

Metro Urban Centers: An Evaluation of the Density of Development

Prepared for

Metro

by

ECONorthwest

99 W. Tenth, Suite 400
Eugene, OR 97401
(541) 687-0051

With

Johnson Gardner

This report was funded by a Periodic Review
Assistance Grant from the Oregon Department of
Land Conservation and Development

Table of Contents

	Page
SUMMARY	S-1
CHAPTER 1 INTRODUCTION	1-1
BACKGROUND	1-1
METHODS	1-2
ORGANIZATION OF THIS REPORT	1-3
CHAPTER 2 WHY ARE ACTUAL DEVELOPMENT DENSITIES LOWER THAN ALLOWED DENSITIES?	2-1
MEASUREMENT ISSUES.....	2-2
SITE ISSUES	2-3
Environmental constraints	2-4
Need for redevelopment	2-5
Infrastructure constraints	2-6
Parcel size constraints.....	2-6
MARKET ISSUES	2-8
Overview of development process	2-8
Financial feasibility	2-9
Redevelopment	2-19
Competitive issues	2-21
POLICY ISSUES.....	2-22
SUMMARY	2-24
CHAPTER 3 WHAT POLICIES ARE LIKELY TO BE MOST EFFECTIVE IN INCREASING THE DENSITIES OF DEVELOPMENT?	3-1
FRAMEWORK FOR EVALUATING POLICIES	3-1
INCENTIVE-BASED APPROACHES	3-2
REGULATORY APPROACHES.....	3-5
CHAPTER 4 CONCLUSIONS.....	4-1
MARKET FEASIBILITY.....	4-1
THE ROLE OF PUBLIC POLICY.....	4-2
MOST EFFECTIVE WAYS TO INCREASE DENSITY IN URBAN CENTERS.....	4-3
Continue to allow dense development.....	4-3
Reduce planning and information costs to developers	4-4
Provide regulatory relief.....	4-4
Provide direct financial incentives for development.....	4-4
Require high density within urban centers.....	4-5

Restrict development and maintain a higher cost of development outside
the urban centers 4-5
Work to maintain high demand for working and living in the region..... 4-6

APPENDIX A DATA EVALUATIONA-1

APPENDIX B PRO FORMASB-1

Summary

INTRODUCTION

Under the Goal 14 requirements of the periodic review process, Metro is doing research in three phases to evaluate the ability of mixed-use areas and corridors to provide additional development capacity, as an alternative to acquiring that capacity by expanding the regional urban growth boundary (UGB). This report is the product of the second phase. It takes as given that much of the development in Metro's Urban Centers is occurring at densities that are less than current zoning allows, and provides an economic analysis of two questions:

- What are the causes of the lower densities?
- What policies are available to influence those causes so as to increase the densities, and which are likely to have the greatest impact?

WHY ARE ACTUAL DEVELOPMENT DENSITIES LOWER THAN ALLOWED DENSITIES?

We considered four potential general explanations for why actual development densities are lower than allowed densities in Urban Centers: measurement issues, site issues, market issues, and policy issues.

MEASUREMENT ISSUES

This explanation of lower density would have addressed our initial assumption by investigating whether new development is really occurring at densities less than those allowed. Given the scope, schedule, and available data, we were not able to provide an independent, empirical estimate of the degree to which actual densities were lower than allowed densities. Our interviews with developers, however, provided confirmation that developers are, in fact, frequently unable or unwilling to build at the allowed densities. We believe that this anecdotal evidence is significant, and that it is unlikely that the perception that there is a difference between actual densities and allowed densities is inconsistent with reality or a result of inadequate measurement.

That finding does not mean that no projects of relatively high density are being built in Urban Centers: they are. For reasons described in this report, however, high-density development in urban centers usually has required public participation.

SITE ISSUES

In attempting to build to higher densities, developers may encounter site-related issues that are difficult to overcome.

- **Environmental constraints.** The most notable example is the new riparian setback requirements under Title 3 of the Urban Growth Management Functional Plan. About 18% of the vacant land in both Regional Centers and Town Centers is Title 3-constrained. In some Centers, Title 3-constrained land makes up more than 50% of the vacant land.
- **Need for redevelopment.** Only 18% of the land in Urban Centers is vacant, compared to 28% of the land within the Metro UGB. When Title 3 land is removed from the vacant inventory, only 15% of the land in all Urban Centers is vacant. The fact that Urban Centers are to a great extent already developed suggests that, over the long run, redevelopment must occur for densities to achieve the 2040 targets.
- **Infrastructure constraints.** The benefits of using existing infrastructure may be countered by the costs of having to upgrade the infrastructure to accommodate higher densities. Even when this is not the case, there is usually a need for some additional infrastructure expenditure.
- **Parcel size constraints.** Many of the Urban Centers are older areas where parcelization has occurred to a high degree. About 92% of parcels in Regional and Town Centers are smaller than one acre, and 82% of vacant parcels are smaller than one acre. Though development at urban densities is possible on parcels as small as a quarter acre (even smaller), small parcels will usually make the unit cost (per square foot) more expensive. Small parcels in Urban Centers may need to be assembled before some types of commercial development occur on them.

While these issues are obviously important, we do not believe that they are, by themselves, the primary cause of the purported underbuilding. Rather, they contribute to the main cause: the high cost of development relative to land values and market rates of return.

MARKET ISSUES

We see several reasons why the market is not building to the densities allowed by zoning.

FINANCIAL FEASIBILITY

The most common refrain heard from developers interviewed was a variation of “We don’t do it because it doesn’t make any financial sense.” The

following are the main issues affecting the financial feasibility of higher density in Urban Centers.

- **Parking.** The cost of structured parking is the most significant financial limitation cited with respect to achieving higher densities. The cost of traditional structured parking (multiple stories, above or below ground) substantially exceeds what can be justified on a financial basis by any associated revenue gain in most locations outside of the Central City. Surface parking is substantially less costly to provide when underlying land values are relatively low. In addition, existing surface parking lots may be fully leased and generating revenue greater than office space in the same Center, providing a significant return with none of the risks of development.

That said, there have been some recent advances in providing lower cost structured parking options. There are also specialized situations in which structured parking would be considered viable in suburban locations. In general, the high-density development that has occurred in Urban Centers has put parking at ground level beneath a concrete or steel podium on which two to four floors of a wood-frame building are constructed. The key to density in those developments is a low to very low number of spaces (e.g., 1.5, or even 1.0, parking spaces per dwelling unit for residential development). At those ratios, it is possible to achieve densities of 60 to 80 dwelling units per net acre. For retail space, which typically wants at least three spaces per thousand square feet of retail floor area, there must be roughly as much space for parking as there is for retail. In other words, it is hard to get beyond an aggregate FAR (floor to area ratio) of about 0.5 without structured parking. For office uses, the FARs can be perhaps 50% higher.

- **Construction Types.** Higher-density development often requires changes in construction types, which can yield higher costs per unit associated with shifts to concrete and steel construction. In general, the increase in either sales price or achievable lease rates associated with alternative construction type is insufficient to offset the higher costs. The key benefit from a financial perspective of changing densities through construction type is a higher yield, in terms of leasable square footage or units, associated with a particular land parcel. As a result, higher underlying land values can change the financial equation to favor higher density development forms. This higher-density development could only be supported if supportable rent levels rose.
- **Return on Risk.** Urban and redevelopment projects are perceived to have a greater level of risk, necessitating a higher level of return for some developers. Particular problems cited included difficulty in construction, relatively high soft costs, and interaction with jurisdictional planning efforts that sometimes add a layer of risk and bureaucracy.

- **Scale.** The scale of most infill and redevelopment opportunities is limited, while the complexity is substantially higher. This increases soft costs relative to the overall level of investment, decreasing yield.
- **Timing.** The limitations listed above reflect current market conditions. Over a longer planning horizon, shifts in usage patterns and land values may substantively alter the development environment. The high-density product may in fact be in demand today by consumers, but today's land prices do not always support a high enough rent to make the high-density product the most profitable land use.

REDEVELOPMENT

A large number of the properties identified as redevelopable have a significant economic value in their current configuration, which is likely to be greater than the value of the land for redevelopment. Other key factors that can limit redevelopment include: owner disposition, current lease structure, leaseholder disposition, and the regulatory environment.

One of the most prevalent errors with respect to redevelopment, and higher-density development in general, is to *require* densities and development forms that are not viable. To the extent that development does not occur, densities and land values will not increase to the threshold necessary to trigger the desired development forms. Urban development forms represent an organic and iterative development process, in which development activity increases densities and demand, triggering redevelopment and higher densities over time.

COMPETITIVE ISSUES

An impediment to substantive changes in rent levels in Urban Centers is competition from other areas, often neighboring Urban Centers. Many Regional Centers are participants in the same sub-regional market for certain goods and services. Another competition related problem for the Urban Centers is the loss of traditional office space demand to industrially zoned land. In terms of residential development, only highly desirable housing markets can support the values necessary to allow for high-density residential development, particularly ownership.

POLICY ISSUES

Some public policies, while having merit in meeting other public goals, tend to increase the difficulty of building at the densities envisioned for Urban Centers:

- Minimum zoning requirements that are set too high and preclude the organic, iterative process of development and redevelopment
- System development charges and other fees
- Lengthy planning and permitting processes

- Outdated development standards
- Parking requirements
- ODOT restrictions on access to state facilities
- Community resistance

SUMMARY OF EXPLANATIONS

- **The primary reason for underbuilding in urban areas is the lack of financial feasibility.** There is little evidence to support the conclusion that the high densities required in Urban Centers, in the absence of public assistance, are profitable under current market conditions, and that developers and property owners are either unaware that they could make more money by building denser, or prohibited from doing so by physical or policy constraints.
- **Land values are good indicators of when density becomes profitable.** If land values stay low, density does not work financially. If the public sector wants the private sector to build more densely it must do something to affect demand and supply conditions so that land prices increase,¹ or it must subsidize development cost so that there is profit to developing more density before the market would otherwise provide it.
- **Zoning is still ahead of the market.** Market conditions and public policy have not made land scarce enough, have not made central locations superior enough in terms of transportation or amenity, and have not seen demand great enough to cause land values to rise fast enough in Urban Centers that rents can be demanded that make high density profitable without public assistance (e.g., land assembly, fee waivers, tax abatement).
- **The fact that zoning is ahead of the market is not a condemnation of public policy.** Planning is looking ahead to encourage the metropolitan area to be a metropolis it is not quite ready to be. Getting lower than planned densities should be expected.

CONCLUSIONS

We divide the policies for increasing density into two categories.

- **Incentive-based approaches** range from less direct to more direct incentives. Some allow density to occur; others provide guidance or information that facilitates density; some provide financial incentives

¹ Note that this is *not* a recommendation that public policy should arbitrarily adopt policies that make land more expensive. It is a statement that (1) if land becomes relatively more valuable than it is now, the private market will move toward more density of development, and (2) *if* public policy does things that increase the price of land, density will happen sooner.

through regulatory relief; and others provide direct financial assistance to developers.

- **Regulatory approaches** include policy tools that make it harder for developers to do what elected officials, and the citizens they represent, do not want. Regulatory approaches can impact development both in and out of Urban Centers. Within Urban Centers, government can mandate density levels, making it harder to develop at low densities. Outside Urban Centers, government can raise the cost of development by adding fees and other discouraging mechanisms, thereby encouraging development in Urban Centers.

Following are the policies that are the most *effective* ways to increase density in Urban Centers. They may not necessarily be the most *efficient* from an economic perspective, nor the most *equitable* from a societal one.

- **Continue to allow dense development** by keeping allowed densities ahead of the market, continuing to allow accessory dwelling units, and allowing mixed-use development.
- **Reduce entitlement, planning, and information costs to developers** through specific-area development plans, research, and education.
- **Provide regulatory relief** by streamlining the permitting process for development in Urban Centers, using targeted fee reductions for high-density development, and reviewing design standards.
- **Provide direct financial incentives for development** through the land assembly, tax abatement, tax-increment financing available through urban renewal districts, and other means.
- **Require high density within Urban Centers** by maintaining minimum-density zoning requirements at a level that is not too far ahead of the market, and by encouraging shadow platting, which requires the placement of buildings in a way that allows future infill.
- **Limit certain types of development outside the Urban Centers** by maintaining an Urban Growth Boundary and by limiting service extension to outlying areas within the UGB if contiguous development has not yet occurred where services have already been provided.
- **Increase development fees to better reflect true cost.** If, for example, traffic impact fees are tied to the number of parking spaces provided, then the cost of lower-density development increases relative to higher-density development.
- **Work to maintain high demand for working and living in the region,** by providing a range of natural, cultural, and economic opportunities.

BACKGROUND

The periodic review process mandated by Oregon's land use planning laws requires compliance with the requirements of Goal 14. Among those requirements is one for an evaluation of whether there are additional efficiencies of land development (i.e., whether greater density is possible) as an alternative to expanding the Urban Growth Boundary (UGB). To address this requirement Metro is evaluating mixed-use areas and corridors for additional capacity.

The work program for that evaluation has three phases. In the first phase, completed in April 2001, Metro conducted interviews with local jurisdictions to identify housing and employment capacity not included in the 2017 capacity calculations and to identify barriers to achieving capacity within the 2017 timeframe and beyond. This report is the product of the second phase, the purpose of which is to provide an economic analysis of why Metro's Urban Centers are not developing at the densities anticipated. The third phase of the overall project will incorporate the findings of the first two phases to develop recommendations for possible policy amendments.

The impetus for the research in this report was the finding in Phase I that development in Metro's Urban Centers¹ has been occurring primarily at densities substantially below those that the plans and zoning in those centers allow. That finding, however, was based on anecdotes, not a systematic comparison of data on actual development to zoning. Thus, the first question that this study was to address was:

- Do data on recent development support the Phase I finding of underbuilding?

While substantial research was done on ways available data might be used to answer that questions, the conclusion was that the data were not adequate for the task without more work than the budget or schedule for this project would allow.² Thus, the study focused two subsequent questions, on the presumption that Phase I findings were generally correct (i.e., that there is, in fact, a substantial underbuilding of allowable densities in Urban Centers), which our evaluation of the Phase I evidence suggests is likely to be the case.

¹ By "Urban Centers," we mean the seven regional centers and 30 smaller town centers in Metro's current 2040 Growth Concept. The different types of urban centers are often referred to at Metro as "design types." The Growth Concept also includes many station areas, main streets, and corridors, as well as the central city, but these areas are not being studied in this analysis. Regional centers and town centers are seen as having the greatest potential for higher density, mixed-use development.

² Appendix A of this report documents that conclusion.

The next two questions are the focus of this report:

- What are the causes of the lower development densities?
- What policies are likely to be most effective in influencing the causes, to increase the densities?

The focus of this study is on the *economic reasons* that lead to lower development densities. The Phase I report already gives many of the planning and political reasons.

This report was prepared by ECONorthwest (ECO), with assistance from Johnson Gardner (JG). A review panel consisting of staff from Metro, the Department of Land Conservation and Development, and the Portland Development Commission commented on drafts of this report.

This research was funded by a Periodic Review assistance grant from the Oregon Department of Land Conservation and Development. The contents and conclusions of this report do not necessarily reflect the positions or policies of the State of Oregon.

METHODS

This study relies on the following methods to answer the questions above:

- **Review of previous Metro reports.** We reviewed Metro reports including *2040 Means Business* and the *Main Street Handbook*. The purpose was to get background and perspective for this study: what Metro wants to achieve in the Urban Centers, what policies it has adopted toward those ends, and what it has already found out through evaluations of its progress to date.
- **GIS analysis.** We began the project with the assumption that Metro's RLIS database would allow a comprehensive analysis of development, by type, by year, by sub-area (jurisdiction, design type, and local zone). The idea was that Metro data would allow us to match development information from building permits to 2040 design types. Our research, documented in Appendix A, showed why this analysis would not be possible with available Metro data.
- **Interviews and illustrative projects.** We identified projects in the Urban Centers that either succeeded or failed to reach the densities encouraged by the Urban Center designation.³ We conducted interviews with developers involved in some of these projects to hear their explanations as to why their higher density projects did or did not succeed. We used the information from these interviews to illustrate various forces that work for and against higher density in

³ ECO and JGA chose these projects according to two main criteria: (1) the projects together should illustrate a variety of factors leading to success or failure of higher density development; and (2) adequate data should be available (which often meant that a developer had to be willing to be interviewed and otherwise share information about the projects).

the Centers. We used a combination of open-ended questions and specific prompts on various possible explanations.

- **Prototypical pro forma analysis.** We present simple pro forma financial analysis for development prototypes to illustrate the circumstances in which various densities of housing and employment make financial sense, and the circumstances in which they do not. The pro forma analysis illustrates the costs associated with prototypical projects, along with the likely revenues, the resulting profits, and the timing of the costs and revenues.

ORGANIZATION OF THIS REPORT

This report consists of a summary, four chapters and two appendices. A description of each follows:

- **Chapter One: Introduction.** This chapter provides background to the project, explains the study methods, and outlines the structure of the report.
- **Chapter Two: Why are actual development densities lower than allowed densities?** This chapter draws on the interviews, prototypical pro forma analysis, and economic and planning theory to list and describe potential explanations for the Phase I finding that development densities have been lower than allowed in Urban Centers.
- **Chapter Three: What policies are likely to be most effective in increasing the densities of development?** This chapter addresses the potential causes of lower densities that we outlined in Chapter Two by evaluating and recommending potential policies that could increase development densities in Urban Centers.
- **Chapter Four: Conclusions.** This chapter summarizes the main findings of our analysis, draws some conclusions as to the main causes of lower than allowed densities in Urban Centers, and lists actions by Metro and local jurisdictions that would be most effective in increasing the likelihood that the Centers will densify within a reasonable timeframe.
- **Appendix A: Data evaluation.** This appendix describes our efforts to provide a more rigorous answer to the question: Are development densities in Urban Centers substantially lower than allowed densities? It describes chronologically the steps in our investigation that led, ultimately, to the conclusion that existing Metro data were not adequate to answer the question in the way that the contract scope of work had envisioned.
- **Appendix B: Example pro forma analysis.** This appendix provides examples of the prototypical pro forma financial analysis that we used to determine how different densities and financial contexts lead to financial success or failure.

Why Are Actual Development Densities Lower Than Allowed Densities?

Chapter 2

Why actual development densities are lower than allowed densities is one of the two key questions that this report addresses. The other (addressed in the next chapter) is, What can the public sector do about it? To effectively do something requires some knowledge of cause and effect: what are the factors that cause the underbuilding? This chapter provides our answers to that question.

We divide the causes of underbuilding into four categories, and address each in a section of this chapter. These categories cover the *potential* explanations for the perceived underbuilding. Whether these are *real* explanations is what the analysis in this chapter addresses:

- **Measurement issues.** What are perceived to be lower densities can be in part a result of definitions and measurement.
- **Site issues.** Densities can be low because site constraints keep them from being any higher.
- **Market issues.** Densities can be low because the economics of developing to the densities that governments allow and desire do not currently work for the private sector, which is supposed to be building to those densities.
- **Policy issues.** Densities can be low because other public policies make building to the desired densities difficult.

These categories clearly overlap. As economists, we tend to see most of the issues as economic issues: site constraints could be overcome and costs imposed by public policy could be accommodated if demand were great enough. Ultimately, the reason that density does not get built, or built fast enough, is that the people responsible for the building (primarily private property owners and developers) believe that the expected return (given expected cost and demand) are too low to justify the financial risk.

That said, we believe that it is easier for most people to understand the issues by dividing them into categories. We draw the pieces together in a summary at the end of the chapter.

MEASUREMENT ISSUES

In theory, the method of measurement and the definitions that are used for the categories that are measured can affect whether densities are perceived to be lower than those allowed.

First, there are different kinds of densities, each of which measures the density of something different. One may measure the density in terms of the amount of building space per acre (for example, by referring to a floor-to-area ratio or “FAR”), the number of dwelling units or commercial units per acre, or the number of residents or workers per acre. An Urban Center may meet the target FAR set by public policy but may fail to achieve the desired level of population or employment per acre if the amount of population or employment per square foot of building space is lower than anticipated. The reverse could also be true. In short, it is important to identify what aspect of density one cares about, and to measure *that specific density*.

The density standards of the 2040 Growth Concept are specified in terms of persons per acre (for both residential and employment-related development). That suggests that this study evaluate density in that way also. But getting reliable estimates of population and employment outside the decennial census is difficult.¹ In fact, a standard technique for estimating population growth is to use building permits as the independent variable. Thus, even though the primary specification of density may be persons per acre, a measurement based on dwelling units or square footage per acre may be more direct.

Second, there are both net densities and gross densities, which define differently the land by which the numerator (persons, building space, dwelling units, etc.) is divided. Gross densities include in the denominator all the land in a given area, including streets, sidewalks, waterways, steep slopes, and dedicated open space. Net densities include only net buildable land, excluding streets, sidewalks, waterways, and other non-buildable land area. Net densities are always higher, sometimes significantly, than gross densities.

Some public policies, most notably zoning ordinances, focus on net density. For example, they may specify a maximum FAR on a particular parcel, which is assumed to exclude public rights-of-way, significant waterways, parks, and other non-buildable space. Other public policies, including the 2040 Growth Concept density targets, focus on gross densities that include all the land within a certain area like a Urban Center. The distinction between gross and net densities is critical throughout any analysis that attempts to compare desired densities and actual densities.

Third, a point related to the previous one, gross density differs depending on the size of the area over which it is calculated. We have done previous

¹ Employment, using the state Department of Revenue ES-202 data, is easier than population to estimate directly.

work on density at both a subdivision and regional scale. For a typical new single-family residential subdivision, population density might be about 10 persons per gross acre. If one expands to capture several adjacent subdivisions, some of which have multi-family walk-up apartments, that density might increase to 15 persons per acre. If the unit of analysis expands to a square mile, except in the most homogenous of suburbs, the land now includes many parcels that do not have housing: they have employment-related uses (office, industry, warehousing), public uses (e.g., parks), or they are vacant (and in some cases, permanently so: e.g., water bodies). Thus, at this scale and larger, gross population densities tend drop, though this affect is partially offset by the fact that at really large scales the geography can include central cities (e.g., downtown Portland) that has very high population density. In our analysis of the Metro UGB, we found that about 50% of the *total* land area was in parcels with residential zoning.

We planned to address these measurement issues in our analysis of data on actual densities in Urban Centers. As it turned out, however, our analysis could not proceed to the point where we could assess the impact of these issues. As described in Appendix A, the data on recent building permits in Urban Centers were not accurate or complete enough for us to confidently assess actual development densities at all. The data sets that Metro assembled from local jurisdictions were missing many projects completed within the past five years, the permit data that was provided often lacked information on the size of the development, and much of the permit data was not assigned to a specific parcel. Given the limits of the project budget and schedule, we were not able to overcome these obstacles.

Despite our inability to use building permit data to measure development densities, we found other evidence to support, at least anecdotally, the hypothesis that development is occurring below allowed densities in Urban Centers. Our interviews with developers provided confirmation that developers are, in fact, frequently unable or unwilling to build at the allowed densities. This corroborates Metro's findings in Phase I of this project, in which local planners told Metro that this was occurring.

We believe that this anecdotal evidence is significant, and that it is unlikely that the difference between actual densities and allowed densities is purely a measurement artifact. We think that when the exact same type of density is considered (for example, persons per gross acre), the difference between actual densities and allowed densities is still likely to be significant. We therefore proceed to the other possible explanations for underbuilding, which we believe have more explanatory power than the measurement issues.

SITE ISSUES

In attempting to build to higher densities, developers may encounter site-related issues that are difficult to overcome. Some of these site issues are even created by high-density development. The four main types of constraints

are environmental constraints, the need for redevelopment, infrastructure constraints, and parcel-size constraints.

ENVIRONMENTAL CONSTRAINTS

The basic question: are there environmental constraints in Urban Centers that make developing to allowed densities difficult?

Assume, for the moment, that there is a constant amount of open space and natural habitat per person that is needed to mitigate the effects of development. If that were true, then as densities increase the percentage of land that must be set aside for open space and natural habitat would have to increase, with two effects. First, it reduces developable land, perhaps counteracting the financial benefits to the developer of having more rent-paying residents or workers per acre. As a result, the developer may not choose to build at higher densities. Second, it increases the gross-to-net land ratio, moderating the effect of any increase in net density on overall gross density. In other words, the developer may choose to build to a high net density, but the required land set-aside may keep gross density from increasing much. In practice, the need for additional open space and habitat associated with development would typically be reflected in system development charges targeted towards parks and open space. If this demand is more urban in nature, the cost of providing proximate park or open space will be relatively high.²

An alternative assumption—one that comports more with empirical evidence in the densely urbanized areas of metropolitan areas—is that the amount of open space and natural habitat per person drops as density increases. If, as a matter of policy, Metro and local governments can accept that decrease, then the extra cost on development described in the previous paragraph may be reduced. It is also possible, however, that the impact of the reduction in acres of open space per person is offset by requirements for improvements to remaining open space that allows it to be used more intensely without any additional environmental impact (e.g., riparian buffers with trail systems).

Even where Urban Centers do not have more environmental constraints per acre than in other areas, the recent discovery of new environmental constraints may lead to less dense development than originally envisioned. The most notable example of this is the new riparian setback requirements that are being proposed as a way to protect aquatic habitat. Title 3 of the Urban Growth Management Functional Plan, the Stream and Floodplain Protection Plan, requires special development standards on the FEMA-

² This theme—the equivalence of site and policy constraints to developer costs—will show up many more times in this report. Our assumption, supported by both economic theory and the experience of land developers, is that almost everything in the development decision gets converted back to costs, revenues, and the bottom line. No land is unbuildable, given enough demand and the absence of absolute policy prohibitions. Even water bodies are buildable (e.g., filling of the San Francisco Bay; houseboats on Lake Union and Portage Bay in Seattle).

defined floodplain and the area inundated by the 1996 flood, and it requires buffers along waterways and wetlands.

These Title 3 designations are slightly more prominent in Urban Centers than in the UGB as a whole. About 9% of land in Regional and Town Centers is subject to Title 3 constraints, compared with 8% in the entire Metro UGB. These Title 3 constraints affect a significant proportion of the remaining vacant land in Urban Centers. About 18% of the vacant land in both Regional Centers and Town Centers is in Title 3-affected areas, as shown in Table 2-1.

Table 2-1. Title 3 Designation in Regional and Town Centers

Design Type	Total Acres	Title 3 Acres	Title 3% of Acres	Title 3 Vacant Acres	Title 3 % of Vacant Acres
All Regional Centers	2,812	311	11%	38	19%
All Town Centers	3,995	330	8%	186	18%
TOTAL CENTERS	6,807	641	9%	224	18%
All land in Metro UGB	162,892	13,486	8%	7,615	17%

Source: ECONorthwest based on Metro Data Resource Center data, 2001

Though not shown in Table 2-1, our analysis found that in some centers, such as the Oregon City and Washington Square Regional Centers and the Tualatin Town Center, Title 3-constrained land makes up more than 50% of the vacant land.

NEED FOR REDEVELOPMENT

Table 2-2 shows that most of the land in Urban Centers is already developed. Only 18% of the land in Regional and Town Centers is vacant. By comparison, 28% of the land within the Metro UGB is vacant. When Title 3 land is removed from the vacant inventory, only 15% of the land in all Urban Centers is vacant.

Table 2-2. Vacant Land in Regional and Town Centers

Design Type	Total Acres	Total Vacant Acres	% Vacant Acres	Vacant Non-Title 3 Acres	% Vacant Non-Title 3 Acres
All Regional Centers	2,812	199	7%	161	6%
All Town Centers	3,995	1,044	26%	858	21%
TOTAL CENTERS	6,807	1,243	18%	1,019	15%
All land in Metro UGB	162,892	44,804	28%	37,189	23%

Source: ECONorthwest based on Metro Data Resource Center data, 2001

The fact that Urban Centers are to a great extent already developed suggests that redevelopment—perhaps a lot of it³—must occur for densities

³ We did not have the time to go to the next level of analysis and try to estimate what Metro sometimes refers to as land "productivity" in Centers (i.e., the amount of development that could occur if all vacant, buildable land were developed to its maximum allowed density, and if redevelopment were to occur at some reasonable rate).

to achieve the 2040 targets. The section below on market issues describes the financial difficulties involved in redevelopment.

INFRASTRUCTURE CONSTRAINTS

Another site issue is the requirement for adequate infrastructure such as roads and sewers. Higher densities allow more persons per acre, but because of the greater use of infrastructure from increased activity on the land, higher densities also can require more expenditure per acre on infrastructure improvements. In some cases, this presents a financial obstacle that is difficult for developers to overcome. In other cases, the development may be allowed to proceed, but the market demand for the development dissipates if adequate infrastructure is not available. As with the need for habitat or open space, the need for some infrastructure expenditure for each person who is housed or employed on a parcel of land tends to counteract the financial benefits to developers of increased density.

It is not always the case that higher densities lead to higher infrastructure costs per acre; the marginal costs of each additional person per acre may be very low. But even in these cases, there is usually a need for some additional infrastructure expenditure. In some situations, such as one where road widening is required, the cost of the infrastructure improvement is very high regardless of the density, and any further intensification of development in a Urban Center may be limited. In cases of redevelopment and infill where development in Urban Centers makes use of existing infrastructure, there may be no need for further infrastructure expenditure, but this is likely to be the exception rather than the norm. It is more likely that the benefits of using existing infrastructure will be countered by the costs of having to upgrade the infrastructure to accommodate higher densities. The costs of expanding pipes and pavement in developed areas can be more expensive, per unit, than providing it new and complete at a greenfield site. In many cases, the only thing that makes the redevelopment possible is substantial public subsidy (e.g., the Portland Pearl District).⁴

PARCEL SIZE CONSTRAINTS

Many of the Urban Centers are older areas where parcelization has occurred to a high degree. Table 2-3 shows the parcel size distribution of all land in Regional and Town Centers. Nearly all (92%) of parcels are smaller than one acre, though the majority (64%) of acreage is in parcels greater than one acre.

⁴ We are not commenting on whether such public subsidies are justified. They may well be, based on the assumption that healthy centers have other benefits (e.g., public amenity, avoided cost associated with disinvestment, better opportunities for transit to ameliorate traffic problems).

Table 2-3: Parcel size distribution in Regional and Town Centers

Parcel size (acres)	No. of Parcels	% of Parcels	No. of Acres	% of Acres
less than 0.25	8,661	66%	1,004	15%
0.25 to 0.5	2,302	18%	794	12%
0.5 to 1	1,008	8%	705	10%
1 to 5	898	7%	1,885	28%
5 to 10	127	1%	856	13%
10 to 25	74	1%	1,094	16%
25 and over	10	0%	461	7%
Total	13,080	100%	6,799	100%

Source: ECONorthwest, based on Metro data 2001

Note: Parcels that are split by Center designation have only their acreage within the Centers counted

Table 2-4 shows the parcel size distribution of all *vacant* land in Regional and Town Centers. Again, nearly all (82%) of parcels are smaller than one acre, though the majority (82%) of acreage is in parcels greater than one acre.

Table 2-4: Parcel size distribution of vacant land in Regional and Town Centers

Parcel size (acres)	No. of Parcels	% of Parcels	No. of Acres	% of Acres
less than 0.25	649	55%	60	5%
0.25 to 0.5	161	14%	57	5%
0.5 to 1	150	13%	109	9%
1 to 5	171	15%	355	29%
5 to 10	20	2%	132	11%
10 to 25	14	1%	214	17%
25 and over	6	1%	316	25%
Total	1,171	100%	1,243	100%

Source: ECONorthwest, based on Metro data 2001

Note: The vacant portion of any parcel that includes Metro-designated vacant land is included

The parcelization issue is not limited to Urban Centers. Table 2-5 shows that 78% of parcels in the Metro UGB are smaller than one acre. Again, the majority (82%) of acreage in the Metro UGB is in parcels greater than one acre.

Table 2-5: Parcel size distribution of vacant land in the Metro UGB

Parcel size (acres)	No. of Parcels	% of Parcels	No. of Acres	% of Acres
less than 0.25	18,000	50%	2,149	5%
0.25 to 0.5	5,214	14%	1,842	4%
0.5 to 1	5,027	14%	3,557	8%
1 to 5	6,192	17%	13,375	30%
5 to 10	976	3%	6,877	15%
10 to 25	520	1%	7,762	17%
25 and over	187	1%	8,885	20%
Total	36,116	100%	44,446	100%

Source: ECONorthwest, based on Metro data 2001

Note: The vacant portion of any parcel that includes Metro-designated vacant land is included

While high-density development can use smaller parcels, typical formats for commercial development in particular requires a minimum size parcel for the floor area of the building. There is a limit to how tall and narrow buildings can be, given zoning restrictions and financial considerations. Because of this, small parcels in Urban Centers may need to be assembled before commercial development occurs on them.

Relatively small parcel sizes limit the scale of achievable development in many instances. Redevelopment typically is more complicated and involves a greater expenditure of time and expense to realize. As a result, developers will desire a certain scale of development, in terms of units or leaseable area, in order to warrant the anticipated effort. Assemblage of parcels is an option, but also involves a level of complexity and risk, which needs to be reflected in the project's projected return.

MARKET ISSUES

Metro's interviews in Phase I of this project found that local planners felt that the reason for the underbuilding was that the zoned capacity of the Urban Centers is ahead of the market. We agree. But that assessment only describes the problem: it says that the market (developers) is not building what zoning allows (and what Metro policy wants). It does not explain why the market is not building to those densities, or what public policy can do to affect what the market does. An explanation of causes is essential in any rigorous evaluation of policy options.

In this analysis we will address market issues from a theoretical and quantifiable basis, guided by the input of interviews conducted with local and regional developers active in urban residential and office space development.

OVERVIEW OF DEVELOPMENT PROCESS

The private sector development process is a largely rational and, therefore, largely predictable response to market and regulatory conditions.

Developers serve as the primary drivers of the development process, typically initiating land development. The developer makes a living through managing risk, evaluating the probable financial return on a project in light of assumed risk. Developers cannot be expected to initiate a development 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, and will largely dictate to the developer 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 bureaucratic process under which entitlements are granted (or purchased), and can influence the marketplace by incentives or restrictions. In theory, that influence can go way beyond what is typically done now, even in the Metro area.

Development typically occurs when the development of an allowed use yields an adequate return to attract a developer and equity source. The final development form will typically represent what is viewed as the “highest and best use” of the property from a development perspective, which reflects 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 source and lenders.

FINANCIAL FEASIBILITY

Private sector development activity reflects the management of perceived risks and returns. Anticipated return rates are typically generated using pro forma financial analyses, which forecast costs and revenues associated with specific developments. Developers use a broad range of approaches in preparing their financial analyses, with a number of financial return measures commonly used to evaluate the viability of projects.

Financial feasibility represents the most significant reason that developers are not building desired densities. **The most common comment from developers interviewed was a variation of “We don’t do it because it doesn’t make any financial sense.”** This explanation is the principal focus of our analysis, which includes the use of prototypical pro forma analysis applied to specific examples to show why certain densities and land uses do and do not work in some Urban Centers. We focus on office development and mid-rise housing—if they do not pencil out, density will be difficult to achieve. We do not examine industrial uses (which do not occur much in Urban Centers) or retail (which is not consuming enough space in centers, and is assumed to not be of such a density as to account for much of the density problem).⁵

⁵ All of these decisions were discussed and approved by the project's technical advisory committee in May, 2001.

The following sections describe the most commonly cited situations in which financial feasibility limits densities.

PARKING

The cost of structured parking is the most significant limitation cited with respect to achieving higher densities. The cost of this type of parking substantially exceeds what can be justified on a financial basis by any associated revenue gain in most locations outside of the Central City. The cost of structured parking ranges from approximately \$9,000 per space for above-ground structures to over \$25,000 for subterranean spaces. These costs can be recovered in areas in which substantial parking fees can be collected, such as the Central City, but can be justified without subsidy only in extremely limited situations elsewhere in the metropolitan area.

A generalized pro forma was prepared to evaluate the relative cost of providing surface and structured parking assuming alternative land values. As shown in Table 2-6, surface parking is substantially less costly to provide when underlying land values are relatively low.

Land values in Urban Centers in suburban locations are typically between \$6 and \$15 per square foot. Under these values, surface parking represents the most cost effective way to provide parking.

Table 2-6: General cost characteristics of parking types, per parking space

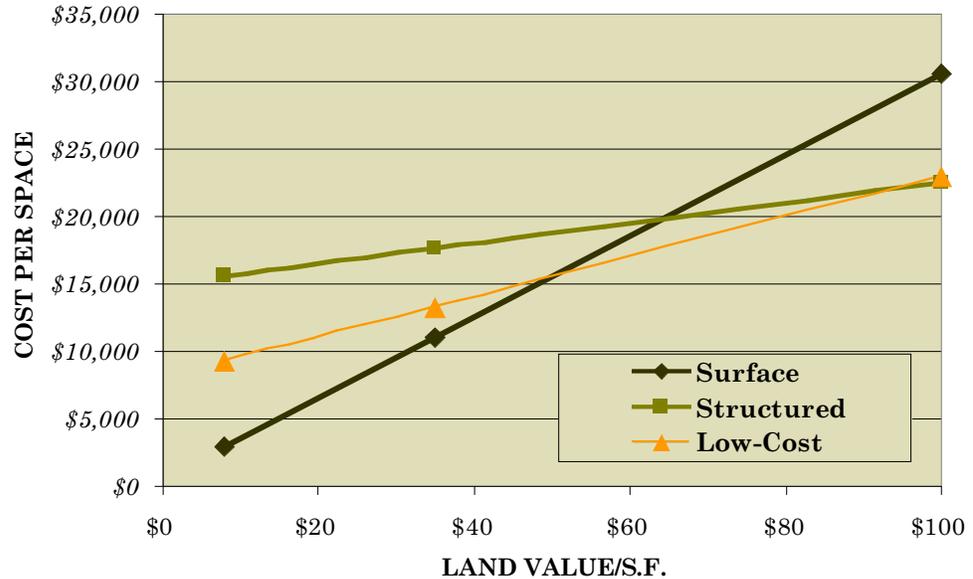
<i>Parking Type</i> Land Value-S.F.	Land Cost	Construction Cost	Total Cost	Monthly Amortization 1/
<i>Surface Parking</i>				
\$8.00	\$2,400	\$600	\$3,000	\$24
\$35.00	\$10,500	\$600	\$11,100	\$89
\$100.00	\$30,000	\$600	\$30,600	\$247
<i>Traditional Structured Parking 2/</i>				
\$8.00	\$600	\$15,000	\$15,600	\$126
\$35.00	\$2,625	\$15,000	\$17,625	\$142
\$100.00	\$7,500	\$15,000	\$22,500	\$181
<i>Lower Cost Options 3/</i>				
\$8.00	\$1,200	\$8,000	\$9,200	\$74
\$35.00	\$5,250	\$8,000	\$13,250	\$107
\$100.00	\$15,000	\$8,000	\$23,000	\$185
1/ Assumes 100% financing, 20 year loan term at 7.5%.				
2/ Assumes four story structure				
3/ Assumes two story structure				

Source: Johnson Gardner

Using the rough cost estimates presented in the previous table, the cost for traditional structured parking does not become competitive with surface parking until land values approach \$55 to \$65 per square foot. Figure 2-1

illustrates the conclusion. At those land prices, the savings in land cost (from not having a large surface lot) offset the increased capital cost of the parking structure.

Figure 2-1: Comparative costs of parking types



Source: Johnson Gardner

There have been some recent advances in providing lower-cost structured parking options that have made this type of parking more competitive with surface parking. Figure 2-1 shows these types of construction becoming competitive with surface parking at land values around \$45 to \$50 per square foot. Some experts believe the number may be as low as \$35 per square foot. That still leaves surface parking the lowest cost option in most suburban locations, the reduced cost of structured parking increases the viability of developments requiring higher densities. Some examples are:

- *Lower parking ratios in transit centers.* Rather than the typical 1.6–2.2 parking spaces per dwelling unit, projects with as few as 1.0 spaces per unit are being constructed. That ratio has a direct and strong impact on achievable density. Lowering parking ratios is the least expensive method of reducing the parking-cost component of a project. A parking ratio of 1 to 1 (1 space for each dwelling unit) can theoretically result in densities up to 60 or more units per acre, compared to 20-30 units per acre for a parking ratio of 2 to 1. Lower parking ratios will face consumer resistance in many locations, but lower parking ratios appear to be working in transit centers and have possible applications in other Urban Centers. Banks are generally not comfortable with ratios of less than 1.5, but projects with ratios of 1 to 1 are now being financed and constructed in some suburban Urban Centers.

- *Tuck-under parking.* This technique “tucks” a parking bay under a building but maintains a surface access lane with asphalt paving (less expensive than a concrete structure). Often it includes a surface parking space on the opposite side of the access lane. Examples of this technique can be found at Buckman Heights at 16th near Sandy Blvd in Portland, and at Central Point in downtown Gresham.
- *Rigid steel-frame structure with wood deck.* This technique uses a rigid steel frame for the first story, a wood deck above, with a wood-frame building attached above the deck. Parking is located on the surface within the steel frame structure. The steel supports in the parking area align with the bearing walls of the apartment building, eliminating the need to create a reinforced deck that will support the housing structure (less expensive). An example of this type of building is Burnside Commons at 172nd & E. Burnside at 60 units/acre with 1.5 parking spaces/unit.⁶

Parking ratios and dwelling unit size are critical here, because only one floor of parking is possible. At 1.5 space per unit, and 3 spaces per 1,000 square feet of parking area (tight for surface parking), every dwelling unit requires 500 square feet of ground floor parking. A quarter-block site (100 feet by 100 feet) with no setbacks would have a footprint of 10,000 sq. ft. Allowing for some aesthetic treatment of the ground floor parking (e.g, landscape buffers, ground floor lobby, ground floor retail) might reduce the parking area to 6,000 to 8,000 sq. ft: which would only be enough for 12 to 16 dwelling units. If all the ground floor, lot-line to lot-line, were used for parking, it would provide 30 parking spaces. That would allow a maximum of 20 units to be built at 1.5 spaces per unit—that would be two floors of residential over one floor of parking. That would result, however, in about 80 dwelling units per net acre: high-density even by urban standards. Our point is that unless either (1) parking ratios drop below 1.5 spaces per dwelling unit, or (2) other surface parking is allowed adjacent to the building (which would reduce net density but allow taller buildings), it is hard to see how structures with more than two floors can be supported without structured (multiple-floor) parking.

- *Concrete Podium.* This technique is typically a reinforced-concrete structure at the ground floor with 3-4 floors of wood frame constructed above. The column spacing in the parking portion of the building is designed for efficiency of parking. Because of the reinforced concrete deck, the bearing walls of the apartment need not align with the supports in the garage, which allows for the most efficient lay out for parking bays and footprint for the housing. This is the preferred

⁶ Metro estimates that the parking costs were approximately \$4,200/space, less than half of what they would be in a typical multi-story parking structure. We did not have the information, however, to determine if any of the parking costs were allocated to the units (e.g., all the foundation costs gets allocated to dwelling units), or whether all soft costs are included in the estimate.

method of construction in high-end areas such as Portland's Pearl District but also has been used with success in less costly applications. Buckman Terrace (Phase II) at Sandy & 16th used this type of construction. If parking is limited to the ground floor, the same limits on density apply as discussed above.

- *Steel Frame Podium.* This technique is similar to the reinforced concrete podium above, but uses a steel frame for the parking portion. The column spacing is set at 27 feet to accommodate three parking spaces per bay. Such a building is currently being designed for an Urban Center: its cost estimates are less than those for a concrete podium.

This analysis is quite general, and does not factor in a number of important elements, such as the following:

- There are some specialized situations in which structured parking would be considered viable in suburban locations.
 - The first of these is when there is no other plausible option for providing parking, and the parking is required for a high-value land use. An example of this would be at a regional mall such as Washington Square, where retailers demand parking within a certain distance from their establishment. Another situation in which structured parking is viable is near regional hospitals, which generate a substantial area-specific premium.
 - There are also situations in which site slope conditions and other factors allow for a limited level of structured parking spaces. One example would be if grading or foundation requirements yield unused space suitable for tuck-under parking. As another example, one level of underground parking can be, at the margin, at the low end of cost (\$10,000 per space) if a multi-story building has to dig a hole anyway to get an adequate foundation.
- Operating costs for both structured and surface parking lots that charge fees were not factored in. Operating costs tend to be higher for structured parking, reducing their competitiveness.
- Structured parking lots can offer covered and secured spaces, as well as direct entry to buildings. These characteristics often can yield a premium in achievable lease rates, allowing for partial cost recovery. In residential townhouse developments, secure, direct access parking can yield a substantial premium.
- Parking is viewed as a necessary asset to lease space, and developers will pay what is necessary to provide adequate parking, in order to support an existing or proposed development.
- The allocation of costs to parking is difficult, as the garage often contains structural improvements necessary for the remainder of the

project. The allocation of land costs between parking and other improvements can also vary.

- Revenues for parking can alter the equation. While full cost recovery is not often feasible, suburban properties can currently charge fees in the range of \$60 to \$80 per month for a covered and secured parking space, which can offset a portion of the cost of structured parking.

From a revenue perspective, the degree to which a developer can recapture the cost of parking through direct parking charges is limited in suburban locations. Suburban office space does not typically charge directly for parking, although the number of required parking spaces is often included in lease negotiations. Based on previous work, we have found that if the cost of structured parking were rolled into the lease rate of suburban office space, the lease rate would increase by 5% to 10%. That increase may not be an insurmountable hurdle in a highly demanded location, but in a competitive market with multiple, similar leasing opportunities, 10% can kill a project.

Direct parking charges are the norm in the Central City, with achievable rates approaching \$185 per space per month. While the cost of parking is established outside of the lease rate, this cost affects the nature of tenants and achievable lease rates for office space. Table 2-7 compares the additional cost of space associated with parking for a prospective tenant in the Central City, the Lloyd District and a suburban location such as Kruse Way.

Table 2-7: Parking costs for prospective tenants in different locations

	Central City	Lloyd District	Kruse Way
Space Need (S.F.)	10,000	10,000	10,000
# of Employees	40	40	40
% of Employees Parking	50%	50%	50%
% paid by Employer	50%	50%	50%
Monthly Parking Rate	\$175	\$75	\$0
Parking Cost/Year	\$21,000	\$9,000	\$0
Parking Cost/Year/S.F.	\$2.10	\$0.90	\$0.00

Source: Johnson Gardner

Under these assumptions, the cost of space in the Central City associated with parking would exceed that in Kruse Way by \$2.10 per square foot annually. This disadvantage would theoretically be reflected in a lower acceptable lease rate in the Central City vis-à-vis a suburban location. In reality, we see current lease rates roughly equivalent in both the suburban and Central City markets, indicating that discounts related to parking are largely offset by the relative attractiveness of the Central City as an office location.

An additional impact of the differential in direct parking charges is that tenants with a relatively low level of parking reimbursement or auto dependence would be willing to pay more for Central City space than other tenants. Over time, this would tend to lead to a concentration of this type of tenant in the Central City, which also offers outstanding mass transit access. There is a limited pool of these types of tenants (primarily professional services that draw on the entire region and have the bulk of their traffic generated by other professionals in the same urban center). Businesses that require a lot of customer trips for lower cost services (e.g., title companies) tend to decentralize to reduce a legitimate cost of their business: providing customer parking.

A similar pattern is observed in the residential market, where low-income and senior projects with lower parking ratios have a greater propensity to accommodate structured parking. In addition, these projects can more easily be built at high-rise densities because of the higher demand by the tenants for amenities (including access to transit) central places, and the lower demand for yard space.

From a market perspective, structured parking is unlikely to represent a viable development form in most Urban Centers without public participation. That conclusion is confirmed by recent work we have done in the downtowns of both Eugene and Salem, which, if placed in Portland Metro area would be the biggest urban centers outside the central city. In neither of those central cities (with a couple exceptions as noted above: to support an existing high-density development that has become parking-constrained; or for hospitals) does the private sector provide structured parking—it is subsidized by the public sector. That is the same conclusion JGA came to in evaluating parking in the Clackamas Regional Center a few years ago.

The economics of parking also help explain why infill may occur less quickly than the public sector would desire. A surface parking lot supporting existing multi-story buildings in a partially developed center may be fully leased and generating revenue from fees on the order of \$1,000 per space per year: about \$2 to \$3 per square foot. That is as much or more per square than office space in the same center. At typical land prices in these centers, and with typical operating costs for lease or self-pay surface parking, this could be about a 10% return (1) with none of the risks of development, and (2) without counting appreciation. In a center with growing demand and mid-range land prices, parking as land banking makes a lot of sense.⁷

CONSTRUCTION TYPES

Higher-density development often requires changes in construction types, which can yield higher costs per unit. In the case of both office and

⁷ And though this may be seen as a current problem by planners, there is a plausible argument with both theoretical and empirical support (Peiser, R. B. (1989). "Density and Urban Sprawl." *Land Economics* 65(3): 193-204) that the ultimate density of the urban center is improved by such actions, which hold land until underlying land values drive greater density.

residential development, wood-frame construction represents the lowest cost per square foot for new space. Construction costs per square foot tend to increase as densities increase, with higher costs associated with shifts to concrete and steel construction. In general, the increase in either sales price or achievable lease rates associated with alternative construction type is insufficient to offset the higher costs.

The key benefit from a financial perspective of changing densities through construction type is a higher yield, in terms of leasable square footage or units, associated with a particular land parcel. As a result, higher underlying land values can change the financial equation to favor higher density development forms.

As a demonstration of this relationship, we have evaluated a series of cost estimates for alternative rental apartment development forms. The evaluation, summarized in Table 2-8, includes a calculation of threshold rent levels necessary to support this type of construction using a range of assumed land values.

Table 2-8: General cost characteristics of rental apartments

<i>Building Type</i> Land Value-S.F.	Land Cost	Construction Cost 1/	Total Cost	Cost/ Unit	Rent Threshold 2/
<i>Low Rise (100 units @ 30 per acre)</i>					
\$4.50	\$653,400	\$6,456,600	\$7,110,000	\$71,100	\$0.90
\$35.00	\$5,082,000	\$6,456,600	\$11,538,600	\$115,386	\$1.45
\$100.00	\$14,520,000	\$6,456,600	\$20,976,600	\$209,766	\$2.64
<i>Mid-Rise (100 units @ 150 per acre)</i>					
\$4.50	\$130,680	\$8,245,850	\$8,376,530	\$83,765	\$1.06
\$35.00	\$1,016,400	\$8,245,850	\$9,262,250	\$92,623	\$1.17
\$100.00	\$2,904,000	\$8,245,850	\$11,149,850	\$111,499	\$1.41
<i>High Rise (250 units @ 300 per acre)</i>					
\$4.50	\$163,350	\$26,210,940	\$26,374,290	\$105,497	\$1.33
\$35.00	\$1,270,500	\$26,210,940	\$27,481,440	\$109,926	\$1.39
\$100.00	\$3,630,000	\$26,210,940	\$29,840,940	\$119,364	\$1.50
1/ RS Means					
2/ Rent necessary for 9.0% return on cost w/ 30% operating cost ratio.					

Source: Johnson Gardner

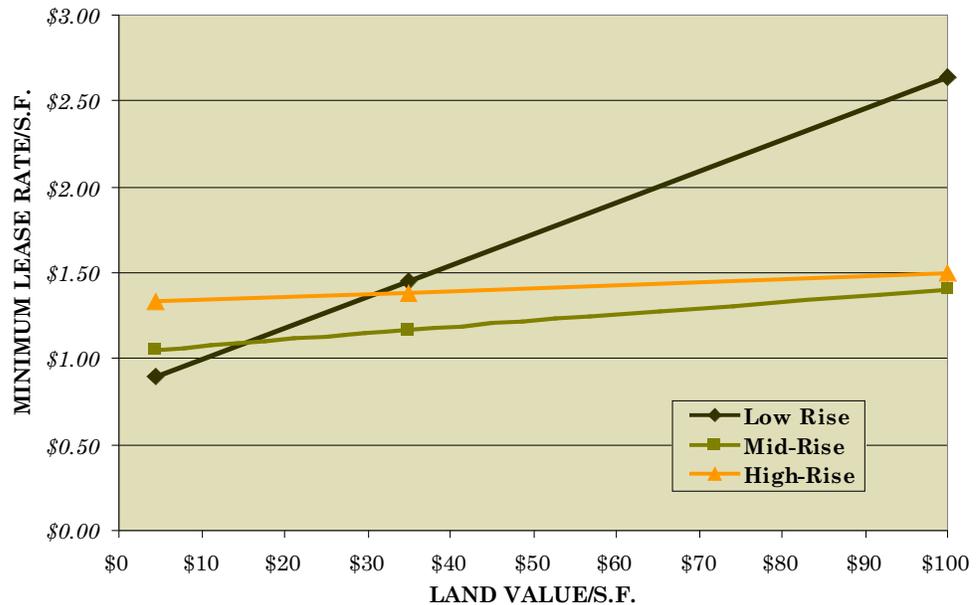
The costs presented for a low-rise rental apartment building reflect garden apartments, with a typical density of between 22 and 30 units per acre. These projects are wood frame construction, are between two and three stories, and provide surface parking. Regional examples of this type of construction would be suburban projects in areas such as Tanasbourne and Hillsboro.

The costs for mid-rise development represent wood frame construction above a concrete parking podium. Within the Portland metropolitan area, this type of construction is seen in areas such as the Lloyd District (Lloyd Place Apartments, 5 stories) and downtown (University Park, 5 stories). High-rise construction (seven or more stories) is seen primarily in the central

city and Pearl District, which have the highest supportable rent levels and land values. An example of this type of project would be The Essex House in downtown Portland's South Auditorium District.

Figure 2-2 shows that, under the assumptions used, garden apartments are able to deliver units at the lowest rent levels when underlying land values are below approximately \$15 per square foot, above which mid-rise housing delivers the lowest cost residential development form.

Figure 2-2. Rent minimums (\$/sq. ft./mo.) by land value and building type for residential products



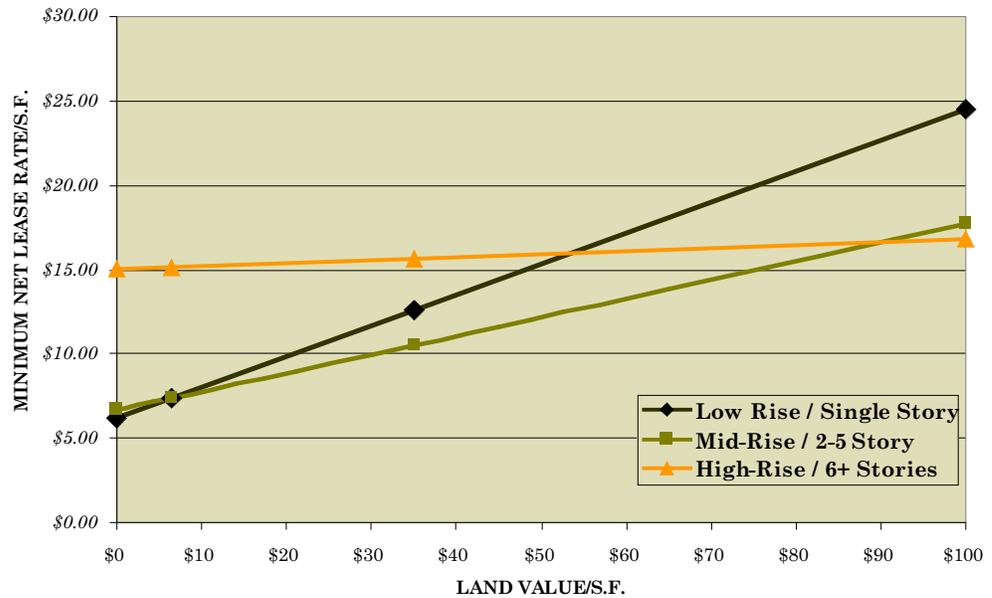
Source: Johnson Gardner

The results of this analysis are consistent with observed development patterns within the metropolitan area. Non-subsidized mid-rise construction becomes the market choice only in close-in markets or the Central City, where land prices are adequate to make this the highest and best use of the property. High-rise construction represents the highest and best use only when land prices approach \$100 per square foot.

The key challenge illustrated by this analysis for Urban Centers is that the development of mid-rise apartments under current land prices in most Urban Centers would require rent levels not currently attainable in these markets. While a regulatory action setting minimum densities that precluded low-rise apartments would make mid-rise construction the highest and best use of the property, no development activity would be expected to occur without substantive subsidy. Rising land values would cause mid-rise development to make financial sense, but the development could only be supported if supportable rent levels rose. Our analysis indicates that rent levels would have to increase by a minimum of 23% in real terms to support residential land values consistent with mid-rise construction.

Figure 2-3 shows a similar analysis for speculative office space: It shows minimum lease rates necessary to support alternative development types at a variety of land values. The three product types evaluated were low-rise, mid-rise and high-rise office space. Only the high-rise format included structured parking.

Figure 2-3: Net lease rate minimums (\$/sq.ft./yr.) by land value and building type for office space



The results of this analysis also trend with observed behavior in the market. Low-rise office space, typically single story flex space, is the predominant land use when values are below \$6.00 per square foot, while mid-rise development with surface parking is generally the preferred option outside of the Central City area. Much of the low-rise office space available has been built on relatively low-cost industrial land in flex buildings. Examples of this type of construction would be the Beaverton Creek Industrial Park in Beaverton, Evergreen Corporate Center in Hillsboro, and the SunTech Corporate Park in Hillsboro. Mid-rise construction examples would include developments such as Kruse Woods (Lake Oswego) and Dawson Creek Corporate Park (Hillsboro). High-rise examples are found primarily in the Portland CBD, and include the recently completed Fox Tower.

Market factors cited by developers interviewed reflect reproducible financial realities. Widespread adoption of higher density development forms without active public sector participation will require a substantive change in achievable rent/lease levels.

RETURN ON RISK

Urban and redevelopment projects are perceived to have a greater level of risk, necessitating a higher level of return for some developers. Particular problems cited included difficulty in construction (staging, conflict with existing uses) and relatively high soft costs associated with complex projects with limited scale. In addition, developers cited interaction with jurisdictional planning efforts in Urban Centers as sometimes representing an additional layer of entitlement risk and bureaucracy. There are developers willing to accept lower initial rates of return for urban projects, on the anticipation that barriers to entry in these areas will allow for better long-term returns.

The primary impact of a relatively high perceived level of risk is the resulting impact on acceptable rate of return. Increasing the return threshold can dramatically impact development activity. As an example, increasing the acceptable return on a mid-rise rental apartment development from 9% to 12% would increase required rent levels by a third, and would require the land price to shift from \$15 to \$42 for this to be the highest and best use.

Risk is also a particular concern when dealing with redevelopment, where construction cost estimates and timing are less predictable. Redevelopment is discussed in more detail later in this chapter.

SCALE

The scale of most infill and redevelopment opportunities is limited, while the complexity is substantially higher. This increases soft costs relative to the overall level of investment, decreasing yield. Soft costs include the following basic categories:

- Architectural and Engineering
- Developer Fee
- Construction Interest
- Legal
- Market Analysis
- Bank Fees/Appraisal
- Permits & Fees
- Pre-Development Costs
- Community Outreach

TIMING

While our analysis supports the market limitations cited by developers, it should be noted that these limitations reflect current market conditions. Over a longer planning horizon, shifts in usage patterns and land values may substantively alter the development environment. If achievable rent levels increase substantively within the metropolitan area and/or the Urban Centers, many of the higher density development forms envisioned in the 2040 Plan would become more viable. In other words, the high-density product may in fact be in demand today by consumers, but today's land prices

do not support a high enough rent to make the high-density product the most profitable land use.

There have been some efforts to allow for current development that does not preclude development at higher densities at a later time. This is an important consideration, as development under current market conditions is not expected to yield targeted densities but can limit redevelopment opportunities. Shadow platting is an approach being used by some jurisdictions. This process requires developers to design their developments to achieve targeted densities over time, while still allowing for a viable project under current market conditions. A successful example of this type of project was the Murray Scholls Town Center, a mixed-use project recently completed by Gramor Northwest in a designated Town Center. The project has been successful from a market perspective, while retaining the ability to support additional density when supported by the market.

REDEVELOPMENT

A large proportion of the land in Urban Centers has been developed, and a key source for additional capacity within these Centers is therefore the redevelopment of existing properties. But while current uses may not represent what would be considered the highest and best use of a site from a public policy perspective, redevelopment is often not viable from a market perspective. A specific example of this is the auto dealers in areas such as the Beaverton Regional Center, which yield less than optimal densities while remaining economically viable. Redevelopment requires several definable conditions to be viable, which are outlined in this section.

A ratio of improvement to land value is typically used to identify parcels with development or redevelopment potential. This ratio attempts to identify parcels in which the value of the improvement is relatively low relative to the value of the land. The following are some limitations of this type of analysis:

- Not all of the vacant parcels are being actively marketed, and a property owner's decision to sell is not always predictable and can be based on personal as well as economic factors.
- The data used to quantify the value of improvements is derived from County Assessor records and is not always reliable.
- A large number of the properties identified as redevelopable have a significant economic value in their current configuration, which is likely to be greater than the value of the land for redevelopment. Under these conditions, it would not be reasonable to assume redevelopment of the property from market forces, particularly for office or residential development (which support relatively low land values). Table 2-9 outlines the underlying land values necessary to redevelop two relatively low-density existing development forms.

Using these examples, the value of the property under a current single family or retail use is significantly greater than the value of that land for redevelopment as office space or multi-family residential. As a result, an office developer willing to pay \$8.00 per square foot for office land would be unable to purchase either site for redevelopment. It would cost more than \$8 per square foot to acquire either site given the high value of the existing uses.

Table 2-9: Land uses for redevelopment

	Current Use: Single Family	Current Use: Retail
Lot Size/S.F.	10,000	10,000
Land Value	\$40,000	\$100,000
Land Value/S.F.	\$4.00	\$10.00
Improvement Value	\$80,000	\$150,000
Total Value	\$120,000	\$250,000
Add Demolition	\$10,000	\$20,000
Total Cost of Land	\$130,000	\$270,000
Cost of Land/S.F.	\$13.00	\$27.00

Source: Johnson Gardner

One of the key variables to track in determining the viability of redevelopment is residual land value, or the value of land under alternative development programs. The following are conditions under which redevelopment is likely.

- The land value necessary for the proposed development to be financially feasible is greater than the sum of the land value and improvements under the current use;
- The return associated with improving a property yields rent premiums capable of amortizing the associated costs; or
- Depreciation of the improvements on a property has reached a point to which the improvement has no effective value.

The factors impacting the viability and/or probability of redevelopment in a specific area are numerous, making it difficult to generate a reliable delineation of sites for redevelopment. Key factors include:

- **Owner disposition.** This factor includes a broad range of variables, including the property owner's level of capitalization, investment objectives, risk sensitivity, availability and terms of credit, perception of return, etc.
- **Current lease structure.** The property's current lease structure and term may either preclude major improvements or reduce the potential for realizing a return on enhancements or improvements. An example

of this is often found in retail leases, which have relatively long terms with extension options.

- **Leaseholder disposition.** The leaseholder's disposition is also a contributing factor to improvements, as the leaseholder's willingness to bear the burden of increased rents associated with improvements is critical. In addition to the current leaseholder, the general market for space and the disposition of potential lessees is also an important factor impacting the viability of improving a property.
- **Regulatory environment.** The ability to successfully complete an improvement also relies upon the local regulatory environment, including building and zoning code applications.

One of the most prevalent errors made in encouraging more intensive development in an area is to require densities and development forms that are not viable. This precludes any unsubsidized development in the area. To the extent that development does not occur, densities and land values will not increase to the threshold necessary to trigger the desired development forms. As outlined in the financial portion of this chapter, the desired higher-density development requires an increase in achievable rent levels and land values to be viable.

Urban development forms represent an organic and iterative development process, in which development activity increases densities and demand, triggering redevelopment and higher densities over time. There are two primary regulatory risks that have the potential to work against achieving the desired development pattern:

- Regulatory mandates on density and form which require development types that are not currently viable without subsidy; and
- Regulatory restrictions that force a development to configure in a manner that precludes redevelopment at higher densities when viable.

The first of these risks is likely to leave the area undeveloped and bypassed as an area in which development activity is concentrated. As a result, land values and activity levels will not move towards the levels required to achieve the desired development forms. The second risk would lock in lower density development forms, even if market conditions justify higher density development later in the planning horizon.

COMPETITIVE ISSUES

The financial section of this chapter identifies substantive changes in achievable rental rates as a key factor necessary to increase achievable densities within the Urban Centers. Achievable rent levels for real estate products are driven primarily by basic supply and demand factors. A significant impediment to the Urban Centers realizing substantive changes

in rent levels is competition from other areas, often neighboring Urban Centers.

An example can be found in designated Regional Centers, many of which are participants in the same sub-regional market for certain goods and services. Regional Centers such as Gateway and Oregon City are quite close to the Clackamas Regional Center, which has developed a regional office space concentration. There are substantial benefits from agglomeration in office space, favoring existing concentrations. There is insufficient need at this time for three major office concentrations along the I-205 Corridor, and achieving the targeted densities will be extremely difficult without a substantial level of office space development. Pending development of the Cascade Station property east of the Portland International Airport will drain additional office space demand and exacerbate the problem in these Centers.

Another competition related problem for the Urban Centers is the loss of traditional office space demand to industrially zoned land. Office development tends to be an outright allowed use in most industrial zoning designations, and returns a substantially higher land value. As a result, business parks that can support office space development such as Amberglen and Cornell Oaks have largely converted to office parks, offering a substantial amount of Class A office space. Office space is typically classified on the basis of quality, with space delineated as either Class A, Class B, Class C or Rehab. Class A space represents high quality, well designed projects using above-average materials and workmanship. These buildings are considered the most desirable in their markets. In downtown Portland, Class A space would include most of the high rise buildings completed in the last twenty years. Typical suburban Class A space can be found on Kruse Way in Lake Oswego.

Similar issues impact the residential market. While there is less benefit of agglomeration for housing, only highly desirable housing markets can support the values necessary to allow for high-density residential development, particularly ownership. Only a limited percentage of households are considered likely consumers of urban density housing products, and the pool can become quickly diluted. To achieve the relatively high prices necessary to support densities seen in the Pearl District requires a package of urban amenities that is not easily duplicated elsewhere in the metropolitan area.

POLICY ISSUES

Public policies can abet or impede the ability of developers to build to the desired densities. We discuss all of these policies in more detail in the next chapter. The following are examples of public policies that, while having merit in meeting other public goals, tend to increase the difficulty of building at the densities envisioned for Urban Centers. Some policies remove land from the buildable land inventory, thereby decreasing achievable gross densities. Other policies increase the cost and time required to build at

higher densities. Still other public policies, like traffic access restrictions and political responsiveness to community concerns, have a more direct effect by not allowing higher densities at all.

- **System development charges and other fees.** Related to the financial feasibility above, the application of SDCs and other development fees might be a critical factor in affecting the rate of redevelopment and infill, and the density of development. SDCs have a useful role in charging development for the costs it imposes on infrastructure. They do not, however, always acknowledge the cost-saving potential of redevelopment and infill. Redevelopment and infill can often take advantage of excess capacity of existing infrastructure, or can allow greater transit use and impose fewer costs on area roads. Given the other financial difficulties involved in redevelopment and infill, the imposition of SDCs or other development fees that do not consider the lower costs of using existing infrastructure can be a critical force in discouraging redevelopment and infill.

An additional characteristic of SDCs is that they tend to depress land values, changing the highest and best use equations to favor lower density development forms.

- **Lengthy planning and permitting processes.** Developers interviewed felt that jurisdiction-level planning exercises for Urban Centers were often detrimental to development in these areas. Development activity was often delayed until planning efforts could be completed, and the resulting plans placed development restrictions that negatively impacted the development potential of properties. Developers also pointed out that securing entitlements is taking longer, with the pre-development period stretching from two to six years.
- **Outdated development standards.** The working paper on regulatory and parking evaluation conducted as part of the 2040 Means Business study in 1996 found that existing codes at that time penalized innovation by either not allowing or requiring too many variances for planned unit developments (PUDs), in-fill, zero-lot-line development, accessory dwelling units, and other innovative development techniques. Codes also required wide roads, disconnected street networks and a clear separation of uses. Since 1996, progress has been made in the revision of zoning and development codes, but some jurisdictions still have room to improve to allow flexibility and innovation in achieving higher densities.
- **Parking requirements.** There is a quandary inherent in high-density development with respect to parking requirements. On the one hand, higher-density development can require less parking per person because it facilitates walking, cycling, and transit use. On the other hand, financial underwriting requirements and various covenants, conditions and restrictions (CC&Rs) require certain parking ratios in

order for development to be financed. Unless parking is provided, higher-density development will not occur. If the parking is provided as surface parking, the amount of land used for buildings is significantly lowered, counteracting the higher density in the buildings that are constructed and leading to an ambiguous effect on gross densities. The less land-intensive use of structured parking is a potential solution, but it is more expensive, as described in the financial feasibility section above.

- **ODOT restrictions on access to state facilities.** These restrictions can limit development densities in Urban Centers. In the Phase I report, the city of Cornelius cited this as an issue with respect to Highway 8. Increased density almost always leads to increased trip generation. The developers we interviewed said that ODOT objects to any application that would add trips to their road network.
- **Community resistance.** Both local political leaders and the citizens they represent may be reluctant to increase densities in their jurisdiction for a variety of reasons. Developers we interviewed pointed out that, while jurisdictions require higher density development forms, public reaction is often extremely negative and little support is offered developers in public hearings. A prominent cause of reluctance is the continued belief that high-density development decreases quality of life by increasing noise, visual effects, and other detrimental characteristics that accompany increased commercial and residential activity. Community character is often cited as a reason to preserve the status quo of low-density development with ample setbacks, low building heights, and surface parking.

SUMMARY

The following are the key findings of our analysis in this chapter.

- **Site issues, market issues, and policy issues combine to limit higher-density development in Urban Centers.** Site issues include environmental constraints, infrastructure constraints, and site size constraints. Market issues include most prominently the issue of financial feasibility. High land values and high rental or lease rates to support these values are needed to make high-density development and the structured parking that it requires financially feasible. Other market issues include the difficulties of redevelopment, and competition between centers. Policy issues include various things the public sector does that decrease the feasibility of higher density development in Urban Centers.
- **The primary reason for underbuilding in urban areas is the lack of financial feasibility.** There is little evidence to support the conclusion that the high densities required in urban centers are profitable under current market conditions, and that developers and

property owners are either unaware that they could make more money by building denser, or prohibited from doing so by physical or policy constraints.

- **Land values are good indicators of when density becomes profitable.** Land values reflect the interaction of demand and supply conditions. If land values stay low, density does not work financially. If the public sector wants the private sector to build more densely it must do something to affect demand and supply conditions so that land price increases, or it must subsidize development cost so that there is profit to developing more density before the market would otherwise provide it. The next chapter provides a long list of possible policies.
- **Zoning is still ahead of the market.** We started this chapter—in fact, this project—with the observation from planners in local jurisdictions that in many Urban Centers "the zoning is ahead of the market." Our analysis supports that conclusion, and goes farther to explain why. Market conditions and public policy have not made land scarce enough, have not made central locations superior enough in terms of transportation or amenity, and have not seen demand great enough to cause land values to rise fast enough in urban centers that rents can be demanded that make high density profitable.
- **The fact that zoning is ahead of the market is not a condemnation of public policy.** Planning is looking ahead to encourage the metropolitan area to be a metropolis it is not quite ready to be. Getting lower than planned densities should be expected. Where the public and private sectors can conflict, however, is when the public sector requires, either directly or indirectly, minimum density that the private sector cannot profitably build. In that case, development slows in the short and medium run as land is held for the appreciation in value that would justify those densities. If such restrictions hold, the public sector eventually gets what it wants: the pent-up demand drives up land prices until higher density works. The question the public sector, which has some control over that process, must answer is the following: *Are the benefits of higher density worth the administrative and political cost of maintaining these restrictions, the probable slowing of development in the short and medium run, and the possible decrease in affordability that may result?*

What Policies Are Likely to Be Most Effective in Increasing the Densities of Development?

FRAMEWORK FOR EVALUATING POLICIES

Metro's work in Phase I of this project suggests that the density of development in designated Urban Centers is lower than the densities desired by policy and allowed by zoning. Chapter 2 explains the reasons for that effect. This chapter compiles and evaluates a list of policies designed to increase development densities.

We divide the policies into two categories: **incentive-based approaches** and **regulatory approaches**. The incentive-based approaches are typically voluntary and offer various 'carrots' to developers to encourage them to build at higher densities. The regulatory approaches are not voluntary. They are requirements, and can take at least two forms. First, they can require that developers in Urban Centers meet density goals through mandated policies. Second, they can require things in other zones that increase the costs of development in those zones, making development in Urban Centers more attractive by comparison. These policies do not directly encourage higher-density development in Urban Centers, but they encourage redevelopment and infill in Urban Centers, a precondition for increased densities.

Every policy that we list fits into one of these two categories. That is both an advantage (the categories are comprehensive) and a disadvantage (the categories may be too broad). To reduce the disadvantages, we use the categories only as an organizing principle, and focus our evaluation on specific policies.

In fact, there is another category of policy that we are not evaluating: do nothing (no new policy). That may be a reasonable policy if:

- *The difference between actual and zoned densities is small.* ECO has ample experience with evaluation of density in Oregon. With rare exceptions, the actual density of development is lower than the allowed density. The reasons are clear: (1) allowed density is defined as the maximum density zoning permits, so achieving greater density requires a variance; (2) at least in Oregon, maximum densities in areas meant to be dense (like downtowns and Urban Centers) have typically been set high enough to allow any density the market might be willing to provide; and (3) few jurisdictions have adopted *minimum* densities (though in the Metro area nearly all jurisdictions have done so through minimum FARs). Our work has typically found the actual densities of residential development to be 60% to 80% of the maximum densities allowed by zoning. Our case study work on that topic in 1993

found the Portland area to have the highest percentage of actual-to-allowed residential density: about 90%. Given that there will always be a difference, if the difference is small then a reasonable policy might be to "do nothing."

- *The expected cost of new policies exceeds the expected benefits.* In theory, it is easy to see how this could be the case. If actual densities are only slightly lower than allowed densities, and the incentives or regulations to get more density would be very expensive to either the public or private sector, then "no new policies" may be the efficient decision. Or it could be that the externalities associated with achieving densities create a greater social cost than the anticipated direct social benefit of the higher density.

In the rest of this chapter, however, we proceed from the assumption that policymakers will want to do something to bring actual and allowed densities of new development closer to each other, and we evaluate ways that that could be done.

We keep the evaluation simple, looking at four criteria:

- **Effectiveness.** How great an effect is the policy likely to have on increasing density, given the likely range of its application and the existing policy framework in the Metro region?
- **Cost.** What will it take to implement the policy?
- **Equity.** Who is likely to pay that cost?
- **Side effects.** What other effects might accompany the policy if it is implemented?

Entire studies have been done on each of the many policies we are summarizing. Our charge in this study is synthesis, not analysis. We are trying to provide a broad overview for Metro Council so that they can decide which changes in policy, if any, are likely to be, on net, beneficial.

INCENTIVE-BASED APPROACHES

Table 3-1 summarizes the different policy tools government can use to make it *easier* for developers to do what elected officials, and the citizens they represent, *want*.

The table is organized from the least direct to the most direct incentives. The first four *allow* density to occur. The next two provide guidance or information that facilitates density. The next three provide financial incentives through regulatory relief—not a direct transfer of funds, but a means of allowing a developer to keep more of its financial resources. The final four provide direct financial assistance to developers.

Table 3-1. Incentive-based approaches

Policy	Mechanism; Comments	Effect on Density	Cost	Who Pays	Side Effects
Allow dense development					
Increased permitted density	Allows densities at higher level than previously allowed	In theory, strong. In practice, no potential in region. The assumption in this study is that density is already allowed but still not being built.	Small: requires change to zoning code	Taxpayers through local government	Perceived impact on community character
Density bonus					
Accessory apartments on residential lots	Zoning code specifically allows more than 1 unit on a lot Need to ensure good design	Moderate: Usually allows only two units per lot. Already allowed regionally as part of Metro Functional Plan.	Small: requires change to zoning code Low-cost unit makes sense for owner	Taxpayers through local government pay for zoning change Cost of unit paid by owner	Allows affordable housing in established neighborhoods; homeowner receives rent income Neighborhoods get impacts of more density, but typically smaller than impacts of larger projects
Purchase or transfer of development rights	Permits owners of land in development-restricted area to sell or transfer development rights to owners in development-encouraged districts	Moderate: Would not increase density in the aggregate, but could increase it locally in Urban Centers. In practice, little potential in region as high density is already allowed in Urban Centers.	Costly and difficult because of complex individual transactions at both ends Suitable development sites must be identified	Landowners in high-density areas pay for low-density areas' loss of value, and for transaction costs	
Mixed-Use zoning	Allows flexibility to mix uses This policy can be either an incentive ("allow") or a regulation ("require")	Weak: May or may not increase density. Already allowed in Urban Centers.	Small: requires change to zoning code	Taxpayers through local government	Shorter trips More transit use Potential conflict between uses
Reduce planning and information costs					
Specific-Area development plan	A master plan that includes more detail than is usually found in a zoning ordinance; used to guide redevelopment, infill, and high-density development	Moderate: guides but does not incent development. Does not necessarily focus on high-density development	Small: cost of planning	Taxpayers through local government Developer builds structures	Can be used to encourage transportation-efficient land uses
Research and education	Collection and dissemination of data. If public policy is right—that density is a good idea that the market is not quite ready for—then part of the problem could be that the market (both developers and consumers) are not understanding its long-term advantages.	Moderate: changes perceptions of costs, not costs themselves. For the market to be affected, the long-term advantages must be tangible enough to consumers that they are willing to pay for them.	Small to moderate	Taxpayers through local government Foundations through non-profit research organizations	None
Provide regulatory relief					
Regulatory relief: permit process	Streamline permitting Local gov't can make all permits available in one place, make all info about requirements to secure a permit readily available, and allow flexibility for innovative development	Moderate: direct effect on the cost of development, but not specifically on cost of high-density development	Small: requires re-organization of processes	Taxpayers through local government	Can reduce oversight and allow potentially undesirable projects Encourages all development, not just 2040 Center or high-density development

Policy	Mechanism; Comments	Effect on Density	Cost	Who Pays	Side Effects
Regulatory relief: fee reduction	Wide range: reduces SDCs, building fees, exactions, etc.	Strong: direct effect on the cost of development Especially strong if targeted for high-density development only	Moderate: loss in revenue to local government	Taxpayers through local government	Reduces funding for other local services
Regulatory relief: design standards	Wide range: allows narrower streets, less parking, smaller setbacks, less landscaping Saves land for buildings	Strong: increases density directly and can decrease developer costs by increasing revenue-generating space	Small: requires change to zoning code	Taxpayers through local government	Narrow streets encourage car traffic to drive at a slower pace, creating a more pedestrian-friendly environment, but may increase congestion Less parking may lead to increased transit usage, but mandating less parking may discourage development
Provide direct financial incentives to developers					
Land assembly	Acquisition, by voluntary negotiation or eminent domain, of contiguous parcels to create large developable tracts	Strong: increases desirability of Urban Centers Does not necessarily increase the desirability of higher density development within the Urban Centers	Moderate	Taxpayers through local government	Reduces demand for "greenfield" development and reduces pressure on rural areas
Subsidy for development/public investment	Direct grants or guaranteed or low-interest loans for land, infrastructure, parking, etc. Parking subsidy is helpful for structured parking, which is needed for high density development	Strong: direct effect on the cost of development Increases the desirability of Urban Centers Does not necessarily increase the desirability of higher density development within the Urban Centers, unless the subsidy is for structured parking or other high-density facilitators	High: significant use of public funds	Taxpayers through local, state, or federal government Financing tools include Urban Renewal (Tax-Increment Financing) or non-local funding sources	Creates expectations and precedent Diverts resources from other public services
Location Efficient Mortgages	Fannie Mae recognizes that people save money by living close to workplace and commercial districts, raises level of available loan. Only available in 5 test market metro areas in US. Not available in Portland	Increases demand for urban infill housing Does not necessarily increase density within that urban infill	Moderate	Fannie Mae assumes greater risk by raising loan amount Homebuyer pays for house	Could increase housing prices in inner-cities, unless developers respond to increased demand by building more infill.
Split Rate Property Tax	Shifts property tax to value of land, eliminating tax on capital improvements Encourages developers to spend less on land and more on improvements, thereby increasing density	Moderate: some states mandate equal tax for property and capital improvement A. Downs reports these taxes have been ineffective at stopping growth or making regions compact	Small: little change to total tax	Landowner pays tax Large lot residences in inner core will see property taxes rise	

Source: ECONorthwest

Many of these approaches are not necessarily focused on increasing density, but on encouraging redevelopment and infill in Urban Centers. Redevelopment and infill are important because of the already developed landscape in Urban Centers. It is possible, however, that new development in Urban Centers could continue to be at lower densities.

We summarize what we believe to be some of the key points related to incentive-based approaches, with the caveat that these are our judgments and that others may come to different conclusions:¹

- Taxpayers usually pay for these approaches through increased costs to local government.
- Many incentives encourage development in Urban Centers but do not directly address the density within the Urban Centers. That said, redevelopment and infill in Urban Centers is a necessary precondition to higher density in Urban Centers, given the lower-density development that presently occupies much land in Urban Centers.
- Some incentives make all development easier, not just development in Urban Centers or high-density development.
- Most of these incentives have other side effects, some of which are intended and beneficial, others of which are unintended and negative.
- Local jurisdictions in the Metro area have already tried many of these incentives, particularly those that merely allow high-density development.
- Given that the problem defined in Phase 1 is that development is occurring at density lower than permitted, expanding on the first category of incentives is not likely to have much of an effect on the density of new development.

REGULATORY APPROACHES

Table 3-2 summarizes the different policy tools government can use to make it *harder* for developers to do what elected officials, and the citizens they represent, do *not want*.

¹ Though Table 3-1 contains a lot of information, each row has been the subject of several, if not dozens of articles and book chapters. The literature is not unanimous about all the characteristics of these policies.

Table 3-2. Regulatory approaches

Policy	Mechanism; Comments	Effect on Density	Cost	Who Pays	Side Effects
Require higher density or make lower density more difficult <u>inside</u> Urban Centers					
Minimum-density zoning	Requires that development meet some minimum requirement for density Uniform application throughout jurisdiction or region ensures development doesn't shift to a less restrictive zone	Strong: ensures minimum expectations are met But can preclude any development if market is not ready for higher-density development Already done in most jurisdictions as per Metro Functional Plan	Requires fundamental change to zoning code and comprehensive plan Reduces the value of land when it precludes development of the property under its highest and best use	Taxpayers through local government for code or plan changes Landowners lose value if highest and best use was at the lower density zoning	Unless minimum density accurately reflects the market, the regulations could drive some developers to other parts of the region or outside the region, where they can develop at lower densities.
Interim development standards	Regulations that limit development through large lot zoning, development moratoria, or land banking until the land can be developed at planned densities	Moderate: prevents lower than desirable density for areas that will become part of the urban area in the future. Not as relevant in already urbanized areas such as Urban Centers	Small: requires change to zoning code and possibly Comprehensive Plan Possible temporary lowering of property values on the urban fringe	Taxpayers through local government for the code and plan changes Landowners on the urban fringe have loss in property values	Can divert demand to substitution markets, which may reduce pressure on rents necessary to achieve higher densities in the future.
Shadow platting	Allows placement of buildings to allow future infill	Strong: prevents preclusion of higher future densities but allows development to occur.	Small: additional planning, some higher development costs	Taxpayers through local government for planning Developer pays for any additional costs of development	
Mandated mixed use	Requires commercial uses to mix with residential.	Weak: may or may not increase density	Small: requires change to zoning code	Taxpayers through local government Developers pay for the development	Shorter trips More transit use Potential conflict between uses
Restrict or raise the cost of development <u>outside</u> Urban Centers					
Restrictions on land development outside of centers	UGBs, zoning, limits on service extension	In theory, moderate: Straightforward economics: reduced supply of developable land in the region>increased price of developable land throughout the region>increased density where development is allowed In practice, effect depends on how tight the UGB is kept UGB allows devt outside Urban Centers if within UGB	Loss of land values outside the UGB or service areas	Landowners whose land values drop	Land values within the UGB or service area increase; as a result, high densities are required to avoid excessive housing costs. Higher densities do not address housing costs when the density form requires higher rent levels.
Developer Impact Fees	Local government charges fees to defray cost of new infrastructure and facilities at urban fringe Raises price of greenfield development	Moderate: ineffective if not implemented throughout region Fees are continually challenged by developers	High cost to developers	Developers, who may pass costs on to homebuyers or businesses	Can decrease development regionwide

Regulatory approaches can impact development both in and out of Urban Centers. Within Urban Centers, government can mandate density levels, making it harder to develop at low densities. The first four approaches in Table 3-2 are examples of this strategy. Outside Urban Centers, government can raise the cost of development by adding fees and other discouraging mechanisms, thereby encouraging development in Urban Centers. The last two approaches are examples of this strategy. Note, however, that while these approaches encourage development in Urban Centers, they do not guarantee that the density will occur at the high levels desired.

We summarize what we believe to be some of the key points related to regulatory approaches, with the caveat that these are our judgments and that others may come to different conclusions:

- The costs of regulations are initially borne by developers, not local government. Developers may pass the costs on to homebuyers and businesses, or back to the landowner. Developers are unlikely to bear any substantial portion of the cost over the long run.
- Mandating densities may preclude any development at all if financial feasibility only exists for lower density development. There are two views of this outcome. One view is that the land values will eventually increase to facilitate the mandated density, as regional growth meets the supply constraints of the UGB. Another view, however, is that ongoing, steadily intensifying development is the most effective way of creating the higher land values that will lead to higher densities, and that density minimums that effectively stop development lead to decreasing land values that undermine the goal of higher density. Under either view, achievable rent levels would need to increase substantially in order for the market to develop to the higher densities.
- Among the factors in keeping land prices high so that higher densities can occur is the existence of the Urban Growth Boundary, as well as high demand for the quality of life and economic opportunities offered by the region.
- Regulations that restrict development outside of the UGB do not guarantee that development will occur inside Urban Centers. Development may instead occur elsewhere within the UGB. However, the existence of the UGB will raise overall land values in a way that makes the high-density allowances of the Urban Centers more appealing.
- Regulations that restrict development within the UGB outside of Urban Centers do not guarantee that development will occur within Urban Centers. The businesses that currently use suburban land may not find it profitable to do business in Urban Centers. The result could be that this section of the economy, rather than re-locating in a denser

environment in Urban Centers, will simply disappear or re-locate outside the region. To the extent that the economy of Urban Centers depends on the existence of these other segments of the economy, the economy of Urban Centers could be weakened rather than strengthened by these regulations.

- The regulations that restrict development outside of Urban Centers do not necessarily guarantee that the development within Urban Centers will be at higher densities than at present. That said, redevelopment and infill in Urban Centers is a necessary precondition to higher density in the Centers, given the lower-density development that presently occupies much land in them.
- Regulations can create cross-jurisdictional movement if not uniformly applied across all jurisdictions.

Tables 3-1 and 3-2 condense (and over-simplify) a lot of information about policies to increase urban density. There is plenty to discuss but, in our opinion, little that has not already been discussed in the Portland region. In the next chapter we discuss a subset of the policies that we think are more likely to have measurable effects on density in the Urban Centers.

Based on our analysis, consideration of the economic and financial issues, and our interviews with those in the development field, we have come to the following conclusions about density in Urban Centers.

MARKET FEASIBILITY

- Though the public sector regulates development, the great majority of new commercial and residential development is provided by the private sector.
- The simple view of how development decisions get made approximates what actually happens. The private sector will build what it can make a profit building. Risk-adjusted profits on real estate products require that they be sold at prices above cost. Selling at those prices requires adequate demand for the products at the necessary price points.
- The fact that development occurs at densities less than plans and zoning allow suggests that developers believe that consumers (households and businesses) will not currently pay prices for denser products that will deliver the same risk-adjusted rate of return that they can expect from more conventional, lower-density products. That belief is, in general, supported by our modeling of the financial performance of such products. The denser, less-conventional products can work in certain circumstances, but market conditions are such that more conventional products currently make more sense for more businesses and households.
- The key economic explanation for why higher densities are not supported by the market is that land costs are not high enough. The yield on high-density development is more compelling when land costs are higher.
- Higher land costs are a function of higher achievable lease rates, which reflect a combination of constrained land supply (limiting opportunities for substitution) and strong market demand.
- If an urban growth boundary (UGB) is to achieve some of its intended goals (e.g., protection of farm land, greater efficiency of urban development through greater urban density), then both the cause and result of that effect will be increased land prices inside the UGB, especially relative to prices outside the UGB. Those prices increase, in part, because a UGB constrains land supply, at the margin.¹ In the

¹ We do not join here the debate about the effects of UGBs and the desirability of those effects. We are simply stating the majority opinion of urban economists: a UGB achieves its purported desirable effects by constraining the supply of developable land.

1980s the effects of that constraint were not strong because demand was not great and the supply was not very constrained. Both those conditions shifted in the late 1980s and 1990s.

- The highest prices for land, in the Portland area, as in metropolitan areas around the country, are in the central city. The high prices define the central city. They result from the fact that central locations in a metropolitan area are valuable, and land at the central location is limited. The result is that businesses and households will pay more for land at a central location, and they are willing to economize on the expensive land by accepting more density.
- Because higher achievable rents are needed to justify the higher land prices that support higher densities, rent-related costs to residents and businesses must be higher in real terms to offset the higher costs.
- All of these points are a longer description and an explanation of the observation made in the previous phase of this study that in Urban Centers "the zoning is ahead of the market."

THE ROLE OF PUBLIC POLICY

- Public policy can play an important role in making it easier for developers to build at high densities, and making it harder for developers to build at low densities.
 - Allowing higher density will not achieve much more in the Metro region, since higher densities are already allowed. Financial or permitting incentives have a higher possibility of increasing density in Urban Centers.
 - Encouraging or requiring development in Urban Centers will not guarantee higher densities in the Urban Centers, but more development in Urban Centers is a necessary precondition to achieving higher densities.
 - Discouraging certain types of development outside Urban Centers will not guarantee higher densities in the Urban Centers, though it will theoretically move development in that direction.
 - The problem for public policy is that *the net effects of such policies cannot be predicted with any certainty*. Incentives and regulations to increase density in Urban Centers will have other effects on regional characteristics such as economic development, affordability, and wealth distribution. For example, reducing land available for office development outside Urban Centers would, at first glance, appear to have the effect of increasing office development (and, hence, density) inside Urban Centers. But (1) it is theoretically possible that such restrictions could lower total office development for the region or a sub-area of the region, and

(2) the other impacts on businesses and property owners of such a change in policy could be negative and largely offsetting to the additional benefits of more density in Urban Centers.

- Timing is key. Because current market decisions are influenced by past policy decisions, any change to development patterns in response to policy changes will occur slowly. Short-term market responses to policy changes may be negative as the previous market retracts from an area and the intended market takes time to enter the area.

MOST EFFECTIVE WAYS TO INCREASE DENSITY IN URBAN CENTERS

In this section we provide a list of policies that Metro and local jurisdictions could follow if they wish to increase the likelihood that Urban Centers will be developed closer to the allowed densities in a relatively short (less than 10-year) timeframe. These policies are not necessarily recommendations; they would only be recommendations if Metro and local jurisdictions wished to increase the density of Urban Centers, *regardless of other effects of the policies* (such as decreased affordability, lower land values for suburban land owners, etc.). We mention these side effects, but we do not evaluate their costs compared with the perceived benefits of higher density: such an evaluation is outside our scope of work.

In other words, we list policies that we believe are the most *effective* ways to increase density in Urban Centers. They may not necessarily be the most *efficient* from an economic perspective, nor the most *equitable* from a societal standpoint.

Most of the policies described below are ones already in place, at some level, in Urban Centers.

CONTINUE TO ALLOW DENSE DEVELOPMENT

- Local jurisdictions could keep allowed densities ahead of the market, subject to environmental and infrastructure constraints, and could continue to allow accessory dwelling units. This policy may not do much to increase demand for higher density, but it at least keeps public policy from discouraging the increases in density that the market is willing to provide.
- Mixed-use zoning could remain in Urban Centers. This zoning adds flexibility, allowing developers to pick the mix of uses that make high-density development financially feasible. Requiring mixed-use zoning, though, as opposed to allowing it, *reduces* flexibility and can increase costs and decrease the likelihood of higher densities.

REDUCE ENTITLEMENT, PLANNING, AND INFORMATION COSTS TO DEVELOPERS

- Local jurisdictions could use specific-area development plans to guide redevelopment, infill, and high-density development within Urban Centers when it is likely that the plans would help developers understand the requirements and possibilities of Urban Centers.
- Metro and local jurisdictions could continue to conduct research and education, which can point out the benefits of higher densities and the ways in which costs can be lower than originally perceived.

PROVIDE REGULATORY RELIEF

- Local jurisdictions could streamline the permitting process for development in Urban Centers—not by removing oversight from the process, but by centralizing permitting information, making permitting information more accessible, and allowing greater flexibility for innovative development where possible.
- Local jurisdictions could consider the use of targeted fee reductions for high-density development, especially that which uses existing excess infrastructure rather than requiring new infrastructure.
- Local jurisdictions could review their design standards for ways to allow greater density through narrower streets, lower parking ratios, and smaller setbacks.

PROVIDE DIRECT FINANCIAL INCENTIVES FOR DEVELOPMENT

- Local jurisdictions, possibly through urban renewal districts, could assemble contiguous developable parcels in Urban Centers to create large development sites that are more attractive to developers. Voluntary negotiation is usually preferable to eminent domain for political reasons, but it takes longer.
- Local jurisdictions could use public funding (e.g., the tax-increment financing available through urban renewal districts) to lower the costs of development in Urban Centers. The establishment of joint ventures with developers, particularly with land purchase and the construction of structured parking, is a key possibility. Placing the necessary infrastructure in advance of anticipated development is another important method. Assistance could be of a fixed duration, tied to project-specific minimum density requirements, and financed with the additional tax revenue collected as a result of increasing property values in the Urban Centers.

REQUIRE HIGH DENSITY WITHIN URBAN CENTERS

- Local jurisdictions could continue to maintain minimum-density zoning requirements in Urban Centers. If minimum zoning requirements are set too high, however, they can stifle the organic, iterative process that causes development to gradually intensify and land values to rise high enough to support gradual densification. Exceptions may exist where minimum-density zoning requirements might be temporarily ahead of the market, but where future land prices are expected to rise to a level where the market will build at that zoning. In this case, the Urban Center must be perceived to be desirable enough that it will eventually develop even if new development has been temporarily halted by minimum-density requirements.
- Local jurisdictions could encourage or require the use of shadow platting, which requires the placement of buildings in a way that allows future infill at some minimum density. Unlike simple minimum-density requirements that are ahead of the market, shadow platting allows development to occur and generate the gradually increasing land values that are absent in the case of a *de facto* development moratorium. At the same time, shadow platting arranges the buildings constructed in the early phases of development in a way that allows future buildings to be placed on the site in an infill manner, increasing density without requiring demolition of existing buildings. Careful consideration must be given to design and streetscape issues so that key streets and intersections are not dominated by unattractive, uninviting, unbuilt space like vast surface parking lots.

RESTRICT DEVELOPMENT AND MAINTAIN A HIGHER COST OF DEVELOPMENT (FULL COST) OUTSIDE THE URBAN CENTERS

- Among the factors encouraging higher density (through its effects on land prices) is the existence of the Urban Growth Boundary.² There are some costs in terms of affordability and equity that are involved in the maintenance of the UGB, but it is probably one of the most *effective* ways to increase density in urban areas in general, and in Urban Centers in particular.
- Local jurisdictions could choose to not extend services to outlying areas within the UGB until it is necessary—for example, until after contiguous growth has occurred in all areas where services have already been provided. This policy would have an effect similar to the effect of the Urban Growth Boundary, only in this case it is within the

² UGBs may have other effects that benefit the region (e.g., effects on quality of life and economic opportunities) that we do not address in this report.

UGB. This will encourage making use of the higher densities allowed in Urban Centers.

- Local jurisdictions could continue to charge System Development Charges and other fees that reflect the true cost of development outside Urban Centers. Previous work by ECONorthwest and others has found that the infrastructure costs of greenfield development can be greater than those of infill and redevelopment that uses existing excess infrastructure capacity. This policy may not provide an advantage for Urban Centers over other urban areas within the UGB, but it may provide an advantage for Urban Centers over more suburban or greenfield sites.

WORK TO MAINTAIN HIGH DEMAND FOR WORKING AND LIVING IN THE REGION

- To increase land prices in the region that will support higher density, it is not enough to constrain the land supply. People must be willing to live and work in the region, and must be willing to pay higher prices to do so. A strong regional economy with a superior quality of life will lead to the necessary high demand. To this end, Metro and local jurisdictions could continue their efforts to maintain and enhance the region's business strength. The efforts of Metro and local jurisdictions to preserve the natural environment and to provide a range of natural and cultural opportunities for regional residents and workers are also very important.

BACKGROUND

The impetus for the research in this report was the finding in Phase I that development in Metro's Urban Centers¹ has been occurring primarily at densities substantially below those that the plans and zoning in those centers allow. That finding, however, was based on anecdotes, not a systematic comparison of data on actual development to zoning. Thus, the first question that this study was to address was:

- Do data on recent development support the Phase I finding of underbuilding?

While substantial research was done on ways available data might be used to answer that questions, the conclusion was that the data were not adequate for the task without more work than the budget or schedule for this project would allow. This appendix documents that conclusion for two reasons: (1) the evaluation was part of the scope of work in the contract; dropping that evaluation requires an explanation, and (2) more importantly, the reasons that the analysis could not be done provide insights into what data would be required to be able to do the evaluation, and have implications both for the evaluation designs of future research and for the data collection efforts of Metro's Data Resources Center.

THE ORIGINAL RESEARCH PROPOSAL

Our scope of work said that Metro was to provide the data for the analysis of the question about actual versus allowed densities. Both consultants and Metro project staff had reason to believe that DRC building permit data would allow the type of analysis proposed.

Thus, we began the project with the assumption that Metro's RLIS database would allow a comprehensive analysis of development, by type, by year, by sub-area (jurisdiction, design type, and local zone). The idea was that Metro data would allow us to match development information from building permits to 2040 design types. Data tracked by the system includes building permits, land use designations, parcel maps and 2040 designations. Ideally, all the Urban Centers and Corridors are defined spatially (e.g., as Geographic Information System (GIS) shape files), all the building permit data are coded

¹ By "Urban Centers," we mean the seven regional centers and 30 smaller town centers in Metro's current 2040 Growth Concept. The different types of urban centers are often referred to at Metro as "design types." The Growth Concept also includes many station areas, main streets, and corridors, as well as the central city, but these areas are not being studied in this analysis. Regional centers and town centers are seen as having the greatest potential for higher density, mixed-use development.

to parcels, and the building permit data contain accurate information about the number of housing units or square footage of built space.

A cross-tabulation of these variables would allow us to quantify recently observed development patterns by urban center designation, and compare the resulting densities with targets. It would allow us to estimate the extent to which targeted densities were being achieved with a high level of certainty in various Regional Centers, Main Streets, Town Centers, and Station Areas throughout the metropolitan region.

DESCRIPTION OF RESEARCH ISSUES

Our investigation revealed that our assumption—that Metro’s RLIS system would be able to provide a detailed profile of recent development activity by 2040 designation and underlying zoning—was not valid.

Our analysis began with the sorting of building permits by center type, jurisdiction, development type, and zoning designation. Once these factors were accounted for, several samples of the permit data were analyzed to determine their accuracy and depth. Our sampling indicates that the data currently within the RLIS system and compiled by Metro staff are neither complete nor accurate enough for the intended use. The main problems:

- *Incomplete data sets.* We found that several jurisdictions failed to provide Metro with complete permit data sets. This included missing permits for projects currently under construction and projects completed within the last five years. A number of substantial projects that the consultant team was aware of were not included in the database sample evaluated. As a result, we have a limited level of confidence in the completeness of the permit data available.
- *Missing development units/size.* When permit data was provided, it often lacked development size in terms of square footage – for commercial developments – and the number of units – for residential developments.
- *Missing or improperly defined parcel designation.* In addition to missing development sizes, development permits were often missing parcel numbers, were given partial parcel numbers, or were mapped to a street location instead of a parcel. The difficulty in matching permit activity to physical parcels precluded calculations of density in a substantial portion of the available data.

In summary, the data currently available, in the form that they were delivered to us, do not allow for a rigorous quantitative evaluation of the question at hand: the extent to which development densities in Urban Centers are substantially lower than allowed densities.

IMPLICATIONS FOR THIS PROJECT AND FUTURE RESEARCH

For this project, we considered three ways to deal with the problems described above: (1) Do more research to fix the data base; (2) Use sampling techniques that would allow us to use the accurate parts of the data set to make valid and reliable inferences; and (3) Abandon the analysis. The first two solutions did not match the contract's schedule and budget. We discussed the reasons with Metro staff, and jointly agreed on proceeding along the third path. The justification, beyond the constraints of time and budget, is that a substantial body of anecdotal evidence about underbuilding has been assembled by Metro. In the absence of better data, we are accepting the assertion that a substantial level of underbuilding is occurring.

Questions about the type and density of development, but sub-area, however, are central to many regional planning efforts, and a long-term solution providing adequate data should be sought. The first two solutions—the ones that would actually help solve the problem—may be practical in the longer run. Metro could do either or both of the following:

- *Get better data from local jurisdictions.* With its data set, Metro is trying to solve a problem that plagues every metropolitan area that we are familiar with: building permit data are collected by many cities in an urban area. There are differences in definitions, the types of information collected, the quality of collection, and so on. Ultimately, Metro must rely on cities reporting the information to Metro. As long as cities see the reporting only as a burden, either missing or dismissing the advantages to them of a standardized regional data base, Metro is stuck. At one point Metro had a contractor assisting with quality control on local permit data, though we understand from staff that such effort no longer occurs.
- *Develop sampling techniques for dealing with the data that are available.* Some jurisdictions collect and report more and better-quality development data than others; some types of data (e.g., number of dwelling units) are more commonly collected and more accurate than other types (e.g., square footage, value). Some jurisdictions use GIS for data entry and display, and could, without difficulty, code permits to a standard coordinate system that would match with Metro's. Since Metro staff, based on years of experience, are probably already most of the way to understanding all the strengths and weaknesses of the data, they should be able to specify sampling techniques that use the reliable data to get approximate answers to the kind of question raised in this study.

BACKGROUND

As a component of our analysis of market limitations to achieving targeted densities, a series of simplified pro formas was produced to evaluate the basic financial characteristics of alternative development forms. The following pro formas evaluate parking, rental residential and speculative office development. A variety of assumptions were made with respect to underlying land values and achievable rent levels, testing associated returns.

OUTLINE OF ASSUMPTIONS

The following is a list of assumptions utilized in the pro formas:

- *Loan/Equity Split.* Lenders were assumed to have a minimum equity requirement of 20% of cost, and a minimum debt coverage ratio of 1.20. Both conditions need to be met in establishing the equity requirements for the developer.
- *Cost Information.* Cost information was provided by RS Means.
- *Loan Terms.* Permanent financing was assumed with a 20-year loan term and a 7.50% fixed interest rate.
- *Measures of Return.* The measures of return calculated include return on cost (net pre-tax operating income divided by total cost) and return on equity (net pre-tax income after debt service divided by equity).

The pro formas are static, reflecting only the first stabilized year. Developers are more likely to use a dynamic analysis, evaluating the return of the project over a longer time period.

SUMMARY OF CASH FLOWS

PARKING

The baseline parking pro formas (Exhibit B.01) evaluate prototypical structured parking garages, with an average price per stall ranging from \$15,600 to \$22,500 inclusive of land. Base gross monthly revenue per stall is set at \$65, \$125 and \$175, with an additional assumption of income from evenings and weekends at 22% of base income. A total of nine separate calculations of return are provided, representing three cost assumptions and three income assumptions. The pro formas indicate that structured parking under the cost assumptions used does not yield acceptable rates of return until revenues per space reach approximately \$125 to \$150 per month.

There are a number of lower cost options available for providing structured parking, which would lower this revenue hurdle. Exhibit B.02 reduces the cost per space to between \$9,200 and \$23,000. This reduces the necessary revenues per space for an acceptable return substantially.

RENTAL APARTMENTS

The rental apartment pro formas (Exhibit B.03) evaluate the development of a prototypical rental apartment project using three alternative types of construction. The development forms include low-rise, mid-rise and high-rise construction. Each development form was evaluated using three alternative land values, yielding a total of nine scenarios. The achievable lease rate assumed was \$1.00 per square foot for low-rise, \$1.20 for mid-rise and \$1.45 for high rise. The higher assumed lease rates for higher density products reflects the need for higher rents to support this type of development.

SPECULATIVE OFFICE SPACE

A series of pro formas was prepared for speculative office space, using a similar range of options as utilized for the rental apartments. Low-rise, mid-rise and high-rise development forms were assumed using alternative land values and lease rates. As with the rental apartments, a total of nine scenarios were modeled.

EXHIBIT B.01

**STRUCTURED PARKING PRO-FORMAS
STATIC ANALYSIS, FIRST STABILIZED YEAR**

	Land Value/S.F.			Land Value/S.F.			Land Value/S.F.		
	\$8	\$35	\$100	\$8	\$35	\$100	\$8	\$35	\$100
PROJECT DETAILS									
Number of Stalls:	200	200	200	200	200	200	200	200	200
Price/Stall:	\$15,600	\$17,625	\$22,500	\$15,600	\$17,625	\$22,500	\$15,600	\$17,625	\$22,500
Construction Cost:	\$3,120,000	\$3,525,000	\$4,500,000	\$3,120,000	\$3,525,000	\$4,500,000	\$3,120,000	\$3,525,000	\$4,500,000
Perment Loan Amount:	\$1,064,663	\$1,065,192	\$1,065,771	\$2,534,047	\$2,534,047	\$2,534,047	\$2,652,000	\$2,996,250	\$3,735,842
Equity:	\$2,055,337	\$2,459,808	\$3,434,229	\$585,953	\$990,953	\$1,965,953	\$468,000	\$528,750	\$764,158
Debt Coverage Ratio:	1.20	1.20	1.20	1.20	1.20	1.20	1.70	1.51	1.20
Loan Period/Years:	20	20	20	20	20	20	20	20	20
Permanent Loan Rate:	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Annual Debt Service:	\$102,922	\$102,973	\$103,029	\$244,969	\$244,969	\$244,969	\$256,372	\$289,651	\$361,148
INCOME									
Number of Parking stalls	200								
Occupancy Rate	100%								
Monthly Parking Rate/Standard	\$65.00	\$65.00	\$65.00	\$125.00	\$125.00	\$125.00	\$175.00	\$175.00	\$175.00
Parking Income									
Monthly -Standard	\$156,000	\$156,000	\$156,000	\$300,000	\$300,000	\$300,000	\$420,000	\$420,000	\$420,000
Hourly, Daily, Monthly, Evenings/Weekends	\$34,320	\$34,320	\$34,320	\$66,000	\$66,000	\$66,000	\$92,400	\$92,400	\$92,400
Total Income	\$190,320	\$190,320	\$190,320	\$366,000	\$366,000	\$366,000	\$512,400	\$512,400	\$512,400
EXPENSES									
Parking Operator Costs	\$10,400	\$10,400	\$10,400	\$10,400	\$10,400	\$10,400	\$10,400	\$10,400	\$11,098
Sweeping	\$1,522	\$1,522	\$1,522	\$1,522	\$1,522	\$1,522	\$1,522	\$1,522	\$1,624
Administration/Personnel	\$2,102	\$2,102	\$2,102	\$2,102	\$2,102	\$2,102	\$2,102	\$2,102	\$2,243
Minor Maintenance/Janitorial	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,671
Plumbing Expenses	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$77
Elevator Maintenance	\$3,118	\$3,118	\$3,118	\$3,118	\$3,118	\$3,118	\$3,118	\$3,118	\$3,327
Electrical Maintenance	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,195
Electricity	\$4,600	\$4,600	\$4,600	\$4,600	\$4,600	\$4,600	\$4,600	\$4,600	\$4,909
Water and Sewer	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,195
Security / Life Safety	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$77
Total Operating Expenses	\$34,126	\$36,415							
OWNERSHIP EXPENSES									
Property Taxes	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400
Insurance	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200	\$2,348
Professional Services	\$1,324	\$1,324	\$1,324	\$1,324	\$1,324	\$1,324	\$1,324	\$1,324	\$1,413
Reserves for Replacements/Repairs	\$5,710	\$5,710	\$5,710	\$10,980	\$10,980	\$10,980	\$15,372	\$15,372	\$15,372
Total Ownership Expenses	\$32,634	\$32,634	\$32,634	\$37,904	\$37,904	\$37,904	\$42,296	\$42,296	\$42,532
NET OPERATING INCOME	\$123,560	\$123,560	\$123,560	\$293,970	\$293,970	\$293,970	\$435,978	\$435,978	\$433,452
Total Receipts/Stall	\$952	\$952	\$952	\$1,830	\$1,830	\$1,830	\$2,562	\$2,562	\$2,562
Total Expense/Stall	\$334	\$334	\$334	\$360	\$360	\$360	\$382	\$382	\$395
Total Net Operating Income/Stall	\$618	\$618	\$618	\$1,470	\$1,470	\$1,470	\$2,180	\$2,180	\$2,167
STATIC MEASURES OF RETURN									
Return on Cost	3.96%	3.51%	2.75%	9.42%	8.34%	6.53%	13.97%	12.37%	9.63%
Return on Equity	1.99%	1.66%	1.19%	16.60%	9.81%	4.95%	49.17%	38.46%	18.77%

(1) Assumes CCTV security coverage with monitors in parking attendants main booth.
SOURCE: Johnson Gardner

EXHIBIT B.02

STRUCTURED PARKING PRO-FORMAS - REDUCED COST
 STATIC ANALYSIS, FIRST STABILIZED YEAR

	Land Value/S.F.			Land Value/S.F.			Land Value/S.F.		
	\$8	\$35	\$100	\$8	\$35	\$100	\$8	\$35	\$100
PROJECT DETAILS									
Number of Stalls:	200	200	200	200	200	200	200	200	200
Price/Stall:	\$9,200	\$13,250	\$23,000	\$9,200	\$13,250	\$23,000	\$9,200	\$13,250	\$23,000
Construction Cost:	\$1,840,000	\$2,650,000	\$4,600,000	\$1,840,000	\$2,650,000	\$4,600,000	\$1,840,000	\$2,650,000	\$4,600,000
Perment Loan Amount:	\$1,064,663	\$1,065,192	\$1,065,771	\$1,472,000	\$2,120,000	\$2,534,047	\$1,472,000	\$2,120,000	\$3,735,842
Equity:	\$775,337	\$1,584,808	\$3,534,229	\$368,000	\$530,000	\$2,065,953	\$368,000	\$530,000	\$864,158
Debt Coverage Ratio:	1.20	1.20	1.20	2.07	1.43	1.20	3.06	2.13	1.20
Loan Period/Years:	20	20	20	20	20	20	20	20	20
Permanent Loan Rate:	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Annual Debt Service:	\$102,922	\$102,973	\$103,029	\$142,300	\$204,943	\$244,969	\$142,300	\$204,943	\$361,148
INCOME									
Number of Parking stalls	200	200	200	200	200	200	200	200	200
Occupancy Rate	100%	100%	100%	100%	100%	100%	100%	100%	100%
Monthly Parking Rate/Standard	\$65.00	\$65.00	\$65.00	\$125.00	\$125.00	\$125.00	\$175.00	\$175.00	\$175.00
Parking Income									
Monthly -Standard	\$156,000	\$156,000	\$156,000	\$300,000	\$300,000	\$300,000	\$420,000	\$420,000	\$420,000
Hourly, Daily, Monthly, Evenings/Weekends	\$34,320	\$34,320	\$34,320	\$66,000	\$66,000	\$66,000	\$92,400	\$92,400	\$92,400
Total Income	\$190,320	\$190,320	\$190,320	\$366,000	\$366,000	\$366,000	\$512,400	\$512,400	\$512,400
EXPENSES									
Parking Operator Costs	\$10,400	\$10,400	\$10,400	\$10,400	\$10,400	\$10,400	\$10,400	\$10,400	\$11,098
Sweeping	\$1,522	\$1,522	\$1,522	\$1,522	\$1,522	\$1,522	\$1,522	\$1,522	\$1,624
Administration/Personnel	\$2,102	\$2,102	\$2,102	\$2,102	\$2,102	\$2,102	\$2,102	\$2,102	\$2,243
Minor Maintenance/Janitorial	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,671
Plumbing Expenses	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$77
Elevator Maintenance	\$3,118	\$3,118	\$3,118	\$3,118	\$3,118	\$3,118	\$3,118	\$3,118	\$3,327
Electrical Maintenance	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,195
Electricity	\$4,600	\$4,600	\$4,600	\$4,600	\$4,600	\$4,600	\$4,600	\$4,600	\$4,909
Water and Sewer	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,195
Security / Life Safety	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$72	\$77
Total Operating Expenses	\$34,126	\$34,126	\$34,126	\$34,126	\$34,126	\$34,126	\$34,126	\$34,126	\$36,415
OWNERSHIP EXPENSES									
Property Taxes	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400	\$23,400
Insurance	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200	\$2,200	\$2,348
Professional Services	\$1,324	\$1,324	\$1,324	\$1,324	\$1,324	\$1,324	\$1,324	\$1,324	\$1,413
Reserves for Replacements/Repairs	\$5,710	\$5,710	\$5,710	\$10,980	\$10,980	\$10,980	\$15,372	\$15,372	\$15,372
Total Ownership Expenses	\$32,634	\$32,634	\$32,634	\$37,904	\$37,904	\$37,904	\$42,296	\$42,296	\$42,532
NET OPERATING INCOME	\$123,560	\$123,560	\$123,560	\$293,970	\$293,970	\$293,970	\$435,978	\$435,978	\$433,452
Total Receipts/Stall	\$952	\$952	\$952	\$1,830	\$1,830	\$1,830	\$2,562	\$2,562	\$2,562
Total Expense/Stall	\$334	\$334	\$334	\$360	\$360	\$360	\$382	\$382	\$395
Total Net Operating Income/Stall	\$618	\$618	\$618	\$1,470	\$1,470	\$1,470	\$2,180	\$2,180	\$2,167
STATIC MEASURES OF RETURN									
Return on Cost	6.72%	4.66%	2.69%	15.98%	11.09%	6.39%	23.69%	16.45%	9.42%
Return on Equity	5.28%	2.58%	1.16%	48.83%	24.41%	4.71%	87.42%	51.21%	16.60%

(1) Assumes CCTV security coverage with monitors in parking attendants main booth.
 SOURCE: Johnson Gardner

EXHIBIT B.03

STRUCTURED RENTAL APARTMENT PRO-FORMAS
 STATIC ANALYSIS, FIRST STABILIZED YEAR

	Low-Rise/Land Value/S.F.			Mid-Rise/Land Value/S.F.			High-Rise/Land Value/S.F.		
	\$4.50	\$35.00	\$100.00	\$4.50	\$35.00	\$100.00	\$4.50	\$35.00	\$100.00
PROJECT DETAILS									
Number of Units:	100	100	100	100	100	100	100	100	100
Price/Unit:	\$71,100	\$115,386	\$209,766	\$83,765	\$92,623	\$111,499	\$105,497	\$109,926	\$119,364
Construction Cost:	\$7,110,000	\$11,538,600	\$20,976,600	\$8,376,530	\$9,262,250	\$11,149,850	\$10,549,716	\$10,992,576	\$11,936,376
Perment Loan Amount:	\$5,598,681	\$5,596,156	\$5,593,009	\$6,716,486	\$6,716,486	\$6,716,519	\$8,115,756	\$8,115,762	\$8,115,797
Equity:	\$1,511,319	\$5,942,444	\$15,383,591	\$1,660,044	\$2,545,764	\$4,433,331	\$2,433,960	\$2,876,814	\$3,820,579
Debt Coverage Ratio:	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Loan Period/Years:	20	20	20	20	20	20	20	20	20
Permanent Loan Rate:	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Annual Debt Service:	\$541,231	\$540,987	\$540,683	\$649,291	\$649,291	\$649,294	\$784,560	\$784,560	\$784,564
INCOME									
Number of Units:	100	100	100	100	100	100	100	100	100
Occupancy Rate:	95%	95%	95%	95%	95%	95%	95%	95%	95%
Monthly Lease Rate:	\$850	\$850	\$850	\$1,020	\$1,020	\$1,020	\$1,233	\$1,233	\$1,233
Average Unit Size/S.F.:	850	850	850	850	850	850	850	850	850
Average Rent/S.F.:	\$1.00	\$1.00	\$1.00	\$1.20	\$1.20	\$1.20	\$1.45	\$1.45	\$1.45
Lease Income:	\$969,000	\$969,000	\$969,000	\$1,162,800	\$1,162,800	\$1,162,800	\$1,405,050	\$1,405,050	\$1,405,050
Total Income	\$969,000	\$969,000	\$969,000	\$1,162,800	\$1,162,800	\$1,162,800	\$1,405,050	\$1,405,050	\$1,405,050
EXPENSES									
Operating Expenses	\$290,700	\$290,700	\$290,700	\$348,840	\$348,840	\$348,840	\$421,515	\$421,515	\$421,515
Reserves for Replacements/Repairs	\$29,070	\$29,070	\$29,070	\$34,884	\$34,884	\$34,884	\$42,152	\$42,152	\$42,152
Total Expenses	\$319,770	\$319,770	\$319,770	\$383,724	\$383,724	\$383,724	\$463,667	\$463,667	\$463,667
NET OPERATING INCOME	\$649,230	\$649,230	\$649,230	\$779,076	\$779,076	\$779,076	\$941,384	\$941,384	\$941,384
STATIC MEASURES OF RETURN									
Return on Cost	9.13%	5.63%	3.10%	9.30%	8.41%	6.99%	8.92%	8.56%	7.89%
Return on Equity	14.20%	3.61%	1.40%	15.52%	10.12%	5.81%	12.79%	10.82%	8.15%
(1) Assumes CCTV security coverage with monitors in parking attendants main booth.									
SOURCE: Johnson Gardner									

EXHIBIT B.04

STRUCTURED SPECULATIVE OFFICE SPACE PRO-FORMAS
 STATIC ANALYSIS, FIRST STABILIZED YEAR

	Low-Rise/Land Value/S.F.			Mid-Rise/Land Value/S.F.			High-Rise/Land Value/S.F.		
	\$4.50	\$35.00	\$100.00	\$4.50	\$35.00	\$100.00	\$4.50	\$35.00	\$100.00
PROJECT DETAILS									
Total Area/S.F.:	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Price/S.F.:	\$66.98	\$114.48	\$222.82	\$67.17	\$95.67	\$160.67	\$137.71	\$142.46	\$153.30
Construction Cost:	\$6,698,333	\$11,448,333	\$22,281,667	\$6,717,000	\$9,567,000	\$16,067,000	\$13,771,333	\$14,246,333	\$15,329,667
Perment Loan Amount:	\$5,358,667	\$7,566,594	\$7,572,367	\$5,373,600	\$7,653,600	\$8,404,661	\$11,017,067	\$11,109,266	\$11,112,756
Equity:	\$1,339,667	\$3,881,739	\$14,709,300	\$1,343,400	\$1,913,400	\$7,662,339	\$2,754,267	\$3,137,067	\$4,216,910
Debt Coverage Ratio:	1.69	1.20	1.20	1.88	1.32	1.20	1.21	1.20	1.20
Loan Period/Years:	20	20	20	20	20	20	20	20	20
Permanent Loan Rate:	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%	7.50%
Annual Debt Service:	\$518,029	\$731,472	\$732,030	\$519,472	\$739,883	\$812,489	\$1,065,033	\$1,073,946	\$1,074,283
INCOME									
Gross Leasable Area:	100,000	100,000	100,000	90,000	90,000	90,000	90,000	90,000	90,000
Occupancy Rate:	90%	90%	90%	90%	90%	90%	90%	90%	90%
Monthly Lease Rate/Gross:	\$17.50	\$17.50	\$17.50	\$21.00	\$21.00	\$21.00	\$25.00	\$25.00	\$25.00
Lease Income:	\$1,575,000	\$1,575,000	\$1,575,000	\$1,701,000	\$1,701,000	\$1,701,000	\$2,025,000	\$2,025,000	\$2,025,000
Total Income	\$1,575,000	\$1,575,000	\$1,575,000	\$1,701,000	\$1,701,000	\$1,701,000	\$2,025,000	\$2,025,000	\$2,025,000
EXPENSES									
Operating Expenses	\$650,000	\$650,000	\$650,000	\$675,000	\$675,000	\$675,000	\$675,000	\$675,000	\$675,000
Reserves for Replacements/Repairs	\$47,250	\$47,250	\$47,250	\$51,030	\$51,030	\$51,030	\$60,750	\$60,750	\$60,750
Total Expenses	\$697,250	\$697,250	\$697,250	\$726,030	\$726,030	\$726,030	\$735,750	\$735,750	\$735,750
NET OPERATING INCOME	\$877,750	\$877,750	\$877,750	\$974,970	\$974,970	\$974,970	\$1,289,250	\$1,289,250	\$1,289,250
STATIC MEASURES OF RETURN									
Return on Cost	13.10%	7.67%	3.94%	14.51%	10.19%	6.07%	9.36%	9.05%	8.41%
Return on Equity	34.47%	7.48%	1.97%	41.52%	19.90%	4.21%	15.76%	13.61%	10.11%
(1) Assumes CCTV security coverage with monitors in parking attendants main booth. SOURCE: Johnson Gardner									