

Land Development Economics and Finance in North Bethany¹

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Washington County faces problems with funding public infrastructure in North Bethany. Many stakeholders with direct financial interests—land owners, developers, affordable housing and social services advocates, neighbors, and public sector representatives—are now discussing solutions to the problem that will eventually become part of a finance plan for the North Bethany area. This report facilitates that discussion by describing the policy and market context in which the development in North Bethany will occur.

This report describes many of the factors that have contributed to the problem of funding public infrastructure in urban-expansion areas in Oregon. They include state and regional policies around growth management, and changing perceptions about the role of government. It describes how developers make decisions about what to pay for raw land, what types of development can be supported by the short- and long-term markets, and what prices must be achieved in the sale of developed properties to make a reasonable return on their investments. It has three sections:

- **Context: development in the Portland metropolitan region and North Bethany** describes the contributions that state and local policy decisions, the regional economy and attendant market forces, and other factors have made to the problems of paying for infrastructure in greenfield areas like North Bethany.
- **Details: development economics in North Bethany** provides specific analysis related to the real estate and public infrastructure finance situation in North Bethany.
- **Implications** ties the discussion in this report to the upcoming process for developing a finance plan and to future public and private sector decisions around development in expansion areas.

¹ ECONorthwest has a contract with Washington County to assist with the development of a financing plan for North Bethany. This whitepaper responds to a request from Washington County. Terry Moore of ECONorthwest is the primary author of the first half of the paper; Jerry Johnson of Johnson Gardner of the second half on developer economics. Moore and Lorelei Juntunen of ECONorthwest wrote the final section and edited the entire paper in response to comments from the County on the drafts of this whitepaper. This paper incorporates other research and writing done by ECONorthwest, including an article in the Oregon Planners Journal, Jan-Feb 2008. The views expressed here are those of the authors and not necessarily those of Washington County.

CONTEXT: DEVELOPMENT IN THE PORTLAND METROPOLITAN REGION AND NORTH BETHANY

The Portland metropolitan region has experienced rapid population growth in the past decades, and has expanded its UGB to accommodate expected future growth. For the most part, the areas that have been added to the UGB (including North Bethany in Washington County, the new City of Damascus, and two additions to the City of Gresham) have experienced slow or no development, high land prices, and disagreement during planning phases about policy, investment, and financing. This section explores how the public and private sectors both contributed to this situation in the region in general and in North Bethany specifically.

THE PROBLEM FOR FUNDING NEW DEVELOPMENT

North Bethany consists of nearly 800 acres of unincorporated land that was added to the Metro Urban Growth Boundary (UGB) in 2002 to accommodate expected residential growth. A concept plan for the is nearing completion: it will describe how much and what type of development should occur. Needed public infrastructure for the area will include roads (arterials and collectors), water, sanitary and storm sewer, schools, affordable housing, parks, fire and EMS service, public safety, and a civic building and associated public space.

Estimates of the capital costs associated with the public infrastructure for this development are at about \$520 – \$540 million.² Washington County’s typical revenue tools for development of this type include general-obligation (GO) bonds, grants, systems development charges (SDCs), and dedication by developers of land or infrastructure. These sources leave unfunded over \$320 million in public costs.³

² The most recent cost estimates are included in the memo “Preliminary Concept Plan Infrastructure Costs” from Washington County Planning Division to North Bethany TAC and SWG Groups, 12/7/2007. For a copy of this memo, contact Washington County Department of Land Use and Transportation.

³ The funding gap for infrastructure can be estimated using different methodologies. ECONorthwest has recently created two documents that discuss the gap: this whitepaper, *Land Development Economics and Finance in North Bethany*, and another document, the *North Bethany Conceptual Finance Plan*. The funding gap is stated differently in each of these documents. Both documents derive their estimates of infrastructure capital costs from the Washington County table, “Preliminary Development Cost Estimates for North Bethany (Oct. 2007)”. This table lists each infrastructure type, the estimated capital costs, the customary revenue source, approximate coverage, and remaining gap. The total funding gap as stated in this table is \$321 million (2007 dollars). For this whitepaper, we took this table at face value, and assumed the infrastructure funding gap was \$321 million. For the conceptual finance plan, we dug more deeply into these numbers. We began with the same estimated capital costs, as determined by Washington County. The costs for onsite collector roads, schools, fire & EMS were excluded for reasons described in more detail in that document. We identified all existing revenue streams and projected the revenue they would generate over the course of the project. We compared these revenue streams to the estimated capital costs for infrastructure. The difference between the funding capacity of existing revenue streams, and the estimated capital costs was \$325 million. This figure was used by ECONorthwest for the infrastructure funding gap in the *Conceptual Finance Plan*.

In Oregon, traditional funding sources rarely (if ever) recover all the costs for the development of public infrastructure needed for new development. The point here is not that new development should or should not be paying these costs. Rather, it is that if Washington County uses only its typical revenue tools at existing rates, those sources will cover less than half of the cost for the infrastructure expected to be needed to provide urban levels of service to North Bethany. The finance plan component of the concept plan must determine how that gap will be filled, and will be proposed to the County Commission as a necessary component of the Concept plan.

Other expansion areas have experienced similar fiscal difficulties. Damascus, which incorporated in November 2004, has plans to accommodate 60,000 residents at build-out. That growth will require roads, sewer, water, schools, and all of the other attendant urban amenities. Costs have not been estimated, but it is very unlikely that the infrastructure to accommodate 50,000 new residents will be paid by tax revenue generated by the current 10,000 residents. But at the other extreme, funding that infrastructure based purely on SDCs could increase development costs to levels not competitive with fees in surrounding communities, and not consistent with land prices paid in Damascus.

In these urban-expansion areas, multiple revenue sources with contributions from many different groups (public and private) will probably be necessary to build the infrastructure that will allow development to occur.

SOURCES OF THE PROBLEM

Any understandable explanation of the forces that shaped development in the Portland metropolitan region over the last 30 years will be incomplete. Market forces and public policy, forces external to the region (e.g., interest rates and job markets in other West Coast metropolitan areas), unpredictable decisions of local property owners: all and more played a role in the type, pattern, and rate of development in the Portland region.

We acknowledge these myriad forces and that the story that follows is necessarily incomplete. It takes as given all the external economic forces and focuses instead on local policies (primarily those that address land use, development, and infrastructure) and how they interacted with those forces to influence development patterns. It is a short and stylized history, but one that provides some insights into the development problems the region and North Bethany now confront.

The Oregon statewide land-use program became law in the mid-1970s. Oregon had had occasional spurts of growth, but it did not have the diversified economy it has today. The economy relied more on natural resources (energy, fishing, farming, and particularly timber). A big emphasis for the land-use program was the protection of those resources and of (debatably) the industries that depended on them.

A key policy was the requirement that every city, or in the case of the Portland area, for the region to have an Urban Growth Boundary (UGB). The goals were and are clear: protect resource lands outside the boundary and encourage more efficient (denser) development patterns inside the boundary. Other policies and their subsequent interpretation and expansion addressed the pattern of development inside the UGBs (e.g., mixed-use, transit-oriented), but the UGB remains the iconic Oregon land-development policy.

When city and county planners and policy makers established UGBs 30 years ago, they had little guidance. Most agreed that they were to draw a boundary that would contain a supply of developable land sufficient to accommodate about 20 years of development. But cities and the Portland region used different techniques to forecast growth, development, and buildable land; had different goals; and had different interpretations of the requirements, which were not codified by administrative rules as they are today. Relative to existing population or developed areas, some UGBs were a lot bigger than others.

Soon after the UGBs were established, Oregon went into its deepest recession since the Great Depression. The early 1980s saw the first energy crisis and interest rates of almost 20%. Housing production fell, as did timber demand. Oregon actually lost population in some years.

Few policymakers paid much attention to UGBs in the 1980s. Public policy was aimed at economic development and, in particular, economic diversification (to mitigate perceived disadvantage of a timber-dependent economy). To the extent that there were UGB expansions, they were relatively small and mainly made with the intent of providing land for industrial expansion and economic development.

There is debate about which of many forces pulled Oregon from that recession. We do not attempt to resolve it here. For our story, it is sufficient to accept that many factors played a role. Our opinion (which is just that) is that UGBs did not have much to do with the recovery, unless it was that they protected industrial land and in large parcels to facilitate future industrial development. The farm and timber industries that they protected were not a significant part of the recovery; in the late 1980s and early 1990s the quality of life that they may have created with open space and environmental protection were a relatively small part of decisions by businesses and households to grow in Oregon. Other factors were more important. Portland was on the West Coast between the growing technology centers of Seattle and the Silicon Valley: Washington County's industrial base grew in response to high-tech expansion in California and Japan. Portland had its own tech giant (Tektronix) and nascent spin-offs; it was on I-5 with good ship- and air-ports; it had good infrastructure and public institutions; it had an educated and skilled labor force looking for work and willing to take it at relatively low prices.

Growth came because Oregon and Portland were a good deal relative to the competing alternatives. The UGBs directed the bulk of this growth into urbanized areas. In the 1990s developable land inside UGBs got consumed faster, and effectively no land was being added to UGBs. UGBs finally began to have an

effect, and those effects caused concerns about the ability to supply competitively priced land to accommodate expected growth.

In Washington County the concerns about land are arguably greater, because a greater than proportional share of population and employment growth has gone to the County at the same time that a less than proportional share of new acres in the UGB have gone to the County. There have been incentives for infill, which has been successful, but few larger tracts of residential land have developed in the County for over ten years. Local production homebuilders introduced economies of scale that checked some of the increases in housing prices from the decreasing supply of buildable residential land—in the aggregate and in larger parcels.

Coincident with increasing pressure on land supply were the worsening problems of supplying services to accommodate that growth, especially transportation. Investments in a successful LRT system meant some reductions in investments in new highway capacity.⁴

There are 277 cities and counties in Oregon⁵, with 240 UGBs. By the mid-1980s, when all the UGBs had been adopted and approved, they might have contained on the order of about 700,000 acres statewide (our guess: we could find no official estimates from DLCD). If the future had been knowable and those UGBs had been precisely defined to accommodate 20 years of growth (as required by law), there would now be no land inside Oregon's UGBs unless they had been expanded. Just simple arithmetic would suggest that if growth rates and patterns were to remain constant for the next 20 years, today's UGBs would have *added* about as much developable land as they had at their inception. Here's the arithmetic.

Assume that Oregon's UGBs were right-sized when adopted around 1980, and that urban population and employment have grown as they have and as perfect forecasts would have predicted for 20 years. In the 28 years since 1980, population in Oregon grew by about 45%, and average of 1.35% per year. Assume that metropolitan areas grew at about that rate. Make some additional assumptions about increases in density—assume (a guess with no evidence) that UGBs in 1980 were going to accommodate that the next 28 years of growth—a 45% increase—on an amount of buildable land that equaled only 33% percent of the amount of land that built out in 1980. In other words, assume that the planning was for new development to occur at densities that were significantly higher than average historical densities.

Given all these assumptions, then if no land had been added to the UGBs, there would now be no developable land inside the UGBs. If cities and regions were then to try to accommodate *the next* 20 years of growth (to 2028) with land inside the UGB the same planned densities, they would have to expand the UGB

⁴ In Washington County, successful MSTIP program invested in modernizing the farm-to-market arterial system for current populations.

⁵ 36 counties and 241 cities in 2006, Population Research Center, Portland State University

by about the same amount (but more) land than had in 1980 (assumed to be 33% of the total. Thus, they would need to UGBs by about 230,000 acres (33% of 700,000 acres).

How does that estimate compare to how much UGBs been expanded since they were first adopted? Statistics are sparse. Publications by DLCD suggest that about 13,700 acres were added to UGBs between 1987 and 1996. Metro had an 18,000-acre expansion in 2002. As a ballpark estimate, assume UGBs in Oregon have added, when summed for all UGBs in the state, about 35,000 to 70,000 acres, roughly 5 to 10 percent of our estimate of total land in UGBs, and about one-third to one-sixth of the amount of land our simulation suggested might be justified. Stated differently, population grew by 45% since 1980, but land inside of UGBs has perhaps grown by 7.5%, about one-sixth of the rate of population growth.

We do not present these simple calculations to argue that UGBs should immediately be increased by large amounts. A lot of other factors affect that decision. All UGBs still contain buildable land, and some contain a lot. Changes in zoning and allowable uses, housing preferences, building practices, energy and transportation costs, and investments in other urban amenities have increased the average density of development over the last 20 years. It is certainly possible physically that a lot of population and employment growth could be accommodated inside existing UGBs. Whether that is economically possible is a different question, but as prices change in response to scarcity and attempts to adjust policy to deal with external costs, it is likely that the direction of market change will be toward more infill development and density. Rather, our purpose is to give some support to the conclusion that UGBs are getting tighter and have had effects on land markets in many urban areas in Oregon, and this is certainly true for the Portland region.

So what?

Tighter UGBs, other things being equal, mean a smaller supply of developable land and higher land prices. We won't debate the magnitude of the price increases, but we are confident about the direction: prices rise, other things being equal. Rising prices give developers incentives to economize on the land component of their housing-production function: in other words, they have incentives to build more densely.

Developers also have incentives to economize on other costs of housing production. Big components of cost are materials and labor, but those components are not part of our story because land-use policy does not try to do much to affect these costs: it leaves it to the market to sort it out.⁶ But another big component of the price of housing is getting from raw land to buildable, fully-serviced land. The costs of doing that are primarily (1) going through what is called the "entitlement

⁶ We are skipping over here a relationship that theoretically should exist but is hard to disentangle and measure. The quality-adjusted price of housing, and the value of all the amenities that an urban area offers can affect the wages it takes to attract and keep workers, and a UGB can affect both housing price and amenity.

process”: getting all the necessary public agency approvals that give a developer a transferable entitlement to develop a property in a certain way, and (2) developing or otherwise paying for all the necessary or otherwise required on-site and off-site infrastructure improvements.

There are several ways that developers can try to economize on the cost of infrastructure. Some possibilities:

1. Build less of it, or build it to lower standards
2. Get the public sector to pay for it
3. Build where there is existing (excess) capacity

Though the first option is a real one in general, it is not consistent with Washington County’s stated goals of making North Bethany “a community of distinction” and a quality urban environment that remains an asset for the County and for homeowners for decades (even generations) to come. Thus, we assume that public policy would not support this option because (1) it wants development—and more of it rather than less—in North Bethany, and (2) it will not accept lower standards for urban development.

So assume that the public sector has done a thorough evaluation and made clear its choices regarding minimum performance standards for infrastructure. In our view that would mean, among other things, taking a long-run, lifecycle-cost view of infrastructure and paying attention to spillover (external) effects, but readers need not agree. All that is necessary is the assumption that the rules are clear and development cannot avoid complying with minimum standards. Then, developers can still try to reduce costs with the second and third options. Both are in evidence in the Portland metropolitan area. Before addressing them, however, we provide some historical context on the funding of public sector services, like infrastructure.⁷

Public attitudes toward government have changed in 50 years. After World War II the prevailing attitude among voters was the government could do good and do it well. Our parents, grandparents, and great grandparents more or less accepted government and the need for public facilities and services. They accepted taxes as a way to build now for the future. They viewed, perhaps without acknowledging it, public expenditure as public investment.

The support for government, public service, and taxes gradually eroded. The 1960s saw protests about the war and civil rights, and the rise of a generation that questioned authority. Free-market ideas about public policy got a strong hold in the 1980s: deregulation and property-tax revolts increased. A booming economy and stock market in the 1990s created wealth for many, and a desire among them

⁷ We admit to very broad generalizations in this history, and only anecdotal information to support it. Our purpose is not be precisely correct, but to suggest broad tendencies: in particular, that an electorate gave more scrutiny to local government expenditures, and that there was a shift from taxes to fees.

to retain more of it (to reduce taxes). Federal income tax rates and some local property tax rates were reduced or limited.

Government was doubly damned: it was growing while its support—both political and financial—was eroding. Some of that growth was, no doubt, a response of the natural tendency of managers to increase influence, remuneration, and security.⁸ But probably most of the growth in government was a response to increasing demands for services by multiple interest groups (for health care, education, security, public facilities, and a long list of other public services) and by the response of policy makers to those demands. Environmental and social problems grew, in part because our knowledge about their pervasiveness and size grew, and in part because our values changed. People arguing for free markets might be the same ones arguing just as strongly for government action when they felt their property rights were violated by upwind coal-fired energy generators or landfills. More problems begat more policy, more policy more requirements for local governments, and more requirements more cost. Local government had an added burden: federal and state governments helped make ends meet by reducing transfers to local governments—the curse of unfunded mandates.

Whatever the inefficiencies of government, there are clear limits to cost savings if the same level of service is to be delivered. Moreover, the public still wants full accountability from its government, which means it cannot operate with the speed or freedom that the private sector can. After the easy and efficient service cuts have been made, the only way to balance a budget is to cut services further or increase revenues.

Local governments used several strategies to achieve that in face of pressure from the electorate to reduce the rate at which government budgets and the taxes to support it were increasing.⁹ One relevant strategy to our explanation of urban development in Oregon and Portland was to borrow from the future by deferring maintenance of public facilities. Another was to shift from general taxes to user fees. That shift was sometimes justified by the objective that growth pay for itself, and implemented as a shift from property tax to development charges or impact fees to pay for new infrastructure. Politically such fees had the advantage of being implementable because their immediate effects were on a small group (developers) and nonvoters (future residents).

But in Oregon (and in Washington County for transportation SDCs), the evidence is that impact fees are set lower than legally-defined calculations would allow them to be set. Despite the shift toward impact fees, in most cases the fees are not set at a level high enough to pay for all the public infrastructure that might be legitimately linked to new growth. Adjusting fees for inflation is politically difficult.

⁸That tendency is observed in both public and private organizations. Critics of government note, however, that the public sector has the ability require support (taxes) while the private sector must rely on consumer support. A counterargument is that getting the political support to allow politicians to raise taxes or fees is a type of consumer choice.

⁹ Among the way those pressures were manifested were via ballot measure initiatives in the 1990s that reduced property taxes.

That part of the story provides a context for thinking about the other developer options (noted above) for responding to high infrastructure costs. Option 2 is obvious: developers have strong incentives to reduce infrastructure costs by having the public sector build the infrastructure, and do so with revenues that are not derived by direct charges on development (e.g., impact fees).¹⁰ But for the reasons just described—pressure on budgets, shift from taxes to fees, more public scrutiny and requirements for accountability—the public sector has less political support, revenue, and discretion to build all that infrastructure in advance or independent of the development. Federal and state transportation funds are probably the biggest sources of potential assistance, but they have been decreasing in real terms. Urban renewal districts are one of the few techniques available to local governments to pay for other major infrastructure without charging development at the front end (by getting public financing based on increases in future property tax revenues from new development).

Option 3 says that developers will try to reduce costs by developing in places where the infrastructure capacity already exists. It is generally accepted by planners that Florida’s requirement for “transportation concurrency” (a requirement that developers build highways “concurrent” with development to maintain a specified level of service) led to unintended consequences. With no UGBs in Florida, developers moved farther out to county roads with high levels of service (because they had low volumes of traffic). Thus, the policy abetted the sprawl the Florida program was created to avoid.

In Portland, UGBs limit that leapfrogging. Moreover, Oregon does not have strict concurrency requirements for transportation. Thus, the response of many developers to the high cost of providing infrastructure has been to go to those places where the infrastructure already exists *inside* the UGB. The evidence is that housing in the Portland region has been provided almost exclusively within its UGB, and at higher average densities than in other cities with which Portland is typically compared. “Infill” has been substantial.

That is a result that the Oregon land-use program, Metro, the City of Portland, and arguably the majority of the citizens in the region desired. Maybe housing costs are higher, but they are still less than prices for comparable housing in Seattle or San Francisco, and the region is arguably enjoying the benefits that its regional plan aimed to deliver.

Now we tie together the two threads of story—limited UGB expansion, and funding of infrastructure. Together they have created a situation in which expensive, backbone infrastructure (arterial roads, water and sewer mains, sewer treatment plants, fire stations, schools and libraries, urban parks) is very meager outside the regional UGB. That should be expected because it was a specific objective of the UGB policy. Inside the UGB, such infrastructure is ubiquitous and usually (to some extent, based on desired level of service) has excess

¹⁰ It is not hard to make a case that the general critique of government size, efficiency, and spending by the private sector is contradicted continuously by businesses efforts to get government support, in many different ways, for their enterprises.

capacity. Charges to development for that capacity may often reflect just the hookup costs, and rarely the contribution to the cost of replacing the full system up to current urban standards. Outside the UGB, however, there is no grid of backbone infrastructure: it all must be built, and it is expensive.¹¹

Not only is the ex-urban infrastructure meager, but it is hard to plan to change that situation. There are many different service districts, and they do not share a common idea about the type, location, and pace of development, in part because the planning and development focus has been, until recently, inside the UGB. Even to the extent that they have done some physical planning, they do not share a common plan about how to fund the infrastructure that would be required to allow the development to occur.

Some planners and developers saw this problem coming, but the evidence suggests that the majority either did not or were not able to get the attention of the public or policy makers.

On the public sector side, there were efforts as early as 10 years ago by Metro to identify potential, efficient, and likely areas for urban expansion. But the politics of any UGB expansion were so volatile that such efforts were kept at a controlled simmer on a back burner. Some estimates of service costs were made, the multiplicity of service providers was noted and some were consulted, but the studies were, well, studies. State law in the form of the Urban Reserve Area Rule recognized the need to plan for public facilities outside of UGBs and gave jurisdictions authority to do so, but few jurisdictions did such planning.

On the private sector side, we can speculate on the story, which is what some developers did. Real-estate investors and developers saw a booming housing market (late 1990s until recently), increasing housing prices, increasing acceptance of denser housing products, a decreasing supply of urban land, and the beginning of serious political discussion about expanding the UGB. In addition to buying land inside UGBs (occasionally in quantities that might allow for some control of the supply of buildable land) they made informed guesses about logical areas for expansion and bought or optioned land in that area. The owners of that property, on their own or with the help of real-estate advisors, observed the same phenomena and raised their expectations about the value of their property.

We cannot comment on any specific transaction, but we can hypothesize on general tendencies based on experience elsewhere. Property owners estimated the value of their land by looking at the prices for land close by, but inside the UGB. Developers wanting that land certainly tried to lower the price by countering with the cost of the entitlement and development process: raw land outside the UGB was not as valuable as serviced land inside the UGB. Eventually a deal gets struck. In a hot market with a restricted supply of land, and an expectation that only a few places will be brought into the UGB, the land owners have the upper

¹¹ A few years ago estimates of the costs for Pleasant Valley, when applied completely and only to individual households and businesses in the forecasted development, implied system development charges north of \$50,000 per housing unit. We speculate that the number could easily be double that if all urban facilities are considered.

hand in the negotiation: prices will be high relative to the price of the land in its current, alternative use (e.g., farmland). If enough developers believe the hot market will continue, they will worry about missing out on the ability to continue their business (development) if they have no land, and will be quicker to pay the high prices for the limited land that might potentially get brought into the UGB out of fear that if they do not other developers will.

But another factor probably got less attention. It would not be unreasonable or surprising for land buyers and sellers both to assume, probably implicitly, that the costs of turning raw land into fully serviced, buildable land would be about the same in the near future as they are now. There would be some discounting for the fact that some services might have to come a slightly greater distance, but there might not have been, and probably was not, a strong consideration of the possibility that the public sector (1) might not (for all the reasons given above) have the financial resources and procedures necessary be able to expand all its backbone infrastructure into a greenfield area, and (2) might choose to change the way it finds funding so that it can build that infrastructure.

It is not the case that developers and homebuilders can simply charge prices that cover cost. In average economic times, the annual amount of new housing built is roughly one percent of the total housing stock: for every new house, there are 99 other choices. Thus, it is the price of existing housing that sets market prices, and the owners of that existing housing do not have to capitalize the cost of large increases in SDCs into their asking price.

To the extent that theory reflects practice, the negotiated land prices outside the UGB will be too high. Property owners will be winners; property buyers will be losers because the cost of fully serviced, buildable land will prove to be higher than their financial analysis anticipated and will make the total cost of development greater than what homebuyers will support (given their other options). In that case, the purchasers of the land—the developers—have a few options short of building the infrastructure and accepting the potential (likely) reduction of profits (or loss): (1) try to reduce the standards, or the specific ways that the standards have to be met so that they can be met more cheaply; (2) get the public sector to pay for more of it, either directly or by changing the way the financing is done; or (3) hold the land until market prices catch up or public policy changes.

What we would expect in theory seems to be observable in fact in the recent UGB expansion areas of Portland. Springwater, Pleasant Valley, Damascus, and North Bethany share some common problems. First, the infrastructure costs are higher than preliminary estimates. There are many reasons for that increase (a booming Portland construction market; increasing worldwide demand (led by China) for steel, concrete, and energy; increasing energy prices) but some are related to local planning. Large parts of the areas are not flat (in part because policy and public preference has been to preserve farmland) and there is little or no backbone infrastructure.

Second, the provision of that expensive infrastructure has been left to private developers to work out with single local governments that lack the current resources and in some cases the financial structure to build that infrastructure. It is not the case in these areas that there is a grid of facilities surrounding a relatively small infill development: the entire grid must be built; off-site improvement costs are huge.

Third, development is stuck and has been for a while. De facto, expansion in these areas is holding.¹² Planning goes on and gives the promise, perhaps the illusion, of progress, but no amount of good physical planning will unlock development soon in the absence of an agreed upon financial plan, and such a financial plan that is other than “development can occur when developers can pay for the infrastructure necessary to meet minimum urban standards” will be hard for local governments to develop unilaterally.

Fourth, the amount of growth inside the UGB versus the amount in expansion areas at least raises a question about the relative costs of infrastructure and development inside versus outside the UGB. Those are not questions we can answer here, and one can suggest reasons that the costs would be greater in either location.¹³ The answers are likely to be site specific. What is probably needed is a thorough study of different parts of the region using common methods for estimating full, life-cycle costs.

That story explains the reasons for the problems the region now faces in trying to develop North Bethany. Understanding and acknowledging the causes of the problems is a good step, and perhaps a necessary one, toward finding solutions to the problems. North Bethany is an urban expansion area lacking much of the required backbone infrastructure for urban development. Land has recently been exchanged, and at prices that probably did not reflect the capitalized full cost of supplying all of that infrastructure, in part because such costs either do not exist or have not been charged to the same extent on land inside the UGB. But Washington County has made decisions about minimum infrastructure requirements for urban development, made some preliminary calculations of the costs, and decided that development will have to pay a large portion of those costs.

That is the essence of the problem. It is a planning problem, but more one of finance and policy than land use. Who is going to pay? How? Those are questions that the larger study (of which this report is a part) is charged with proposing answers to.

¹² Estimates by Metro Councilor Robert Liberty [<http://www.metro-region.org/index.cfm/go/by.web/id=15765>] are that between 2000 and 2006 there have been a total of 138 new building permits in the roughly 20,000 acres of new additions made to the UGB, while the three Metro counties grew by 126,000 people.

¹³ For some areas inside the UGB, especially central urban ones, the infrastructure costs (when allocated “per dwelling unit”) can be very high: South Waterfront, the Pearl District, the Big Pipe, the OHSU aerial tram are recent examples.

DETAILS: DEVELOPMENT ECONOMICS IN NORTH BETHANY

The previous section concluded that the intersection of multiple market forces and public policies led to the development problems that North Bethany faces today. The public sector tries to address problems like these with public policies, but those policies must intersect with market forces that the public sector may not completely appreciate or address. The problems of supplying infrastructure to allow the development of North Bethany will not be solved alone by either the public or private sectors: a partnership is inevitable.

To support the development of that partnership and increase understanding of the decisionmaking process that the private sector employs, this section provides an explanation of: (1) the way private developers make their development decisions, and (2) implications for the kinds of public policies that will address problems with the provision of infrastructure most effectively.

OVERVIEW OF DEVELOPMENT PROCESS

The private sector development process is a largely rational and predictable response to market and regulatory conditions. Developers serve as the primary drivers of the development process, typically initiating land development. Developers evaluate the probable financial return on a project in light of assumed risk. They try to avoid projects in which the risk-to-return ratio is not compelling. Both lenders and equity contributors will also evaluate any development opportunity proposed by a developer using similar criteria.

The “market” is the customer or end-user in the development process. End-users determine what is marketable and what will be paid for the end product (either through purchase price or lease rate). Governmental agencies typically define the legal and institutional process under which entitlements to develop property are granted or purchased, and can influence the marketplace by incentives or restrictions.¹⁴

Development usually requires that an allowed use yield a return adequate to attract a developer and equity source. The final development form will typically be some approximation of what is called the “highest and best use” of the property from a development perspective, which is the development type and timing yielding the greatest risk-adjusted return to the developer. The assessment of these risks and returns typically requires substantial analysis by the developer, equity sources, and lenders.

¹⁴ For example, getting a planning commission and city council (ultimately with state approval) to bring land inside a UGB, and designate it as “multi-family residential” gives a property owner an “entitlement” (which is legally binding and transferable) to build multi-family housing, subject to the constraints of the plan and zone designations, subdivision ordinance, design-review standards, and any other applicable public policy requirements.

The public sector has always been a strong force in guiding private development.¹⁵ The roles of the public sector as regulator of private development and provider of needed facilities and services are evolving and critical.

TO BUILD OR NOT TO BUILD: HOW DEVELOPERS MAKE DECISIONS

The value of land is a function of the allowable uses on the property (entitlements), achievable pricing (rents), construction costs (hard costs like wood and plumbers, and soft costs like planning and financing), and expected returns (profit). Developers see achievable pricing and cost of construction as being largely outside of their control. They see their return, or profit, as what is sufficient to justify their time and the risk inherent in development. Developers try not to initiate a project without the expectation of an adequate return.

Since most other factors are largely outside of a developer's control, the developer focuses on the variable cost she can influence most strongly: her cost of property acquisition. In other words, a developer will solve backwards to determine what she is willing to pay for property based on the other variables. Shifts in variables such as cost or achievable pricing will directly affect the ability to pay for land. In addition, shifts in perceived risk may alter what the developer considers to be an adequate profit, which can also affect land value.

Figure 1 illustrates the effect that increases in construction costs can have on a developer's decisionmaking process.

¹⁵ What Americans casually refer to as the benefits of our "free market" system are a matter of degree. That system is free to operate within the constraints of public policy, but has never operated without some government intervention (e.g., the enforcement of legal system of transferable property rights, public contribution to large scale public works, and measures to protect consumers from poor business practices).

Figure 1: Illustration of residual land value

PROFIT		PROFIT
COST OF CONSTRUCTION		COST OF CONSTRUCTION
COST OF LAND (Ability to Pay)		COST INCREASE
		COST OF LAND (Ability to Pay)

Source: Johnson Gardner, 2007

The column on the left shows the key factors in balance: profits and cost of construction are largely givens, and the size of those two boxes dictates the developer's ability to pay. The column on the right shows the impact of a shift in anticipated costs. As shown, increased development costs theoretically are deducted from supportable acquisition costs. This is not always the case, as often the land is acquired without knowledge of final costs, but the impact will be capitalized into the land over time. Conversely, if achievable pricing increases while costs remain constant, it directly increases the developer's ability to pay for property.

A *residual land value* is the highest value a developer would be willing to pay for property. While actual sales may be significantly below this level, in a competitive market, values will be close to the ability to pay (given all other costs as described above).

Figure 1 shows the major factors impacting the residual land value, or ability to pay, but the market is not always efficient. Developers can be wrong in their estimates of the current and future value of these variables. Of relevance in the case of North Bethany, they may underestimate costs, leading to an incorrect determination of their ability to pay for property. The converse is also true: if market values increase and they can achieve higher rents than anticipated, their profit margin will increase. In addition, not all developers will perceive the variables to be the same, leading them to alternative conclusions with respect to their ability to pay.

MARKET ANALYSIS

Developers do some evaluation of the market to establish their assumptions with respect to highest and best use, achievable pricing, rate of absorption, and risk. The evaluation (a market analysis) may be done by the developer, someone on the development team, or a consultant. The market analysis provides input for the *pro forma*: an evaluation, in a standard format, of the potential and likely costs and revenues of the development. It incorporates an assessment of risk that can impact the return requirements for the development.

PRO FORMA AND CASH FLOW ANALYSIS

A pro forma is a financial model that estimates the anticipated return associated with an assumed development program. The term pro forma is based on a Latin term meaning "for the sake of form" or "according to form." In the development world, it describes a standard method of calculating financial results.

A residual-land-value analysis is a type of pro forma that calculates the supportable property value under a series of assumptions. It makes assumptions about all other cost factors and a desired rate of return, and then solves for the land value that a developer can afford and still make the desired rate of return given all the other costs. Pro formas are also used to determine a range of returns on a development based on the actual acquisition price. Not all developers use the same measures of return when evaluating projects, and not all have the same return parameters.

LAND DEVELOPMENT ECONOMICS IN METRO EXPANSION AREAS

The North Bethany area has many characteristics that make it desirable for residential development. It is in the Sunset Corridor, which is the greatest net importer of labor in the Portland metropolitan area outside of the City of Portland Central Business District. Housing demand is strong in this area, with limited opportunity for new supply. As a result, many developers have viewed the development of new housing in the area as relatively low risk, provided it can be built at competitive prices.¹⁶

As with all of the expansion areas at the periphery of the UGB, the cost of providing infrastructure to accommodate development in the North Bethany planning area appears to significantly exceed anticipated revenues from System Development Charges (SDCs) and other forms of cost recovery. Increasing SDCs to provide for full cost recovery would increase the cost of development commensurately, reducing residual land values.

¹⁶ This paper deals with long-run, fundamental market factors, not cyclical factors that can affect the market for a year or two. A combination of national and regional economic conditions suggest a short-run weakness in the metropolitan area's ownership residential market. That does not change the kinds of fundamental local forces of demand and supply that we discuss in this paper.

While the additional costs theoretically are offset by reduced land values, in practice the result can be different. If a developer has already acquired land based on a set of assumptions regarding costs, a shift in those costs can no longer be accounted for by reduced land values in his transaction: that transaction has already occurred. In addition, landowners may not be willing to accept a reduced value for their property and will keep property off of the market. This is particularly true if the residual calculations yield a negligible or even negative land value.

Raw residential land values in Washington County in general have been ranging from \$200,000 to \$600,000 per developable acre. Assuming an average value of \$300,000 per developable gross acre, and an average residential density of about ten units per *gross* residential acre (which is roughly what the assumptions in the Concept Plan of 12.4 units per *net* residential acre convert to), the raw land price per residential unit would be around \$30,000 per gross residential acre.¹⁷

Now assume that SDCs are increased immediately by \$30,000 per dwelling unit. Per Figure 1 above, that cost increase, if clearly understood and relatively certain, would get capitalized into land values and the price of land for urban-level residential development would drop, theoretically to zero. That is the situation in many downtowns and urban renewal areas in Oregon cities: developers will only build housing if the public sector gives them the land, and perhaps other subsidies as well (including, not incidentally, an abatement of standard SDCs). A rise in achievable pricing (because, for example, of increased demand) may increase the raw land value per unit to allow for development in later years, but such a shift is difficult to forecast.

Another way to think about the land value in relation to infrastructure development costs for North Bethany is to start from current costs estimates: about \$530 million to provide roads, sewers, parks, affordable housing, and other public infrastructure (but not schools). Washington County has estimated the funding gap (the cost of infrastructure that is not funded by existing revenue streams) to be about \$320 million.¹⁸

Assume that entire gap were to be funded by *residential* SDCs. This is an illustration, not a recommendation or even a proposal. We recognize that not all the proposed development for North Bethany is residential, but the non-residential proportion is relatively small: perhaps on the order of five percent of the total value. We are going to ignore that for this calculation. The most recent estimates from the Concept Plan are that there are about 400 *net, residential, buildable*

¹⁷ Other assumptions about price and density are possible: they suggest a range for the price of raw land price per unit of \$20,000 to \$60,000. We use \$30,000 for our example. It should also be noted that this is an average price, melding single-family and multi-family development. Differences in lot size and density make the cost of raw land per unit higher for single-family development than multi-family development.

¹⁸ In 2007 dollars, based on cost estimates to provide infrastructure as outlined in the Concept Plan. This estimate assumes that all revenue sources that are typically available for new development will be available in North Bethany.

acres in North Bethany¹⁹ (excluding land set aside for public right of way and roads, parks, schools, and the large parcels that Portland Community College controls for its Rockwood Campus). Using just these numbers, we can make a back-of-the-envelope calculation: the unfunded infrastructure costs are about \$800,000 per net residential buildable acre.²⁰

If we assume residential development occurs, per the Concept Plan, at an average of about 12.4 units per *net* acre,²¹ then about 5,000 dwelling units have to pay the total unfunded cost of \$320 million, which is an average of about \$64,000 per dwelling unit. This is an average rate, melding different development types.

Calculating different SDCs for single-family and multi-family development is more challenging. For some SDCs there is substantial variation for different multi-family developments. Tualatin Valley Water District assesses SDCs on multi-family units depending on the size of the meter, the estimated peak flow volume, and other factors. The Washington County transportation impact fee (TIF) is based on trip generation, and is different for condominiums, apartments, and senior housing.

To calculate SDC increases for single-family and multi-family development, we relied on TIF rates, because the bulk of the funding gap in North Bethany is for transportation infrastructure. The current TIF rate for multi-family development ranges from \$1,100 for senior housing to \$2,000 for apartments. Using the mix of housing types described in the OTAK housing plan, we calculated a blended average TIF rate of \$1,713 for a multi-family unit. This is about 54% of the current fee for single-family units (\$3,200). If we assume this ratio applies to SDC increases for North Bethany, then it would require SDC increases of about \$40,000 for a multi-family unit, and \$75,000 for a single-family unit to cover the infrastructure funding gap of \$320 million.

To put this in perspective, existing SDCs in North Bethany average about \$18,000 per single-family unit and \$13,000 for multi-family units.²² Adding the \$75,000 SDC for currently unfunded North Bethany infrastructure to the existing \$18,000 SDC for an average single-family dwelling unit would result in a total SDC of \$93,000. Such SDCs would be far above the average SDCs in other parts of Washington County or the region. Total SDCs for single-family residential development in incorporated parts of Washington County range from \$12,400 per unit in Forest Grove to \$22,600 per unit in Sherwood. The median value of SDCs reported by cities in Washington County is \$14,600. The highest SDCs in the

¹⁹ Housing variety plan memo from OTAK to North Bethany Concept Plan Committee, September 2007. Contact Washington County Department of Land Use and Transportation for a copy of the memo.

²⁰ Net acres are what we want to work with, because that is the land in lots that future homeowners would be purchasing. For a developer to get paid for total costs of development, those costs must be loaded into housing prices on net acres, not gross acres.

²¹ Housing variety plan and program developed by OTAK calls for an average density of 12.4 units per net residential acre.

²² Typical single-family unit SDCs for urban unincorporated Washington County (2007 dollars). Contact Washington County Department of Land Use and Transportation for a copy of this table.

region is in the Springwater area of Gresham, at \$28,000 per single-family residential unit.²³

The existing SDC for single-family residential development is about one-third of the value of the raw land.²⁴ The additional SDC to cover the North Bethany infrastructure funding gap is almost four times greater than the existing SDC.

Of course, some of the costs that are included in Washington County's cost estimates probably would not (or could not) be funded through an SDC: affordable housing and a civic building are among them. Nonetheless, this quick estimate illustrates an important point: an SDC or other finance mechanism that loads all costs of required infrastructure and public facilities onto the developers in North Bethany would quickly change the results of their residual-land-value analyses. Because they have already set a price for their land and there is little give in their cost equation, developers would probably choose not to go forward with their plans under the assumptions we have described.

Developers of residential properties consider a wide range of definable costs. The main, broad categories:

- Raw land acquisition
- Lot development (site preparation, subsurface investigation, earthwork, utility services, paving, planting, off site requirements)
- Building (labor and materials, the major component of "hard" costs)
- Soft costs (architectural and engineering, construction management, surveying, financing costs)

Costs can vary significantly based on parcel configuration, but the cost to improve a residential lot (i.e., to convert it from raw land to a buildable lot with services, ready to have a building constructed on it) is in the range of \$20,000 to \$35,000 per finished lot. Home construction is somewhat more definable in terms of cost. In addition to hard costs, a range of soft costs are also incurred (engineering, financing, permit fees, system development charges).

Consider this hypothetical development pro forma for a 3000-square foot detached residential unit:

- Average cost of raw land: \$300,000 per gross residential acre
- Average land cost per entitled dwelling unit: about \$60,000, assuming that standard single-family density is 6.5 dwelling units per net acre, which equals 5 units per gross acre (lot size just over 6,702 square feet).²⁵

²³ SDC information for cities in the Portland metropolitan region was obtained by Anne Fifield at Johnson Gardner through interviews with development professionals and local jurisdictions.

²⁴ Assumes raw land cost of \$300,000 per acre, and single-family residential development density of approximately five units per gross acre, in accordance with OTAK housing plan.

- Average cost of developer-paid on-site infrastructure to go from a raw lot to a finished lot: \$27,000 (midpoint of range above).
- Average cost of a finished lot, before SDCs: \$87,000 (\$60,000 + \$27,000).
- Average cost of home construction: \$480,000 (hard cost of about \$125/sf, + 30% soft cost, * 3,000 sf)
- Existing SDCs per unit for single-family residential: \$18,000
- Potential new SDCs per unit if all unfunded costs were funded by increased rates for SDCs: around \$75,000
- Developer profit: 15%

Under these assumptions, the cost to produce a new, single-family dwelling is about \$673,000 with existing SDCs, and about \$759,000 if new SDCs are included. The new SDCs increase the cost by about 13%. These are rough numbers, and an actual development pro forma would be far more detailed. But, these basic calculations work for our purpose of illustrating what happens if North Bethany developers pay for the entire infrastructure funding gap through increased SDCs.

This scenario, though hypothetical, may not be far from reality. Anecdotal evidence suggests that some developers paid as much as \$500,000 per acre; construction costs and average sales prices are based on real data from the Metro region; profit margins are within the range that developers would expect (and may be on the low side) from residential development. If all these assumptions are taken as givens, then the SDCs are the only variable available to make the pro forma work, and if all the unfunded costs of infrastructure and public facilities are loaded into the SDCs, they are too great to balance.

A key piece of missing information is about what people will pay for a new home in North Bethany. Based on a quick review of some comparable projects, we estimate the median sales price for a home of this type in north Washington County to be about \$570,000, roughly \$180,000 less than our hypothetical (but realistic) pro forma above indicated that it might cost to build that same unit.

Risk is part of the business of development in North Bethany and everywhere that new homes and commercial buildings are constructed. To the extent that a financing plan for infrastructure is not in place, appropriate values for land in the expansion areas cannot be reliably calculated. In North Bethany, the concept planning made evident the extent of the problems with the funding of infrastructure. The problems were not unfathomable or even hidden: they could have been identified and emphasized earlier by either the public or the private sector, but they were not. The concept planning brought the issue to the forefront

²⁵ The housing variety plan and program developed by OTAK calls for an average density of about 12.5 units per net residential acre. That density assumption is based on a combination of eight different housing types. This hypothetical pro forma looks at single-family detached housing, which OTAK assumes will develop at eight units per net residential acre, roughly 6.5 units per gross acre.

by making the infrastructure costs, and the limitations of existing funding, more tangible.

In North Bethany and elsewhere, the development industry does not have all of the inputs necessary to make a residual land value determination; it is partially an informed guess. Development does not always go “according to form” as outlined in the pro forma, and shifting market and cost realities are part of the inherent risk of real estate development. The threshold rates of return utilized by developers are intended to reflect the spectrum of risks assumed, with an expectation that not all projects will yield the targeted return. Developers and land speculators can lose significant amounts of capital when variables vary substantially from assumptions.

Nonetheless, the developers who have land or options on land in North Bethany have already determined a price for that land, and will make decisions about when (and if) to develop when decisionmakers determine how much of the burden of the infrastructure costs to place on them.

IMPLICATIONS

A quick recap of the situation:

1. A history of public policy decisions led to a situation in which areas like North Bethany are planned to contain large portions of the population growth expected in the region over the next 20 years. These areas do not have the backbone infrastructure (roads, sewer lines, etc.) necessary to support development. That infrastructure is expensive.
2. Local governments have fewer financial resources than they had historically: some tax rates are limited by state statute and there is little public support for increases where increases are allowed; state and federal contributions have declined; existing infrastructure has an expensive backlog of deferred maintenance
3. In North Bethany, cost estimates for the new infrastructure called for in the Concept Plan are substantially higher than existing revenue streams. Many developers have already paid for land or locked in a price in an option agreement with current landowners. Those land prices probably did not anticipate the magnitude of costs for public infrastructure provision. If buyers and sellers of land in North Bethany had known with a high degree of confidence that the developers’ costs for infrastructure and public facilities were going to be very much greater than they had been in the past, land would have transacted at a lower price, if at all.
4. On the one hand, the funding gap for infrastructure and public facilities cannot be filled only with charges placed on new development in North Bethany without changing the developers’ expectations for the phasing of construction and the type of product that will be produced. On the other hand, public funds are unlikely to be available at levels sufficient to cover the full cost of infrastructure.

This situation has implications for Washington County and for the developers in North Bethany:

- In North Bethany, the decisions about how much to ask developers to contribute will affect the timing of development. The higher the cost, the more likely are developers to wait to develop their properties until their land-value equations are closer to being balanced. Because a large number of variables (including changes in the housing and other financial markets in general) will affect this equation, it is difficult to predict when housing prices will rise to a point that new development in North Bethany will pencil out, given the prices paid for land and the final decisions by the County about how much developers will be charged (primarily via SDCs, but other ways as well) for the infrastructure and public facilities that County requires of their developments.
- The direction of the effects is clear. The faster the County (or the region) wants to see development in North Bethany, the lower should be its charges to developers. But the speed of development is only one consideration; its quality, cost, sustainability, and fairness to existing County residents are others. The County has, as developers do, an equation that it must balance as well.

A corollary of this point is that some of the benefits of development in North Bethany (and some of the costs of not doing so) arguably accrue to the entire Portland region. By developing in North Bethany, other more sensitive lands can be preserved, and the beneficiaries of that preferred development pattern (both inside and outside the UGB) might be expected to contribute something to solving the funding problems that might otherwise keep that pattern from being achieved.

- For the development industry, our analysis illustrates that greater risk should be assumed when speculating on land that has not yet been planned for urban development. That point is especially true in Oregon and the Portland metropolitan region, where a history of policy decisions has led to higher infrastructure costs in expansion areas combined with reduced local government resources.
- Extrapolating from the situation, our opinion is that big changes in public policies about land and development should be made incrementally: they should be phased in. Phasing allows market forces to help solve the problems. Consider this hypothetical situation. What if Metro and its constituent cities and counties had addressed the problems we describe in this whitepaper five years ago. That is not a technical impossibility: these funding problems were foreseeable, but it would have taken political will to address them. What if a regional policy, endorsed by all jurisdictions, had been: (1) we have evaluated all the pros and cons and have decided, as a matter of regional policy, that the region will be better off if we change the way we fund infrastructure and public facilities; (2) among the changes will be increases in SDCs; (3) we are agreed and firm: these changes will start in two years and higher charges will be phased in over the following five years. What would have happened to land transactions

at the fringe? Almost certainly, developers would have agreed that land was worth less in the face of that policy and would have offered less to property owners. With uniformly lower offers, property owners would have sold the land for less. With time to adjust, some pending development might have happened more quickly.

That last example, though hypothetical, suggests the basis for a resolution of the current problem. From the developers' perspective, development will not pencil out if SDC increases get too large, and thus development will occur at a slower rate, perhaps much slower (depending on the gap). From the County's perspective, it does not have the revenues to finance the large cost of new backbone infrastructure in North Bethany, and it believes it would be unfair and politically difficult to ask existing residents and business to pay a large amount for growth that is primarily benefiting new residents and businesses.

But both parties also have incentives to negotiate. Developers have already invested in land in North Bethany and would like to see those investments yield a positive return, even if it is less than what they anticipated when they bought or optioned the land. And the County has reasons to want development sooner rather than later in North Bethany: fulfilling public goals around housing provision to meet regional demand (affordable and workforce housing included), adding property tax revenue to the County budget, and building on important stakeholder relationships with North Bethany area residents and developers.

The likely solution will be some compromise, and part of the compromise is likely to be a plan for phasing from the past and current methods of infrastructure funding to something substantially different in the future.

Future phases of Washington County's conceptual and financial planning in North Bethany will produce alternative finance plans that will illustrate different ways for filling the funding gap for development in North Bethany. Public and the private sector leaders will need to discuss these options and should get to some level of agreement before a final finance plan, and the Concept Plan it implements, can be adopted.