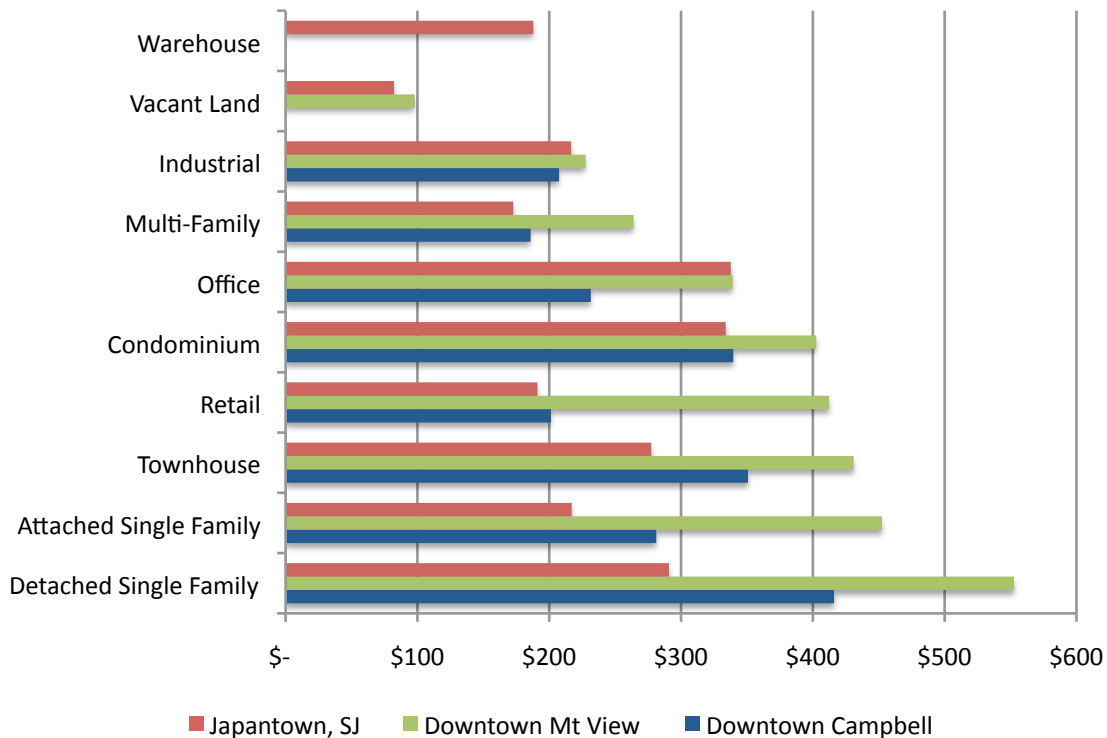


Figure 20 - Price per Square Foot by Type by Study Area

Source: Residential sales provided by MLSListings. Commercial sales provided by Costar Group (2010).

In 2009, Campbell sold 162 properties within a one-mile radius of the downtown transit center. Of these sales, 136 or 84% were residential properties, save multi-family properties such as income producing apartments or other “for lease” multi-family residential properties. Of the total property sales, 131 or 81% of properties were sold outside of the ½-mile TOD service area. Six comparable types of properties can be found that were sold both in the ½-mile service area and outside of the Downtown Campbell service area (detached

single-family, townhouse, condominium, retail, multi-family, and industrial). By comparing the six property types to each other for sales within a ½-mile service area and outside the ½-mile service area, findings demonstrate that the average price per square foot for five of six comparable property types commanded a premium for properties within the ½-mile TOD area as compared to properties outside of the ½-mile service area (Figure 21).

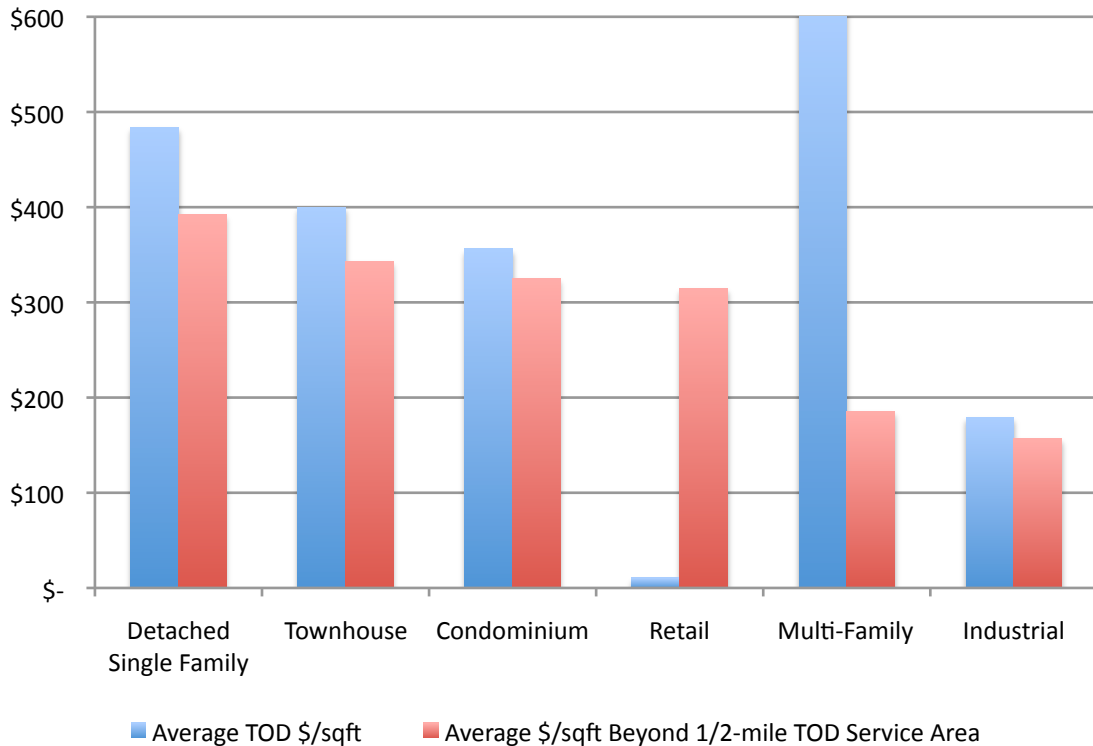


Figure 21 - 2009 Campbell Real Estate Analysis: Average Price per Square Foot

Source: Residential sales provided by MLSListings. Commercial sales provided by Costar Group (2010).

Outliers analyzed include multi-family and retail prices per square foot. Important to note is that for multi-family properties within the ½-mile service area, only one sold in 2009. Data may have miss-recorded building square footage by describing the entire building square footage, not simply a unit sold. This is true for all multi-unit properties that may have sold individual units in 2009.

In 2009, Mountain View sold 239 properties within a one-mile radius of the downtown transit center. Of these sales, 220 or 92% were residential properties, save multi-family properties. Of these sales, 207 or 87% of properties were sold outside of the ½-mile TOD service area. Four comparable property types can be found that were sold both in the ½-mile service area and outside of the Downtown Mountain View service area (detached single-family, townhouse, condominium, and land). Findings demonstrate that the average price per square foot for three of four comparable property types commanded a premium for properties within the ½-mile TOD area as compared to properties outside of the ½-mile service area (Figure 22).

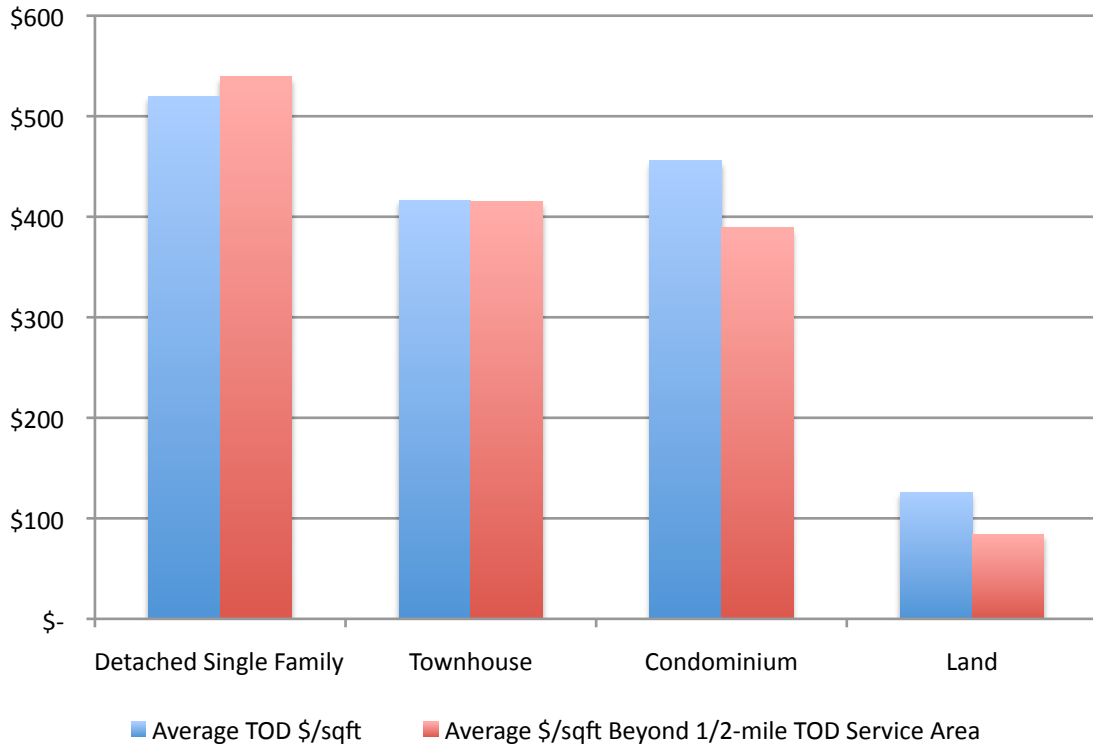


Figure 22 - 2009 Mountain View Real Estate Analysis: Average Price Per Square Foot

Source: Residential sales provided by MLSListings. Commercial sales provided by Costar Group (2010).

In 2009, the Japantown area of San Jose sold 233 properties within a one-mile radius of the downtown transit center. Of these sales, 193 or 83% were residential properties, save multi-family properties. Of these sales, 183 or 79% of properties were sold outside of the 1/2-mile TOD service area. Five comparable property types can be found that were sold both in the 1/2-mile service area and outside of the service area (detached single-family, townhouse, condominium, multi-family, and industrial). Findings demonstrate that the average price per square foot for two of five comparable property types commanded a premium for properties within the 1/2-mile TOD area as compared to properties outside of the 1/2-mile service area (Figure 23). Important to note is that Japantown is less than one mile from Downtown San Jose, which area’s property sales may skew data, as downtown properties likely command a premium compared to surrounding neighborhoods.

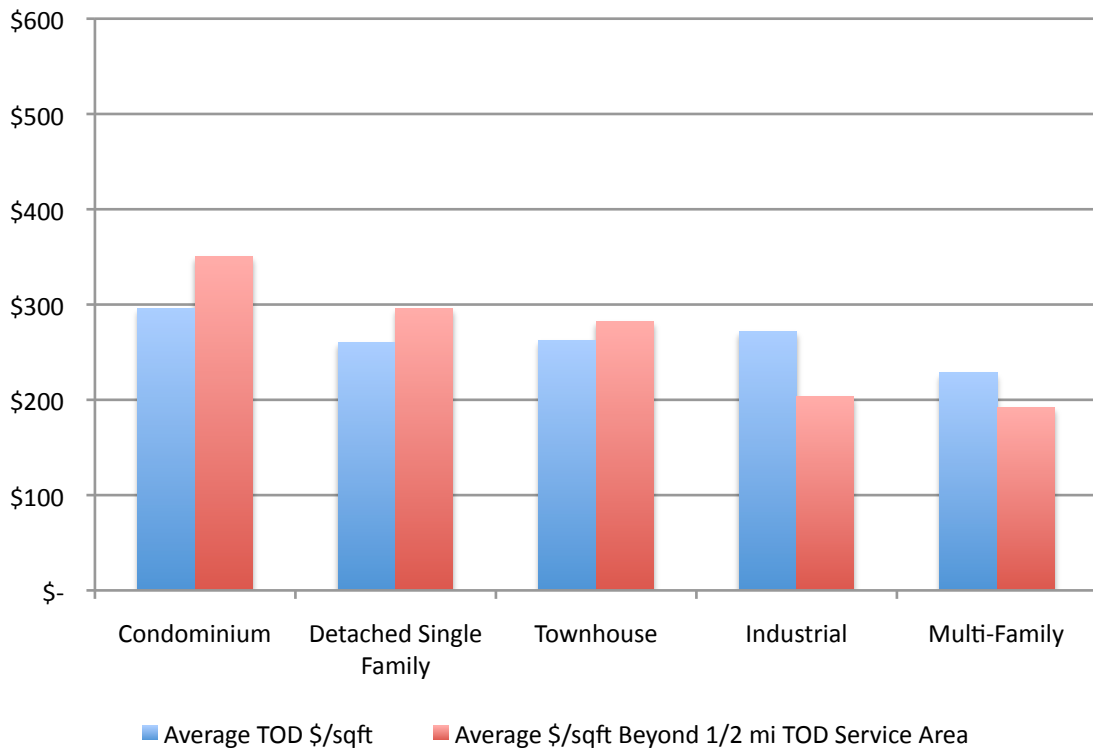


Figure 23 - 2009 Japantown, San Jose Real Estate Analysis: Average Price per Square Foot

Source: Residential sales provided by MLSListings. Commercial sales provided by Costar Group (2010).

Findings of this analysis confirm that for a majority of properties analyzed, a positive relationship between property values that reside within a ½-mile walkable service area of transit centers exists. These findings are consistent with TOD studies that demonstrate a value premium for properties located within a ½-mile radius of transit centers as compared to those further away from transit.¹⁰⁵

Supplemental TOD Plan-to-Plan Comparison, a Framework for Evaluation

Comparable market analysis is an essential tool for estimating the market value of projects. Thus, creating a standardized method to allow for comparable analysis of similar TOD-planned areas offers a supplemental tool for evaluating TOD opportunities. Additionally, a TOD Plan-to-Plan comparison tool reduces risks associated with uncertainty, and effectively removes a barrier to the financing of TOD projects for debt capital funders. The results generated from combining these multiple analyses illustrates that it is theoretically possible to estimate the desirability of properties according to the Five Ds of TOD. By being able to reliably predict the desirability of project areas, lenders can better evaluate risks associated with TOD opportunities. Additionally, risks are further mitigated when TOD opportunities can be compared to other similar projects and planned areas. Thus, the results support the concept that similar TOD areas can be compared to one another using GIS, and evaluated according to the Five Ds of TOD to appraise risk factors associated with TOD projects. These findings support the use of a supplemental tool for debt capital funders when determining whether or not to support a TOD project.

¹⁰⁵ Ibid.

5. Linking the Trains: Lessons Learned and Conclusions

This chapter discusses conclusions, study limitations, and potential strategies for addressing identified limitations for future research. The chapter concludes by discussing the potential impacts of a standard GIS evaluation tool on TOD financing and close with recommendations essential for feasible attainment of a TOD Plan-to-Plan comparative tool using ArcGIS.

Next Stop, Fundable TODs

TOD financiers, particularly debt capital funders, would benefit from incorporating a common method for evaluating the cumulative impacts of TOD plans over time using ArcGIS. Such a model would allow lenders to compare similar TOD-to-TOD-planned areas by including analyses as a supplement to conventional underwriting methods. With a standard tool that could predict the monetary impacts of TOD plans on property values, lenders could better navigate the TOD financing barrier.

Comparables are essential for market demand evaluation. Therefore, effective comparison of TOD projects and plans to one another would remove a barrier to the financing of TOD opportunities. Furthermore, by measuring and monitoring the effectiveness of TOD plans over time, decision makers can theoretically establish a framework for comparable TOD-planned areas and projects regardless of geography. Below are recommendations for advancement of a GIS TOD comparison tool based on findings:

- Plan Progression - Extrusion of actual floor-area-ratios by parcel versus planned ratios.
- GIS Weighted Overlay - Based on the Five Ds of TOD.
- Real-time Real Estate Data - to continually compare actual sales values to predicted values.

Limitations of the Study

This paper identified no studies that specifically dispute the proposed research hypothesis. The main challenge this research must overcome is the geographically unique nature of real estate. To address geographic differences of comparable plan areas, TOD plan area comparisons cannot compare a snapshot of TOD plan areas, but rather a progressive comparison of change over time. For example, comparing TOD plan progression versus changes in property values would provide an indicator of how TOD planning principles impact real estate values. Ideally, future analyses would measure and account for factors over time. However, due to limited data currently available, the GIS-based comparison of this report focused on 2009 market data.

Another limitation of this study is the subjectivity of analysis methods for each financing stakeholder and lender. No standard for normalizing geographically separated area variables has been identified. For example, how city codes or real estate data variables are manipulated to establish common denominators for comparison will vary by evaluator.

A major limitation of this study is the lack of available information. For instance, no system for easy transfer of lease, vacancy, or tax data exists. Nor does a system exist that integrates

land use, plan, actual building use, and real estate data. In fact, no central source for all data necessary to conduct comparable TOD plan to TOD plan exists. Furthermore, how variables are measured currently differs. For example, local governments define local use codes to suit local needs, often differing from other local agencies. Therefore, TOD financiers will find it difficult to agree upon a common method of tracking TOD plan area progress if data is not shared.

Finally, due to the number of sources required, TOD planning agencies cannot track and manage data by themselves. For example, data such as pre-lease information is proprietary and generally would not be made available for comparable analysis of TOD planned areas. Thus, it would behoove lenders and policy makers interested in funding TOD to establish an exchange of information. The next section recommends strategies for measuring TOD plan progression and fostering comparable market analysis of non-conforming product types in transitioning areas.

Strategies to Make a Supplemental Analysis Feasible

Although many experts agree that a common evaluation method is needed for analyzing TOD opportunities, banks are hesitant to change, and oppose common tools that may be perceived as regulation. For example, Steve Cocheo argues that regulations, if not defined clearly, cause conflicting signals and confusion.¹⁰⁶ In fact, over the years banking institutions have successfully disputed the regulation of banking practices and maintained the liberty to determine and negotiate their individual risk-reward threshold levels on a case-by-case basis.¹⁰⁷ For example, Gerding finds that banking institutions are free to define their own appetite for risk and therefore establish independent values on a project-by-project basis.¹⁰⁸ Therefore, this paper does not propose nor advocate establishing regulations regarding evaluation criteria. Should lenders perceive the proposal as a form of regulation, it will likely not be adopted. Therefore, the debate regarding regulation and deregulation is beyond the scope of this paper.

In addition to avoiding establishing a perception of regulation, access to information is critical. Lenders value information regarding plan approval, progression, and impact on property values over time. Access to reliable planning, plan progression, and comparable information lowers the barriers to TOD financing. Thus, to further data collection efforts and improve the availability of information, policy makers should include a matrix for tracking new developments within approved plan areas to measure plan progression and objective attainment (see Appendix K), and to advocate for an open exchange of information.

Matrix reporting of approved TOD plan objectives can be used to effectively monitor and communicate key decision-making criteria considered valuable by debt capital lenders. Monitored data can be analyzed against market conditions to study changes over time. A supplemental tool for evaluating TOD opportunities that could demonstrate the effect approved plans had on property values over time would allow for correlation analysis of

¹⁰⁶ Steve Cocheo, "TARP-Driven Lending: Rhetoric vs. Reality," American Bankers Association. *ABA Banking Journal*, No. 100 (December 2001) (12), 42.

¹⁰⁷ Daniel Immergluck, "Private Risk, Public Risk: Public Policy, Market Development, and the Mortgage Crisis," *Fordham Urban Law Journal* 36, (2009) (3) (04), 441.

¹⁰⁸ Erik F. Gerding, "Code, crash, and Open Source: The Outsourcing of Financial Regulation to Risk Models and the Global Financial Crisis," *Washington Law Review* 84, (2009) (05), 148.

plan impacts on property values that bankers could refer to as a source of proven impacts on property values. Proving that implemented TOD plans have a positive impact on property values would instill confidence in TOD projects. Essential to success is that the supplemental tool provides a means of comparable analysis of TOD plans and projects of similar types.

Findings of this research indicate two plausible methods for tracking, measuring, and comparing similar TOD plans and projects over time. First, a GIS system that accounts for clearly defined variables would allow for geospatial comparison of TOD plan areas and projects over time. Second, an open source system that tracks approved land use plans through a TOD plan matrix administered at the local level would afford a method for evaluating TOD plan progression. For each plan, a start date must be defined to allow for tracking of project values over time. Additionally, integration of real-time real estate data into a GIS system would allow debt capital financiers to track changes in project value turnover for the life of the plan. From there, correlations can begin to be studied to identify impact trends approved plans exhibit over time.

Recommendations

The first recommendation, a GIS system that tracks universally defined variables within approved plan areas, must be administered at a local level by planning departments. In order to be able to compare TOD plan areas and projects to one another, a universally accepted set of definitions and category types, regardless of jurisdiction, is required. Thus, it would behoove TOD planning efforts to establish a public-private partnership created to define measurable variables that planners, developers, and lenders can track and analyze. With a central data source and responsible organization, TOD plans and projects can be tracked over time and hence evaluated. Once a consistent method for measuring TOD plans and a central source is defined, local agencies can create and manage a GIS system to track defined variables in approved TOD areas. With independent agencies measuring TOD plan changes using consistent tools and definitions, a governing body can warehouse and compare similar plan areas to one another. Efforts are underway to create a national land use code standard for geospatial use.¹⁰⁹

The Federal Geographic Data Committee was appointed by congress to coordinate, organize, and sponsor the creation of a national land parcel database that could be used for emergency and economic purposes. For more information visit:

www.fgdc.gov

The second recommendation, creating a matrix to track TOD plan progress, must be universally available, but administered at the local level by planning departments. The plan progress matrix should track data according to universally defined variables and serve as a source of information for the GIS system. Whereas the matrix is a project-by-project measuring tool, the GIS system should be a graphical reflection of plan progress.

The use of these two methods would provide comparable analysis that is essential for banking institutions to estimate loan-to-value ratios and thus make debt capital available. The challenge with TOD projects is that many are “pioneering projects” and therefore do not

¹⁰⁹ Federal Geographic Data Committee (FGDC), www.fgdc.gov (accessed October 28, 2010).

have comparables. Thus, establishing a universal system that can be used as a supplemental means for addressing loan-to-value ratios and instilling confidence is vital for comparable analysis of transitioning areas.

Impacts on Value

This study found that a fundamental gap lies in the paradigm implemented by the various TOD financier decision makers. An inconsistent vision and the lack of a reference baseline render TOD projects difficult to finance and thus TOD plans are a challenge to attain because stakeholders craft individual and unique approaches to value TOD opportunities. Thus, a common process for measuring and managing approved TOD plans and projects would prove beneficial to debt capital funders as a supplemental evaluation method for comparable analysis.

Through a literature review, series of interviews, and spatial analysis of three similar TOD areas, this study found that it is theoretically possible to predict desirability of properties based on the Five Ds of TOD. Effectively predicting the value of land and comparing it to market conditions allows for spatial comparison of plan impacts on property values over time. This form of spatial comparable analysis, based on common variables, could be used as a supplemental method for evaluating the effects of planned areas on TOD opportunities over time to effectively predict lowest risk opportunities in transitioning TOD areas.

Comparables are required for reliable market analysis and valuation. Hence, a model that tracked and monitored common variables for TOD plan progression and TOD projects could, over time, improve comparability of similar TOD projects and plan successes regardless of location. Such a tool should instill lenders with confidence that properly managed TOD plans result in marketable products that are feasible and profitable, effectively reducing debt capital funding barriers for TOD.

Potential Future Research Questions

Major findings of this research are that no common method for evaluating TOD opportunities exists among financiers, evaluation variables vary, comparable analysis is essential for debt capital loan to value determination, no universal system of information exists for consistent data collection, and that it is theoretically possible to predict most desirable land locations using a spatial analysis of urban planning principles.

Therefore, in an effort to further the likelihood of establishing a reliable model for predicting land desirability and measuring plan impacts on land values over time, future research will need to address how to create a universally adopted methodology among TOD financing stakeholders for capturing and measuring common data over time. In addition, future research will need to address best practices for establishing a plan matrix for local agencies to track plan progress. Furthermore, future research will need to identify and define a process and system for open exchange of information that will allow for spatial comparable analysis. Finally, future analysis should include maps extruded to display actual build-out by parcel versus planned build-outs to evaluate plan progression. With an evaluation of plan progression, lenders and planners can assign a weight to progress in order to compare plan progress to property values. Figure 24 is a sample model that incorporates fictitious plan progression values for Japantown, comparing planned building square footages (light gray)

to actual building square feet (dark gray). The tool displays the variance between actual and allowable build-out, whichever is greater is the color displayed. Thus, parcels that show a light gray area can be built-out further, whereas parcels that show a dark gray area are built-out. The analysis allows for quick evaluation of plan progression and gap analysis. Using ArcScene, this 3D analysis can also be manipulated to illustrate gaps by use type. Theoretically, as plans approach closer to completion, property values should be positively impacted due to an increase of the Five Ds.

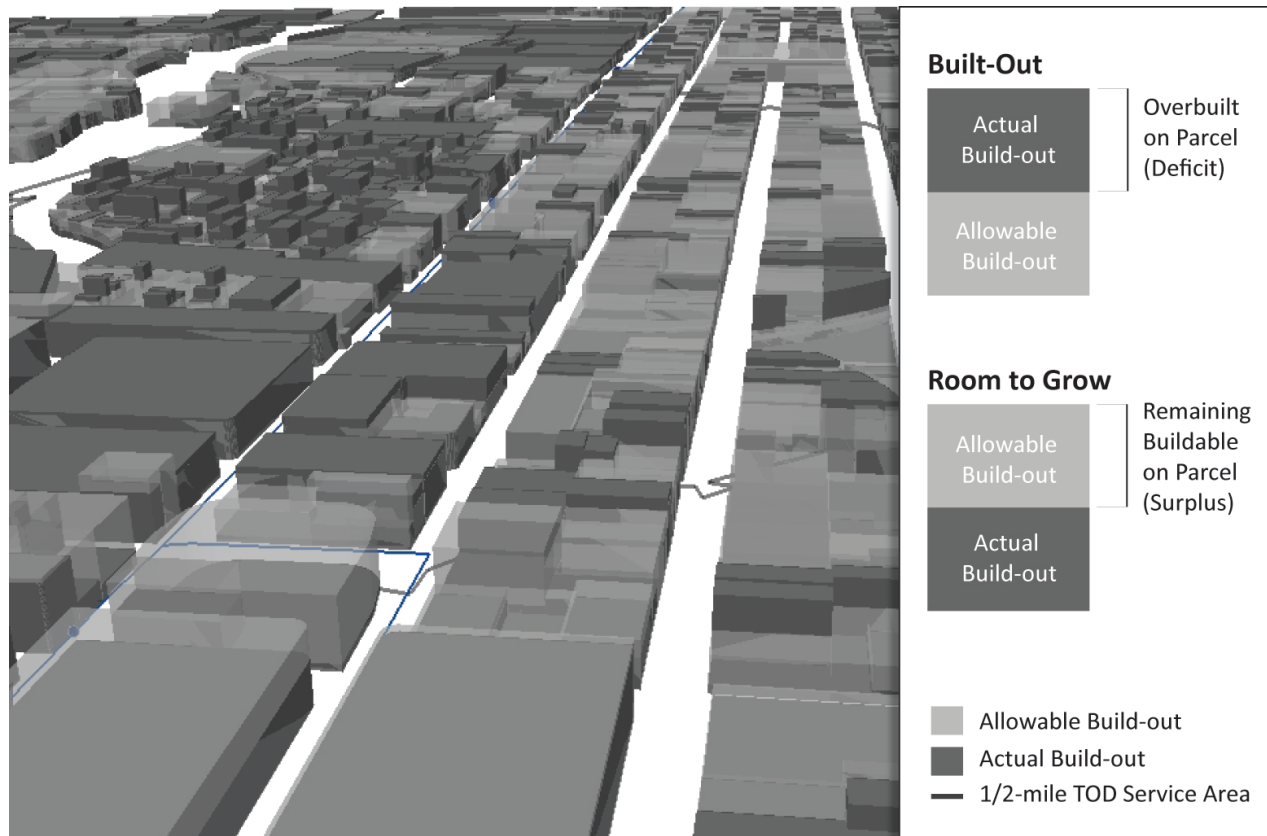


Figure 24 - Japantown Planned vs. Actual Build-out Model Example

Source: Parcel information provided by the City of San Jose. Planned and built-out values for demonstration only, created by author. Figure created by author.

Closing Thoughts

Subjectivity plays a large role in how debt capital funders determine whether or not to fund TOD opportunities. Thus, establishing a universally accepted standard for determining how TOD-planned areas and projects compare to one another will play an instrumental part in how effective TOD plans are implemented. The foundation of such a standard must start with a ubiquitous national land parcel database. The Federal Geographic Data Committee has begun the pivotal effort of coordinating, organizing, collecting, and managing a national land parcel dataset for emergency and economic purposes. However, a major barrier to success is the lack of regional and local agency initiative, incentives, and political will.¹¹⁰ In order to get buy-in of a national land parcel database standard, incentives must exist for all

¹¹⁰ Peter Folger, "Geospatial Information and Geographic Information Systems (GIS): Current Issues and Future Challenges," *Congressional Research Service 7-5700, CRS Report for Congress, R40625* (June 2009): 2.

public and private sector agencies involved, which at this time is not clearly understood nor adopted. Hence, risk abatement and expected return on investment is essential for lowering the barriers to financing TODs. Nevertheless, due to the magnitude and complexity of comparing TOD areas and projects to one another, buy-in from all geospatial and property value data creators, managers, and TOD financing stakeholders is essential for creating a standard. Standards should evolve from best practices and converge to create a convenient system.

Creating a convenient system based on reliable market data would help to establish comparability of TOD plans and projects. Ideally, TOD financiers would be able to access a comparable TOD analysis tool online and evaluate data dynamically. Users would need to define TOD type (per the New Transit Town categories) and the tool would place land use comparisons for various TOD areas next to each other and then display planned versus actual statistics regarding land use/product mix, property values (price per square foot) by type, coverage by type, and density patterns. The tool could be used to quickly identify TOD development trends and their impacts on property values.

In conclusion, the creation of a comparable TOD Plan-to-Plan model will require the convergence of multiple private and public evaluation models, as well as access to real-time market data. Collaboration is necessary for success.

Although financing decision maker evaluation techniques currently differ, stakeholders are working to accomplish overlapping objectives. The end result is the same: all parties want a successful TOD project, so, effectively, stakeholders are working to address the same problem with different constraints. The more decision makers understand and account for partner constraints, the more likely TOD projects will succeed, resulting in a positive return for all stakeholders.

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7. Appendices

Appendix A: Literature Review Findings Matrix and Search Methods

Appendix B: 2008 California Legislation that Promotes TOD Objectives

Appendix C: Interview Questionnaire

Appendix D: Interview Analysis Summary Matrix

Appendix E: Interview Selection Criteria and List of Interviewees

Appendix F: Normalization of Case Study Zoning Codes

Appendix G: GIS Data Preparation and Source Information

Appendix H: GIS Weighted Analysis Parameters

Appendix I: TOD Plan Matrix – Measuring and Managing Success

Appendix J: TOD Research Agencies and Tools

Appendix K: Glossary

Appendix L: 2009 Case Study Real Estate Sales

Appendix A:
Literature Review Findings Matrix and Search Methods

Appendix A: Literature Review Findings Matrix and Search Methods

The purpose of this appendix is to summarize and present relevant facts and findings pertinent for researching, analyzing, and addressing how to remove a barrier to the financing of TOD. Additionally, Appendix A also discusses literature review research methods conducted. The appendix concludes by presenting a detailed literature analysis, including a matrix that illustrates major themes and debates (in red) common to literature reviewed. Articles were grouped by topic and relevance to TOD Financing. The matrix is organized by article topic and comprises two parts; first, a detailed summary of findings by article, second, a count of themes and debates common among literature reviewed.

Literature Review Key Findings:

- Risk is the most important qualitative variable to consider for lenders
- Deregulation separates perceptions of value

Literature Review Main Themes Identified:

1) TOD Financing

- a) Three main funders of TOD
 - 1) Governments
 - 2) Developers/investors (Equity)
 - 3) Lenders (Debt)
- b) No common method for evaluating TOD
- c) More Qualitative than Quantitative measures, managing risk is most important
- d) Deregulation separates perceptions of value
- e) Open Source or common method of analysis encouraged

2) Banking Standards

- a) No common method for evaluating TOD w/in banking industry
- b) More Qualitative than Quantitative measures
- c) Qualitative evaluation considerations: risk, uncertainty, developer reputation, government subsidy
- d) Quantitative evaluation considerations: property values, default rates/risk, credit risk
- e) Lenders do not distinguish between Mixed-use and TOD
- f) Lenders are averse to change rely on conventional analysis methods
- g) Deregulation resulted in closed source analysis by institutions
=> Equity issue as well as a separation of perceived value

3) TOD Policies, Strategies, and Programs

- a) Open Source or common method of analysis encouraged
- b) Governments fund projects that help accomplish initiatives
- c) Governments analyze and implement various Value Capture programs to encourage TOD

Literature Review Research Methods - On-Line Databases, Catalogs and Keywords:

1) Databases searched include, but are not limited to:

- Journal of the American Planning Association
- EBSCO Host Research Database
- Congress of New Urbanism
- Reconnecting America
- Urban Land Institute
- ABA Banking Journal
- Google Scholar (*often links to peer reviewed articles that can be found in the above databases*)
- Google

2) Online database search keywords/terms:

- Mixed-Use
- TOD Property Values
- Transit-Oriented Development (TOD)
- Capital Stack
- Financing TODs
- Mixed-Use Underwriting
- Leverage
- Debt Capital
- Lending
- Banking
- Funding
- Appraisal
- Market Analysis
- Developer Risk
- Lending Risk
- Default Risk
- Credit Risk
- Banking Standards
- Banking Regulations
- Public-Private Partnerships

Note: searches may have included any combination of the preceding keywords.

Appendix A: Literature Review Findings Matrix - Notes

Theme/Debate	Studies	Variables Examined & Findings (sig. in themes/debates in bold)
1	TOD Financing Leinberger, 2005	Financing RE Challenge, RE, investors (Wall Street) and Finance industries averse to change. Revert to understood decision-making rules, Variations in evaluation and decision-making process. 19 standard real estate product types, Nonconforming projects difficult to fund b/c too risky, New method/tool needed, Risk/exposure/liability/uncertainty are big issues, Conventional practices tilt Dev. in favor of sprawl, Need for change to accommodate evolving market needs
2	Belzer, 2009	Three components to TOD Financing: Transit, Dev., & Infrastructure/Place Making, Gov. Programs available if meet policies, Gov. sources insufficient to meet demand, Gov. can help but need to consider Value Capture, Value Capture based on future tax increments requires new Dev., Various Value Capture strategies, Challenge is how various stakeholders perceive value of TODs, Need to change evaluation criteria for Gov. to align with developers, no mention of lender (debt capital)
3	*Brookings Inst, 2009	Gov. can use Value Capture to finance transit, Gov. Value Capture dependent on future development and tax increments, Burden of funding transit on tax payer, Dev. Value transit b/c can improve cash flows and prop. Values, Lenders prefer Value Capture strategies that share risk or shift it to other stakeholder, If Gov. burdened with PMT and credit risk => private sector > likely to do JD by 16%, Study assumes no change in lender's evaluation method, Study highlights varying evaluation factors, Study does not speak to evaluation quantitative criteria, only qualitative, Argues that if Gov. can lessen risk on lenders and Dev. more projects can happen that align with policy
4	*Carlson, 2009	Shows public funding methods vary and are unique in nature, Successful Developers manage risk, Dev. Risks = entitlement, construction, market, financial, Investors and Lenders evaluate associated project risks to evaluate, Risk considerations may overlap or can be different, Lenders have no ownership stake in the project, Lenders often require permanent financing prior to construction loan, Loan-to-Cost 70-80%, Gap is responsibility of developer => Investors, Mezzanine, or Gov., Banks review and compare similar projects by location, Banks evaluate project on a project-by-project basis, Variation in perception of value/segmentation of standards, Banks not familiar with TOD, Not enough good/common lender TOD models exist
5	*Fogarty, 2009	Transit can increase property values, Increased demand for properties served by transit, Gov. hope to tap into future increases in value via Value Capture, Dev. Value transit as an amenity, Difficult for various stakeholders to measure extent of futures and how best to capture it, Variation in evaluation criteria
6	*Gordon, 1997	Risk reward consideration when investing, New project models are considered risky, If banks wont finance a project investors & Dev. wont risk capital, Large Dev. generally not first to adopt change ("crossing the chasm"),
7	*Venner, Ecola, 2007	TOD Dev. face sig. financing challenges, Lender concerns regarding new TOD models (risky), New analysis/evaluation methods needed!, TOD demand may help push funding, Lenders slow to support due to uncertainties, No apples-to-apples way to evaluate TOD, New models are risky, so TOD in transitioning areas = especially challenging!, Bankers revert to conventional decision-making tools b/c they have well-documented track record, Reiterates positive correlation between transit and property values, TOD is new, does not fit in conventional evaluation methods, 19 standard RE product types, Lenders averse to change!, Project by Project analysis not plan by plan, New/progressive models needed, Suggest tracking and showing successes of TOD in new method over long run, Variations in perceived values of TOD
8	Banking Standards Bender et al, 2008	Enforceability of contracts and late fees is important to lenders, Default risk is a key measure, Author and Lenders favor more flexible unconscionability standard of evaluation for courts, Lenders value predictability, Lenders try to determine loss potential, 90% of cases value of prop. != debt, resale, or carrying costs, Enforceability varies by region, Lenders rely on deficiency judgments as back-up to enforceability, Freddie Mac est. that ave. foreclosure ~\$58,792 and takes ~ 18mths, Foreclosure does not remedy losses, "No precise recipe to guide them" or variation and discretion to interpret, Reasonableness test is more strict than unconscionability std, Reasonable test standard is same for Res. or COM RE, Courts uphold contracts that are within bounds of the industry (stay with what works), Lenders cannot predict the future, Loans are risky therefore lenders should safeguard themselves (reasonableness std), Lenders evaluate loans for potential to package and resell, Most courts favor mortgagee != mortgagor, lenders use default interest to mitigate default risks associated with future losses based on actual performance, Courts and policy fuel lenders risk aversion tactics, Lenders retreat to commonly accepted practices, Lender default costs > loan costs, Incongruent policies cause confusion and cause lenders to take the safe route, No STANDARD, Risk is hard to predict,
9	Brown et al, 2008	Banking industry is evolving, More variables to account for (beyond standard 19 product types), Need to consider how best to address risk factors, Lenders need to consider new decision-making factors, Lenders can impact carbon emission goals, More stakeholders = more variables = more risk = harder to measure,
10	Cocheo, 2008	Lenders argue that Gov. sending conflicting signals, Lenders are conservative, Lender's goal is to avoid risk and contraction of credit, To predict the future and evaluate risk lenders analyze the past, Lenders use proven models
11	Gerding, 2009	Gov. deregulated (BASE II) financial risk models, Deregulation lead to proprietary models, Deregulation lead to a failure of the financial-industry, New common model needed to reduce variation and interpretation, Lack of disclosure = equity issue, Disclosure and common definitions would help level the playing field, BASE II allows lenders to shift/split risks => result is current financial crisis, Lenders want to minimize risks and uncertainty, Rising IR can cause tightening of lending and constrain supply of loans, Create common method of loan evaluation that all stakeholders can use, Define common principles and analysis methods,
12	Guo et al, 2009	Credit rating syst. Based on logistic regression, Lenders should measure impacts over time, Current models have gaps/limitations, Tools need to account for change, The more variables a tool can consider the more valuable it can be,
13	Immergluck, 2009	Failure to regulate financial market => financial crisis, Variation in analysis and value causes misalignment of perceptions, What disclosure available were not for lieu person, Uncertainty can impact liquidity = risk, When there are less loans they are generally better loans, Lenders do not want to be regulated (free markets), Create common definitions, regulation, and methods,
14	LaCour, 2008	Mortgage termination risk is considered when deciding to fund a project (what if the loan stops or is paid early?), Lenders determine whether to put loan in portfolio or to sell off to 2ndry market, Lenders use proven and commonly accepted models, Varying evaluation variables lead to mismatch between predictions and actual, Comm. MKT varies > Res. RE evaluation methods, Comm. differs b/c insurance is a challenge, non-recourse loans, and refinancing risks, Uncertainty = Risk (the more variables, the more varying variables, the more risk),
15	Miceli et al, 2003	Risk of policy and land claims, Land owners prefer a time limit to be able to defend claim on land,
16	Rizzi, 2008	Underwriting is the discretion of each lender = no standard, Banks do not have TOD model or commonly accepted method for analysis = risky, Institutions evolving to address risk issues, Classifies risk as either high frequency (predictable) or low frequency (unpredictable), Behavior finance used to gather, interpret and process risk to influence behaviors and shape decisions, Current crisis b/c lender models != account for liquidity risk, Banks still cautious b/c liquidity issues and underwater assets, Models and analysis methods must evolve to new conditions,
17	Clapp, 1980	Banks specialize in perceived risks, Lenders prefer low risk, Cluster effect b/c banks tend to approve like products after a few are "proven," Snowball effect caused by demand = lower perceived risk = lower IR,
18	Equator Principles	New models needed, Standards needed, Institutions are open to idea and membership
19	Hays et al, 2009	Banks analyze perceived risks differently, Banks qualify applicant reputation, Banks have repeated similar mistakes as in the past and repeated a financial down cycle, Several contributing factors to current crisis, Crisis was predicted in 2000, Banks not lending constrains market cash flows, Switch between traditional Res lenders and Comm lenders (filled gaps, but did not know product types), Banks must be able to assess risk, Inability to accurately assess risks due to infrequent observations, If lenders believe risk is abated = they make riskier loans, Regulations advise banks from [excessive] of RE loans (lesson from 1980's), Banks did not listen and overloaded portfolios with RE
20	Miles et al, 1989	RE loans are placed on a firm's balance sheet and concentrations of RE loans are ignored, Lending theory != banking reality, New evaluation tool needed, Banks do not fully understand potential impacts of RE on balance sheet = risky,
21	Panagopoulos et al, 2009	Quantitative regulations suggested to ensure prudent lending (i.e. common methods/models), Argues for loan-to-value (LTV) and periodic and frequent property valuation (NOTE: LTV still subjective to the discretion of each lender!), Increases in RE => likely to increase in supply of credit (snowball effect), Conventional [credit] is common source of credit problems for banks (most don't manage RE portfolio well), Banks play a critical role in the financing of RE companies which are highly leveraged, Lending attitudes of bankers play a role in decision-making (perceptions), Lending practices in RE are cyclical in nature, RE markets related to credit cycles due to reliance of debt financing, Comm prop. cycles impact credit cycles (not the other way around), Comm banks heavily tied to prop. loans, Problems in prop. sector => bank failures if RE large part of portfolio, Evidence shows bank crises are related to RE company failures, BASEL II framework is too simple, New more sophisticated model needed, More research is needed b/c no standard exists, Many variables to account for (i.e. policy, market, economy, etc)
22	Thygeson, 1978	Futures are difficult to predict, Lenders manage risk, When opportunities are too risky lenders stop lending, Very difficult to predict IR changes, Models not accurate to hedge risks => best lender option is to raise price of loan,

Appendix A: Literature Review Findings Matrix - Notes

Theme/Debate	Studies	Variables Examined & Findings (sig. in themes/debates in bold)
23	Survey Qs!!! Bayster, 2005	Findings: To secure mixed-use financing a Dev. must; 1) the size of the developer in relation to the project (reputation), 2) the amount of pre-leasing and pre-sales contracts negotiated, and 3) the ability to compartmentalize the project by use, New method needed to appease lender concerns, Lenders are risk averse, Lenders base loan amounts based on risk management, Debt financing is 1) construction loan 2) permanent loan or 3) mezzanine loan, Construction lending mostly local banks, Construction loans often based on Dev. guarantee/reputation b/c not backed by property, B/c not secured by prop. often require permanent loan must be in place 1st, Comm. construction loans 2x default as Comm. permanent loans, Loan-to-cost ratios ~ 75%, FIRREA outlined stricter underwriting and strengthened capital standards, Each institution must set requirements/thresholds which to base their decision to proceed or not (18) based on regulatory guidelines, Institutional requirements are up to the discretion of the institution and may vary!, Risk evaluation before and during construction!, Evaluation process: 1) location & Mkt analysis 2) land value 3) design and Z approvals 4) construction budget and schedule 5) Dev. track record and equity 6) recourse and guarantee options 7) degree of leverage (LTV 40-80% or LTC 70-75%) 8) Alignment with exiting bank strategy (19), Fannie Mae Res. lender l= 20% of total revenue of the project can be non-Res uses!, "Each Lender has different appetite for risk (20), Perm. Lenders value predictability to match long-term investment strategies/liabilities (20), Generally only large institutions do both commercial and permanent lending, Tenant credit matters for pre-leases! (21), Mixed-use is a new/more complicated model (23), Traditional lending => Dev. single-use types, Variable pressures/factors push lenders to revert to common methods, Lenders consider: 1) structure of borrower entity 2) RE asset/portfolio & Agreements 3) Construction risk management 4) allocation of project costs 5) multiple sources/funders (25), Mixed-use lending has many levels and is complicated, Projects all over the US share similar evaluation methods from different Dev (55), Lenders are funding MU largely based on Dev reputation!, Historically lenders did not fund MU easily or at all! As little as 3 yrs ago (2003) (56), Perceived risk of MU is HIGH!, REFER TO SCREEN CAPTURES FOR RANKING RESULTS OF TOP 10 THINGS LENDERS PERCEIVE AS MOST IMPORTANT!
24	Hwang, 2001	MU property loans 2nd most popular comm. loan types behind multifamily, No common method to underwrite, only guidelines!, Copy the guidelines!, Loan evaluation and determination up to each underwriter's discretion!,
25	McDonald et al, 2004	
26	TOD Policies, Strategies, & Programs SFO Ridership	Refer to TOD MKT Place Rpt => Ridership is up, No discussion if due to population or other reasons.
27	FOCUS	Carbon, smart growth, and population objectives can be attained according to this strategy/program. Gov. pushing hard to create a pull strategy (with \$).
28	Caltrain Ridership	Refer to TOD MKT Place Rpt => Ridership is up, No discussion if due to population or other reasons.
29	Cevero, 2004	TOD = tool for curbing sprawl, addressing CO2 issues, congestion, Market demand for TOD b/c of commute/congestion, No common method to approach/analyze TOD, Disconnect between theory and reality to implement TOD, Dev. and Lenders not on the same page, Debt capital hard to secure using conventional methods, Funding governed by fundamentals not urban planning principles, Lenders do not account for transit as an evaluation factor, Everyone perceives TODs differently and approaches them differently, Argues for more research and a better understanding of programs and methods, New methods needed to quantify impacts!, Need models and methods to effectively communicate benefits and results,
30	Dittmar & Ohland	
31	Envision TX, 2008	Lenders averse to change, Lenders consider MU high risk, Lenders favor proven models, No standard tool for evaluation, Feasibility up to each lender => some may have biases, Result is conventional/conservative development, Generally understood that good urban planning will surpass conventional development in value in the long run!, MU mature in ~ 15 yrs vs. conventional ~5yrs, More time = more uncertainty, New models/tools/methods needed
32	Hale, 2006	Low-occupancy vehicles => make it hard to fund TOD (i.e. conventional models hinder change), Land owners (government.) can burden risks by giving equity share to other stakeholders, Projects need to be profitable to happen, Recommends transit agencies champion TODs b/c complexity and need for sponsor, New tool needed that links transit improvements to realized value to lessen perception of risks, Gov. cannot fund TODs alone,
33	Leinberger presentation, 2009	
34	MTC Task 6A	Study alludes to analyzing the mix of uses in a TOD to track performance, New methods of analysis needed,
35	MTC Res. 3434	
36	MTC TIP	
37	MTC Task 6F	Need to educate stakeholders to bring them all on the same page, New programs needed, TOD is a new model, Insufficient experience in current market, Standards needed, Champion needed, Ensure eligible stakeholders are at the table,
38	MTC Financing TOD	Event after plans are adopted TODs still face challenges financing projects, TOD problems cannot be easily addressed through traditional funding and financing mechanisms, TOD opportunities are located in more suburban locations (PDAs), Debt capital lenders needed, TOD evaluation is complicated and involves several variables, Transition or change of commonly accepted models are perceived as risky (i.e. PDA areas),
39	MTC State of System Rpt	
40	Ohland, 2008	
41	Niles, 1999	
42	Renne, 2005	
43	TCRP TOD Rpt	
44	VTA Ridership	Refer to TOD MKT Place Rpt => Ridership is up, No discussion if due to population or other reasons.

Appendix A: Literature Review Findings Matrix

			Funder				TOD Financing					Banking Standards											TOD Policies, Strategies, and Programs									
Theme	Study	Peer Rev.	Gov.	Developer	Investor	Lender	Varying Evaluation Method	Barriers/Challenges	Capital Structure	Thresholds	Funding Strategies	Evaluation Criteria	Measurable Variables	Old Models	Varying Models	Argues for Common Method	Securitization/Shared Risk	Credit Risk	Default Risk	Revert to Common Model	Other Risks	Deregulation (BASE II)	Uncertainty/Enforceability	Gaps	Barriers/Challenges	Loan Structure	Programs to Bridge the Funding Gap	Stakeholders	Benefits			
TOD Financing	Leinberger, 2005		1	1		1	1	1	1	1	1	1								1	1			1	1							
	Belzer, 2009		1	1		1	1	1	1	1	1	1								1	1			1	1							
	Brookings Inst, 2009	1	1	1	1	1	1	1	1	1	1	1	1								1				1	1	1					
	Carlson, 2009	1	1	1		1	1	1			1	1										1			1	1	1					
	Foortv, 2009	1	1	1		1	1	1		1	1	1													1	1	1					
	Gordon, 1997	1	1	1	1	1		1				1						1		1				1	1							
Fixed Use Banking Standards	Venner, Ecola, 2007	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Bender et al, 2008	1				1						1		1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Brown et al, 2008	1				1						1		1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Cocheo, 2008	1	1			1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Gerding, 2009	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Gus et al, 2009	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
Methods & Strategies	Immergluck, 2009	1	1			1						1		1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	LaCour, 2008	1				1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Miceli et al, 2003	1				1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Rizzi, 2008	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Clapp, 1980	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Equator Principles	1				1						1		1	1	1	1	1	1	1	1	1	1	1	1	1	1					
Loan Structures	Hays et al, 2009	1				1						1		1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Miles et al, 1989	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Panagopoulos et al, 2009	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Thyrgerson, 1978	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Bayster, 2005	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	Hwang, 2001	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
TOD Policies, Strategies, and Programs	McDonald et al, 2004	1				1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
	SFO Ridership																															
	FOCUS																															
	Caltrain Ridership																															
	Cevero, 2004	1																														
	Dittmar & Ohland																															
	Envision TX																															
	Hale, 2006	1																														
	Leinberger RPT, 2009																															
	MTC Task 6A																															
	MTC Res. 3434																															
	MTC TIP																															
	MTC Task 6F																															
	MTC Financing TOD																															
	MTC State of System Rpt																															
Ohland, 2008	1																															
Niles, 1999	1																															
Renne, 2005	1																															
TCRP TOD Rpt	1																															
VTA Ridership																																
			25	14	10	5	27	12	12	7	7	11	22	11	14	22	9	6	7	9	20	3	13	14	16	9	13	14	13	13		
			61%	34%	24%	12%	66%	29%	29%	17%	17%	27%	54%	27%	34%	54%	22%	15%	17%	22%	49%	7%	32%	34%	39%	22%	32%	34%	32%	32%		

Appendix B:
2008 California Legislation that Promotes TOD Objectives

Appendix B: 2008 California Legislation that Promotes TOD Objectives

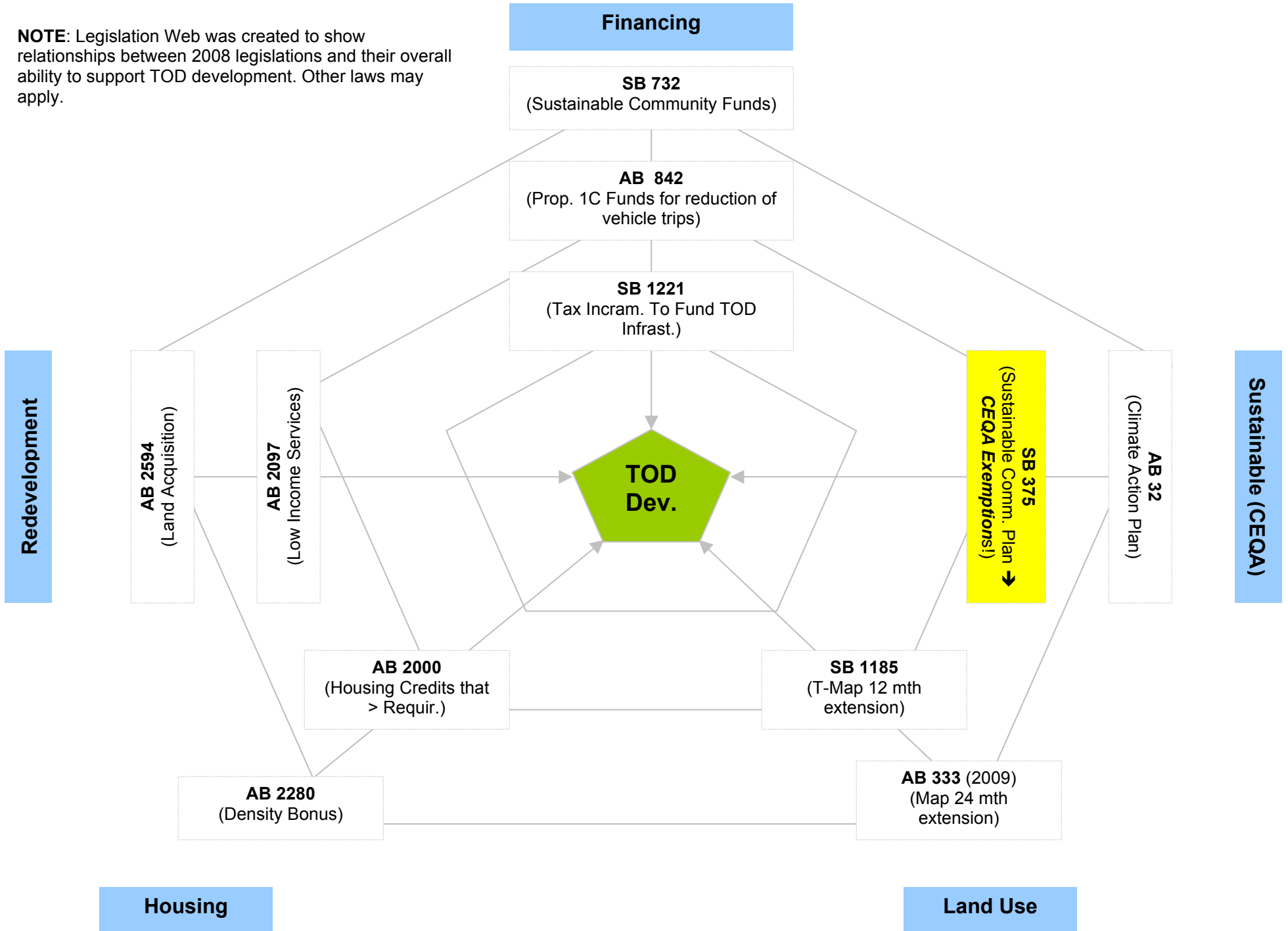
Appendix B is a diagram of related policies in California that directly or indirectly advance TOD. The purpose of this appendix is to illustrate one example of legislative initiatives that promote TOD. Although not a comprehensive list, this snapshot of approved 2008 legislation supports the fact that many governments aim to achieve several principles congruent with the 5 D's of TOD.

All information comes from the CP&DR 2009 Newsletter.

Appendix B: 2008 CA Legislation that Promotes TOD Objectives

Source: CP&DR Newsletter. Created by Rick Gosalvez

NOTE: Legislation Web was created to show relationships between 2008 legislations and their overall ability to support TOD development. Other laws may apply.



Appendix C:
Interview Questionnaire

Appendix C: Interview Questionnaire

Appendix C is the questionnaire used to interview both TOD policy makers and debt capital lenders. Thirteen questions were asked to interviewees. Interviews were scheduled and conducted in accordance to San Jose State University's IRB policies and procedures.

Interviewees were provided questions in advance to interviews. Interviews ranged from 30 minutes to 60 minutes depending on the depth of explanation and examples discussed. Refer to Appendix D for a detailed summary of interview findings and analysis.

Interview questions were crafted to address opportunities, challenges, and best practices associated with TOD policy and financing from a lender's perspective. The goal of conducting interviews was to see if common analysis methods and strategies exist between TOD financing decision makers when determining whether or not to support TOD opportunities. From overlapping considerations, variables were extracted and examined using GIS (refer to Appendix H) to evaluate potential tools for removing a barrier to the financing of TODs.

TOD Financing: A Lender's Perspective

Please address comments, concerns, or questions to Rick Gosalvez, SJSU MUP Candidate at (408) 984-0503 or rickgosalvez@gmail.com

Subject Area	Question
Confirmation of research	1 How would you define TOD?
	2 Have you been involved in the financing of a TOD? If so, can you please describe the project?
	3 How is TOD (project) financing typically structured? Is there a common practice?
	4 To what degree are lenders involved in making TODs happen?
	5 Is there a standard for evaluating TOD opportunities among the various stakeholders (for financing purposes)? Within the banking industry?
Lenders: Strategies, Evaluation Methods, Risks	6 Are TODs considered a favorable/profitable model by lending institutions? Why, why not?
	7 Are TOD financing arrangements static (fixed for term of agreement) or dynamic (evolve with project)?
	8 How do lenders evaluate TODs opportunities? What evaluation techniques are considered best practice?
	9 What factors are essential for a lender to support a TOD project? Why? (i.e. developer reputation, location, project planning stage, project flexibility, equity contribution, BAH, federal financing, build-out phasing, investor terms such as preference, position, pre-leasing, pre-sales, LTV, pricing, exit strategies, CMA, land uses, parking, etc).
	10 What are the biggest risks for lenders? (i.e. mixed-use, neighborhood, entitlement complexities, crime, political climate, longer build time, etc) How are risks mitigated?
	11 When evaluating TOD opportunities, do lenders consider specific plans? Why, why not?
	12 To your knowledge, do lenders compare similar TOD specific plan areas to one another? Why, why not? If so, how?
Other	13 Do you have any other comments or suggestions that you feel could add to this research project?



Additional Information for Research Participants in the Study
“Removing a Barrier to the Financing of Transit-Oriented Development
via a Standardized Evaluation Tool for Debt Capital Lenders.”
(Responsible Investigator: Rick Gosalvez)

Please read carefully the following information, which explains your rights as a research participant.

College of Social Sciences

**Department of Urban and
Regional Planning**

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San José, California 95192-0185
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www.sjsu.edu

1. You have been asked to participate in a study researching and investigating strategies, risks, and best practices of debt capital evaluation methods for transit-oriented development.
2. You will be asked to participate in a 20 or 30 minute in person or phone interview during which you will be asked questions about your experience regarding strategies, risks, and best practices of debt capital evaluation methods for transit-oriented development.
3. There is no anticipated risk to you from participating in this project.
4. There is no anticipated direct benefit to you from participating in this project other than the extent to which you value contributing your knowledge to help progress TODs.
5. Unless you request otherwise, your name and affiliation will be included at the end of the final report in a list of persons interviewed for the study. In addition, where your comments are especially insightful, the report may quote you and identify you by name. I will assume that your comments are “on- the-record” and that you agree to being quoted, unless you instruct me otherwise. If you wish to share any comments “off-the-record,” simply let me know, and that information will be kept strictly confidential. Finally, to ensure that your views are represented accurately, if the study plans to attribute a quotation to you personally, then you will be emailed a draft of that section of the report that you may review for accuracy.
6. You will not be compensated in any way for your participation in this research.
7. Questions about this research may be addressed to Rick Gosalvez at 408-984-0503. Complaints about the research may be presented to Dayana Salazar, Chair, Department of Urban and Regional Planning, at 408-924-5854. Questions about a research subjects’ rights, or research-related injury may be presented to Pamela Stacks, Ph.D., Associate Vice President, Graduate Studies and Research, at 408-924-2427.
8. No service of any kind, to which you are otherwise entitled, will be lost or jeopardized if you choose to “not participate” in the study.
9. Your consent is being given voluntarily. You may refuse to participate in the entire study or in any part of the study. You have the right to not answer questions you do not wish to answer. If you decide to participate in the study, you are free to withdraw at any time without any negative effect on your relations with San José State University or with any other participating institutions or agencies.

By agreeing to participate in the study, it is implied that you have read and understand the above.

Please keep this information for your own records.

Appendix D:
Interview Analysis Summary Matrix

Appendix D: Interview Analysis Summary Matrix

Appendix D includes two parts. The first is a synthesis and summary of interview answers and discussions highlighting key findings regarding major themes and common discussions shared from interviewee to interviewee by question. The second is a compillation of the raw interview data collected by question and interviewee. The second part of Appendix D also includes a section that focuses on key points interviewees considered essential regarding evaluation of TOD financing opportunities.

Interesting to note, is that regardless of the fact that each interviewee was free to evaluate TOD financing opportunities to satisfy unique goals, risk/reward policies, and objectives, common approaches for evaluating financing opportunities were identified. Thus, common evaluation methods, considerations, and strategies were extracted to create a GIS evaluation model that accounted for overlapping TOD financing evaluation criteria between policy makers and lenders.

Appendix D:
Interview Analysis Summary Matrix

Part I

Appendix D: Interview Analysis Summary - Common Themes and Perspectives

TOD Financing Stakeholder			
Topic	Policy Maker	Lender	Finding
1 Definition of TOD	TOD is a neighborhood or planned area with a mix of uses and developments within a 1/2 mile walking distance to high frequency, high quality rail or bus rapid transit.	TOD is an individual real estate project near identified an transit center. Projects may be single use or mixed use.	Policy makers consider TOD a planned area that comprise TOD projects and adhere to urban planning principles. Lenders consider TOD as individual projects near transit.
2 Role in Funding TOD	Agencies fund infrastructure related projects and may fund individual pioneer projects. Public investment strategies are to catalyze private investment.	Lenders fund construction and permanent loans, including TOD. In healthy markets secondary lenders might subordinate position for higher risk loans.	Agencies fund TOD related projects to catalyze interest in a planned area in hopes of establishing a market and proving market demand. Agencies also provide funds to bridge funding gaps between project costs and available capital. Lenders provide debt capital for proven markets.
3 TOD Financing Structure	Agencies are often called upon to address funding shortfalls. Lending or granting money subordinate to debt capital.	Lenders require primary position to preserve payback. Lenders require an equity contribution from the developer and like agency involvement in complicated projects, such as TOD.	Agencies fill the funding gaps to achieve policy objectives. Lenders are conservative and require primary position to better ensure payback.
4 Value of Debt Capital	Agencies consider lenders an integral player for the successful implementation of TOD.	Debt capital is typically required to make projects viable.	Agencies and lenders acknowledge that debt capital is essential to successfully achieve TOD plans.
5 TOD Analysis Approach	Agencies perceive and approach TOD opportunities independently; however, generally to achieve policy objectives.	Lenders approach TOD the same as any other real estate opportunity. Real estate transactions are unique, therefore require individual evaluation. Analysis models may be similar, but a great degree of subjectivity in lending exists.	Real estate is unique. Although some methods of analysis are applicable to multiple transactions, no common method of analysis exists between or among funding stakeholder groups.
6 How TODs are Perceived	Agencies view TOD planned areas positively and one possible solutions for addressing global warming, transportation, and land use objectives.	Lenders believe that commuter habits revolve around the automobile and therefore do not recognize TOD outside of core urban areas; however, lenders do consider transit an amenity that compliments real estate, yet lacks enough benefit for citizens to abandon cars and demand for parking.	Agencies and lenders are at odds with regard to the value proposition of TOD.
7 TOD Funding Agreements	Agencies offer funding for TOD projects based on a defined scope. Although various components to a project may be eligible for additional funding, once an agreement is established it is generally fixed. New funding agreements are required to address projects outside of the originally agreed upon scope.	Lenders fund projects based on well-defined, well-understood product types. Terms and conditions are negotiated first and remain fixed through the life of the agreement. Adjustments only occur when problems arise.	Both agencies and lenders shield investments from exposure of undefined circumstances by clearly defining project scopes and establishing predictable results based on terms and conditions.
8 Lender Evaluation Models and Best Practices	Policy makers interviewed were unfamiliar with lender profitability models.	Lenders conduct due diligence to assess loan to cost, loan to value, and debt service coverage calculations. Additionally, lenders investigate borrower information to determine probability of default risk associated with a developer and or project.	Lenders apply systematic qualitative and quantitative analysis to determine opportunity risk factors. Common quantitative analysis applied by lenders interviewed include: LTV, LTC, DRC.
9 Essential Factors for Lender Evaluation	Policy makers interviewed were unfamiliar.	Lenders interviewed require similar information, including: developer experience, developer cash reserves, developer history, developer credit history, project plan/design, pro-forma analysis, appraisal, market conditions report, and developer contribution.	Though some of the information is proprietary, market information is readily available to policy makers for tracking project performance within planned areas over time. For example, inventory turn-over, building permits, and vacancy rates. Therefore it is possible for policy makers to measure the success of approved plans as a means of proving that TOD plans yield increases in property values.
10 TOD Project Risk Factors Lenders Consider	Policy makers interviewed were unfamiliar.	First and foremost, lenders determine likelihood of payback. To mitigate risks, lenders do not lend on speculation projects that are not shovel ready. Furthermore, risks are mitigated by proper up front analysis as well as negotiating payback and recourse terms.	Lenders have a fiduciary duty to their investors to protect and grown investments. The best way for lenders to ensure payback to invest in low risk ventures that meet reward objectives. Thus, lenders are conservative to abate risks. TOD or mixed-use urban projects in non urban areas are risky because they are not well understood, nor proven in non-urban markets. To prove that a market exists comparables must exist; however, lenders have no desire to pioneer unproven areas often relying on government to seed the area and catalyze development.

Appendix D: Interview Analysis Summary - Common Themes and Perspectives

TOD Financing Stakeholder

Topic	Policy Maker	Lender	Finding
11 How Lenders View the Role of a Specific Plan	Policy makers were not aware whether or not lenders evaluated specific plans; however, were hopeful that lenders took specific plans into consideration.	Some lenders consider specific plans a priority, while others did not, often depending on the lender's familiarity with the planning process. However, almost all considered specific plans a benefit for instilling confidence; specific plans ensure entitlements and demonstrate government support. Lenders review high level plans, but heavily rely on developers being familiar with site opportunities, constraints, and plans.	Ambiguity exists regarding the effectiveness of specific plans and what role they play in the lending process. Lenders exposed to pioneering project opportunities tended to be familiar with and care more about project opportunities lying within approved specific plan areas. However, underwriting standards review specific plans to confirm entitlements, permits, and approvals.
12 TOD-to-TOD Comparison	Policy makers interviewed do not believe that lenders compare TOD specific plans to one another, but were familiar that lenders appraise the market based on comparables. In markets that lack comparable TOD projects, agencies often champion projects in hopes of catalyzing development.	Projects, not plans, are compared and proximity to opportunity sites is key. Lenders prefer to evaluate proximal comparables; proximity to a project is an indicator of market conditions. However, appraisers may if proximal comparables are not available. Lenders may review other specific plan examples to become familiar with concepts that have worked.	Without data demonstrating that a correlation between the impacts TOD plans have on market rates over time, lenders will continue to rely on conventional appraisal methods that review snapshots of information rather than plan progression and plan impacts over time.

Appendix D:
Interview Analysis Summary Matrix

Part II

Appendix D: Interview Analysis - TOD Financing, A Leader's Perspective Interview Responses
 Please address comments, concerns, or questions to Rick Gordon, SDCS MAP Coordinator at (508) 884-5503 or rkgordon@dotd.com

Subject Area	Question	Interview 1: Leinberger Washington, DC Principal, Brookings Institute	Interview 2 & 3: Nadine Fogarty (Doesn't prefer to participate) San Francisco, CA Principal, Spangco Economics	Interview 4: Bart Hutchins San Francisco, CA VP, GSA
Confirmation of research	1 How would you define TOD?	TOD is - Walkable urban development 1/4 or 1/2 mi from rail transit.	A mix-up of land uses that supports neighborhoods and provides equitable access to public transit.	TOD is a development that is a combination of residential and commercial on or near rail (light and heavy). It may include bus in certain circumstances.
	2 Have you been involved in the financing of a TOD? If so, can you please describe the project?	Yes, as a developer more than once. All over the US. To make the deals work I had to bring in enough equity to attract debt financiers.	Yes, on a plan level, but not at an individual project level. Commissioned by FTA to do extensive work on Value Capture. On the public side has also helped agencies research, plan, and negotiate real estate acquisitions (i.e. Railroad Square, Santa Rosa)	No, but plenty of mixed use projects and since lenders apply the same evaluation criteria to TOD as Mixed use essentially they are considered the same.
	3 How is TOD (project) financing typically structured? Is there a common practice?	No standard practice. "Each TOD is unique" there is no formula for TOD, unlike conventional suburban sprawl.	Assumes that it would not be different from a fundamental project, but would expect that subsidy would be required (i.e. government funding infrastructure); hence value capture	No common practice exists b/c each case is unique; however, common factors considered include market rents, market expenses, CMAA, Aggregate Rental Values (market rents less vacancy rates - Residual NOI, which a CAP rate is then applied to to determine NOI feasibility). Additional criteria includes, LTC, LTV (based on a cap + NOI + a RL), Debt Service Cash Rates (minimum is 2.11% b/c of the variables & combinations of incomes must support DSCR) Common criteria used for all projects (LTC, LTV, DSCR)
	4 To what degree are lenders involved in making TOD happen?	Lenders are an essential partner to ensure TOD happens. Without lenders there would not be TOD.	Lenders play an important role b/c essentially all TOD projects are funded to some degree by loans, but developers are the champions.	Lenders often required b/c not many developers or government agencies pay all cash. This is b/c they prefer to leverage their money to improve ROI.
	5 Is there a standard for evaluating TOD opportunities among the various stakeholders (for financing purposes)? Within the banking industry?	No standard b/c the problem is that loan officers typically specialize in one product type and TOD is often multiple product types (vertical). Therefore, TOD projects often require more than one loan officer to coordinate. More contacts = more complexity, more process, more risk. Additionally, vertical product types introduce problems in construction. Horizontal, or single use product types within walkable urban areas are easier to finance b/c fewer variables = less complexity. There are not TOD regulations unless lender has internal policies or Fed funds impose certain requirements (i.e. affordable or social equity) => rely on TOD areas.	No standard. In fact based on recent research it seems that the public sector might have a lack of understanding with regard to density and its ability to feasibility support TOD. Their misconception is that many public agencies are under the impression that density is the answer to funding and community benefit objectives, which is not necessarily the case. In fact, in some instances due to codes, materials, market conditions, etc an inflection point exists where density costs more than potential profitability, thus rendering many projects unfeasible (the curve is more of a step ladder effect). Additionally, in many instances planning is not doing a higher and best use analysis to craft plans, but rather trying to balance the likelihood projects will happen that the community desires. Thus, it can be said that decision makers do not always approach TOD opportunities the same way b/c not all (public policy makers) understand the complexities of financing such projects. "Planners beware, density does not necessarily solve financing problems and accomplish community objectives."	No b/c markets and projects differ. For example, policy makers may approach TOD opportunities as what benefits their community from a tax income, aesthetic, or conformity perspective where, developers may approach TODs from a profitability perspective (either short (for sale product) or long term (lease), where as lenders typically approach projects from a feasibility and risk aware perspective to ensure the likelihood they will get paid back.
Lenders: Strategies, Evaluation Methods, Risks	6 Are TODs considered a favorable/profitable model by lending institutions? Why, why not?	It's hard to say b/c today's market lenders are not lending. However, the question is, when the market comes back will they? My concern is that they will revert to what they know, "the devil in what you don't know vs. the smaller devil in what you already know."	Not sure. Nadine was not familiar with how lenders' perceive TODs, however, she assumed that they evaluated projects on a case-by-case basis applying relevant criteria to analyze opportunities.	Lenders are indifferent, what matters is whether or not the project will happen and the level of risk required to make it happen; however, TODs they are very great because they should impact the market, they are not great when they are not. Additionally, lenders view TODs as a benefit b/c of increased access to project/lease of access, which should increase marketability and lease ability (i.e. convenience).
	7 Are TOD financing arrangements static (fixed for term of agreement) or dynamic (evolve with project)?	TOD loans are dynamic b/c TOD projects often exhibit longer than average product life cycles, which is further complicated when TOD is created as income property and leases become essential to the success of the project. Thus, it behooves both parties to evolve the loan accordingly to meet mutual objectives.	TODs are often joint developments, hence financing is complex and dynamic. Financing is often cobbled together over a period of time, thus adding to the complexity of financing and the number of stakeholders.	Dynamic. Every real estate development funding project is dynamic b/c of differing borrow equity requirements and the various levels of funding. For example, one might think of funding as DYNAMIC through development, but STATIC after completion (see graph advice illustration).
	8 How do lenders evaluate TOD opportunities? What evaluation techniques are considered best practice?	Successful lenders consider the communities and markets within which they operate. When lenders are committed to the community they tend to understand the nuances of what makes projects work as a committed partner. Regional, local, and national banks committed to walkable urbanism tend to exhibit a higher level of success with TOD b/c they understand the product and its complexities.	Not familiar	Lenders evaluate opportunities for feasibility and economics. For example, measures include market rates, equity rates, owner occupancy rates, break even analysis, removal of outliers, design considerations (how will people perceive the project? developer reputation carries a lot of weight (b/c lender knows the dev won't let project fail)) Phasing to reduce exposure. Lenders compare the projects to one another, when few exit assumptions are required but assumptions + risk! Always try to anticipate, estimate, and forecast best, worst, and worst case scenario in relation to market forces. Apply interest rate to DSCR, but based on project IR when project is complete (future value). This helps lower barriers to funding. Lenders don't do projects based on specs (presumption that "if you build it they will come"). Pre-assess required for commercial, not so much for residential, but pre-sales are a bonus. The loan is based on the entire capital stack, not just the debt component! Capital stack is Equity (Phase 1), Mezzanine (Phase 2), and Debt (Phase 3), which limits debt capital lender's exposure to the project b/c equity and mezzanine or construction loan typically required prior to debt, which is typically phase 1 of the project, thus proving that there is demand exists for the project (Phase 1) and that the debt service can be met based on cash flow. Lenders know their exit strategy going in, and depends on the product type. For income properties it's all based on cash flow. Moving parts that must be considered as a risk. Examples of moving parts ALWAYS considered include: rents/lease, vacancy, NOI, Cap Rate, IR!!!
	9 What factors are essential for a lender to support a TOD project? Why? (i.e. developer reputation, location, project planning stage, project flexibility, equity contribution, BAK, federal financing, build-out phasing, lender terms such as preference, position, pre-lease, pre-sales, LTV, pricing, exit strategies, CMA, land uses, etc).	It depends; for sale properties tend to be a bit less complex b/c pre-sales are fairly straightforward. However, income property tends to be more complex b/c there are more variables associated with lease obligations and lease mix. That said, two essential considerations lenders evaluate include 1) loan to value ratios. The more the equity stake in the project a developer or other partners have, the more vested and less the lender. This calculation helps ensure repayment of the loan 2) credit back-up. If the market, developer, or project take a turn for the worse, what assurances/insurances do the vendors have against losses? This is a caution in case of downturn. "My preference is to get up more equity."	Not familiar	No, b/c typically look at opportunity on a project by project basis. What lenders want are assurances in the form of entitlements and agency approvals. However, lenders do look at approved specific plans and other documents if lending on raw land w/o entitlements, so yes in all instances for raw land loans. Approvals carry the weight of assurance, where as processes are unduly uncertain and thus risk. The longer it takes to ensure a return on their investment the more risk they must assume, and thus the greater the interest rate they must charge
	10 What are the biggest risks for lenders? (i.e. mixed use, neighborhood, entitlement complexities, crime, political climate, longer build time, etc) How are risks mitigated?	The biggest risk is not understanding or having a familiarity with the performance of multiple product types within the same project (vertical risk > horizontal risk). The risk is that one product type may suffer thus rendering a partially leased property unprofitable vs. if a project were one product type that did not work, it the entire project could be scrapped they could start anew. Additionally, comparable data for vertical mixes is difficult to come by, so they have to move out of the area to try to find similar products that may not be in comparable area types, thus valuation is not consistent and risky.	Not familiar, but would assume lenders would approach the same as any other investment. "Transit is just one factor that adds value to a project."	Developer fees add to the total cost of the project, even if postponed someone needs to pay, so no difference if Dev. Pays up front or over a period of time, net gain gain. But either way they impact the loan and require the developer to put up more equity. The question is when? The biggest risk is uncertainty and how to evaluate it... what lenders need to have high confidence in is "will they get paid back and when?" Phasing a strategy for hedging risk. Another mitigation tactic is recourse (could be developer or entry), lenders want to be sure that developers have skin in the game and will not let the project fail!
	11 When evaluating TOD opportunities, do lenders consider specific plans? Why, why not?	With TOD and walkable urbanism, more is better, thus approved specific plans are great (developer) selling (look and improve seller credibility with investors (lenders). However, some lenders get it, some do not. Thus, it is up to the developer to educate the lender that the project opportunity is a part of a greater whole. Because approved specific plans demonstrate community support, most banks get that a plan is a road map and an opportunity as well as its inherent risks. If the bank does not understand the benefits of a specific plan, then they will not fund the TOD.	Not sure, but mentioned that no one tracks plan progress. Plans are created and components are often never realized. NYC may do this, but Nadine was not familiar.	No, b/c typically look at opportunity on a project by project basis. What lenders want are assurances in the form of entitlements and agency approvals. However, lenders do look at approved specific plans and other documents if lending on raw land w/o entitlements, so yes in all instances for raw land loans. Approvals carry the weight of assurance, where as processes are unduly uncertain and thus risk. The longer it takes to ensure a return on their investment the more risk they must assume, and thus the greater the interest rate they must charge
	12 To your knowledge, do lenders compare similar TOD specific plan areas to one another? Why, why not? If so, how?	No not yet, because comparing plans to plans is not well documented nor understood. However, my major research project currently is to oversee a Brookings and Harvard project that aims to create a method to compare plan areas to plan areas.	Not sure, but mentioned that CTOD is working with Strategic Economics from a Rockefeller Foundation grant to study "Place type" mix of uses and intensities and compare land use potentials.	No, what matters most are approvals and entitlements. If a developer has the right and know how to build a project, the likelihood it will happen is high, thus potentially a good project (market permitting).
Other	13 Do you have any other comments or suggestions that you feel could add to this research project?	"TOD's works best in pre-existing walkable urban markets." (TODs begin TODs). Research Joe Cortright with www.cdotcities.org (works under Carol Kolletts) \$ per sq ft of SFR and walkable Urbanism and RE Economics recent article by Gary Pivo that looks at 5 of 10 SFR and SFR and finds almost a 1:1 relationship between one point in walkscore and price/per sq ft. I.e. one point is Walkscore = \$1 increase in price per sq ft. Larry Frank and Marler Atlanta found that \$ premiums exist for SFR in Walkable Urban areas between 40-100%! "Lenders are like offensive linemen, they are in a no win situation. If the running back could not run through a gap the O-line gets blamed, if the run works, the running back gets the credit. Same for lenders, if they get a loan paid back they did their job, if the loan defaults they get fired."	Nadine is releasing a new report on Value Capture and found that 1) most agencies do not understand the relationship (fundamentals) of financial feasibility and density. Also, she found that most development occurred in and around employment and downtown/transit centers.	Best recommended contact a credit specialist... follow-up with him
Major Finding of Interview:	Brookings working with Harvard to create a method for comparing similar TOD-to-TOD plan areas (not just project to project).	Planners and agencies don't track progress! RECOMMEND an agenda that provides a means to track and analyze plan progress (Existing conditions vs. Planned Uses (by type & sq ft range) vs. Actual Results). This table could provide a useful tool for tracking data and plan progression => plans impact on values!	LENDERS ALWAYS consider: MARKET Rents/lease, vacancy, NOI, Cap Rate, IR!!!	

Subject Area	Question	Interview 5: Joan Usher San Francisco, CA 1/26/10 @ 1am	Interview 6: Marguerite Moyet Seattle, WA Feb 16/10 @ 10am	Interview 7: Megan Gibb Portland, OR March (Prevised Monograph) TOD Manager 7/20/10 @ 3:30pm	Interview 8: Rick Scudder 8/10/10
Confirmation of research	1 How would you define TOD?	TOD is any development surrounding or adjacent to a transit source. Any type of development (retail, no. office, mix, etc other) is irrelevant. TOD is a project. Lenders like TOD b/c it is people coming to it. However, they are not always viable b/c the flow does not support certain projects.	TOD is a development that wouldn't stand alone, for example a project serviced by multiple services/amenities within or adjacent to a transit center. It's the transit that makes it unique.	TOD is a location efficient district with that affords living and working in an area with frequent high quality transit service (5 D's of TOD: Density, Distance, Destination, Diversity, & Design). The area should provide access and be connected to places people go and want to go. The area should serve residents by providing mix of uses. To do this TOD districts are typically comprised of several projects that conform to the 5 D's of TOD projects that are not simply transit adjacent, but transit oriented.	
	2 Have you been involved in the financing of a TOD? If so, can you please describe the project?	Yes, Newberry Square outside of Seattle, WA is a mixed-use development within walking distance to a bus transit center. The development includes residential, retail, office. The project is an income property (i.e. residential - apartments). Lease-up was slow, but after a part was built the lender was able to fill out of the loan and open opportunities for the developer to develop the next phase of the project.	Yes, a couple. For example, Newberry Square in Bellevue, WA. KeyBank was the conventional (permanent) lender. The project was classified as TOD b/c it was across the street from a bus transit center and park'n/r. The project called for a lot of restrictions, which made it difficult to lease up, so the project took 7 years to complete and was not a favorable project. Parking was the culprit b/c people would not pay to not have a car. KeyBank was able to re-structure component, but not commercial with Fannie Mae. KeyBank still has commercial as a liability on the books. Another project example is Kent Station in WA, which was a TOD b/c of the mixed use and proximity to transit services. This project shared parking with the transit garage, which was fully parked during the day (riders), but empty during evening. This parking arrangement killed the retail b/c the patrons of the garage were riders and not retail patrons, so the parking was used up but not by customers. At night when people returned to their cars they simply wanted to get home and did not frequent the retail. The result dictated that the mix of tenants were more & pop those (ie anchor) that were exposed to a great deal of flow.	Yes, Metro's TOD program was created to facilitate TOD projects that could be used as comparables for future projects. Metro makes TODs happen by bridging the gap between equity + debt capital and the total cost of the project through non-conventional financing mechanisms (i.e. TIF, Tax Credits, etc). To date Metro has helped finance and develop approximately 30 projects. The majority of projects have focused on housing, but include office & commercial.	
	3 How is TOD (project/financing typically structured) is there a common practice?	It depends, but how loan approaches TOD is to evaluate individual components (i.e. Rec, Retail, Office, etc) and determine if and what the value of each component is and what and how much they will fund under what conditions. Banks evaluate viability of each product type independently. For example, there have been instances where the bank would lend on residential, but not the retail or required phasing, such that residential were built first to support the next phase (NOTE: set a trigger/threshold level to move on).	No common capital stack structure. It depends on the project; however typically, the capital structure of a TOD project comprises debt + equity, if that is not enough to cover the costs a PPP may be required to bridge the gap.	Structures vary from project to project and depend on the mix of equity and debt. TODs do not follow conventional capital stack structures of simple debt and equity. However typically to make TODs happen a variety of non-traditional funding sources are required to fill gaps between equity + debt and project costs.	
	4 To what degree are lenders involved in making TOD happen?	Typically, TODs, due to their complexity and size are hard to pull off with a debt capital partner. However, it is possible and more subsidized the product type (i.e. RMH) the more likely able to pull off with less equity. Thus, lenders are important partners. Some lenders also fund opportunities in redevelopment/reinvestment (i.e. credits CMA).	Lenders are essential b/c financing is key and bank financing is pretty cheap versus alternative financing means.	Some agencies provide construction loans; however, typically do not offer permanent financing, thus almost always lenders are involved.	
	5 Is there a standard for evaluating TOD opportunities or dynamic (evolve with project purposes)? Within the banking industry?	Yes, Developer and Lenders evaluate opportunities based on straight economics. Developer want to know if a project can break-even and be profitable. Lenders want to know if the project can pay back the loan? If so, can it give CMA credit to meet requirements? Cities/Gov. want TOD to address light and ensure recurring tax revenues to fund city services.	No, not between stakeholders. Yes, among lenders that look at cash flow and profit essentially evaluate the same factor.	No, lenders use history (compared) to conservatively estimate values. Lenders do not like to speculate on future value opportunities. Furthermore, lenders each have their own approach and strategy for business and how they value opportunities. On the other hand, developers and agencies look back at history, but also believe in the future potential and therefore can value a project much differently than a banking institution.	
Lenders: Strategies, Evaluation Methods, Risks	6 Are TODs considered a favorable/profitable model by lending institutions? Why, why not?	They can be, but the deciding factor is often the mix of product. All to often RMH is Order required rendering a project riskier than it needs to be, thus lowering the retail/value/amount a lender would be willing to finance. Such "extraneous" components that do not add value impact lender's willingness and likelihood to lend.	It can be, but it needs a foundation (anchor tenants). Banks prefer to see anchor tenants secured 1st then the project built (i.e. "build it for them" not "if you build it, they will come"). Banks will not give a permanent loan on a building without an anchor tenant typically.	It depends, for example in urban core areas it is much easier for lenders to fund TODs as profitable b/c several proven comparables exist; however, in transitioning areas it is much harder to identify comparables rendering projects speculative and therefore hard to finance.	
	7 Are TOD financing arrangements static (fixed for term of agreement) or dynamic (evolve with project)?	Depends on the size of the project, for example small projects are often a single loan. A mid project might require a phasing of loans to ensure payback and reduce risk. A large project may require a special method/combination of loans to verify the market and likelihood project will be implemented according to plan. For example, a lender may finance the residential first and place contingency for 65-75% lease-up prior to lending on the office or retail components. Interesting note, is that a lender sees that they will lend on a part of the project, they will often take the entire site as collateral until paid back to ensure returns and first sits at project profitability. As mentioned above, lenders will release additional funds or give a start next phase when the project has reached or exceeded a certain percent complete. Doing so allows the developer to capitalize on the momentum of the market. Setting criteria allows the lender to reduce risk by ensuring that their loan is highly likely to be paid back as the sales/lease numbers are closer to the evaluation assumptions. NOTE: all evaluations include a vacancy rate (i.e. 10%), thus by constraining developer to lease out 75% of the property plus a 10% vacancy rate => 85% of original evaluation, thus leaving a 5% lease number that is much less risky!	They are dynamic and often phased. For example, construction loans can be grouped by 1-18 months and 6 months based on a floating rate loan that is prime or floor plus spread. The construction loan gets the project built so tenants can move in b/c permanent lenders are not interested until leased up to a certain vacancy level to mitigate risk. Once the threshold is met the permanent lender will loan. NOTE: construction lender and permanent lender are often different banks.	Due to the fact that TOD projects are long term projects that are complex in nature, financing is often flexible and fluid to allow project to adapt to market conditions if they are to reach completion.	
	8 How do lenders evaluate TOD opportunities? What evaluation techniques are considered best practice?	This varies greatly from lender to lender! However, phasing is and pre-leasing are strategies used by lenders to mitigate risks and reduce barriers to entry. For jobs, the applies sensitivity budgets to three criteria: IR changes, Rents, and time required to lease up (income property). The financial viability of individual project components based on sensitivity analysis of three factors (IR changes, rents, lease-up time). Furthermore, due diligence to determine financial condition, financial guarantees from each co-signer (credit, reputation, past history), 3 mile CMA of immediate area and/or 3 mile CMA of similar project in a different area, but similar if not available in immediate area, and pre-leases.	The first thing KeyBank looks at is the income stream of the property to determine IRB (best, worst, used) and potential for payback. If the cash is there, KeyBank does not underwrite a TOD differently from any other project. Also, check best base and worst case for Loan to Cost (LTC), Loan to Value (LTV), and Debt Service Coverage (DSC). LTC ensures that the developer has "skin in the game." LTV that the bank does not over loan the project if need to liquidate and underwrite. DSC ensures that the projects debt is covered by the cash flows and that the loan will be paid back. Additionally, banks need to appraise properties to determine LTV and in order to do that comps are necessary!	No idea (but had previously mentioned parking as a major consideration and comparable).	
	9 What factors are essential for a lender to support a TOD project? Why? (i.e. developer reputation, location, project planning stage, project flexibility, equity contribution, BAK, federal financing, build-out phasing, lender terms such as preference, position, pre-leasing, pre sales, LTV, pricing, exit strategies, CMA, land uses, etc).	Lenders take no or very little entitlement risk (i.e. work loan or work loan much if not entitled). In today's market 65-75% LTV, but in past cycles was as high as 80%, but that is no help to occur again soon; however, loan believes there is a good chance the LTV will return to 80% for multi family projects.	There is a lot of risk with construction projects if the developer/contractor is not reputable with a great track record to underwrite a loan lenders will look at the 5 C's of Credit (Capacity, Capital, Collateral, Conditions, Character). With 5 C's => NO LDM! B/c of 2ndary mortgage market, the majority of lenders underwrite to Fannie and Freddie permanent loan standards (not interested in non-credit anchors), which often means that national anchor tenants are required (i.e. non-credit room & pop shop work work). To re- or "underwrite" loans, banks can use Fannie, Freddie, & HUD for Apartments (which do not credit for income of commercial >10% commercial), so this is the max commercial most lenders will allow. To syndicate commercial loans banks can re- with insurance companies, pension funds, and other banks (standards vary). Again, most banks use Fannie and Freddie underwriting standards to estimate loan baseline to ensure this <u>sub-optimal</u> .	To improve LTV, organizations like Metro offer non-conventional financing mechanisms to cover funding gaps, thus for complicated projects like TOD, often agency participation and funding/commitment to the project is essential for providing assurances that the project will occur.	
	10 What are the biggest risks for lenders? (i.e. mixed use, neighborhood, entitlement complexities, crime, political climate, longer build time, etc) how are risks mitigated?	Every evaluation is a determination of perceived risk; however, likely the biggest risk for TOD projects is a pioneering location (transition areas). Without a proven market or project, the cards are stacked against the project. To get around the risk/reward dilemma lenders will 1) lower LTV (require more equity) 2) CMA if possible 3) phase loan to ensure success of plan components.	The biggest risk considered for suburban TOD is a project that is under parked! KeyBank will not lend on an under parked suburban TOD. This is not the case in downtown Seattle, where parking is less of an issue. KeyBank would be open to lending on a TOD in a proven urban area. In general though, the risks for a TOD are no different than any other project. To abate risks lenders refer to 5 C's of credit, look at parking, ensure that project is entitled "show ready," has proven comparables/banks are not interested in "pioneering projects", Apartments are speculation investments that banks are willing to lend on b/c pre-leases are realistic versus commercial, where tenants will sign a pre-lease.	Risks factors include: performance considerations (absorption rates/lease-ups), conversion of product types, entitlement risks (this is a developer issue, not a lender issue unless they lend on land), to abate risks lenders might require pre-lease, proof that a particular product type has sold there (CMA), project is entitled.	
	11 When evaluating TOD opportunities, do lenders consider specific plans? Why, why not?	Yes, lenders do not lend on non-entitled land. Also, in the due diligence period the lender will confirm the project is entitled, referring to a SP is one way to do this. Also, lenders care about how plans can and will impact project. For example, a lender may release funds after a component of the plan is started or completed (i.e. generally if a city starts a project, lenders assume they will complete it and it might be that project that causes people to want to be in that area). Thus, timing is a key consideration that lenders will often refer to approved plans to determine funding targets and limits (for bank risks).	Banks are always interested in plans b/c they mean that the project is entitled if it complies. Banks lend on "show ready" projects.	Lenders don't care about Specific Plans, save to check that a project is entitled and complies with local regulations. Additionally, lenders might be interested in Specific Plans if such plans relate non-conventional funding available to improve LTV ratios.	
	12 To your knowledge, do lenders compare similar TOD specific plan areas to one another? Why, why not? If so, how?	Yes, CMA priority is to the immediate location surrounding the project; however, lenders also analyze 2ndary markets that are similar is applicable. For example, lenders will refer to other successful projects/plans to determine viability of individual components; however, lenders do set project requirements, only lending amounts and conditions. The lender will look at comparably similar projects or plans in order to determine if and what willing to loan and when/it.	No, b/c location are not easily comparable (i.e. hard to compare Oakland to San Jose). What lenders need to know is that projects are "show ready", comparables of proven projects, and that incomes adhere to underwriting standards, not speculation of future values or non-related project types.	Not sure, but guesses yes if lenders need to look for comparables outside of area.	
Other	13 Do you have any other comments or suggestions that you feel could add to this research project?	Planners would benefit from understanding what makes a project marketable/successful, doing might help plan for more viable projects and where value comes from! BANKS LEND ON PRE-ENTRUSTED VALUE (each evaluator is different, but see BART's and JOAN's approaches). Plan to plan operations are difficult, but essentially what CMA do evaluate market conditions of whatever plans were implemented to date; however, after the fact... not generally an anticipation exercise!	Fannie Mae wants 125% DSC at most in order to retail a loan. Also, TOD is nice, but people will only walk far for TOD, they need their cars in suburban areas b/c the critical mass of amenities and services is not there. A project is not the same thing as a plan. "In today's environment lenders do not want speculative exposure... it's too risky." In order to establish a destination, lenders do not need the anchor their works (national chain). Park'n Ride traffic does not benefit retail b/c it's coming to ride and going back home, not coming for the retail. Park'n Ride lots DO NOT count as an anchor! Automobiles are still king in suburban areas and most areas in fact, but less so when there is a balance of services and DU in a walkable area. Challenges to financing TOD are PARKING in transition areas. Suburban TOD in transitioning areas is extremely challenging b/c parking either call for areas to be "under parked" for TOD projects (i.e. TOD 1.5-1.7-1 spots/DU (RES), 2-1/1000sqft (COMM), and 6-1 spots/1000sqft (MEDICAL)). "UNDER PARKED" TOD impacts feasibility, which impacts the income, which impacts the loan. Plus when projects are under parked there are hidden costs: "spill over" of people parking on other projects. COMM expects 3-1 stalls/1000sqft.	Developers say that TODs are "Story Projects" (developer has to tell a story to the banker, who Intern has to tell a story to the board, etc in order to get buy-in). Metro is currently working with Strategic Economics on a STRATEGIC PLAN, keep an eye out for that. Also, check out URBAN LIVING INFRASTRUCTURE report on website!	
Major Finding of Interview:		CMA are required b/c banks lend on perceived value not speculation! Banks only lend on "show ready" projects!	Parking is a big deal! Will not lend under parked opportunities in the near future.	Parking and comp are major hurdles for TOD projects, so use of Metro is objectives to bridge TOD funding gaps with non-conventional funding sources => projects on the ground can be used as comps (catalyst)	

Appendix D: Interview Analysis - TOD Financing, A Lender's Perspective
 Please address comments, concerns, or questions to Rick Gordon, SDCM M&P Consultant at (508) 884-5200 or rdgordon@sdcm.com

Subject Area	Question	Interview 8: Bonnie Anderson Portland, OR Developer/Pacific	Interview 9: Doug Johnson Oakland, CA Metropolitan Transportation Commission	Interview 9: Margaret Schrand San Francisco, CA West Fargo Fund
Confirmation of research	1 How would you define TOD?	TOD is a development that occurs within walking distance to high frequency (bus, train, or light rail) commuter transit. It may, or may not include parking.	TOD is a neighborhood. The term TOD is a problem b/c many people see or focus on projects, not that projects make up a neighborhood within close proximity to high quality amenities and transit.	TOD is housing built within proximity to transit. Generally a single use type, mostly housing.
	2 Have you been involved in the financing of a TOD? If so, can you please describe the project?	Yes, in the Pearl District in Portland, OR. The product was townhomes and it was TOD b/c it was on the Max line with a Park 'n Ride for commuters. The development had no parking for residents, which is currently not an issue b/c there is plenty of street parking and the residents have mentioned that they prefer alternative transportation and the "urban" feel. Another project was built in North Portland called Daybreak. It is a co-housing group for young professionals, singles, and empty nesters. Currently, it is primarily sold (<500k), built out in Nov. 2009, so the market is unclear at this time, but not favorable b/c many of the buyer purchases were contingent on the sale of their current residences, which are not selling well in this market.	MTC has granted funds to help build infrastructure and transportation infrastructure that support TOD. For example, Pleasant Hill BART (Contra Costa County) and Fruitvale BART MTC allocated ~\$3M of Fed funds to build a pedestrian overcrossing critical to the Pleasant Hill plan. Most MTC funds are used for transit and pedestrian related infrastructure or community related assets to help achieve TOD principles in approved plan areas. MTC does not loan money at this time, only awards grants. For example, planning grant funds for transit or infrastructure related grants like Pleasant Hill.	Yes, several. For example, in San Jose next to the VTA Light Rail West Fargo financed a 100% BMR (L&H) horizontal mixed-use project. The commercial component was not successful, in fact if a cell phone tower was not erected, the property would not break even. In general it is perceived that ground floor retail has to lease up to maintain.
	3 How is TOD (project) financing typically structured? Is there a common practice?	There is no common structure or practice b/c each project is unique. A combination of conservative and creative financing come into play when financing unconventional products such as TOD. Lenders approach TOD opportunities essentially the same way, but to make them work creative alternatives are often required to finance the project b/c they are all over the map and vary so much (i.e. PPPs, grants, TIF, etc). However, to start lenders look at LTV and LTC, then the Debt Service Coverage (DSC) based on the pro forma, then a market study for non standard developments, and finally tax statement considerations and/or years of alternative financing. These steps are taken to ensure that the market will support the project and that the lender will get paid back. To further abate default risks lenders verify the market with appraisals, economic data, local expertise, reduced assumptions and to conduct due diligence regarding the reputation and credibility of the borrower as "PROJECTS DO NOT CREATE MARKETS (except in rare cases), PROJECTS SERVE MARKETS" info, or already present/catalyze markets are much easier to loan on b/c they are not "pioneering" and a market has been proven. Also, parking is a big issue b/c markets are not always inline with urban planning objectives, and the market is used to parking. A side note, lenders are more willing to lend when multiple reputable parties are involved b/c it lowers the lender's contribution, spreads risk, and increases the number of resources that want to see the project accomplished.	Financing structures for TODs are very complex and beyond the level of expertise, he does not feel comfortable commenting b/c it would be more opinion than data/experience based.	Lenders do not approach TOD differently than other real estate transactions b/c lenders do not generally recognize TOD as a product type. To begin analyzing opportunities, lenders break them up into their component parts and evaluate each independently. Considerations include developer experience and reputation as well as market conditions.
	4 To what degree are lenders involved in making TOD happen?	TODs do not happen often without debt capital, but it is possible to private and public partners want to fund entire projects and have the resources to do so. In reality though, this is not the case b/c private and public agencies do not want to tie up their funds on projects and prefer to leverage assets and maximize flexibility.	Capital is essential to making TODs happen, without money nothing gets built, so private funds, such as debt capital, are critical for making TODs projects and ultimately plans a reality.	Lenders are very important, but public funds help make TOD projects feasible, hence a reality (i.e. HCD Prop 13C). Private funds are required to make a plan a reality, but both are needed for TODs to be successful. Once a few projects are up and proven, generally the market will take care of the rest.
	5 Is there a standard for evaluating TOD opportunities among various stakeholders (for financing purposes)? Within the banking industry?	No, everyone has their own objectives and methods for evaluating how best to achieve those objectives. For example, parties view net value parking much differently. Planners mostly not want parking, whereas as bankers and residents might. Interestingly, lenders do not often participate in district planning and project construction, they are more involved in packages (Final Land Use and Development Permit) together for lender approval (V/N). Some make it, and some do not.	Policy makers do not see TODs the same way lenders/developers do. For example, policy makers plan TODs to respond to and address regional issues (i.e. reducing VTM and reliance on cars and reducing CO2). In contrast, developers/lenders look at growth, economics, and other market factors to evaluate projects.	Unfortunately, there is no common profitability model applied across stakeholders. Differences arise b/c of strategies or responsibilities. For example, banks have a fiduciary duty to generate a profit for their investors, but redevelopment agencies may evaluate TOD based on a TIF model to accomplish policy objectives. However, in general lenders approach real estate opportunities basically the same way (same as each other).
Lenders: Strategies, Evaluation Methods, Risks	6 Are TODs considered a favorable/profitable model by lending institutions? Why, why not?	She was uncertain at this time b/c there is not a lot of history on TODs in non-urban core areas, they are too new at this time to compellingly show that lenders will get paid back. Some examples show they are, but some show they are not, and other show no, that loans do not...	Not too familiar, but said that "it depends on the market whether a project will be profitable or not" (based on discussions with lenders). Other factors to consider include: marketability, profitability, and city bureaucracy, but MTC has monitored TOD for 15+ and regionally the Bay Area has demonstrated regional demand for compact urban development with equity access to transit.	It depends on the factors of evaluation. If the project is profitable, lenders can participate (loan amount is proportional to the predictable-predictable income), this is the same for any real estate transaction.
	7 Are TOD financing arrangements static (fixed for term of agreement) or dynamic (evolve with project)?	Financing arrangements depend on parties and situations, but in general once a loan is in place it does not change unless there is a problem, then yes, rather than locating the loan, the lender will attempt to "workout" the loan. Sometimes, it is increasing more difficult to modify loans the more parties that are involved b/c of the number of approvals required down the chain of approvals. Generally, once a loan is approved, lenders want it to perform!	MTC grants are static, but lending is dynamic (Doug was referring to the aggregation of funding mechanisms to finance complicated TOD projects, not independent issued loans). MTC grants are simply one piece of the funding pie that help bridge the gaps between costs and capital.	Usually, when a bank determines it's going to make a loan, the loan does not change. Terms remain static for the life of the loan unless there is a problem. However, loans may occur in phases.
	8 How do lenders evaluate TOD opportunities? What evaluation techniques are considered best practice?	I start by addressing a few questions and looking at the numbers. For example, what is the development product? Where is the site located? What is the neighborhood like? What does the development look like on the line ("skin in the game")? Who is the developer? What is their credit like? Do they have assets/equity? What is their performance history? Who have they done business with? Is the project feasible (bank, bank, want case pro-forma)? What's the story on the site (this, CCR's, encumbrances, etc.)? Basically, I want to know: a) who would be loaning to, b) what the financials of the project are, & c) what the financials of the borrower are. By knowing these three components (synopsis of several data sources and sub-analyses) I can get a feel for who is getting the loan, their ability to pay it back, and the projects ability to support a package.	By looking at the numbers and evaluating the market! Regional governments such as ABAG and MTC provide regional market data (i.e. demographics, job, ridership, etc) that banks, developers, and economists can use to evaluate opportunities. In general, government agencies DO NOT interact with lenders, developers do, but agencies such as MTC prepare tools to assist planners/cities make their case when looking to build a TOD project (i.e. market data, tools for navigating the TOD process, options when building a TOD, etc). The primary target for materials is public cities and agencies b/c they ultimately have land use control, not private developers (especially lenders). However, one way MTC does reach out to the private community is that it participates in educational forums (i.e. ULI) to exchange ideas.	Lenders work to identify the following: market conditions, income potential, appraisal, project design considerations, absorption rates, access to amenities, developer experience relative to the size of the project, developer relationships, developer equity and financials, crime and demographics, nearby amenities, verification that parking ratios are supported by the market.
	9 What factors are essential for a lender to support a TOD project? Why? (i.e. developer reputation, location, project planning stage, project flexibility, equity contribution, BAK, federal financing, build-out strategies, lender terms such as preference, position, are leasing, pre sales, LTV, pricing, etc. ratings, CMAA, land uses, etc.)	Underwriting Due Diligence MUSTS includes: 3 yrs tax returns from the builder, 3 yrs tax returns from the borrower, experience/history of both, phase one environmental reports, appraisal, soil study (if necessary), NFP insurance, legal description of property, insurance/finance, LLC documents, pro-forma analysis, applicable surveys.	Not familiar with lender's approach, but mentioned that MTC does provide tools lenders can use and would they value, such as PDA database that is a tool to make zoning/grants/plans a reality and track progress. Additionally, MTC is hoping to begin tracking parcel level data to monitor changes over time. Another tool MTC makes available to prove that markets for TOD exist is model split data for residents near transit tracks over years. The data shows that more residents near transit are riding transit (get data...!). Developers can use model split data to make a case that a market demand for TOD exists.	Market studies, appraisals, entitlements, and plans for area. ALL real estate is local, so if no comparables are available conservative adjustments (must adjust carefully) must be made in order to appraise the project, which generally impacts LTV and LTC. No comparables, no market demand.
	10 What are the biggest risks for lenders? (i.e. mixed-use, neighborhood, entitlement complexities, crime, political climate, longer build time, etc) How are risks mitigated?	Depends on the project, but in general anything new (pioneering) is a risky venture! Projects w/o CMAA (comp) cannot be validated and "we run away" without comps there is no verification that a market exists. CMAAs prove that a market exists! A banker's role is not to go first or spearhead a project, it is to support reliable champions by funding and further supporting development. Another risk factor considered is whether or not a borrower can pay back the loan even if the project fails... lending to the allow them to leverage money, but b/c they can payback, loan, it reduces lending risk. In summary, proven NFP projects reduce risk, new (pioneering) projects w/o comp increase risks b/c no proof that a market exists. Also to mitigate risks, lenders want to hold the first deed of trust (loan deed of trust), this ensures first payment position. For example, lenders do not file any movement of debt or work done until loan is secured. This avoids the possibility of mechanic/contractor liens being placed on title before the primary loan, also it allows parties to CONTROL who and when contractors are hired.	The biggest risk is that there is no market... if a developer cannot prove that one exists, lenders will look to shift risks to another party to ensure loan payback.	Some questions lenders consider for determining risk and mitigating opportunities include: who is the lender working with? Can they get the job done? Can they afford to do the project by themselves? Does the developer have skin in the game? Above all mitigation measures is reputation, credit, and if the project is fundamentally good real estate. However, real estate is secondary b/c if the developer is proven and reputable... they will make the deal work and pay back the bank!
	11 When evaluating TOD opportunities, do lenders consider specific plans? Why, why not?	She was not certain at this time b/c lenders rely on the developer to track and provide that information. Also, "plans are future, or speculative in nature... so banks tend to know what's there, not what should be there." In general lenders do not work with planners, lenders are one step removed... this happens very rarely (commented on how this might be a good workshop for both parties). This lack of coordination regarding evaluation factors often renders plans unreliable. For example, if a plan calls for a certain amount of retail to increase tax base that does not reflect market demands, absorption rates can be slow and vacancy rates high.	Doug hopes lenders consider specific plans, but believes it unlikely that lenders would care b/c of location, project, and neighborhood differences. For example, if a project is in a planned area (approved) then a lender will most likely care b/c it would reduce the level of uncertainty that a project would or would not be approved and therefore risk.	Yes, lenders care about specific plans and how their project's site plans fit into those plans.
	12 To your knowledge, do lenders compare similar TOD specific plan areas to one another? Why, why not? If so, how?	Yes and No. Yes, lenders do look at similar areas to evaluate market conditions, to reference proven areas and projects, but sometimes it works and some times it does not. For example, in the RE bubble condos were sold and many developers wanted to copy examples that covered apartments to condos b/c they worked in an area... this worked in some areas and not in others. Generally, appraisals account for comps, which are within close proximity to the subject property b/c lenders evaluate opportunities on a project by project basis (what's to be built, who's built, and who's built the best, who's built the best, etc.)	Primarily no, but might if comparables are not within a geographic distance to the site. But, yes, on a secondary level to assess the potential of project uncertainty.	No, to her knowledge, lenders do not except for the information of knowing that such projects have worked in other places to identify best practices and challenges.
Other	13 Do you have any other comments or suggestions that you feel could add to this research project?	When it comes to TOD, everybody's a stakeholder! Parking is an issue with TOD b/c market demands do not always align with urban principles. Portland is doing a good job implementing TOD and managing market demands and urban planning objectives. This is a big part b/c of the TOD program which provides a reputable partner (sponsor or METRO) and technical definition for TOD developers, which decreases barriers. In Portland, light rail has increased property values b/c it is an amenity that provides access to other amenities and jobs. Portland, light rail gets you where you want to go! Lenders are followers, they follow proven projects that payback, not pioneering ones! Lenders will not close on loans unless zoning, entitlements and development permits are approved!	The thing to note is that Cities are KEY players when it comes to the successful implementation of TOD b/c they ultimately dictate land use regulations and approvals. Cities have land use CONTROL, so what MTC wants to do is educate and partner with cities to help make TOD plans a reality by funding infrastructure, that opens they hope will catalyze projects. MPOs are or far removed from the game b/c more funding comes from other sources.	Lenders need to return on their investment, to do this they need to understand and feel comfortable with the developer, market, the community, and competition. TODs are successful if they are economically viable, designed to address market demand, in line with community objectives and have a strong developer. If a project is not economically viable it will not succeed. Most lenders are familiar with urban living, the challenge is taking an urban life styles and putting them in non urban areas. This practice is a gamble and up to an unproven market, which is a large risk to bare.
Major Finding of Interview:		PROJECTS DO NOT CREATE MARKETS (except in rare cases), PROJECTS SERVE MARKETS. A side note, lenders are more willing to lend when multiple reputable parties are involved b/c it lowers the lender's contribution, spreads risk, and increases the number of resources that want to see the project get completed. There is not a lot of history on TODs in non-urban core areas, they are too new at this time to compellingly show that lenders will get paid back. Financing arrangements depend on parties and situations, but in general once a loan is in place it does not change unless there is a problem, then yes, rather than locating the loan, the lender will attempt to "workout" the loan. Generally, appraisals account for comps, which are within close proximity to the subject property b/c lenders evaluate opportunities on a project by project basis (what's to be built, who's built, who's built the best, who's built the best, etc.)	Approved plans reduce uncertainty! NPOs are far removed from the lenders.	Lenders work to identify the following: market conditions, income potential, appraisal, project design considerations, absorption rates, access to amenities, developer experience relative to the size of the project, developer relationships, developer equity and financials, crime and demographics, nearby amenities, verification that parking ratios are supported by the market. No comparables, no market demand. Above all mitigation measures is reputation, credit, and if the project is fundamentally good real estate. However, real estate is secondary b/c if the developer is proven and reputable... they will make the deal work and pay back the bank! Most lenders are familiar with urban living, the challenge is taking an urban life styles and putting them in non urban areas. This practice is a gamble and up to an unproven market, which is a large risk to bare.

Subject Area	Question	Interview 10: Bill Van Vleet Perkins DR Network for Chicago Affordable Housing (NCAH)
Confirmation of research	1 How would you define TOD?	TOD is a project or development that is a short distance (1/4 mi) from high volume public transit service (rail, bus, light rail)
	2 Have you been involved in the financing of a TOD? If so, can you please describe the project?	Yes, a handful. NCAH is a permanent lender. NCAH's mission is to promote low income multi-family homes. Some projects have been mixed use, but primarily projects are multi-family apartments (income properties). Mixed use properties are done much less because funding the commercial component is difficult generally b/c funders shy away from or prefer to limit exposure to commercial opportunities b/c they are risky, which in turn limits the amount of funding that is available for the project.
	3 How is TOD (project) financing typically structured? Is there a common practice?	TODs are not structured/underwritten any different than any other real estate transaction, however, some differences in opportunity consideration might include parking demand and requirements. However, the capital structure of a deal might vary greatly from deal to deal. For NCAH, TOD deals typically require 6-12 funding sources, whereas NCAH would require primary position in case of recourse. How TODs are done are structured depends b/c each real estate opportunity is unique, but NCAH often funds projects through the sale of tax credits, which is similar to other non-profit organizations. Almost all private funds are used to further a project, not public infrastructure.
	4 To what degree are lenders involved in making TOD happen?	It is possible for a TOD to occur w/o a lender, but this is rare and would typically require large public investment. Such a case would happen when cash flows do not support the project. The goal of public money is to attract private money, thus making the public dollar stretch further. Housing lenders do not like financial risk, thus in transitioning areas public agencies must pioneer projects to establish a proof of concept (market), but are comforted when public agencies have a stake in the success of a TOD project or adjacent area.
	5 Is there a standard for evaluating TOD opportunities among the various stakeholders (for financing purposes)? Within the banking industry?	No, individual evaluations are applied by stakeholders based on strategies. The same is true for lenders, individual evaluations differ depending on their appetite for risk, but evaluation techniques (underwriting) are generally similar. There is a lot of subjectivity in lending to allow each investor the latitude to determine their risk/reward for financing, depending on a lender's strategy and relationship with a borrower their appetite for risk may vary greatly from another lender that does not have a relationship with the borrower. Relationships matter a great deal regarding instilling a lender with confidence that the loan will be repaid.
Lenders: Strategies, Evaluation Methods, Risks	6 Are TODs considered a favorable/profitable model by lending institutions? Why, why not?	It depends on the project, the market, and the partner of the project, however, TODs have come a long way from a lender's perspective b/c there are proven examples and more are showing up over time. One reason TODs were a challenge for lenders to adopt was the lack of comparables to prove a return on their investment. Another challenge was getting lenders to adopt the concept that parking reductions work in certain markets near transit. The more projects that prove that markets exist for TOD, the more banks will be willing to lend to create TOD.
	7 Are TOD financing arrangements static (fixed for term of agreement) or dynamic (evolve with project)?	Financing structures can vary, but NCAH arrangements are typically fixed permanent loans b/c their investors want to understand the long-term predictability of the investment to assure payback.
	8 How do lenders evaluate TOD opportunities? What evaluation techniques are considered best practice?	Lenders have to believe that the project will be desirable for a long period of time, to do this lenders assess the market demand for the type of project being proposed, rents/leases in the area, demand/absorption rates, who is developing the project (their track record), borrower's credit, borrower's cash/equity, who will own the project once the project is constructed (do they know how to manage a property and minimize expenses?), and market appraisal.
	9 What factors are essential for a lender to support a TOD project? Why? (i.e. developer reputation, location, project planning stage, project flexibility, equity contribution, BAK, federal financing, build-out phasing, investor terms such as preference, position, are leasing, pre sales, TV, pricing, exit strategies, CMA, land uses, etc).	The bottom line is that a lender wants to make sure they get paid back! Pioneering projects (the TOD) are very hard to fund if no comparables exist to prove that a market exists, but appraisals do a good job to adjust for pioneering projects. Another question lenders ask is, can the borrower carry the property if they do not perform and if so, for how long? Lenders like when public agencies are willing to back TOD projects b/c there is a higher likelihood they will occur. Some of the ways public agencies might invest directly in a project include: TR, property abatements, street bonds, block grants, etc. All these examples are hard money placed directly into a project in the form of a loan that is subordinate to the permanent lender's position. Agencies do not want to see projects fail b/c it will cost them more in the long run, and since they are in second position banks feel confident cities will work hard to ensure the project is a success.
	10 What are the biggest risks for lenders? (i.e. mixed use, neighborhood, entitlement complexities, crime/political climate, longer build time, etc) how are risks mitigated?	A lender's job is to identify risks and mitigate them. The first thing a lender will typically look at is how much cash flow the property will generate over its life. If it cannot generate enough income... the project will not survive. To mitigate risks of default or non-performing assets, lenders may require guarantees. Funds generated by tax credits have rules that preclude lenders from requesting guarantees. Another way to abate risks associated with a project is to have multiple reputable stakeholders invest (i.e. public agencies). Some risks are beyond the control of a lender, in those cases a lender identifies how to best protect themselves against those uncontrollable situations. For example, what if a project is "feasible" b/c of a property abatement and the future owner/operator loses the abatement? What then? How possible is it that the owner would lose the abatement, what then? Another example includes a project with an income that is dependent on a single source such as a factory, what would the project do if the factory closed down? What then?
	11 When evaluating TOD opportunities, do lenders consider specific plans? Why, why not?	Yes, lenders care about SP, especially for projects early in the plan, b/c they want to understand what the long term vision/infrastructure for the area is. Knowing how a project fits into a plan is important (entirely), it improves the likelihood it will happen. Some questions lenders consider include: how big is the area? What is the remaining life of the district/plan? what economic viability will the plan bring? Is the project w/in the plan? How does it fit in? In effect a SP impacts a lender's confidence, but the market dictates the amount a lender is willing to loan.
	12 To your knowledge, do lenders compare similar TOD specific plan areas to one another? Why, why not? If so, how?	Comparing TOD plans and project to one another is considered but real estate is so unique it is difficult to compare projects from different areas defensibly. If comparing projects from differing areas is required, lenders will try to identify commonalities. Similar to SP, comparing projects from varying areas can instill confidence, but will not impact the loan amount.
Other	13 Do you have any other comments or suggestions that you feel could add to this research project?	Lenders do not want to support "seed" or "pioneering" projects, so public funds are often needed to make projects feasible and to reduce risks associated with projects. Public agencies must be the change, or at least the catalyst to get the ball rolling. TODs are successful when there is an intersection of public and private perceptions regarding a project. From a lender's perspective... TODs need to be proven (there need to be comparables) for lenders to stand behind them, however, lending is not universal, it's flexible, so it depends on each opportunity and each lender.
Major Finding of Interview:		Lenders have to believe that the project will be desirable for a long period of time. TODs are not structured/underwritten any different than any other real estate transaction. The more projects that prove that markets exist for TOD, the more banks will be willing to lend to create TOD.

Appendix E:
Interview Selection Criteria and List of Interviewees

Appendix E: Interview Selection Criteria and List of Interviewees

Appendix E is a list of professionals interviewed and their contact information. Interviewees selected have extensive experience regarding TOD policy and TOD financing practices. All interviewees have a minimum of five years industry experience and most have direct experience regarding the financing of multiple TOD projects. Introductions are credited to the Urban Land Institute San Francisco, the organization that supported initial connections with all TOD experts interviewed.

Interviewees were grouped into two buckets: TOD policy makers and TOD debt capital lenders (bankers).

NOTE: Some of the policy interviewees were also included in the literature review, for example Christopher B. Leinberger, Dena Belzer, Nadine Fogarty, and Doug Johnson. Refer to the Bibliography of this paper for a list of articles published by these authors/interviewees referenced.

	Name	Title	Organization	Type	Contact-ph	Contact-email
1	Doug Johnson	Senior Transportation Planner	MTC	Policy	(510) 817-5846	djohns@mtc.ca.gov
2	Dena Belzer	Economist	Strategic Economics	Policy	(510) 647-5291	dbelzer@strategieconomics.com
3	Nadine Fogarty	Economist	Strategic Economics	Policy	(510) 647-5291	nfogarty@strategieconomics.com
4	Christopher Leinberger	Developer/Economist	Brookings Institute	Policy	(202) 425-6485	cleinber@umich.edu cleinberger@brookings.edu nish.suvarnakar@t4america.org
5	Megan Gibb	Program Manager	Oregon Metro	Policy	(503) 797-1753	megan.gibb@oregonmetro.gov
1	Bart Hutchins	Vice President - Commercial Real Estate	U.S. Bank National Association	Banker	(925) 997-5928	bart.hutchins@usbank.com
2	Joan Uhler	Credit	Union Bank	Banker	(415) 902-9428	joan.uhler@unionbank.com
3	Bonnie Anderson	Vice President	ShoreBank Pacific	Banker	(503) 916-1552	banderson@shorebankpacific.com
4	Marquerite Movet	Vice President and Relationship Manager	Vice President and Relationship Manager	Banker	(206) 689-6037	marquerite_j_movet@keybank.com
5	Bill Van Vlet	Executive Director	Network for Oregon Affordable Housing (NOAH)	Banker	(503) 501-5680	billy@noah-housing.org
6	Margaret Schrand	Sr. Vice President	Wells Fargo Bank	Banker	(415) 396-0730	schrandm@wellsfargo.com
7	Caroline Sjostedt		Mechanics Bank	Banker	(925) 256-3000	
8	Steve Fayne/Merle Malakoff	Head of Production	Citibank	Banker	(415) 627-6474	
8	Kenji Tamaoki	Principal	Prudential Mortgage Capital Company	Banker	(415) 291-5033	kenji.tamaoki@prudential.com
10	John Hall	Managing Director	Prudential Mortgage Capital Company	Banker	(770) 395-8418	john1.hall@prudential.com

Appendix F:
Normalization of Case Study Zoning Codes

Appendix F: Normalization of Case Study Zoning Codes

Appendix F discusses the normalization process of case study area land use zoning codes in preparation for GIS evaluation.

Through an extensive literature review and interview analysis, it was identified that comparable market analysis was an essential evaluation technique used by lenders when deciding whether or not to fund TOD opportunities. However, in order to effectively compare TOD projects and plans to one another, variables compared must be similar and adhere to comparable definitions. Thus, for this paper to be able to effectively compare TOD projects and plans to one another according to variables identified in the interviews, datasets had to be normalized to allow for an apples-to-apples comparison of similar TOD projects and plans.

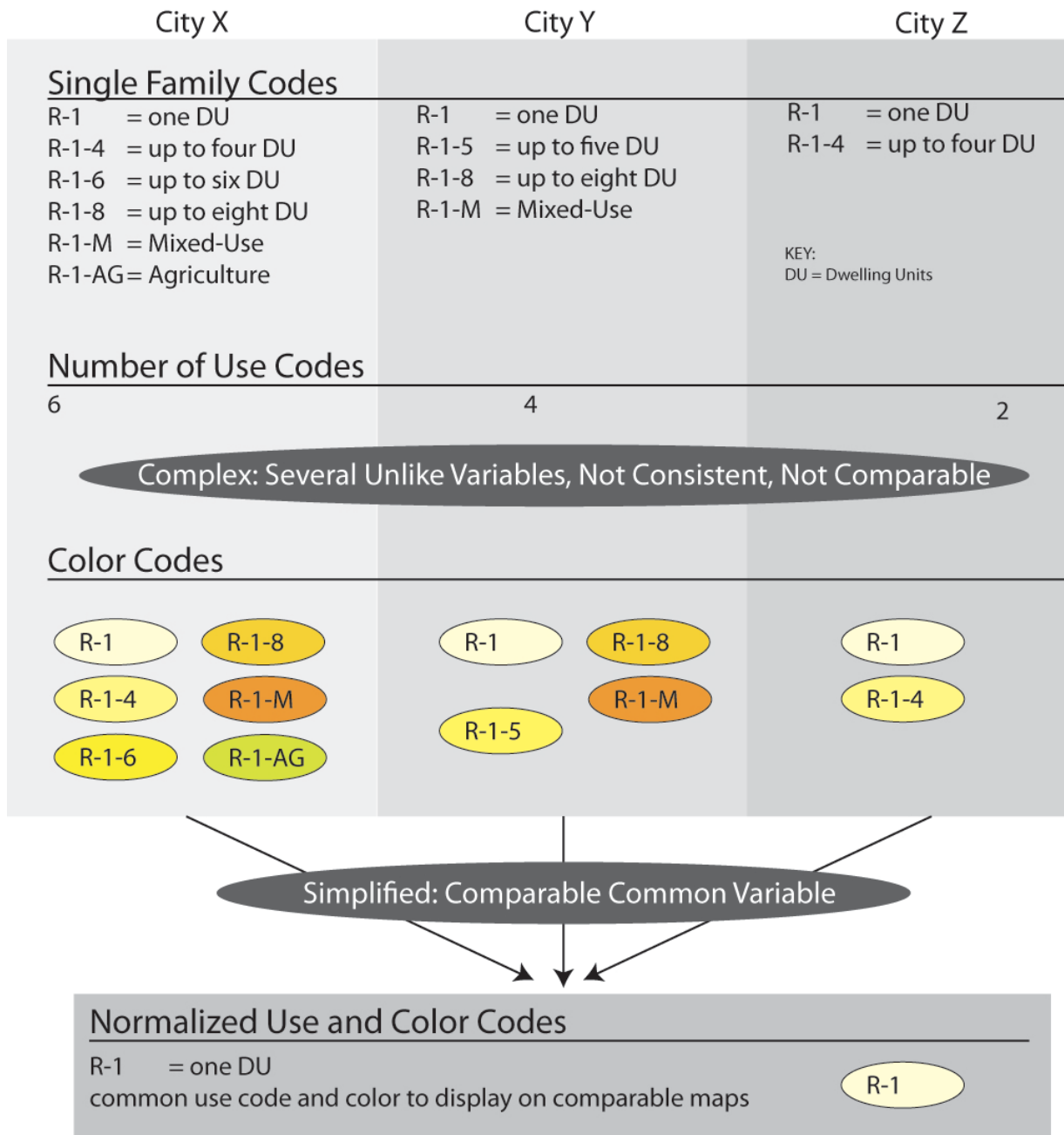
Normalization = a technique used to simplify data to a common factor for reliable comparison. The process isolates statistical error in repeated measured data by simplifying variables to common data sets to allow for comparison. Normalized data shows that a proof, which applies to normal variables, also applies to other similar variables.

Datasets can vary when produced by independent organizations, for example in this paper all three case study areas had varying land use codes. However, datasets do not vary when created by single organizations, for example the amenities dataset was created by www.walkscore.com, which applies a consistent method for capturing and reporting amenity information.

Appendix F normalizes the varying land use codes of the three case study areas from forty-four total codes to fifteen consistent land use codes. Land use codes were absorbed to the highest common level between the three case study areas to allow for accurate comparison of land use types regardless of location.

The illustration below describes the absorption codes methodology applied to normalize datasets. As the illustration shows, all use codes are reviewed and grouped by type. In this case the grouping was for single-family residential dwelling units (DU). A total of twelve codes are consolidated into one code that represents single-family residential land uses. This simplification of codes allows for comparison of all uses that fall into the single-family residential grouping and greatly improves legibility of color schemes, reducing single family residential to one color for quick identification and comparison.

The original datasets and results are presented in the tables following.



Appendix F: Normalization of Case Study Zoning Codes

Normalized Zoning Code (to be applied to case study areas)		Description	Color
1		No Data	10% Gray
2	A	Agriculture/Open Space	Leaf Green
3	CN	Commercial Neighborhood	Cantaloupe
4	CO	Commercial Office	Creton Blue
5	C	Commercial Retail	Mars Red
6	C	Commercial Strip	Mars Red
7	OS	Open Space	Leaf Green
8	I	Industrial	Rhode Rose
9	PD	Planned Development	40% Gray
10	PF	Public Facility	Medium Azul
11	LDR	Low Density Residential	Yuca Yellow
12	MDR	Medium-Low Density Residential	Mango
13	HDR	High Density Residential	Seville Orange
14	MH	Low Density Residential	Indc Green
15	MU	Mixed Use	Orange-Gray Cross Hatch

Downtown Campbell TOD			
Actual	Campbel	Normalized	Description
1	C-1	CN	Neighborhood Commercial
2	C-2	C	General Commercial
3	C-3	MU	Central Business District
4	P-O	CO	Professional Office
5	M-1	I	Light Industrial
6	C-M	I	Controlled Manufacturing
7	C-PD	PD	Condominium-Planned Development
8	P-D	PD	Planned-Development
9	P-F	OS	Public Facilities
10	PF/OS	OS	Public Facilities/Open Space
11	R-1-6	LDR	Single-Family Residential (6,000 sqft min)
12	R-1-8	LDR	Single-Family Residential (8,000 sqft min)
13	R-1-9	LDR	Single-Family Residential (9,000 sqft min)
14	R-1-10	LDR	Single-Family Residential (10,000 sqft min)
15	R-1-16	LDR	Single-Family Residential (16,000 sqft min)
16	R-D	MDR	Two-Family
17	R-M	MDR	Multiple-Family Residential
18	R-2	MDR	Multiple-Family Residential
19	R-3	HDR	Multiple-Family Residential
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
No. of Codes	19	10	

Downtown Mountain View TOD		
MtView	Normalized	Description
A	A	Agriculture/Open Space
AW	A	Agriculture/Open Space
CN	CN	Commercial Neighborhood
CO	CO	Commercial Office
CRA	C	Commercial Retail
CS	C	Commercial Strip
F	OS	Open Space
ML	I	Industrial
MLsd	I	Industrial
MM	I	Industrial
P	PD	Planned Development
P(5)	PD	Planned Development
P(16)	PD	Planned Development
P(17)	PD	Planned Development
P(18)	PD	Planned Development
P(19)	PD	Planned Development
P(23)	PD	Planned Development
P(27)	PD	Planned Development
P(29)	PD	Planned Development
P(32)	PD	Planned Development
P(35)	PD	Planned Development
PF	PF	Public Facility
PRE PF	PF	Public Facility
R1	LDR	Low Density Residential
R2	MDR	Medium-Low Density Residential
R2-9	MDR	Medium-Low Density Residential
R2-9sd	MDR	Medium-Low Density Residential
R2-9	MDR	Medium-Low Density Residential
R3	MDR	Medium Density Residential
R3-1	MDR	Medium Density Residential
R3-1.25	MDR	Medium Density Residential
R3-1.5	MDR	Medium Density Residential
R3-1h1s	HDR	High Density Residential
R3-1h2s	HDR	High Density Residential
R3-2	MDR	Medium Density Residential
R3-2.2	MDR	Medium Density Residential
R3-2.5	MDR	Medium Density Residential
R3-2.5h1s	MDR	Medium Density Residential
R3-3	MDR	Medium Density Residential
R3-3sd	MDR	Medium Density Residential
R3-4	MDR	Medium Density Residential
R4	HDR	High Density Residential
RMH	MH	Low Density Residential
SPLIT	MU	Mixed Use
No. of Codes	44	13

Japantown TOD		
SanJose	Normalized	Description
A	A	Agriculture/Open Space
A(PD)	PD	Planned Development
CG	C	Commercial
CG(PD)	PD	Planned Development
CN	CN	Commercial Neighborhood
CO	CO	Commercial Office
CO(PD)	PD	Planned Development
CP	C	Commercial Pedestrian
DC	MU	Downtown Commercial
HI	I	Heavy Industrial
IP	I	Industrial Park
LI	I	Light Industrial
R-1-8	LDR	Low Density Residential
R-1-8(PD)	PD	Planned Development
R-2	MDR	Medium-Low Density Residential
R-2(PD)	PD	Planned Development
R-M	HDR	Medium-High Density Residential
R-M(PD)	PD	Planned Development
No. of Codes	18	10

No. Comparable Codes 9 <=Comparable analysis will be limited to nine codes: C, CN, CO, HDR, I, LDR, MDR, MU, PD

Appendix G:
GIS Data Preparation and Source Information

Appendix G: GIS Data Preparation and Source Information

Comparison of properties, projects, and plan areas affords lenders a better understanding of market demands. Thus, being able to reliably compare TOD projects and planned areas to one another would effectively remove a barrier to the potential financing of TOD opportunities. Hence, reliable comparables are a key barrier to the financing of TODs because lenders would be able to accurately predict desirable land and thus hedge risks. This challenge of comparability is partially due to variances in available data and definitions. Therefore, establishing a standard for evaluation is essential to the success of creating a reliable evaluation method for comparing TOD projects and planned areas to one another.

The first step in reliably comparing TOD projects and planned areas to one another is to ensure that data being compared is similar. Thus, data must be normalized, reclassified, and weighted. Appendix F discusses the normalization process. Table 10 of the paper describes the assumed weighted influences associated with each of the 5 D analysis layers. This appendix discusses how data is prepared and sourced for GIS analysis.

Appendix G includes two parts. The first part describes the GIS data preparation and analysis process for each case study area. The process is discussed step-by-step and a GIS Model Builder figure is included for one of the case study areas. The second part discusses data preparation and source information.

Appendix G:
GIS Data Preparation and Source Information

Part I

Appendix G: GIS Data Preparation and Source Information

ArCGIS Spatial Analyst: Weighted Overlay Process

Dataset Layer		Measure of	File Type		
1	Land Use Codes by Parcel	Diversity	Polygon		
2	Parcels joined with building footprints to calculate building coverage per parcel	Density	Polygon		
3	Amenities within 1/2 mi walkable service area of transit center	Destination	Point		
4	Transit centers	Distance	Point		
5	Right of way intersections	Design	Point		
Step		Campbell	Mountain View	Japantown	
1	Create a new toolbox	x	x	x	
2	Rename tool box	x	x	x	
3	Set environment settings	x	x	x	
4	Create model	x	x	x	
5	Covert parcel land use polygons to raster by use code	x	x	x	
6	Covert parcel building footprint polygons to raster by building coverage value	x	x	x	
7	Move Euclidean Distance tool to Model for each point file to be analyzed (x3)	x	x	x	
8	Open Euclidean Distance tool and select point file to be analyzed (x3)	x	x	x	
9	Run Euclidean Distance tool and add output to map (x3). NOTE: if does not run properly, run outside of model builder and reset extent to "same as display" each time. This will focus on the area the program is zoomed to.	x	x	x	
10	Move Reclassify tool to model (x4: all but land use parcels)	x	x	x	
11	Open Reclassify tool and reclassify raster datasets to be a common scale (1-10 by 1).	x	x	x	
12	For Euclidean Distances "Reverse New Values" to assign higher weights for proximity	x	x	x	
13	With reclassified datasets, determine relative influence each will have on value (see Data Prep and Attribute Weights)	x	x	x	
14	Move Weighted Overlay tool to model	x	x	x	
15	Set scale to match reclassification scale (1-10 by 1)	x	x	x	
16	Add input rasters	x	x	x	
17	Adjust values accordingly to restrict or assign relative values	x	x	x	
18	Assign input influence for each raster	x	x	x	
19	Rename the output	x		x	
20	Run and add Weighted Overlay to map	x		x	

NOTE: Assumes that datasets are preprocessed and ready for spatial analysis. Actions conducted in Model Builder. Attributes are color coded and symbolized each step of the way.

Dataset Nomenclature:

- a1_ = Pre-processed data set
- a2_ = Raster dataset
- a3_ = Reclassified dataset

Appendix G: GIS Data Preparation and Source Information

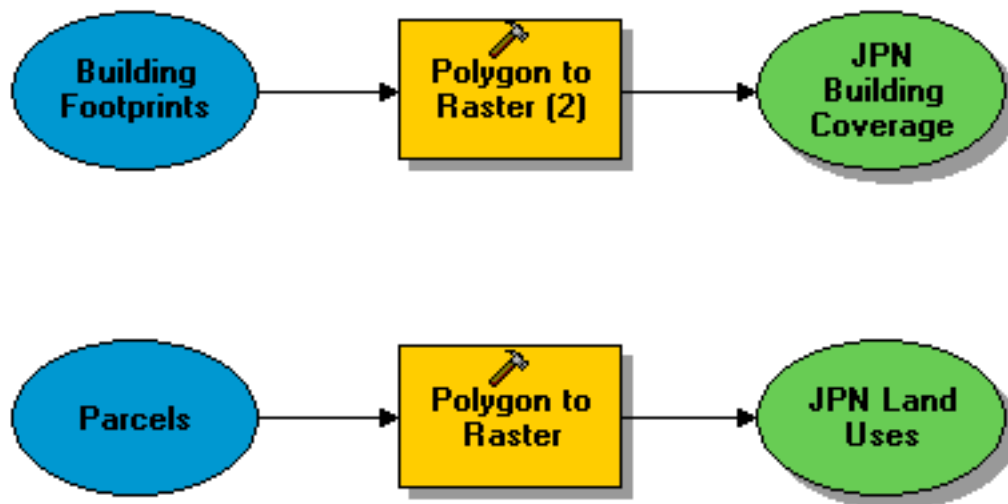
The diagrams below illustrate the implementation of the GIS data preparation and analysis process using ArcGIS Model Building for the Japantown, San Jose case study area.

After comparable data is included and joined in ArcGIS it must be formatted for spatial analysis to allow for comparison of TOD projects and TOD planned areas to one another. To do this datasets must either be in point or raster format. Point data is used to calculate proximity and rasters are used to evaluate land use and building coverage parameters.

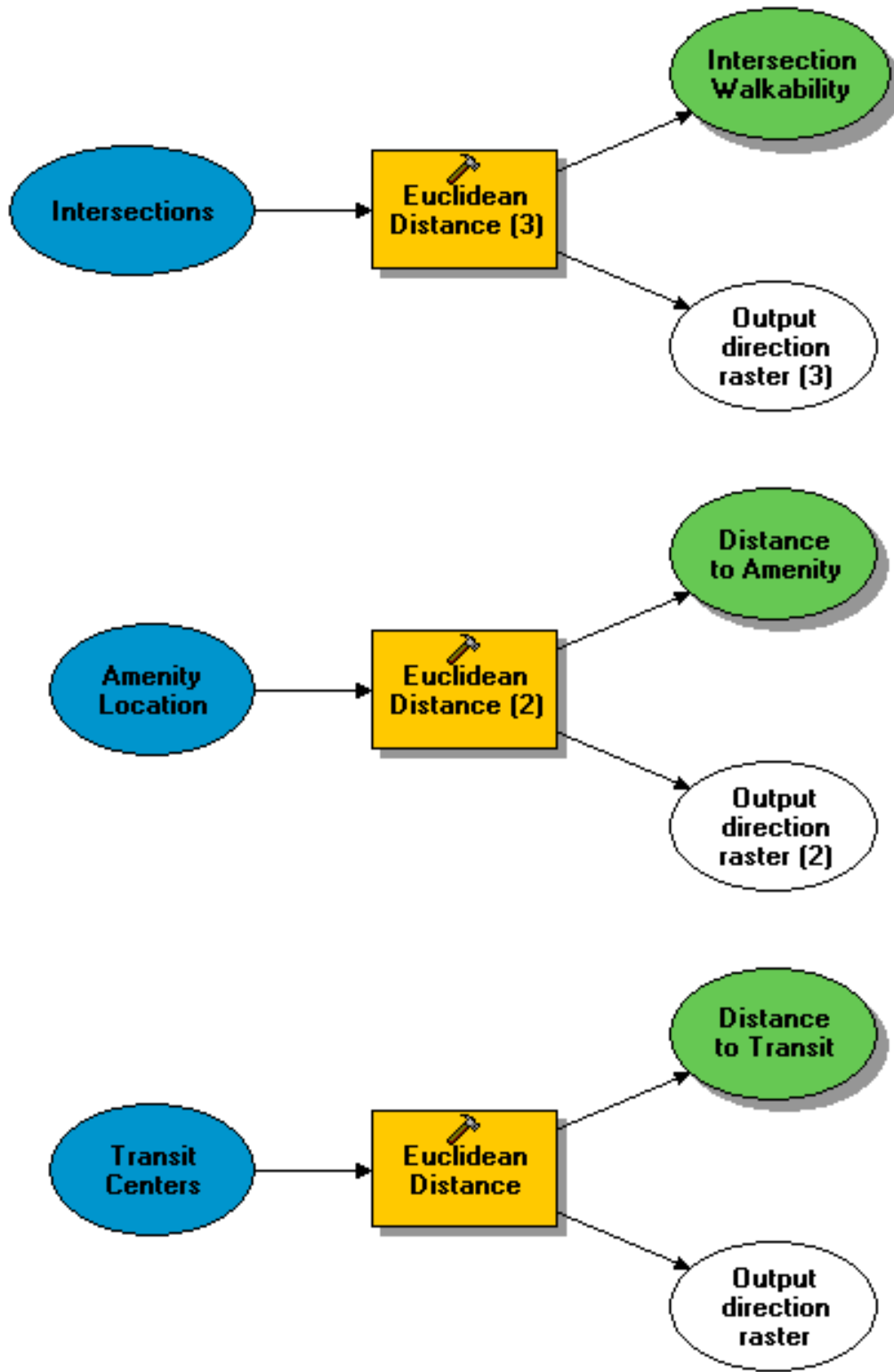
About Model Builder:

- Shapefiles are ovals
- Analyses are yellow rectangles
- Inputs are in blue
- Outputs are in green

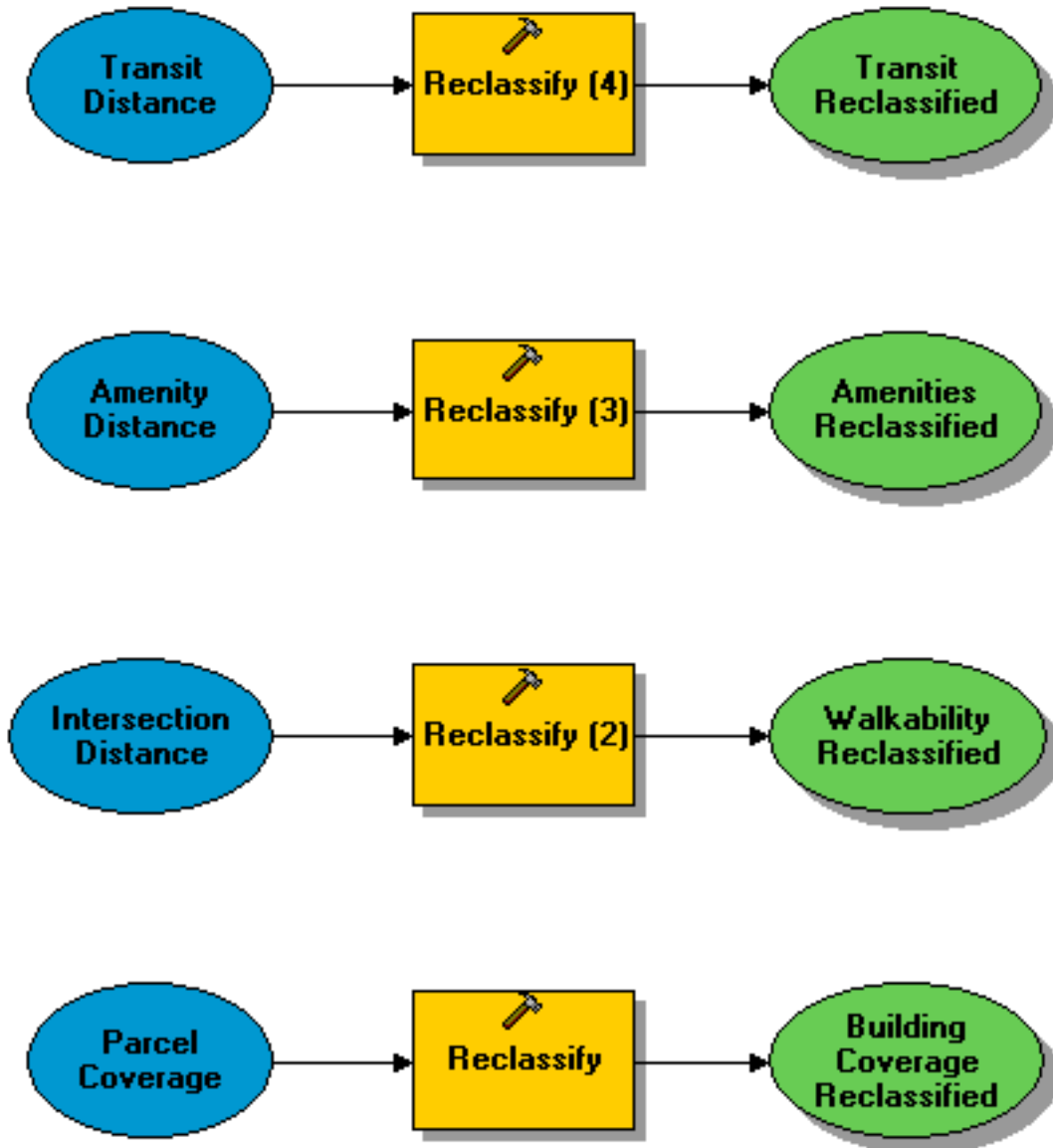
The diagram below demonstrates how Model Builder can convert building footprint and parcel polygon datasets to building coverage and land use raster datasets. The result is two raster datasets, JPN Building Coverage and JPN Land Uses.



The next diagram shows how Model Builder calculates euclidean distance measurements assigning weights according to proximity. The result is three raster layers evaluating the euclidean distance from intersections, amenities, and transit centers.



Five datasets in all are prepared for weighted overlay analysis. Of these four must be reclassified in order to allow for weighted overlay comparison. The next diagram demonstrates how Model Builder reclassifies inputs to prepare for spatial weighted overlay analysis (*Note: land use is not reclassified because it should be already normalized to reflect comparable and consistent uses between TOD areas*).



The images below show the reclassifications for distance to transit centers and building coverage. Important to note is that attributes being evaluated are reclassified on a scale from 1 to 10 depending on their contribution to its 5D category, 1 = low value and 10 = high value. For example, the closer properties are to transit or the more parcel coverage a property had, the higher weighted they received (see below).

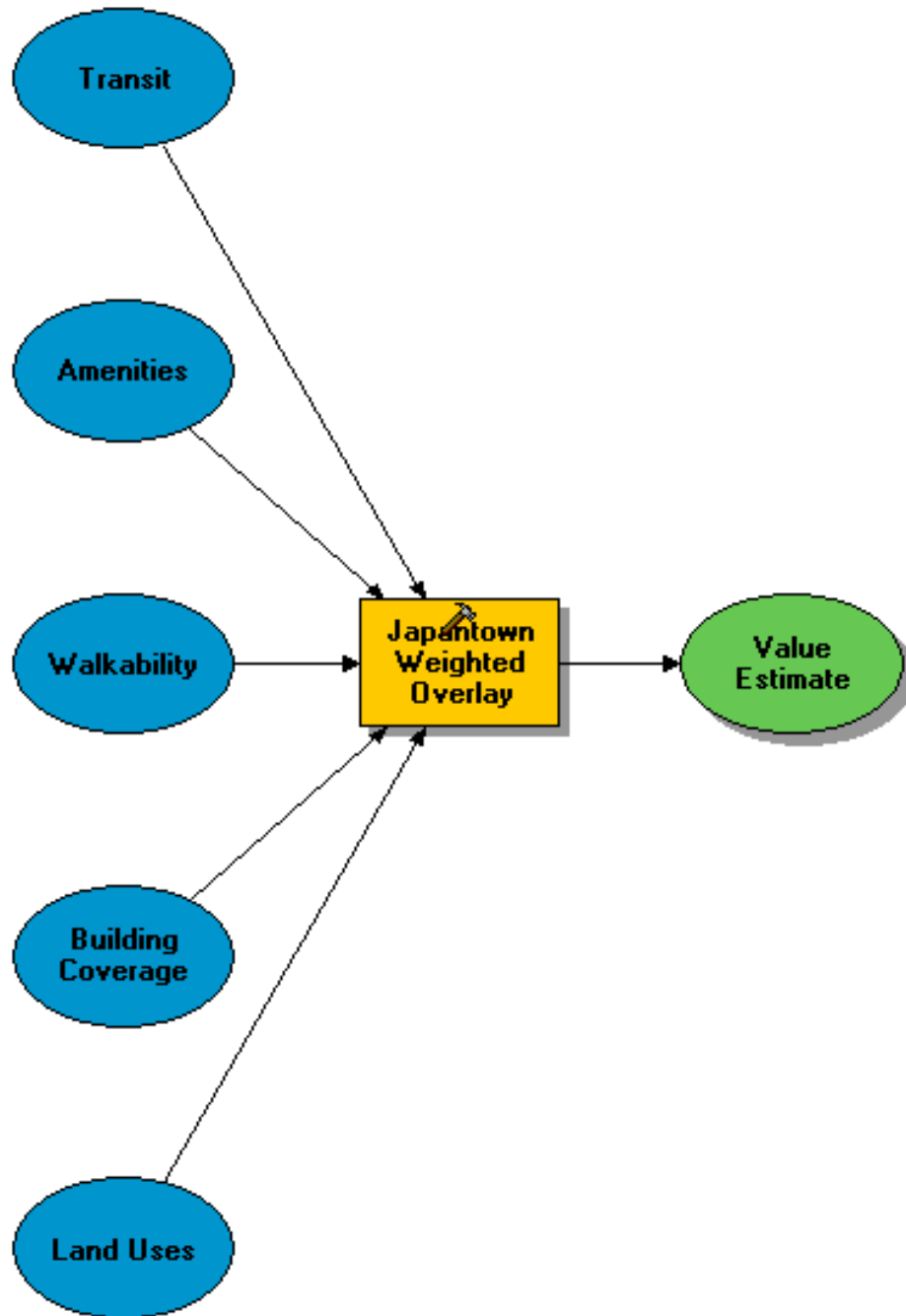
Transit Distance		Parcel Coverage	
Reclass field		Reclass field	
Value		Value	
Reclassification		Reclassification	
Old values	New values	Old values	New values
0 - 369.391382	10	0	1
369.391382 - 738.782764	9	0 - 0.247599	2
738.782764 - 1108.174146	8	0.247599 - 0.742798	3
1108.174146 - 1477.56552	7	0.742798 - 1.485596	4
1477.565527 - 1846.95690	6	1.485596 - 2.475994	5
1846.956909 - 2216.34829	5	2.475994 - 4.456789	6
2216.348291 - 2585.73967	4	4.456789 - 5.942385	7
2585.739673 - 2955.13105	3	5.942385 - 7.92318	8

The final diagrams illustrate an example how to reclassify all five inputs so they can be spatially analyzed using a weighted overlay analysis. The result is an analysis that estimates most desirable land according to input parameters (*Note: parameters are prepared according to the 5 Ds of TOD and the authors best educated guess. Refer to Table 10 for assumed weighted influences and parameters*).

Raster	% Influence	Field	Scale Value
Land Uses	30	Japantown_SJMa	8
		C	8
		CN	7
		CO	6
		HDR	7
		I	1
		LDR	3
		MDR	5
		MU	9
		PD	9
		NODATA	NODATA
Building Coverage	10	VALUE	1
		1	1
		2	2
		3	3
		4	4
		5	5
		6	6
		7	7

Sum of influence: 100 Set Equal Influence

Evaluation scale: 1 to 10 by 1 From: 1 To: 10 By: 1



Appendix H discusses the TOD-to-TOD comparison GIS analysis methodology of the three case study areas.

Appendix G:
GIS Data Preparation and Source Information

Part II

Appendix G: GIS Data Preparation and Source Information

Appendix G part two discusses data preparation and source information. For data not available in GIS format and files, datasets had to be constructed from various sources and joined to GIS parcel shapefiles to allow for comparable analysis of TOD projects and TOD planned areas.

The table below is a list of data sources and data collected for GIS analysis (Tables 7). Data collected that was not available in GIS format had to be joined to parcel level data by APN or geocoded by address to ensure data integrity, these datasets are highlighted in orange.

GIS Data Sources:

Agency	Source	Relevant Data Layer(s)
U.S. Census	Tiger Maps	CA Counties (for inset map)
City of Campbell	City of Campbell Planning	Zoning, Parcel, Building Footprint, Roads, & GP Maps in TOD
City of Mountain View	City of Mountain View Planning	
City of San Jose	City of San Jose Planning	
Valley Transit Authority (VTA)	Planning	VTA Transit lines and stations
Walkscore.com	www.walkscore.com	Amenities within a half-mile radius of transit
MLS Listings	www.mlslistings.com	One mile property value search for properties sold in 2009.
CoStar	www.costar.com	

With data collected, GIS layers (Table 8) were further isolated to reflect TOD financial evaluation variables identified in the literature review and interview analysis. Data layers used for analysis include:

GIS Data Layers:

Agency	Data Set/Layer	Attribute
VTA	Light Rail Stations	Japantown, Mountain View, and Campbell Stations
VTA	Light Rail	Baypoint-Santa Teresa Line, Mountain View-Baypoint, and Vasona
VTA	Bay Area Roads	Name and route for Network Analyst
City of San Jose	Zoning Region	Zoning
City of San Jose	Parcel APN Join	GP, Zoning, Parcel and APN
City of Mountain View	Parcels with Zoning GP LU	APN, Area, Land use and Zoning Label
City of Mountain View	Mountain View Parcel	
City of Campbell	Parcels; Zoning; GP	
City of Campbell	Parcel	
Walkscore.com	Location based search function	Amenities located within a half-mile radius of transit centers
MLSListings	Location based search function	Sold price; 2009-Q1 2010; 2000ft radius of transit center
CoStar	Location based search function	Properties sold in 2009; \$/sqft calculated based on sales price/building sqft; 1 mile search radius from transit centers

Important to note is that not all data was readily available. In fact, real estate data needed to be purchased from MLS Listings and CoStar, amenity data needed to be compiled and independently, and some of the case study area building footprint layers were incomplete, requiring digitization of building footprints to complete datasets.

Appendix G: GIS Data Preparation and Source Information

Proximity Analysis Data Preparation Process

- 1 typed in TOD location into walkscore.com
- 2 All Walkscore categories selected*
- 3 captured data for amenities w/in 1.2 mi of search location (closest property to transit center)
- 4 removed redundant data
- 5 batchgeo.com addresses
- 6 geocoded amenities into Analysis 4 GIS

TOD Area	Walk Score	Rank	Number of Unique Locations w/in 1.2mi of Transit	Score Based	Address	Transit
Campbell	95	Walker's Paradise	182	Closest Property to Transit Center	300 Orchard City Dr, Campbell Ca	Light Rail
MV	98	Walker's Paradise	147	Closest Property to Transit Center	750 W Evelyn Ave, Mountain View	Heavy and Light Rail
JPNTwn	85	Very Walkable	185	Closest Property to Transit Center	499 N 4th St, San Jose	Light Rail

* Walkscore Categories

- 1 Restaurants
- 2 Coffee
- 3 Groceries
- 4 Shopping
- 5 Schools
- 6 Parks
- 7 Books
- 8 Bars
- 9 Entertainment
- 10 Post Offices
- 11 Banking
- 12 Hospitals
- 13 Fitness
- 14 Bike Shops
- 15 Child Care

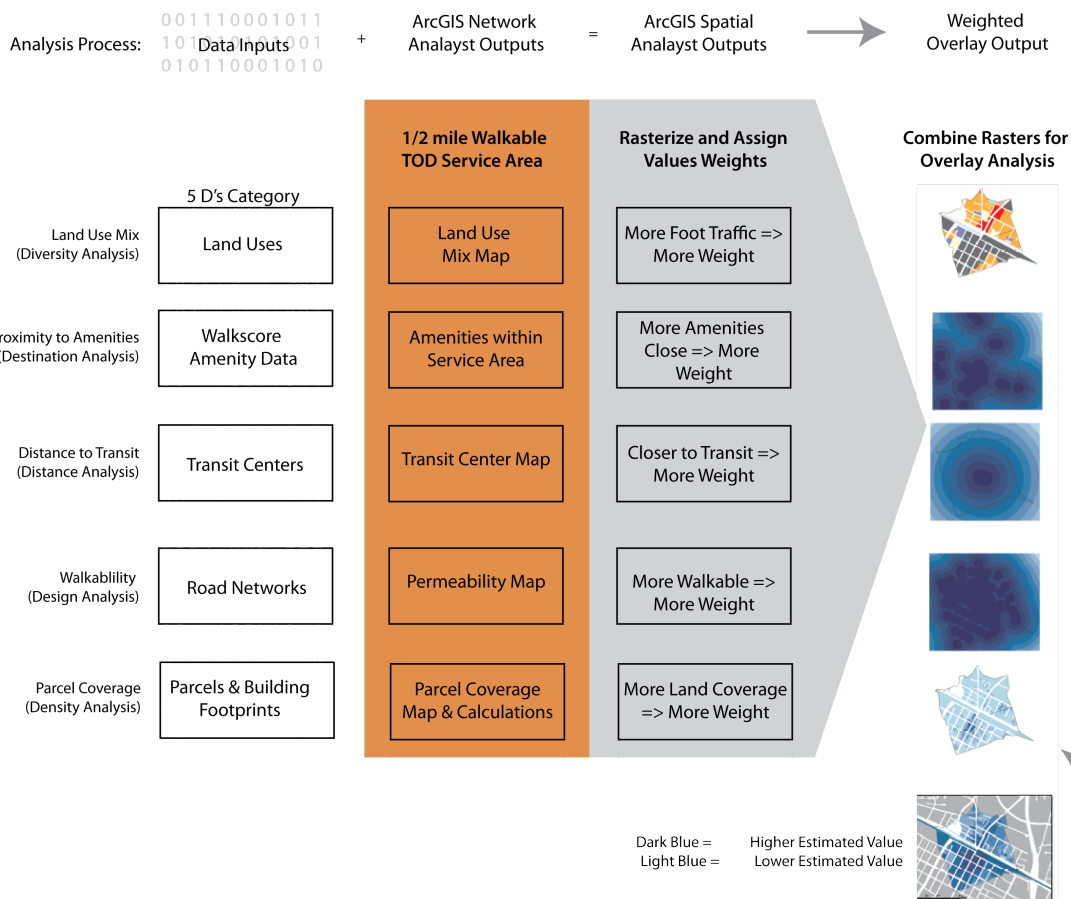
	Campbell	MV	JPN
Walk Score	95	98	85
Rank	Walker's Paradise	Walker's Paradise	Very Walkable
No. of Unique Locations w/in 1.2mi of Transit	182	147	185
No. Transit Centers	1	2	1
Transit Type	Light Rail	Heavy and Light Rail	Light Rail
No. Unique Locations w/in 1/4 mi Service Area	39	26	2
No. Unique Locations w/in 1/2 mi Service Area	66	49	45
No. Unique Locations w/in 3/4 mi Service Area	99	68	77
Score Based on	Closest Property to Transit Center		
Address Used	300 Orchard City Dr, Campbell	750 W Evelyn Ave, Mountain View	499 N 4th St, San Jose

Appendix H:
GIS Weighted Analysis Parameters

Appendix H: GIS Weighted Analysis Parameters

Appendix H illustrates the weighted analysis methodology and process for conducting a spatial weighted analysis using ArcGIS. Table 10 (displayed below) summarizes how variables extracted from the literature review and interviews are reclassified according to the 5 Ds of TOD and weighted for spatial analysis. The figure below illustrates the weighted overlay methodology. Important to note is that relative weights are assigned to variables arbitrarily. The weights assigned are based on the author's educated guess and therefore are subject to vary by analyzer.

The five categories selected for weighted analysis are measureable and comparable regardless of case study area. Additionally, variables aligned with findings of the interview and literature review as well as TOD principles that afford comparable analysis of land desirability, which is an indicator of market demand. Thus, variables analyzed are considered an estimate of relative value. Analysis 5 verifies that the 5 Ds of TOD are in fact an indicator of desirability by comparing predicted land values to actual land values. The result of which demonstrates that properties with higher relative weights command higher prices per square foot.



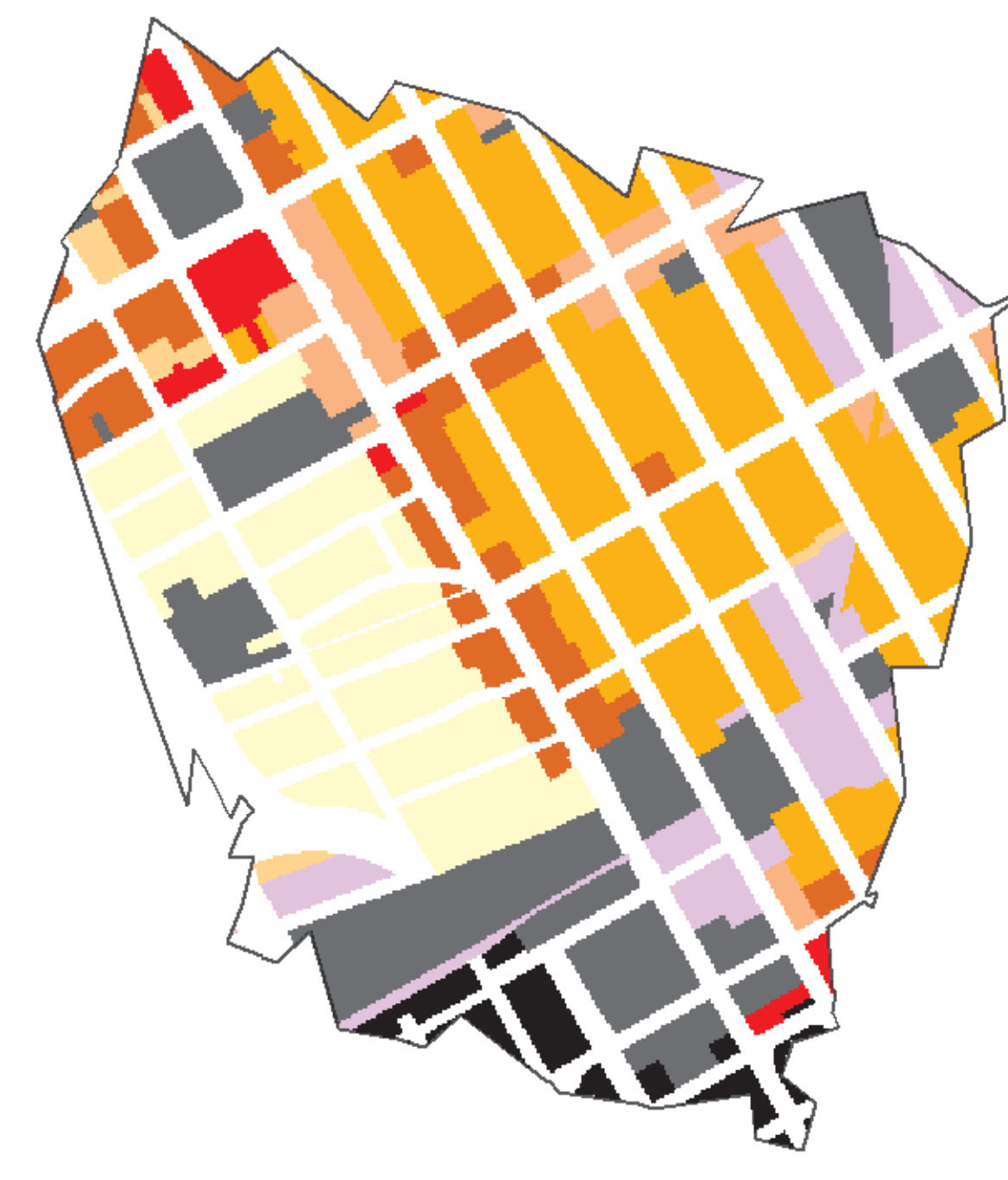
Downtown Campbell

Downtown Mt. View

Japantown, San Jose

Analysis and Value Influence

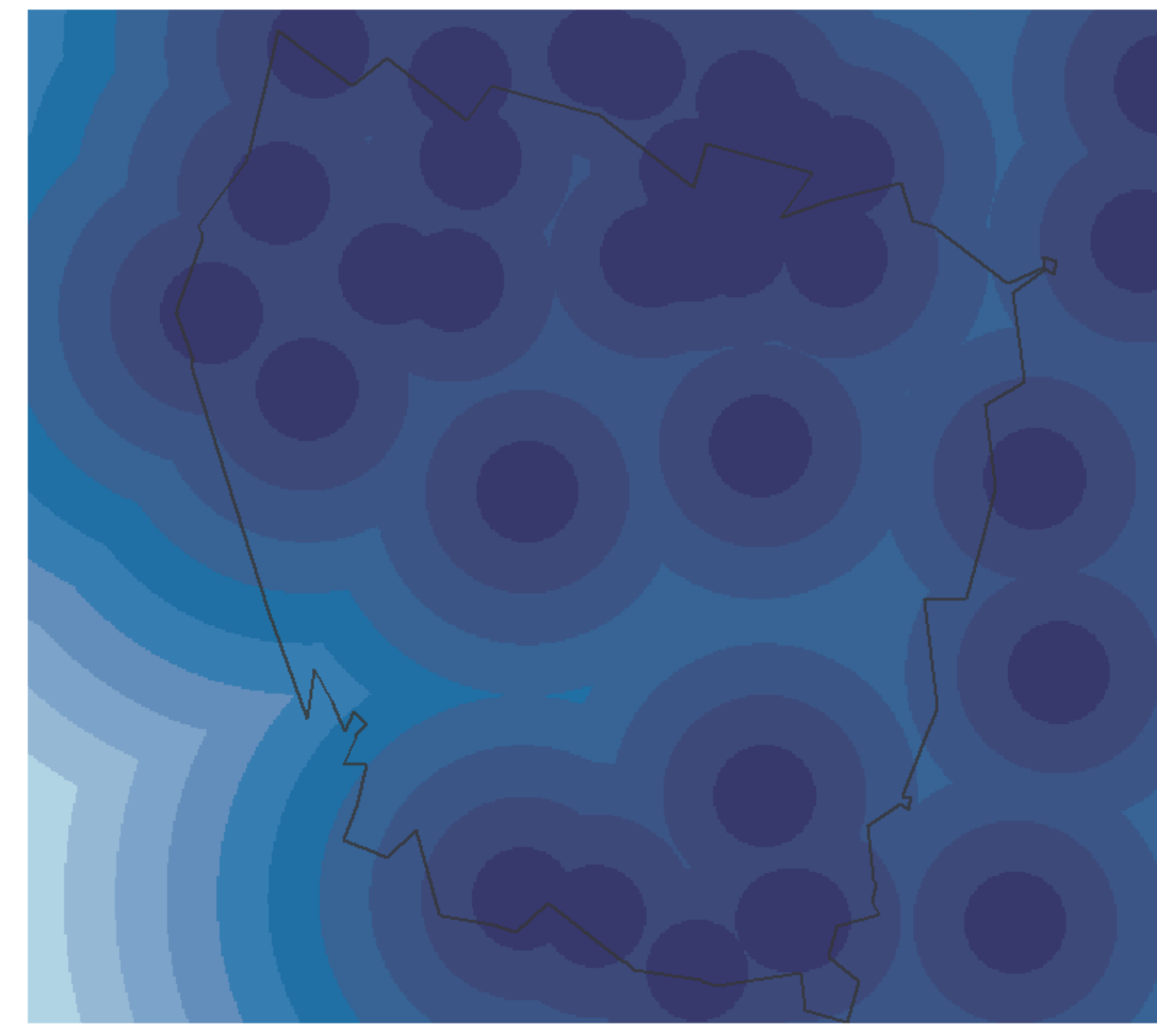
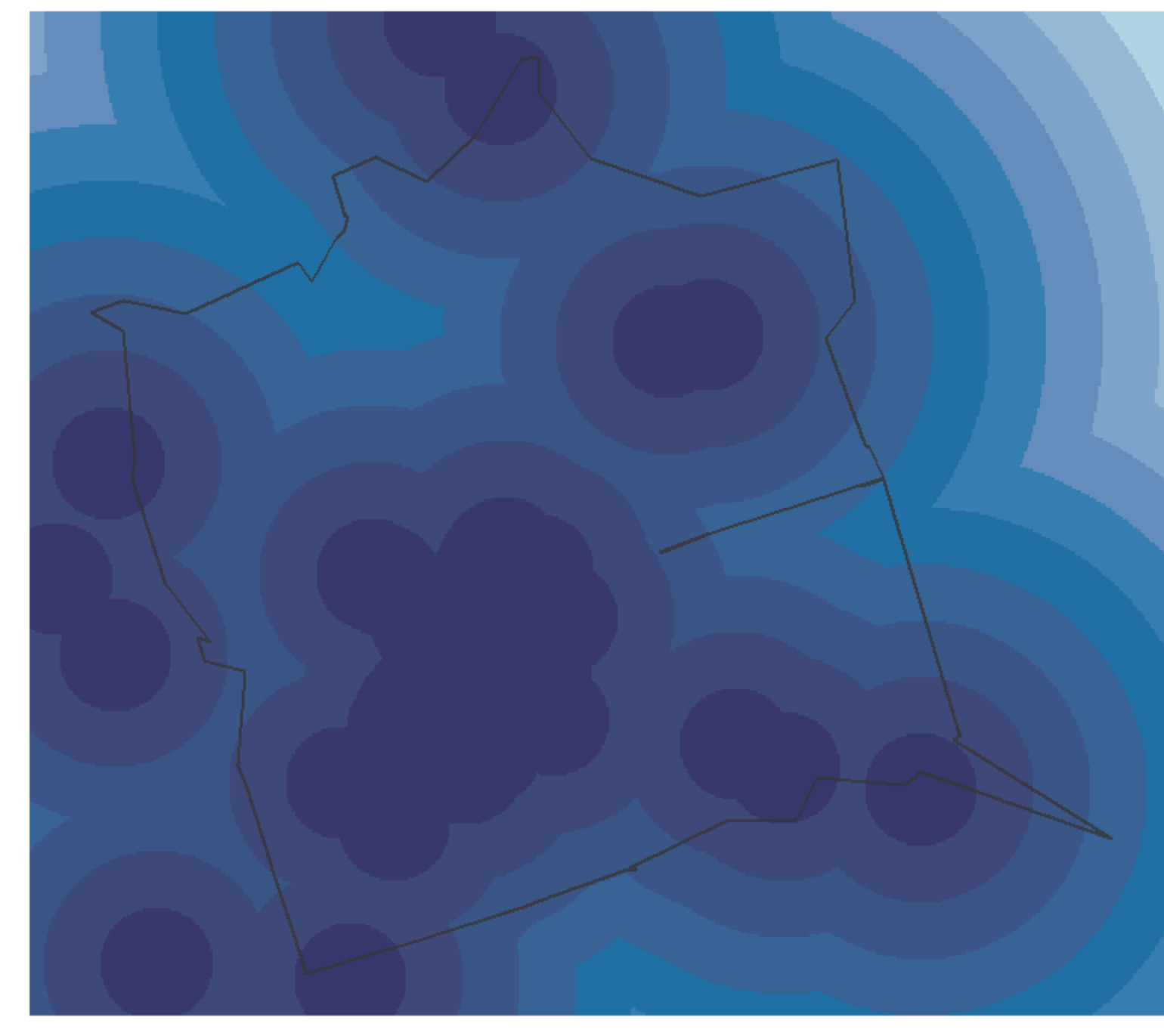
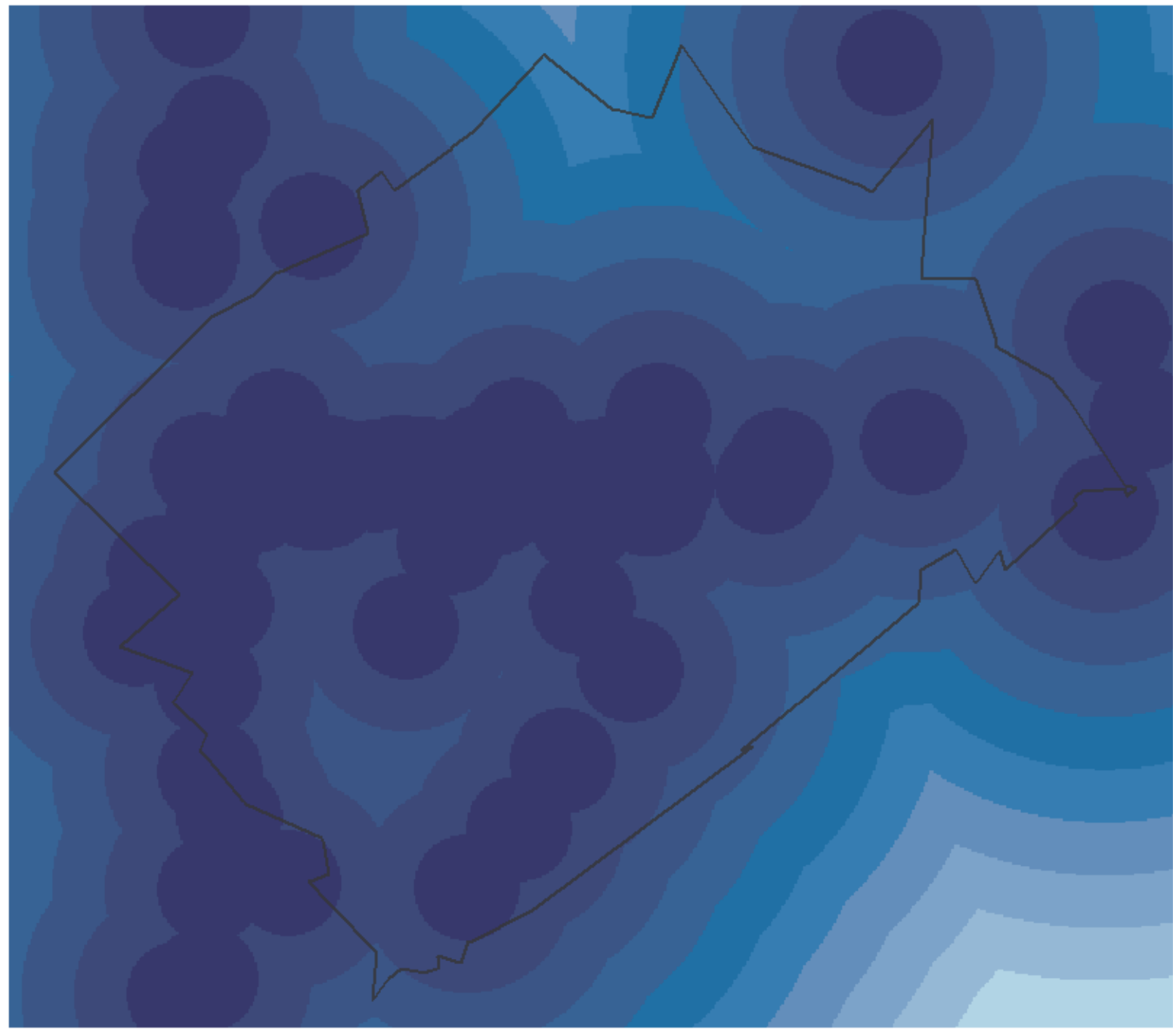
Approved Land Uses



Diversity

Land Use by Parcel
30% Influence on Value

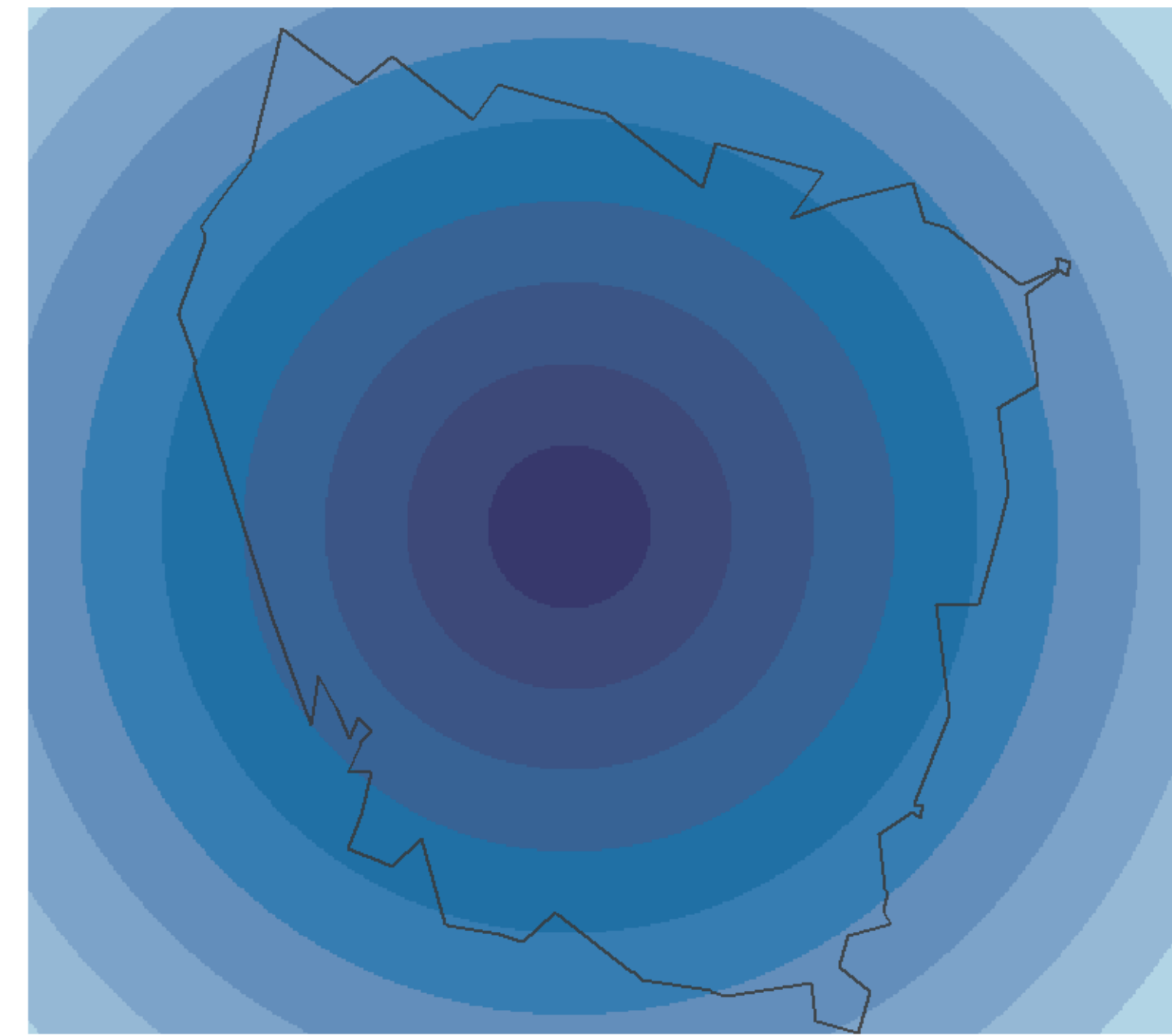
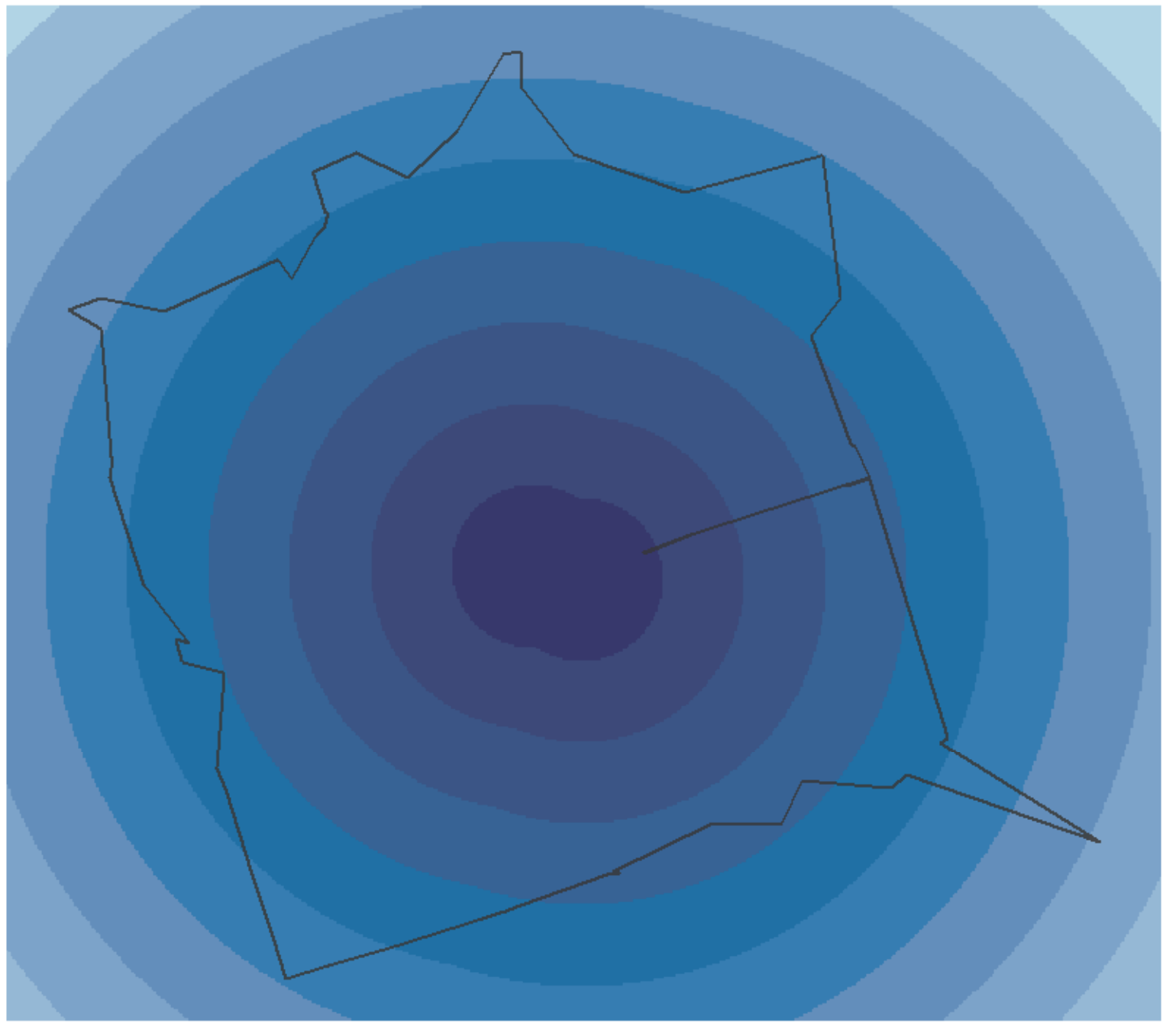
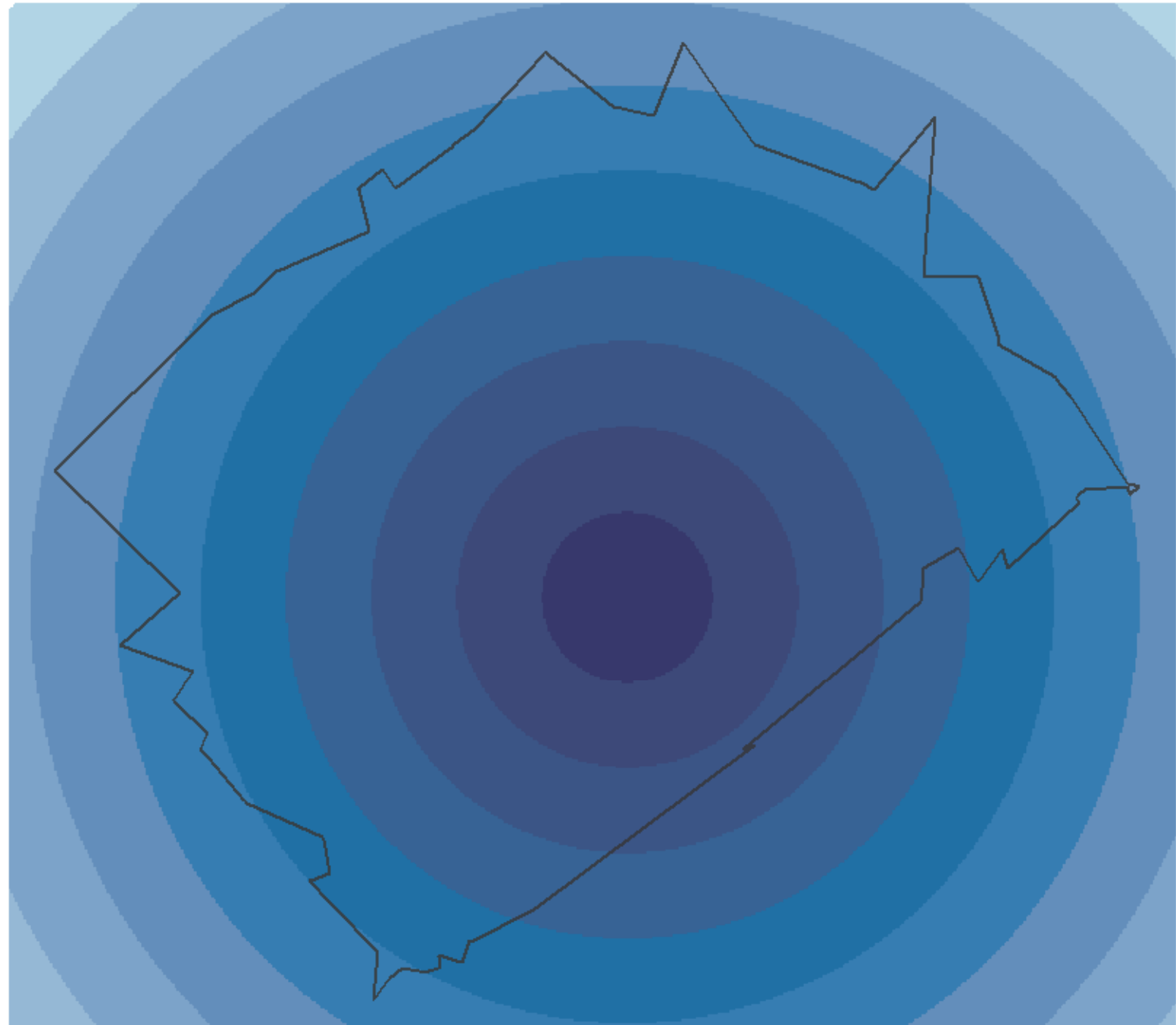
Proximity to Amenities



Destination

Proximity to Amenities
25% Influence on Value

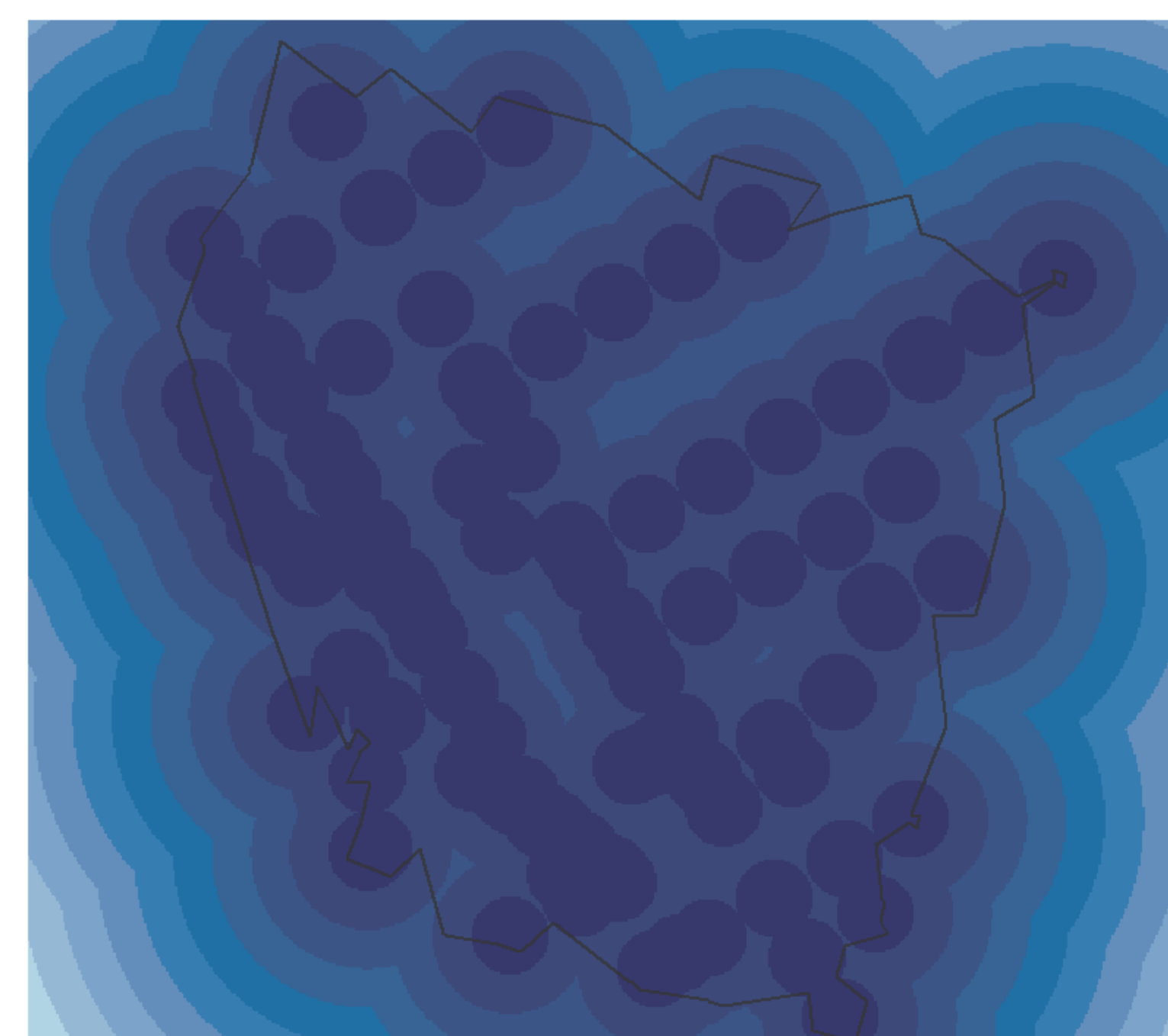
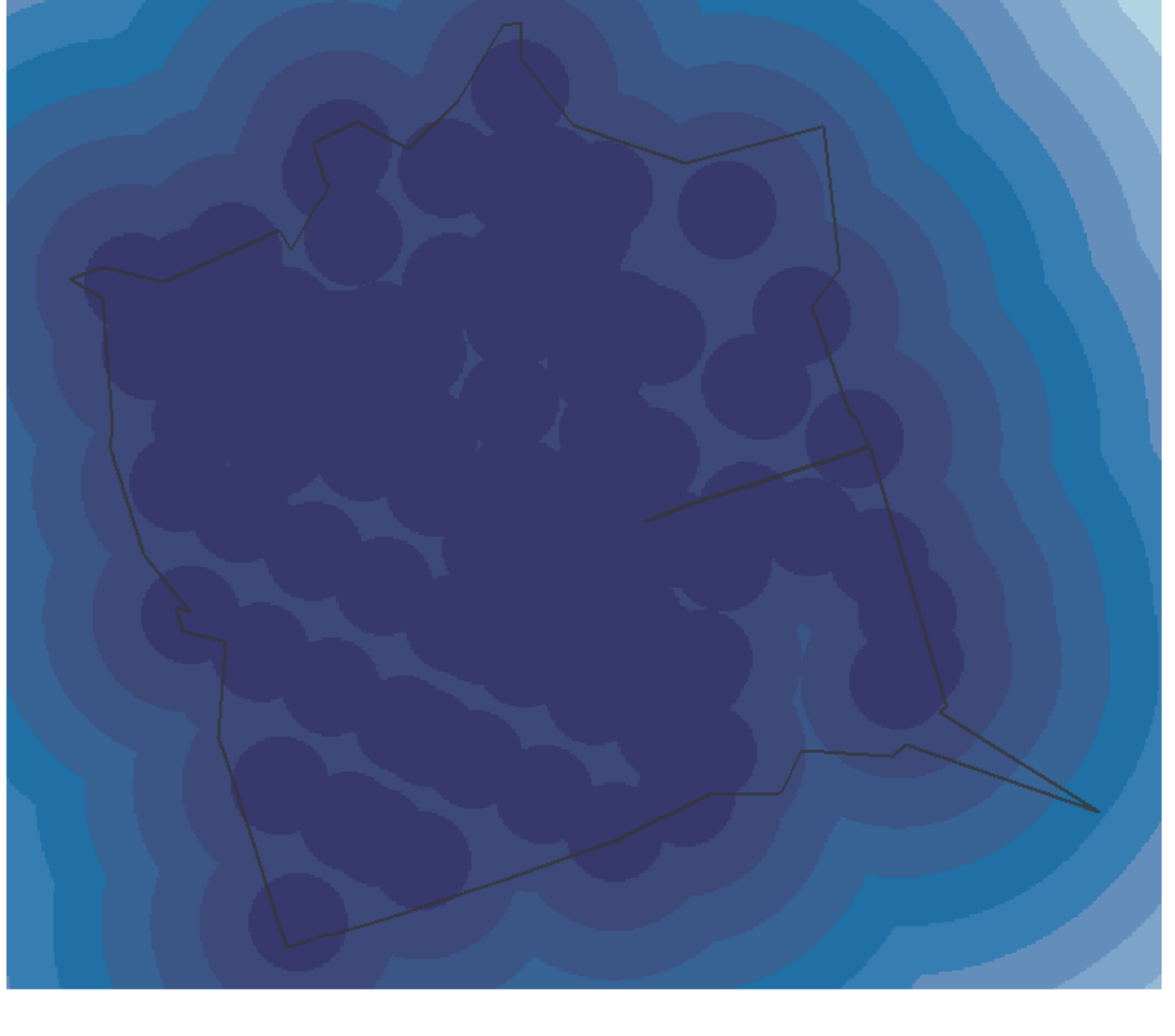
Proximity to Transit



Distance

Proximity to Transit
20% Influence on Value

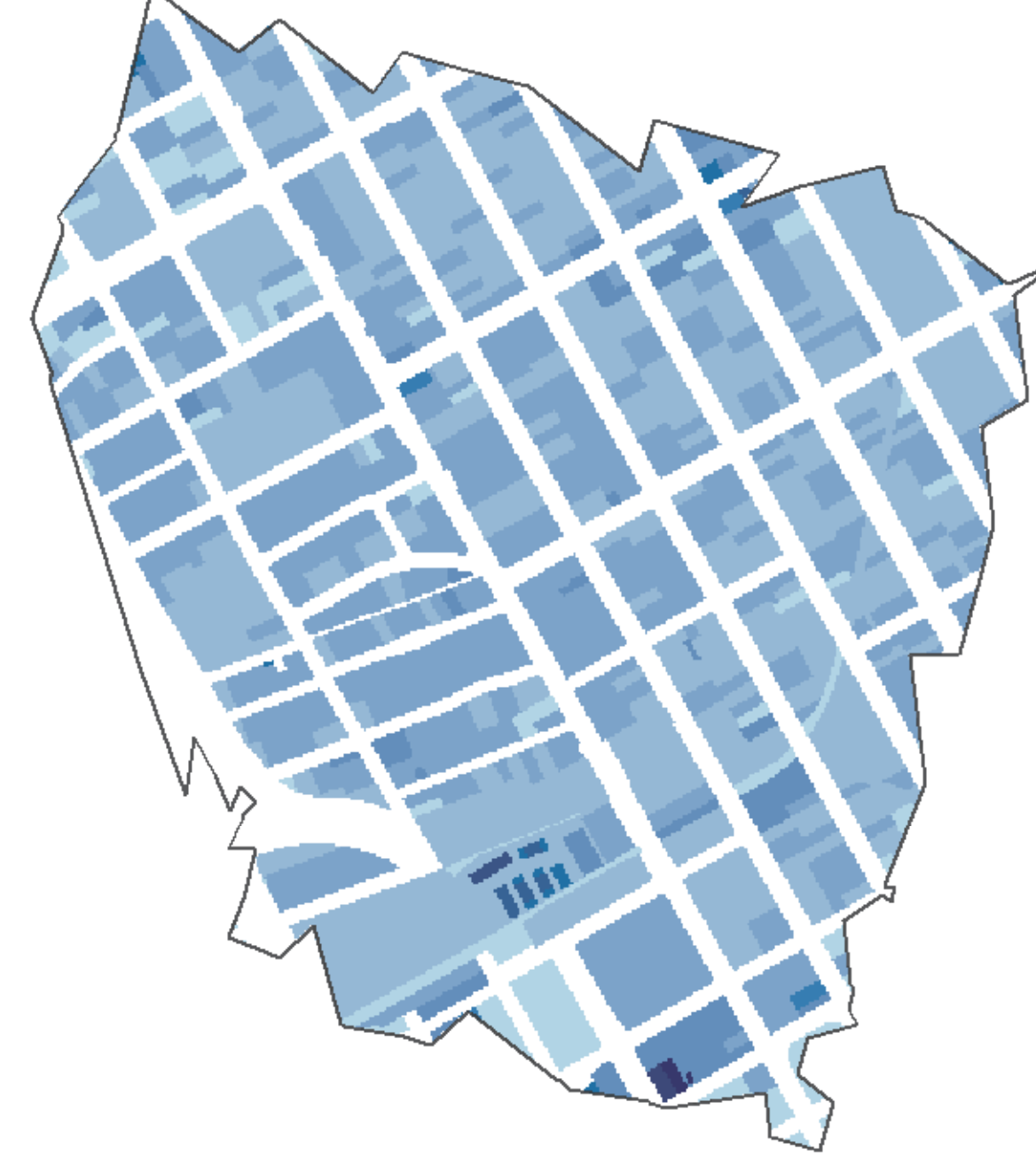
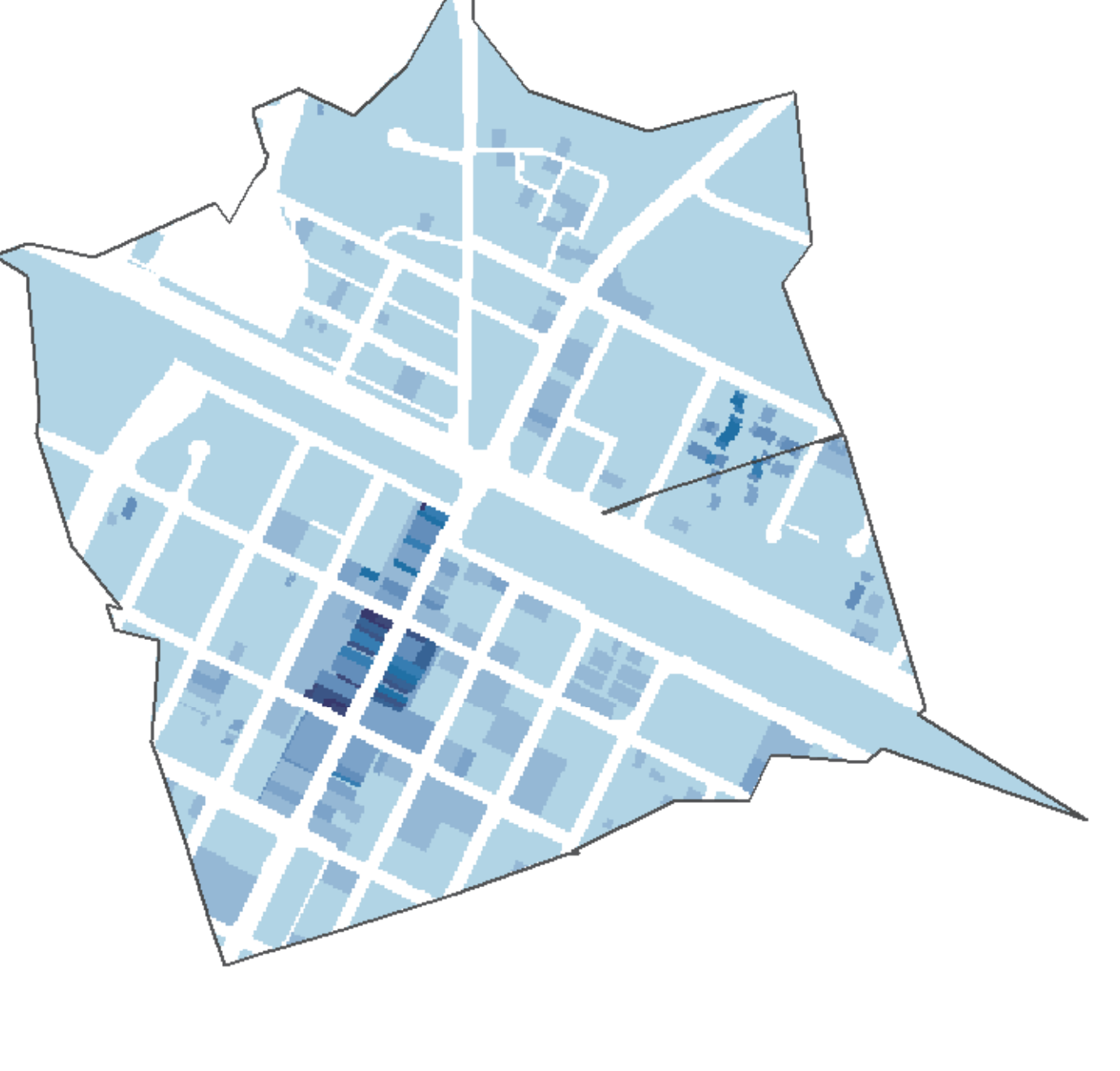
ROW Intersection Proximity



Design

Proximity to ROW Intersections
15% Influence on Value

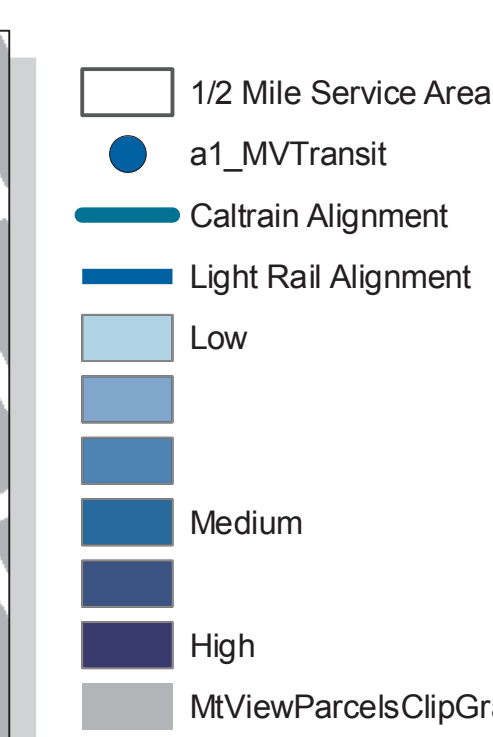
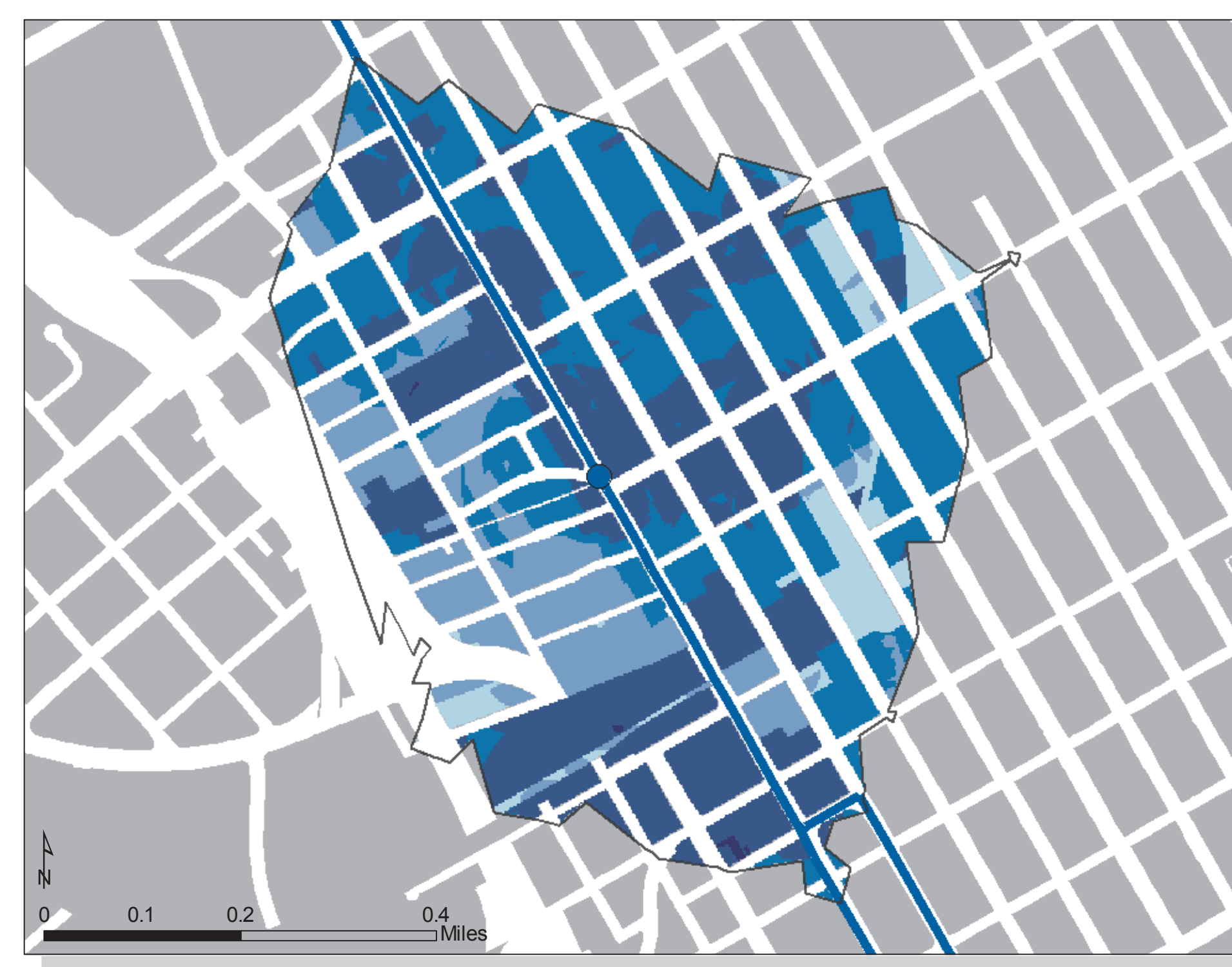
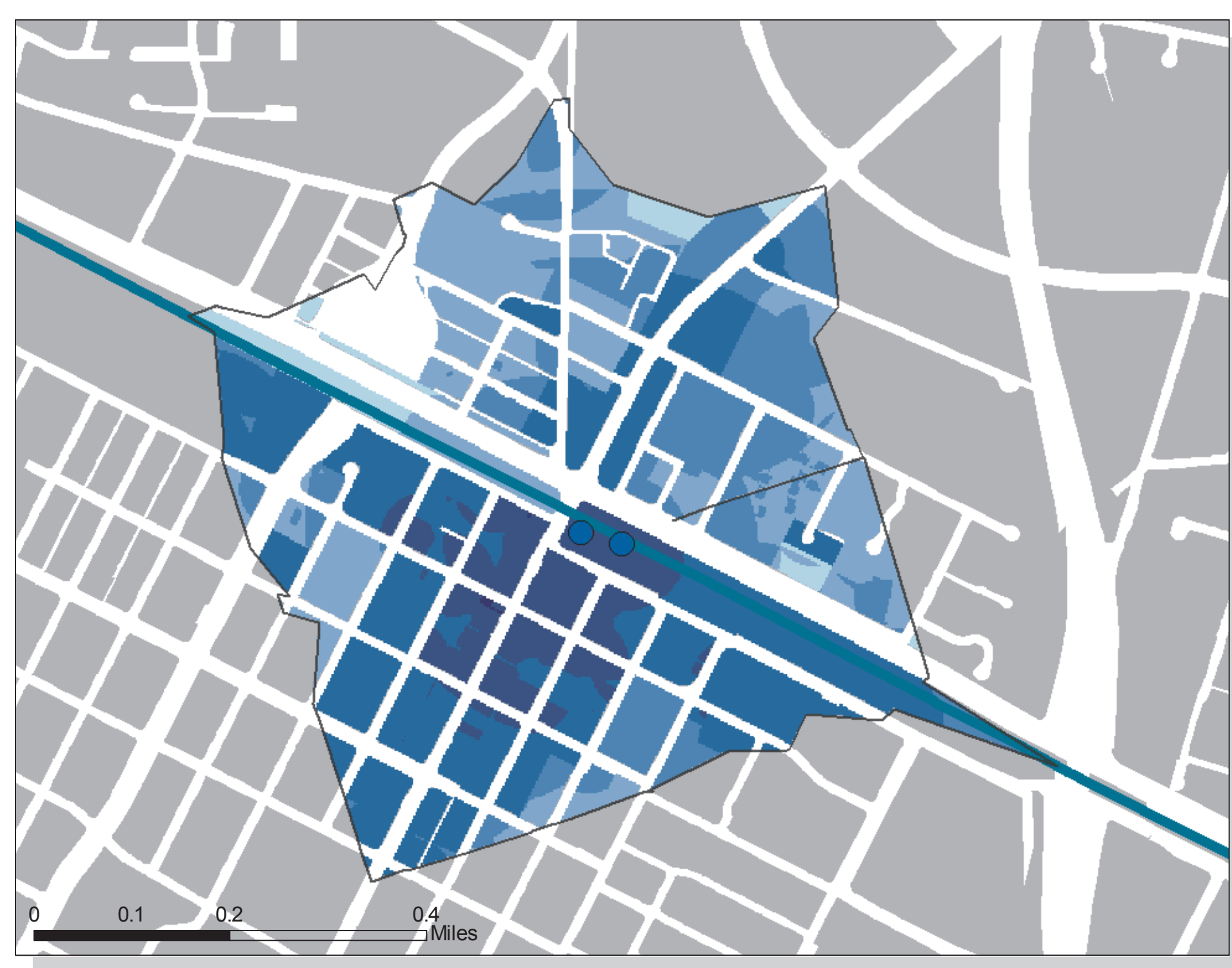
Building Coverage



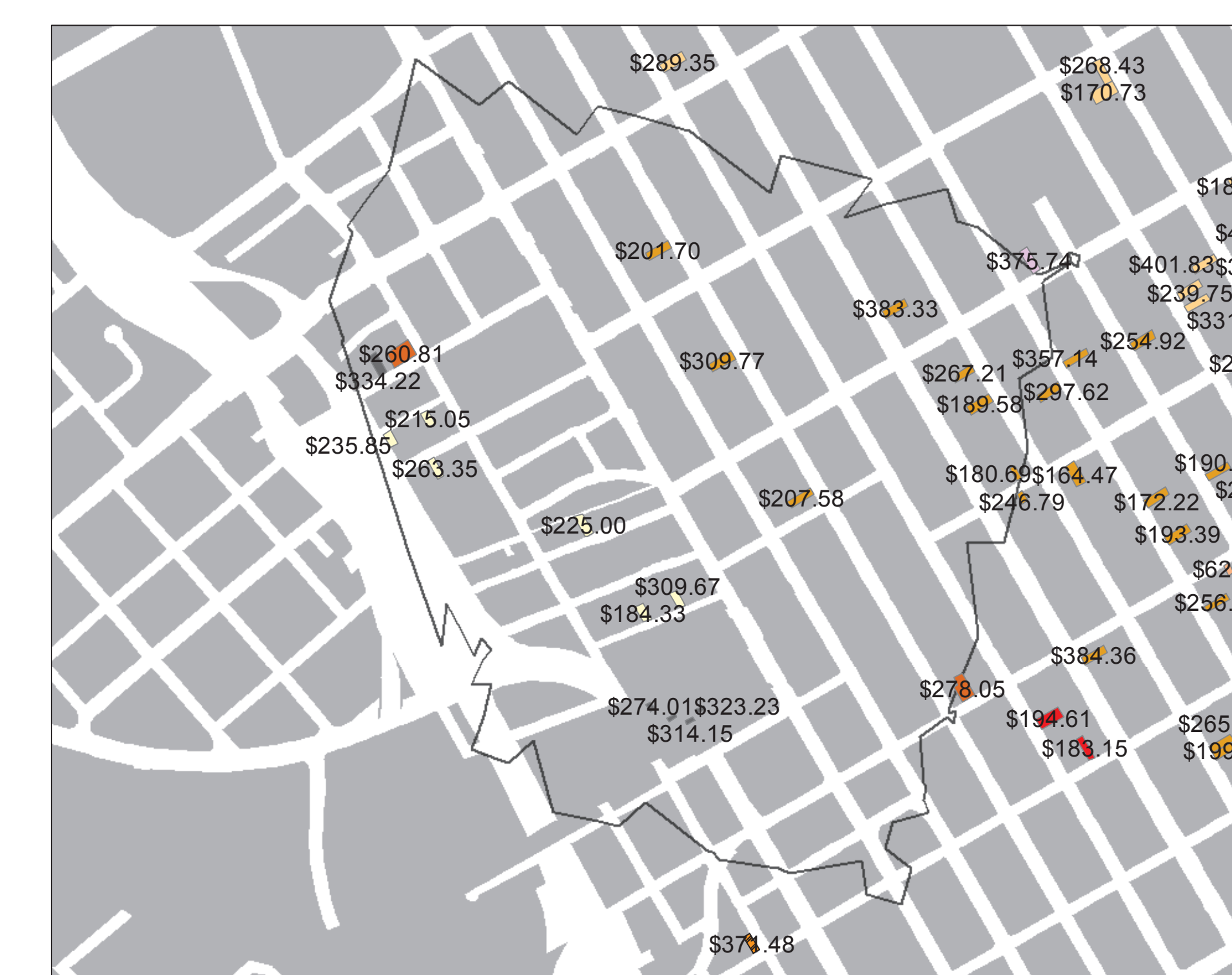
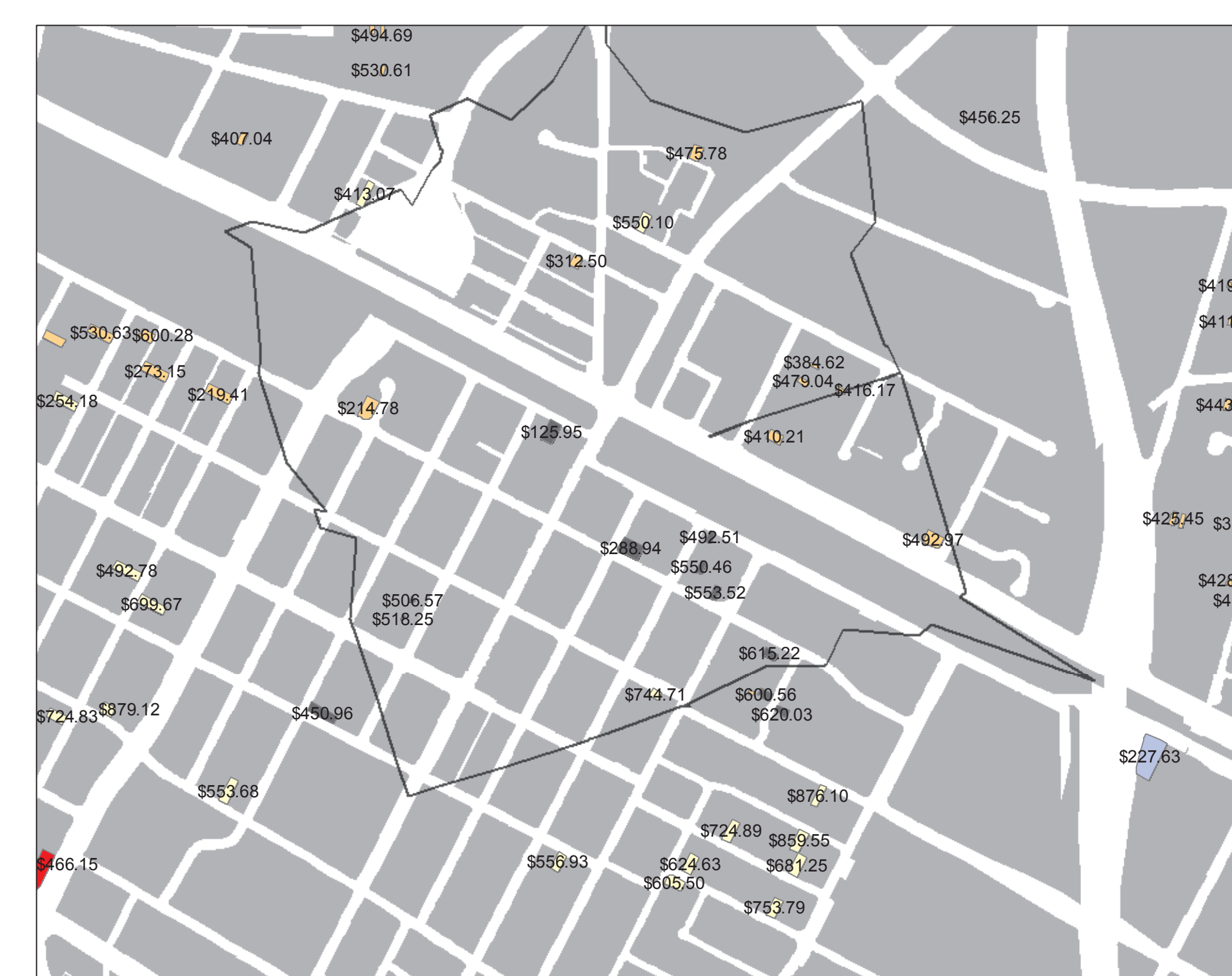
Density

Building Coverage by Parcel
10% Influence on Value

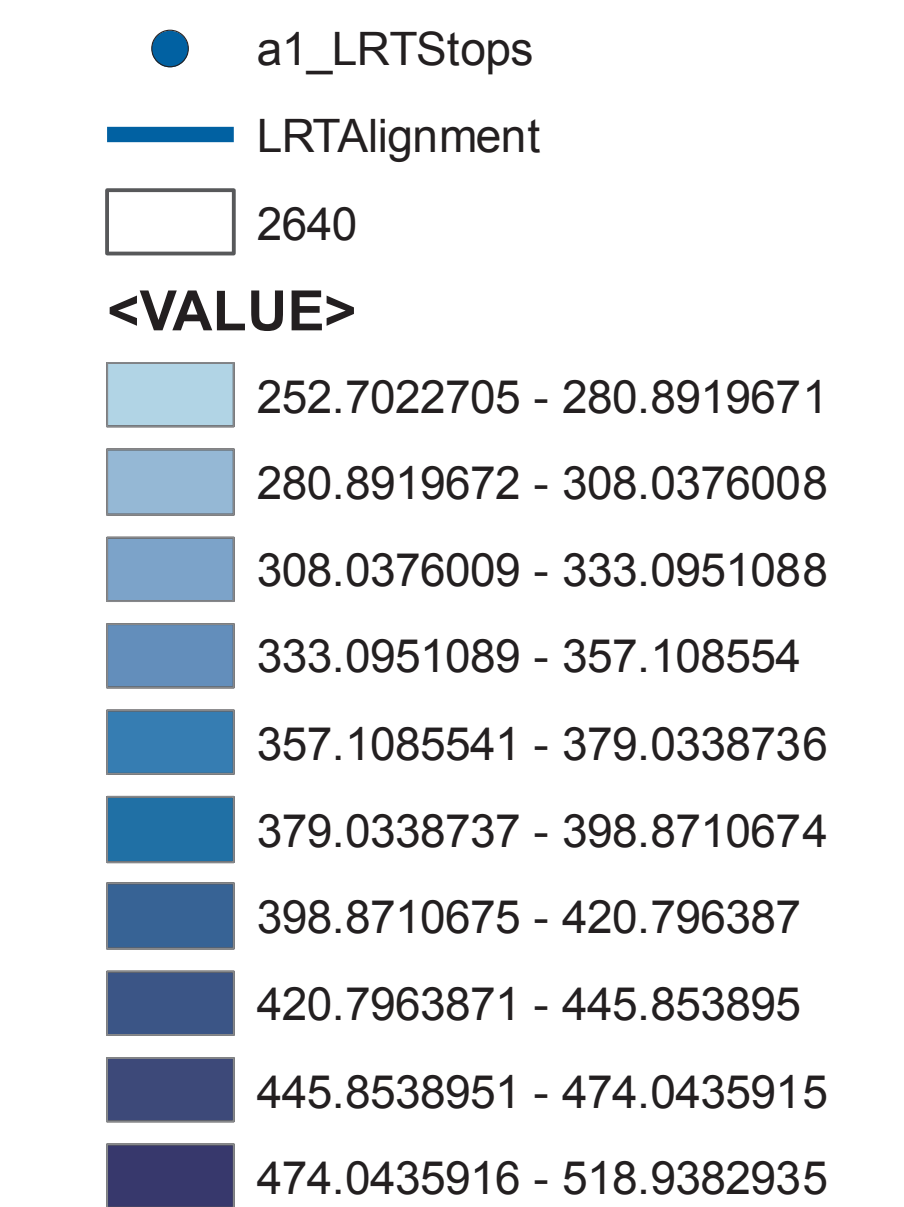
Weighted Overlay



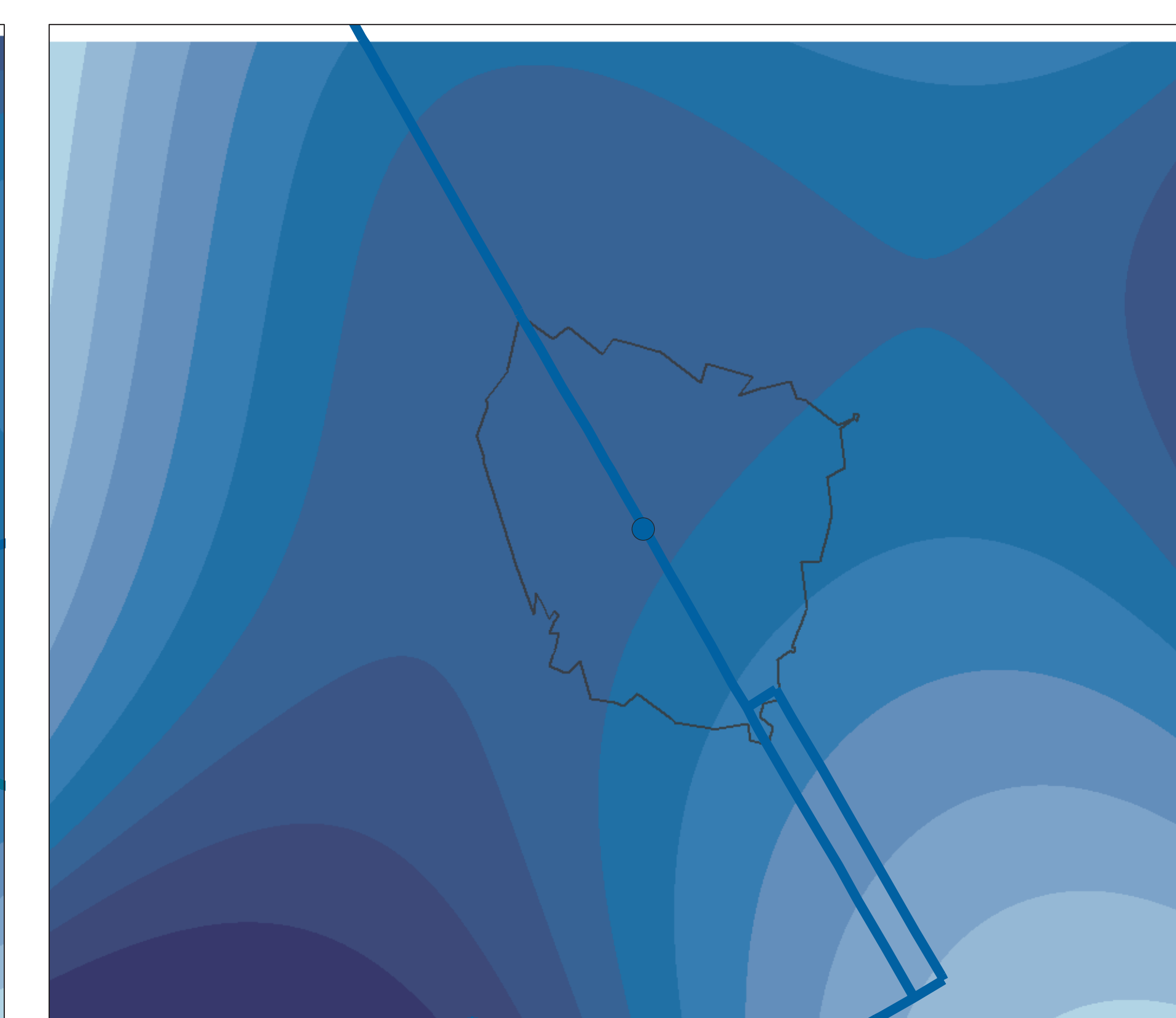
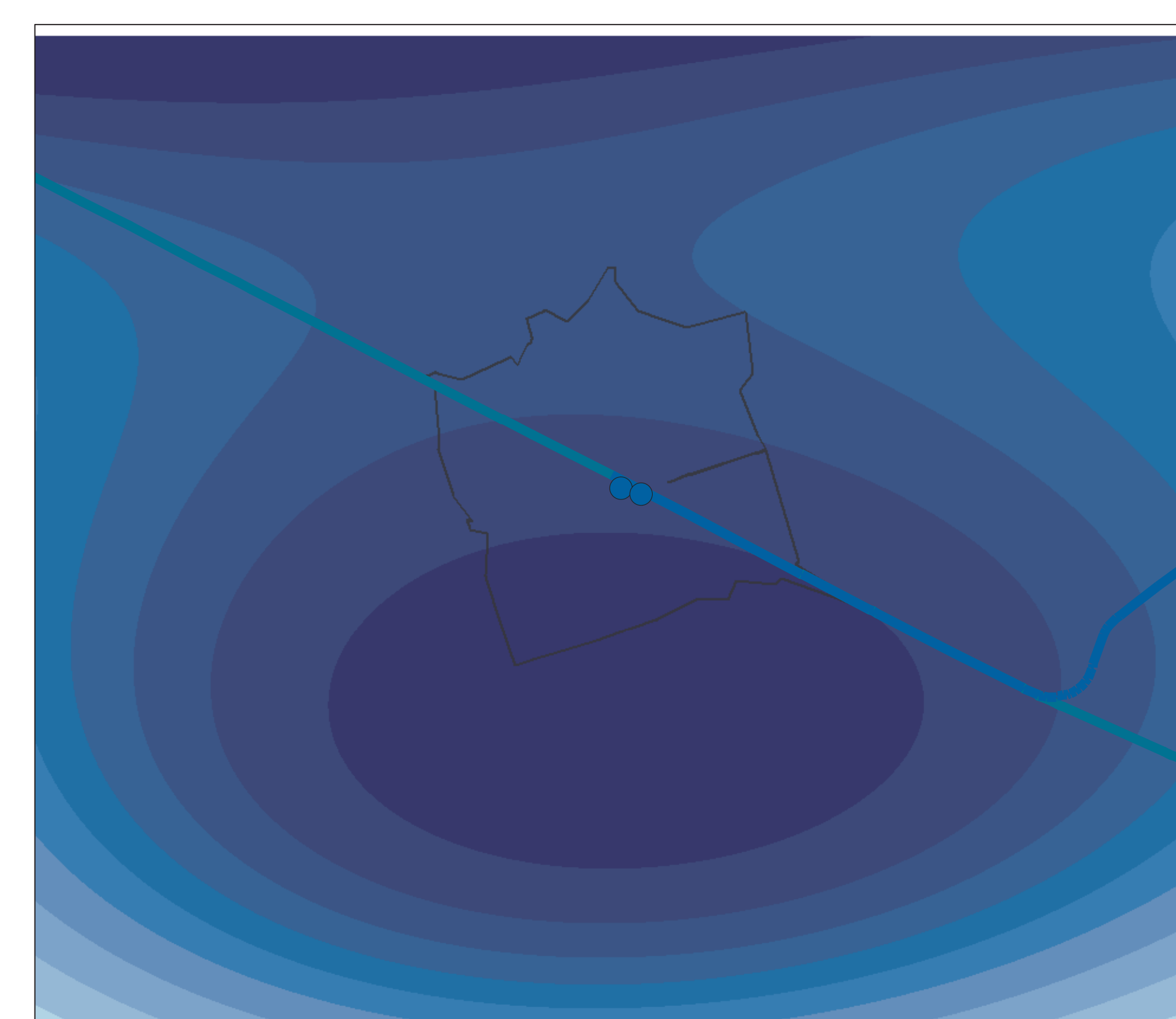
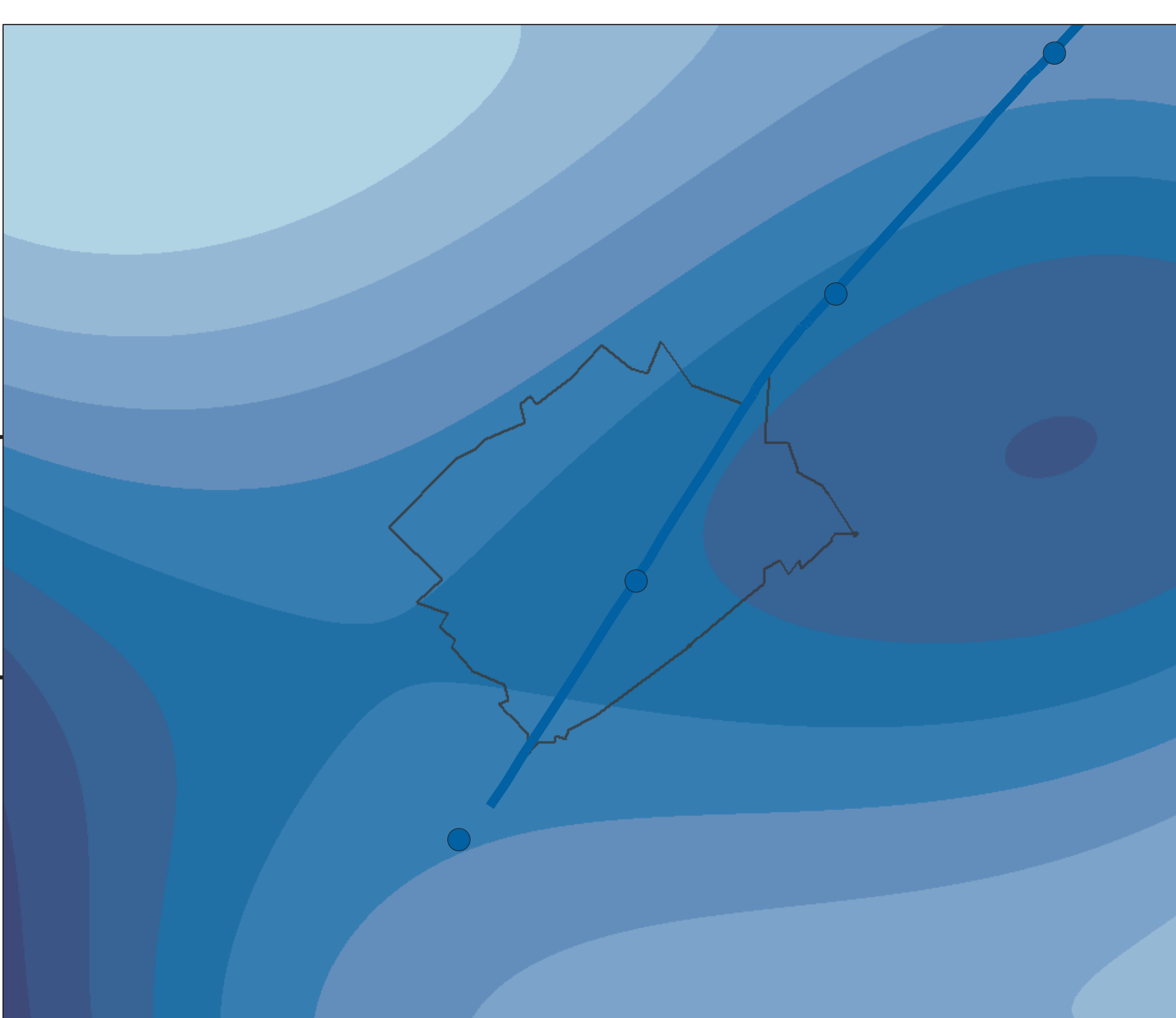
2009 Sales Data (\$/sqft)



2009 Property Value Trend



Interpolated \$/sqft Trend



Appendix H: GIS Weighted Analysis Parameters

TOD Spatial Analysis Attribute Weights

5 D's of TOD Category	GIS Attribute	Data	Formula	Influence	Value Assignment Assumption	Reverse Values	Dataset	Prep
1 Diversity	Polygon	Land Use Type	Zoning (low value for low density uses)	30%	The lower the anticipated number of patrons, the lower the value. The more access to service, the more desirable.		Land Use Parcels	Clip 1/2 mi and create raster of polygons for land use types. Note proximity to parks and public facilities is high value. Euclidean Distance.
2 Destination	Point	Amenities	Proximity to amenities	25%	The more amenities available, the more desirable		Amenities	Euclidean Distance. Reclassify using equal intervals.
3 Distance	Point	Transit Center	Proximity to Transit	20%	The more transit options, the more desirable		Transit	Euclidean Distance. Reclassify using equal intervals.
4 Design	Polygon	Intersections	Number of intersections	15%	The more intersection, the more permeable/walkable and more desirable		1/2 Service Area and Land Use Parcel Clip	Clip Network Junctions and create raster. Reclassify using equal intervals.
5 Density	Polygon	Building Coverage	Building Footprint/Parcel Size	10%	The higher the building coverage, the more dense and the more valuable	X	Joined Building Footprint and Land Use Parcels (All records)	Spatial Join datasets (one-to-many), dissolve based on APN, and create column to calculate coverage. Reclassify using natural breaks.
				100%				

Future Categories

5 D's of TOD Category	GIS Attribute	Formula	Influence	Value Assignment Assumption	Reverse Values	Dataset	Prep	
1	Point	Vacancy						
2	Polygon	Plan vs Apporved						
3	Point	Occupancy						
4	Point	Defaults						
5	Polygon	Property Turn-over					Dissolved by block	
6	Point	Property Age						
7	Polygon	FEMA Flood Plan						
Design	Polygon	Land Use Conformance	Proximity of parcel to adjacent conforming parcels	20%	Parcels that are adjacent to like parcels are more desirable.		Parcels	Parcels with land use codes.
8								

Appendix I:

TOD Plan Matrix – Measuring and Managing Success

Appendix I: TOD Plan Matrix – Measuring and Managing Success

Several challenges exist regarding the financing of TODs. One challenge includes the fact that no common definition exists among financiers. Another challenge is that no standard exists for comparing similar TOD projects or planned areas to one another. Comparable analysis allows financiers to predict and evaluate the market demand of product types. Thus, thus in the absence of a reliable method of evaluating market opportunities for debt capital financiers, TOD funding will continue to be a challenge.

One way to reduce variation in comparable datasets is to standardize data types and attributes. Congress has recognized the need to create and maintain a standard land use code and dataset for economic purposes and has appointed a Federal Geographic Data Committee (FGDC) to coordinate geospatial activities and develop the National Spatial Data Infrastructure (NSDI), with particular emphasis on a national land use parcel database.¹ However, without the help of local, private sector, and non-profit agencies who produce geospatial information, standardization of land use codes will continue to be a challenge and hence so will the ability to compare similar projects and planned areas from differing jurisdictions.

Appendix I offers local agencies a simple matrix for measuring and managing TOD plans to allow for comparison to one another and tracking performance over time. The matrix is based on Cervero's 5 Ds of TOD and as proven in this paper, can be an indicator of desirability; however, to prove this theory more analysis is needed as well as comparison of results over time. For this to be feasible a standard set of land use parcel codes must exist. Additionally, local agencies would need to standardize data capture methods and datasets. Doing so will allow debt capital lenders and other financiers reliably estimate market demand over time, ultimately reducing uncertainty and improving available funds for proven TOD project types.

National Land Use Parcel Database Resources (non-exhaustive list):

- Federal Geographic Data Committee (FGDC) – www.fgdc.gov
- National Geospatial Advisory Committee (NGAC) - www.fgdc.gov/ngac
- National Spatial Data Infrastructure (NSDI) - www.fgdc.gov/nsdi/nsdi.html
- Congressional Research Service (CRS) – www.crs.gov
- National Land Parcel Data: A Vision for the Future²

¹ Peter Folger, "Issues Regarding a National Land Parcel Database," *Congressional Research Service 7-5700, CRS Report for Congress*, R40717 (July 2009): 1-12.

² National Academies, *National Land Parcel Data: A Vision for the Future*, National Research Council (U.S.), Committee on Land Parcel Databases: A National Vision, (Washington D.C.: National Academies Press, 2007).

Appendix I: TOD Plan Tracking Matrix

Plan Approved: [Approval Date]
 Project Approval Date: [Approval Date]

	Description	Change/Result*	Approved - Parcel Uses	Approved - Plan Uses	Variance (Impact of Project on Plan Objectives)**
Project Use Type:	[Use Type]		[Allowed uses on parcel]	[Number of preferred uses by type]	[remaining number of target uses by type]
Project Squarefootage:	[Sqft]	[Sqft]	[Allowed uses on parcel]	[Total Allowable Sqft in Plan Area]	[remaining amount of sqft in plan area by use type]
Project FAR:	[FAR Ratio]		[Allowed uses on parcel]	[Total Allowable FAR in Plan Area]	[remaining amount of FAR in plan area by use type]
Project Height:	[Height]		[Allowed uses on parcel]	[Total Allowable Height in Plan Area]	[remaining amount of Height/skyline for plan area]
Project Contribution to Parks:	[Land Dedication, In-Lieu Fee]	[Sqft of land to attain plan objectives]	[Allowed uses on parcel]	[Total Park Area in Plan Area]	[remaining amount of park space in plan area]
Project Contribution to Infrastructure:	[Land Dedication, In-Lieu Fee]	[Sqft of land to attain plan objectives]	[Allowed uses on parcel]	[Total Infrastructure Improvements in Plan Area]	[remaining amount of infrastructure improvements in plan area]

* Data recorded would be used to populate GIS for Spatial Analysis over time.

** Data should be used to create 3D model of planned area to demonstrate snapshots of plan progression (planned uses by type versus actual build outs by type).

Appendix J:
TOD Research Agencies and Tools

Appendix J: TOD Research Agencies and Tools

Below is a list of agencies that research, educate, and promote transit-oriented development:

Federal Geographic Data Committee (FGDC)

About: The FGDC is an interagency committee that promotes the coordinated development, use, sharing, and dissemination of geospatial data on a national basis. This nationwide data publishing effort is known as the National Spatial Data Infrastructure (NSDI).
Address: 590 National Center Reston, Virginia 20192
Web: www.fgdc.gov
Key TOD Programs: NSDI and Cadastral Subcommittee
Scope: National
Role: Organizes and promotes common geospatial data sharing.
Notes: FGDC sponsors several programs to promote a national land parcel database. If successful, a national database would allow for reliable comparison of land uses regardless of location.

Federal Transportation Administration (FTA)

About: The FTA is steward of combined formula and discretionary programs totaling more than \$10B to support a variety of locally planned, constructed, and operated public transportation systems throughout the United States.
Address: Several regional offices.
Web: http://fta.dot.gov/publications/publications_11007.html
Key TOD Programs: Transit-Oriented and Joint Development
Scope: National
Role: Funds capital projects that can promote TOD.
Notes: FTA has no specific funding programs for TOD, but most FTA funding programs can be used for capital projects that support TOD.

Metropolitan Planning Commission

About: MTC is the transportation planning, coordinating and financing agency for the nine-county San Francisco Bay Area.
Address: 101 Eighth Street, Oakland, California 94607
Web: www.mtc.gov
Key TOD Programs: Smart Growth/Transportation for Livable Communities and FOCUS.
Scope: Bay Area
Role: Metropolitan Planning Organization
Notes: MTC offers extensive programs and resources regarding TOD please refer to their web page for complete details.

FOCUS: A development and conservation strategy for San Francisco Bay Area

About: FOCUS is a regional development and conservation strategy that promotes a more compact land use pattern for the Bay Area. It unites the efforts of four regional agencies into a single program that links land use and transportation by encouraging the development of complete, livable communities in areas served by transit, and promotes conservation of the region's most significant resource lands.
Web: www.bayareavision.org
Key TOD Programs: Priority Development Areas
Scope: Bay Area
Role: Bay Area state agency collaborative

Portland METRO

About: METRO is the transportation planning, coordinating and financing agency for the Portland area.
Address: 600 NE Grand Ave., Portland, OR 97232-2736
Web: www.metro-region.org
Key TOD Programs: Transit-Oriented Development
Scope: Portland Area
Role: Metropolitan Planning Organization
Notes: METRO offers extensive programs and resources regarding TOD please refer to their web page for complete details. Several projects in the Pearl District are credit to this program.

Brookings Institute

About: The Brookings Institution is a nonprofit public policy organization based in Washington, DC. **Address:** 1775 Massachusetts Ave., NW Washington, DC 20036
Web: www.brookings.edu
Key TOD Programs: Several reports on walkable urbanism and TOD.
Scope: National
Role: Think tank, a nonprofit education and research.

Green Belt Alliance

About: A nonprofit organization that advocates, promotes, and supports communities preserve open spaces in the Bay Area.
Address: 631 Howard Street, Suite 510 San Francisco, CA 94105
Web: www.greenbelt.org
Key TOD Programs: Housing/Livable Communities and Transportation reports
Scope: Bay Area
Role: Nonprofit education and research Belt Alliance

American Planning Association

About: APA is an independent, not-for-profit educational organization that provides leadership in the development of vital communities.
Address: 205 N. Michigan Ave., Suite 1200 Chicago, IL 60601
Web: www.planning.org
Key TOD Programs: Various education programs and publications.
Scope: National
Role: Nonprofit education and research organization.

Urban Land Institute

About: A nonprofit research and education organization of real estate professionals interested in bettering workforce housing, infrastructure, and sustainability in communities.

Address: 1025 Thomas Jefferson Street, NW, Suite 500 West Washington DC 20007

Web: www.uli.org and www.todmarketplace.org

Key TOD Programs: Various education programs and publications, including ULI's TOD MarketPlace.

Scope: International

Role: Nonprofit education and research organization.

TransForm

About: A nonprofit that aims to create world-class public transportation and walkable communities in the Bay Area and beyond.

Address: 436 14th Street, Suite 600, Oakland, CA 94612

Web: <http://transformca.org>

Key TOD Programs: Great Communities Collaborative as well as various education programs and publications to promote urbanism.

Scope: National

Role: Nonprofit education and research

ReConnecting America

About: Reconnecting America is a national nonprofit organization that is working to integrate transportation systems and the communities they serve, with the goal of generating lasting public and private returns, improving economic and environmental efficiency, and giving consumers more housing and mobility choices.

Address: 1707 L Street, N.W., Suite 210 Washington, D.C. 20036

Web: www.reconnectingamerica.org

Key TOD Programs: CTOD as other TOD programs and publications.

Scope: National

Role: Nonprofit education and research organization.

Notes: ReConnecting America is the only federally funded research body by Congress; as such it is an impartial fact-based provider of TOD research and study information.

Congress of New Urbanism (CNU)

About: CNU is an organization that promotes walkable, mixed-use neighborhood development, sustainable communities and healthier living conditions.

Address: 140 S. Dearborn Street, Suite 404 Chicago, IL 60603

Web: www.cnu.org

Key TOD Programs: Various education programs and publications.

Scope: National

Role: Nonprofit education and research organization.

NOTE: the list above is not a comprehensive list, but rather limited to resources referenced in this paper.

Appendix K:
Glossary

Appendix K: Glossary

Absorption	= the rate at which product inventory is absorbed by the market.
Capital Stack	= the sum of debt and equity capital invested in a project.
CC&R's	= are covenants, conditions, and restrictions that run with land. Also known as encumbrances.
Clear Title	= a real estate deed free and clear of encumbrances.
Collateralized Mortgage Obligation	= A legal entity that owners of a set of mortgages sold to investors. Investors are paid according to terms and mortgages act as collateral.
Comparable Market Analysis (CMA)	= a relative valuation method that compares variables shared by similar products in similar markets. Comparable markets analysis assumes that markets are typically efficient and therefore similar products have relatively similar value. Reliable comparable market analysis depends on inventory turn-over, thus recent transactions of similar product most accurately reflects market demand. In real estate, products should be geographically similar to reflect external influences on the product.
Conforming Loan	= a loan that conforms to Fannie Mae and Freddie Mac conforming loan limits and guidelines.
Construction Loan	= a short to mid term loan used to finance project construction. Construction loans are higher risk than permanent loans and therefore warrant a higher return. Construction loans are become available when project entitlements and permits are approved.
Debt Capital	= Funds generated though debt or borrowed money. Debt capital is returned to debt capital financiers through an accrued collection of interest payments on amount loaned.
Debt Service Coverage	= for income property (i.e. apartments, commercial, office) the amount of cash flow available to satisfy annual loan requirements.
Debt Service Coverage Ratio (DCR)	= net operating income divided by total debt service. DCRs less than one imply a deficit of property incomes or inability to cover annual debt obligations.
Developer/Impact Fee	= an assessed fee within a jurisdiction or assessment district used as a means to defray the cost to the jurisdiction of expanding and extending public services to the development.
Encumbrance	= a legally recognized condition or contract that limits or affects the title of a property, such as loans, leases, easements, liens, or use restrictions. Encumbrances affect value. For example, clear title properties are worth more than encumbered property deeds.
Equity Capital	= investment funds raised in exchange for ownership rights in a project. Equity capital is returned to investors through dividends and payouts according to proportion of equity ownership.

Feasibility Analysis	= an economic analysis conducted to evaluate the likelihood a project can meet profitability objectives.
Fee Simple	= an estate in land and form of freehold ownership based on English common law. Fee simple represents absolute ownership of real property, limited to four basic government powers; taxation, eminent domain, police power, and escheat.
For Sale Products	= in the context of TOD, for sale products are fee simple properties for sale.
Income Product	= real property that is leased or rented to generate income.
Joint Development	= generally, cooperation between the public and private sectors to deliver transit-oriented development (TOD), usually involving development on transit agency owned land.
Joint Venture (JV)	= a legal entity formed between two or more parties to accomplish an economic activity and assume joint responsibility and rewards. JVs are finite equity contribution agreements.
Loan-to-Cost (LTC)	= a ratio of the price paid for an asset to the value of the debt capital loan amount funded to finance the purchase or construct the project. Cost in this case, is cost to purchase the property or build the project. Typically, lenders require developers to have "skin in the game" and will not fund 100% of the purchase price. Important to note, is that purchase price is independent of appraised market value.
Loan-to-Value (LTV)	= a ratio of the loan amount to the appraised value of a real property. The difference between market value and debt contribution is equity.
Mezzanine Loan	= similar to a second mortgage, mezzanine loans are subordinated debt used to fund a project. The difference between secondary mortgages and mezzanine loans is that mezzanine loans can structure agreements for preferred equity on a project in the form of claims on a company or project's assets. Therefore, mezzanine loans can be structured as debt or preferred stock/equity in a project or company. In the context of TOD, mezzanine loans are used to bridge funding gaps. Due to an increased risk of subordinated debt, mezzanine loans are typically more expensive than conventional financing mechanisms.
Normalization	= a technique used to simplify data to a common factor for reliable comparison. The process isolates statistical errors in repeated measured data by simplifying variables to common datasets to allow for comparison. Normalized data shows that a proof, which applies to normal variables, also applies to other similar variables.
Permanent Loan	= long term financing arrangement that succeeds construction of a project. Permanent financing generally pays out construction loans.

Pioneering Project	= a development project that does not conform to neighborhood or market products and is therefore, the first of its kind in an area. Lenders view pioneering projects as risky because no market is proven for the product; however, governments looking to catalyze developments strategically support pioneering projects.
Public Private Partnerships (PPP)	= a partnership between a government agency and one or more private sector companies to create, fund, and manage a government program or private business venture. TOD is an example of a PPP opportunity, whereby the government may partially fund construction of a project to meet objectives and a private developer would manage and build the development.
Real Estate Owned (REO)	= portfolio of performing and non-performing properties owned by banks.
Real Property	= real estate or real property that is or is affixed to land.
Secondary Mortgage Market	= a market for the sale of securities or bonds collateralized by mortgage loans. To facilitate the sale of loans, lenders often package multiple loans and resell them as securities called collateralized mortgage obligations (CMB), thus reducing the risk associated with individual loans by diversifying over a portfolio of products. For securities to be desirable on the secondary mortgage market, strict underwriting guidelines are applied. Hence, most banks adhere to Freddie Mac and Fannie Mae underwriting guidelines to ensure loans can be packaged as securities for sale.
Sensitivity Analysis	= an evaluation of uncertainty. Lenders conduct sensitivity analysis to determine the risks associated with real estate opportunities in the best, base, and worst-case scenarios. When sensitivities demonstrate outcomes within strategically defined objectives, lenders consider the opportunity favorable.
Shovel Ready	= a project that is entitled, permitted, and ready to construct.
Skin in the Game	= a developer's equity contribution and level of financial commitment to a project.
Special Assessment	= a tax assessed against parcels that have been identified as receiving a direct and unique benefit as a result of a public project (source: capturing value of transit).
Stakeholder	= for the purposes of this paper, the term stakeholder is any group or person that participates in the funding of a TOD.
Syndication	= a loan provided by a group of lenders, but supervised by one or few banks. Banks that administer syndicated loans are known as arrangers because they arrange, negotiate, implement, and manage the loan. The advantage of syndicated loans is an increased access to debt capital, but a single source servicer.
Tax Increment Financing (TIF)	= a mechanism that allows the public sector to "capture" growth in property tax (or sometimes sales tax) resulting from new development and increasing property values (source: capturing value of transit).

Transit-oriented Development (TOD)	= a rich mix of uses within a ½ mile of light or heavy rail, ferry service, or bus rapid transit nodes. TOD is often described as a TOD planned area or TOD project within a planned area.
TOD Plan	= a specific plan area designed to leverage accessibility to transit. TOD plans rely on common urban principles to promote walk ability, appropriate density, as well as land use mix. TOD plans areas include TOD projects.
TOD Project	= developments built within a TOD plan area.
Underwriting	= the due diligence process financial service providers use to assess investment risk. Underwriting essentially determines the eligibility of a customer receiving financial products based on their ability to service the investment. Typical financing products include equity capital, insurance, mortgages, and credit.

Appendix L:
2009 Case Study Real Estate Sales

Appendix L: 2009 Case Study Real Estate Sales

Appendix L contains real estate sales data collected from MLSListings and CoStar Group. Search parameters were limited to real estate properties sold in 2009 within a 1-mile radius of transit centers for both residential and commercial properties. MLSListings provided residential sales information. CoStar Group provided commercial sales information.

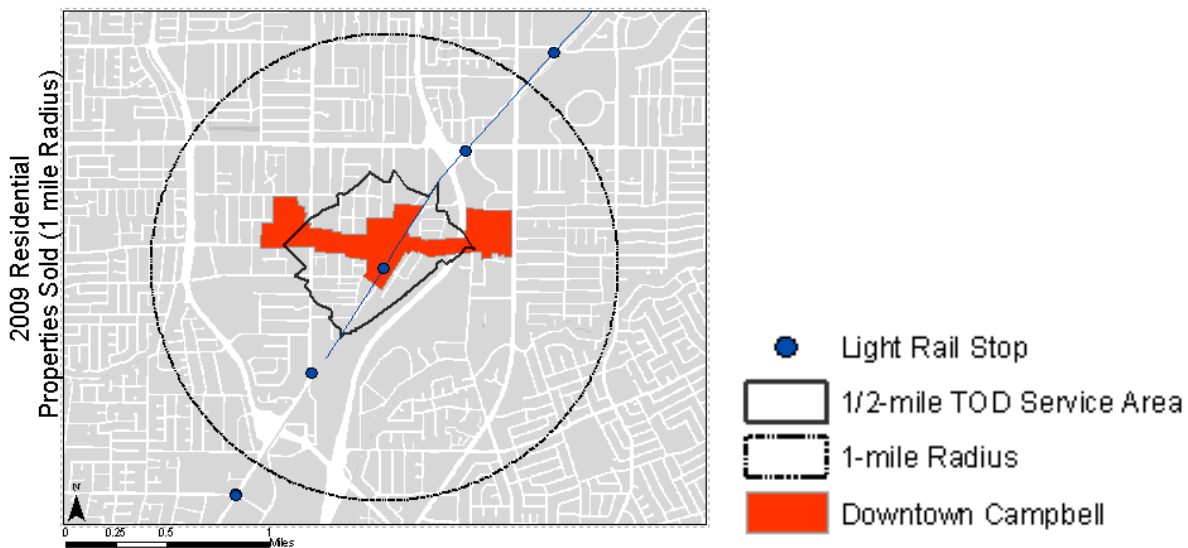
Real Estate Data Sources:

- MLSListings.com
(Santa Clara County Residential Data)
- CoStar.com
(National Commercial Data)

Real estate datasets were cleaned in MS Excel, then imported to ArcGIS and geocoded to create a point map of 2009 sales for all property types. Using ArcGIS, the price per square foot was calculated by adding a new field to real estate data layers and dividing the sales price by the building square footage. Calculating the price per square foot allowed for a consistent comparison of value. An additional field was added to the real estate data layer to calculate the average price per square foot for each use type sold within the 1-mile radius of transit centers. The result was an average price per square foot by use type for properties sold in 2009 for each of the three study areas.

With real estate sales maps created for all three-study areas and values simplified to price per square foot by use type, data could be compared relative to each other and between sales within the ½-mile service area and for data outside of the ½-mile service area but within the 1-mile radius from transit centers. The example below demonstrates the real estate data boundaries for the ½-mile TOD service area and 1-mile radius from transit centers.

Downtown Campbell



Important to note is that the average price per square foot was calculated based on sales within a 1-mile radius of transit centers. Therefore, the average price per square foot by use type varied by study area. To ensure that the average price per square foot by use type were relative to one another, the real estate radius would need to include all real estate sales for all case study areas or a weighted average calculated between study areas. As this method was not defined in this analysis, this paper did not compare absolute values, but rather relative values (high vs. low) as an indicator of desirability. Measuring the desirability of properties in proximity to transit centers, is an indicator of TOD impacts on property values.

Included below is a table of aggregated price per square foot values by TOD area by type.

TOD	SalePrice	PricePerSF	PropType
Downtown Campbell	\$951,200.00	\$281.19	Attached Single Family Average
	\$346,415.71	\$339.64	Condominium Average
	\$680,106.04	\$416.08	Detached Single Family Average
	\$672,333.33	\$207.46	Industrial Average
	\$1,212,600.00	\$185.85	Multi-Family Average
	\$1,486,666.67	\$231.54	Office Average
	\$960,000.00	\$201.32	Retail Average
	\$481,599.97	\$350.79	Townhouse Average
Downtown Mountain View	\$789,800.00	\$452.48	Attached Single Family Average
	\$1,999,000.00	\$358.50	Church Average
	\$396,706.08	\$402.61	Condominium Average
	\$807,918.92	\$552.63	Detached Single Family Average
	\$910,500.00	\$227.63	Industrial Average
	\$9,656,666.67	\$98.04	Land Average
	\$1,190,472.18	\$264.03	Multi-Family Average
	\$1,411,500.00	\$339.16	Office Average
	\$1,574,500.00	\$412.33	Retail Average
	\$600,247.35	\$430.97	Townhouse Average
Japantown, San Jose	\$369,721.43	\$217.06	Attached Single Family Average
	\$399,969.18	\$333.90	Condominium Average
	\$363,323.05	\$290.89	Detached Single Family Average
	\$644,000.00	\$216.60	Industrial Average
	\$1,800,000.00	\$82.30	Land Average
	\$577,190.57	\$172.71	Multi-Family Average
	\$557,666.67	\$337.75	Office Average
	\$710,000.00	\$191.06	Retail Average
	\$411,618.77	\$277.39	Townhouse Average
	\$432,500.00	\$187.92	Warehouse Average

The following pages show calculated sales data for the three-case study areas by product type. Additionally, data is analyzed for 2009 sales within the ½-mile service area and beyond the ½-mile service area.

Appendix L: 2009 Case Study Real Estate Sales

	TOD Prop Sold	SumSalePrice
Downtown Campbell	162	\$105,401,654
Downtown Mountain View	240	\$199,374,199
Japantown, San Jose	234	\$95,879,005

636

636 properties sold in 2009 for all three TOD areas (1 mi radius)

All Real Estate Data	Residential	2009 Sales	Non-Residential	2009 Sales	Properties Sold	2009 Sales	
Downtown Campbell	136	\$ 76,145,654	26	\$ 29,256,000	162	\$ 105,401,654	\$ 105,401,654
Downtown Mountain View	220	\$ 146,577,311	19	\$ 52,086,888	239	\$ 198,664,199	\$ 198,664,199
Japantown	193	\$ 73,734,237	40	\$ 21,714,768	233	\$ 95,449,005	\$ 95,449,005
Total	549	\$ 296,457,202	85	\$ 103,057,656	634	\$ 399,514,858	

TOD Real Estate Data	Residential	2009 Sales	Non-Residential	2009 Sales	Properties Sold	2009 Sales
Downtown Campbell	28	\$ 15,954,999	3	\$ 1,937,000	31	\$ 17,891,999
Downtown Mountain View	30	\$ 18,906,000	2	\$ 3,170,000	32	\$ 22,076,000
Japantown	47	\$ 16,416,694	3	\$ 864,168	50	\$ 17,280,862
Total	105	\$ 51,277,693	8	\$ 5,971,168	113	\$ 57,248,861

Real Estate Data Outside 1/2 mi	Residential	2009 Sales	Non-Residential	2009 Sales	Properties Sold	2009 Sales
Downtown Campbell	108	\$ 60,190,655	23	\$ 27,319,000	131	\$ 87,509,655
Downtown Mountain View	190	\$ 127,671,311	17	\$ 48,916,888	207	\$ 176,588,199
Japantown	146	\$ 57,317,543	37	\$ 20,850,600	183	\$ 78,168,143
Total	444	\$ 245,179,509	77	\$ 97,086,488	521	\$ 342,265,997

Downtown Campbell	136	\$ 76,145,654	26	\$ 29,256,000	162
Downtown Mountain View	220	\$ 146,577,311	19	\$ 52,086,888	239
Japantown	193	\$ 73,734,237	40	\$ 21,714,768	233

Appendix L: 2009 Case Study Real Estate Sales

Downtown Campbell

Overlapping sales data found in both TOD area and Out (2009)

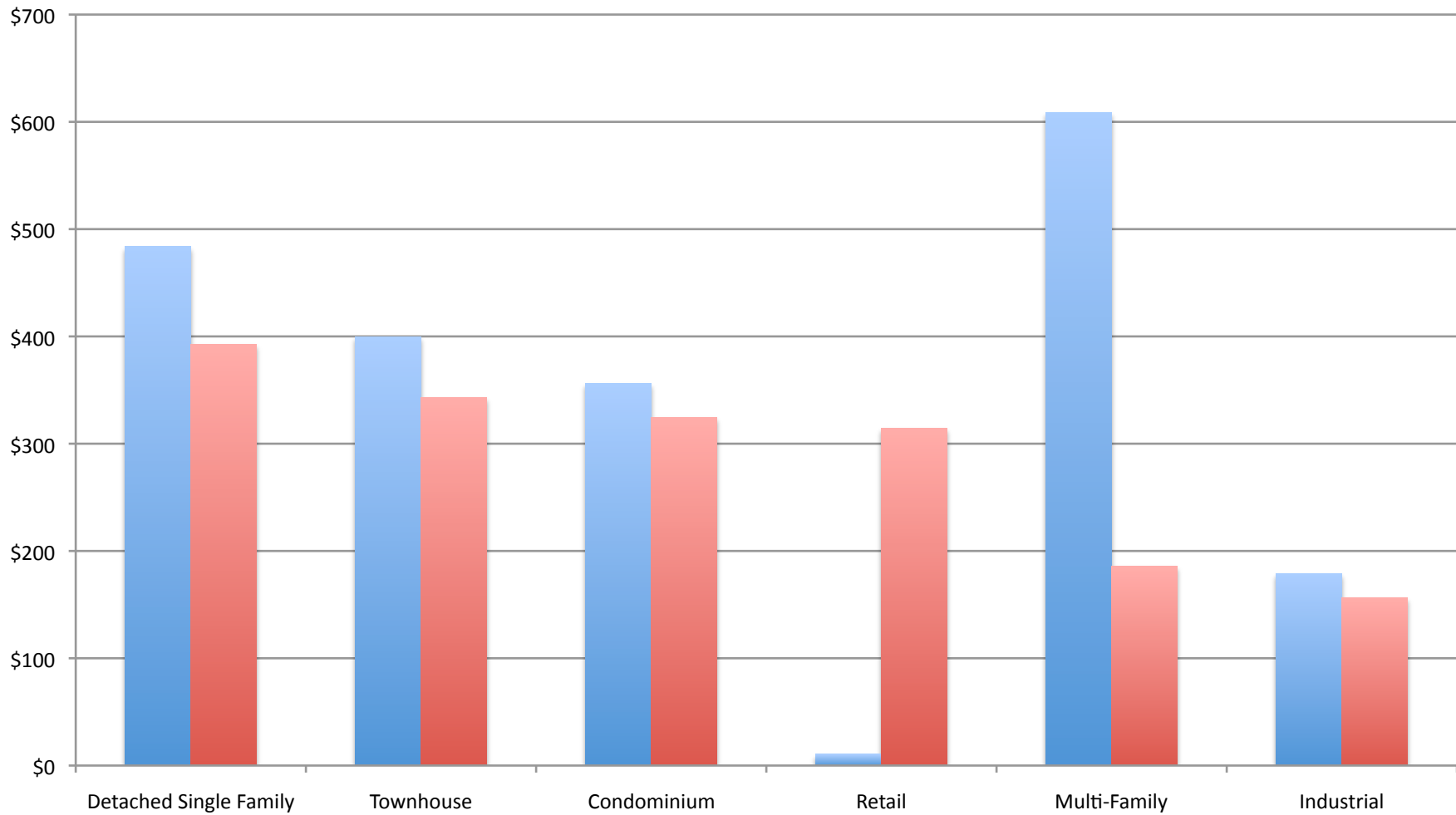
Type	Average \$/sqft		Var	Var %
	Average TOD \$/sqft	Beyond 1/2-mile TOD Service Area		
Detached Single Family	\$ 483.65	\$ 392.43	\$ 91.22	23%
Townhouse	\$ 399.95	\$ 343.23	\$ 56.72	17%
Condominium	\$ 356.19	\$ 324.77	\$ 31.42	10%
Retail	\$ 10.53	\$ 314.69	\$ (304.16)	-97%
Multi-Family	\$ 608.77	\$ 185.85	\$ 422.92	228%
Industrial	\$ 178.89	\$ 156.71	\$ 22.18	14%

Sales data for all sales found in both TOD area and beyond (2009)

Type	Average \$/sqft		Var	Var %	
	Average TOD \$/sqft	Beyond 1/2-mile TOD Service Area			
Attached Single Family		\$ 334.67			
Condominium	\$ 356.19	\$ 324.77	\$ 31.42	10%	
Detached Single Family	\$ 483.65	\$ 392.43	\$ 91.22	23%	
Townhouse	\$ 399.95	\$ 343.23	\$ 56.72	17%	
Flex		\$ 286.79			
Industrial	\$ 178.89	\$ 156.71	\$ 22.18	14%	
Leased Investment		\$ 165.38			
Multi-Family	\$ 608.77	\$ 185.85	\$ 422.92	228%	<=not enough data, based on one sale for TOD
Office		\$ 231.54			
Retail	\$ 10.53	\$ 314.69	\$ (304.16)		<=not this is campbell redevelopmnt, may have been sold for redevelopment purposes.

Source: MLSListings.com and CoStar.com

Downtown Campbell 2009 Real Estate Sales: Average Price Per Square Foot by Type



Source: MLSListings.com and CoStar.com

■ Average TOD \$/sqft

■ Average \$/sqft Beyond 1/2-mile TOD Service Area

Appendix L: 2009 Case Study Real Estate Sales

Downtown Mountain View

Overlapping sales data found in both TOD area and Out (2009)

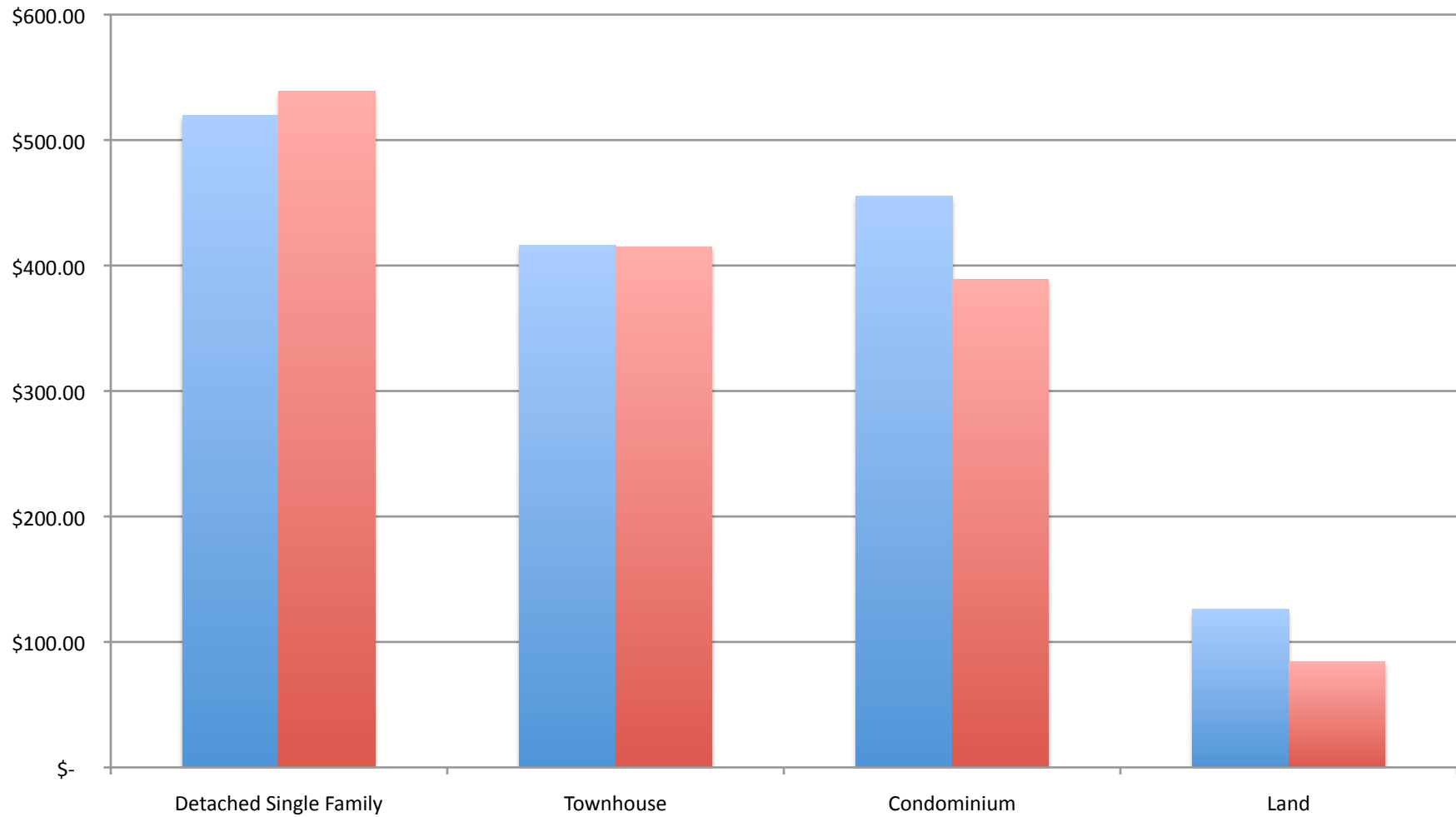
Type	Average \$/sqft		Service Area	Var	Var %
	Average TOD	Beyond 1/2-mile TOD			
Detached Single Family	\$ 519.80	\$ 539.14		\$ (19.35)	-4%
Townhouse	\$ 416.13	\$ 414.76		\$ 1.37	0%
Condominium	\$ 455.51	\$ 388.96		\$ 66.55	17%
Land	\$ 125.95	\$ 84.09		\$ 41.86	50%

Sales data for all sales found in both TOD area and beyond (2009)

Type	Average \$/sqft		Service Area	Var	Var %
	Average TOD	Beyond 1/2-mile TOD			
Attached Single Family		\$ 559.23			
Detached Single Family	\$ 519.80	\$ 539.14		\$ (19.35)	-4%
Retail		\$ 466.15			
Townhouse	\$ 416.13	\$ 414.76		\$ 1.37	0%
Office	\$ 288.94	\$ 389.38		\$ (100.44)	-26%
Condominium	\$ 455.51	\$ 388.96		\$ 66.55	17%
Church		\$ 358.50			
Specialty		\$ 358.50			
Multi-Family		\$ 232.00			
Industrial		\$ 227.63			
Land	\$ 125.95	\$ 84.09		\$ 41.86	50%

Source: MLSListings.com and CoStar.com

Downtown Mountain View 2009 Real Estate Sales: Average Price Per Square Foot by Type



Source: MLSListings.com and CoStar.com

■ Average TOD \$/sqft

■ Average \$/sqft Beyond 1/2-mile TOD Service Area

Appendix L: 2009 Case Study Real Estate Sales

Japantown, San Jose

Overlapping sales data found in both TOD area and Out (2009)

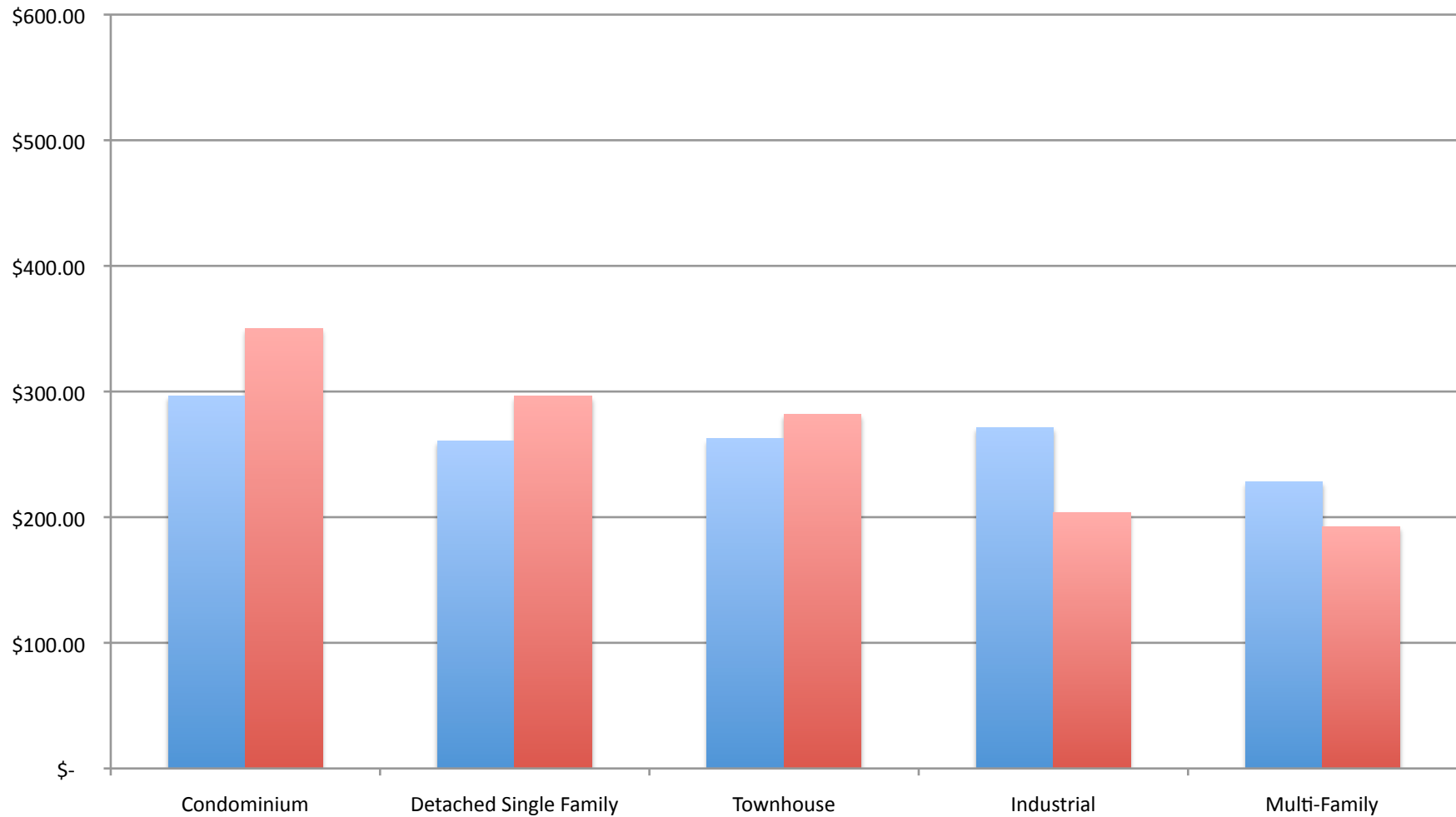
Type	Average \$/sqft		Var	Var %
	Average TOD \$/sqft	Beyond 1/2- mile TOD Service Area		
Condominium	\$ 296.31	\$ 350.43	\$ (54.12)	-15%
Detached Single Family	\$ 260.59	\$ 296.24	\$ (35.65)	-12%
Townhouse	\$ 262.35	\$ 281.94	\$ (19.60)	-7%
Industrial	\$ 271.49	\$ 203.94	\$ 67.55	33%
Multi-Family	\$ 228.40	\$ 192.31	\$ 36.09	19%

Sales data for all sales found in both TOD area and beyond (2009)

Type	Average \$/sqft		Var	Var %
	Average TOD \$/sqft	Beyond 1/2- mile TOD Service Area		
Condominium	\$ 296.31	\$ 350.43	\$ (54.12)	-15%
Detached Single Family	\$ 260.59	\$ 296.24	\$ (35.65)	-12%
Flex		\$ 167.64		
Industrial	\$ 271.49	\$ 203.94	\$ 67.55	33%
Land		\$ 82.30		
Multi-Family	\$ 228.40	\$ 192.31	\$ 36.09	19%
Office		\$ 337.75		
Retail		\$ 187.50	\$ (187.50)	
Townhouse	\$ 262.35	\$ 281.94	\$ (19.60)	-7%

Source: MLSListings.com and CoStar.com

Downtown Japantown, San Jose 2009 Real Estate Sales: Average Price Per Square Foot by Type



Source: MLSListings.com and CoStar.com

■ Average TOD \$/sqft

■ Average \$/sqft Beyond 1/2-mile TOD Service Area