

Milwaukie Gateway Precinct

Harnessing Creative Potential on the McLoughlin
Corridor through Transit-Oriented Redevelopment

A project by ISOCARP's Young Professional Planners during the 53rd Annual ISOCARP/OAPA Congress

Final Report

 **ISOCARP**
International Society of
City and Regional Planners
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Executive Summary

The City of Milwaukie, Oregon has developed a plan for the North Milwaukie Industrial Area (NMIA) at the northern border of Clackamas County, near Oregon's largest city of Portland. The NMIA Framework Plan seeks to "capitalize on the District's strategic location to attract innovative and entrepreneurial businesses to create a strong regional centre for next generation traded sector employment, manufacturing, makers and doers." With an advantageous geographic location and a strong history of providing family-wage jobs, bolstered by the recent addition of light rail transit, the City of Milwaukie and its partners seek to transform the NMIA into a sustainable regional hub.

During the 53rd annual International Society of City and Regional Planners (ISOCARP) Congress held in Portland in October, 2017, a team of seven Young Professional Planners developed the following conceptual plan for the NMIA with the help of district and regional government staff, as well as external consultants and ISOCARP team leaders. The plan aims to meet the vision and goals of the NMIA Framework Plan while encouraging further innovation in the area through the addition of mixed-use development, including affordable and market rate rental and non-rental housing which will serve to increase the long-term success of the NMIA by supporting a complete and welcoming community.

By leveraging existing transit investments, natural features, regional centrality, and employment potential, the Milwaukie Gateway Precinct offers new solutions that will transform the area and continue providing employment opportunities across a range of industries as economic and

social shifts gradually transform the area. In order to excel as the Portland Metro region grows and faces affordability challenges and land constraints, the City of Milwaukie and its partners are presented with a once-in-a-generation opportunity to bring about new ways of living and working in what will become the new gateway to Milwaukie.

The creation of the Milwaukie Gateway Precinct is centred around the redevelopment of a state-owned Oregon Department of Transportation (ODOT) site that serves as a catalyst for the future redevelopment of the broader area. Located at the northern edge of the site near the SE Tacoma/Johnson Creek MAX Light Rail Station, this catalyst site provides an excellent opportunity to gradually encourage sustainable redevelopment.

With the introduction of a new, mixed-use development form that combines light- to medium-intensity industrial use, commercial, retail, and residential, residents of the area and workers in the NMIA will be fully served with a complete community that is poised to provide an affordable and family-friendly place to live, work, and play.

By mixing land uses and encouraging sustainable transportation choices while respecting and amplifying the existing natural amenities of the NMIA, the team anticipates that over the coming decades, meaningful redevelopment of this historic area will serve residents and visitors of the City of Milwaukie, Clackamas County, and the State of Oregon for generations to come. **Welcome to the future of Milwaukie's innovation economy: the Milwaukie Gateway Precinct.**

Project Team

The project team is made up of seven Young Professional Planners from across the globe, with four continents represented. Team members come from a variety of backgrounds including urban planning, architecture, and economic development, and worked closely over the course of the 4-day design period to make the conceptual plan for the Milwaukie Gateway Precinct a reality.

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The team is pleased to present this report to our project partners at the City of Milwaukie, Oregon Metro, Clackamas County, and ISOCARP.

With questions or for additional information related to this project, please reach out to team lead Stuart Hamre at stuart.hamre@gmail.com.

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Introduction

Task

The City of Milwaukie and Clackamas County are working together with area businesses, residents, and other interested members of the public to create a unified vision and plan for the future of the North Milwaukie Industrial Area (NMIA). Goals are aligned with the Metro Economic Values Atlas project to provide economic development opportunities with inclusion of transit oriented development and high capacity transit.

According to the North Milwaukie Industrial Area Plan:

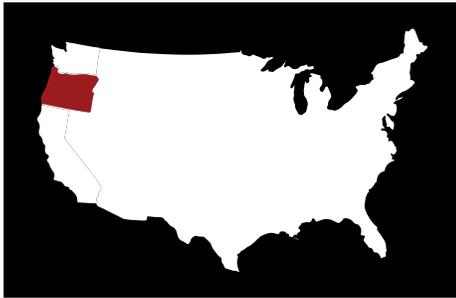
The purpose of the North Milwaukie Industrial Area (NMIA) Plan is a project to develop a framework plan and implementation strategy that will provide guidance for future redevelopment of the NMIA as a vibrant, mixed-use urban area where light industrial, manufacturing, commercial, and residential uses are developed in a strategic and compatible way to achieve community and economic goals of the City of Milwaukie and Clackamas County.

In October, 2017, YPPs were tasked with developing a comprehensive plan for the NMIA by leveraging its strategic location and attractiveness as an employment centre as well as an innovative, dynamic location for the next generation of entrepreneurs.

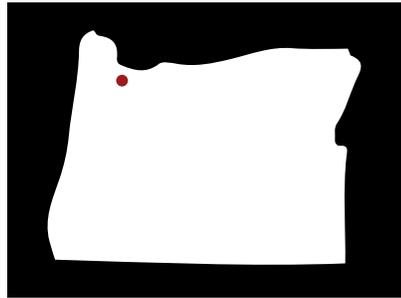
YPPs undertook site visits, consulted with city staff and stakeholders, and completed precedent studies to develop a plan that seeks to harness the creative potential of McLoughlin Corridor and the NMIA. This plan is outlined in the following pages.

For the latest on the NMIA Plan, visit www.northmilwaukie.com.

Site



Oregon State



Portland Metro Area



City of Milwaukie



NMIA

Location

The North Milwaukie Industrial Area (NMIA) is located at the northern border of Clackamas County, near Oregon's largest city of Portland. It is immediately north of the City of Milwaukie. The site is bisected by the McLoughlin Corridor, which provides state-wide connections and is a major goods and travel corridor.

History

The NMIA is a major local and regional asset for manufacturing, transportation and jobs. It is one of the city's three major industrial centres with a long history of industrial uses and excellent access to the regional transportation network. With nearly 200 acres and 87 businesses, the area employs approximately 2,000 employees.

The City of Milwaukie and Clackamas County are working together with area businesses, residents, and other interested members of the public to create a unified vision and plan for the future of the NMIA. The Metro-founded project will provide specific direction to increase investment into the area, while creating more jobs and building a more productive and vibrant neighbourhood.

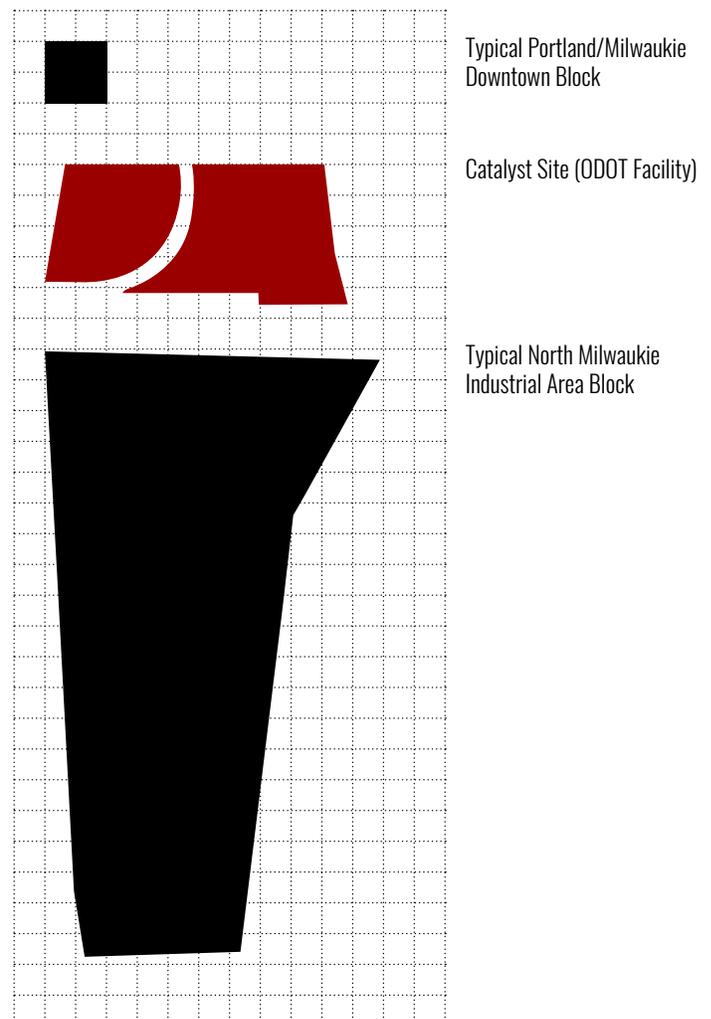
Economic Conditions

Like many metropolitan areas, the Portland region faces many economic challenges related to housing affordability. As economic prosperity has grown since the end of the 2008 financial crisis, many Milwaukie-area residents have been left behind by the economic success of the region. As housing prices continue to increase, those in traditional industrial sectors may find difficulty securing housing as employment options become more scarce. The NMIA continues to provide blue collar employment to area residents and a very limited number of vacant parcels currently exist in the NMIA. With this in mind, the overall success of the NMIA in light of national and international economic shifts is important to consider. As the historical industrial character of the NMIA changes gradually in the coming years,

the site's redevelopment must involve an alignment with the new economy in order to capture the employment potential this shift will generate. At the same time, these shifts in industry have traditionally led to higher income earners taking the place of blue collar workers as industries shift from

100 feet

1/4 mile



Site

Portland

low- to high-technology sectors. In order to maintain affordability in the Milwaukie area to support a mix of income groups, the team has developed economic strategies in addition to design solutions that, in tandem, will support a diverse new set of uses and user groups.

Catalyst Site Details

The creation of the Milwaukie Gateway Precinct is centred around the redevelopment of a state-owned Oregon Department of Transportation (ODOT) site that serves as a catalyst for the future redevelopment of the broader area. Located at the northern edge of the site near the SE Tacoma/Johnson Creek MAX Light Rail Station, this catalyst site provides an excellent opportunity to gradually encourage sustainable redevelopment. The site measures roughly 400 feet by 1000 feet, suitable for a relatively large redevelopment that is anticipated to spark the gradual redevelopment of adjacent blocks over the next ten to thirty years. The site includes a historic stone building that fronts the McLoughlin corridor and is currently unused.

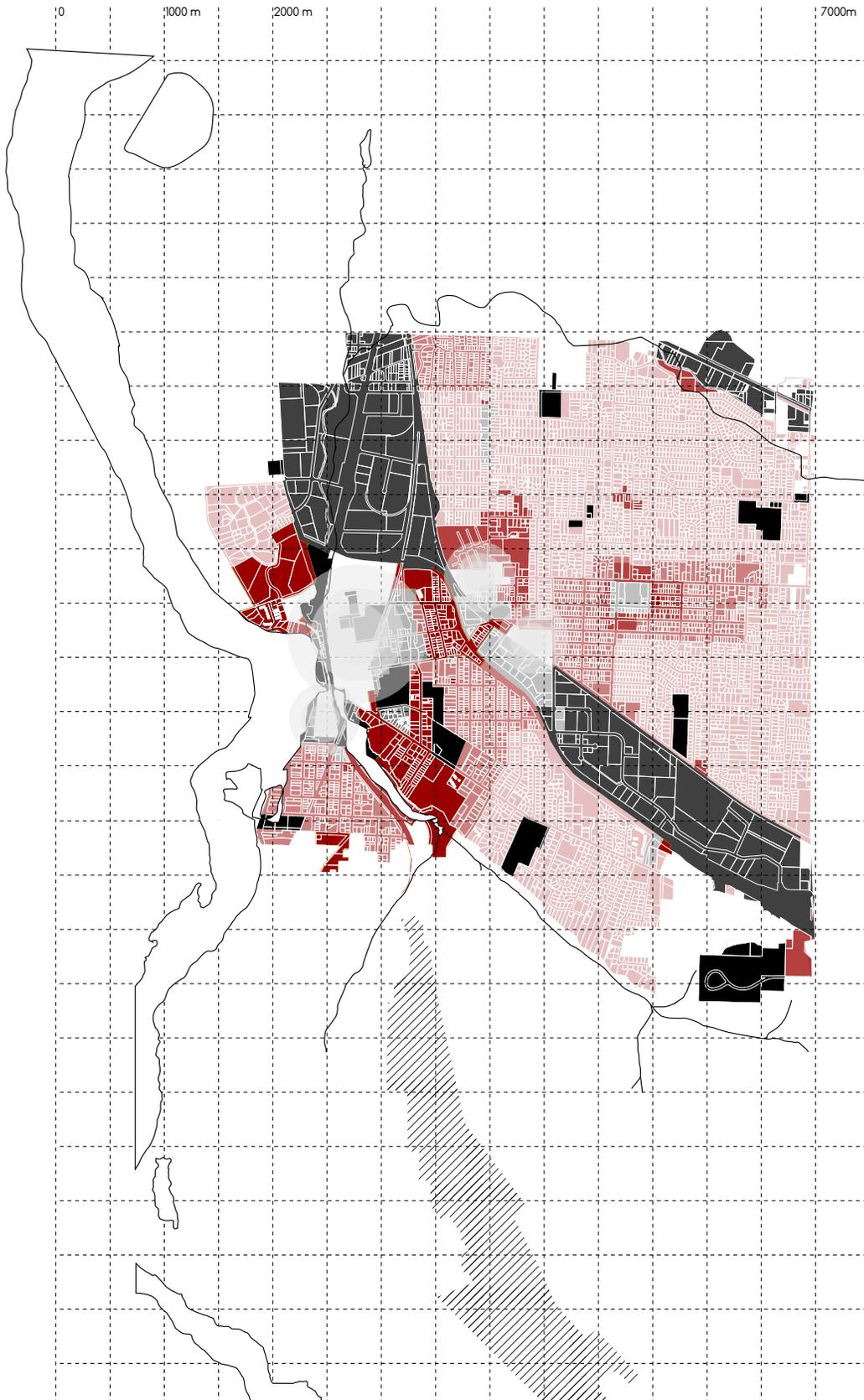
The ODOT site was chosen as the catalyst site as it has been identified in the NMIA Plan meeting many of the key considerations for development, such as: connectivity to transit infrastructure and the SE Tacoma Park & Ride, high visibility, marketability, and access, and offering the potential to employ small-format, employment-serving retail such as restaurants, convenience stores, and cafes.



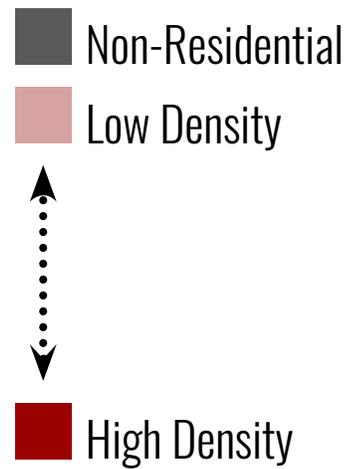
NMIA

Milwaukie

Site Conditions



The NMA is an entirely non-residential, light industrial area. It is surrounded by low density residential areas, with some higher-density developments to the immediate west and south; most notably, downtown Milwaukie. The NMA is one of three industrial sites in Milwaukie and is the closest to Portland. Johnson Creek flows through the NMA and connects with the nearby Willamette River.

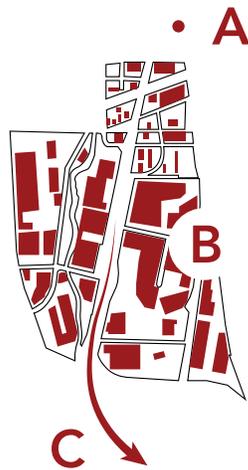


Site Analysis

A SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis was conducted in order to develop a set of guiding principles. SWOT analyses are commonly used in urban planning to help characterise a site in order to begin developing design and policy strategies that will address specific issues related to the site.

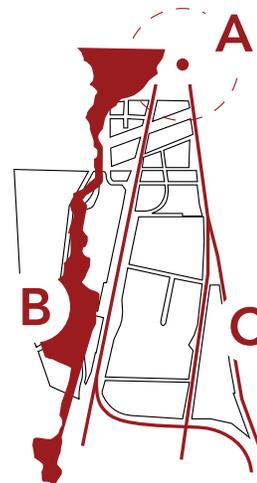
Guiding principles stem from the SWOT Analysis. These principles were carried through the design phase, allowing the team to support the strengths and opportunities presented by the site, while working to eliminate weaknesses.

- A Transit node
- B Employment opportunities
- C Connections to Milwaukee



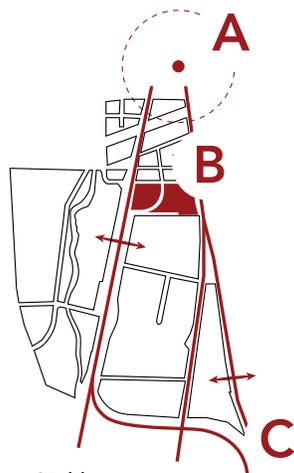
Strengths

- Low critical mass for transit A
- Flood plain B
- Infrastructure barriers C



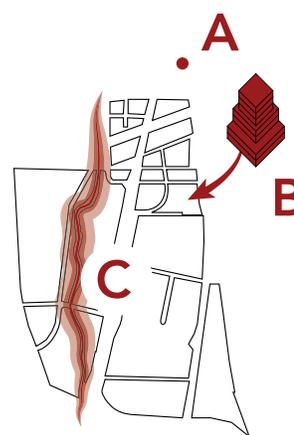
Weaknesses

Threats



- A Public transit becoming unprofitable
- B Catalyst site does not prompt further development
- C Problems crossing state/national corridors

Opportunities



- Improving transit node A
- Density increases B
- Environmental features C

Principles

Northern Milwaukie Industrial Area (NMIA) is a well-located industrial area north of downtown Milwaukie. The area also boasts close ties to the city of Portland, while providing cheaper land, as well as large sites. The area is characterised by single-storey industrial buildings, public transport, underutilised parking lots and low-quality green spaces. These characteristics speak to the opportunities the area presents to attract innovative trading typologies, high density affordable living, and a natural environment integrated with a largely industrial built environment. The aforementioned opportunities are all encompassed by a well-functioning public transport system which connects workers and residents to other opportunities.

The NMIA plan is intent on providing a liveable, affordable, employment-generating development which is well-connected and houses a live/work/play component. As such the plan is based on the following principles:

Compact

The development will take on a compact form with intensified land use, and higher densities. This will enable the critical mass necessary for public transport to be feasible and function. It will also enable the potential for people to be located closer to economic opportunities.

Socially Inclusive

Social inclusion entails providing residential opportunities for all income bands of the market in order to create a diverse and vibrant neighbourhood. One of the main proposals is the inclusion of affordable housing to cater for the lower income band of the market.

Well-Connected

The development will be well-connected through movement networks which will enable people to move easily to other parts of Milwaukie, and Portland. Movement networks include motorised and non-motorised transport opportunities.

Well-Integrated

Integrated planning refers to the depths to which multiple stakeholders including different government departments, civil society, Non-Governmental Organisations (NGOs) work together towards the realisation and achievement of the plan.

Resilient

Resilience refers to the ability of the community to bounce back from shocks including environmental, social and political factors. This includes

rapid urbanisation, earthquakes, floods, changing policy and many more.

In addition to the five design principles carried forward in the the design of the NMIA, economic principles and strategies are equally important in ensuring that design is supported by policy. The provision of affordable housing is the #1 goal for the City Council of Milwaukie in response to increasing housing prices and rapid urbanisation. High land values can deter investment into affordable housing as the returns from rentals are low. In the Milwaukie Gateway Precinct, affordable housing is prioritised in blocks of commercial, office, and industrial. The following incentives can aid in the provision of affordable housing and new enterprises for the precinct. These economic principles and strategies are suggested to be employed in the NMIA in order to keep the area affordable, open to all income bands, and ready to support the next generation of industry and families.

Enterprise Zone

The Enterprise Zone is used to encourage business investment in a geographical location through property tax relief for 3-5years. The incentive is based on investment, building improvements, and construction. An added advantage is that this incentive can be coupled with the Vertical Housing Tax zone as a means to achieving extra floors with affordable housing above commercial floors.

Vertical Housing Tax Zone

The purpose of the Vertical Housing Tax Zone is promote investment in new properties and revitalisation of existing properties. It functions by providing up to 80% tax exemption on properties based on the amount of floors allocated for residential. Additional tax exemptions can be given if the additional floors are used for affordable housing (in this case 80% of median area income or below).

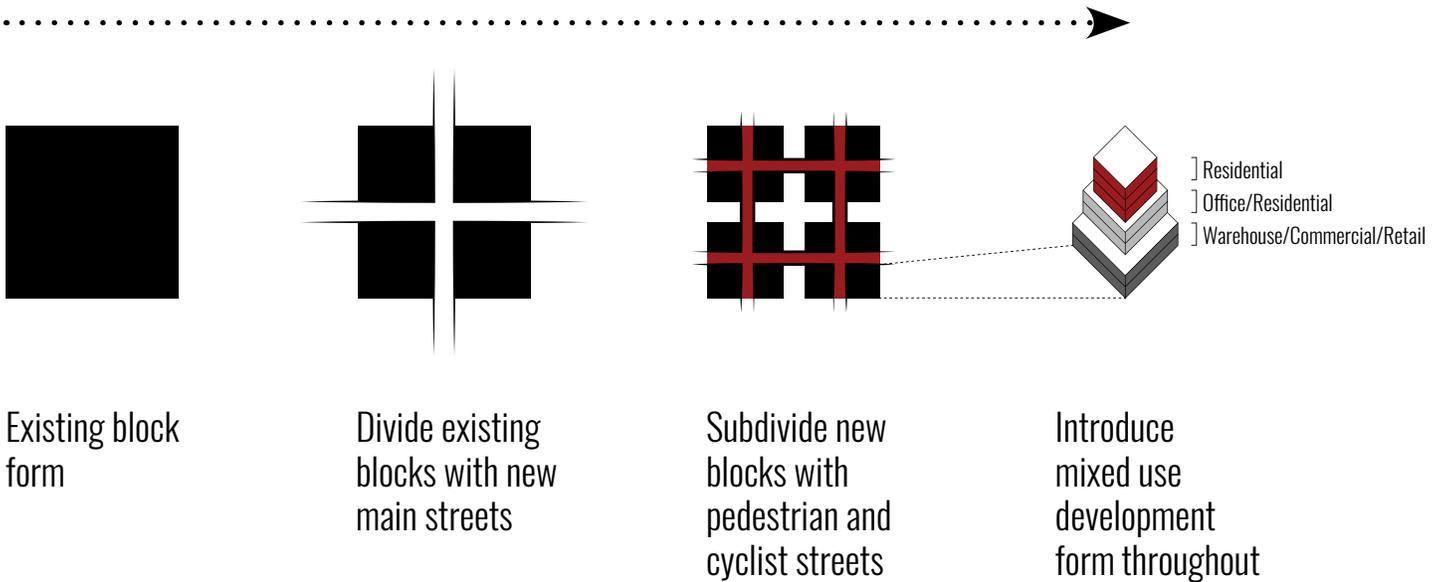
Construction Excise Tax

The Construction Excise Tax (CET) while not necessarily a zone as the previous two, is used to fund affordable housing programs. The City collects a tax of 1% on residential and commercial housing projects which is used to refinance into affordable housing programs.

Design Strategy

In order to maintain the strengths of the NMIA: namely, the area’s historic industrial base and blue collar employment potential, the design strategy was devised to respect these existing strengths while preparing the NMIA for a more flexible and economically diverse future. This future includes both the continued use of its industrial lands for similar purposes, as well as new warehousing, commercial, and retail uses at grade, plus office and residential in the storeys above. The combination of uses is important in order to develop a ‘complete’ community where residents are not required to leave in order to access basic goods and services. In addition, the presence

of new commercial and retail spaces (such as a tasting room attached to a brewery) provides a draw for non-residents to visit. After business hours, when warehousing and light industrial manufacturing functions will be minimal, residents will enjoy a quiet neighbourhood with the advent of being able to access restaurants and services in their neighbourhood. During business hours, residents may be walking or cycling distance from work, as well as within close proximity of shops and services.



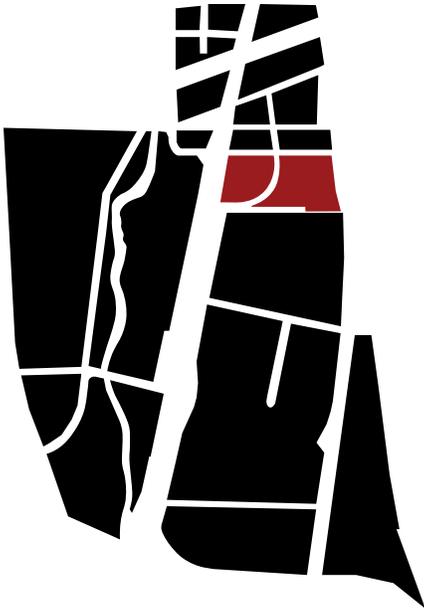
Existing blocks in the NMIA are large—many a half mile or more in length. In order to meet the principles of compact and well-connected development, the existing block form must change. The average healthy adult is willing to walk approximately 5 minutes, equating to 0.31 miles or 500 metres, before opting to drive. Blocks that are substantially larger than this walkable distance discourage walking and provide the largest barrier to turning the NMIA into a complete and welcoming community.

In order to address the large block form, blocks are divided with new main streets. These streets help improve the physical and psychological barrier presented by the overly large blocks, while continuing to support access to warehousing and industrial buildings by large trucks.

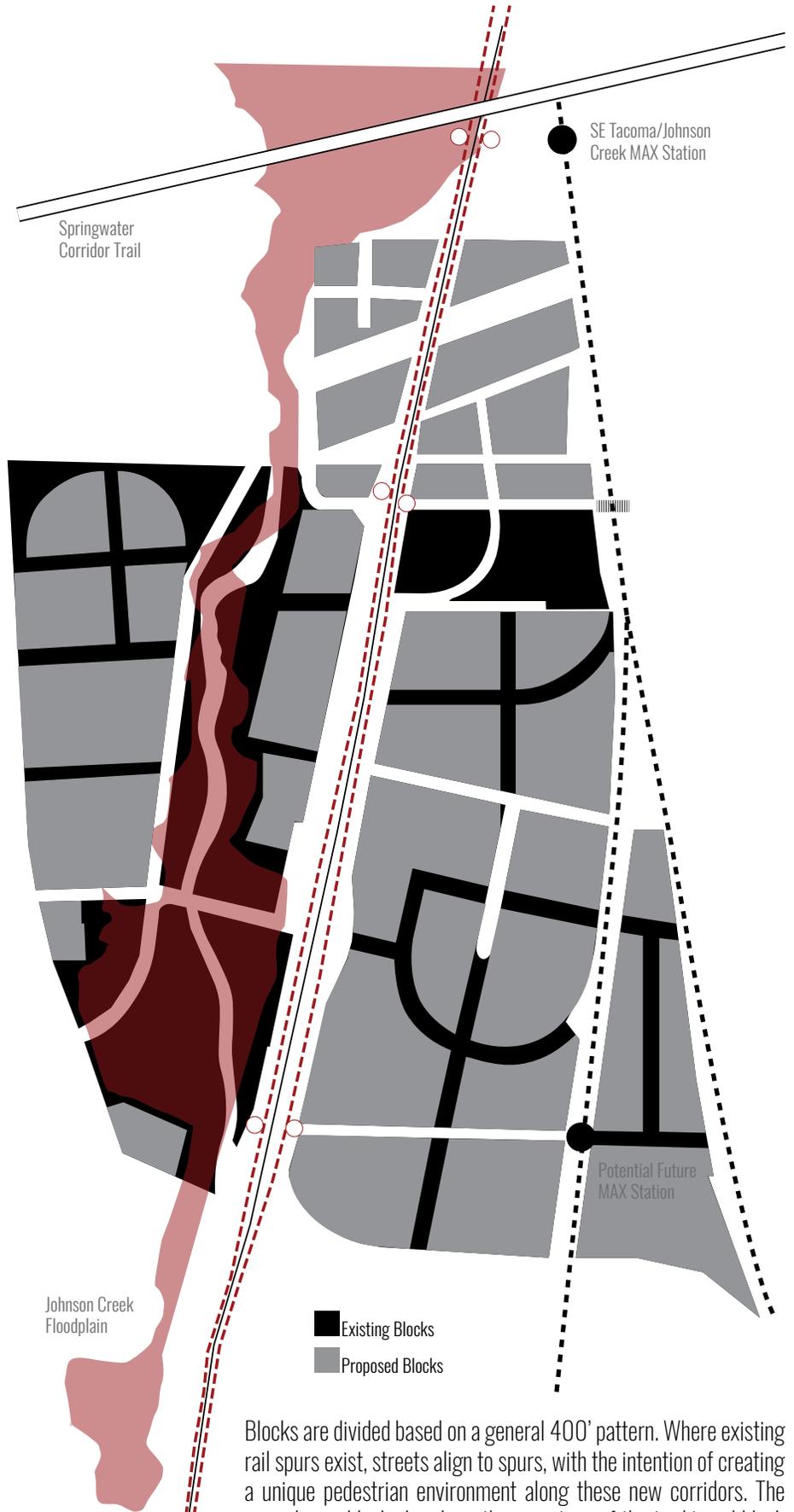
Knowing the importance of maintaining streets suitable for transport and delivery trucks may cause the pedestrian environment to suffer somewhat, existing blocks are further subdivided, providing new corridors reserved strictly for pedestrians and cyclists. This block form will allow industrial uses to continue, while supporting a new generation of active and sustainable transport users.

After blocks have been subdivided, a new, mixed use development form is introduced throughout the NMIA. This development form combines all uses in one structure, with warehouse, commercial, and retail functions at grade, office and residential uses in the 1-2 storeys above, and residential spaces in the remaining 2-3 storeys. The ‘podium style’ development steps back the upper storeys, minimizing the effect of the taller building, and contributing to a more traditionally-scaled pedestrian realm.

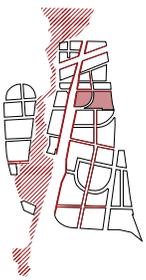
Catalyst Site



Block Division



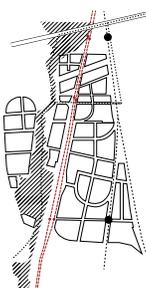
Site Elements



Natural Systems



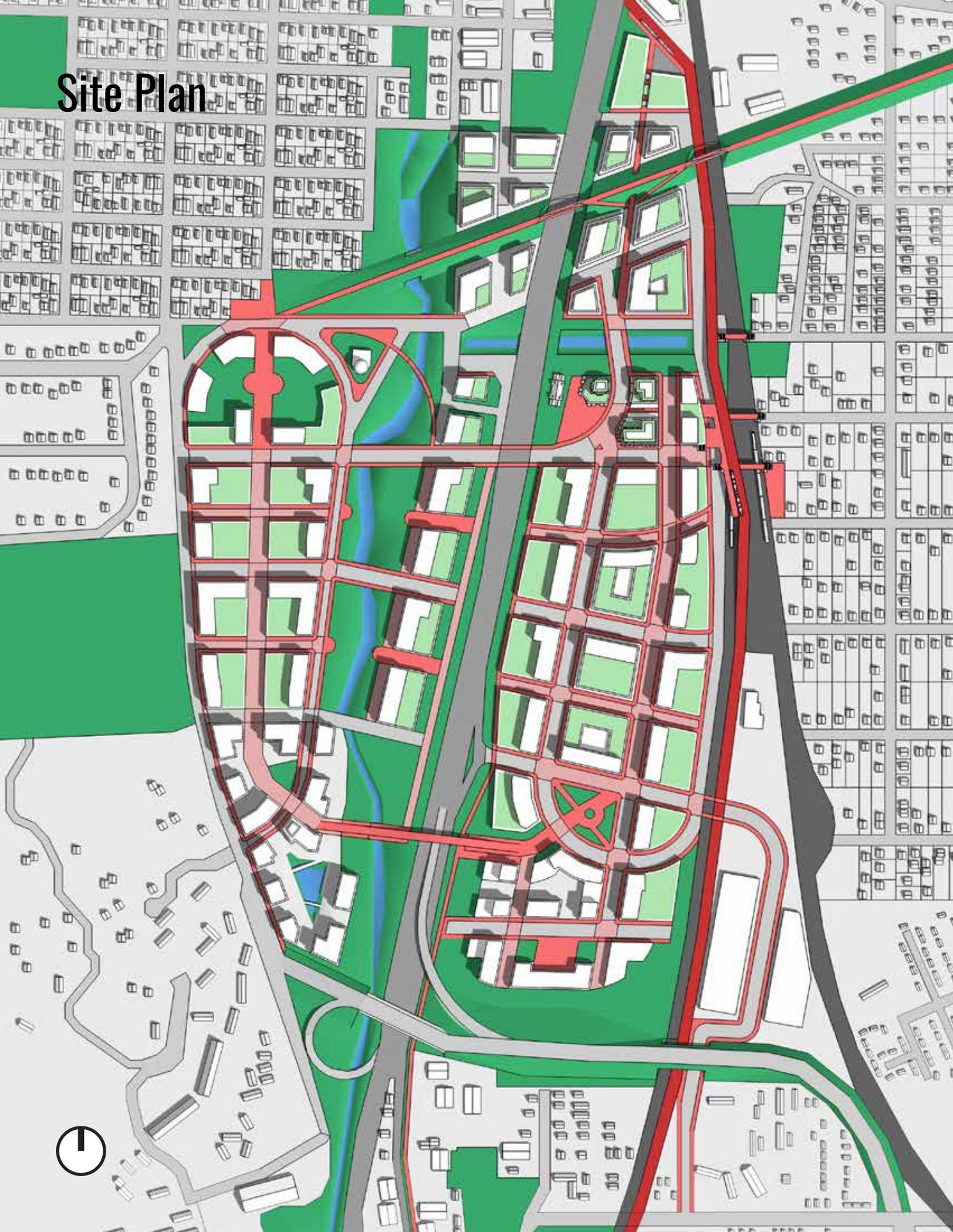
Mixed Use Zoning (all)



Connections

Blocks are divided based on a general 400' pattern. Where existing rail spurs exist, streets align to spurs, with the intention of creating a unique pedestrian environment along these new corridors. The curved spur blocks break up the monotony of the traditional block development style while creating a unique identity for the NMIA.

Site Plan



Precedents

Precedents provide an opportunity to learn from what other cities and regions have done in their transition from traditional industrial, to light industrial and creative mixed use economies. They also provide examples of how to achieve the design principles of a compact development form, resilient environment, and well-connected urban form. The precedents in the following pages provide a basis from which to develop new and improved urban design and policy interventions to revitalise the NMIA.

The overall vision for the NMIA supports existing and future businesses that provide jobs accessible by all modes of travel, especially by public transportation, respects the natural environment, and incorporates sustainable design to reduce environmental impacts. Public transport access, walkability, innovative trading typologies, high density affordable living, and natural environment integration are taken into consideration when developing detailed design. Mixed use was determined as a key

factor of new development, in order to create a complete community, requiring significant precedent research into 'podium style' development forms. Therefore, precedents that employ these strategies were important to the team's design development work.

Precedents chosen are ones that present recent, forward-thinking approaches to urban design in communities that have faced challenges similar to Milwaukie and which provide an achievement worthy of replicating in the NMIA, while adapting the strategy to suit the local context. Creative mixed-use and industrial repurposing precedents were sought in order to provide examples of industrial building repurposing through combined uses. Water management precedents were sought in light of the importance of managing the Johnson Creek flood plain. Podium development precedents were sought in order to serve as design inspiration for the new mixed use development form employed throughout the NMIA.

Creative Mixed Use



New York Building, Portland



The Warehouse, New York City

Industrial Repurposing



Smith Teamaker, Portland



Meier & Frank Building, Portland

Podium Form



Pearl Block Townhouses, Portland



Hamilton Street, Yaletown, Vancouver, BC

Water Management



Bishan-Ang Mo Kio Park, Singapore



Bishan-Ang Mo Kio Park, Singapore

Design

Catalyst Site Design

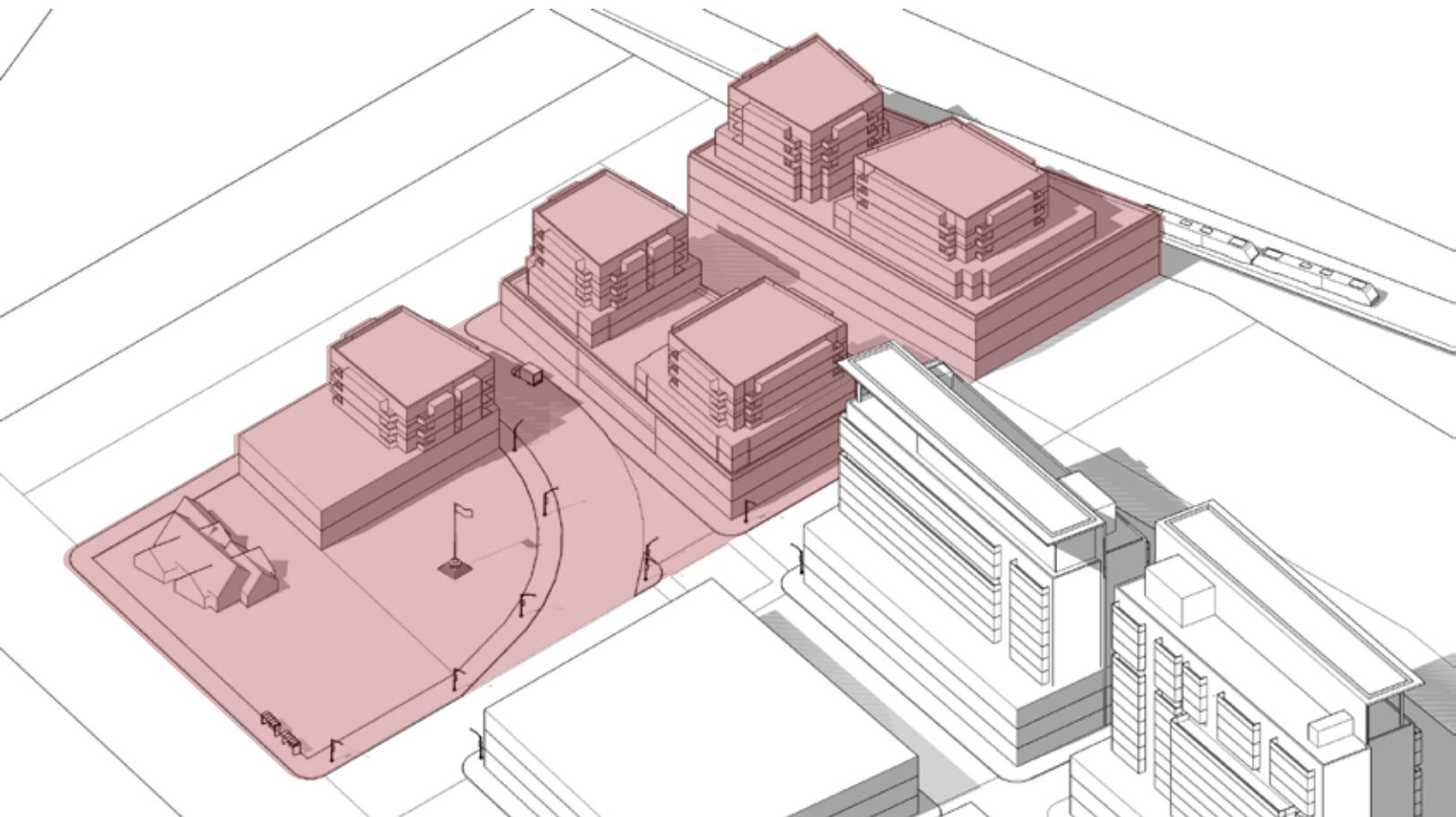
The catalyst site represents the opportunity to spark new development in the NMIA through an impactful initial intervention. Within a 5-minute walk of the SE Tacoma/Johnson Creek MAX Station, the site provides good connections to public transit, and allows for the development of a 'gateway' into the NMIA.

The catalyst site design uses the historical stone building to serve as a centrepiece to the site redevelopment. Buildings on the adjacent parcel of land avoid crowding the historical stone building, and an enlarged park space around the building provides recreational and relaxation opportunities.

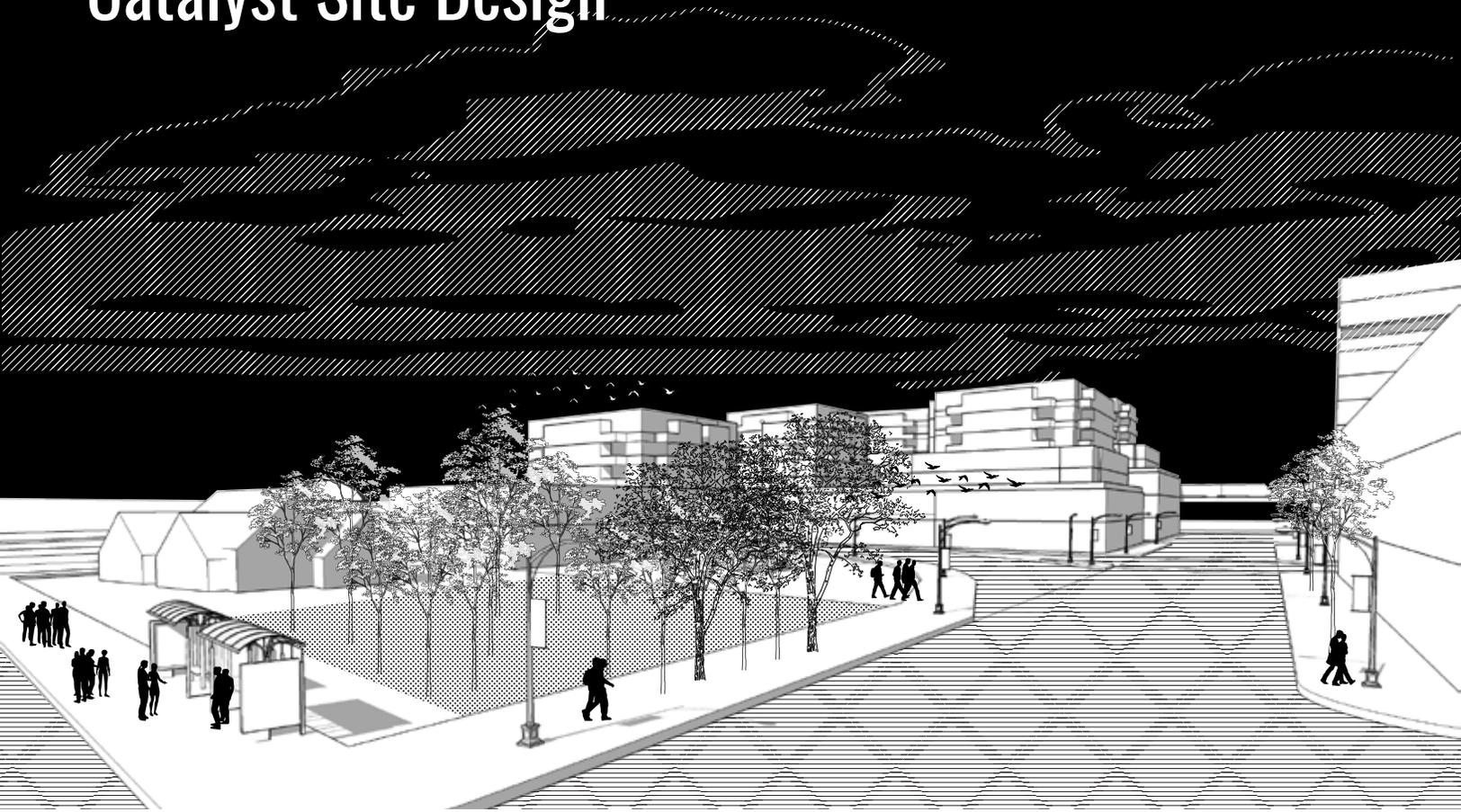
The catalyst site employs the podium style building form, combining light industrial manufacturing, warehousing, and retail and commercial spaces on the ground floor.

Storefronts are interspersed amongst other uses as the area cannot support 100% retail coverage at grade, and requires an emphasis on large 'maker spaces' in order to maintain its economic strength. A diversity of storefront spaces contributes to an enjoyable streetscape through visual interest and by supporting an appropriate amount of retail for the relatively small number of initial residents. With a diversity of space sizes, there is an incredible amount of flexibility in the area, supporting multiple and shifting uses.

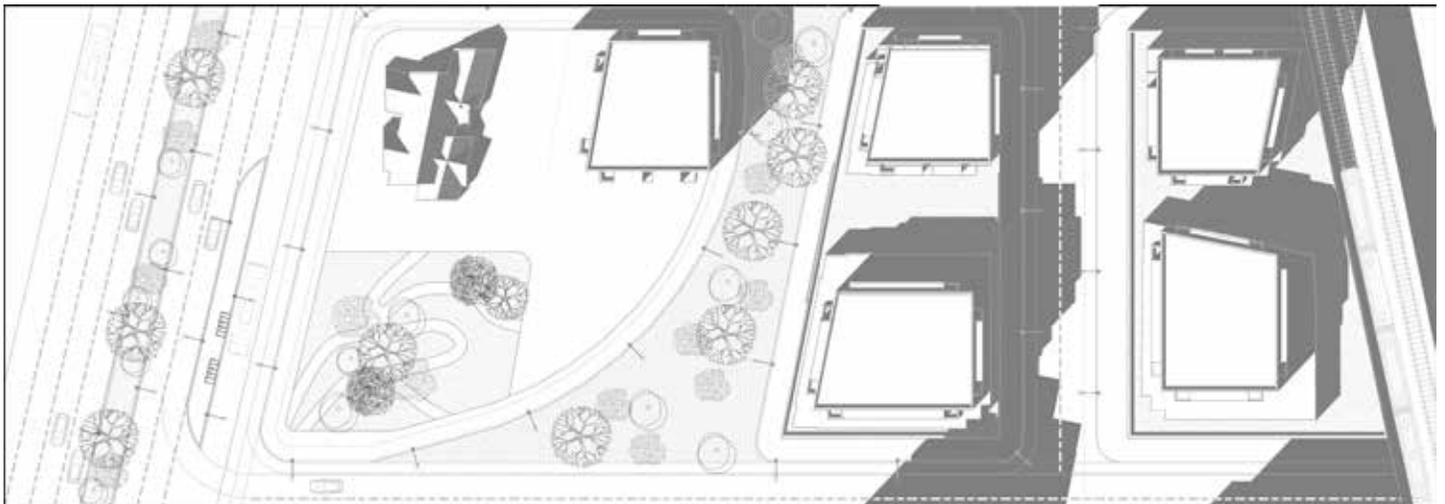
Office and residential spaces are located above the manufacturing, warehousing, and retail and commercial spaces. It is anticipated that many light duty industrial spaces will require some office space. Other office users for whom it is advantageous to co-locate with manufacturers are anticipated to utilize the remaining office space.



Catalyst Site Design



The existing curved road that runs through the ODOT site historically served as a railway spur. It is proposed to be repurposed as a park, helping to develop a brand identity for the NMIA, and allowing for the introduction of much needed greenspace to a newly residential area. A new road on the eastern portion of the catalyst site provides vehicular access to the new mixed use buildings.

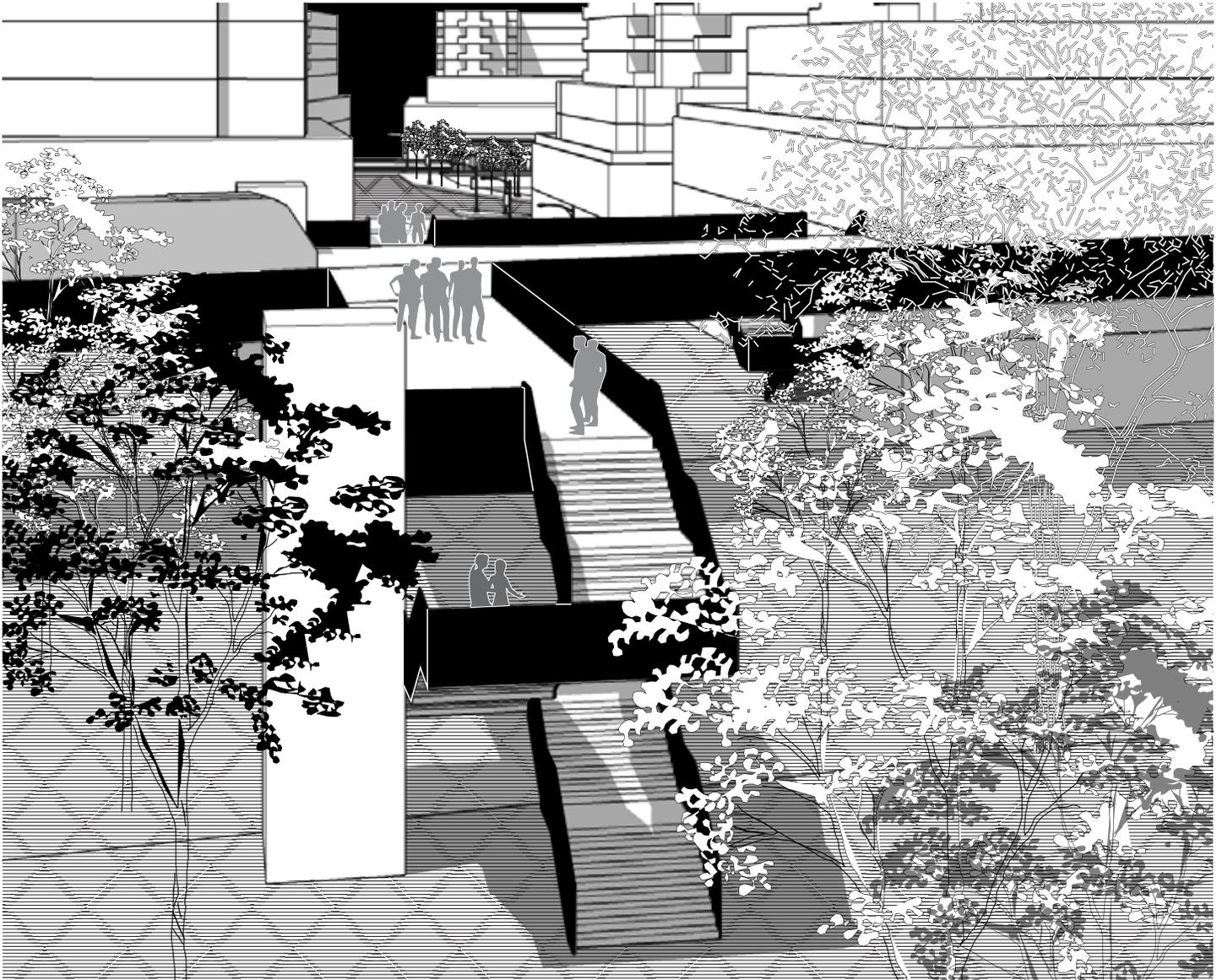


Pedestrian Bridge

Central to the success of a redeveloping NMIA is non-vehicular access to new residential areas, as well as the existing MAX light rail station. Currently, access from single-family residential neighbourhoods to the east of the project site is severely restricted due to two railway tracks that run north-south across the eastern boundary of the NMIA. In order to ensure vibrancy as the area redevelops, a pedestrian bridge is proposed across the rail corridor and MAX line. This pedestrian bridge will bring visitors from residential areas to the Milwaukie Gateway Precinct. In addition, it will provide access from the precinct to existing schools located in the Ardenwald neighbourhood. By locating the new pedestrian bridge at the western end

of SE Boyd Street, the team anticipates the development of a direct route between the Milwaukie Gateway Precinct and an important neighbourhood amenity and civic asset. Integrating the proposed developments with existing communities is an important measure in ensuring the social and economic success of the Milwaukie Gateway Precinct, led by strong pedestrian access and connections between existing assets.

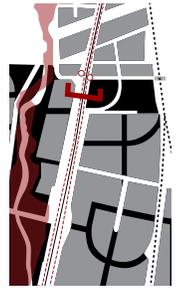
Pedestrian Bridge Concept at Catalyst Site



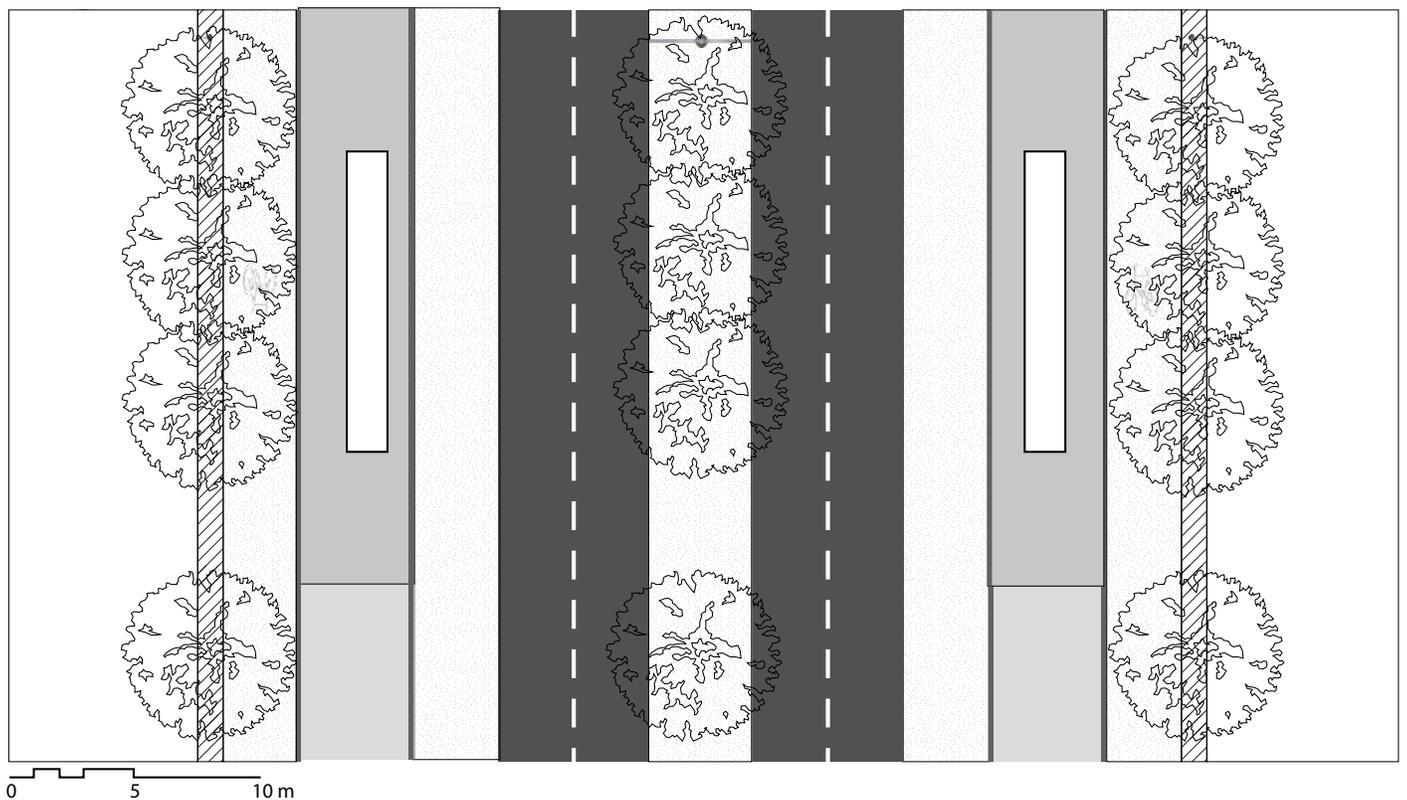
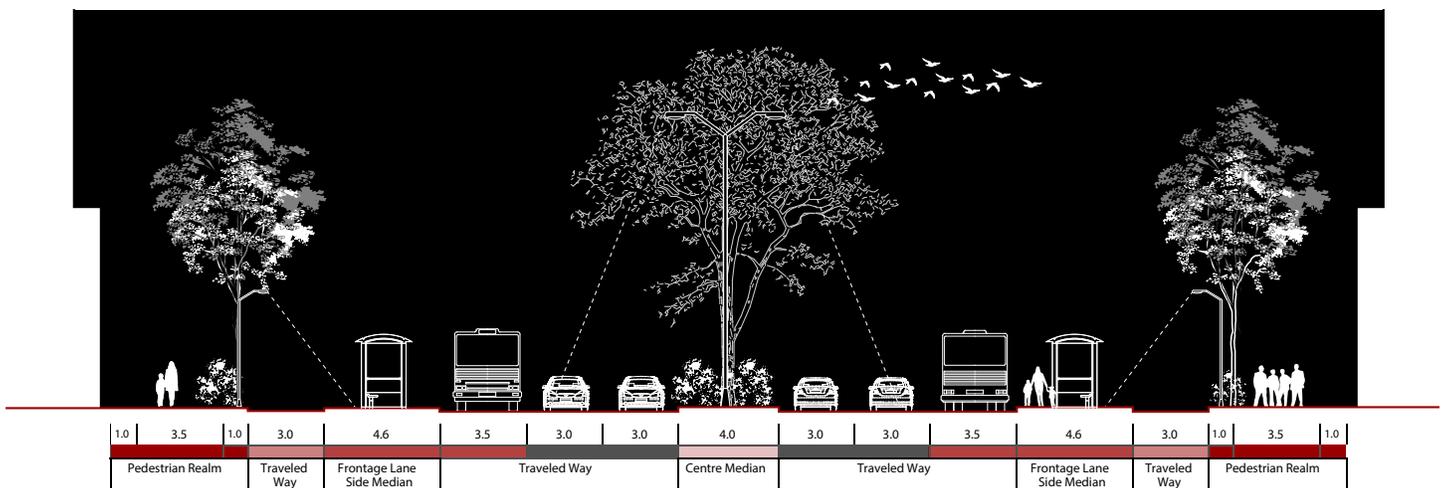
McLoughlin Corridor Improvements

McLoughlin Boulevard provides the main connections from the NMIA to the rest of the region. While its existence has made possible the rapid shipment of goods to surrounding areas and beyond, it has also impacted the internal site connectivity of the NMIA. The corridor is entirely auto-centric, with few or no pedestrian routes or transit options. Distances between stoplights are prohibitively long, making walking between the eastern and western sides of the NMIA nearly impossible. McLoughlin Boulevard has the effect of entrenching auto dependence in the site. However, due to its substantial width, the corridor provides excellent opportunities for enhancement through the addition of a Bus Rapid Transit (BRT) link, improved pedestrian infrastructure, and bicycle lanes. These improvements are possible without

compromising the amount of vehicle traffic that can be accommodated, due to the large right-of-way given to the corridor. The goal of the BRT route is to provide a rapid link between downtown Portland and new residences in the NMIA. The existing MAX line takes approximately 45 minutes to reach Portland, while a BRT route with a dedicated land can cut this time by two-thirds. BRT service is proposed for morning and evening rush hour periods, supplementing MAX service that will continue to serve the NMIA and surrounding areas at all times of day.



McLoughlin Boulevard Section



Johnson Creek Natural Area

A detailed site plan showing a central green corridor representing Johnson Creek. The creek is depicted as a blue line flowing through a green buffer zone. Red lines indicate the boundaries of the flood plain. The surrounding area is filled with a grid of streets and building footprints, some of which are highlighted in grey to show areas where structures are planned to be removed to restore the natural environment. The plan also shows various infrastructure elements like roads and parking areas.

One of the NMA's defining characteristics is Johnson Creek which runs through the site and occupies a significant portion of the total land area. Currently, Johnson Creek is underutilized; perhaps a fact of the lack of critical density to support its activation as a natural area for recreation. In addition, many buildings are built within the flood plain of Johnson Creek.

In developing the site plan, the team has elected to remove structures from the flood plain and restore the creek's natural environment. In this way, nature and infrastructure are both protected. It is anticipated that due to the increased natural buffer between hard surfaces and the creek, contaminated surface runoff entering the creek will be reduced significantly, as well as the temperature of runoff entering the creek. The green space buffer will serve as a natural treatment zone for runoff, as well as providing trails for walking and cycling.

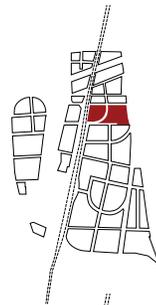
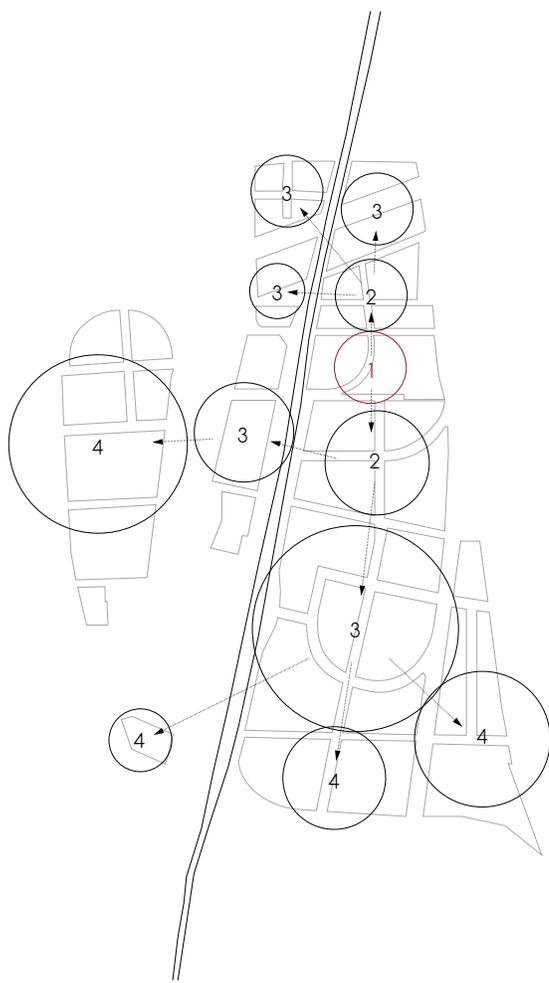
The newly restored Johnson Creek natural area will serve as an inviting space where residents and workers alike can relax and play.

Timeline & Anticipated Results

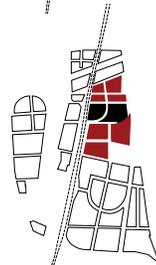
Development Phases

Development is anticipated to happen gradually over a period of approximately 30 years, aligned with the visioning timeline in the NMIA Plan. Beginning at the catalyst site, development is anticipated to spread outwards slowly as blocks are subdivided and redeveloped. In this way, existing light industrial manufacturing facilities will remain in use until economic conditions are favourable for redevelopment, at which point redevelopment can occur according to the Design Strategy (p. 7). As the existing manufacturing base switches to new modes of industry,

the development of educational facilities for re-training is encouraged, particularly in 'high opportunity occupations' such as emergency services. At the southwest corner of the NMIA exists the College of Emergency Services. Co-locating additional occupational training facilities next to this campus would provide training for jobs in the immediate area, close to employment centres, and within short commuting distance from the newly proposed residential areas.

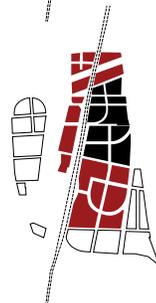


Catalyst site develops.



Development expands around catalyst site.

Existing manufacturing sites remain in use until market changes allow for block-by-block redevelopment.



As existing manufacturing base switches to new employment, the development of educational facilities for re-training is encouraged. The existing College of Emergency Services could be supported by the co-location of other high opportunity occupational training centres.



Anticipated Results

Unwelcoming and underutilised lands in the NMIA mean that the area is not living up to its full potential. As the gateway to the City of Milwaukie and with good transit infrastructure, there are many opportunities for enhancement in the NMIA to increase the tax base and welcome a new generation of residents. In addition, employment-supporting land uses can coexist with residential uses to provide a complete community.

Reinvigorating the NMIA relies on intensifying land uses and introducing new residential opportunities to the area. In order to keep the community vibrant and welcoming for all income groups, and in order to help reduce the lack of affordable housing options in the Portland metropolitan area, affordable housing is a necessary part of the plan. Affordable housing will only be possible with a more intensified land-use scenario that combines more finely-grained, revenue-generating commercial tenants who can cross-subsidize the costs of construction. Market rate housing will also be necessary to subsidize affordable housing.

Public transport is also anticipated to benefit from a higher population, especially with a higher provision of affordable housing, as low-income earners are more than likely to use public transport to commute each day. In this way, transportation-related revenues are anticipated to rise. With the addition of a new BRT route along McLoughlin Boulevard, transit access would be further improved.

Changing the character of the area is expected to result in a more vibrant neighbourhood, where local residents can enjoy the amenities within a short walk of their home, with people from the surrounding areas able to access these same amenities within a short walk, bicycle ride, transit ride, or drive. Conflicts between the residential users and light industrial manufacturing users related to noise and activity are not anticipated, given that commercial activity will be limited to working hours.

Lastly, the proposed plans are anticipated to provide far-reaching environmental benefits: from reduced runoff into Johnson Creek and increased flooding resiliency through updated building setback requirements from the creek, natural areas can be places to enjoy nature rather than a risk. By increasing density near rapid transit and encouraging non-automotive forms of transportation, emissions reductions are also anticipated.

Though conceptual, the team's plan for the North Milwaukie Industrial Area combines many feasible and logically implementable design and policy solutions that can result in a new gateway to the City of Milwaukie.

Conclusions

Over the course of our design work, the team aimed to develop flexible and creative solutions to address the changing social and economic features of Oregon's industrial lands. As industrial uses diminish over time, to be replaced with lighter industrial use and creative industries, the design of these areas must also change in order to keep pace. Thus, our model presents an adaptable built form that, when employed throughout the NMIA, can serve a variety of users while also accommodating new residents.

Rezoning land for residential purposes brings with it its own set of challenges. Typically, land values rise sharply upon residential rezoning, meaning that the development of affordable housing becomes more difficult. By combining residential uses within light industrial and commercial buildings, the team anticipates land values will remain more favourable to affordable housing development. In addition, incentives such as the Construction Excise Tax (CET) can be coupled with this design strategy to further incentivize affordable residential development.

The development strategy and subsequent designs were based on five guiding principles: compact development with higher densities, socially inclusive development welcoming all incomes and backgrounds, well-connected development with linkages to existing transportation infrastructure, well-integrated development incorporating multiple stakeholders, and resilient development which allows the area to adapt to environmental and economic shifts that will naturally occur over time.

These principles resulted in an overall site design that includes higher density development, up to six storeys with an industrial and commercial podium and residential tower. These mixed-use buildings are smaller in footprint than existing uses, allowing for a more walkable community, while still retaining the important economic base for which the NMIA is known. Next, these developments are well-situated within walking distance to existing transit infrastructure, and are proposed to be paired with new bus rapid transit (BRT) connections along McLoughlin Boulevard. New crossings along McLoughlin Boulevard, as well as across the rail corridors at the eastern edge of the site, will improve the pedestrian experience and increase site permeability and accessibility. Finally, in order to remain resilient, new development is kept clear of the Johnson Creek flood plain. This both ensures minimal property losses in the event of future flooding while permitting for the incorporation of new natural parkland area within the NMIA, which future residents will enjoy.

By employing the team's mixed-use development form in strategic ways throughout the NMIA, we believe that this area can continue to serve as an economic hub, while also providing places to live and play for those looking for more affordable housing opportunities in the Portland metropolitan area.

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