On the Road of Life:
A Redevelopment Plan for
Rzhevka 35

A project by the
University of Maryland
School of Architecture, Planning,
and Preservation

Together with the
Saint Petersburg State
University of Architecture and
Construction Engineering
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On the Road of Life:
A Redevelopment Plan for Rzhevka 35

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Figure 1: Location of Project Site within Saint Petersburg
Introduction and Site History

Introduction

From June 15 to July 10, 2009, six graduate Urban Studies and Planning students from the University of Maryland (UMD) and seven graduate Architecture students from the University of Maryland, the University of Illinois, and Cornell University worked with sixteen Architecture students from the St. Petersburg State University of Architecture and Construction Engineering (SPSUACE) to prepare a redevelopment plan for an 18-hectare site at Rzhevka (Rzhevka 35), on the outskirts of the City of St. Petersburg. The faculty advisors were Marie Howland, David Falk, and Garth Rockcastle from UMD and Vladimir Linov from SPSUACE. On July 10, we presented our redevelopment plan to the prospective development company, representatives from the City Planning Department, and SPSUACE faculty. As a final product, this paper summarizes our development process and our final recommendations.

Faculty chose Rzhevka 35 as a study site because it is listed as a high priority auction or tender site for the City of St. Petersburg. St. Petersburg is moving from a city where land was held and controlled by the central Soviet government to one where private individuals and investors have a stake and some control over land. As part of this transition, the City is offering parcels for tender to private investors for redevelopment. Rzhevka is listed second on the current list and to be offered for tender this fall. The land is valuable due to its location as a major transportation hub, with the terminus of a tram line, a train stop on a commuter line, the marshrutka (taxi buses), an entrance onto the beltway, and a planned Metro station to open in 2020.

Our goal was to develop a redevelopment plan that contributed to the physical environment and quality of life for residents, but that would also yield an acceptable rate of return for an investor. This final proposal considers the architectural integrity of the site, as well the impacts on the environment, transportation, safety, and the approximately 3,000 residents who currently live there. Importantly, our plan is financially feasible, earning the developer a profit of 989,000,000 rubles and a 13% pre-tax rate of return. This report will discuss the site and our recommendations for the redevelopment. We conclude by making some recommendations on how the City can improve the site planning and development process in St. Petersburg.
Introduction And Site History

Site History

Located in the Rzhevka District in the Krasnogvardevsky region of St. Petersburg, the Rzhevka 35 settlement dates back to the early 1700s when members of the military set up encampments in the area. The name “Rzhevka” is derived from the historical name of the area, Rhzevskaya Slobada, named for the land owner Captain Rhzevski in the 1730s. The name of the greater region, Krasnogvardevsky, means “Red Army”.

The settlement developed around the Ohta Power Factory, which was built in 1714 east of the Ohta Slobada, between the Ohta and Lubya Rivers. Most area residents were connected with the military, its supporting agriculture, or the factory. Residents attended the Ilya the Prophet Church, sanctified in 1722, and were buried in the adjacent Pokohvskoya Cemetery which still stands today. Currently, the cemetery houses a monument dedicated to those who perished during the various explosions at the Powder Plant. The cemetery also is home to tombs of Soviet warriors, as well as the citizens of Leningrad who died during the Second World War. Rzhevka Square and Rzhevka Street were built in the mid-18th century, and both exist today. From the 18th century through the early 20th century, military officers and their families, as well as factory and agricultural workers, lived in one-story brick structures on or near the site. Some of these structures remain and are protected by historic preservation laws.

In addition to residential structures, the site also houses an historic military meeting-house for officers, now used as a daycare. These pre-revolutionary structures were occupied by military personnel into the late 1990s.

During the period of social restructuring in the 1860s, a reform school for juvenile delinquents was built. The school operated in Rzhevka until 1916.

In 1877, an artillery battalion was moved back into the area. A naval battalion followed the next year, securing the settlement as an important Russian military site. Katusha rockets were tested on the site, with the shells being fired into the swamps to the north.
The second wave of construction included mixed-use residential and commercial buildings. From the Stalin era, there are three and four story buildings finished with stucco. There are currently nine such structures on the site.

During the building boom of the 1960s, Khrushchev-style buildings of up to five stories were constructed on the site. They were built rapidly using cheaper materials and were meant to address the City’s housing shortage. Unlike the later, cheaper Khrushchev buildings, the buildings on Rzhevka 35 are clad in brick rather than the panelized concrete found elsewhere in the region. Also to their credit, the Khrushchev buildings on the site include some interesting design features. (See the photo below).

The two nine-story buildings in the southwest corner of the site, completed in 1967, were also brick-clad concrete.

The remaining buildings on the site were built during the 1970’s and 1980’s. They are five stories and nine stories, similar to the previously built types: concrete structure clad in brick. The nine-story buildings are different from other structures on the site, as the balconies stood are solid brick structures. These semi-enclosed and glazed alcoves allowed residents to occupy the space year round. This practice is common in newer apartments in the St. Petersburg region.

After the dissolution of the Soviet Union, residents could privatize their apartments and sell them on the secondary market if they wished to relocate. While there are now laws that permit the establishment of condominium associations, the City still is responsible for maintaining most common areas in the city. These areas appear to be in poor condition and not properly maintained. Additionally, the overall structure of the buildings receives little maintenance and many of the buildings are in stages of decay.

Aside from the privatization of 64% of apartments on the site, little has changed since the privatization began. As the land goes up for tender and with possible further development in the future, residents now face with the possibility of a great change in their residential environment. If future development is done properly and with responsible planning, the residents could benefit greatly with rising property values and
additional amenities. However, if done poorly, with inadequate planning and a focus only on profit, the residents could suffer from displacement and a loss in the current quality of their residential environment.

Figure 6: Building Types and Locations on Rzhevka 35
Regulation and Analysis

National, state, and local laws and regulations define the parameters for redeveloping Rzhevka 35. These regulations span a wide spectrum, including green space, resident relocation, parking, and density with regard to retail and social structures. The regulations helped shape our final plan and design, and in many cases, drove the development process.

St. Petersburg law requires that developers provide six square meters of green space per person when redeveloping or developing an area. This green space must be directly adjacent to the building. The law also requires that each apartment be exposed to at least 2.5 hours of sunlight during the spring and summer which affects the widths and orientations of the buildings.

The law also holds the developer responsible for the relocation of displaced residents.

A number of regulations exist regarding the size of parking spaces. Surface parking must be six square meters. Underground or garage parking must be specified at 30 square meters per space to account for the structure itself.
Regulation and Analysis

There are very specific requirements for size and proximity for social services such as schools, daycares and for commercial spaces. See Table 1 for specific requirements. It is important to note that the law requires 115 spaces in the school per 1000 residents. This regulation implies a maximum population of 6086 residents on the site without expanding the school.

Table 1: Development Requirements

<table>
<thead>
<tr>
<th>Type of institution</th>
<th>Norm per 1000 residents</th>
<th>Needed for 6086 People</th>
<th>Radius of service, m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daycares</td>
<td>35 children</td>
<td>213 children</td>
<td>300</td>
</tr>
<tr>
<td>School</td>
<td>115 children</td>
<td>700 children</td>
<td>500</td>
</tr>
<tr>
<td>Shops (food), sq. m</td>
<td>60</td>
<td>365</td>
<td>500</td>
</tr>
<tr>
<td>Shops (other goods)</td>
<td>30</td>
<td>180</td>
<td>500</td>
</tr>
<tr>
<td>Seats in cafes, restaurants etc</td>
<td>8</td>
<td>47</td>
<td>500</td>
</tr>
<tr>
<td>Community Facilities, Jobs</td>
<td>1,4</td>
<td>8,5</td>
<td>500</td>
</tr>
<tr>
<td>Milk kitchen, m² total area</td>
<td>3</td>
<td>18</td>
<td>500</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>1 per 20 000 residents</td>
<td></td>
<td>750</td>
</tr>
<tr>
<td>Leisure, sq m</td>
<td>50</td>
<td>304</td>
<td>750</td>
</tr>
<tr>
<td>Sport and fitness rooms, sq. m</td>
<td>30</td>
<td>180</td>
<td>750</td>
</tr>
<tr>
<td>(if school gym cannot be used - 70)</td>
<td></td>
<td>420</td>
<td></td>
</tr>
<tr>
<td>Police office, sq. m</td>
<td>10</td>
<td>60</td>
<td>750</td>
</tr>
<tr>
<td>Lavatory, places</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

City of Saint Petersburg, Construction Requirements, 2009
Analysis

The group conducted a SWOT analysis of Rzhevka 35. A SWOT analysis is a useful tool in identifying a site’s strengths, weaknesses, opportunities, and threats. This analysis lays the foundation for future recommendations. The following section lists the results of this analysis along with short descriptions. This analysis was conducted through multiple site visits, lectures on the development process, and a review of city, state, and national development regulations.

Strengths

*Historic Buildings*
Rzhevka 35 comprises a panoply of Russian building types, including examples from the pre-revolutionary era, the Stalin era, the Khrushchev era, and the Brezhnev era. These different styles of architecture in one site create an interesting and diverse urban fabric. Although some buildings – particularly the Khrushchev-era and Brezhnev-era buildings – are not regarded as pleasing architecture and have not held up well over time, the pre-revolutionary barracks and the Stalin-era buildings are well-built and attractive examples of Russian architecture. Historic buildings create exciting and appealing surroundings and allow citizens to remember their past while living, shopping, and working among their history – giving them first-hand knowledge of who they are and where they came from. Rzhevka 35’s architectural diversity grants its citizens this privilege.

*Major Transportation Access*
Rzhevka 35 is accessible via a rich array of transportation options. It has direct access to the increasingly important and heavily used Ring Road highway system. With direct access to commuter rail, tram, and marshrutka (minibuses running a fixed route) in the adjacent Rzhevka Square, the site offers residents many valuable public transportation options. A commuter rail system runs consistently throughout the day, offering a fifteen-minute ride to Finlyandskiy Station in central St. Petersburg. The tram system also has a regular schedule, allowing residents to travel to important commercial areas in the surrounding region while giving direct access to the city Metro system (an approximate 20 minute ride) terminating at Ploschad Lenina station. Additionally, the marshrutka provide routes to many different sections of the city. This assortment of transportation options is both an attractive and necessary feature to current residents and also a key factor in allowing increased density.

Observations on the site revealed many residents walking to and from the public transportation hubs and few vehicles parked near the residences. This highlights the importance of public transportation for the middle class. The high use of public transportation has the added effect of improving residents’ health and the environment.
Regulation and Analysis

Sense of Community
Site visits to Rzhevka 35 revealed evidence of a sense of community. Multiple generations of residents were seen congregating outside of their buildings to talk, play, and enjoy the outdoors. Despite the lack of community facilities, residents evidenced pride in their communities through decorations, flowers, and gardens. These examples of enjoyment and investment show that current residents value Rzhevka 35 as it exists now.

Natural Setting
Rzhevka 35 lies at the fringe of the St. Petersburg Oblast and includes many natural green areas, dachas, a stream, and a small pond. Numerous trees shade the site and buffer it from surrounding roads and transit areas. These types of settings are rare to find in an urban region and bring citizens needed peace, recreation, and access to nature. The master plan for the City of St. Petersburg has designated that the direct surrounding regions on both the northeast and southern borders of Rzhevka 35 are to remain “green” areas, which should help in protecting this unique site from encroaching development.

Weaknesses

Poorly Maintained Grounds and Polluted Areas
A walk through Rzhevka 35 shows a significant amount of green space and natural amenities that are not well maintained. Areas such as the small pond contain noteworthy amounts of trash. It was evident that upkeep of the grounds is minimal to non-existent. These elements allow for a negative visual aesthetic and overall unhealthy environment.

Deteriorating Buildings
Rzhevka 35 contains many deteriorating buildings. Some of the buildings were not built well and are past their life spans. Other buildings are not maintained and appear to be both visually unpleasant and a danger to their residents. Without either demolition or renovation and consistent maintenance, these buildings are a liability and lower the value of the site as a whole.

Lack of Quality Retail
Although Rzhevka Square, adjacent to the site, provides some retail, it unfortunately does not provide many necessities such as fresh food and other household needs. The area currently contains vendors, a meat shop, a restaurant, and other small stores. However, it is apparent that many residents shop in other neighborhoods for food and other items, as students observed them on the trams carrying shopping bags. With the area being a multi-modal transportation area with high traffic, Rzhevka 35 does not have quality retail to support the many residents that live there.
Flooding
A lack of permeable surfaces and badly maintained grounds leads to serious flooding in the northern section of the development. This area can be difficult to traverse and does not provide surfaces that allow the water to seep into the ground naturally. As an environmental factor, the water can become overall breeding ground for mosquitoes and other disease-carrying insects. The flooding detracts from the site’s walkability and is visually unpleasing.

Lack of Designated Parking
Although many residents use public transit, some own and operate automobiles, and the site does not offer designated parking spots for these cars to safely park. Walking through the neighborhood reveals cars parked haphazardly, wherever they can. Allowing cars to park freely destroys the grounds and can be a safety issue. The current parking system or lack thereof is also visually unpleasing.

Lack of Community Assets
Rzhevka 35 currently has a playground and a few informal meeting places. These areas currently are not well maintained. For a community of its size, it lacks enough space for the residents to congregate, meet, and enjoy life outside of their residences. The community has many elderly residents and children who would find good use in quality community spaces. Currently, Rzhevka 35 does not contain a formal center where residents can benefit from many amenities that would, contribute to residents’ social health, improve community pride, and provide a higher quality of life.

Heating Plant
The current heating plant is both a visual eyesore and insufficient to accommodate increased density. Past its prime, the heating plant has the capacity to support only the current population. Its current visual exterior also brings down the visual aesthetic in the community, particularly considering its central location. The centralized heating system also inhibits residents’ comfort, as they cannot individually adjust the temperatures in their apartments.
Regulation and Analysis

Opportunities

Central Historic Barrack Buildings
Near the center of Rzhevka 35 is an unoccupied pre-revolutionary barracks. The building is architecturally valuable and could provide the space for community needs. Its design and location are well suited to serve as a focal point for the community. Restoring the building can increase community pride and interaction while creating a high quality of life.

Available Land for Retail
Rzhevka 35 currently offers land and vacant buildings abutting the transportation hub. This land is suited for quality retail development that would be of use to the community. The volume of traffic using the transportation options increases the market feasibility of retail on this site. Such development also offers additional tax revenue to the city.

Surrounding Green Areas
The green areas currently surrounding Rzhevka 35 are a benefit to the site. Better connections to these green areas are both beneficial to the residents and the environment. Green areas and access to nature is a much-admired amenity in urban areas. Creating a development that blends in with these areas provides a higher-quality development and creates a healthier wildlife habitat.

Future Metro Station
The Metro system is planned to expand to a station just north of Rzhevka 35. This additional form of transit increases the affordable and environmentally friendly modes of access to the site, a value for both current and future residents. Increased transit traffic also will increase the market feasibility of retail on the site.

Threats

Unsafe Access to Transportation
Although Rzhevka 35 offers multiple transportation options, access to transportation is unsafe. The current tram system poses a danger to both cars and citizens. In order for cars to enter and depart Rzhevka 35, they must cross tram tracks. The tram runs on a consistent schedule and during busy times of the day cars must wait on the tram tracks to enter the Road of Life. Residents also must walk across these tracks. The danger lies in the fact that these crossing points contain no signs, lights, or warnings that a tram is approaching.
Additionally, the current commuter rail system also poses a danger. Passengers wishing to enter the commuter rail platform must cross approximately six tracks without any type of warning system that a train is approaching. The pathway also is not pedestrian-friendly as the path across the tracks is highly uneven. With the handicapped ramp steep and in disrepair and stairs that go nowhere, the rail platform is not safe for either children, the elderly, or the handicapped.

**Lack of Lighting**
Rzhevka 35 does not appear to have adequate lighting in the development. Providing lighting along pathways and around residences increases safety. However, to maximize the effectiveness of the lighting without adding light pollution to the urban environment, lights should be shielded with metal on top, directing the light downward.

**Increased Development in Surrounding Areas**
Rzhevka 35 lies in an environmentally sensitive area. Increased development surrounding Rzhevka 35 poses both a danger to the quality-of-life in the neighborhood while also putting pressure on the area’s natural resources. In order for Rzhevka 35 to have high livability standards, development surrounding the area must be carefully planned as to not disturb the current eco-system and citizens that reside in the neighborhood.

**Surrounding Industrial Areas**
The area surrounding Rzhevka 35 contains a number of industrial sites. These sites bring additional traffic into the area and threaten the health of the community and the eco-system. Industrial sites often use dangerous pollutants that can negatively affect citizens and destroy the natural surroundings. With future development in the area, the current industrial sites will increasingly bring negative effects.

**Relocating Citizens**
New development at Rzhevka 35 is not an easy task. Almost all of the current buildings house residents – many of whom are elderly. The process of relocating residents can be both socially damaging and economically costly. Many elderly citizens will live the rest of their lives in temporary housing that is destructive to their mental well-being. Developers must be aware of both the social and economic effects of relocating citizens and building new.
Regulation and Analysis

**Federally Owned Building**
There is currently a potentially hazardous, federally-owned building located in the middle of Rzhevka 35. The use of this building is not entirely clear, although we were informed that the building may contain hazardous materials. Its central location is a significant obstacle to developing the site by closing off a large part of the site to both buildings and traffic flows.

**Regulations and Lack of Credit**
Current city development regulations could be disastrous for future high-quality development. The current lack of private ownership of land, with only short-term leases available - in this case only for eight years - may result in a low-quality development. Developers do not have a long-term stake in the project. The incentive is for a developer to make a quick profit, and this may result in quickly constructed buildings with little or no thought to good design or quality. The lack of land ownership also compromises maintenance of the site. Upkeep is necessary for a high-quality development and current regulations and laws are inadequate. Regulations designed for individual buildings, such as mandating green areas around each building, can also compromise good urban design difficult when redevelopment takes place on a larger, multi-building site. Lack of available credit also is a hazard towards high-quality development. The developer’s inability to bring in large amount of credit may result in a low-quality development.
In creating a plan for Rzhevka 35, the team decided to incorporate six overarching themes:

- sense of community,
- historic preservation,
- quality construction,
- financial feasibility,
- sustainability, and
- access and safety.

A good urban community should encompass all six themes while offering a comfortable place to live and play.

**Sense of Community**

On our visits to the Rzhevka, there was a sense of community that we wanted to preserve in our plans. Neighbors were viewed talking to one another and kids were playing outside. However, there were very few gathering places in the neighborhood. Besides a playground and a small bench area, we did not view many places for neighbors to gather and meet. In our final plan, we included the renovation of an historic building into a community center. This center offers a place for neighbors to come together, have meetings or social events, and take classes.

We added additional community spaces per the city’s regulations. Our green space includes parks where residents can gather, play, read, and relax. Pockets of green space with seating are provided near all of the residential buildings. In addition to parks, community spaces are offered through cafés and restaurants where residents may gather and build their community.

The modern urban design recommended for the site will increase the pride in the community. When residents take pride in the neighborhood, they are more likely to work with their neighbors to ensure it is well kept. The addition of services, retail, and gathering places provides residents...
Vision

greater local amenities. Additionally, transit accessible retail and services draws residents of the wider region into the neighborhood.

Historic Preservation

Rzhevka 35 is blessed with a rich history. From its beginnings in the 1700s to the more recent twentieth-century construction, we support preserving as many buildings as possible. The City of St. Petersburg has well developed historic preservation laws. A number of buildings on our site are under consideration for historic designation and must be preserved while this determination is being made. These laws specifically protect the volume and space of the building as well as the material and design of the façade. The City of St. Petersburg’s Historic Preservation Commission recommended the preservation of buildings constructed prior to 1945. The historic preservation laws do allow an historic building’s use to change.

Quality Construction

Through our analysis of the site, we found many of the buildings built in the late 1900s were deteriorating. Our vision for the site included quality construction which would hold up under harsh weather conditions and human wear and tear. Our plan includes recommendations for sturdy infrastructure, sustainable building materials, and landscaping suitable for the local conditions and climate. Roads and parking are designed to accommodate the level of car ownership projected for the near future. By using sustainable materials, the buildings are likely to withstand the seasonal weather variations that have a negative impact on the buildings construction. An issue we discovered in our analysis is the challenge of maintaining public spaces. With this issue in mind, we recommend first-rate materials, design, and construction to minimize the required maintenance and retain high quality.

Financial Feasibility

Understanding the need to provide realistic recommendations, we worked to ensure the plan was financially appealing to both a developer and the City of St. Petersburg. During the initial stage of the project, the team met with city officials, developers and architects, and a respected appraiser. Market conditions affect the developers’ expected pre-tax return rates, and we were quoted a range of figures for what might be acceptable. We decided to use 10% as the minimum rate at
which we would consider our plan financially feasible. We also evaluated returns to the city based on various taxes and fees.

**Sustainability**

With growing concerns about sustainable use of the Earth’s natural resources and “sinks” for waste, we included recommendations to mitigate the site’s environmental impact. Protection of the environment was a guiding principle as we developed our site plan. Preserving the amenity value and ecological functions of the green space in the site and in the surrounding green zones future generations was a particular concern.

**Access and Safety**

Rzhevka 35 is fortunate to have a number of access points and transportation options. From public transportation such as the tram and regional train to private transportation methods such as cars and marshrutkas, residents have a number of options of transportation. Our plan was to provide safe access and capitalize on these transportation opportunities.
Site Design

Figure 16: Proposed Site Design upon Completion of Redevelopment Project
Site Design

Our site plan for Rzhevka 35 reflects the vision in outlined in the previous chapter. Our proposed development respects the historic nature of the site and the natural environment; it supports a sense of community and public safety, while taking into account financial constraints, that the development must be financial feasible for a private developer.

After examining the physical aspects of the site, we realized that there can be a range of redevelopment opportunities for Rzhevka 35. We conducted preliminary financial and design analyses on a variety of demolition scenarios. Each scenario worked within current city regulations for:

- Zoning
- Green space
- Parking
- Retail
- School
- Fire/safety
- Legal requirements
- Height restrictions
- Relocation
- Ecology, including building materials

The results of this analysis revealed two key facts; no demolition nor maximum demolition would be attractive to the City of Saint Petersburg or a developer at Rzhevka 35.

No demolition of existing buildings keeps the developer cost low because there are no demolition or resident relocation costs, however the developer would have limited available space on the site for new construction. Any buildings that could be constructed would be so tall as to exceed the City’s zoning standards for the site and be out of scale with the existing urban fabric. Furthermore, this option yielded insufficient returns to the developer and therefore is unlikely to attract developer interest.

In the maximum demolition case, all buildings approved for demolition by the City as well as several historic buildings are demolished. The demolition of these structures provides a large amount of space for new construction. However, the City requires the developer to pay for the relocation expenses of all residents living in a demolished building. This, in addition to the
demolition costs, makes maximum demolition expensive to the developer. The high cost of this option would make it unattractive to most (all) developers.

These preliminary investigations led our team to conclude moderate demolition would be necessary for a successful site plan, balancing the need to reduce relocation and demolition costs with the need to provide room for new construction.

4.1

Construction

Construction – New and Preserved

As mentioned previously, it is important to design a site that reflects and celebrates the historic importance of Rzhevka 35. The site is currently home to structures from all eras, 1900 to 1990. See Figure 17. We kept most of the historic structures as recommended by the City’s Historic Preservation Agency, which includes all structures built before 1954. We ultimately decided to keep the six nine-story Brezhnev-era buildings and the large 1970, 1971, and 1974 Brezhnev-era buildings on the Southeast side of the site. In these cases the cost of relocating the residents put the project into the range of financial infeasibility. We propose demolition of one of the Stalin-era buildings and two historic building in the Southwest quadrant, along with one Khrushchev-era buildings in this area. These demolitions are recommended because the buildings are in poor repair and we need the space for new construction.

In all, we propose demolition of eleven Khrushchev-era buildings, one Stalin-era building, and two pre-1920s buildings. The reasons these buildings are proposed for demolition is that they are of relatively low density, of poor construction, and will provide needed space for new higher density buildings. These demolitions make space for approximately eleven new buildings and four expansions on existing buildings on the site, while still meeting all of the City’s green space, density, facility, daylight, and citizen relocation regulations. The preserved housing plus the new residential buildings will accommodate 6,647 residents.

Our choice of 6,647 is further supported by the fact that a larger population will require the cost of adding to the school. In addition, a higher density development makes achieving the City’s regulations for sunlight and green space difficult. We added a population slightly above the 6,100 shown in Figure 18, with the understanding that some residents will send their children to private or other schools.
Figure 17: Year of construction of existing buildings

Density

Our site plan for Rzhevka 35 strategically creates areas of high and low density. Areas of high density are located adjacent to the transit hub and in the southeastern side of the site where the
large story buildings are currently located, and will not be demolished. The low-density areas are concentrated near the historic buildings and the center of the site.

The high-density area next to the transit circle includes mixed-use buildings with the highest density at the tram and train station. Density at this site encourages use of the public transit system. Directly next to the circle and transit hub are thirteen-story buildings, housing retail, office, and apartments. The building heights decline as they move away from the transit toward the one-story barracks. They reach their lowest height at three stories. The decline in density was designed so as not to overshadow the one-story historic areas.

Our preservation of the nine-story Brezhnev buildings on the site’s southwest corner leaves a second high-density area on the site. The new construction on the southwest corner also is terraced, with less height near the one-story historic buildings. See Figures 19 and 20.

**Figure 18: Site population and school capacity**
We also propose that the new construction around the single-story barracks and proposed community center at the center of the site be of low density. It is important to designate an area as a social center. We propose renovating two abandoned buildings to serve as a Community Center and Library. Surrounding these buildings is a large area of formal green space in which the residents can congregate and socialize. Placing the social center in this location puts community spaces in the area where density is at the most human scale. The areas of high
density are important to the project’s financial feasibility. They allow the developer to more than double the current population of the site.

Figure 19: Site plan from the south, white buildings are existing and black are new construction.

Architectural Style

We propose that the architectural style of all new construction maintain the theme of the current buildings on the site.
Site Design

Figure 20: Site plan from the west, white buildings are existing and black are new construction.

Local Requirements

Our site design adheres to all local laws and regulations, including six square meters of green space per person. Current regulations require the green space exist adjacent to the building, as explained in the Regulation and Analysis chapter. The law also requires that each apartment be exposed to at least 2.5 hours of sunlight during the spring and summer which affects the widths and orientations of the buildings. See Figure 21. These regulations constrained our building placement and we meet all the current City requirements.

Figure 21: Map of building shadows, summer, 10:00 AM
Building Uses and Infrastructure

Rzhevka 35 is a residential development. In addition to housing, a number of other uses are provided on the site. These include retail, community facilities, and infrastructure.

Retail

Existing
The existing retail is located at two entry points to the site: the tram stop to the west and the transportation hub to the north. Located on the northern section of the site, Rzhevka Square provides retail to those living on the site and commuters that utilize the trams, commuter trains, and taxi services. The majority of the retail in Rzhevka Square consists of detached kiosks. Besides these kiosks, there are vendors stationed along the commuter train exit selling items on folding tables. Also, a vacant grocery store building is located near the tram circle.

Proposed
The first phase of our redevelopment plan includes the demolition of the vacant grocery store building and several adjacent structures for the construction of two residential and one mixed-use building near Rzhevka Square. Commercial space will occupy the lower floors of the mixed-use building, with residential space above. Our plan includes 1,994 gross square meters of new commercial space to support the existing and new Rzhevka residents. In addition, retail in this area will service the increasing number of commuters expected to change modes of transportation at this location once the new Metro station is complete.
Site Design

Our plan retains the convenience store on the western side of the site to serve residents in this area. We expect to maintain the same type of local retail to support the residents of the site and its commuter population.

Community Space

School and Daycare Facilities
Based on the city regulations, our proposed new population of 6,647 people requires accommodations for 228 children in daycare facilities. Instead of building one large daycare or utilizing an existing building for this requirement, we propose three daycare centers on the site. Three daycare centers on the site allow community members in various locations to have easy access to a daycare center, and it allows the developer to achieve a higher density in some of the buildings by not concentrating this requirement in one place. The daycare centers will accommodate 63, 75, and 90 students and be located on the first floor of residential buildings. The proposed population slightly exceeds the capacity for the existing school, but expansion may not be necessary because of the various education opportunities offered outside of the site, such as neighboring schools, private school options or other specialized schooling.

Community Space
There is an existing playground and informal meeting areas on the site, but no formal community center on Rzhevka 35. Our site plan utilizes three existing buildings to provide required social amenities, a community center, and a library. These facilities are essential for encouraging community among new and existing residents on the site.

Figure 25: Playground and Community Space

Infrastructure

Heating
There is a central heating plant on the site that supplies heat to all the existing buildings. Due to the condition of the plant and its outdated technology, it should be demolished. The financial analysis does not justify retrofitting existing buildings with a new heating system; therefore we recommend replacing the old heating plant with a new plant to serve only the existing buildings.
The location of this plant will remain the same, but the facility could be smaller. Therefore landscaping will be used to mask its presence. All of the new residential buildings will not have centralized heating, but heating units for each apartment. This is the common in new City construction and it gives residents the ability to control their heating and cooling.

Utilities
Increasing the population at Rzhevka 35 requires expansion of the utility infrastructure, including electrical lines and water and sewer pipes. The City is responsible for supplying the trunk infrastructure to the site, and the developer is responsible for providing pipes and wiring within the site. The cost of utility infrastructure is factored into our financial analysis at 20% of construction cost.

4.3

Green Space and Ecology

Developing or redeveloping a tract of land inexorably involves altering the surrounding environment. In planning our vision for Rzhevka 35, studio participants were mindful of our responsibility to acknowledge and address environmental impacts and maintain adequate green space for both ecological and recreational purposes.

Currently, 74% of the area is green space, with buildings (14%) and asphalt (12%) covering the remainder of the site. Saint Petersburg regulations call for five square meters of green space per person or a minimum of 30 percent of the site. Although plentiful, current green space is characterized by large patches of standing water and poor grounds maintenance, including long, overgrown grasses. Long grasses decrease the use value of open space, as people are reluctant to walk through it. Also, overgrown grass trimmings left on the ground can kill live stalks by blocking air and light. Our site plan retains a large amount of green space, over 40 percent of the site. Although paved roads will require properly engineered drainage, we also have identified landscaping recommendations to improve the water and maintenance issues. In the sidebar to the right are a listing of plants identified in parks surrounding Saint Petersburg which are suitable for wet and poorly drained soils:

- Filipendula ulmaria
- Lysimachia vulgaris
- Calamagrostis phragmitoides
- Carex vesicaria
- Carex nigra
- Juncus conglomerates
- Viola palustris
- Deschampsia caespitosa
soils. Plants that require a great deal of moisture for their growth leave less water forming puddles on the ground.

### Formal and Informal Green Space

Our green space configuration included concerns for both its habitat functions and residents enjoyment and characterized green space as either formal or informal. Formal green space is intended for active use such as playgrounds or sports fields and requires significant maintenance. For these areas, we recommend that community associations organized in the surrounding buildings maintain the grounds. Formal green space is clustered around community buildings, major entrances to the site, and above underground parking garages, where the limited substrate would not support more diverse plant species.

Informal green space, on the other hand, is designed to be low maintenance and is meant for passive enjoyment such as strolling or sitting. Informal green space can be easily maintained by landscaping it with ground covers that can be walked on but do not grow tall, eliminating the need to cut them. Pictured below are a sampling of low maintenance ground covers popular in the United States.

Another main benefit of informal green space is that more natural environments support a greater diversity of plants, providing habitat for insects and small animals. Because of this habitat value,
a guiding principle for our green space configuration was to maintain the connectivity of green space with the surrounding green zones. According to the City of Saint Petersburg’s zoning plan, an area to the northeast and the area around the river are to be public green space.

Areas around Rzhevka 35 may be re-developed in the future, particularly the areas to the northwest and to the east, which are not green zones. With this in mind, we developed our site plan so that along these borders, our buildings extend to the perimeter of the site, enclosing and protecting the green space provided for those buildings. Although the site plan was developed to protect green space, the built environment was designed to be inviting to pedestrians and not create a barrier to entry. Particularly near the transit station, a dense development is envisioned to have groundlevel retail and inviting, structured green space.

**Run-off**

One of the main concerns with adding new development is that increasing the amount of impervious surface on the site causes problems with run-off. When it rains, impervious surfaces are unable to absorb water, and the water flows off of these surfaces into drains and/or natural areas such as streams. Run-off from Rzhevka 35 will likely run or be channeled into the stream to the south of the site. As run-off enters streams, it carries with it pollutants it picks up along the way and drags debris and silt into the stream, causing pollution, erosion, and siltation. Increasing the amount of impervious surface increases the volume and speed of run-off entering streams. Furthermore, paved roads gather polluting oils from cars, and these are washed into the water system when run off the roads.

Our plan reduces runoff through the use of permeable materials for secondary roads and pathways and the installation of parking garages underneath buildings. Including a level of parking underneath a building does not add to amount of paved surface on the site. Permeable pavers are blocks able to support vehicles but not create a contiguous asphalt surface. Gaps in the blocks allow groundcover to grow and rain to reach the ground.
Site Design

Pedestrian pathways are envisioned as brick-lined sand paths. In addition to allowing rain to permeate, another benefit of this option over asphalt paths is that on hot days asphalt releases fumes with adverse health effects. As the fumes rise to approximately one meter above the ground, they are particularly hazardous for children.

4.4 Transportation and Parking

Rzhevka 35 located at a transportation hub. Public transportation options include bus, tram, and commuter train. The site also is near to a beltway interchange, making it readily accessible to cars and taxis. Roadways define the perimeter of the site on three sides, with Ryabovckoye Shosse to the west, Belomorskaya Ulitsa to the south, and Kameesheenskaya Ulitsa to the east. Kavelyovskaya Ulitsa is the main road within the site, crossing from the center west to the north east.

The goal of the road plan in our redevelopment proposal was to provide car access for residents and visitors while discouraging cut-throughs and prioritizing pedestrian safety. As illustrated in the diagram to the left, the main entry points to the site are considered the primary roads; these will be paved. Access to all of the buildings is provided through secondary roads. These roads will be able to support vehicles but will be paved with permeable blocks, as described above. The permeable blocks have a somewhat bumpy surface, which will reduce traffic speeds, improving pedestrian safety around these roads. Near the community space in the center of the site, the secondary road is designed to further discouraged car traffic. Although the road will provide access for emergency vehicles, as required, this area is intended as a pedestrian zone. The entryways from the main roads onto this pedestrian area will be narrowed using large planters, and the curvature of the primary road will direct cars onto other secondary roads. All residential buildings can be with driving through the pedestrian zone in front of the community centers.

Figure 29: Transportation and Access Map
The third element of the roads plan is pedestrian pathways, which link all parts of the site. As described above, pedestrian pathways will be made of sand and lined with brick. To emphasize pedestrian safety, where pedestrian pathways cross primary roads (circled in red on the diagram above), the primary roads will be paved with permeable pavers to slow down drivers and alert them to the pedestrian crossing. The illustration to the right shows how this design feature signals the primacy of pedestrian safety in the road system.

Our concern for pedestrian safety was partly inspired by observations of unsafe conditions in the areas near tramways at the current site. In coordination with the developer’s installation of safe pedestrian passages in the redeveloped Rzhevka site, we recommend that the City undertake improvements to the public transportation options. Such improvements would increase the value of the site and would include things like signals where trains or trams cross pedestrian paths.
Site Design

Parking

Including enough parking on the site was a major challenge in our design of Rzhevka 35. Regulations required that 350 parking spaces be provided for every 1,000 residents. With a projected population of 6,500, this implied the need for 2,275 parking spaces. This was provided through on-site surface parking, on-site garages, and an off-site multistory garage. Residents are to be charged for parking spaces, with surface spots selling for $2,000 and garage spaces for $10,000. Neither the developer nor residents who do not drive cars should have to subsidize those who do.

On-site parking garages are constructed beneath new buildings. The relocation and renovation costs of retrofitting existing buildings to include a floor of parking made this option prohibitively expensive. On-site garages were designed to be one meter below ground, the depth at which it is relatively inexpensive to waterproof the structure. The first floors of the buildings above the garages are therefore raised approximately two meters. The areas above the parking garages which are outside of the buildings are designed to be raised courtyards of formal green space. Our plan included three on-site garages; however, two additional garages could potentially be located near the center of the site, underneath extensions to two existing buildings. The remainder of the parking is provided through an off-site garage east of train station and tram circle, not shown on the diagram.
Financial Analysis

Many decisions went into the final student plan. After developing test models, the student team decided to target a population size of 6500, which would more than double the current population of 3100 residents. In massing our structures, we left the floor plans open. We calculated population based on the square meters built. Each building deducted 20 percent of its net floor space to account for the built core area. This includes elevators and stairways, walls, utility areas and plumbing. Once the core area was deducted, we allotted 27 square meters of space for 1 new resident based on the city’s recommendation. The student team did not divide the space into apartment floor plans to give flexibility to the future architect chosen by the developer for the completion of the project.

Costs to the Developer

The costs to the developer for the Rzhevka 35 Development will include relocation of current residents, demolition of residential and retail buildings, the construction of new space, renovation to existing structures and infrastructure improvements, and the land tender payment to the city government for the right to develop. In initial models we used city averages for the cost of construction. The developer provided estimates for relocation of residents.

We were told that the resident’s would expect an amount of up to double the market price for a similar apartment. The resident could choose to buy in the new development or spend their money elsewhere. We calculated relocation as an up-front expense and, therefore, did not deduct sellable space from our newly constructed buildings for relocates.

The developer also provided costs for building demolitions for most of the buildings chosen for demolition. For structures not on the developer’s list (such as the grocery store on the northeast corner), we calculated demolition based on the size of the structure. For this structure in particular, we also included the asking price of the owner within the demolition cost. The market range for construction in “economy” housing ranged between 26,000 and 50,000 Russian Rubles (RR) per square meter (between 800 and 1,500 US Dollars (USD)).
Financial Analysis

We were asked by the developer to use the construction cost of RR 33,000 per square meter (USD 1,000) for our final financial model. Although renovations to existing buildings potentially increases the sales price for housing in the development, we were unsure of how well this would play out in the Russian housing market and limited our request for improvements. The renovations to the historic structures in the center of the site were included in our financial considerations. We recommend that these structures be converted for public use. The major infrastructure costs will include replacing the heating plant and improvements to the central road.

A major cost to the developer is the price for the land tender. In this development, the developer will construct 144,000 square meters. The current tender price to the city is RR 3,300 (USD 100) per square meter, requiring the developer to pay RR 475.2 million (USD 14.4 million) to the City.

Developer Income

The expected revenues to the developer will come primarily from the sale of apartments. Included in the plan is the sale of commercial space and parking units. We chose a sales price of 72,600 per square meter (USD 2200), consistent with the City average of RR 65,000 - 92,500 (USD 2000 - 2800) per square meter for economy class housing far from the city center. The developer also found our sales price reasonable.

The rate of return after the eight-year project is 13%.

Returns to the City

The proposed development is financially beneficial to the city of St. Petersburg. The developer pays a one-time tender fee for the right to built on the land, and building taxes imposed on the developer as well as property and ownership taxes imposed on the residents provide additional revenue. One time tax payments for which the developer is responsible include a 20% tax on yearly profit, an 18% value added tax on total construction cost and payment, not including labor costs, as well as a 10% NDS tax.

The city also earns ongoing yearly revenue from a 2% property tax, a 4% condo association tax, and a 6% car tax based on the value of the car. This plan earns the City an estimated RR 4 billion during the eight years of development and ongoing yearly estimated revenue of RR 600 million.
Phasing

Phase 1
In the first phase of development, 65,000 square meters will be constructed. In the diagrams below, the buildings to be demolished are marked in red and construction is marked in orange. To open space for construction, the development begins with purchase and demolition of the grocery store on the northwest corner of the site. This three-building ensemble provides 32,000 square meters of space. This space will accommodate 921 residents, commercial space, and a daycare facility. The commercial space is left as open floor plans so buyers can build to suit their needs. The new residential space provides a relocation option for the residents of Kamynshinskaya 22, 24, and 26. Once the small buildings are cleared, construction of 33,000 square meters of residential space is built adjacent to the pond. Along with space for 984 residents, this structure also houses a second day care.

<table>
<thead>
<tr>
<th>Phase 1 – New Construction</th>
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<tbody>
<tr>
<td>Square Meters</td>
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<tr>
<td>Residents</td>
</tr>
<tr>
<td>Parking Spaces</td>
</tr>
<tr>
<td>Daycare Enrollment</td>
</tr>
<tr>
<td>Net Income</td>
</tr>
</tbody>
</table>

Figure 33: Buildings to be demolished are shown in red, new construction is shown in orange.

The balance to the developer at the end of phase 1 is 675 million rubles.
Financial Analysis

Phase 2
As shown in the diagrams below, development in phase two occurs in the center of the site. Phase 2 begins with the relocation of 431 residents from the lower south-central area of the site followed by the demolition of Kovaleskaya 10, 21, and 23 and Belomorskaya 28/2 (shown in red). The structure surrounding the heating plant will also be demolished. A compact, efficient heating plant will replace the current one. Higher density infill (shown in yellow) creates housing for 1,023 residents.

<table>
<thead>
<tr>
<th>Phase 2 – New Construction</th>
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<tbody>
<tr>
<td>Square Meters</td>
</tr>
<tr>
<td>Residents</td>
</tr>
<tr>
<td>Parking Spaces</td>
</tr>
<tr>
<td>Net Income</td>
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</tbody>
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The balance to the developer at the end of phase 2 is 713 million rubles.

Figure 34: Buildings to be demolished are shown in red, new construction is shown in yellow.
Phase 3
Demolition of the three buildings (shown below in red) during this phase clears the central road. This presents the opportunity to refit the heating plant—refurbishing any of the underground lines that run under the road. The road will be re-laid slightly to the south, allowing for the residential construction of phase 3. As highlighted below in green, additions were added to Kovalevskaya 18/2, 22/2. These, along with a freestanding structure, frame the new central avenue. These structures accommodate 576 residents. In the center of the site, the historic building is renovated for community use. The third phase also includes development of the green areas and walkways that connect the central areas to the tram station.

![Diagram of Phase 3 construction](image)

**Figure 35: Buildings to be demolished are shown in red, new construction is shown in green.**

The balance to the developer at the end of phase 3 is 765 million rubles.
Financial Analysis

**Phase 4**

Final stage of development focuses on the southwest quadrant near the school. As shown below in red, the building located at Belomorskaya 20 is demolished. A new building housing 417 residents takes its place. Two additional buildings are constructed along the western end of the central road completing the fourth phase.

**Phase 4 – New Construction**

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<table>
<thead>
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<tbody>
<tr>
<td>Square Meters</td>
<td>24,000 m²</td>
</tr>
<tr>
<td>Residents</td>
<td>417</td>
</tr>
<tr>
<td>Parking Spaces</td>
<td>1,420</td>
</tr>
<tr>
<td>Net Income</td>
<td>RR 988,000,000</td>
</tr>
</tbody>
</table>

![Diagram of Phase 4 development](image)

**Figure 36:** Buildings to be demolished are shown in red, new construction is shown in blue.

The balance to the developer at the end of phase 4 is 988 million rubles.
Observations and Recommendations

Our study of the Rzhevka development raised some concerns about the current urban development model in the Russian Federation. In the 1950s, the Russian government committed to supplying livable housing to its people. The growing population in combination with the reduced housing stocks following World Wars I and II left the city governments and central planning offices struggling to build the necessary housing. Even as rapid construction was accomplished, housing quality suffered.

In the post-Soviet period, the Russian Government has been altering its housing development model, evolving historical patterns to modern realities and testing new land-development mechanisms. Balancing the roles of government, developers, and citizens is a challenge within a responsible capitalist or market-oriented socialist society. These roles and the mechanisms that facilitate their involvement will continue to change over the coming decades. Below we recommend some changes based on our experience developing a plan for Rzhevka 35.

City Government Obligation

Our study of this large, 18-hectare site highlights issues that the St. Petersburg government might consider revising in future legislation. Current development rules and regulations consider each building separately without considering the larger site. On an individual level, building setbacks, green space requirements, and other regulations make sense. However, when development takes place on a large site with numerous buildings, more flexibility in the regulations - considering the whole site - allows for better urban design.
Observations and Recommendations

More flexible regulations might better achieve the intended benefits of the regulations. For example, the recreational and ecological benefits of green space may be better achieved through designs that include a minimum amount of green space on the site as a whole. Smaller pockets of green space around each individual building may not achieve the same level of benefit. In the United States, greater flexibility in meeting development requirements is provided through the use of Planning Unit Developments (PUDs). This might serve as a useful model.

Another area that could benefit from greater flexibility is the plan approval process. In the current system, the quantity of housing to be built on a site is fixed with the initial plan approval. Market conditions, on the other hand, are liable to shift significantly within the eight year development period. If the City adopted a process whereby a developer could apply for a variance and obtain permission to change the plan, this would facilitate the timely completion of development projects. Under the current model, housing development may stall, as it has in the current economic downturn, leaving vacant or nearly vacant lots, if market conditions render the initial plan unfeasible. Housing vacancy presents a liability to the City, as unused space often fills with undesirable tenants.

The financial analysis of our test cases as well as our final recommendation drove home the difficulty of building a high quality development with a feasible profit margin. This inhibits both the quality of development any individual developer might propose and the number of developers likely to compete for and bid on a site. Lack of competition among developers further reduces the likelihood of a high quality project being developed. One way for the City to increase the project’s profitability would be to allow some form of land ownership by the developer on a portion of the site. Owning some property, for example the commercial area near the train station, provides the developer with collateral to help finance the project and increase the project’s rate of return.

The current system for land tenure also raised concerns among our studio group. Currently, the City is paid by square meter of developed space. Under this system, the City has an incentive to maximize built and sellable space even if this is not the best urban development choice for a particular site. The City’s role in the development process should be to ensure quality development and protect current residents, and financial incentives to the City should support, not distract from, this goal. It is the City’s role to serve the public interest. City laws and regulations require open space, schools, parking, and historic preservation to ensure that some social goals and public amenities are included in the project. In addition to ensuring that development plans meet these numeric requirements, the City review process should include a holistic examination the quality of the overall plan.
Developer Responsibility

The current development process involves the developer renting the land from the City for approximately eight years, building new housing, selling the housing, and completely exiting the project after the last sale. This arrangement leaves the developer with little motive to build a project with long-term quality. Since only short-term profits are available to the developer, profits are maximized by providing poor quality construction and minimal public amenities. For example, with the current system, there is no payoff to developers to provide quality pathways and well designed public and green spaces which cannot be sold. Developers will build only those amenities required by law. Either the City needs to oversee and monitor the development with comprehensive design review or the developer needs a longer term stake in the project. For example, if the developer had a 99 year lease, owned buildings on the site, or retained ownership of apartment units after project completion, the developer would have more incentive to consider long term property values.

There is no system for ensuring maintenance of public spaces once construction and sales are complete. The builder should be required to create condominium associations and participate in developing their capacity to care for the site. Moreover, even where there is a condominium association it would only be responsible for a small portion of the green space surrounding the building and not for the larger public spaces such as pathways to the train and tram and common recreation areas. Therefore, the City should be prepared to take on the task of maintaining all the public spaces, including parks, pathways, and community roads.

Example: Green Roofs

An example of a valuable building practice that is unlikely to be used in St. Petersburg under current development regulations is the vegetated or "green" roof. This building technique is valuable to the City because it decreases the load borne by its stormwater system, reduces buildings' energy requirements, and prevents water pollution. Green roofs also are valuable to residents because they decrease heating and cooling costs and increase building longevity. In addition to its economic benefit, increased longevity provides an environmental benefit through reduced material consumption. Reduced heating and cooling has the environmental benefit of reducing greenhouse gas emissions, as most heating and cooling systems are run on polluting electric or natural gas systems.

Green roofs decrease stormwater runoff from buildings by trapping water in the substrate and removing it gradually through evapotranspiration. They reduce the total volume of run-off, improve water quality, and delay peak run-off. The portion of run-off prevented by a green roof varies based on the substrate depth, plant types, and rainfall patterns, but studies indicate that extensive green roofs prevent one to two quarters of a roof's run-off. Green roofs are appropriate and economical on buildings with flat roofs and the structural capacity to bear the weight of the saturated substrate.

<table>
<thead>
<tr>
<th>Layers of a Green Roof:</th>
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<tbody>
<tr>
<td>1. Waterproofing barrier</td>
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<tr>
<td>2. Root barrier</td>
</tr>
<tr>
<td>3. Drainage layer</td>
</tr>
<tr>
<td>4. Fabric Filter</td>
</tr>
<tr>
<td>5. Substrate/planting medium</td>
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</table>
Green roof installation in Germany and the United States costs roughly USD 85 per square meter, approximately twice the cost of a conventional roof. The increased price is offset by economic benefits including decreased heating and cooling expenses and longevity twice that of conventional roofs. Where green roofs are widespread and their benefits known, such as in Germany, buildings with green roofs earn higher sales prices or rents.

Unless the housing market develops so that prices include amenity values, developers are unlikely to install green roofs in St. Petersburg because the benefits do not accrue to the developer. The same is true of other ecological measures such as installing above-code insulation or building envelope, which decreases heating and cooling needs and reduces greenhouse gas emissions.

Given that the City generates revenue from development, a portion of those revenues could be used to subsidized desirable features. Another incentive for above-code environmental measures would be for the City to offer an expedited review process or greater flexibility on other requirements. A change of City regulations that would encourage green roof installation specifically would be to allow green roofs to count towards a site’s green space requirement. Green roofs provide many of the benefits of ground-level green space, although connectivity should also be considered in evaluating green space plans. The City also could charge parcel-specific stormwater fees based on the amount of impervious surface. This pricing scheme provides a market signal for buyers to value features that reduce run-off, such as green roofs.

Green roofs are one example of a quality development feature that can be promoted through municipal development regulations.

Citizen Initiative
Under the current structure, there is a stark absence of citizen participation. So long as the developer meets all the city codes and regulations, no community meetings are organized to discuss plans for development. There is no structure for citizen participation in the design of the plan from an early stage. Planning experience around the world reveals that unhappy citizens can cause lengthy and expensive delays. By encouraging and facilitating participation from the onset, the City can avoid future delays or impediments.

Citizens also are becoming more aware of market considerations and the value of their property. With this, they will also begin to insist on having a voice in development plans.
Conclusion
St. Petersburg City has faced a rapid and challenging transition to a market-based housing and urban planning system over the past 16 years. Local authorities are faced with tremendous private development pressures, citizen needs, and political maneuvering, while striving to retain good city planning, architectural, and urban design standards. In generating a site plan for Rzhevka 35, our studio group also struggled to design a site that provides quality housing and amenities while generating a feasible profit and return. Some of the changes to the current system that would generate a better outcome include the creation of more flexible planning regulations on large sites, giving developers a longer-term stake in the project, and insuring citizens participate in the process early. Here we have presented, one development project that balances a high quality urban design, environmental integrity, protection of the quality of life for residents, with the need of a private investor to make a profit.

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1 A Planned Unit Development (PUD) is a means of land regulation which promotes large scale, unified land development rather than the promotion of regulations for individual buildings. A PUD generally promotes:

* A mixture of land uses, including different residential types, commercial, and possibly industrial land uses and dwelling types
* The clustering of residential and commercial land uses providing public and common open space,
* Increased administrative discretion to a local professional planning staff while setting aside present land use regulations and rigid plat approval processes
* The enhancement of the bargaining process between the developer and government municipalities which in turn strengthens the municipality’s site plan review and control over development for potentially increased profits due to land efficiency, multiple land uses, and increased residential densities.
Acknowledgements

Figure 39: Group Photograph
Acknowledgements

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