



## **Analysis of Brownfields Cleanup Alternatives (Preliminary Evaluation)**

Hillcrest Site  
2200 Larpenteur Avenue East  
St. Paul, Minnesota

*Prepared for*

**Saint Paul Port Authority**

DRAFT

Project B1903316.00  
June 22, 2021

Braun Intertec Corporation

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**Analysis of Brownfields Cleanup Alternatives (Preliminary Evaluation)**  
**Hillcrest Site**  
**2200 Larpenteur Avenue East, Saint Paul, Minnesota**  
**June 21, 2021 Prepared for: Saint Paul Port Authority**

**I. INTRODUCTION & BACKGROUND INFORMATION**

**a. Introduction**

This document provides an analysis of brownfields cleanup alternatives (ABCA) for the Former Hillcrest Golf Course Site in St. Paul, Minnesota (herein referred to as “the Hillcrest Site”). This section of the ABCA includes information on the location of the Hillcrest Site, previous site uses, descriptions of previous assessment and remediation activities that have occurred, and planned reuse/redevelopment.

**b. Site Location**

The Former Hillcrest Golf Course Site is located at the southwest quadrant of McKnight Road North and Larpenteur Avenue East in northeast St. Paul, Minnesota. The most recent street address of the Hillcrest Site was 2200 Larpenteur Avenue East. A diagram depicting the Hillcrest Site is included as **Attachment 1**.

**b.1 Site Description**

The Hillcrest Site is approximately 112-acres in size and was acquired by the Saint Paul Port Authority (SPPA) in June 2019 with the goal of facilitating completion of a mixed-use redevelopment that includes a combination of residential, commercial, job center (i.e., light industrial), and green space uses. The Hillcrest Site is currently undergoing a formal planning process through the City of St. Paul, which will determine, with community input, a redevelopment configuration and land use plan consistent with City’s requirements/goals. Pre-acquisition environmental studies completed on behalf of the SPPA identified widespread soil contamination at the Hillcrest Site that will require cleanup/remediation prior to (or concurrent with) redevelopment. A Site Diagram is included as **Attachment 2**.

**b.2 Climate Condition Factors**

According to published geologic information, the depth to groundwater at the Hillcrest Site is approximately 100 to 200 feet below land surface (bls) and the regional groundwater flow direction is generally to the west-southwest. Perched groundwater was encountered intermittently during previous environmental and geotechnical investigations at the Hillcrest Site at depths between approximately 4.5 and 15 feet bls.

The United States Environmental Protection Agency (USEPA) website for Climate Impacts for the Midwest (USEPA Web site: <https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-midwest.html>) was accessed to identify possible climate-related factors that either currently (or will in the future) impact the Hillcrest Site. In summary, the Hillcrest Site is currently affected by extremely cold air masses from the north and warm, humid air masses from the south. Typical of Minnesota and the Midwest, the Hillcrest Site experiences wide temperature fluctuations and precipitation extremes. In general, regional temperatures have increased over the last several decades, and temperatures in St. Paul, Minnesota are projected to continue to increase. Moving forward in time, it is likely that the St. Paul area (including the Hillcrest Site) will experience warmer and wetter winters, heavy precipitation in the spring months, and hotter drier summers.

Many other typical major climatic risk factors do not apply to the Hillcrest Site based on physiographic location. For example, St. Paul, Minnesota is not located near an ocean or large inland lake and will not be directly affected by changes in the water level elevations in coastal oceans or large inland lakes. Rather, the Hillcrest Site is located within an existing municipal area that includes existing residential and commercial uses. Based on the location of the Hillcrest Site and its proposed redevelopment, it is unlikely that future changes in temperature, changes in dates of ground thaw/freeze, changing ecological zones, and/or other climatic changes will significantly affect redevelopment planning and/or related remediation/cleanup plans. However, the SPPA is committed to redeveloping the Hillcrest Site in a responsible manner that promotes sustainability and minimizes future impact of the future redevelopment to the environment.

### **c. Previous Site Uses and Previous Cleanup/Remediation**

Prior to the 1920s the Hillcrest Site was cultivated agricultural land or grazing land. The Hillcrest Golf Course was developed in the 1920s for and became a full size 18-hole private golf course/club that included clubhouse facilities, a swimming pool with pool building, driving range, practice putting greens, tennis courts, and various support buildings that included general storage buildings, maintenance shop on the north side of the Hillcrest Site, and agricultural chemical storage buildings on the southeastern side. Earthen berms, which appear to contain intermixed debris, are located along the southeastern boundary of the Hillcrest Site next to and south of the maintenance area and two unsealed water wells. The Golf course ceased operations in 2017 and the Hillcrest Site has remained vacant since that time.

During use as a golf course, various petroleum products were used and stored on the Hillcrest Site. Specifically, three past petroleum releases have been reported at the Site, Leak ID# 5050; Leak ID# 6222; and Leak ID# 18327. All three petroleum release leak sites were closed by the MPCA following review of the follow up site investigations, or in the case of Leak ID #6222, review of the limited soil cleanup actions taken following tank removal (i.e., excavation, hauling and treatment of an estimated 180 tons of petroleum-impacted soil).



#### **d. Site Assessment Findings**

Prior to property acquisition in June 2019, the SPPA retained Braun Intertec Corporation (Braun Intertec) to complete a Phase I Environmental Site Assessment (ESA) of the Hillcrest Site in accordance with ASTM Standard Practice E1527-13. The Phase I ESA results were documented in a report dated June 10, 2019. In summary, the Phase I ESA identified the following recognized environmental conditions (RECs) related to the Hillcrest Site: 1) the presence of remaining contamination from past petroleum tank leaks, 2) the potential for agricultural chemical releases to the soil and groundwater, 3) the potential for the repeated historical application of fungicide to result in an accumulation of mercury in the soils over time, and 4) the potential presence of contaminated soils and buried regulated waste materials in berms present at various locations.

Braun Intertec was also retained to complete a Preliminary Phase II ESA to evaluate whether the soil, soil vapor, and/or groundwater beneath the Hillcrest Site is impacted at levels requiring consideration for acquisition and/or redevelopment. The Limited Phase II ESA results were documented in a report dated June 10, 2019. In summary, the Preliminary Phase II ESA identified both non-petroleum and petroleum compounds in soil at various locations and depths across the Hillcrest Site. The non-petroleum impacts include widespread mercury contamination from the historical use of specialty fungicides and other turf management agricultural products associated with golf courses dating back to the 1930's and into the 1990's. Mercury concentrations up to as high as 144 milligrams per kilogram (mg/kg) were detected in soil samples collected from areas near the former golf course greens/fringes, and the majority of the shallow soil samples collected from the 0 to 6-inch depth interval from the former golf course tee boxes and fairways contained mercury at concentrations exceeding the MPCA's residential and commercial soil reference values (SRVs) in place at that time of 0.5 mg/kg and 1.5 mg/kg, respectively. The mercury concentrations in soil were found to decrease with depth and were generally below MPCA SRVs in soil samples collected at depths starting at a depth of approximately 1-foot (or less) in former tee box/fairway areas. Below the former golf course greens, the mercury concentrations in soil were generally below SRVs at depths starting at approximately 2-feet.

Additional non-petroleum impacts to soil from polycyclic aromatic hydrocarbons (PAHs) and arsenic were also detected at a few locations at the Hillcrest Site, but these impacts are relatively minor in extent and magnitude. Petroleum impacts were also detected at the Hillcrest Site and were limited to the area of the three "closed" petroleum leak sites that were discussed previously in Section I.c of this ABCA.

Groundwater samples collected during the recent Phase II ESA did not detect evidence of significant or widespread contamination by petroleum compounds or hazardous substances. The only detection of a contaminant in groundwater above a drinking water standard was diesel range organics (DRO) in the sample collected near the previously investigated and closed petroleum leak sites.

Low concentrations of volatile organic compounds (VOCs) were detected in soil vapor samples collected during this investigation. However, no VOCs in the soil vapor were detected at concentrations above the MPCAs action levels requiring consideration or redevelopment.

The Limited Phase II ESA report concluded that additional environmental investigation(s) would be needed to further delineate and define the magnitude and extent of the identified impacts at the Hillcrest Site in consideration of future redevelopment.

Based upon the results of the Limited Phase II ESA, Braun Intertec Corporation received authorization from Mr. Monty Hilleman of the Saint Paul Port Authority to conduct a Remedial Environmental Investigation to further define the impacts identified during the Limited Phase II ESA. Additionally, the goal of the Remedial Environmental Investigation was to provide additional information on the magnitude and extent of impact across the Site.

The Remedial Environmental Investigation was detailed in the Remedial Investigation Work Plan dated March 27, 2020 (The RI Work Plan).

The RI Work Plan was approved by the Minnesota Department of Agriculture (MDA) Incident Response Staff on May 5, 2020. The investigation was partially funded from a 128(a) assessment money through U.S. Environmental Protection Agency (EPA) Grant Number BF00E02723. As such, all field work and sampling procedures were conducted in accordance with the Quality Assurance Project Plan (QAPP), Revision 0, dated September 26, 2019, that was previously submitted to and approved by EPA Region 5. As required under the QAPP, a Sampling and Analysis Plan (SAP) document containing the same elements of the RI Work Plan was prepared by Braun Intertec and dated May 11, 2020, the SAP was submitted to the U.S. EPA Region 5.

The Remedial Environmental Investigation was performed between June and August 2020, the Remedial Environmental Investigation report is currently in production. The Remedial Environmental Investigation results were similar to the Preliminary Phase II ESA, with both non-petroleum and petroleum compounds in soil at various locations and depths across the Hillcrest Site. The Remedial Environmental Investigation further defined the extent of mercury, showing that mercury impacts are present throughout the greens/fringes and tee boxes, as well as intermittent mercury impacts around the Maintenance/chemical storage and mixing areas, in the fairways, and in sediments in some wetland/drainage accumulation areas including the large wetland located adjacent to the Maintenance area near the southeast corner of the Site. In addition, the Remedial Environmental Investigation identified PAHs and metals impacts associated with an area of buried debris near the former pool house and mercury impacts in isolated areas near the club house. Using the data collected to date, the extent of identified impacts are shown on a Contaminant Locations Map included as **Attachment 3**.

#### **e. Overall Project Goal**

The SPPA acquired the Hillcrest Site in June 2019 with the goal of facilitating completion of a mixed-use redevelopment that includes a combination of residential, commercial, job center (i.e., light industrial), and green space uses. The Hillcrest Site is currently undergoing a formal planning process through the City of St. Paul with community input, which will determine a redevelopment configuration and land use plan consistent with City's requirements/goals. Future activities to be conducted by the SPPA to facilitate redevelopment will likely include demolishing existing site structures, implementing site grading necessary to support the final agreed upon development plan, and constructing roadways, public utilities, and related storm water infrastructure to support the planned development.

Diagrams depicting two possible redevelopment configurations being discussed as part of the City of St. Paul's master planning and community engagement process are included in **Attachment 4**. Please note that the final redevelopment configuration and land uses will not be defined until after this process has been completed.

## **II. APPLICABLE REGULATIONS AND CLEANUP STANDARDS**

### **a. Cleanup Oversight Responsibility**

The Saint Paul Port Authority will hire a qualified environmental professional services company to oversee and document the cleanup/remediation of the Hillcrest Site and will comply with the procurement provisions of 40 CFR Part 31.36.

The SPPA has entered the Hillcrest Site in the Minnesota Department of Agriculture (MDA) Agricultural Chemical Voluntary Investigation and Cleanup (AgVIC) Program, MPCA Voluntary Investigation and Cleanup (VIC) Program, and the MPCA Petroleum Brownfields (PB) Program to facilitate investigation and cleanup of the property and to receive applicable assurance letters from these agencies. MDA involvement on this project is triggered by the mercury impacts related to the historic use of mercury-containing fungicides used for turf management. Specifically, the MDA has regulatory jurisdiction for all impacts resulting from use of hazardous substances for agricultural purposes, including turf management on golf courses. Agency approvals and environmental assurances will be sought through the MDA for agricultural chemical impacts at the property. The MPCA VIC Program's involvement is needed to obtain environmental assurances and approvals related to hazardous substances for which they have regulatory jurisdiction (e.g., PAHs), and the MPCA PB Program's involvement is needed to obtain environmental assurances and approvals related to the past petroleum releases and remaining residual petroleum contamination.

### **b. Cleanup Standards for Major Contaminants**

The soil cleanup standards for the Hillcrest Site will be based on the MPCA residential Soil Reference Values (SRVs) for areas targeted for residential use and commercial/industrial SRVs for areas targeted for commercial/industrial development. For mercury, the primary contaminant driving clean up at the Hillcrest Site, the residential and industrial SRV is the same value at 3.1 mg/kg. Other applicable cleanup standards include:

- Soil Impacted by Hazardous Substances (other than mercury):

Soil cleanup standards for non-agricultural based hazardous substances will also be based on MPCA residential and commercial/industrial SRVs, as appropriate, and on guidance documents utilized by the MPCA VIC Program.

- Soil Impacted by Petroleum:

Soil cleanup standards for petroleum will be based on MPCA petroleum guidance documents utilized by the MPCA Petroleum Brownfields (PB) Program. In summary, the MPCA cleanup standards for petroleum-impacted soil on redevelopment sites are based

field screening using a photoionization detector (PID). Excavated petroleum-impacted soil with PID readings greater than 200 ppm typically requires segregation and off-site disposal at a permitted landfill. Excavated petroleum-impacted soil that with PID readings between 10 and 200 ppm may be reused onsite as restricted fill (e.g., below paved surfaces) subject to MPCA review and approval.

- Soil Impacted by Fertilizers/Herbicides/Pesticides:  
Soil cleanup standards for releases related to past uses of fertilizers, herbicides and pesticides will be based on applicable MPCA residential and industrial SRVs and MDA agricultural chemical release guidance documents utilized by the MDA AgVIC Program.
- Soil Vapor Impacts:  
MPCA criteria for vapor mitigation is based on the analytical results of soil vapor samples collected in the area of a proposed building. Specifically, vapor mitigation is required if one or more individual VOCs are detected at a concentration greater than 33 times an established MPCA Intrusion Screening Value (ISV) for Residential or Commercial / Industrial building use categories, as appropriate. In order to make this determination, representative soil vapor sampling and testing is required during both the heating season (November 1 to March 31) and non-heating season (April 1 to October 31).

#### **c. Laws & Regulations Applicable to the Cleanup**

Laws and regulations that are applicable to this cleanup include the following: Comprehensive Response, Compensation and Liability Act (CERCLA), including the Brownfields Revitalization Act, Minnesota Environmental Response and Liability Act (MERLA), the Federal Davis-Bacon Act, Petroleum Tank Release Cleanup Act, and other applicable State of Minnesota environmental laws, and local City by-laws and ordinances. Federal, State, and local laws regarding procurement of contractors to conduct the cleanup will be followed. Applicable guidelines utilized by the MDA AgVIC Program, MPCA VIC Program and MPCA PB Program will also be utilized and followed as appropriate.

### **III. CLEANUP ALTERNATIVES**

#### **a. Cleanup Alternatives Considered**

The widespread soil contamination identified at the Hillcrest Site is the primary technical factor driving the need for environmental cleanup/remediation. For purposes of this ABCA, the following four technical alternatives were considered to address the known soil contamination at the Hillcrest Site:

- Alternative #1: No Action
- Alternative #2: Phytoremediation
- Alternative #3: Contaminated Soil Excavation with Offsite Disposal
- Alternative #4: Contaminated Soil Excavation with a combination of On-Site Soil Management and Off-Site Disposal.

Based on the assessment findings to date, cleanup/remediation actions related to groundwater or soil vapors at the Hillcrest Site are not anticipated to be needed, and thus are not addressed further in this ABCA document.

## **b. Evaluation of Cleanup Alternatives**

The four remedial alternatives were evaluated to determine if they could achieve the SPPA's overall project goal of facilitating redevelopment and minimizing risks to human health and the environment. The alternatives deemed capable of achieving the overall project goal were further evaluated for effectiveness, practicality of implementation, and cost.

Upon further consideration, Alternative #1 (No Action) was determined to be inconsistent with the SPPA's overall project goal of facilitating future redevelopment and minimizing risks to human health and the environment. This alternative would consist of controlling site access through physical means (i.e., perimeter fence) and placing a restrictive covenant or other appropriate institutional controls on the property deed. Since no soil cleanup/ remediation would occur under this alternative, soil contamination would remain in place near the ground surface. This would prevent development and reuse of the property. Based on these factors, Alternative #1 (No Action): No Action was eliminated from consideration and was not evaluated further for effectiveness, practicality of implementation, and cost.

Phytoremediation (Alternative #2) involves the use of plants to remove pollutants from the environment in-situ (i.e., in place). For inorganic contaminants like mercury, it works by plants (and their roots) absorbing the contaminant from the soil and storing it in the stems and leaves of the plant. In the right circumstances and timeframes, phytoremediation has been used effectively for remediation of metals contaminated sites. However, Alternative #2 (Phytoremediation) was also removed from further consideration for the Hillcrest Site due to the following factors:

- 1) Long Implementation Timeframe. Phytoremediation can take a very long time to implement before treated soils meet established cleanup standards. The time required to remediate a site by phytoremediation usually takes significantly longer than traditional excavation-based methods. This is particularly true on sites with high containment concentrations and low cleanup standards, such as the mercury-impacted soils at the Hillcrest Site. In our opinion, phytoremediation at the Hillcrest Site would require implementation over many years and across many plant growth/harvesting cycles before site cleanup standards are achieved. It is our understanding that waiting many years for completion of cleanup would not be acceptable for the planned redevelopment. Based on the high mercury concentrations present on the Site, we believe that phytoremediation would take at minimum of 2 to 3 years to complete and would likely take longer (5+ years). Even after ten years it is conceivable that the contamination may still not be fully remediated.
- 2) Contaminant Mobilization May Be Increased. The underlying biological and chemical processes that plants use to uptake contaminants from the soil may change the chemical form of the contaminant and make it more soluble and mobile. It is possible that these processes could cause unintended problems. If contaminants become more soluble and

mobile, transportation of contaminated media on- and off-site could increase. This increase in contaminant transportation could adversely affect human health and environmental impacts. This potential for increased contaminant mobilization would have to be carefully studied through treatability studies and could delay the start of remediation and redevelopment.

- 3) Inorganic Contaminants Do Not Go Away. As discussed previously, inorganic contaminants (e.g., mercury) removed from the soil by the plant roots are stored in the stems and leaves of the plant. The mercury is still there, it is just present in a different form. It is very likely that the harvested plants and/or leaf litter with the mercury would still need special management and off-site disposal because of mercury content. It would not be practical to leave the harvested plants on-site and let them biodegrade (see Factor 2 above).
- 4) The high concentrations of mercury in the former greens at the site may inhibit plant growth and limit the ability for uptake by plants. Phytoremediation of Mercury has primarily been used on a bench scale study with concentrations much lower than what is present at the Site. Field level studies of mercury Phytoremediation effectiveness are very limited compared to field studies that have been implemented for phytoremediation of lead.

#### **b.1 Effectiveness**

- **Alternative #3: Contaminated Soil Excavation with Off-Site Disposal**  
Excavation with off-site disposal is a proven and effective approach to soil cleanup/remediation that is approvable from a regulatory perspective. With this alternative, the known soil contamination would be fully removed from the Hillcrest Site resulting in the elimination of human health and environmental risks related to the soil contamination. Implementation of this alternative would include excavation and off-site disposal of an estimated 30,000 cubic yards of contaminated soil exceeding established site cleanup standards including former golf course tee areas, fairways, greens and the other identified areas of contamination at the Hillcrest Site (i.e., fertilizer/pesticide storage and use areas, contaminated soil berms with intermixed debris). The off-site soil disposal would be completed at a permitted landfill. A restrictive covenant or other institutional controls would not likely be required for this alternative. Although this alternative meets the SPPA's overall project goal, it is the highest cost alternative being considered and has a high implementation negative impact on the environment because of the extensive use of fossil fuels to transport all contaminated soil to off-site disposal facilities.
- **Alternative #4: Contaminated Soil Excavation with a Combination of On-Site Soil Management and Off-Site Disposal**  
Alternative #3 is also a proven and effective approach to soil cleanup/remediation that is approvable from a regulatory perspective. With this alternative, the known areas of contaminated soil would also be fully excavated and soils with the highest concentration of contamination would be transported off-site for disposal at a permitted landfill, similar to Alternative #3. The remainder of the excavated contaminated soils would be managed on site by placing and compacting at designated locations and depths at the

Hillcrest Site that are pre-approved by the regulatory agencies for safe management and compatible with future development plans and site uses. Alternative #3 addresses the risk to public health and the environment because the locations of on-site soil management would be selected to ensure future users of the Hillcrest Site after redevelopment would not come in direct contact with the contaminated soil and contamination would not leach to groundwater. Implementation of this alternative would include excavation of an estimated 30,000 cubic yards of contaminated soil exceeding site cleanup standards (similar to Alternative #3), off-site disposal of an estimated 5,000 cubic yards of contaminated soil at a permitted landfill, and on-site placement and compaction of remaining 25,000 cubic yards of contaminated soil at the Hillcrest Site. This alternative meets the SPPA's overall project goal and has the added benefit of being the lower cost alternative (compared to Alternative #3). It is noted that Alternative #3 also has a lower implementation negative impact on the environment because less fossil fuels would be used to transport the contaminated soil off-site locations (i.e., lower carbon footprint).

#### **b.2 Practicality of Implementation**

- **Alternative #3: Contaminated Soil Excavation with Offsite Disposal**  
This alternative is technically easy to implement. Materials, equipment, technologies, and service firms needed to implement Alternative #3 are readily available and easy to procure. Site accessibility for implementation would be coordinated with mass site grading and infrastructure development phase of the project. Required permits and regulatory approvals for this alternative would be obtained in advance after the formal City planning process is complete and depending on the development configuration and schedule.
- **Alternative #4: Contaminated Soil Excavation with a combination of On-Site Management and Off-Site Disposal**  
This alternative is also technically easy to implement. As with Alternative #3, materials, equipment, technologies and service firms required for implementation are readily available and easy to procure. Site accessibility for implementation would be coordinated with the mass site grading and infrastructure development phase of the project. Required permits and regulatory approvals for this alternative would be obtained in advance after the formal City planning process is complete and depending on the development configuration and schedule.

#### **b.3 Cost**

- **Alternative #3: Contaminated Soil Excavation with Offsite Disposal**  
It is estimated that implementation of Alternative #3 at the Hillcrest Site would cost approximately **\$2,200,000**. Costs for implementing this alternative could increase if heavy rainfall events occur during implementation, the likelihood of which may increase over time if existing climate change trends continue.
- **Alternative #4: Contaminated Soil Excavation with a Combination of On-Site Soil Management and Off-Site Disposal**

It is estimated that implementation of Alternative #4 at the Hillcrest Site would cost approximately **\$1,200,000**. Costs for this alternative could also increase if heavy rainfall events occur during remediation.

### **c. Recommended Cleanup Alternative**

Alternative #4 (Contaminated Soil Excavation with a Combination of On-Site Management and Off-Site Disposal) is the recommended cleanup alternative for the Hillcrest Site. Alternative #4 was the most cost-effective alternative that also met the SPPA's overall project goal of facilitating redevelopment and minimizing risks to human health and the environment. In addition, Alternative #3 was also determined to have a comparatively lower implementation negative impact on the environment.

As stated previously, Alternative #1 (No Action) cannot be recommended since it does not address site risks and is inconsistent with redevelopment. In addition, Alternative #2 (Phytoremediation) cannot be recommended since the implementation timeframe and lack of proven effectiveness is inconsistent with the planned redevelopment as well as the additional factors discussed in Section III.b above.

The following describes the general site activities that would be completed to implement the recommended alternative at the Hillcrest Site:

- Soil cleanup/remediation of the Hillcrest Site will be most efficiently implemented by coordination with the redevelopment mass grading effort for the property, and will need to consider cut and fill areas, future property boundaries for future developments, future property uses by area, and site geotechnical requirements.
- Mercury-contaminated soil above the residential and commercial/industrial SRVs of 3.1 mg/kg (same cleanup standard for both use types) will be excavated from the Hillcrest Site and staged in a secured stockpile located at the Hillcrest Site.
- It is expected that the highest levels of mercury contaminated soil from the former greens will require off-site disposal at a permitted landfill. The miscellaneous soil berms with intermixed debris/solid waste located south of the maintenance shop area will also require removal and disposal at a permitted landfill.
- The remaining contaminated soil in the stockpile will be consolidated and managed at pre-approved locations at the Hillcrest Site consistent with the MPCA and MDA-approved response action plan (RAP)/corrective action plan (CAP).
- The location of the on-site managed mercury-impacted soil will be documented in a Restrictive Covenant filed with the deed for the property.
- Post excavation verification sampling and testing will be completed to demonstrate that the contaminant concentrations in the remaining soil do not exceed the relevant SRVs for future use.



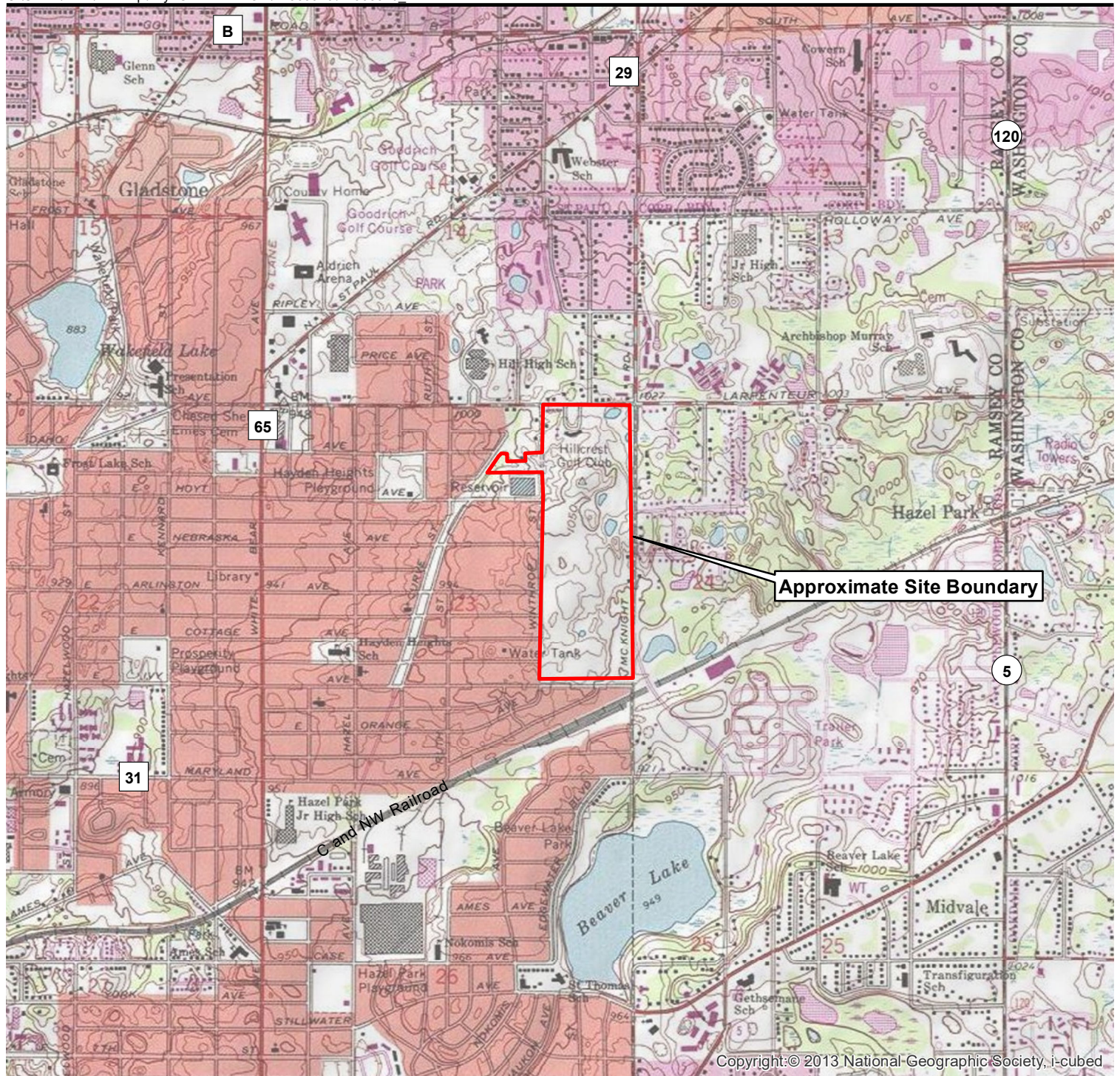
In addition to the above, implementation of the recommended cleanup/remediation alternative should include sealing the two known remaining water wells located at the Hillcrest Site in accordance with Minnesota Department of Health (MDH) requirements.


**d. Green and Sustainable Remediation Measures for Selected Alternative**

To make the selected alternative greener, and/or more sustainable, several techniques are planned. The most recent Best Management Practices (BMPs) issued under ASTM Standard E-2893: Standard Guide for Greener Cleanups will be used as a reference in this effort. The SPPA will require the cleanup contractor to follow an idle-reduction policy and use heavy equipment with advanced emissions controls operated on ultra-low sulfur diesel. The excavation work would be conducted during the dry-weather months (summertime) in order to minimize groundwater infiltration into the excavation area, in turn reducing dewatering needs and the amount of dewatering liquids requiring disposal/treatment. The number of mobilizations to the Hillcrest Site would be minimized and erosion control measures would be used to minimize runoff. In addition, the SPPA plans to ask bidding cleanup contractors to propose additional green remediation techniques in their response to the Request for Proposals for the cleanup contract.

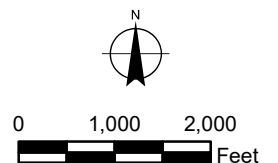
**ATTACHMENT 1**  
SITE LOCATION DIAGRAM





 Approximate Site Boundary

Data Source:  
USGS Quadrangle



**BRAUN  
INTERTEC**  
The Science You Build On.

11001 Hampshire Avenue S  
Minneapolis, MN 55438  
952.995.2000  
braunintertec.com

Project No:  
B1903316

Drawing No:  
B1903316\_SiteLoc

Drawn By: FER  
Date Drawn: 4/12/2019  
Checked By: MPE  
Last Modified: 4/12/2019

Former Hillcrest Golf Course

McKnight Road N and Larpenteur Avenue E

St. Paul, Minnesota

**Site Location Map**

Figure 1

## **ATTACHMENT 2**

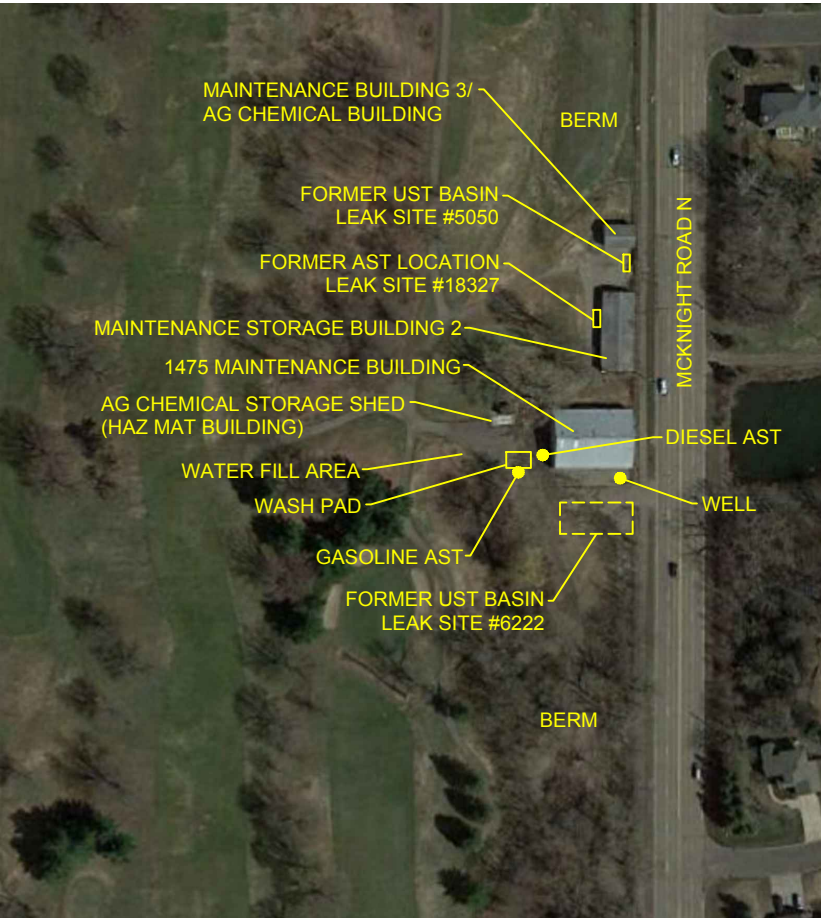
SITE DIAGRAM



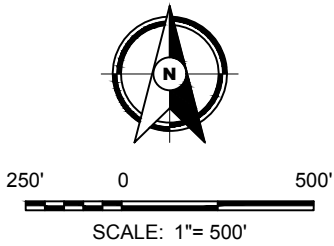
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INSET 1: CLUBHOUSE AREA  
SCALE: 1" = 120'



INSET 2: MAINTENANCE FACILITY  
SCALE: 1" = 200'



Drawing Information

Project No:  
B1903316.00

Drawing No:  
B1903316

Drawn By: LAO  
Date Drawn: 5/15/19  
Checked By: MPE  
Last Modified: 1/18/21

Project Information

Former Hillcrest Golf  
Course

McKnight Road N and  
Larpenteur Avenue E

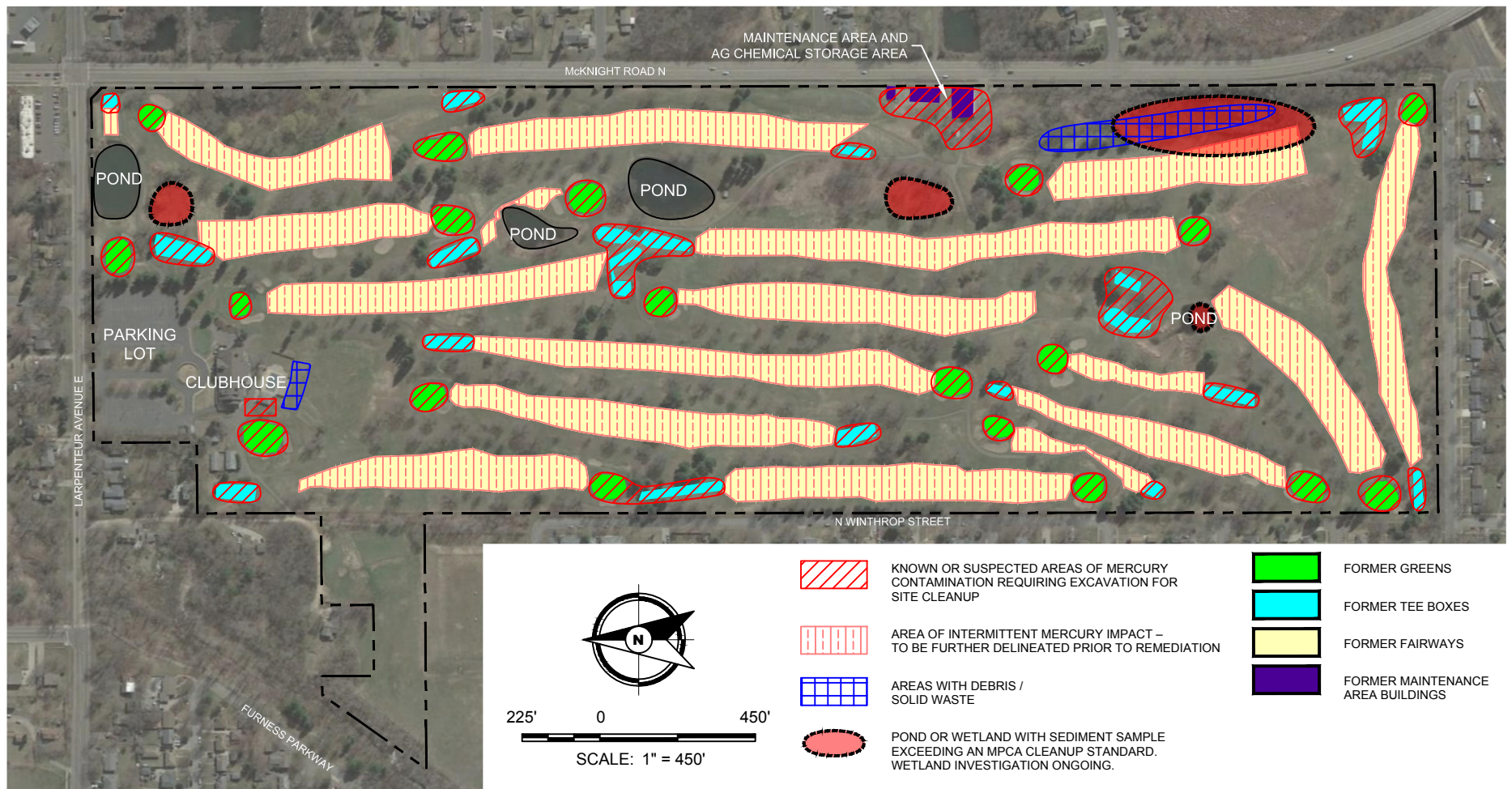
St. Paul, Minnesota

Site Diagram



## **ATTACHMENT 3**

CONTAMINATION LOCATIONS MAP



## **ATTACHMENT 4**

POTENTIAL REDEVELOPMENT CONFIGURATIONS  
(BASED ON CURRENT CITY MASTER PLANNING PROCESS)



# Hillcrest Master Plan



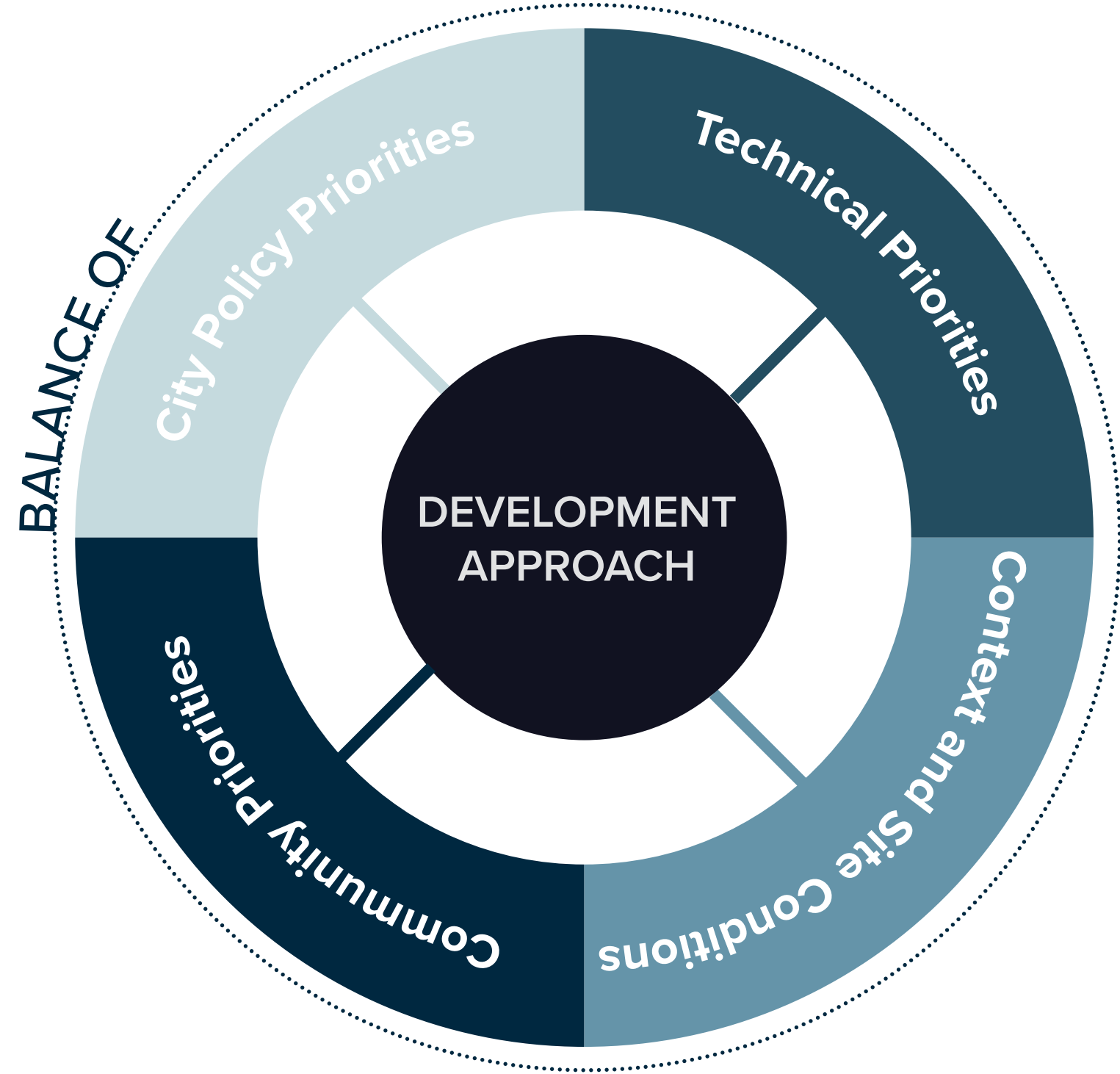
## FINALIST SCENARIOS - SUMMARY BOOKLET

March 16, 2021



SAINT PAUL  
MINNESOTA

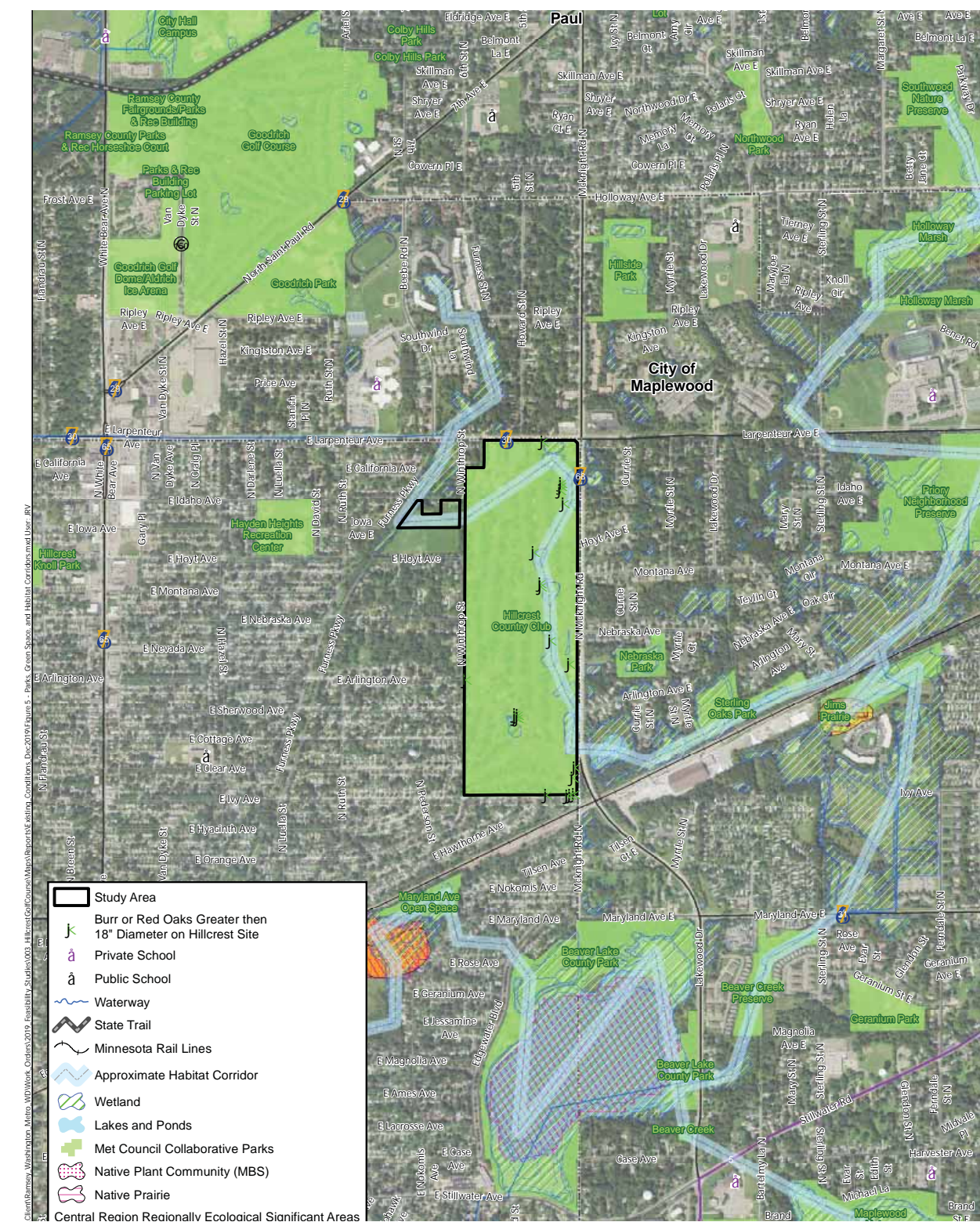
MASTER PLANNING PROCESS





# SITE CONDITIONS: CONTEXT

## OPEN SPACE AND HABITAT



## PUBLIC TRANSPORTATION



## BICYCLE TRAILS



*The Master Plan will support and repair the existing systems so the site is better connected to its surroundings*



# SITE CONDITIONS

## WETLANDS

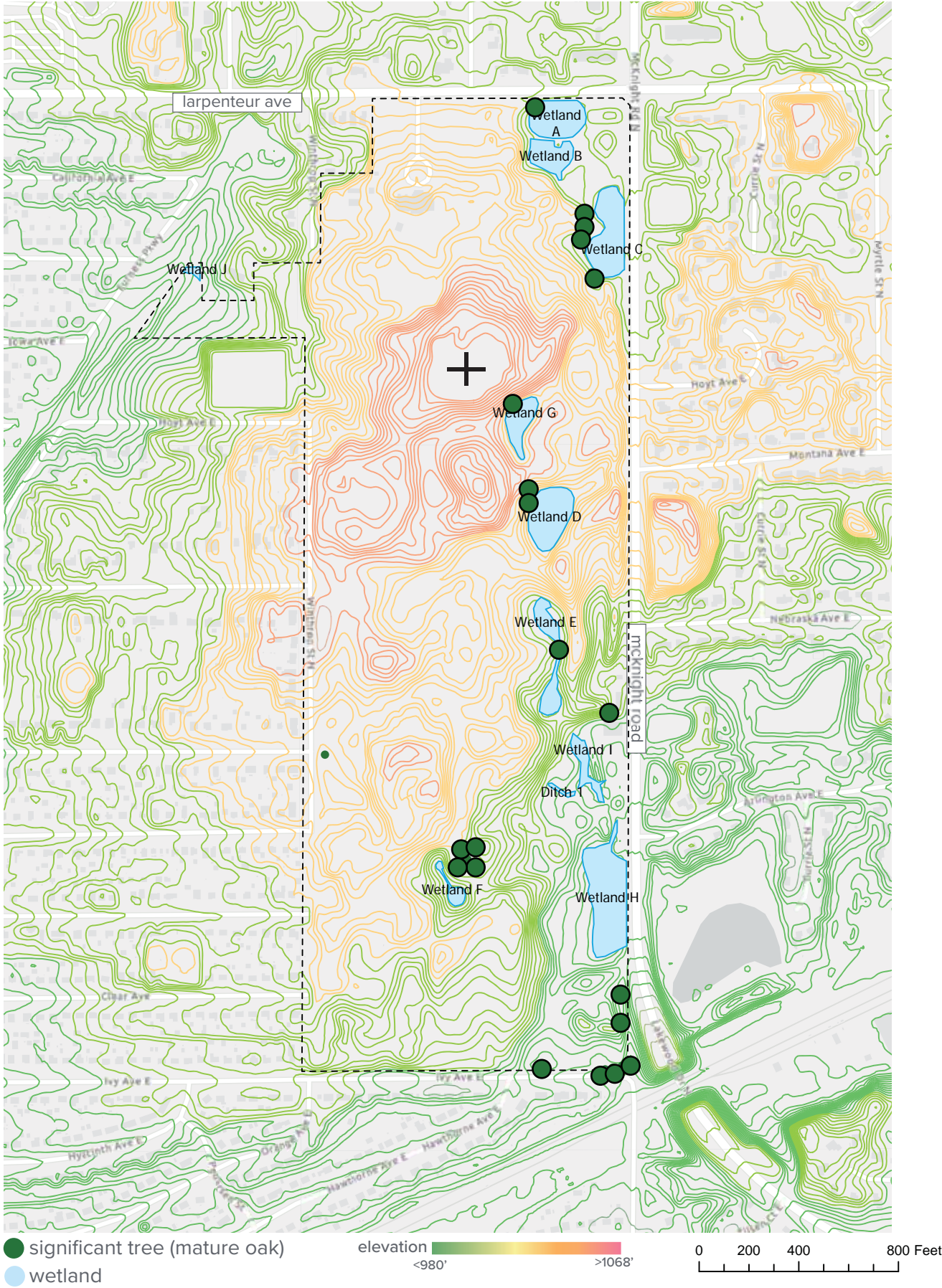
The Site has several wetlands and ponds, generally located along the site’s eastern edge. They are subject to State of Minnesota and Ramsey-Washington Metro Watershed District watershed regulations.

## TOPOGRAPHY

Though the site has been artificially graded as a golf course, it has always been the high point of Ramsey County - thus the name, “Hillcrest.” The ridge connecting the three peaks defines water flow on the site, with 2/3rds of the site draining to the south and 1/3 draining to the north. The high point of the site is approximately 1070’, the low point is approximately 990’

## MATURE TREES

Trees on site consist of red and bur oaks, maple, elms and river birch trees along the edges of the site and arranged along the fairways. Many of the trees were planted for the golf course, several are over 100 years old. These trees create urban habitat, reduce urban heat island, and create a distinct character to the site.





# SITE CONDITIONS

## SOILS AND CONTAMINATION

Much of the soil will have to be removed due to mercury contamination. The contamination is highest in the tee boxes and greens of the golf course. Contamination was found in all but one of the wetlands. Removal of the contaminated soil will result in the loss of many trees. Soils on the southern portion of the site have a high potential for infiltration.

Areas on the map are approximate. They are subject to possible expansion based on additional investigation and confirmation sampling during clean-up.

Given the substantial contamination, environmental regulations, and ongoing threats to human health and the environment, in any scenario significant excavation and mitigation is required in all contaminated areas, including wetlands.



# POLICY & TECHNICAL PRIORITIES HIGHLIGHTS



+



+



+



## +/- 1000 JOBS

The Port Authority endeavors to bring approximately 1000 jobs to the site in the form of light industrial, production, and modern manufacturing.

## +/- 1000 HOUSEHOLDS

Housing at Hillcrest will likely occur in a range of styles, sizes and types - including single family homes, townhouses, apartments, cooperative living arrangements - to accommodate a diverse community of residents.

## 20 ACRES OF PARKS, TRAILS, AND OPEN SPACE

Open space will be owned by the City and the Port and will be a combination of active park space, passive park space, ecological restoration and privately owned publicly accessible spaces.

## ACTIVITY THROUGH SHARED USE

NEIGHBORHOOD NODES are compact, mixed use areas that provide shops, services, neighborhood-scale civic and institutional uses, recreational facilities and employment close to residences.

COMMUNITY PRIORITIES

5 THEMES



**CONNECT**  
build strong connections to existing infrastructure and community systems



**ACTIVATE**  
spark community and economic activity through innovative development



**CONSERVE**  
conserve existing site features that celebrate the character and ecological value of the site



**BLEND**  
thoughtfully blend the new development into the existing neighborhoods



**BUILD**  
provide new, desired, and needed types of jobs, parks, retail and new housing through site redevelopment

20 NAMED PRIORITIES

- 
1. New development should **respect the quiet nature** of the existing neighborhood. Whereas we recognize that new development may “open up” our neighborhood, **we value our trees, quiet streets, access to nature, and sense of neighborhood**. New development should not eliminate these qualities.
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2. Neighborhoods should be **walkable with connections** to nearby parks, schools, public transportation and other amenities.
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3. New development should address the **serious housing shortage** in Saint Paul.
- 
- 
4. New jobs on the site should be for a diverse working class, providing sustainable living wage jobs and have local hiring goals; stable jobs for skilled labor for all education levels, and not with high turnover rates.
- 
- 
5. Development on the site should **strengthen existing businesses** and also support the growth of small, local, and entrepreneurial businesses. This can include (but is not limited to) provisions and allowances for home (and garage) based businesses, affordable commercial workspaces, co-working and collaboration spaces, incubators/accelerators and startup retail including small shops and kiosks.
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6. Any retail should be **pedestrian-accessible**, not automobile-based strip commercial. Attract distinctive **small businesses** like a coop grocery market, ice cream shop, small cafes, and entertainment venues.
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7. Industrial/manufacturing building types should integrate with the neighborhood’s character and be **located on the edges** of the site near higher volume streets like Larpenteur and McKnight.
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8. The site (and the area) needs better public transportation connections. Therefore, the site should be developed in a manner that enables **improved transit** and encourages the use of public transportation.
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9. **Extend trails** into the site, creating a pedestrian and recreational connection that allows people from the neighborhood to access the site, public spaces, and businesses.
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10. Analyze the public services that will be necessary to provide for public safety such as additional fire and police, or a new elementary school.
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11. Preserve and respect the **unique topography** and features of the site and maintain healthy mature trees. The rolling hills, wetlands and trees are valuable resources that define the site, perform important ecological functions, and for many are part of childhood memories. Incorporate them into park space, gardens, wetlands and other amenities usable year-round to distinguish the site.
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12. The development should have **ample green space, open space, and park space** to support the needs of the people who will be living and working there and meet the City’s green space and park requirements. These spaces should be connected to surrounding neighborhoods and Beaver Lake with multi-use trails and sidewalks.
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13. The site should have **ample community spaces** for people to gather and get to know each other and break down barriers – community center, swimming pool, picnic space, splash pad and playground for young families, natural reserve for kids to explore, dog park and other public or semipublic elements that help create community. Also places for activities like community/educational gardens and a farmers market, and programming such as art in the park and community murals.
- 
14. Design of housing should encourage **pride in one’s home** and the community. [As revised by the CAC.]
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15. Housing should **emphasize an interaction** with other residents and with nature.
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- 
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16. Ideally, new jobs would be “**green jobs**.”
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- 
17. Provide a **mix of housing options** on the Hillcrest site that blends into the existing community and allows people to both stay on the East Side and choose to live on the East Side. This may include smaller single family homes including two-three bedrooms for young families, cottages, twin and town homes, duplexes, live/work homes, homes that are affordable to many incomes and family types, senior options (assisted and independent living cottages), and starter homes, all with yards and green space a priority.
- 
18. New housing should consider **emerging and existing family types** – such as multi generational, extended, and single person households, cooperative housing arrangements, and intergenerational mixes.
- 
- 
19. New development should help complete the Greater East Side by providing **jobs, health services, pedestrian-accessible commercial** and retail uses, and new housing that the East Side currently does not have. Retail should primarily serve the immediate area and not compete with White Bear Avenue.
- 
- 
20. **Limit connections to the west and south** that carry fast and high volumes of vehicular traffic. Connections into the site from the west and south should be carefully designed so as to avoid excess traffic flow through the neighborhood. Many neighborhood streets do not have sidewalks, so pedestrian safety is a priority. If traffic is increased, provide sidewalks.



# TENSIONS AND CHALLENGES

CONNECTIVITY (CITY POLICY) VS TRAFFIC TO WEST AND SOUTH

ECONOMIC VS ECOLOGICAL VALUE OF MCKNIGHT FRONTAGE

EXISTING TOPOGRAPHY VS ECONOMIC VIABILITY (NEED FOR  
“PAD READY” SITES)

CREATING A STRONG SENSE OF PLACE



SENSE OF PLACE FOR LONG TERM COMPETITIVENESS

CHARACTER / IDENTITY





WHERE WE WERE :  
INITIAL ALTERNATIVES

Gentle Interventions

Significant Interventions



Light Touch Approach



Conservation  
Approach

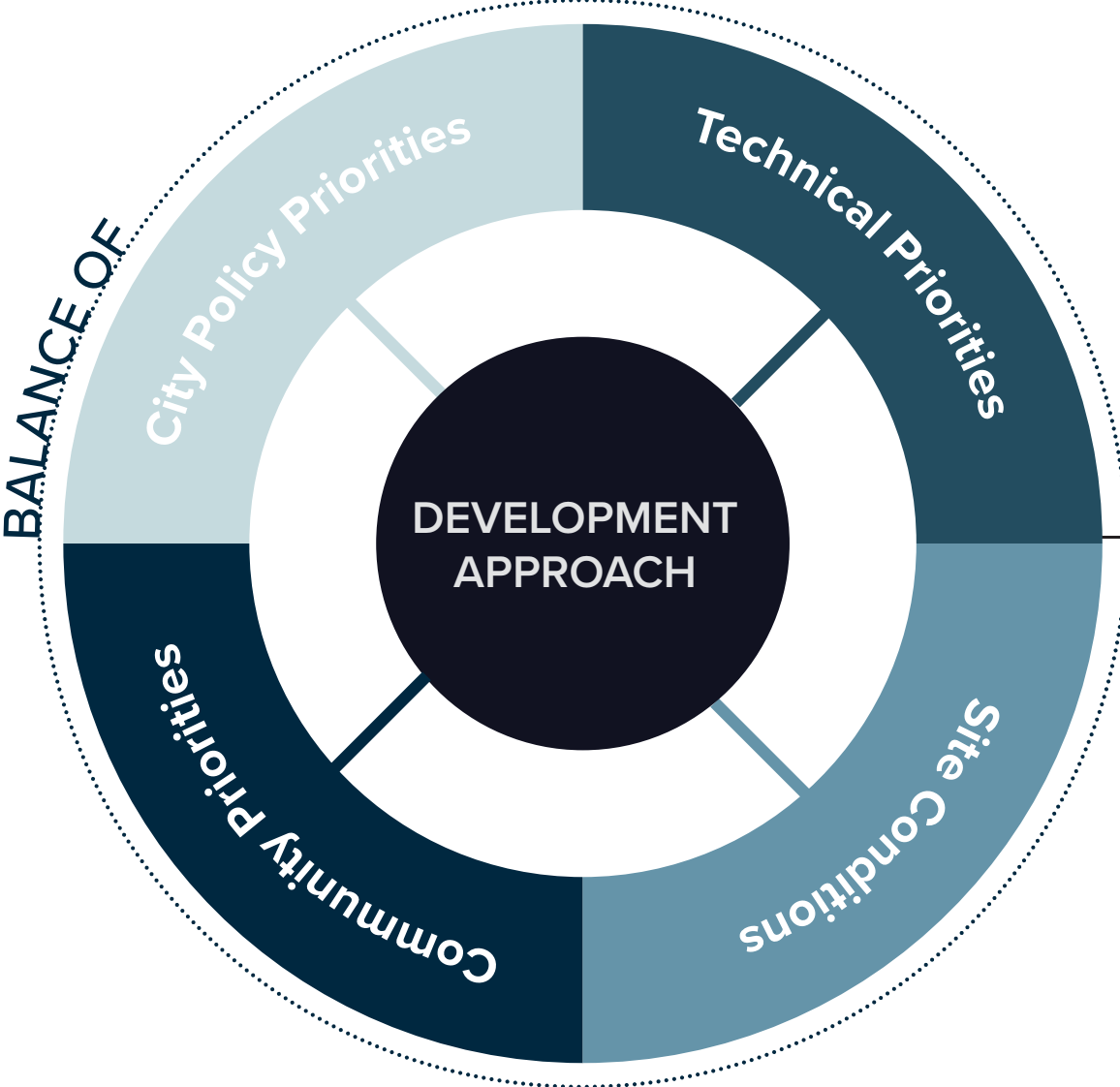


Re-Shape Approach



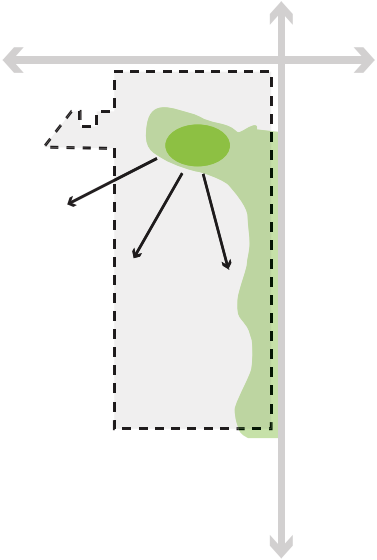
Sculpt Approach

WHERE WE ARE NOW :  
REVISED ALTERNATIVES



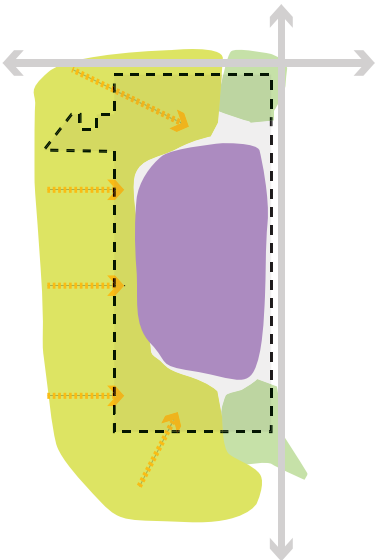
ALT 1  
HILLTOP

This concept preserves the site’s unique topographic feature and provides an active park to its northwest. A green buffer is provided along the west edge. It provides fewer jobs and more housing units. It is projected to need more development subsidy due to the amount of open space and less-optimal industrial placement for market viability. It removes the most ecologically significant wetland



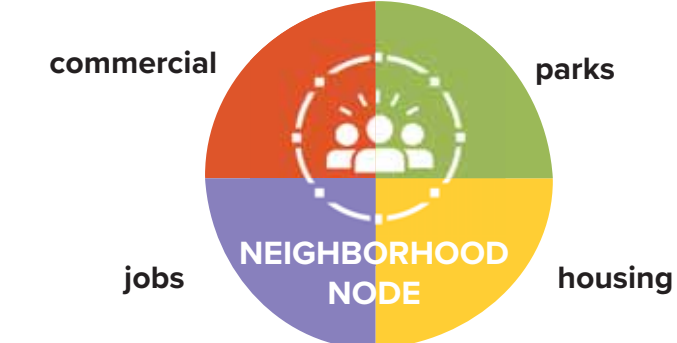
ALT 2  
JOBS FOCUS

This concept provides the most jobs and an active park in the northeast, adjacent to the most ecologically significant wetland. It provides fewer housing units. It extends the street grid and residential uses from the west. It is projected to need less (or no) development subsidy due to the amount of open space and more-optimal industrial placement for market viability. It removes the hilltop feature





# Land Uses and How They Can Contribute to a Better Community



**Jobs in the Neighborhood**  
**Living Wages**  
**Stable Employers**  
**Expanded Tax Base**

**Housing Choice**  
**Senior Housing**  
**Extended Family Housing**  
**Cooperative Housing**

**Recreation and Exercise**  
**Access to Nature**  
**Relaxation**

**Day Care**  
**Restaurant**  
**Gathering**

**Celebrating**  
**Food Trucks**  
**Identity/Character**



HILLTOP



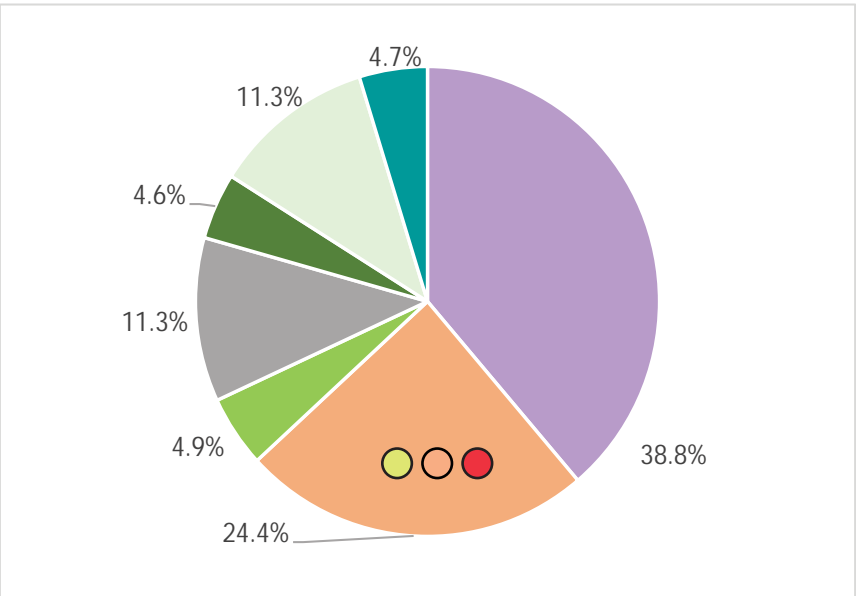
CONCEPT

This concept preserves the site’s unique topographic feature and provides an active park to its northwest. A green buffer is provided along the west edge. It provides fewer jobs and more housing units. It is projected to need more development subsidy due to the amount of open space and less-optimal industrial placement for market viability. It removes the most ecologically significant wetland

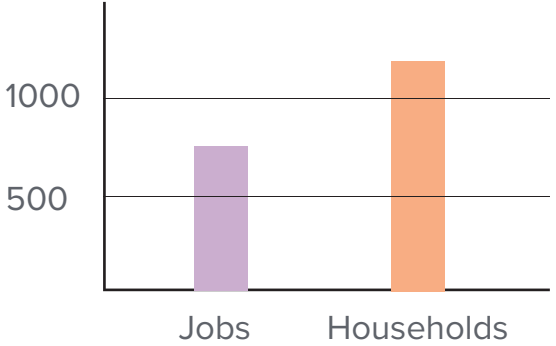
LAND USE AREAS (ACRES)

Industrial	45 ac.
Housing	28 ac.
ROW	13.4 ac.
Trails	5.2 ac.
Passive Open Space	13.2 ac.
Wetlands*	5.56 ac.
Active Park	5.7 ac.

LAND USE AREAS (BY %)



JOBS/HOUSING



WETLANDS

CONSERVED IN PLACE IMPACTED, MITIGATED ON SITE



TOTAL: 5.56 acres

Note: Wetland boundaries from 9/2020 delineation confirmation. Areas do not include required buffers.

OPEN SPACE TYPES

ACTIVE PASSIVE WETLANDS

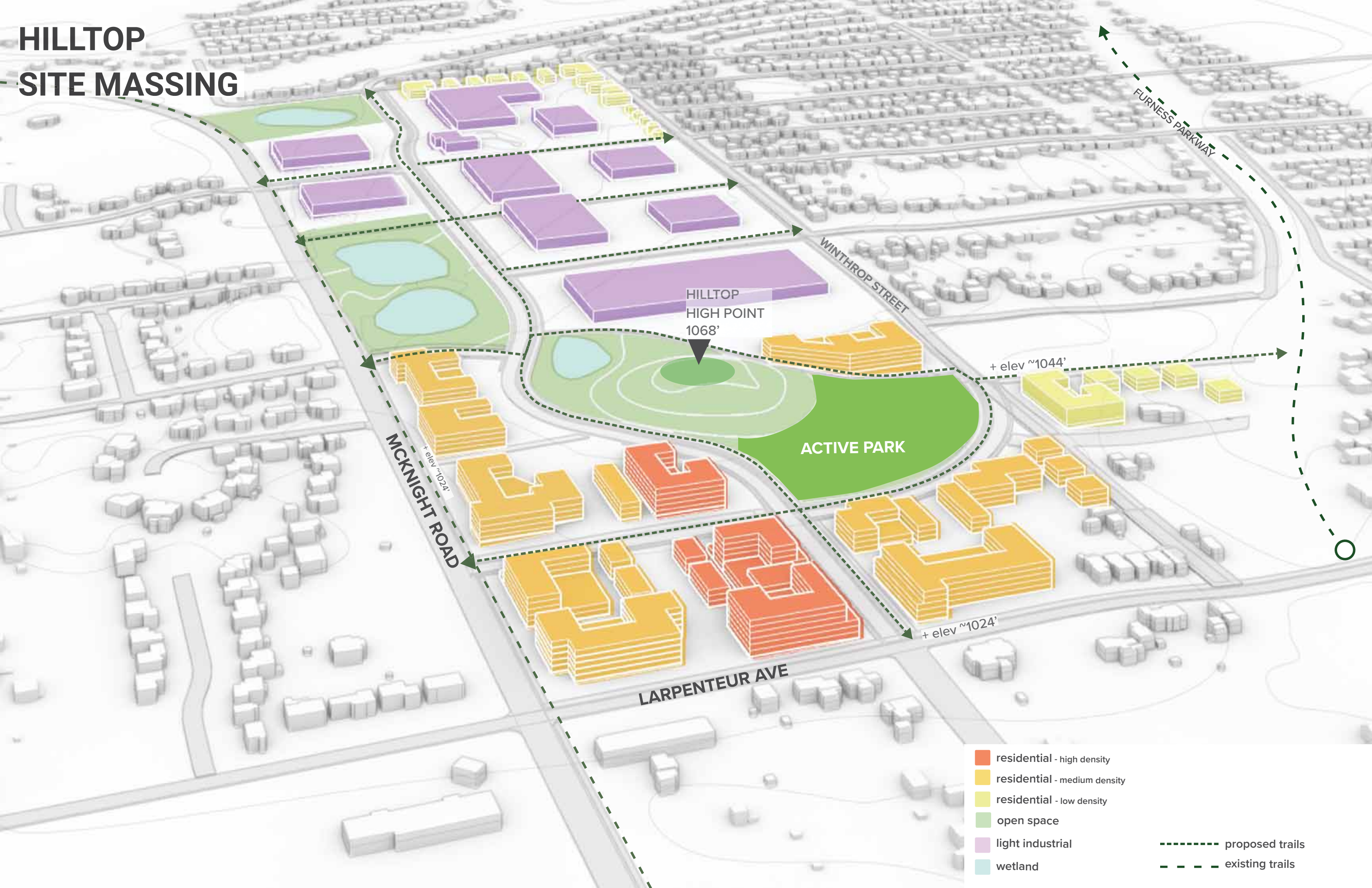


TOTAL: 24.46 acres

HILLCREST REDEVELOPMENT PLAN



# HILLTOP SITE MASSING



- residential - high density
- residential - medium density
- residential - low density
- open space
- light industrial
- wetland

- proposed trails
- existing trails

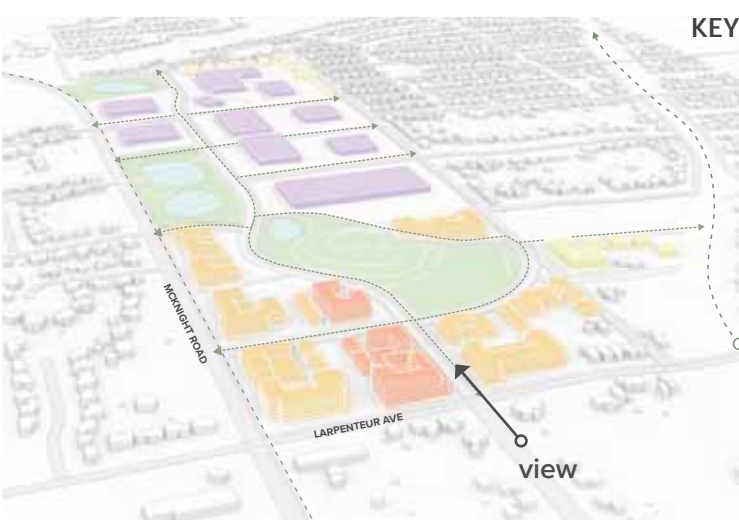


# HILLTOP

VIEW FROM LARPENTEUR AVENUE LOOKING SOUTH



what could mid density residential look like?





# HILLTOP

VIEW FROM MCKNIGHT STREET LOOKING NORTH/NORTHWEST



what could this light industrial look like?

BEACON'S BLUFF, SAINT PAUL





# HILLTOP

VIEW FROM WINTHROP STREET LOOKING SOUTH/SOUTHEAST



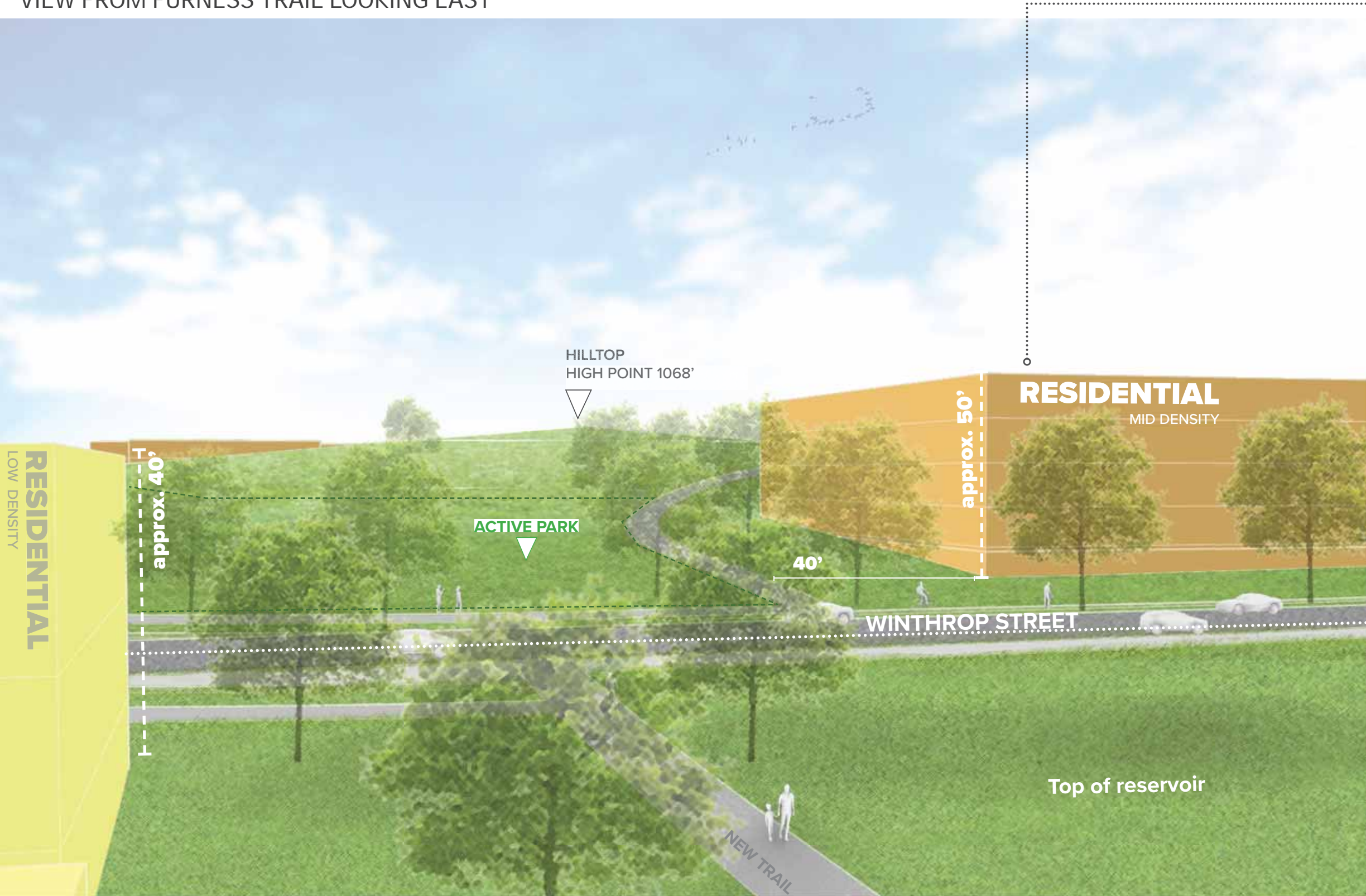
what could this light industrial look like?





# HILLTOP

VIEW FROM FURNESS TRAIL LOOKING EAST

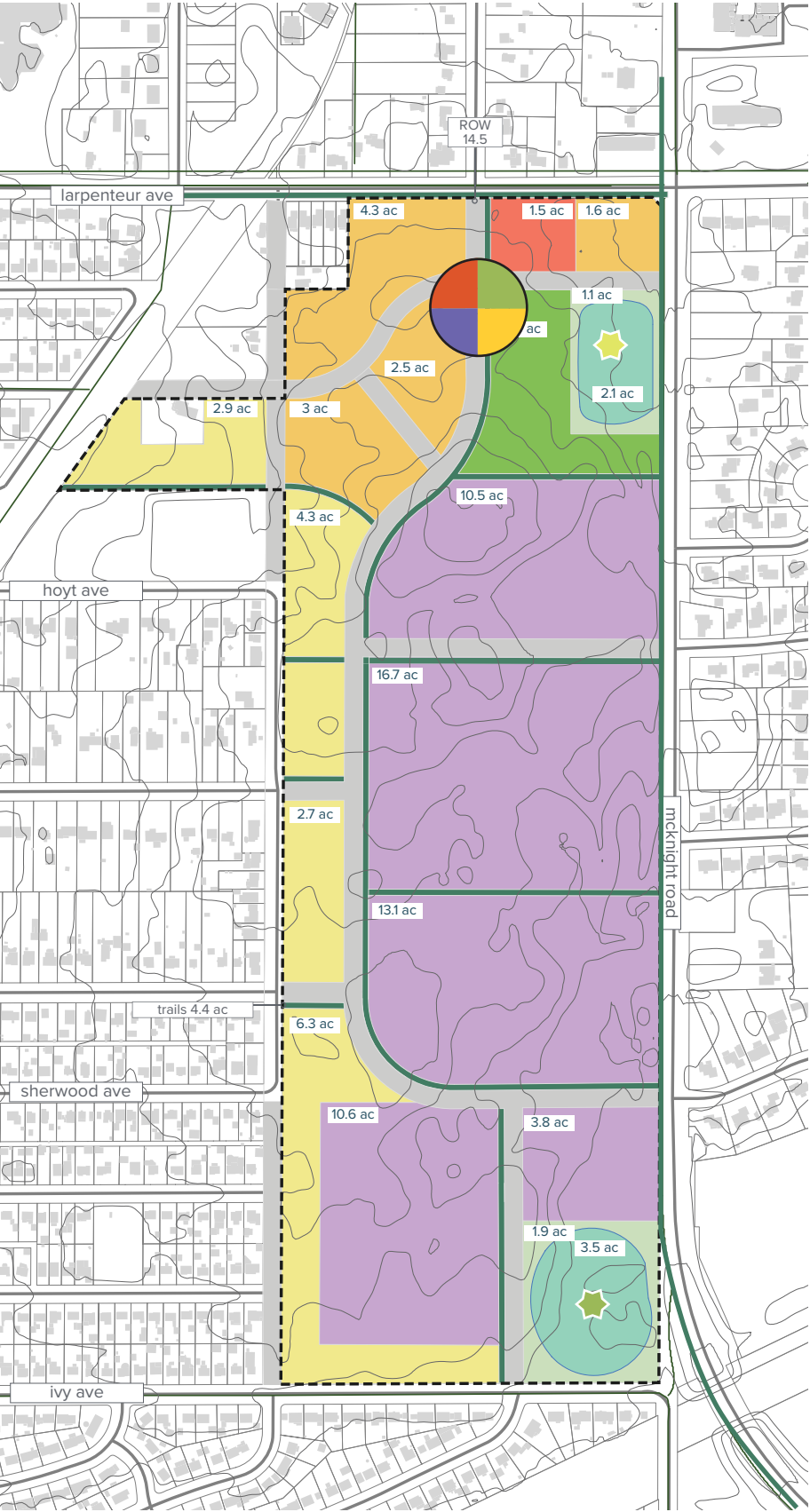


what could mid density residential look like?





JOBS FOCUS



CONCEPT

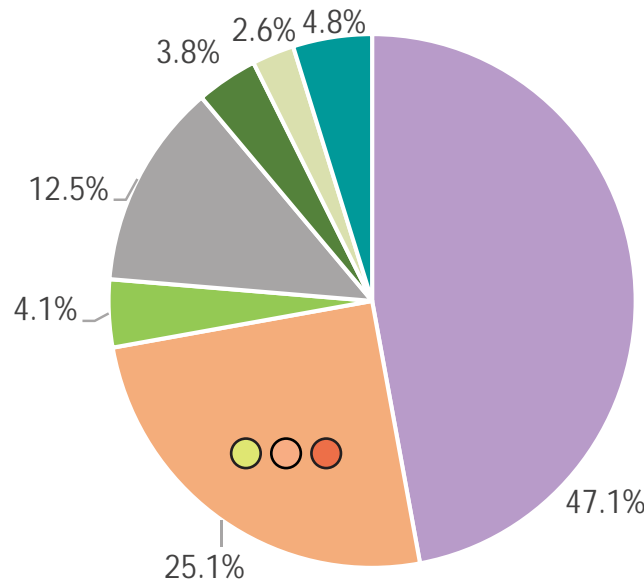
This concept provides the most jobs and an active park in the northeast, adjacent to the most ecologically significant wetland. It provides fewer housing units. It extends the street grid and residential uses from the west. It is projected to need less (or no) development subsidy due to the amount of open space and more-optimal industrial placement for market viability. It removes the hilltop feature

- Project Parcel Boundary
- Existing Right-of-Way
- Existing or planned trail
- Neighborhood Node
- ★ Wetland Area increased
- ★ Proposed Wetland
- ▲ North

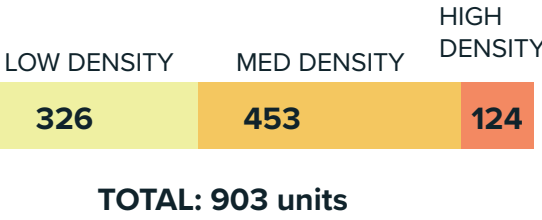
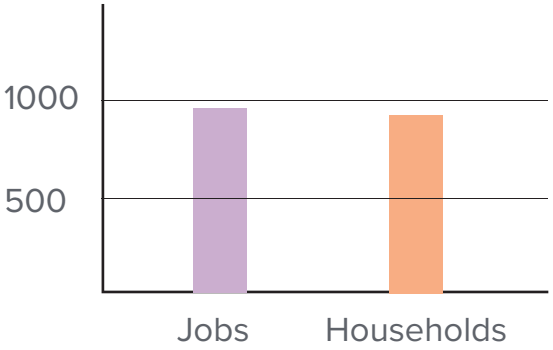
LAND USE AREAS (ACRES)

Industrial	54.75 ac.
Housing	29.2 ac.
ROW	14.53 ac.
Trails	4.38 ac.
Passive Open Space	3 ac.
Wetlands*	5.63 ac.
Active Park	4.77 ac.

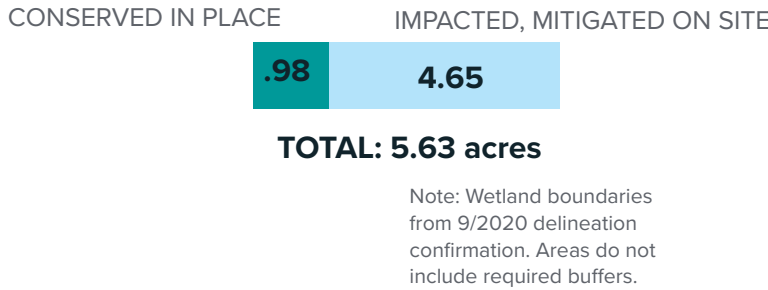
LAND USE AREAS (BY %)



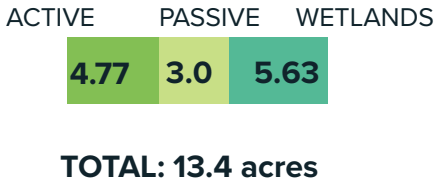
JOBS/HOUSING



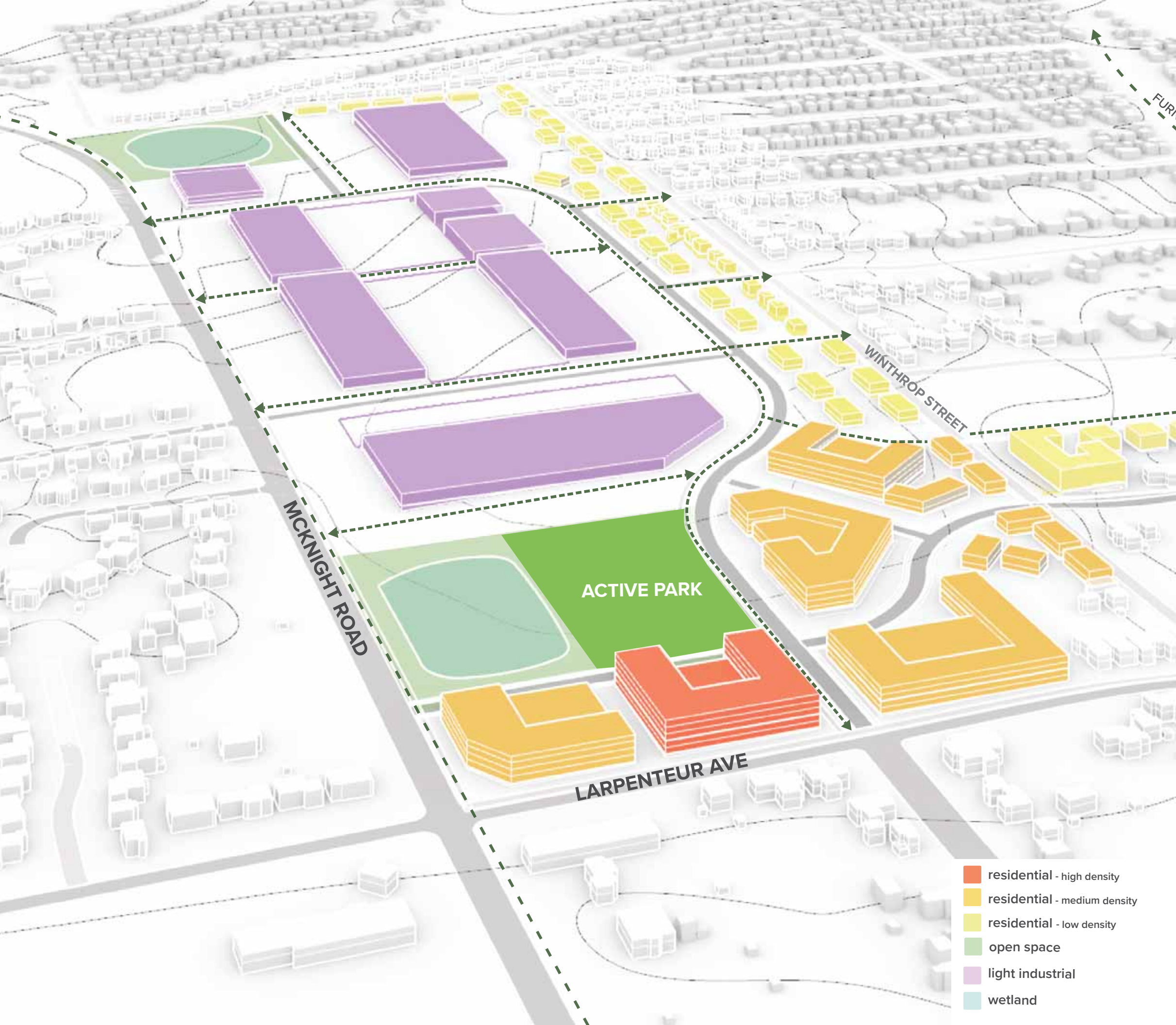
WETLANDS



OPEN SPACE TYPES



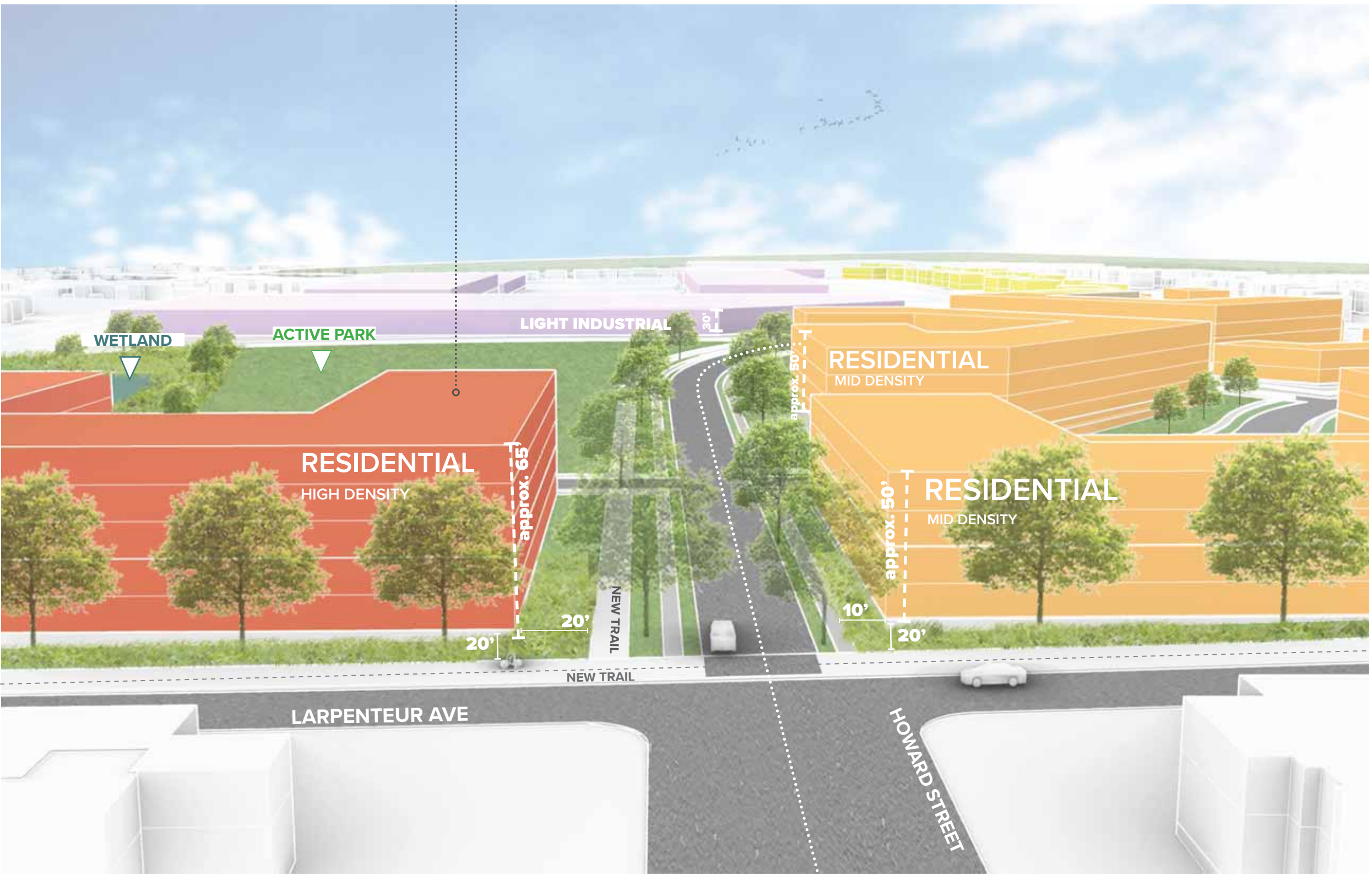
JOBS FOCUS  
SITE MASSING



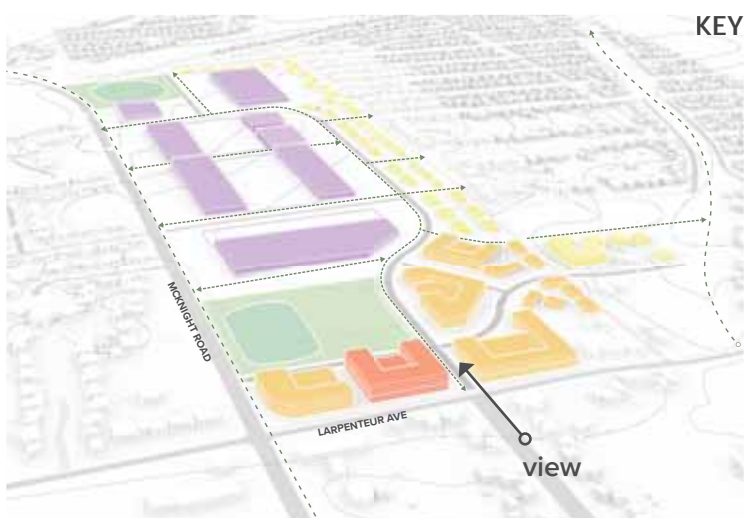


# JOBS FOCUS

VIEW FROM LARPENTEUR AVENUE LOOKING SOUTH



what could high density residential look like?



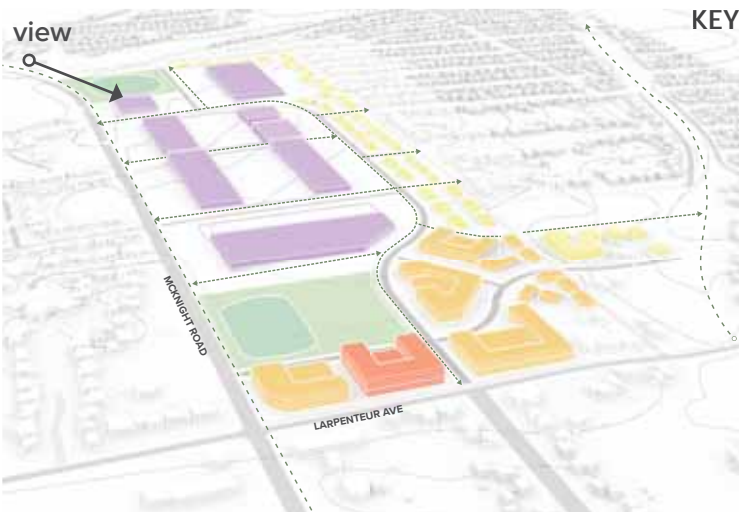


# JOBS FOCUS

VIEW FROM MCKNIGHT STREET LOOKING NORTH/NORTHWEST



what could this industrial look like?



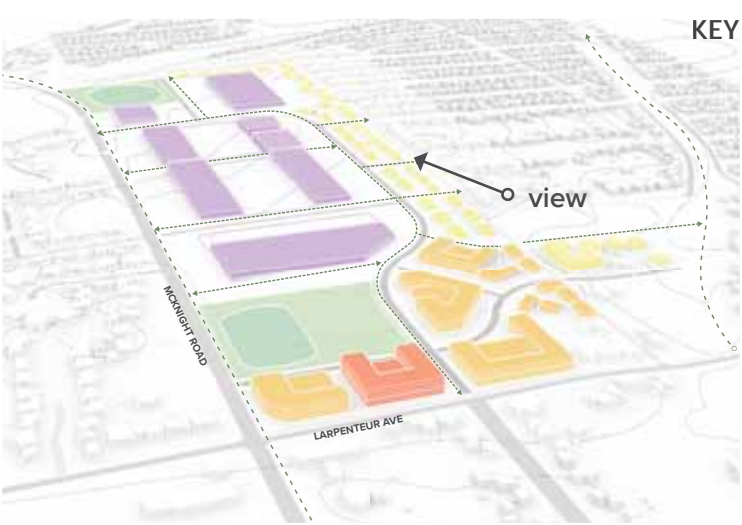


# JOBS FOCUS

VIEW FROM WINTHROP STREET LOOKING SOUTH/SOUTHEAST



what could this low density residential look like?



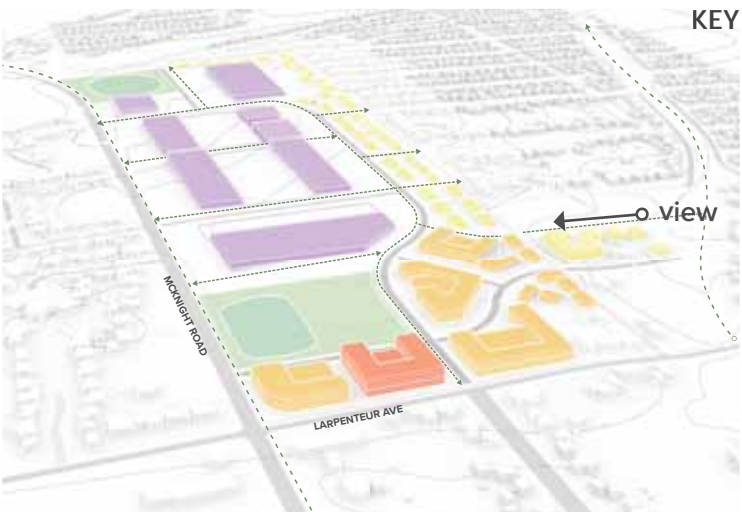


# JOBS FOCUS

VIEW FROM FURNESS TRAIL LOOKING EAST

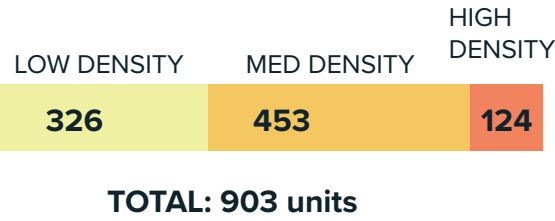
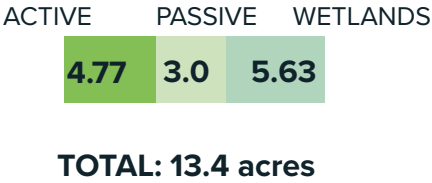
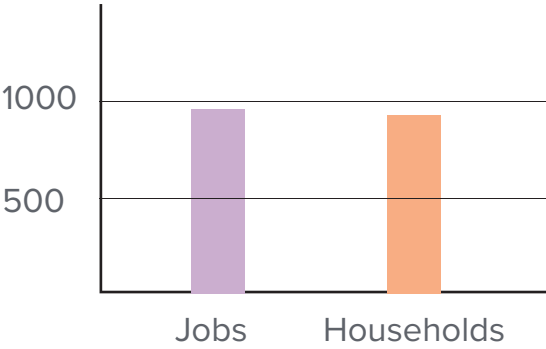


what could this residential look like?





# JOBS FOCUS SITE MASSING



## HILLCREST REDEVELOPMENT PL



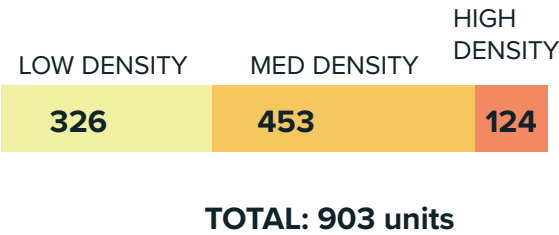
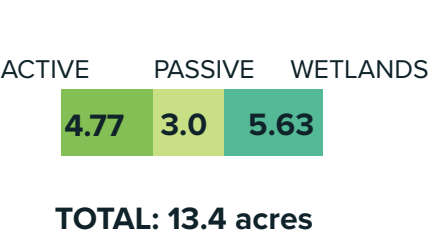
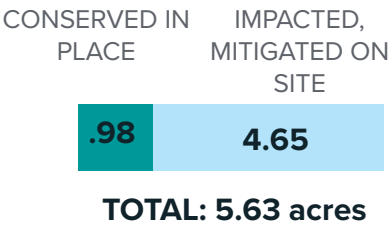
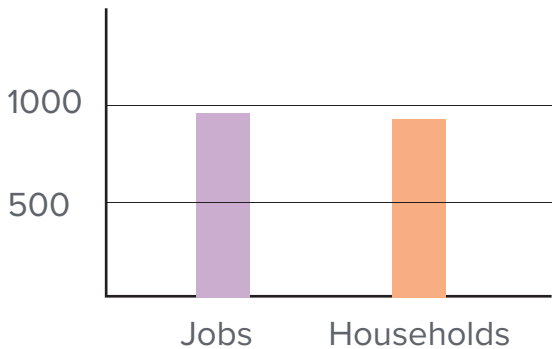
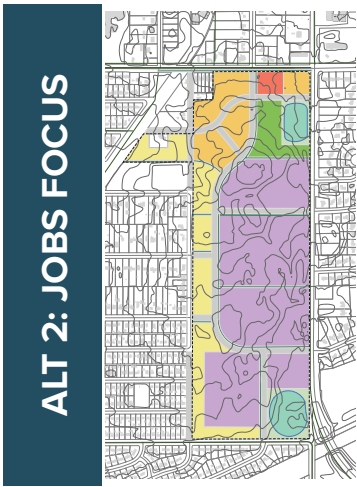
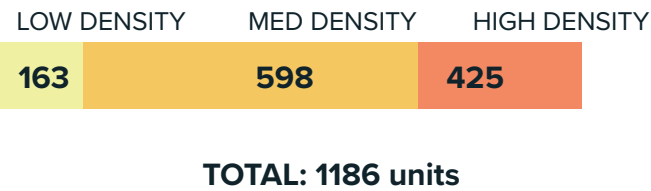
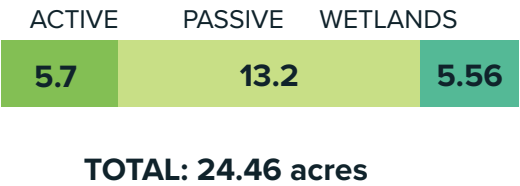
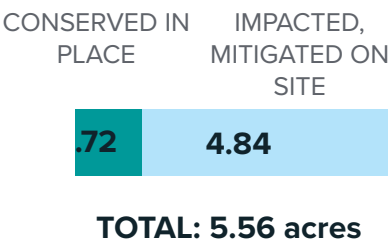
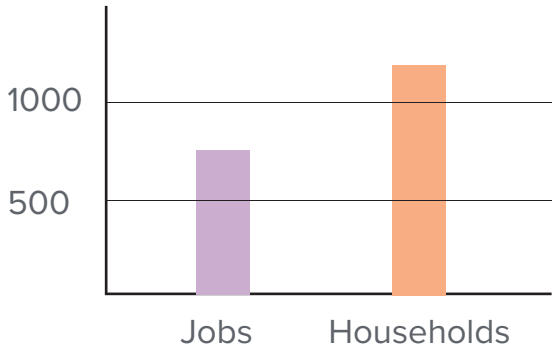
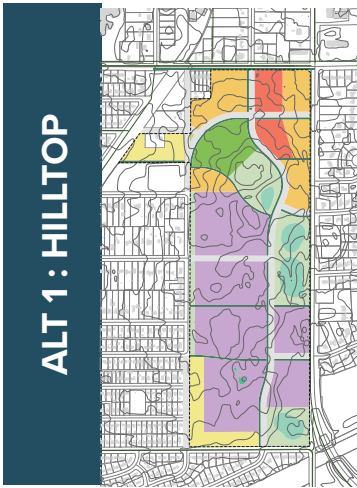
SUMMARY

JOBS/  
HOUSING

WETLANDS

OPEN SPACE  
TYPES

HOUSING TYPES





SUMMARY



	ALT 1 : HILLTOP	ALT 2: JOBS FOCUS
TECHNICAL AND POLICY PRIORITIES		
EMPLOYMENT: 1000 Jobs @ 15-23 jobs/acre	• 641-995 Jobs	• 820-1251 Jobs
HOUSING: 1000 Units	• 1186 Units	• 904 Units
OPEN SPACE: 20 Acres	• 24.24 Acres	• 13.4 Acres
FRONTAGE ON MCKNIGHT: Necessary to sell industrial land at market rate	• 20% of industrial frontage on McKnight	• 50% of industrial frontage on McKnight
LIMIT SUBSIDY FROM CITY: Expectation is land sales pay for the infrastructure	• Will need more subsidy	• Will need less subsidy
NEIGHBORHOOD NODE: A compact, mixed use area that provides shops, services, neighborhood-scale civic and institutional uses, recreational facilities and employment close to residences.	• Northern third of the site	• Northern third of the site
COMMUNITY PRIORITIES		
CONNECT: Create strong connections to existing infrastructure and community systems	• 5 street/trail connections to neighborhood • N/S Furness to Beaver Lake connection along spine road & wetlands	• 5 street/ trail connections to neighborhood • N/S Furness to Beaver Lake connection along spine road
ACTIVATE: Spark community and economic vitality through strong connections to a compact and dense development at the Node.	• 1150 units, 0 jobs located immediately adjacent to the node (northern 1/3 or the site)	• 652 units, 100 jobs located immediately adjacent to the node (northern 1/3 or the site)
CONSERVE: Conserve existing site features that celebrate the unique character and ecological value of the site: hilltop, wetlands, significant trees	• Hilltop conserved • Wetlands impacted, mitigated on site • Tree impacts needed to clean up contamination	• Hilltop not conserved • Wetlands impacted, mitigated on site • Tree impacts needed to clean up contamination
BLEND: Thoughtfully blend the new development into the existing neighborhoods	• Existing residential buffered from new industrial with green edge and residential development along Winthrop	• Existing residential buffered from industrial with new residential development along Winthrop
BUILD: Provide <i>new, desired and needed</i> types of jobs, parks, retail, and new housing through site redevelopment	• 641-995 Light Industrial Jobs • 5.2 Acre Active Park; • 13.2 Acre Passive Open Space • 611 Medium Density Units; • 377 High Density Units • small amount of commercial, tbd	• 820-1251 Light Industrial Jobs • 4.8 Acre Active Park; • 3.0 Acre Passive Open Space • 453 Medium Density Units; • 124 High Density Units • small amount of commercial, tbd

