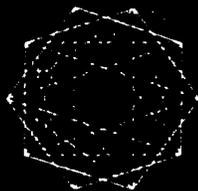


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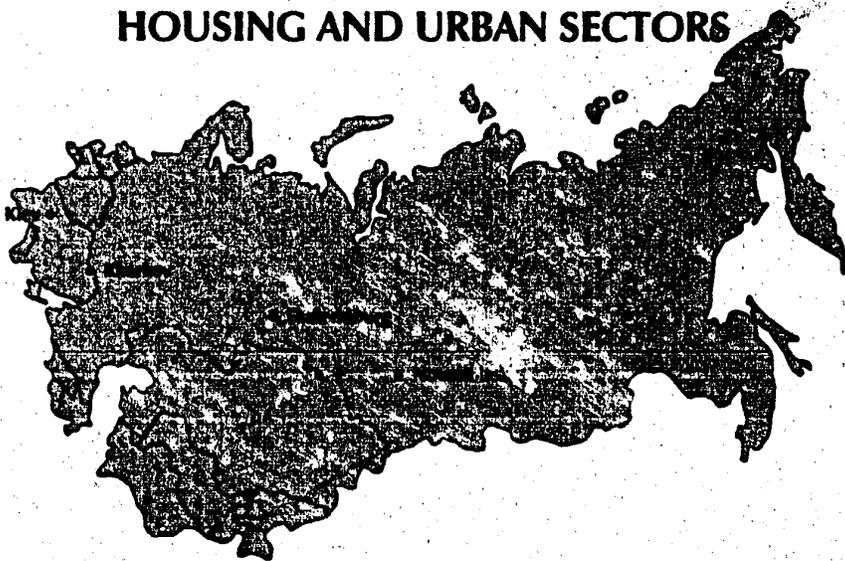


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Prepared for the Office of Housing and Urban Programs (A.I.D.)

FINAL REPORT

PROMOTING PRIVATE SECTOR LAND AND HOUSING DEVELOPMENT IN EKATERINBURG, RUSSIA: A FEASIBILITY STUDY

Working Paper No. 5

Prepared for

**U.S. Agency for International Development
Bureau for Private Enterprise
The Office of Housing and Urban Programs**

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TABLE OF CONTENTS

ABSTRACT

EXECUTIVE SUMMARY

1	INTRODUCTION	1
	1.1 Purpose of Report	1
	1.2 Structure of Report	2
2	PROMOTING LAND AND HOUSING DEVELOPMENT	2
	2.1 The Concept Defined	2
	2.2 The Benefits of Private Sector Housing Delivery	3
	2.3 Implementing Private Sector Land and Housing Development	4
3	DEMOGRAPHIC AND ECONOMIC PROFILE OF EKATERINBURG	4
	3.1 Population Trends and Demographic Patterns	5
	3.2 The Spatial Distribution of the Population	7
	3.3 Future Population Trends in Ekaterinburg	8
	3.4 Economic Structure of the Sverdlovsk Region	10
	3.5 Wages and Income in Ekaterinburg	14
	3.6 Conclusions	17
4	HOUSING CONDITIONS AND HOUSING DELIVERY IN EKATERINBURG .	17
	4.1 Description of Housing Stock	17
	4.2 Housing Conditions	19
	4.3 Ekaterinburg's Land Allocation Process	19
	4.4 The City's Supply of Land for Allocation	21
	4.5 Infrastructure Availability	21
	4.6 Housing Construction	22
5	HOUSING DEMAND	26
	5.1 Unmet Housing Demand	26
	5.2 Housing for Enterprises	27
	5.3 Replacement Housing Demand	27
	5.4 The Privatized Housing Market	27
	5.5 Estimates of Private Sector Housing Prices	30
	5.6 The Affordability of Private Sector Housing	30
	5.7 Estimating the Demand for Housing	31
6	FEASIBILITY OF DEMONSTRATION PROJECT	32
	6.1 Description of the Project	33
	6.2 Description of Development Program	33
	6.3 Comparison of Demonstration Project With Competition	35

6.4 Development Cost	35
6.5 Pro Forma Estimate of Sales Revenue	35
6.6 Estimate of Land Bid by Developer	39
6.7 Projected Financial Performance of Demonstration Project	41
6.8 Conclusions	42
7 IMPLEMENTATION ISSUES	42
7.1 Steps, Responsibilities, and Proposed Schedule for Completing Demonstration Project	43
7.2 Level of Effort	46
7.3 Institutional Issues	47
7.4 Potential for Scaling up the Project	47
7.5 Harnessing Land Revenues to Improve Housing Affordability	48
7.6 Conclusion	48
8 RECOMMENDED NEXT STEPS	48

APPENDIX A: Sites Examined

LIST OF TABLES

Table 1. Ekaterinburg Population Trends, 1920-1992	7
Table 2. Population Trends in the Seven Districts of Ekaterinburg, 1979-1992	10
Table 3. Patterns of Export Activity in Sverdlovsk Oblast, 1992	11
Table 4. Sverdlovsk Oblast Employment Trends 1987-1991	12
Table 5. Enterprises Privatized in Sverdlovsk Oblast in 1992, by Industry	13
Table 6. Average Income by Industry, December 1992	15
Table 7. Income Distribution - Monthly Household Income in Rubles	16
Table 8. Estimated Ownership of Ekaterinburg Housing Stock	18
Table 9. Construction Trends in Ekaterinburg 1988-1992	23
Table 10. Volume of Housing Construction by Builder, 1988-1992	24
Table 11. Housing Price by Number of Rooms	28
Table 12. Housing Price by Type of Building	29
Table 13. Housing Price by Age of Building	29
Table 14. Housing Price by Location	30
Table 15. Estimated Price of Private Sector Housing, by Type & Location	31
Table 16. Affordability of Private Sector Housing, by Type & Location	32
Table 17. Development Program for Demonstration Project	36
Table 18. Detailed Space Allocation by Type of Unit	39
Table 19. Demonstration Project Development Cost, February 1993	40
Table 20. Projected Demonstration Project Sales Revenue, February 1993	41

Table 21. Demonstration Project, Estimated Developer Land Bid, Based on Residual
Land Value Method, February 1993 42
Table 22. Potential Sites for Demonstration Project A-3

LIST OF MAPS

Map 1. Sverdlovsk Region and Ekaterinburg 6
Map 2. City of Ekaterinburg and Seven Districts 9
Map 3. Potential Sites for Demonstration Project A-2

LIST OF FIGURES

Figure 1. Income Distribution 16
Figure 2. Site Plan 34
Figure 3. Elevations: 4 and 5 Room Unit Blocks 37
Figure 4. Elevations: 3 Room Unit Block 38

LIST OF CHARTS

Chart 1. Timeline 44

ABSTRACT

This report documents the results of a two-month study to design and test the feasibility of conducting a private-sector land and housing delivery demonstration project in the City of Ekaterinburg. Current market conditions indicate that a 45 dwelling unit infill project on 0.75 hectares is economically and financially feasible. Assessment of the institutional environment indicates that there is considerable interest in the project by both the public and private sector and that both have the capacity to carry it out, if provided with technical assistance and guidance. The success of the project will depend on picking a site, making it available for purchase through a competitive bidding process, ensuring that a sufficient number of firms (at least 5) bid on the project, and that the winning bidder can pre-sell units to buyers.

SUMMARY OF FINDINGS AND CONCLUSIONS

Project Purpose and Principal Findings

This report documents the results of a two-month study to design and test the feasibility of conducting a private-sector land and housing delivery demonstration project in the City of Ekaterinburg, Russia. On the basis of our market analysis, a 45 dwelling unit infill project on 0.75 hectares is proposed. Current market conditions indicate that the project is economically and financially feasible. Assessment of the institutional environment indicates that there is considerable interest in the project from both the public and private sector and that both have the capacity to carry it out, if provided with technical assistance and guidance. The success of the project will depend on picking a site, making it available for purchase through a competitive bidding process, ensuring that a sufficient number of firms bid the project (at least 5), and that the winning bidder can pre-sell units to buyers.

The Project Concept

Housing conditions in Ekaterinburg are far from optimal: the City faces a large shortage of housing; housing conditions are deteriorating as maintenance is deferred; financial constraints limit infrastructure expansion, and housing construction is plummeting as subventions from the central government evaporate. The traditional approach to housing delivery, where a handful of very large kombinats produce highly subsidized housing, is having difficulty responding to new fiscal realities which limit the capacity of government to subsidize housing construction. The major challenge facing policy makers in the City Administration and the City Soviet is what to do to overhaul and restart the stalled housing production system. Can housing production be reformed to facilitate competition and expand the range of housing products? Can the private sector build housing more efficiently and at lower costs than the public sector? Private sector housing production is proposed as the solution, linked with competitive auctions of land parcels.

The paramount objective of the project is to facilitate the emergence of a private sector housing development industry. The most effective way to do this is to modify the current process of land allocation, so that private builders and developers get access to land through a competitive bidding process. The pace of reform could be gradual, starting with a dual system of market and administrative land allocation, but eventually shifting to a complete market-driven system for land allocation, where all users of land purchase parcels (either fee interest or transferable use rights) in the marketplace. To launch such a market system, small (under one hectare), well-located and fully equipped sites suitable for housing should be auctioned by competitive bid to prequalified housing developers. Developers would be free to design, build and sell housing units at market prices, and developers offering the highest price would be awarded sites and granted rights to develop and sell housing to buyers. Depending on legal and legislative developments, the City would either sell freehold interests in the sites or grant a perpetual use right. If a developer receives fee interest in the site, he would subdivide the property and

sell housing and land to buyers, utilizing some form of condominium ownership structure. If a perpetual leasehold interest is conveyed, the developer would sell houses, providing buyers with long-term leasehold interests in the land.

Designated sites would be packaged for competitive bidding. Each bid package would provide information about the site, market demand, access to infrastructure, land use planning and zoning requirements, developer and City roles and responsibilities, and criteria for bid evaluation. Bid packages would be advertised nationally, and the bidding would be open to all construction and housing development firms registered to operate in Russia.

The Benefits of Private Sector Housing Delivery

Launched on a wide scale, private sector land and housing development could revolutionize housing production in Ekaterinburg. Not only would it generate considerable revenues for the City to reinvest in infrastructure or use to assist low- and moderate-income families obtain housing, but it would also transform the structure of housing delivery away from mass production high-rise elevator buildings to a wide range of town-houses, single family units and low-rise, medium-density projects. Smaller scale projects would enable developers to better utilize smaller infill sites which already have access to infrastructure. Such infill development would reduce the need for costly greenfield development to support the massive high-rise microrayons favored by the kombinats. Even more importantly, the concept would help spawn the growth of small- and medium-sized private sector housing developers.

Interviews with City officials and private developers pointed out the time consuming complexity of the City's current land allocation process. The process requires some 65 steps, and it can take years for small enterprises to acquire sites. On the other hand, YKC, the City's own developer can acquire sites in two to three weeks. Small developers claim that it is nearly impossible to receive a land allocation. Open and competitive bidding for land would remove a major barrier to entry for enterprises wanting to develop housing. It would also "level the playing field" in the housing delivery system and create powerful incentives for the kombinats to adapt to a competitive environment. A market-based system of auctions and tenders would provide openings for new firms to launch housing projects. To insure their success, concurrent activities are needed to increase access to building materials, infrastructure services, and construction and mortgage finance.

If fully implemented, the land market could support the sale of between 10 and 20 sites, totaling 7.5 to 15 hectares per year. At an estimated sale price of R. 20,000 to 25,000 per square meter of land, revenues of R. 1,500,000,000 to 3,750,000,000 could be generated (in February, 1993 prices). Revenues from the sale of land could be used to fund the expansion and modernization of the City's infrastructure system and to financially assist low- and moderate-income households to gain access to housing.

Background and Review of Market Conditions in Ekaterinburg

Ekaterinburg, Russia's third largest city and capital of the Sverdlovsk Oblast, is located in the central Urals region. The City's main period of growth was during the late 1920s and the 1960s when policies of rapid industrialization prompted the migration of labor from western Russia and other areas of the former Soviet Union. In the 1960s, rapid industrialization caused employment to expand. However, economic conditions soured, and by the mid-1970s employment growth and migration flows slowed. While the future pattern of population dynamics is uncertain, the City's population (currently 1,370,700) is likely to remain stable.

During the days of the Soviet Union, Ekaterinburg, then known as Sverdlovsk, was one of the main industrial centers of the USSR's massive military-industrial complex. Because of its remoteness from Western Europe and abundance of raw materials and minerals, Soviet planners targeted the City for rapid defense-oriented industrialization. With the end of the "Cold War," the demand for many of Ekaterinburg's defense industry products has been undermined. Unless its factories can quickly convert to non-military activities, the City's economy is likely to shrink.

Over the past five years state-sector employment has declined, falling by 182,218 between 1987 and 1991. Nearly 70 percent of the total job loss occurred in the industrial sector. Other areas of significant job loss include: transportation, -31,644; construction, -22,377; and retail and wholesale trade, -18,805. Preliminary data for 1992 indicate further employment reductions, concentrated in the industrial, construction, and retail and wholesale trade sectors of the economy.

At the same time, a growing number of industries and state enterprises are being privatized, and new private firms launched. While we were not able to acquire employment data for the private sector, we have been able to monitor privatization and private business registration activity. During 1992, 3,067 applications for enterprise privatization were submitted in the Sverdlovsk Oblast. Of these, 1,690 projects have been sold (136 in Ekaterinburg). A significant number of private firms have started operations in Ekaterinburg. Between 1987 and 1992, 19,795 businesses were formally registered with the City Administration. The rate of registration is accelerating, and as of January 1993, the City had a registration backlog of nearly 6,000 entities. Growing fast, these new establishments are vitalizing the City's economy, adding to its employment base.

Given Ekaterinburg's steady-state population growth rate, we anticipate that virtually all the demand for new private sector built housing will come from established households seeking to improve their housing conditions. Because of the price of private sector produced housing, these households will have incomes in excess of R. 190,000 per month, placing them in the top 2 percent of the income distribution. In absolute terms, approximately 10,000 households in Ekaterinburg have incomes at or above this level and could afford to purchase private sector produced housing. Given the size of the potential pool

of buyers (10,000), the annual demand for private sector produced housing, selling between R. 7,000,000 and 12,000,000, is on the order of 500 to 1,000 units per year, accounting for 5 to 10 percent of the total number of households with sufficient income to purchase market rate units. The actual rate will obviously depend on the economy, the degree to which enterprises and government are willing and able to purchase these units for their workers, and on the availability of long-term mortgage financing. At this stage, given the infancy of the market, development should proceed slowly, testing the market with a small demonstration project.

Housing Conditions

Ekaterinburg's housing stock is overwhelmingly owned by state enterprises and the municipality, reflecting the socialist system of housing allocation. Only recently has this begun to change: between January 1992 and March 1, 1993, nearly 10 percent of the city's housing stock has been privatized.

As is common for housing production in socialist systems, there is little housing variety. In the 1950s and 1960s the housing production system produced five- to eight-story walk-up apartments constructed of brick and block. In the 1970s, with the refinement of large panel building systems, the production system shifted to high-rise elevator panel buildings, and by the late 1980s panel construction dominated Ekaterinburg's market, capturing up to 70 percent of annual housing production. The near exclusive reliance on either brick walk-ups or panel units results in the fact that approximately 95 percent of Ekaterinburg's housing stock consists of these two housing forms.

Ekaterinburg's housing stock is of recent vintage. As of 1989, 47 percent of the region's and the City's housing stock was constructed since 1971, and an additional 22 percent was built between 1961 and 1970. Only 14 percent of the area's housing stock predates 1950. Most municipal and enterprise housing is well-equipped, and over 95 percent of the City's housing stock has access to piped water, sewerage collection, central heating, and hot water.

Despite the relative newness of Ekaterinburg's housing stock, many units are in poor condition. Units built during the Khrushchev era are notoriously run down. Rent control and the failure to charge realistic fees for building maintenance has led to deferred maintenance. The net result is that buildings only twenty to thirty years old may be beyond repair. In fact, 45,000 units, accounting for 10 percent of Ekaterinburg's housing stock, will not be permitted to be privatized because they are in very poor condition. At least 5,000 dwelling units have been condemned.

Housing Delivery System

In an effort to reduce housing shortages, the pace of housing construction in the 1980s was brisk, with the City's stock increasing by between 2.3 and 2.9 percent per year.

However, in 1992, the level of production plummeted as central government funds to support housing construction stopped. Limited funds now make it extremely difficult for the City to address its acute housing shortage (estimated at 100,000 units, based on municipal and enterprise waiting lists).

The housing delivery system has been dominated by a handful of state enterprises, but with the downturn in production, this is starting to change. In 1988, the six largest construction firms¹ accounted for 92.4 percent of the total volume of residential construction in Ekaterinburg. By 1992, their market share had fallen to 65 percent.

Production trends indicate that smaller constructors are starting to gain a foothold in the market and are engaging in the construction and sale of private housing. While no consolidated statistics are available, interviews with builders and developers revealed several privately built apartment houses and cottage projects in the City. These are being built either for "market" sale of flats or to provide housing for various public and private clients (enterprises, private businesses, or individuals). Private contractors focus on smaller buildings, usually not more than nine stories, and they are starting to explore new design options, such as townhouses, duplexes, and other forms of low-rise, high-density development.

Demonstration Project Feasibility

To illustrate and test the feasibility of introducing a market-oriented system of land and housing development, a demonstration project is proposed. The demonstration project should use an attractive and marketable site appropriate for small private sector developers. Review of real estate sales trends and interviews with real estate brokers indicates that households are interested in apartments located near the city center in high quality residential areas close to shopping and community services. The demonstration project should provide an alternative to the main form of housing delivery in the City and illustrate the potential attractiveness of low-rise townhouse development, ranging from 50 to 60 dwelling units per hectare. It should also demonstrate the potential of conserving infrastructure costs by using fully serviced sites. Given these location, size, infrastructure, density, and design objectives, the following criteria should be utilized to select a demonstration project site:

Location:	within 5 kilometers of the city center
Size of site:	less than one hectare
Infrastructure:	all services provided to site
Number of units:	50 to 60 dwelling units
Design:	low-rise, three-story townhouse units

¹Each kombinat specializes in one type of construction technology: panel, brick and concrete, etc.

Site selection surveys indicate that there is an ample supply of sites meeting these criteria.

The Sverdlovsk Architectural Institute was retained to prepare a development scheme (following the above criteria) for a hypothetical site of 0.75 hectares (100 by 75 meters). Based on urban planning and design standards, the site permits the development of 45 units, ranging from two- to five-room townhouses, grouped into five buildings.

The proposed project offers an attractive alternative to the current pattern of for-sale private housing in Ekaterinburg. At the present time, buyers can purchase either privatized flats in existing buildings at prices ranging from R. 2,000,000 to over R. 10,000,000, or cottages in suburban locations for prices ranging from R. 15,000,000 to R. 30,000,000. The proposed townhouse project offers new good quality units, in low-rise buildings, in centrally located neighborhoods close to shopping, community services and transportation. The project design provides spacious and well-planned units. Thirty-nine of 45 units have private courtyards and two- and four-unit townhouses have enclosed garages. Based on the features of the project and surveys of brokers, we estimate that the units in the project should be priced between R. 7,300,000 for two-room units and R. 11,900,000 for five-room units. At these prices, the project should be extremely competitive with other private sector projects, and it will lead the way towards the design of new forms of low-rise medium density housing development in Ekaterinburg.

Based on the conceptual plans for the project, the estimated total project construction cost (as of February 1993) is R. 273,964,000. This works out to an average of R. 54,412 per square meter of total constructed area, including site preparation, on-site infrastructure, overhead, and profit.

Based on estimated prices, the total sales revenue is projected to be R. 451,360,000, an average of R. 10,030,222 per unit, or R. 90,853 per square meter. Given construction costs of R. 183,692,000 and a target developer profit of R. 90,272,000, we anticipate that the winning developer would bid R. 177,396,000 for the 7,500 square meter site (approximately R. 23,700 per square meter).

If the demonstration project is developed and sold as described above, both the City and the developer will receive significant financial benefits. First and foremost, the City stands to receive nearly R. 180,000,000 from the competitive bidding for the land. The estimated land bid provides ample developer profit. Assuming that the developer pre-sells all units before starting construction and that buyers make payments to cover construction costs, the developer's equity contribution would be limited to the purchase of the land. If the developer pays R. 177,396,000 for the site and earns a gross profit on the project of R. 90,272,000, his return will be 50 percent. If the developer structures the pre-sales so that he only has to put R. 100,000,000 into the project (the other portion of the land purchase comes from pre-sales), his return on his investment will increase to 90

percent. While these profit rates are high, they reflect the newness of the market. Over time, as the market matures and developers gain experience, profit rates will fall.

Steps and Responsibilities for Completing Demonstration Project

Over the past several months we have met with members of the City Administration and the City Soviet. What has become clear in these discussions is the important role that the Vice Mayor for Housing plays in managing the current system of land allocation and housing construction. Under his direct control are departments of the City Administration concerned with land use planning, development control, land allocation, and management of housing construction. He is clearly pivotal in the process and therefore should play a central role in the demonstration project. Fortunately, our recent meeting with Vice Mayor Popov was extremely positive, and he indicated great interest in the project and his desire to participate in its design and implementation. Given his interest, it is appropriate to work closely with him and designated staff.

The demonstration project should proceed according to the following sequence. For the most part the process is linear, but there are areas where several steps can be worked on concurrently.

1. Define Demonstration Project Concept and Agree on Management Structure and Roles and Responsibilities of the City and PADCO
2. Select Site
3. Obtain Agreement in Principle from City to Release Site for Demonstration Project
4. Prepare Project Development and Design Plan
5. Obtain Development Approval from City
6. Prepare Request for Proposals from Developers
7. Announce Project and Distribute RFP
8. Provide Technical Assistance to Bidders
9. Evaluate and Rank Bids and Select Winner
10. Negotiate Development Agreement With Winner
11. Execute Project
12. Evaluate Project
13. Replicate Project

Harnessing Land Revenues to Improve Housing Affordability

The demonstration project proposes the production of market rate housing on small infill sites. Given the pattern of apartment sales in the City, demonstration project units could be sold at prices ranging between R. 7,300,000 and R. 11,900,000. These units are affordable to households earning in the top 2 percent of the income distribution. While the promotion of a private sector housing delivery system is of paramount importance, it is equally important to facilitate the production of affordable housing. However, the

Resident Advisor (RA) should be careful not to overly complicate the demonstration project by imposing difficult to meet affordability conditions on it. The project should be viewed as a test of the feasibility of establishing competitive land markets that provide private sector housing developers with land. Affordability should be treated as a collateral issue, best addressed after the project demonstration has been successfully completed.

RECOMMENDED NEXT STEPS

1. The RA should meet with Vice Mayor Popov during the week of March 22 to clarify the details of the demonstration project and get him focused on identifying a site for the project.
2. RA should provide Vice Mayor Popov with a Russian language version of the Executive Summary of the feasibility study by the end of next week (March 26).
3. RA and Vice Mayor Popov should set up a small group of staff to manage the demonstration project. RA should request that the Vice Mayor designate a project counterpart. The counterpart should probably be someone in the Chief Architect's office. He or she should be as senior as possible, but also accessible on a regular basis.
4. Once the full report has been cleared for release the RA should have it translated and transmitted to Vice Mayor Popov, and follow up with a discussion of the report.
5. Working jointly with the City, RA should develop a demonstration project work program and schedule.
6. Concurrently with steps 1-5, RA and PADCO should secure sufficient short-term technical support for the project, covering tasks 5 and 7, totaling five weeks of short-term technical assistance.
7. RA and PADCO should seek support for a one-week training course on land development, targeted on small- and medium-sized builders and developers.
8. RA should contract with a local or national firm to conduct a household income, expenditure, and housing conditions survey.
9. The Regional Representative of USAID's Office of Housing and Urban Programs should meet with the City to discuss the demonstration project, and USAID and the City should sign a letter of understanding stating their intent to jointly participate in the execution of the demonstration project.

PROMOTING PRIVATE SECTOR LAND AND HOUSING DEVELOPMENT IN EKATERINBURG: A FEASIBILITY STUDY

1 INTRODUCTION

The PADCO consulting team of W. McCulloch and A. Levitsky proposed a housing and land development project for the City of Ekaterinburg. The concept plan for the project, which is outlined in the consultant's final report, *Infrastructure and Housing Finance in the City of Ekaterinburg*, proposes creating a market-based housing delivery system for the City. The concept envisages that the financial base for the project would be derived from the transparent sale of state-owned land. As a follow-on to their report, USAID issued a task order to assess the overall feasibility of this proposal, considering market demand, financial feasibility, replicability, and political and institutional support from the City of Ekaterinburg.

1.1 Purpose of Report

This report documents the results of a two-month assessment of the feasibility of establishing a private-sector land and housing delivery system in the City of Ekaterinburg. The assessment is based on extensive interviews with key informants working in the City Administration, City Soviet, various research and design institutes, housing developers, contractors and state and private enterprises. Statistical information prepared by the City Administration and the Sverdlovsk Oblast was assembled and reviewed. To fully assess the feasibility of private sector land and housing delivery, the study designed a prototype infill housing project. As our results show, this demonstration project is highly marketable and financially feasible.

The feasibility study answers the following questions:

1. Does the current highly fluid and uncertain legal and legislative environment permit the establishment of a private sector land and housing delivery system?
2. Is there sufficient market demand for private sector built housing in Ekaterinburg, and how many households would be interested in and financially capable of purchasing such units?
3. What are the potential financial benefits to the City resulting from the competitive auctioning of sites for residential development? Can these monies be used to assist moderate income households to purchase housing?

4. What is the most appropriate institutional structure for implementing a private sector land and housing delivery system?
5. In light of the findings of the feasibility study, what should be done next?

1.2 Structure of Report

The report is divided into eight sections. An abstract of the report and a summary of findings and recommendations are also provided. Section 2 describes the overall project concept—the promotion of private sector land and housing development. Section 3 reviews demographic and economic conditions and trends in Ekaterinburg and the Sverdlovsk Oblast. Section 4 profiles housing conditions and the current housing delivery system. Section 5 describes and estimates housing demand. Section 6 outlines and assesses the feasibility of a demonstration project to promote private sector housing development. Section 7 considers institutional and implementation issues related to the demonstration project. Finally, Section 8 recommends next steps to be taken.

2 PROMOTING LAND AND HOUSING DEVELOPMENT

Housing conditions in Ekaterinburg are far from optimal: the City faces a large shortage of housing; housing conditions are deteriorating as maintenance is deferred; financial constraints limit infrastructure expansion; and housing construction is plummeting as subventions from the central government evaporate. In addition, the traditional approach to housing delivery, where a handful of very large kombinats produce highly subsidized housing is unraveling. The current system is monopolistic, inefficient and incapable of responding to the new fiscal realities which limit the capacity of government to subsidize housing construction. The major challenge facing policy makers in the City and the Soviet is what to do to overhaul and restart the stalled housing production system. Can housing production be reformed to facilitate competition and expand the range of housing products? Can the private sector build housing more efficiently and at lower costs than the state sector? Private sector housing production—linked with competitive auctions of land parcels—is proposed as the solution.

2.1 The Concept Defined

The project concept's paramount objective is to facilitate the emergence of a private sector housing development industry. The most effective way to do this is to modify the current process of land allocation so that private builders and developers get access to land through a competitive bidding process. The pace of reform could be gradual, starting with a dual system of market and administrative land allocation, but eventually shifting to a complete market-driven system for land allocation where all users of land purchase parcels (either fee interest or transferable use rights) in the marketplace. To launch such a market system, small (under one hectare), well-located and fully equipped sites suitable for housing would be auctioned by competitive bid to prequalified housing

developers. Developers would be free to design, build and sell housing units at market prices, and the developer offering the highest price would be awarded the site and granted rights to develop and sell housing to buyers. Depending on legal and legislative developments, the City would either sell freehold interests in the site or grant a perpetual use right. If the developer receives fee interest in the site, he would subdivide the property and sell housing and land to buyers, utilizing some form of condominium ownership structure. If a perpetual leasehold interest is conveyed, the developer would sell houses with long-term leasehold interests to provided buyers.

Designated sites would be packaged for competitive bidding. Each bid package would provide information about: the site, market demand, access to infrastructure, land use planning and zoning requirements (permitted use, floor-area ratio, set backs, and height limits), timing and form of bid payment, required timing of project execution, and criteria used to evaluate bids. Bid packages would be advertised nationally and the bidding would be open to all construction and housing development firms registered to operate in Russia.

2.2 The Benefits of Private Sector Housing Delivery

Launched on a wide scale, private sector land and housing development could revolutionize housing production in Ekaterinburg. Not only would it generate considerable revenues for the City to reinvest in infrastructure or use to assist low- and moderate-income families obtain housing, but it would also transform the structure of housing delivery away from mass production high-rise elevator buildings to a wide range of town-houses, single-family units and low-rise, medium-density projects. Smaller scale projects would enable developers to better utilize smaller infill sites which already have access to infrastructure. Such infill development would reduce the need for costly greenfield development to support the massive high-rise microrayons favored by the kombinats. Even more importantly, the concept would help spawn the growth of small- and medium-sized private sector housing developers.

Interviews with City officials and private developers pointed out the time consuming complexity of the City's current land allocation process. The process requires some 65 steps and can take years for small enterprises to acquire sites. On the other hand, YKC, the City's own developer can acquire sites in two to three weeks. Small developers claim that it is nearly impossible to receive a land allocation. Open and competitive bidding for land would remove a major barrier to entry for enterprises wanting to develop housing. It would also "level the playing field" in the housing delivery system and create powerful incentives for the kombinats to adapt to a competitive environment. A market-based system of auctions and tenders will provide openings for new firms to launch housing projects. To insure their success, concurrent activities are needed to increase access to building materials, infrastructure services, and construction and mortgage finance.

If fully implemented, the land market could support the sale of between 10 and 20 sites, totaling 7.5 to 15 hectares per year. At an estimated sale price of R. 20,000 to 25,000 per square meter of land, revenues of R. 1,500,000,000 to 3,750,000,000 could be generated using February 1993 prices. Revenues from the sale of land could be used to fund the expansion and modernization of the City's infrastructure system and to financially assist low- and moderate-income households to gain access to housing.

2.3 Implementing Private Sector Land and Housing Development

Before launching a land market program, the City needs to prepare an inventory of under-utilized sites well-suited for residential development. The inventory should consider:

- parcel size and dimension
- infrastructure availability
- master plan policies
- access to transportation, employment, and commercial services
- environmental quality
- site developability
- ownership
- marketability of housing

Under-utilized sites formerly allocated to enterprises should be considered for recapture. If this is not possible, the City might consider joint venturing with the enterprise holding the use rights so that land revenues can be divided. Once the inventory has been prepared, sites should be ranked or grouped. Parcels should be small to make it easier for small private contractors and developers to bid (keeping in mind that large parcels may still be available for kombinats). Suitable sites should be packaged for competitive bidding.

It is absolutely essential that the executing department have clear authority to auction sites and, to the fullest extent possible, the sole authority to determine winning bids. The Vice Mayor for Housing and his staff should have overall management control of the project.

3 DEMOGRAPHIC AND ECONOMIC PROFILE OF EKATERINBURG

This section outlines demographic and economic characteristics of Ekaterinburg and the Sverdlovsk Oblast, and it provides the basis for estimating the market demand for housing.

3.1 Population Trends and Demographic Patterns

Ekaterinburg, Russia's third largest city, and capital of the Sverdlovsk Oblast is located in the central Urals region. Map 1 illustrates the location of Ekaterinburg in the Sverdlovsk Oblast in the Urals region. The Oblast's 1992 population stood at 4.75 million persons. Ekaterinburg, the Oblast's principal economic and administrative center, has a population of 1,370,700. Owing to its role as a center for defense industries, Ekaterinburg was closed to foreigners and foreign investment until 1990.

As Table 1 illustrates, the City's main period of growth was during the late 1920s and the 1960s when policies of rapid industrialization prompted the migration of labor from western Russia and other areas of the former Soviet Union. In the 1960s, rapid industrialization caused employment to expand. But soon, economic conditions soured, and by the mid-1970s employment growth and migration flows slowed. While the future pattern of population dynamics is uncertain, population levels are likely to decline as the economy goes through a wrenching economic restructuring. Ekaterinburg's uncertain economic climate is dampening demographic growth factors.

Over the past five years, the crude birth rate has fallen by over 60 percent from 16.3 births per 1000 persons to 10 per 1000 in 1991, now matching extremely low World War II levels. In the three years from 1989 to 1991, births in Ekaterinburg decreased from 64,422 to 50,801. Concurrent with the City's declining fertility rate is a rising mortality rate. The increase is due to both the aging of the population and actual increases in age-specific rates of morbidity. Between 1987 and 1991, Ekaterinburg's crude mortality rate increased by 12 percent, from 9.2 deaths per 1000 of population to 10.3 per 1000. In absolute terms, deaths increased from 51,155 to 54,339 between 1989 and 1991. Diverging fertility and morbidity rates result in a negative natural increase in Ekaterinburg's population. Between 1989 and 1991, Ekaterinburg's annual natural increase in population (births minus deaths) turned negative, falling from 13,267 to -3,538. During the first six months of 1992, deaths exceeded births by 1,200 persons.

Until 1986, migration played an important role in driving Ekaterinburg's population growth. However, since then, net in-migration has slowed and in 1990 was virtually zero. Recent estimates of migration indicate that Ekaterinburg is experiencing a net out-migration of population. Coupled with a declining natural increase, the City can expect to gradually lose population over the foreseeable future. This trend could change if migration flows increased due to the rapid and significant redeployment of Russian military staff, and the return of civilian population from other republics of the former Soviet Union.

Ekaterinburg's 490,000 households have an average size of 2.8 persons. Data on the age of household heads or on the number of single person households is not available. Given a housing stock of 445,000 units, there are clear signs of overcrowding and housing

Map 1. Sverdlovsk Oblast and Ekaterinburg

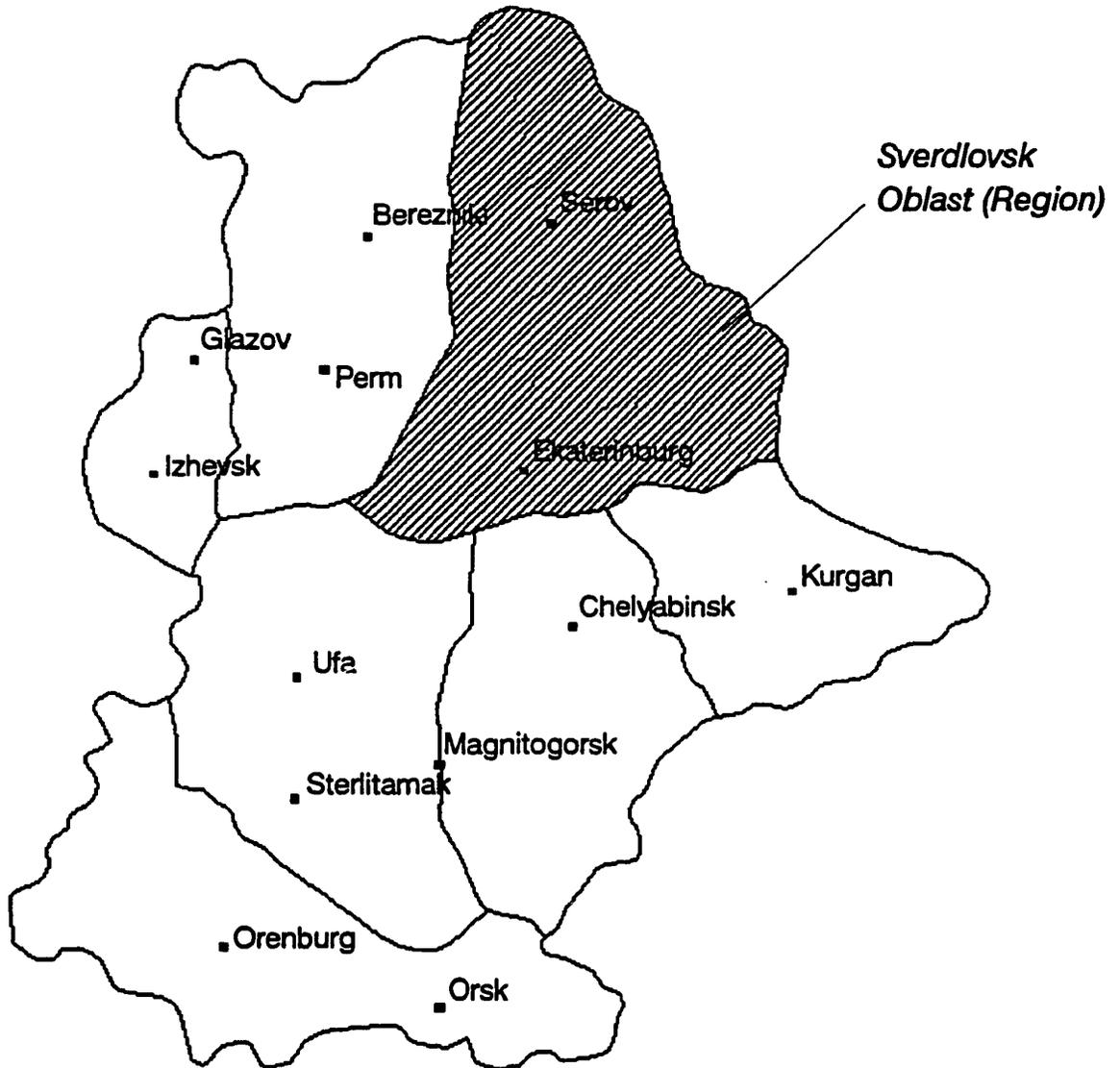


Table 1 Ekaterinburg Population Trends, 1920-1992		
Year	Population	Average Annual Increase (percent)
1920	91,000	
1926	103,100	2.2%
1937	309,300	18.2
1945	488,400	7.2
1950	566,000	3.2
1959	778,600	4.2
1970	1,025,400	2.9
1979	1,211,200	2.0
1989	1,364,000	1.3
1992	1,370,700	0.2

Source: City of Ekaterinburg, 1993.

shortages, as the current number of households in Ekaterinburg exceeds the housing stock by 45,000 dwelling units.

3.2 The Spatial Distribution of the Population

The city is divided into 7 districts. Two of these districts are composed exclusively of the production and associated residential facilities of large state-owned enterprises. The districts are further subdivided into microrayons. A considerable portion of the City—over one third—is dedicated to forests and agricultural areas, resulting in very low levels of population density—24 persons per square kilometer compared to 334 persons per square kilometer in Moscow. In addition, the physical planning of residential districts is inefficient despite the fact that most housing in the City is in either high-rise or multi-story walk-up buildings. For example, floor area ratios in high-rise apartment projects are limited by Russian Federal law to no more than 1:0.66 (considerably lower than levels found in comparably sized cities in market economies). Another contributing factor leading to the very low population density is the general pattern of enterprises to under-utilize and hoard land it has been allocated. Windshield surveys made during the mission reveal numerous parcels of vacant and under-utilized land throughout the City.

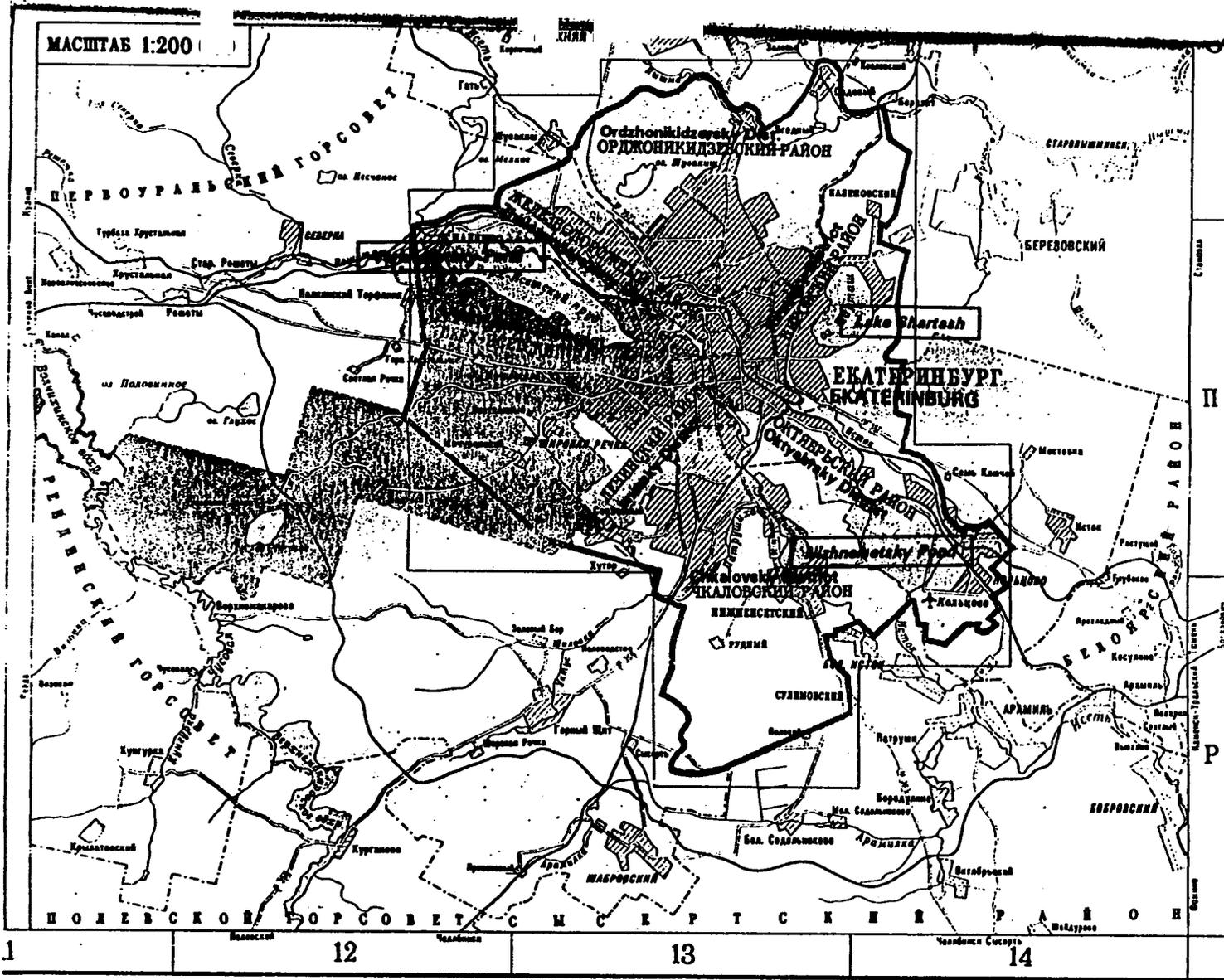
Map 2 shows the location of the seven districts comprising the City. Table 2 presents population trends in the seven districts from 1979 to 1992. Population in the central district, Chkalovsky, has declined from 1979 to 1992. More recently, population in the Kirovsky and Ordzhonikidzevsky Districts declined as well. Given Ekaterinburg's steady-state population over the past five years, district-level population change is the result of suburbanization and the completion of housing estates in newly built microrayons on the City's periphery. Unless redevelopment and infill development of small under-utilized parcels in the center of the City takes place, population in the Chkalovsky and Kirovsky districts is likely to decline over the next decade. Economic and industrial restructuring and the privatization of state owned enterprises will dramatically alter Ekaterinburg's urban landscape, with former industrial areas being converted to office, commercial and residential areas. The City should reassess its development patterns in order to determine areas that have excess infrastructure capacity and would therefore offer low-cost options for housing and urban redevelopment.

Overall development of the city is guided by a Master Plan, adopted under the "old" system using a 25-year planning horizon and apparently establishing guidelines for the development of housing, industry, environment and other major economic and land uses. District government and citizen groups had no input to the master planning process, and the old plan reflects the needs and requirements of the large industrial firms in the City, overlooking urban design and environmental quality issues.

A new master plan is now being jointly prepared by the City and a Moscow design institute. The basic population and economic research was done in Moscow, and a local planning institute is now drafting land use and district plans and zoning regulations. The new plan is expected to better respond to the needs and interests of the seven districts, which have gained a stronger voice in today's more open political process. The new plan will include proposals such as expanding the city's boundaries, and reducing and reallocating industrial land uses. Unfortunately, a more detailed review of either the existing or draft master plan was not possible at this time since both are restricted documents under the laws of the Russian Federation.

3.3 Future Population Trends in Ekaterinburg

Over the next five years, Ekaterinburg's population will probably decline due to reductions in births, increases in deaths, and increases in out-migration. Ekaterinburg's uncertain and declining employment prospects are forcing job seekers to look outside the region for work. The region's major concentrations of employment (industry, transportation, and construction, which account for nearly 50 percent of the region's total employment) are in steep decline. The full impact of reduced military orders is not now clear, but in the short term it will contribute to unemployment and underemployment, depressed household formation, out-migration and a reduced demand for goods, services and housing. However, at the same time a vigorous private sector is emerging, offsetting declining employment in the state sector, and a flood of prospective foreign business



Map 2. Ekaterinburg City Districts

Схема расположения листов

1	2
3	4

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91

Table 2 Population Trends in the Seven Districts of Ekaterinburg, 1979-1992					
District	Population 1979	Population 1989	Population 1992	Percent Change 1979-92	Share of Change 1979-92
Verkh-Isetsk	172,200	199,000	200,000	16.1%	17.3%
Zheleznodorozhny	128,000	137,800	146,000	14.1	11.2
Kirovsky	186,900	237,300	234,600	25.5	29.7
Leninsky	144,100	177,400	177,200	23.0	20.6
Oktyabrsky	113,800	132,800	135,500	19.1	13.5
Ordzhonikidzevsky	270,100	290,500	285,700	5.8	9.7
Chkalovsky	195,000	188,200	191,500	-1.8	-2.2
TOTAL	1,210,100	1,363,000	1,370,500	13.3%	100.0%

partners visiting Ekaterinburg has raised hopes that industrial conversion will lead to economic growth after a difficult transition period. Extreme economic uncertainty and data limitations make it impossible to predict the actual level of population decline. However, over the next five years, Ekaterinburg's population is likely to remain stable or slightly decline.

3.4 Economic Structure of the Sverdlovsk Region

During the days of the Soviet Union, Ekaterinburg, then known as Sverdlovsk, was one of the main industrial centers of the USSR's massive military industrial complex. Because of its remoteness from Western Europe and its abundance of raw materials and minerals, Soviet planners targeted the City for rapid defense-oriented industrialization. With the end of the "Cold War," the demand for many of Ekaterinburg's defense-industry products has been undermined. Unless its factories can quickly convert to non-military activities, the City's economy is likely to shrink. This section examines Ekaterinburg's economy, drawing mainly on Oblast-level economic data.

With the decline in the demand for industrial products, the Sverdlovsk region and Ekaterinburg's economic base is overwhelmingly dependent on the processing of raw materials, production of metals and chemicals, and to a lesser extent on the production of manufactured consumer and producer goods. As Table 3 illustrates, in 1992, 88.9 percent of the region's exports were in the form of mineral raw materials and metals, 5.9

percent were chemicals, 2.9 percent manufactured consumer goods, and 1.7 percent were machinery, equipment and means of transportation. The remaining 0.6 percent of exports was for other raw materials and processed products, construction materials and services. If defense-oriented industries can convert to non-military production and establish new markets for their products, the region's export profile could shift back to a more manufacturing-oriented base. A promising trend is the fact that the number of foreign joint ventures established in the Oblast has been increasing over the past five years, and now stands at 75 joint-stock company registrations.

Table 3 Patterns of Export Activity in Sverdlovsk Oblast, 1992		
Type of Goods	Value of Exports ('000s of rubles)	Share of Exports (Percent)
Machinery, Equipment & Transport Equip.	260,167.7	1.8%
Metals & Minerals	12,968,726.4	89.0
Chemical Products	854,189.1	5.9
Raw Materials & Other Processing Products	59,714.4	0.4
Construction Materials	1,376.0	0.0
Manufactured Consumer Goods	421,070.9	2.9
Services	8,940.0	0.1
TOTAL	14,574,184.5	100.0%

Table 4 presents employment by major industrial category for 1987, 1990, and 1991. In 1991, total employment stood at 2,019,080, and reflects a very high labor force participation rate of 75 percent (i.e., 75 percent of the population between the ages of 19 and 60 are employed). This suggests that many households are likely to have multiple wage earners.

Over the past five years, state-sector employment has declined, falling by 182,218 between 1987 and 1991. Nearly 70 percent of the total job loss occurred in the industrial sector. Other areas of significant job loss include: transportation, -31,644; construction, -22,377; and retail and wholesale trade, -18,805. Preliminary data for 1992 indicate further employment reductions, concentrated in the industrial, construction and retail and wholesale trade sectors of the economy.

Table 4 Sverdlovsk Oblast Employment Trends 1987 - 1991				
Sector	1987	1990	1991	Change 1987-91
Industry	963,896	872,622	838,589	(125,307)
Agriculture	128,648	120,050	116,869	(11,779)
Forestry	9,100	7,667	7,281	(1,819)
Transport	155,392	126,564	123,748	(31,644)
Communications	23,463	21,711	20,981	(2,482)
Construction	201,743	197,902	179,366	(22,377)
Retail & Wholesale	178,701	165,743	159,896	(18,805)
Info. & Computers	4,521	5,326	4,849	328
Misc. Production	28,329	26,491	29,530	1,201
Housing Services	93,551	91,088	98,438	4,887
Health & Rec.	115,992	124,417	127,566	11,574
Education	175,765	182,915	187,624	11,859
Culture & Arts	28,930	31,520	29,736	806
Science	59,280	48,992	59,779	499
Banking & Insurance	11,211	11,264	12,197	986
Government	22,776	19,127	22,632	(144)
TOTAL	2,201,298	2,053,399	2,019,081	(182,217)

At the same time, a growing number of industries and state enterprises are being privatized, and new private firms are being established. If these new companies succeed, they will generate new jobs. While we were not able to acquire employment data for the private sector, we have been able to monitor privatization and private business registration activity. During 1992, 3,067 applications for enterprise privatization were submitted in the Sverdlovsk Oblast. Of these, 2,231 were for municipal and 836 were for federal and regional property. During 1992, 1,690 properties were sold in the Oblast. In Ekaterinburg, 136 properties have been privatized to date.

Table 5 presents tabulations of enterprises privatized in the Sverdlovsk Oblast during 1992. Of the total reported (1,218), over half were in retail trade (674 units). Retail and commercial services accounted for another 329 firms. Forty-one firms in the industrial sector were privatized, including 14 producing construction materials. Sixty-eight construction companies were privatized in the Oblast, and many of these may constitute a potential pool of private housing developers.

Table 5 Enterprises Privatized in Sverdlovsk Oblast in 1992, by Industry		
Industry Sector	Number Privatized	Percent of Total Privatization
Light Industry	10	0.8
Food Processing	7	0.6
Construction Materials	14	1.1
Construction Firms	68	5.6
Agricultural	9	0.7
Motor Transport	6	0.5
Retail Trade	674	55.3
Wholesale Trade	9	0.7
Restaurants	113	9.3
Commercial Services	216	17.7
Other	92	7.6
TOTAL	1,218	100.0

In addition to privatized firms, a significant number of entirely new private firms have started operations in Ekaterinburg. From 1987 and 1992, 19,795 businesses were formally registered with the City Administration, and the rate of registration is accelerating. Between 1987 and 1989, the City registered 1557 enterprises; in 1990, 1537; in 1991, 6,693; and 10,008 in 1992. As of January, the City had a registration backlog of nearly 6,000 entities. Growing fast, these new establishments are vitalizing the City's economy. While data are not available on employment trends for private firms, clearly they account for a growing percentage of Ekaterinburg's employment.

3.5 Wages and Income in Ekaterinburg

Rampant inflation makes it extremely difficult to gauge income and housing affordability. For most households, inflation has completely eroded the value of their financial assets. Pensioners have been pushed to the bottom of the income distribution and many are now living in extreme poverty. Others are more fortunate, their incomes having been adjusted to keep pace with inflation. Between December 1991 and December 1992, wages increased an average of 14.9 times, closely tracking the overall rate of price inflation. As of December 1992, average monthly wages in the Sverdlovsk Oblast stood at R. 18,507. Monthly wages by economic sector ranged from a low of R. 10,017 for health and physical training workers to a high of R. 38,147 for those employed in credit and insurance enterprises. Table 6 presents average wages for December 1992 and the increase over December 1991, by industry.

An income and expenditure survey of 1300 families in Ekaterinburg was conducted in December 1992, and the survey reported that average monthly family income in that month was R. 11,786 (median family monthly income is estimated at R. 7,144). We have compared these income estimates with a recently completed household survey for the City of Novosibirsk, where the median household income is estimated at R. 20,253 per month, some 1.8 times greater than in Ekaterinburg.

After considering the methods of the two surveys, we find that the estimates for Ekaterinburg are biased downward because of the survey's sampling method. The Ekaterinburg survey was carried out by telephone, despite the fact that less than one third of the City's households have telephones. Given the long waiting lists for telephone service and given preferential treatment of World War II veterans, households with telephones are likely to be much older than the general population, and therefore the percentage of pensioners in the survey will be greater than that of the overall population. According to our survey of recently privatized flat sales, telephones were found in 46 percent of units built before 1960, 25 percent of flats between 1960 and 1980, and only 10 percent of flats built after 1980. A telephone-based sample survey will therefore result in an over-sampling of flats built before 1960 and—given extremely low household mobility—will contain households of people in their sixties who are likely to be living on pensions.

We therefore expect that the income level in Ekaterinburg is on average higher than that reflected in the telephone survey. In light of these biases, a new survey of household income is needed. However, as an interim measure, we have prepared an estimate of income distribution in Ekaterinburg, based on Oblast level wages and on the results of the Novosibirsk survey (which was not conducted by telephone). The estimate assumes that households in the lowest quintile of the income distribution have incomes similar to those reported by telephone survey—incomes ranging up to R. 5,000 per month. We have adjusted the incomes of the second, third, fourth and fifth quintiles upward to more closely reflect the median household income found in Novosibirsk and the average wage level of workers in the Sverdlovsk Oblast. Table 7 presents income ranges for income

Table 6 Average Income by Industry, December 1992		
Industry	Average Monthly Wage in Rubles	No. Times Increase from Dec. 1991
Industry	20,063	14.8
Agriculture	12,461	10.5
Forestry	15,670	12.9
Transport	18,056	15.7
Communications	13,087	15.9
Construction	30,668	15.7
Catering, Wholesale & Retail Trade	13,413	14.3
Info. & Computers	11,852	12.3
House Maintenance & Communal Services	14,005	16.2
Public Health, Physical Training, Social Security	10,017	16.1
Education	11,459	17.2
Culture & Arts	7,682	11.6
Science & Related Services	15,392	13.7
Credit & Social Insurance	38,147	23.1
Government	20,679	17.5
Other	11,536	17.5
ALL SECTORS	18,507	14.9

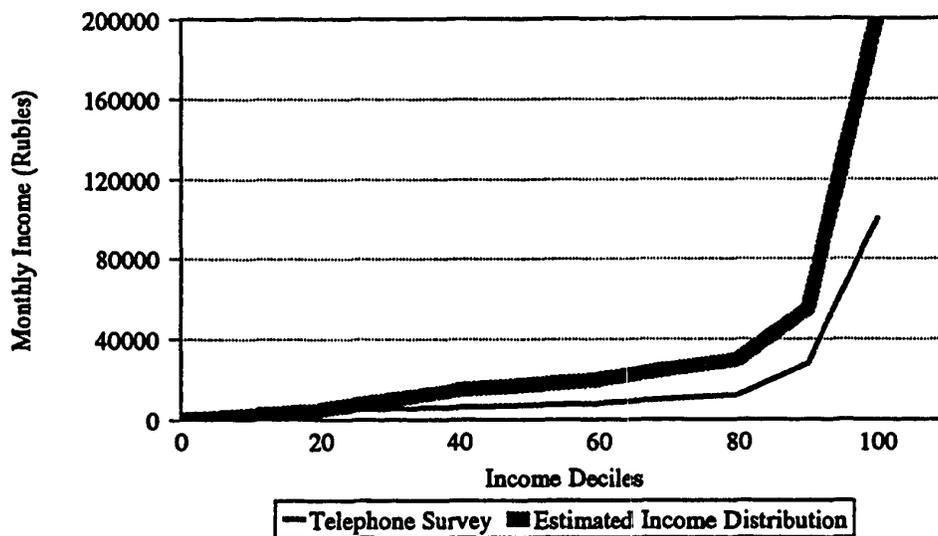
percentiles for the telephone survey and our adjustment. Figure 1 shows the two distributions graphically. The estimated income distribution will be used below in Sections 5 and 6 to assess project feasibility and to gauge affordability levels.

Table 7 Income Distribution - Monthly Household Income in Rubles			
Income Percentile	Cumulative Population	Telephone Survey	Estimated Distribution
0	0	0	0
20	98,000	4,870	5,000
40	196,000	6,381	15,000
60	294,000	8,133	20,000
80	392,000	12,333	30,000
90	444,000	27,759	55,000
100	490,000	100,000	+200,000

Source: Sverdlovsk Oblast Statistical Office (Jan. 1993 Telephone Survey)
PADCO Feasibility Study Estimates, 1993

FIGURE 1. INCOME DISTRIBUTION

Ekaterinburg, January 1993



3.6 Conclusions

Rising unemployment and economic uncertainty is placing great stress on the population. As a result, the region's fertility and mortality rates are already below replacement levels. Migration out of the region may increase as displaced workers seek employment elsewhere. The economic restructuring of the economy has reduced employment in industry by 125,000 jobs between 1987 and 1991, and further declines in employment can be expected. Wage and income data suggest families in the top 20 percent of the income distribution (households with multiple earners working in sectors which have increased wages to keep pace with inflation) are maintaining their standard of living. Other segments are suffering. The percentage of households earning below the government-defined poverty level, increased from 10.5 to 41.9 percent of Ekaterinburg's population between December 1991 and December 1992. Pensioners and workers whose wages have not been adjusted are quickly falling behind.

4 HOUSING CONDITIONS AND HOUSING DELIVERY IN EKATERINBURG

4.1 Description of Housing Stock

Ekaterinburg's housing stock is overwhelmingly owned by state enterprises and the municipality, reflecting the socialist system of housing allocation. Table 8 provides a breakdown of the City's housing stock by ownership for January 1992 and February 1993. As it shows, over half of the City's housing stock has been provided by state enterprises for their workers, one third of the stock is provided by the municipal administration, and cooperative housing accounts for nearly 9 percent of the City's housing stock. Private housing represents 4 percent of the total housing stock, and most of it consists of small wooden houses and old dwellings in need of redevelopment. Between January 1992 and February 1993, nearly 10 percent of the City's housing stock was privatized (42,000 units), indicating that the City's private housing stock is now approaching 15 percent of the total stock.

In terms of gross constructed area, Ekaterinburg's housing stock totals 21,523,100 square meters. Total net living area, defined as total dwelling space less kitchen and bathroom areas, is 13,460,700 square meters. In 1989, net living area per capita averaged 15.9 square meters, an increase of 1.4 square meters since 1980. By comparison, residents of Moscow and St. Petersburg enjoy significantly more space (17.7 and 17.3 square meters, respectively), while in Novosibirsk they do with somewhat less (14.1 square meters). Our survey of nearly 600 recently privatized units reveals that the typical gross floor area of apartments is: 1-room unit, 31 square meters; 2-room unit, 46 square meters; 3-room unit, 63 square meters; 4-room unit, 75 square meters; and 5-room unit, 94 square meters.

Table 8
Estimated Ownership of Ekaterinburg Housing Stock

Owner	Jan. 1992 Housing Units	Jan. 1992 % of Total	Feb. 1993 Housing Units	Feb. 1993 % of Total
City Soviet	151,000	33.9%	139,000	30.9%
State Enterprises	237,900	53.5	212,000	47.1
Housing Cooperatives	38,300	8.6	39,000	8.7
Private Sector	17,800	4.0	60,000	13.3
TOTAL	445,000	100.0%	450,000	100.0%

Source: 1992 Total from McCulloch, 1992
1992 Distribution from Hanson, Kosareva and Struyk, 1992
1993 Registration, Distribution & Exchange of Housing Office

As is common for housing production in socialist systems, there is little housing variety. In the 1950s and 1960s the housing production system produced five to eight-story walk up apartments constructed of brick and block. In the 1970s, with the refinement of large panel building systems, the production system shifted to high-rise elevator panel buildings and by the late 1980s panel construction dominated Ekaterinburg's market, capturing between 40 to 70 percent of annual housing production. The near exclusive reliance on either brick walk-ups or panel units results in the fact that approximately 95 percent of Ekaterinburg's housing stock consists of these two housing forms. The few exceptions, found in older sections of the central city and in some outlying areas, are old wooden houses. Planning regulations were recently modified to permit the construction of single-family detached units in the City, and at present there are about 300 "cottage" units under construction. These units are targeted on upper income households, an average 300 square meters in constructed area, and are sited on 1000 square meter plots. Most of these cottage developments are in suburban areas and range in price from R. 15,000,000 to 30,000,000.

Past housing design and construction practices reflect a profound lack of concern for lifecycle building economics. Despite the severity of Ekaterinburg's winter, most buildings are not insulated but rely on massive walls as a means of maintaining comfortable interior temperatures. When temperatures are too high, occupants open windows to reduce heat. When temperatures are low, they either suffer or buy electric heaters. Consequently, energy losses are high and the long-term efficiency of buildings low. Gradually, as flats are privatized and utility rates set to recover full economic costs, households will

move out of older, energy inefficient buildings. Buildings using new construction methods and materials which offer lower energy costs will be in demand.

4.2 Housing Conditions

Ekaterinburg's housing stock is of recent vintage. As of 1989, 47 percent of the region's and the City's housing stock was constructed since 1971, and an additional 22 percent was built between 1961 and 1970. Only 14 percent of the area's housing stock predates 1950. Most municipal and enterprise housing is well-equipped, with over 95 percent of the City's housing stock having access to piped water, sewerage collection, central heating, and hot water. Private units (mostly pre-privatization dachas) have few services—only 8 percent have piped water, 3 percent have sewerage collections, 40 percent central heating, 2 percent have baths or showers, and 3 percent have hot water. Occupants of these units may be candidates for new privately provided housing.

Despite the relative newness of Ekaterinburg's housing stock, many units are in poor condition. Housing built during the Khrushchev period is notoriously rundown. Rent controls and the failure to charge realistic fees for building maintenance have forced both the City and the enterprises to defer maintenance. Despite the fact that rental charges are now being gradually increased, most buildings are far from the point where tenants pay enough to fully cover routine maintenance, let alone fund the backlog of deferred maintenance. The net result is that buildings only twenty to thirty years old may be beyond repair. According to Hanson, *et. al.*, ten percent of Ekaterinburg's housing stock will not be permitted to be privatized because it is in very poor condition, suggesting that the overall number of units in poor condition may reach 45,000 units, and at least 5,000 of these dwelling units have been condemned.

4.3 Ekaterinburg's Land Allocation Process

The City's process of land allocation is quite complicated. Although the Land Allocation Committee of the City Administration is ultimately responsible for issuing use permits, a variety of City Departments must be involved. This results in a torturous process requiring more than 65 signatures and frequently takes more than one year from beginning to end. Because of their greater political clout, larger enterprises seem to have an easier time obtaining land than smaller ones.

The management of Ekaterinburg's land resources is divided between the City Administration and the City Soviet. The City Administration's Architectural Department approves all requests for land allocation and land use. In making its review, it determines if the applicant's use conforms to the city's master plan and with the general development pattern of the surrounding area. The City Administration's Land Reform Committee, under the control of the Vice Mayor for (Housing), is responsible for registering parcels of land privatization. The Land Allocation Committee of the City Soviet actually allocates use rights.

The actual process for obtaining a land allocation is as follows:

1. Obtain City Administration approval of the proposed use for the land. This requires approval of the Chief Architect, indicating that the proposed use conforms to the master plan (a secret document). If there are multiple claims for a land parcel, the Administration reviews all applications and determines which proposed use is most suitable for the site. This can take considerable time.
2. Obtain approval from utilities, police (for traffic control), and sanitation development (responsible for environmental concerns) that the proposed use meets their requirements, such as there being adequate infrastructure capacity to support the proposed development or the applicant agrees to finance infrastructure expansion.
3. Obtain draft approval from the Chief Architect to prepare detailed designs.
4. Get detailed designs approved by Chief Architect and representatives from utilities, police, and sanitation departments. At this point advance payments for services must be made.
5. If all approvals are obtained, the Land Allocation Committee issues a permit to use the land. This permit is a right to build on the site and can be revoked if construction does not start within two years.

Many of these steps appear reasonable, but there are several problems with the current process. First, application for required approvals must be submitted sequentially, and each office can take a month to process applications. A second problem is that applicants cannot review the City's master plan documents before choosing a site since they are secret. So they run the risk of choosing a site that will be rejected because of inconsistency with the master plan. A third problem is that the process treats applicants from the City Administration differently than those from outside. YKC, a City-affiliated housing developer claims that it can get an allocation within two or three weeks time. On the other hand, private developers and contractors claim that the process is extremely difficult and stacked against them. If they are successful, the process can take six months to a year.

Difficulties in obtaining access to land have forced private developers to procure land through informal channels. Despite the lack of legislation on private land holdings (except for dachas and agriculture), developers are assembling land for larger projects. As an example, one firm gathered together 36 people and got them to apply for privatization of dacha plots in a single area. In this manner they were able to assemble 10-15 hectares in a single area for a large "cottage" housing project. Another common method used to acquire land is to buy previously allocated, but unused, land use rights from enterprises. This procedure involves the contractual sale of use rights and rerecording the

new owner of the rights with the City Administration. As long as there is no change in the parcel's use, the transfer of use rights can be effected fairly rapidly.

4.4 The City's Supply of Land for Allocation

At the present time, the City does not have a proper land cadastre, and therefore lacks a comprehensive inventory of land parcels according to holder of use right, current and permitted land use, and level of infrastructure service. Instead, various Departments and Commissions of the City Administration and Soviet are compiling land inventories and carrying out assessments of parcels. For example, the Land Reform Committee, in anticipation of its land privatization activities, recently started categorizing land for future privatization according to three categories: i) stock parcels or vacant land where development is permitted; ii) fully extracted mines; and iii) parcels which are presently inefficiently used (this latter definition is unclear, but appears to include a substantial portion of the City's "private" wooden housing stock rated in poor condition). Altogether the Committee has identified 2,000 hectares that can be privatized.

As part of its master plan activities, the Design Institute of the Chief Architect's Office is also conducting a survey of land use and development potential. Though estimates of the quantity of land suitable for privatization are not yet available, apparently the new plan will propose expanding the City's boundaries to claim additional land for privatization. The evaluation is categorizing land according to its present use, environmental constraints and other conditions. For example, land with deteriorated housing on it can not be privatized, nor can land used by polluting industries. No estimates of the economic effects of privatization seem to have been prepared. Similarly no schedule has been prepared to establish priorities or target locations for privatizing land. It is not clear how closely this activity is coordinated with the work of the Land Reform Committee.

The City's current system of land allocation is inefficient, uneven and costly. Ekaterinburg needs to consider other models of land allocation which can efficiently and fairly allocate land. Market mechanisms relying on auctions and competitive bidding have been used in other transition economies with great success.

4.5 Infrastructure Availability

Infrastructure investment policies play an important role in determining the availability of land for residential development. Ekaterinburg's current infrastructure systems (for water supply, sewerage, district heating, electricity, gas, telephones, and transport) are limited and pose a major constraint on the development of new housing projects in the City. Greenfield sites suited for large high-rise housing estates lack adequate infrastructure capacity to support development. On the other hand, smaller under-utilized infill sites in urban areas may have adequate infrastructure capacity. In an era of dwindling

financial resources, the City should consider modifying its urban development and infrastructure investment policies to make the most use of its urban infrastructure.

The city's infrastructure is under the management of the Vice Mayor for Maintenance & Infrastructure (Mr. Shtager). Recognizing the critical situation in financing infrastructure, the city has set targets for fully recovering operations and maintenance costs of its services within five years (the first scheduled increase is set for April 1993). These efforts should be encouraged and supported. Tenants should gradually begin paying for the full costs of utilities. This will help create more efficient land and housing markets and provide incentives for consumers and producers to conserve resources.

As a condition of land allocation, developers must pay one year's advance payment for operating costs. This may be paid in three installments: 30 percent upon concept approval, 30 percent at the start of construction and 40 percent when the project is ready for occupancy. While we applaud the move to full cost recovery, the current practice of requiring developers of new projects to make a one-year advance payment of infrastructure operating costs seems excessive and likely to impede the creation of a new private sector housing construction industry.

The lack of long-term infrastructure financing mechanisms makes the provision of off-site infrastructure very costly for new housing projects which require infrastructure extensions. Under such circumstances, developers must finance all the costs of extending services to their sites. However, if other projects are constructed which tie into the developer-financed system, the original developer can charge a share of the initial investment to recover some of his original investment. The need to finance all services often becomes a constraint in new project development since the city has no other mechanisms for financing infrastructure.

4.6 Housing Construction

Historically, the pace of housing construction in Ekaterinburg has been brisk, with the City's stock increasing by between 2.3 and 2.9 percent per year during the late 1980s (see Table 9). However, starting in 1991, the level of production slipped as central government funds to support housing construction declined. By end-1992, housing construction in the City fell to 1 percent of the stock. Limited funds now make it extremely difficult for the City to address its acute housing shortage.

Parallel to other centrally planned economies, housing construction is marked by a lack of competition. As Table 10 illustrates, the largest six construction firms accounted for between 65 and 92.4 percent of the total volume of residential construction in Ekaterinburg between 1988 and 1992, with each kombinat specializing in one type of construction technology, such as panel, brick, and concrete. Between 1988 and 1992, market share of the largest firm (DST) declined from 69.9 to 42.6 percent of output. DST, it should be pointed out, only produces panel houses; with changing market conditions, it

Year	Volume of Construction (Sq.M.)
1988	542,421
1989	573,464
1990	556,414
1991	403,468
First Half 1992	222,696

will probably have difficulties maintaining market share unless it changes its production technology. SGDS and STS have also lost market share over the same period. At the same time, smaller firms have increased their collective share from 8 to 35 percent.

Large public-sector enterprises also maintain construction crews for both expansion of plant facilities and building worker housing. At present, 12-15 large enterprises maintain house building programs, each constructing around 100-200 flats per year for their workers. One enterprise interviewed stated that it used to rely on the city to package housing projects, but found that it did not receive the full number of flats for which it contracted. In response, the enterprise started its own house building program. For example, Table 10 shows that Uralmash has increased its share of housing production. Typically, enterprises construct medium-rise structures and cottages for their own staff. Some are considering developing for-sale units.

A major player in Ekaterinburg's residential construction industry is the City Administration's General Capital Construction Department (YKC). YKC was created to package construction projects in the City. It takes orders for construction from City departments, enterprises and districts and then packages them into larger projects. It contracts with design institutes to prepare designs, applies for land from the City and when the project is approved, negotiates construction contracts with kombinats. To date, YKC has relied exclusively on kombinats and prefers constructing large multi-story buildings. In preparing a project, it goes through the same general approval process as private companies; however, due to preferential access to the City Administration, YKC is able to get projects approved in two to three weeks.

YKC's main sources of funds are budgetary (oblast, City or federal budgets) and so-called "share" money or contributions from enterprises or individuals. Share money is only contributed for residential projects. Other types of projects are financed entirely from the budget. Since 1989, there has been a down-turn in YKC-contracted construc-

Table 10
Volume of Housing Construction by Builder, 1988 - 1992

Builder	1988		1989		1990		1991		1992*	
	(sq.m.)	(%)								
DomoStroiTelnii	379,155	72.3	255,867	44.6	312,470	56.2	256,894	53.1	94,915	42.6
SverdlovskGrazDanStroi	46,202	8.8	24,138	4.2	47,210	8.5	19,844	4.1	10,826	4.9
SverdlovskTransStroi	14,341	2.7	13,469	2.3	20,456	3.7	14,072	2.9	4,476	2.0
UralMash	10,165	1.9	50,561	8.8	29,609	5.3	30,381	6.3	17,695	7.9
UralMash (UZTM)	8,577	1.6	16,088	2.8	11,543	2.1	15,660	3.2	5,466	2.5
Koz.Sp	24,503	4.7	29,172	5.1	41,299	7.4	26,280	5.4	11,557	5.2
Others	41,478	7.9	184,169	32.1	93,827	16.9	120,337	24.9	77,761	34.9
TOTAL	524,421	100.0	573,464	100.0	556,414	100.0	483,468	100.0	222,696	100.0

* First six months
Source: Economics Committee of Ekaterinburg City Administration

tion. In 1989, it authorized the construction of 280,000 square meters of apartments, but its orders fell by 30-40 percent in 1990. In 1992, they procured about 200,000 square meters of construction, 70 percent of their 1989 peak. In 1992, YKC became independent of the City budget. Its management would like to fully privatize, but the City administration is resistant.

Large public construction firms do not engage in competitive bidding for construction contracts. All awards are based on contacts between the client and builder. In this non-competitive environment, prices are fixed by an oblast level committee comprised of kombinats, design institutes, city, and oblast level officials. These fixed prices are well known and probably reduce the likelihood of competitive prices: both the client and contractor know these prices, and there is little incentive to vary from them.

Prior to the slowdown in building construction, there were continual shortages in building materials. Now contractors report that materials are available if they have sufficient funds to pay for them. If problems in supply remain, they are qualitative rather than quantitative. For example, there is only one factory producing high quality bricks though several produce lower quality bricks or there is only one panel factory, although two or three factories produce pre-stressed concrete planks used for floors and ceilings.

Though shortages of building materials are not a serious problem in Ekaterinburg, speculation resulting from the knowledge that official prices are updated on a quarterly basis can lead to temporary shortages. Building developers, owners and material suppliers buy materials at one price level and hold them until new price inflators are issued and then charge the newer, higher price.

Nevertheless, given the limited palette of building materials, materials themselves are not a constraint in new housing development. A greater constraint is the lack of new materials to provide more efficient buildings capable of conserving heat and reducing maintenance requirements.

Since laws on private enterprises were rewritten, the domination by the kombinats has begun to change. A private sector contracting and developing sector is beginning to emerge in Ekaterinburg. Over the past three years, a small number of contractors have entered into private practice in the City. Initially, many of these firms were of public companies. In some cases, a majority of the shares in these companies is held by public sector, but others are wholly private. Monolith 90 is an example of a private firm. Originally, it was an agricultural cooperative, but its founders converted it into a joint stock company whose majority shareholders are private. Even the kombinats are considering privatization. DST, the large general construction kombinat building multi-story apartment blocks, has applied for privatization, but so far it has not received permission from the City Administration.

Our field work suggests that there is a small but growing private delivery system engaged in the construction and sale of private housing. While no consolidated statistics are available, interviews with builders and developers revealed several privately built apartment houses and cottage projects in the City. These are being built for either "market" sale of flats or to provide housing for various public and private clients (enterprises, private businesses or individuals). Private contractors focus on smaller buildings, usually not more than nine stories, and they are starting to explore new design options, such as townhouses, duplexes and other forms of low-rise, medium-density development. For example, the Sverdlovsk Architectural Institute recently designed a 4.5 hectare townhouse project for its staff. The project will be partly financed by a public enterprise who will share in the distribution of units. Through use of thinner walls and insulation, the Institute estimates that the low-rise structure could be built for 45,000 to 55,000 rubles per square meter including all costs, overhead and profit. In another case the Alvo Corporation is contracting with an architectural firm to prepare design and feasibility studies of a for-sale townhouse project.

5 HOUSING DEMAND

This section examines the demand for new housing construction in the City of Ekaterinburg, including housing waiting lists, requirements for replacement of dilapidated flats, the sales profile of the resale of privatized flats, household income, and the ability to pay for market rate housing.

5.1 Unmet Housing Demand

Approximately 16,600 families are on waiting lists to receive subsidized housing from the City. Additional lists managed by state-owned enterprises push this number up to 100,000. Unfortunately, precise information on the enterprise lists and on the extent of duplication between lists is not available. The average time taken to receive housing through the city's list is 15 years, and in extreme cases has taken 25 years.

Most households on these waiting lists live in crowded conditions or rent expensive flats from enterprises or individuals. In other cases, households are living in dilapidated houses. While the list is long, the benefits of finally receiving an allocation are considerable. Households fortunate enough to be allocated municipal housing pay virtually no rent, since rent control has kept rent at 1928 levels of R. 0.13 per square meter per month. Subsidized maintenance and utility charges average about R. 120 per month, well below the actual costs. In sharp contrast, rental rates in the private market range from about R. 1,250 to 2,500 per month per unit.

Despite the massive backlog reflected in the waiting list figures, it is erroneous to assume that the City or enterprise waiting lists accurately measure housing demand for market-provided for-sale housing. If households continue to expect to receive housing virtually free of charge, relatively few would be interested or willing to purchase market-

provided housing. However, if the City continues along the path of housing reform and gradually begins to charge full economic rents for all its flats, some portion of households on waiting lists may be interested in purchasing a new private sector provided unit.

5.2 Housing for Enterprises

As noted, both public and private enterprises constitute a major market for new housing in Ekaterinburg. Those enterprises which are still profitable continue to construct new housing. For them housing can be a profitable investment and a means of attracting new employees. According to enterprises interviewed, many continue to need new housing to accommodate turnover in staff. Generally they are unable to evict former employees from enterprise housing, meaning that a continual new supply must be ensured. In addition, they still have existing workers living in dormitories or temporary housing which must be accommodated. It appears that many enterprises are directing a share of their profits towards construction of large cottages as well as multi-story housing.

5.3 Replacement Housing Demand

Occupants of old wooden houses, and poorly maintained old pre-1960 walk-up buildings comprise another form of potential housing demand. As previously indicated, wooden houses have few services. In the older walk-up buildings, plumbing, heating and electrical systems are failing and making living conditions difficult. Together up to 10 percent of Ekaterinburg's housing stock needs replacement—45,000 units. Without additional surveys, it is unknown how many of the households living in these units might buy privately constructed units. However, evidence on housing shortages and poor housing conditions suggests that at least 100,000 households in Ekaterinburg may be motivated to improve their housing conditions. How many of them can afford to do so? In the next section we examine recent trends in the resale of privatized housing units to estimate what some of these households are willing and able to pay for improved housing conditions.

5.4 The Privatized Housing Market

Starting in 1992, the City began privatizing housing units. As of February 1993, approximately 40,000 dwellings have been privatized. A lively resale market has developed, and units that are well-located and in well-maintained buildings are reselling. In order to assess households' willingness to pay for private housing units, we have compiled information on approximately 575 housing transactions. These transactions took place between April 1992 and February 1993. All sales prices have been adjusted to February 1993 prices.

The average price of a resale flat in Ekaterinburg is R. 102,500 per square meter of gross area. Prices vary according to the number of rooms, type of building, age of

building, location and whether the flat has a telephone. Tables 11, 12, 13 and 14 provide tabulations of housing prices according to various attributes. One-room flats have the highest per square meter sales price: R. 163,300 per square meter of gross area. Two-room units have sold for R. 95,900 per square meter, and three and four-room units have sold for R. 66,600 and 48,700 per square meter of gross living area. These variations in price per square meter suggest that per unit prices are limited by affordability constraints and that the price range between small and large units is small. Therefore, large flats tend to have lower prices per square meter. Housing units in walk-up buildings of less than eight stories sold for slightly less than those in high-rise structures: R. 109,400 versus 95,800 per square meter of gross living area. With the exception of one-room flats, larger units built in the 1980s and 1990s sold for more. For one-room flats, prices were highest for units in older buildings built in the 1960s, (probably reflecting their location more than building quality). Flats with telephones command considerably more (R. 106,000 versus 91,600 per square meter of gross area).

Number of Rooms	Avg. Price/Sq.M.
1-Room	163,300
2-Room	95,900
3-Room	66,600
4-Room	48,700
5-Room	45,600
ALL UNITS SURVEYED	102,500

Source: Ekaterinburg Real Estate Broker Survey 1993

Sales activity is concentrated in the area around the City center (defined as the location of City Hall). Approximately 50 percent of all recorded transactions, 283 of 573, were located within 2.4 kilometers of City Hall. A total of 90 percent of transactions (514) were located within 5 kilometers of City Hall. Apartment prices increase modestly from the city center. In the inner core of the city, prices average R. 97,800 per square meter of gross area. In the next ring, from 2.4 to 5 kilometers from the city center, the average selling price is R. 101,600 per square meter. In the outlying areas, prices average R. 107,200 per square meter of gross living area.

Table 12 Housing Price by Type of Building	
Construction Type	Avg. Price/Sq.M.
Brick	104,800
Panel	105,400
Concrete & Slag Block	69,500
(Unknown)	90,700
ALL MATERIALS	102,500
No. of FLOORS	AVG. PRICE/SQ.M.
1 to 8	109,400
9 and more	95,800
ALL BUILDINGS	102,500
Source: Ekaterinburg Real Estate Broker Survey 1993	

Table 13 Housing Price by Age of Building	
Construction Year	Avg. Price/Sq.M.
1950 - 1959	83,000
1960 - 1969	110,200
1970 - 1979	106,200
1980 - 1993	103,500
(Unknown)	95,600
ALL UNITS	102,500
Source: Ekaterinburg Real Estate Broker Survey 1993	

Table 14 Housing Price by Location	
Location	Avg. Price/Sq.M.
City Center	97,800
Inner Urban Area	101,600
Suburbs	107,200

Source: Ekaterinburg Real Estate Broker Survey 1993

5.5 Estimates of Private Sector Housing Prices

Based on our survey of the prices of privatized flat sales, we can estimate market prices for new private sector units. Our estimates are based on the type and size of unit, location, and quality. Since private sector new construction is generally of higher quality than older privatized flats, price data from the resale activity have been adjusted upward by 5 percent. Based on discussions with architects and builders, we also assume that new private sector built units would be considerably larger than state built privatized flats. Given the likely range of unit sizes, we have set the price-per-square-meter spread to conform with patterns found in mature markets (the five-room unit price-per-square-meter is about 85 percent of the price of a two-room unit). Based on broker sales data, we assume that suburban units (located more than 5 kilometers from the city center) would sell for R. 10,000 more per square meter. Table 15 presents estimates of probable housing prices for new townhouse type construction located in central city and suburban locations and according to number of rooms, and are used to price a prototype demonstration project which is outlined in Section 6.

5.6 The Affordability of Private Sector Housing

Based on the estimated price of new private sector built housing, we can now assess affordability. Given the limited availability of mortgage financing, we anticipate that most housing units would be pre-sold to enterprises and government departments for allocation to their workers. Beyond sales to individuals, the extent to which these units will sell depends on whether enterprises and departments have the financial resources to provide workers with highly subsidized housing.

On the other hand, efforts are underway to develop a system of housing finance in Russia, and it is useful to determine the affordability of private sector housing if long-term mortgage financing is available. To make such estimates, we assume that some form of alternative mortgage instrument will be used, such as PLAMs or DIMs (Price Level Adjusted Mortgage and Dual Indexed Mortgage). In the following example we

Table 15 Estimated Price of Private Sector Housing, by Type & Location, February 1993 Prices					
No. Rooms and Size (sq.m.)	Central City Rubles		Suburban Location Rubles		
	per sq. m.	per unit	per sq. m.	per unit	
2 room 73 sq.m.	100,000	7,300,000	110,000	8,030,000	
3 room 96 sq.m.	95,000	9,120,000	105,000	10,080,000	
4 room 119 sq.m.	90,000	10,710,000	100,000	11,900,000	
5 room 140 sq.m.	85,000	11,900,000	95,000	12,600,000	

Source: PADCO Feasibility Study estimates, 1993

assume that purchasers make a 20 percent downpayment and finance 80 percent of the purchase price over 15 years. Monthly payments are made on the loan, and the initial percent of monthly household income available for servicing the mortgage is set at 25 percent. We assume that the interest rate for the PLAM or DIM is 6 percent. Table 16 presents estimates of the level of household income needed to qualify for purchasing each of the eight categories of housing prices presented in Table 15.

As the table clearly illustrates, private sector produced housing is affordable to only the top tier of Ekaterinburg's income distribution (top 2 percent) or those earning in excess of R. 190,000 per month. Based on our adjusted income distribution of Ekaterinburg, we estimate that there are approximately 10,000 households with incomes at or above R. 190,000 per month (in December 1992 prices).

5.7 Estimating the Demand for Housing

Given Ekaterinburg's likely steady-state population, we anticipate that virtually all of the demand for new private sector built housing will come from established households seeking to improve their housing conditions. Because of the price of private sector produced housing, these households will have incomes at or above R. 200,000 per month, placing them in the top 2 percent of the income distribution (see Table 7 in the previous section). In absolute terms, approximately 10,000 households in Ekaterinburg have incomes at or above this level who could afford to purchase private sector produced housing at the prices indicated in Table 15. Given the size of the potential pool of buyers (10,000), we conservatively estimate that the annual demand for private sector produced housing, selling between R. 7,300,000 and 12,600,000 is on the order of 500 to 1,000 units per year, accounting for 5 to 10 percent of the total number of households with sufficient

Table 16					
Affordability of Private Sector Housing, by Type & Location, February 1993 Prices					
Type & Location of Housing	Price in Rubles	Amount Financed 80%	Monthly Payment*	Required Income (25%)	Income Percentile
Central City					
2 room	7,300,000	5,840,000	49,281	197,124	+95%
3 room	9,120,000	7,296,000	61,568	246,272	+95%
4 room	10,710,000	8,568,000	72,302	289,208	+95%
5 room	11,900,000	9,520,000	80,335	321,340	+95%
Suburban					
2 room	8,030,000	6,424,000	54,209	216,836	+95%
3 room	10,080,000	8,640,000	72,909	291,636	+95%
4 room	11,900,000	9,520,000	80,335	321,340	+95%
5 room	12,600,000	10,080,000	85,061	340,244	+95%
*Assumes a PLAM or DIM type of mortgage at 6 percent interest, term of 15 years Source: PADCO Feasibility Study estimates, 1993					

income to purchase market rate units. The actual rate will obviously depend on the economy, the degree to which enterprises and government are willing and able to purchase these units for their workers, and on the availability of long-term mortgage financing. At this stage, given the infancy of the market, development should proceed slowly, testing the market with a small demonstration project.

The next section will consider the feasibility and affordability of a private sector infill housing project.

6 FEASIBILITY OF DEMONSTRATION PROJECT

To further refine the overall assessment of the market feasibility of the private production of housing, the team developed a potential demonstration project for analysis and evaluation. Specific objectives of the demonstration project are to:

1. demonstrate that a process of market-based land allocation can be established in Ekaterinburg;

2. show emerging private sector housing developers that they can profitably develop and sell housing on land purchased from the City through competitive bidding;
3. illustrate that infill housing development is cost effective and economical in terms of infrastructure costs and that leasing or selling infill sites through competitive bidding can generate revenues for the city; and
4. show that infill housing designs of stacked townhouses are an attractive alternative to flats and to more expensive suburban cottages.

6.1 Description of the Project

The demonstration project should use an attractive and marketable site appropriate for small private sector developers. Therefore, the project should be relatively small—about 50 to 75 units. Review of real estate sales trends and interviews with real estate brokers indicates that households are interested in apartments located near the city center in high-quality residential areas close to shopping and community services. The demonstration project should also provide an alternative to the main form of housing delivery in the City and illustrate the potential attractiveness of low-rise townhouse development, ranging from 50 to 60 dwelling units per hectare. It should also demonstrate the potential of conserving on infrastructure costs by using sites that are linked to all infrastructure services. Given these location, size, infrastructure, density and design objectives, the following criteria should be utilized to select a demonstration project site:

Location:	within 5 kilometers of the city center
Size of site:	less than one hectare
Infrastructure:	all services provided to site
Number of units:	50 to 60 dwelling units
Design:	low-rise, three-story townhouse units

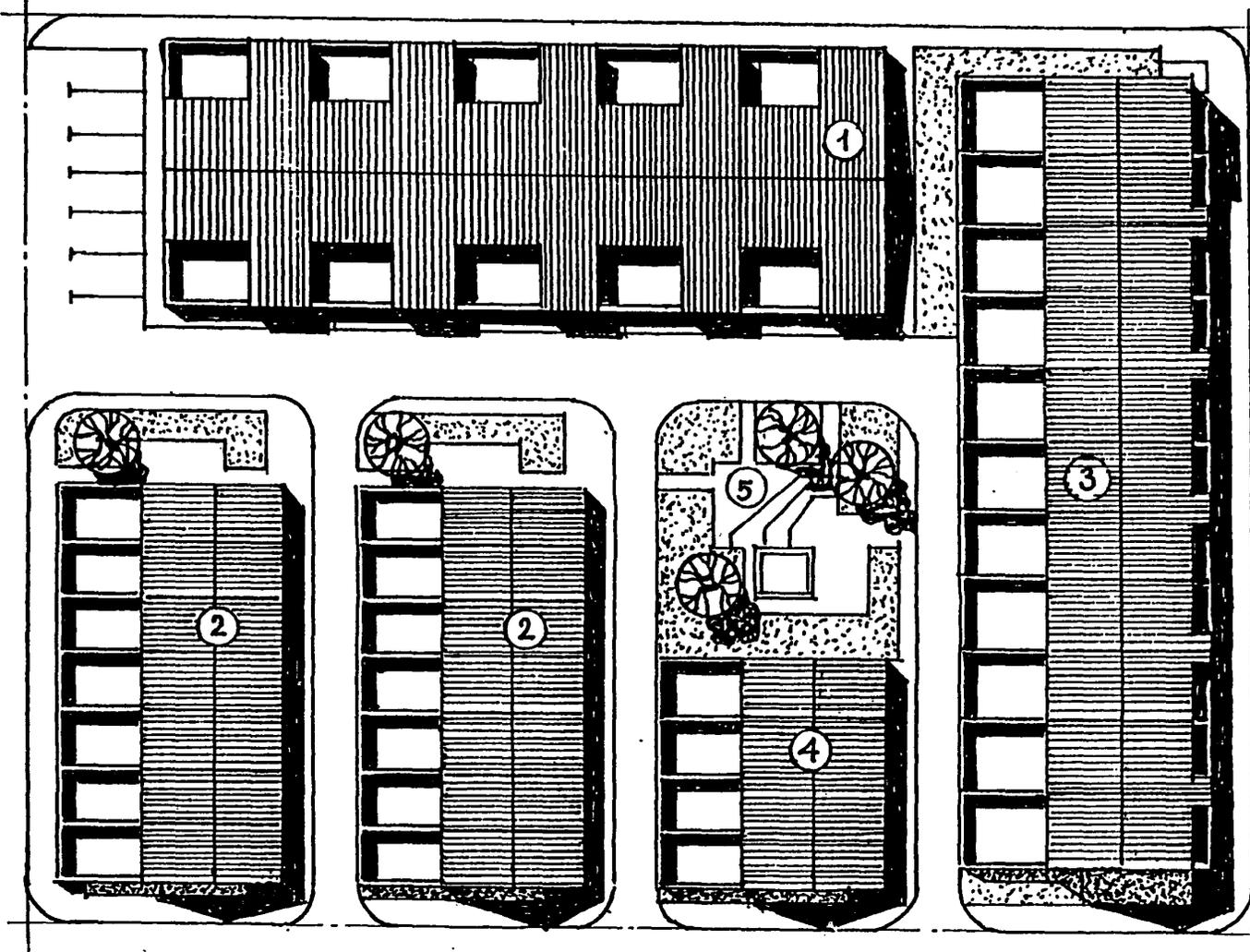
The team is confident that there are abundant sites which meet these criteria. During late February, over a dozen sites were examined, and three met all of the above criteria. Many additional sites which meet the criteria were casually identified on drives and walks around the central area of the City. Appendix 1 provides a description of the sites examined.

6.2 Description of Development Program

After deciding on the overall development concept, the team retained the services of the Sverdlovsk Architectural Institute to prepare a development scheme for a hypothetical site of 0.75 hectares. The site is approximately 100 by 75 meters. Figure 2 illustrates the demonstration project site plan. Based on urban planning and design standards, the site permits the development of 45 units, ranging from two- to five-room townhouses,

SITE PLAN M 1:500
GROSS AREA - 0.75 HA

1



EXPLICATION
1. 5 ROOM UNIT
2. 4 ROOM UNIT
3. 3 ROOM UNIT
4. 2 ROOM UNIT
5. CHILDREN
PLAYGROUND

Figure 2

2/1

grouped into five buildings. Table 17 provides a description of the proposed development program. Table 18 provides a detailed breakdown of space allocation. Subsequent work will include the redesign of the units to reduce costs. We anticipate that units can be built for between R. 2,000,000 to R. 5,000,000 for two- to five-room flats.

6.3 Comparison of Demonstration Project With Competition

The proposed project offers an attractive alternative to the current pattern of housing offered for sale in Ekaterinburg. At the present time, buyers can either purchase privatized flats in existing buildings, ranging in price from 2,000,000 to over 10,000,000. Wealthier households can purchase cottages in suburban locations for prices ranging from R. 15,000,000 to 30,000,000. The proposed townhouse project offers new, good quality units in low-rise buildings that are in centrally located neighborhoods close to shopping, community services and transportation. The project design, illustrated in Figures 3 and 4, provides spacious and well-planned units. Thirty-nine of 45 units have private courtyards and two- and four-unit townhouses have enclosed garages. The buyers of the townhouse project obtain a high-quality design and ample space for 30 to 80 percent of the cost of a suburban cottage. Therefore, we believe that the proposed project will be extremely competitive with other private sector projects, and that it will lead the way towards the design of new forms of low-rise, medium-density housing development in Ekaterinburg.

6.4 Development Cost

Based on the conceptual plans for the project, we have estimated project construction costs. Itemized construction costs are contained in Table 19 and reflect February 1993 prices. The total project cost is R. 273,964,000, an average of R. 54,412 per square meter of total constructed area, including site preparation, on-site infrastructure, overhead, and profit. We assume that the developer would bid the construction on a fixed-price basis. Costs estimates were prepared by the Sverdlovsk Architectural Institute. (Three minor adjustments have been made: 1) window and door costs are increased by 10 percent to reflect better quality; 2) overhead cost is increased by 5 percent to reflect on-site construction quality control and monitoring of job; and 3) profit is set as 20 percent of the total sales revenues).

6.5 Pro Forma Estimate of Sales Revenue

Table 15 in the previous section provided estimates of the likely sales price of housing units. In this section we estimate the total revenues that would be associated with the construction and sales of 45 housing units. Table 20 estimates project revenues assuming prices for central city units. As the table reveals, total estimated sales revenue is R. 451,360,000, an average of R. 10,030,222 per unit, or R. 90,853 per square meter. Now that we have estimated costs and revenues for the demonstration project, we can estimate the residual land value of the project site.

Table 17	
Development Program for Demonstration Project	
Characteristic	
Site Area (m ²)	7,500
Site Coverage including courtyards (%)	44.5
Site Coverage Including courtyards (m ²)	3,338
Site Coverage excluding courtyards (%)	29.5
Site Coverage excluding courtyards (m ²)	2,215
Courtyard space (m ²)	1,123
Paved on-site roads (m ²)	2,100
Stories	2-3
Total Constructed area (m ²)	5,035
Floor Area Ratio (%)	1:67
Gross Living Area (m ²)	4,967
Internal circulation (m ²)	68
Two-room units total (units)	5
Two-room unit average gross area (m ²)	73
Three-room units total (units)	16
Three-room unit average gross area (m ²)	96
Four-room units total (units)	14
Four-room unit average gross area (m ²)	119
Five-room units total (units)	10
Five-room unit average gross area (m ²)	140
Garages (units)	19
Garage average gross area (m ²)	17.5
Source: PADCO Feasibility Study estimates, 1993.	



5 ROOM UNIT BLOCK

STREET FACADE



4 ROOM UNIT BLOCK

SOUTHERN FACADE

Figure 3

3 ROOM UNIT BLOCK

7



STREET FACADE

FRAGMENT OF THE BACK FACADE

Figure 4

278

Table 18				
Detailed Space Allocation by Type of Unit				
Room	Room Size (sq.m.) by Unit Type			
	2-Room	3-Room	4-Room	5-Room
Room 1	20.0	20.0	25.0	25.0
Room 2	18.0	20.0	20.0	20.0
Room 3		15.8	17.6	16.0
Room 4			16.0	15.2
Room 5				14.0
Kitchen	12.9	12.0	14.7	13.0
Bath	5.7	4.8	5.0	5.0
Toilet	1.6	2.0	1.4	2.0
Internal Circulation	14.8	21.4	19.0	29.8
Gross Area	73.0	96.0	118.7	140.0
Garage	17.5		17.5	

Source: Feasibility Study Design Plan, 1993.

6.6 Estimate of Land Bid by Developer

In market economies, developers bid for land on which to build housing projects. The developer who makes the highest bid is the one who will receive access to the site. The amount that a housing developer can bid for a site depends on four factors:

- what type and how many housing units can be constructed on the site
- what it costs to build them
- what price the housing units can be sold for
- how much profit the developer wants to earn

These four factors can be estimated and used to calculate a residual land value, the difference between:

Table 19	
Demonstration Project Development Cost, February 1993	
Cost Component	Rubles ('000)
On-Site Infrastructure and Site Work	
Heating	10,600
Sewers	1,100
Water	1,400
Electric	350
Communications	550
Grading, Roads and Landscaping	1,600
Total Infrastructure & Site Work	15,600
Building Cost	
Foundation	5,078
Walls	24,090
Windows and Doors	20,724
Ceilings	8,318
Roof	11,720
Finishes	33,021
Labor and Contractor Overhead (40%)	41,181
Total Building Costs	144,132
Total Infrastructure, Site Work & Building Costs	159,732
Contingencies (15% of costs)	23,960
Profit (20% of Total Sales Revenue; see Table 20)	90,272
TOTAL CONSTRUCTION COST	273,964
TOTAL COST PER SQ. M. (5,035 sq.m.)	54,412
Source: Feasibility Study Design Plan, 1993.	

Table 20 Projected Demonstration Project Sales Revenue, February 1993					
Unit Type	Number of Units (units)	Size of Unit (sq.m.)	Selling Price per Sq.M. (R./sq.m.)	Selling Price per Unit (R.)	Sales Revenue (R.)
2 room	5	73	100,000	7,300,000	36,500,000
3 room	16	96	95,000	9,120,000	145,920,000
4 room	14	119	90,000	10,710,000	149,940,000
5 room	10	140	85,000	11,900,000	119,000,000
Total	45				451,360,000
Average		110.4	90,853	10,030,222	

Source: PADCO Feasibility Study estimates, 1993.

Total sales revenues
 — construction cost
 — profit

 = Land value

Using the residual land value method, Table 21 presents our estimate of the potential land value of the demonstration project site of 7,500 square meters. The resulting land value is R. 177,396,000, or approximately R. 23,700 per square meter.

6.7 Projected Financial Performance of Demonstration Project

If the demonstration project is developed and sold as described above, both the City and the developer will receive significant financial benefits. First and foremost, the City stands to receive nearly R. 180,000,000 from the competitive bidding for the land.

If the winning developer made the bid estimated in Table 21, he would receive a 20 percent gross profit on total housing sales. In addition, he would receive payment for his time, labor, and management (as reflected in the construction cost estimates). The project is extremely profitable in terms of the developer's return on equity invested. If we assume that the developer pre-sells all units before starting construction and that the buyers would make payments to cover the cost of actual construction, the developer's equity contribution would be limited to the purchase of the land. If the developer pays

Table 21 Demonstration Project, Estimated Developer Land Bid, Based on Residual Land Value Method, February 1993	
	Rubles
Total Gross Sales Revenues from Project	451,360,000
Total Construction Cost	183,692,000
Total Gross Developer Profit	90,272,000
Residual Land Value	177,396,000
Residual Land Value per square meter	23,700
Source: PADCO Feasibility Study estimates, 1993.	

R. 177,396,000 for the site and earns a gross profit on the project of R. 90,272,000, his return will be 50 percent. If the developer structures the pre-sales so that he only has to put R. 100,000,000 into the project (the other portion of the land purchase comes from pre-sales), his return on investment will increase to 90 percent. While these profit rates are high, they reflect the novelty of the market. Over time as the market matures and developers gain experience, profit rates will fall.

6.8 Conclusions

The demonstration project described in this section appears to be economically and financially feasible. The success of the project will depend on picking a site, making it available for purchase through a competitive bidding process, ensuring that a sufficient number of firms bid the project (at least 5), and that the winning bidder can pre-sell units to buyers. Throughout the analysis, we assume that the developer will index prices for inflation and that purchasers will agree to absorb inflationary costs (if the developer successfully negotiates fixed price construction contracts, escalations may be minimal). The next section considers the necessary institutional structure for successfully executing the demonstration project.

7 IMPLEMENTATION ISSUES

In this section we consider how to implement the demonstration project. What are the roles and responsibilities associated with the demonstration project? What is the best institutional structure for insuring that the project is successful? Below we consider the steps needed to execute the demonstration project and identify the responsibilities of the City, the Resident Advisor and short-term technical experts. A schedule of work is provided as well.

7.1 Steps, Responsibilities, and Proposed Schedule for Completing Demonstration Project

The demonstration project should follow the following sequence of steps and schedule. For most part the process is linear, but there are areas where several steps can be worked on concurrently. Chart 1 provides a work program timeline.

1. Define Demonstration Project Concept and Agree on Management Structure and Roles and Responsibilities of the City and PADCO (April 1-30)

This step is partially completed in that the team has assessed housing market conditions in Ekaterinburg and identified a demonstration project which meets USAID's objectives of sparking private sector housing delivery in Ekaterinburg. The project concept centers on a small infill project that can be built by small- and medium-sized construction firms.

What has only just started, however, is a discussion with the City Administration about the structure and management of the project. An initial meeting was held with Vice Mayor Popov on March 17. His reaction to the project was very positive, but more discussions about the project are needed so that agreement can be reached over the structure and characteristics of the project in terms of site location, development type, form and openness of bidding, and management responsibilities. More follow-on work is needed from the Resident Advisor (RA).

2. Select Demonstration Project Site (April 15-30)

Once the City is clear on the concept of the demonstration project and agrees to proceed, the City and the RA should use agreed upon site selection criteria to select a site. The RA should work closely with the City on site selection to insure that the chosen site is appropriate for the demonstration project.

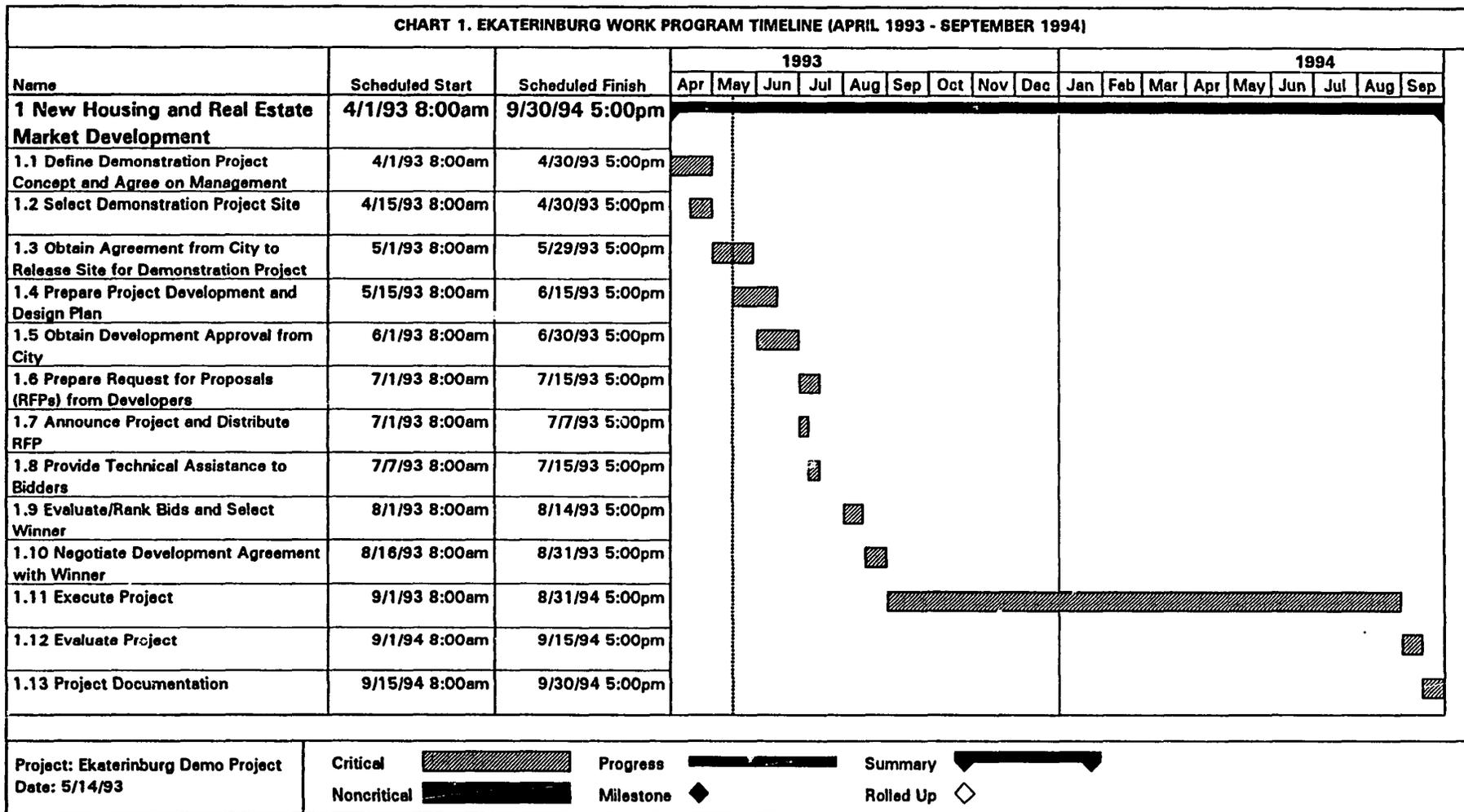
3. Obtain Agreement in Principal from City to Release Site for Demonstration Project (May 1-30)

Once the site is chosen, the City's Land Allocation Committee should provide a commitment letter stating that it has no objections to the site's use for the demonstration project and that it will release the site to the winning bidder who agrees to develop the site according to a pre-approved plan. This commitment letter will help insure that the site is acceptable for development and that no time is wasted on sites which will not be allocated for development.

4. Prepare Project Development and Design Plan (May 15 - June 15)

Once the site is selected and the City has agreed in principal to make the site available, a project plan and application should be prepared. We suggest that the Sverdlovsk Architectural Institute be contracted to prepare the plans since they have prepared the concept plans used in this report and are well regarded by the Chief

CHART 1. EKATERINBURG WORK PROGRAM TIMELINE (APRIL 1993 - SEPTEMBER 1994)



14

Architect of the City. The plans should be reworked and the unit designs modified to improve the efficiency of apartment layouts and lower costs. The RA and staff of the Chief Architect's Department should participate in the design process.

5. Obtain Development Approval from City (June 1-30)

The completed design and application package should be submitted to the City Administration for review and approval. The Vice Mayor for Housing's office should take the lead in expediting the application. The application should state that the plan for the site is approved and that the winner of a to-be-held design competition will have the right to have the land use rights transferred to him (upon payment of land price) and to develop the site according to the plan. RA should work with designated counterpart to insure timely approval.

6. Prepare Request for Proposals from Developers (July 1-15)

Once the site plan has been approved, a request for proposal should be prepared for distribution to potential bidders. The RA, supported by a short-term technical advisor (two weeks), should take the lead in preparing the RFP, working closely with City legal and administrative staff. The RFP should be prepared in such a way as to promote the maximum participation of small- and medium-sized private sector builders. The RA should work closely with the City Administration to develop guidelines and procedures for determining qualified bidders. The RFP should include very detailed information about minimum qualifications for bidders in terms of size, track record, the project, the market demand for housing, guidelines for submitting bids, evaluation process, time schedule for bidding, and the responsibilities of the winner.

7. Announce Project and Distribute RFP (July 1-7)

Once the City and the RA have completed the RFP and agreed on all of the procedures, the City should announce that project RFP packages are available. (This should be done in two phases: the first would announce the project; the second would issue the RFP). In tandem, the City and the RA should promote the project and seek to attract as many qualified bidders as possible. The RA and City staff should contact enterprises, contractors and business groups to generate interest in the project.

8. Provide Technical Assistance to Bidders (July 7-15)

Competitive bidding is new to contractors and developers in Russia. Consequently, it will be important for the RA and short-term consultants to provide bidders with technical assistance. The RA should organize a bidders' conference and provide group training to firms interested in submitting proposals. Short-term technical assistance is needed here (three weeks), and—if funding is available—a one-week short course on land development should be offered prior to the preparation of bids. Bids are due July 15.

9. Evaluate and Rank Bids and Select Winner (August 1-15)

The City and the RA should jointly review submissions and assess proposals according to previously agreed upon evaluation criteria.

10. Negotiate Development Agreement With Winner (August 16-31)

The winning bidder should be granted a period of time to negotiate a development agreement with the City. During this time the winning developer has the exclusive right to negotiate with the City over details of development such as timing of payment and phasing of work. The agreement should set clear performance standards for the developer to follow. Winners should be required to start construction within a set period of time. The RA should assist the City in its negotiations, offering technical assistance and providing examples of development agreements used in the U.S.

11. Execute Project (September 1, 1993 - August 31, 1994)

With an executed development agreement, the project should start. Both the City and the RA should monitor the project to insure full compliance with project specifications.

12. Evaluate the Project (September 1-15, 1994)

Upon completion, the City and the RA should thoroughly review and evaluate the project. Was the project successful or unsuccessful? Why? What worked and what did not? Why? Should the project be repeated? If so, what changes should be made to improve performance and outcomes. The City and the RA should jointly carry out the review. An outside panel of experts would also be helpful for review and evaluation purposes.

13. Project Documentation (September 15-30, 1994)

If the project is successful, it should be repeated. The RA and the City should develop management procedures for consistent and effective replication. The entire process should be documented, and a procedures and policies manual prepared. Although these materials should be specific to Ekaterinburg, they should be written so that managers in other cities can use them. Replication activities should also consider how to improve the affordability of units.

7.2 Level of Effort

Long-Term Resident Advisor (Brown): 3.75 person-months

Short-Term Assistance - Total 2 person-months, as follow:

TA to draft RFP: 0.5 person-month

TA/Training for Bidders: 1 person-month

TA to City to negotiate development agreement: 0.5 person-months

7.3 Institutional Issues

An important question to be answered is where the project should be lodged. Over the past several months we have met with members of the City Administration and the City Soviet. What has become clear in these discussions is the important role that the Vice Mayor for Housing plays in managing the current system of land allocation and housing construction. Under his direct control are departments of the City Administration concerned with land use planning, development control, land allocation and management of housing construction. He clearly is pivotal in the process and therefore should play a central role in the demonstration project.

Our recent meeting with Vice Mayor Popov was very positive, and he indicated great interest in the project, clearly expressing his desire to participate in its design and implementation. Given his interest, it is appropriate to work closely with him and his designated staff.

7.4 Potential for Scaling up the Project

Assuming that the demonstration project is successful, we anticipate repeating the project on a broader scale. The current annual market demand for high-income units is on the order of 500 to 1000 units. Given the newness of the market, and the restructuring of the economic base of the City, we recommend that no more than ten to fifteen projects (totaling 7.5 to 15 hectares of land) be carried out per year. Market conditions should be closely monitored as the project is scaled up to avoid oversupplying the market.

Other factors beyond the extent of the market may limit replication. The first one is the pool of qualified housing developers. While at this stage we are confident that there are at least five to ten firms capable of carrying out the demonstration project, we do not know the upper limit. We do know that 68 construction companies were privatized in the Sverdlovsk Oblast last year, so it may be possible to hold up to ten competitive bids. In the future, as more competitive bids are held, we expect new housing construction and development firms to form, however in the meantime the roll-up of projects should be geared to supply side capacity. The roll-up could proceed at a faster pace if firms from outside the region are invited to participate in the bids.

A second institutional constraint to project replication is the capacity of the City to manage the competitive bidding process. We are not exactly sure how many parcels staff could prepare per year for privatization. However, given the potential source of revenues from the competitive bidding based land allocation, the City could clearly hire more staff.

Thirdly, the City's current mechanism for land allocation may pose a barrier to broader replicability since many parcels may not be "available" for development. Under-

utilized parcels could be recaptured or the current holders of use rights could be encouraged to develop or sell their sites. This may mean that the City should adopt a market-based land management strategy to replace its existing system of land allocation. This strategy would identify a wider range of parcels for private housing development, incorporate mechanisms for promoting efficient land development and the recapture of land, and provide a schedule for releasing land onto the market.

A fourth possible limit on replication might occur if the City slows down its process of housing reform. By neglecting to raise rents, maintenance fees and utility charges, the demand for private sector housing may not expand as sitting tenants decline to improve their housing conditions by shifting to the private market.

A final possible limitation stems from the lack of clarity over land and property rights. While such a system could operate on a leasehold basis of land tenure with the City retaining ownership, the uncertainty over ownership rights may dampen demand as potential buyers adopt a wait-and-see posture.

7.5 Harnessing Land Revenues to Improve Housing Affordability

The demonstration project proposes the production of market rate housing on small infill sites. Given the pattern of apartment sales in the City, demonstration project units could be sold at prices ranging between R. 7,300,000 and 11,900,000. These units are affordable to households earning in the top 2 percent of the income distribution. While the promotion of a private sector housing delivery system is of paramount importance, it is equally important to facilitate the production of affordable housing. However, the RA should be careful not to overly complicate the demonstration project by imposing difficult-to-meet affordability conditions on it. The project should be viewed as a test of the feasibility of establishing competitive land markets that provide private sector housing developers with land. Affordability should be treated as a collateral issue and is best addressed after the project demonstration has been successfully completed.

7.6 Conclusion

The implementation of the demonstration project requires constant dialogue between the RA and City staff. The RA needs to develop a very close relationship with the key players from the City Administration: Vice Mayors Popov and Shtager, the Chief Architect and Mr. Nikitin, the head of the Land Resources Committee. Given Ekaterinburg's fluid policy environment, the RA should make extraordinary efforts to meet regularly with a wide range of City Administrative and City Soviet staff.

8 RECOMMENDED NEXT STEPS

This section offers key recommendations about what needs to be done to successfully implement the demonstration project. These include the following:

1. The RA should meet with Vice Mayor Popov during the week of March 22 to clarify the details of the demonstration project and get him focused on identifying a site for the project.
2. RA should provide Vice Mayor Popov with a Russian language version of the Executive Summary of the feasibility study by the end of March.
3. RA and Vice Mayor Popov should set up a small group of staff to manage the demonstration project. RA should request that the Vice Mayor designate a project counterpart. The counterpart should probably be someone in the Chief Architect's Office. He or she should be as senior as possible but also accessible on a regular basis.
4. Once the full report has been cleared for release, the RA should have it translated and transmitted to Vice Mayor Popov and follow-up with a discussion of the report.
5. Working jointly with the City, the RA should develop a demonstration project work program and schedule.
6. Concurrently with steps 1-5, the RA and PADCO should secure sufficient short-term technical support for the project, covering tasks 5 and 7, totaling five weeks of short-term technical assistance.
7. RA and PADCO should seek support for a one-week training course on land development targeting small- and medium-sized builders and developers.
8. RA should contract with a local or national firm to conduct a household income, expenditure and housing conditions survey.
9. The Regional Representative of USAID's Office of Housing and Urban Programs should meet with the City to discuss the demonstration project, and USAID and the City should sign a letter of understanding stating their intent to jointly participate in the execution of the demonstration project.

APPENDIX A

SURVEY OF INFILL PARCELS FOR DEMONSTRATION PROJECT

City-wide surveys and review of available maps suggest that the actual quantity of land available for development is much greater than the 2,000 hectares estimated as available by the City Administration. Vast areas of City land are being held in forest reserves or used for agriculture, and most outlying areas lack access to infrastructure. In core areas there are numerous small parcels which are either too small for the large developments preferred by the kombinats or occupied by derelict housing which could be redeveloped. Within the core of the city, there are several large areas of under-utilized land, some with services, which could be developed without major infrastructure investment.

In the course of carrying out the feasibility study, we surveyed and evaluated a number of sites to gauge their residential development potential. Table 22 provides a summary of the sites viewed. Map 3 locates the sites. Our assessment focused on close-in sites with nearby access to infrastructure. We rejected fringe sites because they required expensive secondary infrastructure, and houses built on those sites would be more difficult to market.

Site 1: The Oktyabrsky District Chief Architect suggested two sites near the corner of Engels and Krasnoarmeskaya Streets, both of which are suitable for the demonstration project. However, both sites have apparently been allocated to *Prevmostroimachina*, a manufacturing company producing metal products. The enterprise intends to develop a portion of the site for its staff, leaving the remaining part free for other development. At present the city is determining if the use right for the northern portion of the site can be obtained from the enterprise. Obtaining use rights which have already been allocated by the city may effectively streamline the allocation process for the developer, though there is some question as to the legality of such an approach.

The main site at the corner of Engels and Mamina Siberyaka Streets is already approved for construction of 74,000 m² of residential structures having up to five floors. Since use rights have already been granted, the utility providers have approved residential use on the four-block site. This is important since it means that infrastructure capacity exists. The northern portion of the site contains three wooden houses that lack in-house water supply and sewerage. These houses could be retained and upgraded as part of the project. Several sheds would need to be cleared from the site.

Table 22 Potential Sites for Demonstration Project					
Location and District		Approximate Area (ha)	Distance to Services	Location & Accessibility	Type of Site
1.	Four block infill site along Belensky St. and Engels St., Oktyabrsky District	Full 4 block area covers 12 ha. northern portion along Engels & Mamina-Sibera St. about 1.4 ha. Also adjacent parcel of .7 ha	On-site	Close to downtown. Southern portion of site along trolley line	Good infill site, northern portion has 3 wooden houses, site across from small zoo
2.	Site north of Engels Street	0.7 hectares	Next to site	Close to downtown area, two blocks from trolley line	Good infill site. Renovation of existing houses occurring in neighborhood. Existing brick structure must be removed and 5-6 households relocated.
3.	Site on Gogolya Street	0.75 hectares	Nearby	Excellent. Two or three blocks from trolley line	Vacant and available for infill.
4.	Two block infill site along Gogolya & Engels St. in Leninsky District	Two sites each about 0.5 ha	On-site	Close to downtown. Southern portion of site along trolley line	Three vacant sites along street containing mainly wood housing
5.	Redevelopment site along eastern side of Islet River in Leninsky District	Parcel of approximately four block	Along major streets adjoining site	Close to downtown. Good access via trolley and bus. Highly visible location	Flat site, sloping towards river. Parcel contains existing wooden historic structures housing about 100 families.
6.	Residential Complex for the Historical Zone of Ekaterinburg (joint stock company established to reconstruct 12 ha in core area of city)	12 ha, phase 1 about 0.6 ha	Services along streets need strengthening	Downtown redevelopment site, 6 or seven block area two blocks north of City Soviet	Redevelopment, infill site. First phase consists of removal of residents from wooden houses, rehabing historic structures and development of multi-story apartment block

Table 22 Potential Sites for Demonstration Project					
Location and District		Approximate Area (ha)	Distance to Services	Location & Accessibility	Type of Site
7.	Phases 2&3 of above site	Several parcels of 0.5 to 1 ha	Same as 5.	Same as 5.	Same as 5.
8.	Mayak - town-house project	Roughly 1 ha	On-site	Center of multi-story complex	General flat site. Rifey, company developing complex, wants to infill central spine of site with town-houses.
9.	Site along Iset River near old airport	10	On-site, but access is very poor	Good access to main ring road	Site requires fill. Smaller sites near to existing cottages & dachas
10.	Academy of Sciences, Chkalovsky District	20	1000 m	Limited public transport	Flat fringe site, site works needed
11.	Western fringe of built area along Metallurgov St. Verkh-Isetsy District	60-70	1 km	At fringe of fastest growing new section of city	Access is questionable, portions of site near lake marshy
12.	Isoplit Site near to Isoplit village, Kirovsky District	400 ha	Some infrastructure exists, requires secondary water, sewer, roads, electricity gas. Heating from enterprise	Isolated. Located on northern side of Lake Shar-tash. Not visible from major roads.	Proposed plan envisions removal of existing wooden housing and development of combination of single story cottages and some 2-3 story houses
13.	Near to Pobedi Park in Ural Mash, Ordzhonikidzevsky District	25 ha, site not visited, allocated to DOM company	Must be brought to site, development of small sites not possible	Northern periphery of city.	Proposed site plan envisions conventional multi-story apartment blocks
14.	Site along Selkorskia Street, Chkalovsky District	10	1-2 km	Adequate access, in central district.	Flat site next to existing cottages & dachas

Table 22 Potential Sites for Demonstration Project					
Location and District		Approximate Area (ha)	Distance to Services	Location & Accessibility	Type of Site
15.	Numerous "private housing" sites throughout city consisting of old wooden houses on individual plots of land	Not known. Possibly includes 17,500 houses	Varies. Most have gas, water supply via standpipes, electricity, road access. Most lack sewerage, district heat, garbage disposal	Varies. Sites interspersed with multi-story apartment blocks throughout city, some with excellent access and location.	Varies. Generally consist of several blocks of wooden houses, some of which are occupied throughout year.

Site 2: A smaller 0.7 hectare site just north of the Engels site. It has services nearby, since surrounding apartment buildings have a full complement of services. At present one or two cooperatives across the street are renovating several wood and brick houses for new uses making the site potentially part of a very attractive neighborhood.

The site is not completely vacant; it has a two story run-down brick apartment building on it, which is probably 40 or 50 years old. The five or six apartments in the building lack all services. Residents must use temporary wooden toilets located in back of the structure and obtain water from standpipes. We interviewed a police major living in the building who has been waiting several years for a new flat. He was quite delighted by the thought of his building being torn down; he would then automatically get a new apartment.

Though this site is not as visible as the Engels street site, it could nevertheless be an attractive demonstration project site if the Engels street site proves too difficult to obtain.

Site 3: Between plots #26 and #34 on Gogolya St. It is a site that seems to be an excellent choice for the demonstration project. It is vacant, with good access, and is approximately 0.75 ha. The availability of services is unknown, but it appears they would be available within 200 meters of the site. Ownership and land use rights were not determined owing to lack of time. This site warrants additional investigation.

Site 4: These sites are along a two-block parcel of land parallel to the Engels parcel of land. Within each block are vacant parcels where existing housing has been demolished. We were told that development of these parcels was already imminent, thus they were not considered further. The two sites are mentioned because they are illustrative of the number of vacant sites in the center of the city potentially available for small infill projects.

Site 5: The Fund for Municipal Development identified a further four-block site along the Iset River in the vicinity of sites 1-4. This site is an attractive redevelopment site containing many historic structures. It contains about 100 households who would have to be moved before redevelopment could occur. The Fund suggested that these households would like to move to alternative housing either in vacant privatized apartments or in a new panel building the Fund hopes to build on the fringe of the city. At present, use rights to redevelop the site have not been granted. As is true of all parcels of land containing wooden housing, the current occupants will generally not be allowed to privatize their housing since the city views these structures as being derelict. The major constraints to this site are the size of the project and the number of households which must be relocated. For these reasons, it would probably not be a good demonstration site unless a smaller portion of it could be identified.

Sites 6 & 7: Several enterprises joined together to form a joint stock company for redevelopment of a 12-hectare parcel in the central area of Ekaterinburg. The parcel is one block north of the City Soviet along Vainera Street and covers roughly six blocks. There are large tracts of land which seem suitable in the vicinity of Vainera Street and Sakko i Vansettit Street between Leninsky Prospekt and Chiluskinsev Street.

The project was not considered for the Demonstration Project mainly because joint venture arrangements are far advanced, at least for the first phase. In addition, the plans for construction of mainly high-rise luxury apartments did not offer much opportunity for a different mix of lower-rise structures aimed at broader income groups. Site 6, the 2nd and 3rd phases of the project, might provide a good follow-up (replication) site for the Demonstration Project as it is well-located and could be used to demonstrate a broad mix of housing types ranging from low-rise townhouses to more modern multi-story apartment blocks.

Site 8: This 1- to 1.5-hectare site is a central spine of a larger multi-story apartment complex called MJK. The developer, Rifey, proposes building a row of townhouses along this spine targeted towards "upper-middle" income groups. Though the site has good access to transport and services, the proposed development is not very attractive since the low rise townhouses would be surrounded by multi-story buildings. The land could better be used as park for the existing high rises.

Site 9: This site is part of a highly visible, larger parcel of land in the southeastern section of the city called Botanechisky Microrayon (near the old airport redevelopment project). The site is near a forested area and a retirement home. Development of a multi-story apartment block has already started indicating that services are available on the site. Construction on the apartment block has stopped because the institute developing it has run out of money.

Even though it is close to the Ring Road, access to the site is very difficult and involves winding through a community of wooden houses. In about two years, a major highway will link the site with the southern portion of the city, making it much more

attractive for development. Additional development of the site closer to the Ring Road may be costly as portions of the site appear to need extensive fill. The existing multi-story apartment block was raised about 3 meters to avoid flooding. Presently an institute has use rights for the entire parcel of land; however, the Institute may be willing to sell some use rights owing to its present financial difficulties. Since the site will be difficult to develop, has poor access, and needs extensive site works, the site is not suitable for the demonstration project.

Site 10: This 20-hectare site is part of a heavily wooded parcel of land owned by the Academy of Sciences and zoned by the new master plan as multi-story residential. The site is adjacent to existing new multi-story housing, laboratories and offices of the Academy. Presently the site has no services; however, water, sewer, and district heating could be supplied from excess capacity of the Academy plant. In about two years, city water supply may reach the site from the east. Lack of public transport is a problem for existing residents. Nevertheless, the site's forested location and good vistas make it attractive for development in the future. Lack of infrastructure and transportation access make this site unsuitable for the demonstration project.

Site 11: This parcel of 60 to 70 hectares is an extension of the rapidly growing Verkh-Isetsky District of the city. The district is characterized by new panel and brick multi-story apartment blocks, enterprises, and a few colonies of wooden houses interspersed among the new development. The site is on the western fringe of the built area of the city and is generally accessible from Metallurgov Street, though somewhat north of the direction of growth.

The northern portion of the parcel is marshy, thus unsuitable for development. The new master plan appears to allocate multi-story residential use for the site. It probably could not be developed in small 1-hectare parcels due to the need to bring trunk infrastructure to the site. Thus, it was not considered further as a demonstration project.

Site 12: The Isoplit site originally proposed for the Demonstration Project was visited, and detailed costs estimates were reviewed. The Fund for Municipal Development has use rights to the site and intends to replace existing wooden houses with new cottages and 2- to 3-story buildings and develop cottages on a vacant portion of the site. The total project is envisioned to cost 1.8 billion rubles (1992 prices). The district heating plant of the nearby greenhouse has some capacity to support the new development. Other services such as water supply, sewerage, gas, electricity and transport services would have to be brought to the site. Due to the scale of the project, investment would be required in cultural facilities, road networks and major trunk infrastructure. Altogether about 54 percent of the proposed investment is in non-housing construction.

The Lake Shartash area is an environmentally sensitive area. Already there is a timber factory pouring untreated wastes into the lake. If the area is allowed to privatize, the new master plan intends to place restrictions on the type of construction permitted in

the area to reduce the risk of further degradation. The nature of these restrictions has not yet been fully defined.

This site was rejected as a demonstration site because the plans proposed demolition of existing housing, required off-site infrastructure and because it lies in an environmentally sensitive zone. Further, the site is about 12 kilometers from the center of town and is not in an actively growing area of the city. The new master plan proposes most growth in the opposite direction.

Site 13: A joint stock investment company obtained use rights to this parcel of 25 hectares from an Uralmash enterprise unable to develop the site. The site was not actually visited, though areas nearby were viewed. The parcel is on the north-eastern boundary of Uralmash, a large industrial complex occupying most of the northern tier of the city. The first phase of the project consists of developing 3 hectares of conventional multi-story apartment blocks along Moloji Vossmitsia Street. First-phase construction has been delayed due to the need to bring trunk infrastructure to the site. The costs of infrastructure alone are greater than the cost of housing in the first phase. Because of the infrastructure costs and the distant location, the site is not suitable for the demonstration project.

Site 14: A parcel of 10 hectares lacking services along Selkorbskia Street in Chkalovsky District. The site is in the southern section of town south and west of an existing dacha-wooden house development. There are several new cottage houses being constructed on individual plots in the immediate area. The site's existing use is agricultural, and housing would have to be found for dislocated agricultural workers now living there. New jobs might have to be found for them. Given these complications, the site was rejected as a demonstration site.

Site 15: Throughout the city, pockets of wooden housing mingle with multi-story construction. In some cases, this form of housing covers several blocks and forms independent neighborhoods. Some of the units are used year-round; some are only summer dachas. Generally, those used throughout the year lack in-house water supply, sewerage and district heating, although many are connected to gas lines. Statistics on the number of wooden houses in Ekaterinburg vary from between 6 to 10 percent of the stock or about 17,000 units.