

GREEN DEVELOPMENT POTENTIAL
LEED-ND ASSESSMENT
ST. PAUL FORD PLANT REDEVELOPMENT SCENARIOS

A MURP Professional Paper

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INTRODUCTION

The City of St. Paul has an opportunity to layout a vision for a truly unique and progressive urban redevelopment project on the site of the Ford Manufacturing plant in the Highland Park neighborhood. The notion that this prime real estate can be a national example of integrating sustainable practices has been a key value present throughout the early stages of the planning process. The challenge is how to assess each scenario for the trade-offs and criteria that defines sustainability. The need to find a common vision or definition of sustainability is critical to benchmarking and measuring strategies for future development. As the City of St. Paul continues to refine and develop the vision for the site, and regulatory practices that can procure that vision, a key step is establishing a strategy for comparative analysis of potential development scenarios.

The intent of this paper is to aid the City of St. Paul and the Ford Site Taskforce in their efforts by providing a standardized comparative assessment of each of the five development scenarios to help frame the discussion for sustainable development opportunities as the public planning process continues to evolve and play out for the Ford Plant site. This side by side comparison will help define and identify opportunities, challenges, and unknowns in the various schemes so that outside consultants can begin to weigh and value the trade-offs and benefits within each scheme. It is intended to be a supportive document that when used in conjunction with the other processes and inquiries into the potential future use of the site, can augment possible policy and actions steps.

The heart of the report utilizes the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ for Neighborhood Development (ND) as a tool for aiding the City of St. Paul's Planning Department in assessing the preliminary development scenarios proposed as a part of the long term planning process for the St. Paul Ford Plant site. This assessment looks at all 5 development scenarios and finds commonalities and distinctions amongst them.

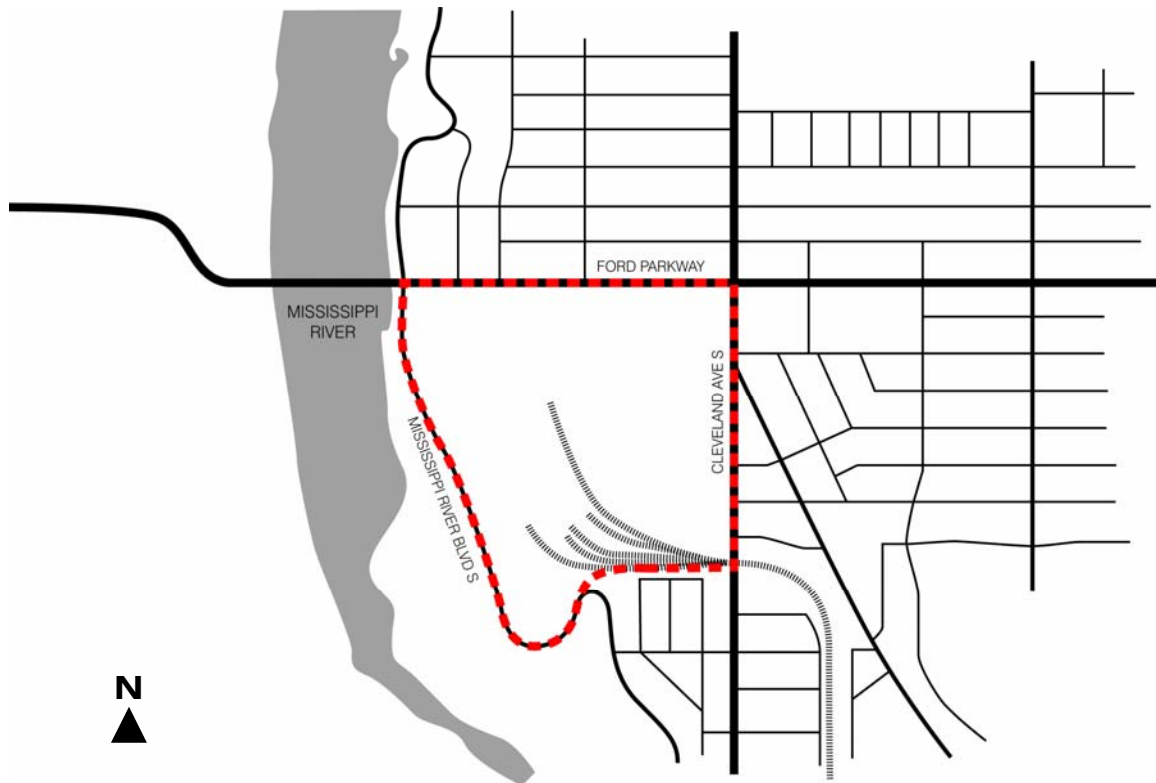
Note: This report reflects findings presented to the City of St. Paul's Planning Department in the spring of 2008.

PROJECT HISTORY

FORD PLANT

Constructed in 1925, the St. Paul Ford Plant site has been an integral industrial beacon along the banks of the Mississippi River in St. Paul Minnesota's Highland Park neighborhood. The 125-acre site has housed Ford's assembly plant for over 80 years. Most recently, the plant has been producing Ford's line of light-duty Ranger trucks. Located in the Highland Park neighborhood, a resurgent residential neighborhood and thriving business district, along the east bank of the Mississippi River that has developed around the plant.

The following map identifies the site location. The site is bound by Ford Parkway to the North, Cleveland Ave to the East, railroad spurs to the South, and the Mississippi River and Mississippi River Blvd to the West.



Unfortunately, Ford Motor Co. plans to close its assembly plant in 2011. When Ford announced that it would be closing the plant, it originally intended to halt production by 2008, creating loss of jobs, worker displacement, tax implications, and raising neighborhood concerns about the future of the site. The City of St. Paul's Department of Planning and Economic Development states on the project website that "While the closure of the plant is a significant loss for the community,

the city and the region, it provides an unprecedented redevelopment opportunity in the center of the Twin Cities region, in one of the most beautiful, stable and economically strong neighborhoods of Saint Paul” (p.1).

PLANNING PROCESS

The City of Saint Paul Planning Commission appointed the Ford Site Planning Task Force to prepare a development framework for a mixed-use development that will represent a fitting legacy for both the Ford Motor Company and the City of Saint Paul. The initial phase of the planning process focused on gathering public input and establishing priorities and a vision for the potential future of the site. The City hired a consulting team, consisting of EDAW and Close Landscape Architects, to moderate the discussions and translate the generated ideas into a series of scenarios. The goal has been to establish a clear vision for the site, that can guide future policy and land use decisions related to the reuse of the Ford Plant Site. The vision that was arrived at reads:

The redeveloped Ford Site will balance economic, social and environmental sustainability in a way that conserves and improves the qualities and characteristics of the unique Highland Park neighborhood and Mississippi River Valley Corridor, in which it sits; while advancing the City's economic wealth and community goals, resulting in a forward-thinking 21st Century development.

SCENARIOS

As a byproduct of the preliminary planning process, the consultant firm of EDAW and Close Landscape Architects presented 5 development scenarios to the Ford Plant Taskforce. The scenarios represented a range of opportunities based upon distinctive reuse options, and were developed for the purposes of analyzing the benefits and impacts of different land use and infrastructure choices. The scenarios responded to the input gathered from months of public meetings to outline objectives and priorities for the potential future uses and redevelopment of the current Ford Plant site. The City will analyze and assess how these scenarios support and align with the stated vision for the site.

The supporting site plans and information presented can be found in [Appendices A & B](#). The following are brief narratives of each scenario provided by the consultant team in their report Phase 1: Summary Report from October 2007

SCENARIO 1 _ AUAR BASELINE | PRIMARY REUSE OR INDUSTRIAL

“The AUAR Baseline Scenario retains the Ford-UAW-MnSCU training center, the assembly office/ showroom building, and part of the existing assembly facility. Two freight rail lines coming into the Site are also retained, taking advantage of the existing railroad tracks for raw materials in/product components out without disrupting existing neighborhood traffic patterns. A bike path will now share the right-of-way with the existing railroad tracks. Some newly laid out sites will be able to accommodate a rail spur. The site includes modest retail along Ford Parkway and some low density residential development as a buffer along Cleveland. Bike paths will be integrated into the Site as well, passing through the active and passive parks and along Mississippi River Boulevard (MRB). This ecologically driven ‘Green Industrial Park infrastructure’ provides adequate and varied light industrial to flex tech pad sites for single or multiple tenants. Such features would include rain gardens, green roofs, innovative storm water treatment systems, walking and recreation linkages and the reuse of existing buildings on site. The original ball fields will be rebuilt and reconfigured within their current general location along Cleveland. Existing bus routes would be maintained and amended as necessary to service the Site. This scenario also features Civic and Educational uses as a ‘front door’ along Ford Parkway” (EDAW, 2007, p. 39).

SCENARIO 2 _ MIXED USE | LIGHT INDUSTRIAL + FLEX TECH

“In this scenario a significant amount of light industrial / flex tech uses are accommodated on site, while also providing a greater mix of uses from retail to residential. These uses are meant to be clean light manufacturing/warehousing,

high tech, research and development on 2-10 acre sites nestled internally on the Site. The new Montreal/Cretin parkway will be the backbone for the light industrial/flex Tech Park. Retail mixed use is located along Ford Parkway, and a mixed intensity of residential uses starting with single family estate homes along MRB are accommodated. The Ball Fields will move to the Canadian Pacific rail yard area of the Site and become part of a much larger active and passive park that reaches from Cleveland to MRB. Included in this park would be a significant recreation/community center that is the anchor for the park, terminating a new green passive core to the site with residential uses flanking it. Along Ford Parkway, a series of plazas will provide new gathering spaces for the new retail/office buildings. All streets will have adequate sidewalks for bike/pedestrian movement through the Site. A bike lane would extend from MRB through the Site and connect to Montreal and the Canadian Pacific Railroad right-of-way which will be converted into a new multi-purpose recreational corridor” (EDAW, 2007, p. 43).

SCENARIO 3 _ MIXED USE | OFFICE + INSTITUTIONAL

“This scenario provides a higher percentage of land for an urban campus – whether institutional, office or a combination thereof – within a mixed use setting. Such uses could be educational and learning, research and development, and/or traditional office. This campus is embedded internal to the site, utilizing Cretin and Montreal as a new backbone connector and front door address and identity for buildings within this campus. The campus will be organized around a central green which also serves as recreational space for the residential community. These office/institutional buildings will utilize the highest green building technologies available. Onsite water retention/detention and best management practices would be employed. All buildings on this Site would be required to achieve LEED Certification. New retail will be accommodated along Ford Parkway and along the first block of Cretin south of Ford Parkway. The ball fields will be moved from their current location to the Canadian Pacific rail yard, which will be incorporated into a larger park. A variety of residential typologies and intensities provide the transition from the campus uses to the existing surrounding residential uses and to MRB. Planning for future uses, the Canadian Pacific Rail right-of-way will be preserved for a future multi-modal corridor that will connect the Site to both downtown Saint Paul and to the Hiawatha Light Rail Line to the west” (EDAW, 2007, p. 47).

SCENARIO 4 _ MIXED USE | URBAN VILLAGE

“With an emphasis on single family detached housing and a reflection of the development pattern and urban framework of the surrounding community, this mixed use scenario focuses primarily on the development of residential land uses. This scenario provides a greater percentage of land area for residential uses of varying intensities, with lower intensity uses at the edges of the site to integrate with the surrounding neighborhood, and higher intensity uses towards the center of the

site. Vertically mixed use buildings with ground floor retail and predominately upper floor offices line Ford Parkway. A larger cluster of office buildings - perhaps a mini campus, is located as a gateway at the Ford Bridge and MRB.

Homes will frame smaller parks/gathering spaces that are nestled within the new neighborhood. More dense housing typologies are also included closer to the eastern and northern site edges. The ball fields will be relocated to the southern portion of the site, set in a larger park-like environment that connects to the gorge and MRB. A series of “green fingers” with pedestrian trails extend into the neighborhood from MRB. These fingers will also accommodate stormwater pathways. Cretin Avenue is extended to the south, curves and becomes Montreal extended westward from Cleveland. Mount Curve is also extended through the site as a boulevard, connecting to MRB at Hidden Falls. The ball fields are relocated southward but still about Cleveland and the existing neighborhood. A new multi-use trail system would utilize the Canadian Pacific Railroad right-of-way” (EDAW, 2007, p. 51).

SCENARIO 5 _ MIXED USE | HIGH DENSITY URBAN TRANSIT VILLAGE

“The High Density Urban Transit Village provides a compact, mixed-use community organized around a multi-modal transit corridor and an interconnected system of public parks. The scenario is characterized by medium density attached housing between the transit corridor and MRB, and to the east, a vertically layered community of employment uses, residential, and support retail, including restaurants and shopping. Lower rise buildings will be capped by green community roof gardens out of which will grow small footprint point towers. The three legacy ball fields would remain proximate to their existing locations, incorporated into a new open space system that includes more expansive, naturalized parks overlooking Hidden Falls. A more structured park running through the heart of the site and a gateway park that includes civic gathering spaces at the intersection of Ford Parkway and MRB contribute to the overall park system and open space plan. Along MRB a weaving pattern of small pocket parks allow for smaller gathering areas next to the lower density residential uses. A porous system of streets and blocks interconnect with the surrounding community and allow multiple points of access and egress to and from the site. The main spine of this scenario is the multi-modal corridor that runs through the center of the site. This corridor links the former Canadian Pacific rail corridor to the south with Ford Parkway to the north, which will connect downtown Saint Paul to the Hiawatha Light Rail line to the east. The focal point of this multi-modal corridor is the transit station that would be located at the center of the scenario, providing all residents access to transit” (EDAW, 2007, p. 55).

SUSTAINABILITY

Sustainable Development "meets the needs of the present without compromising the ability of future generations to meet their own needs"

- The Brundtland Commission, 1987

As stated earlier, the purpose of this report is to aid the City of St. Paul and the Ford Plant Site Taskforce in assessing the overall sustainability of the five development scenarios presented by the consultant team. The first step for establishing a framework for assessing sustainability requires understanding how sustainability is defined. A common definition helps objectively qualify the validity of certain practices. The statement above, from the Brundtland Commission, is the most often cited definition of sustainable development.

There is, however, no consensus on the best definition of the term. The meaning of sustainable development is rooted in one's ideological views. (Moughtin, 2001). The term can be used to cover very different ideas. "Environmentalists, governments, economic and political planners and business people use 'sustainability' or 'sustainable development' to express sometimes very diverse visions of how economy and environment should be managed" (Adams, 2006, p.3).

The components of sustainability are many and varied, but one can surmise that successful sustainability projects are informed by a creative process that establishes a vision which integrates these disparate components into a cohesive whole. "It is in general agreed that sustainable development is a complex, multidimensional concept, and finding simple unified definitions is extremely difficult. However, some consensus does exist on two critical aspects, namely sustainability not only refers to environmental protection, but also embraces economic and social factors, and sustainability deals with a dynamic, balanced and adaptive evolutionary process" (Monto, 2005, p.23).

While the concept and debates around sustainability are not new, the use of sustainability indicators, indices and reporting systems have gained growing popularity in both the public and private sectors. However, their effectiveness in influencing actual policy and practices is still up for debate. Detractors argue that true sustainability is not just a value that can be equated and added to a balance sheet; rather it is a philosophy, a way of living and looking at the world. With that said, Sustainable Development Indicators have the potential to turn the generic concepts of sustainability into action which is a step in the right direction. For the purposes of this report, LEED for Neighborhood Development (LEED-ND) will be used to establish a framework for comparing and contrasting the development scenarios for the Ford Plant site.

LEED-ND

The U.S. Green Building Council (USGBC), the Congress for the New Urbanism (CNU), and the Natural Resources Defense Council (NRDC) (three organizations that represent some of the nation's leaders among progressive design professionals, builders, developers, and the environmental community) have come together to develop a national set of standards for neighborhood location and design, based on the combined principles of smart growth, urbanism, and green building. The goal of this partnership is to establish these standards for assessing and rewarding environmentally superior development practices within the rating framework of the LEED® (Leadership in Energy and Environmental Design) Green Building Rating System. Unlike other indicators, matrices, and rating systems that focus primarily on green building practices, with relatively few credits regarding site selection, LEED-ND will place the emphasis on the elements that bring the buildings together into a neighborhood, and relate the neighborhood to its larger region and landscape.

“LEED provides rating systems that are voluntary, consensus-based, market-driven, grounded in accepted energy and environmental principles, and that strike a balance between established practices and emerging concepts. LEED rating systems are developed by committees, in adherence with USGBC policies and procedures guiding the development and maintenance of rating systems” (USGBC, 2007, p. 1).

“The rating system is designed to certify exemplary development projects that perform well in terms of smart growth, new urbanism, and green building. Projects may constitute whole neighborhoods, fractions of neighborhoods, or multiple neighborhoods” (USGBC, 2007, p. 1).

The LEED-ND rating system consists of 4 main categories, under which prerequisites and credits fall. A complete list of the rating system can be found in [Appendix C](#). In order to be certified, a project must meet each prerequisite. Each credit is optional, but achievement of each credit contributes to the project's point total. A minimum point total is required for certification, and higher point scores are required for silver, gold, or platinum LEED certification. The point requirements for achieving the various certification levels can also be found in [Appendix C](#).

**It is important to note that the LEED-ND program is still in its pilot period, thus, the rating system is still under review and revisions. The version of the LEED-ND program utilized for this report is dated February of 2007.*

SUSTAINABILITY ASSESSMENT

In an effort to better understand the relationship of the five development scenarios from a lens of sustainability, the following assessment utilizes LEED-ND to compare and contrast the strengths, weaknesses, and opportunities of each.

METHODOLOGY

The following assessments look at the requirements for each LEED-ND Credit, and qualify and quantify the ability of the five proposed development scenarios to meet the requirements. While a simple assessment would help us understand the level of certification each scenario could achieve, the following assessment breaks from the typical classification of the credits per LEED-ND, and looks at the credits as they relate to all five scenarios simultaneously. This affords a perspective that helps more clearly identify areas that inherently distinguish each scenario, while also highlighting areas that could bring the most value added characteristics and features to future planning efforts.

ASSESSMENT

The following assessment breaks down the LEED-ND credits into the following categories:

Required Credits

Required credits are prerequisites that must be achieved to earn LEED-ND certification. In many ways, these credits are the foundation of a strong sustainable development.

Inherent Credits

As the title suggests, inherent credits are inherent to the project. These credits can be achieved in any scenario, based simply on the location and context of the site.

Variable Credits

These credits differ from scenario to scenario. It is these credits that provide the true distinctions amongst the scenarios.

Added Value Credits

The following categories of credits reflect potential opportunities for each scenario to further implement and incorporate sustainable strategies and practices. For the purposes of helping identify the appropriate arena for tackling these items, the subcategories are defined as follows:

Policy + Operations

While policy can play a major role in mandating various aspects of land use and design, these credits deal with topics that are often guided by regulator measures and programs.

Urban Design + Architecture

These credits deal with larger site patterns and interactions. The credits in this category are capable of being achieved in the next iteration of refinement and design for each scenario.

Construction Processes

These credits deal directly with the processes utilized during the construction and procurement of the site and buildings. .

Extraneous

The following credits are indirectly related to overall sustainability of the individual scenarios under assessment.

Unattainable

Certain credits are unattainable based upon a variety of factors based upon the location, condition, and context of the site.

A matrix, outlining which credits fall under each category can be found in **Appendix D**. For each category, the individual credits are examined for each of the five scenarios. Given the preliminary nature of the proposed scenarios, there are two assessments for each scenario. One assessment looks at the baseline for each scenario which includes the inherent credits that can be earned without further emphasis on supporting policies and operations, urban design features, or construction processes. The second assessment breaks down the potential for additional efforts that can be incorporated to achieve a higher degree of sustainability, based upon the LEED-ND rating system. Overviews of these assessments can be found in **Appendices E + F**.

Note: The intent of each section is taken directly from the LEED-ND rating system, and is given as a means of offering insight into the desired results of each credit. This is intended to be an overview of each credit, with a generalized interpretation of why or how the scenario(s) qualifies for said credit.

Required Credits

The following credits are required by LEED-ND, in order to achieve any of the potential credits with the correlating section. The following breakdown looks at each prerequisite and lays out the intent of the credit, along with the rational / evidence that each of the scenarios achieves the credit. A more in depth explanation of the requirements, including relevant equations, for each credit can be found @ www.usgbc.org.

Smart Location + Links

Prerequisite 1: Smart Location

Intent: Encourage development within and near existing communities or public transportation infrastructure. Reduce vehicle trips and miles traveled and support walking as a transportation choice.

Qualification: Due to the fact that the existing site is located within a currently developed area, the project qualifies as an infill site, thus meeting the prerequisite for all five scenarios.

Prerequisite 2: Proximity to Water and Wastewater Infrastructure

Intent: Encourage new development within and near existing communities in order to reduce multiple environmental impacts caused by sprawl. Conserve natural and financial resources required for construction and maintenance of infrastructure.

Qualification: The site is currently served by an existing water and wastewater infrastructure so the prerequisite is met for all five scenarios.

Prerequisite 3: Imperiled Species and Ecological Communities

Intent: Protect imperiled species and ecological communities.

Qualification: No species listed under the federal Endangered Species Act, the state's endangered species act, or species or ecological communities classified by NatureServe as G1 (critically imperiled) or G2 (imperiled), have been found or have a high likelihood of being present, the prerequisite is achieved for all five scenarios.

Prerequisite 4: Wetland and Water Body Conservation

Intent: Conserve water quality, natural hydrology and habitat and preserve biodiversity through conservation of water bodies or wetlands.

Qualification: There are no wetlands, riparian areas, water bodies, or land within 100 feet of the project site, so the prerequisite is achieved for all five scenarios.

Prerequisite 5: Farmland Conservation

Intent: Preserve irreplaceable agricultural resources by protecting prime and unique farmland and forest lands from development.

Qualification: Due to the fact that the project is located on a site that meets the Prerequisite 1: Smart Location credit as an infill site, this prerequisite is achieved.

Prerequisite 6: Floodplain Avoidance

Intent: Protect life and property, promote open space and habitat conservation, and enhance water quality and natural hydrological systems.

Qualification: The site does not contain any land within the 100-year floodplain. (<http://maps.metro-inet.us/RamseyCoGIS/CXviewer.htm>)

Neighborhood Pattern + Design

Prerequisite 1: Open Community

Intent: Promote communities that are physically connected to each other. Foster community and connectedness beyond the development.

Qualification: Based upon the five scenarios, there are no plans to consider the project as a gated area or enclave. Thus, all scenarios align with the accordance that the designation of all streets and sidewalks that are built as part of the project or serving the project directly are available for general public use and not gated.

Prerequisite 2: Compact Development

Intent: Conserve land. Promote livability, transportation efficiency, and walkability.

Qualification: All five scenarios meet the minimum requirements of > 7 dwelling units per acre of residential components, while also being able to achieve a floor-area-ratio (FAR) of > .50.

Green Construction + Technology

Prerequisite 1: Construction Activity Pollution Prevention

Intent: Reduce pollution from construction activities by controlling soil erosion, waterway sedimentation and airborne dust generation.

Qualification: In addition to the required Erosion and Sediment Control (ESC) guidelines required by the City of St. Paul for site work, each of the five scenarios will need to create and adhere to an ESC plan which addresses best management practices (BMPs) to prevent the following...

- loss of soil from stormwater runoff and/or wind erosion,
- sedimentation of any impacted stormwater conveyance systems or receiving streams
- polluting the air with dust and particulate matter.

Inherent Credits

The following LEED-ND credits are inherent to all five development scenarios for the Ford Plant site. The following breakdown looks at each credit and lays out the intent of the credit, along with the rationale / evidence for achieving the credit. A more in depth explanation of the requirements, including relevant equations, for each credit can be found @ www.usgbc.org.

Smart Location + Links

Credit 1: Brownfield Redevelopment

2 PTS

Intent: Encourage the reuse of land by developing sites where development is complicated by environmental contamination, reducing pressure on undeveloped land.

Qualification: Due to the industrial nature of the site's current use, and the automotive history, the site can be assumed to contain contaminated soils. A Phase II Environmental Site Assessment will be needed to verify the extent to which the contamination exists. Also, the contamination will need to be remediated such that the controlling public authority approves the protective measures and/or clean-up as effective, safe, and appropriate for the future use of the site.

Credit 3: Preferred Location

9 out of 10 PTS

Intent: Encourage development within existing communities and developed places to reduce multiple environmental harms associated with sprawl. Reduce development pressure beyond the limits of existing development. Conserve natural and financial resources required for construction and maintenance of infrastructure.

Qualification:

6 credits are earned since the project is located on an infill site that is also previously developed. 3 additional credits are earned by the street network grid density (street centerline miles /square mile) within a 1 mile radius of the perimeter of the site boundary falls between 30 – 39 centerline miles per square mile.

Credit 4: Reduced Automobile Dependence

6 / 7 out of 8 PTS

Intent: Encourage development in locations that exhibit superior performance in providing transportation choices or otherwise reducing motor vehicle use.

Qualification: 6 credits are earned based upon the current transit capacity within a ¼ mile walking distance of the project. There are 451 total rides available per

weekday to the residential units of the site in all five scenarios, provided by the Metro Transit bus lines that run along Ford Parkway and Cleveland Avenue.

An additional point could be earned by providing a vehicle-sharing program that offers access to at least one vehicle per 100 dwelling units.

Credit 8: Steep Slope Protection 1 PT

Intent: Minimize erosion to protect habitat and reduce stress on natural water systems by preserving steep slopes in a natural, vegetated state.

Qualification: Since no portion of the project site has a slope greater than 15%, this credit is achieved.

Neighborhood Pattern + Design

Credit 11: Access to Surrounding Vicinity 1 PT

Intent: Provide direct and safe connections, for pedestrians and bicyclists as well as drivers, to local destinations and neighborhood centers. Promote public health by facilitating walking and bicycling.

Qualification: Each development scenario offers at least one through-street at the project boundary every 800 feet, or at existing abutting street intervals.

Credit 12: Access to Public Spaces 1 PT

Intent: To provide a variety of open spaces close to work and home to encourage walking, physical activity and time spent outdoors.

Qualification: Due to the overall acreage of the project site, each scenario needs to provide at least 1.2 acre of total park space as well as locate at least 1/6 acre of park space (minimum 150' wide) within 1/6 mile walking distance from 90% of dwelling units and building entrances in the project. Given the emphasis on park space, this credit is achieved in all five scenarios.

Credit 13: Access to Active Public Spaces 1 PT

Intent: To provide a variety of open spaces close to work and home to encourage walking, physical activity and time spent outdoors.

Qualification: The amount of active open space allotted within the five development scenarios ranges from 7 – 30 acres, which lie within ½ mile walking distance of 90% of dwelling units and non-residential building entrances. These spaces include uses such as general playfields, soccer, baseball, basketball and other sports fields.

Credit 15: Community Outreach + Involvement

1 PT

Intent: To encourage community participation in the project design and planning and involve the people who live in a community in deciding how it should be improved or how it should change over time.

Qualification: Given the nature of the planning process that has procured the five development scenarios, this credit is obtained. The process has solicited input and engaged the community and neighborhood during the pre-conceptual design phase through open public meetings. Past and future input is intended to shape and modify the design. To date, there has been a strong commitment to foster ongoing means for communication. This open communication is critical to maintain as the project moves forward in design.

Green Construction + Technology

Credit 6: Minimize Site Disturbance through Site Design

1 PT

Intent: Preserve existing tree canopy, native vegetation and pervious surfaces while encouraging high density, smart growth communities.

Qualification: Since the project site is 100% previously developed this credit is achieved for all five scenarios.

Credit 7: Minimize Site Disturbance During Construction

1 PT

Intent: Conserve existing natural areas and protect trees to provide habitat and promote biodiversity.

Qualification: Since the project site is 100% previously developed this credit is achieved for all five scenarios.

Variable Credits

The following sets of credits vary across the five development scenarios. These credits represent the distinctive differences between the scenarios in terms of LEED-ND. The following breakdown looks at each credit and lays out the intent of the credit, along with the rationale / evidence for achieving the varying degrees of credit for each of the five development scenarios. A more in depth explanation of the requirements, including relevant equations, for each credit can be found @ www.usgbc.org.

Smart Location + Links

Credit 6: Housing and Jobs Proximity

3 PTS

Intent: Encourage balanced communities with a diversity of uses and employment opportunities. Reduce energy consumption and pollution from motor vehicles by providing opportunities for shorter vehicle trips and/or use of alternative modes of transportation.

Qualification: Four of the five scenarios qualify for this credit. Scenarios 2, 3,4, and 5 each include a residential component equaling at least 25% of the project's total building square footage, and locate the project within a ½ mile walk distance of a number of pre-project and jobs equal to or greater than 50% of the number of dwelling units in the project. Scenario 1 does not qualify because it does not meet the residential area requirement, and the number of jobs that will be created by the non-residential aspects of the project are unknown. Given the speculative and preliminary nature of the five scenarios, this credit will need to be reexamined as future iterations are refined to paint a clearer picture of the relationship between housing and job creation, and the capacity to earn pts for this credit.

Neighborhood Pattern + Design

Credit 1: Compact Development

1 - 7 PTS

Intent: Conserve land. Promote community livability, transportation efficiency, and walkability.

Qualification: We already know that each of the development scenarios is designed to have over 7 dwelling units per acre and over .5 FAR. The extent to which each scenario surpasses the minimum for Prerequisite 2 provides additional credits as follows...

	Residential Density (DU/Acre)	Non-residential Density* (FAR)	Points
Scenario 1	28	> 1.0 and ≤ 1.5	2
Scenario 2	19	0.75 to 1.0	1
Scenario 3	29	> 1.0 and ≤ 1.5	2
Scenario 4	21	> 1.0 and ≤ 1.5	2
Scenario 5	45	> 2.0 and ≤ 2.5	4

**Note: Since the non-residential buildings have not been developed, the FAR for these components is not able to be calculated. For the purposes of this evaluation and comparison, it is assumed that as housing density increases, the intensity and density of the non-residential components is increased proportionately.*

Credit 2: Diversity of Uses

1 - 4 PTS

Intent: Promote community livability, transportation efficiency, and walkability.

Qualification: In order to achieve these credits the scenario must include a residential component in the project that constitutes at least 25% of the project's total building square footage; and design or locate the project such that at least 50% of the dwelling units are within ½ mile walk distance of at least two (1 point), four (2 points), seven (3 points) or ten (4 points) of the diverse uses as defined by LEED-ND. Uses may either be in nearby areas or be built within the development. Based upon these criteria Scenario 1 does not qualify due to the lack of residential housing in proportion to the planned development activity. The remaining four scenarios each achieve 4 credits due to a combination of existing uses located within the surrounding context, and planned uses within the project site.

Credit 3: Diversity of Housing Types

1-3 PTS

Intent: To enable citizens from a wide range of economic levels and age groups to live within a community.

Qualification: In order to obtain these credits, the variety of housing sizes and types in the project within the project, must achieve at least 0.5 according to the following calculation, which is based on the Simpson Diversity Index*

The Simpson Diversity Index score is calculated with the following equation:

$$\text{Score} = 1 - \sum (n/N)^2$$

n = the total number of dwellings in a single category

N = the total number of dwellings in all categories.

Score on the Simpson Diversity Index	Points Earned
≥ 0.5 and < 0.6	1

≥ 0.6 and < 0.7	2
≥ 0.7	3

The calculations for each scenario produced the following results...

	Simpson Diversity Index #	Points
Scenario 1	$< .5$	0
Scenario 2	$< .5$	0
Scenario 3	$< .5$	0
Scenario 4	.52	1
Scenario 5	.51	1

**This credit was adapted from Laurance Aurbach's TND Design Rating Standards Version 2.1, June 2005.*

Credit 8: Street Network

1 -2 PTS

Intent: Encourage the design of projects that incorporate high levels of internal connectivity and the location of projects in existing communities in order to conserve land, promote multimodal transportation and promote public health through increased physical activity.

Qualification: To achieve credits in this category the scenario must be designed such that the project's average street network grid density falls within one of the ranges listed in the table below.

Street Grid Density (centerline miles/sq.mi.)	Points Earned
20 – 29	1
>30	2

Based upon calculations for each of the five scenarios, the resulting credits are earned...

	Street Grid Density (centerline miles/sq.mi.)	Points
Scenario 1	<20	0
Scenario 2	20 – 29	1
Scenario 3	>30	2
Scenario 4	>30	2
Scenario 5	>30	2

Green Construction + Technology

Credit 4: Building Reuse + Adaptive Reuse

1 - 2 PTS

Intent: Extend the life cycle of existing building stock, conserve resources, reduce waste, and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

Qualification: Scenarios 1, 2, and 3 each reuse the MNSCU (Minnesota State Colleges and University) training building that currently exists on the project site. In doing so, each Scenario earns 1 credit.

Scenario 1 earns an additional credit for reusing portions of the assembly facility and showroom.

Added Value Credits

The following sets of credits reflect potential opportunities that can be achieved for each of the five development scenarios. The strategies and practices needed to achieve these credits may require different methods of implementation to help prioritize and assure that they are included in the final scenario. There are multitudes of avenues that can be explored with regard as how to achieve the required measures. These methods could include, but are not limited to overlay districts, changes in zoning code, or development agreements, etc... The following breakdown of credits into Policy + Operations, Urban Design + Architecture, and Construction Processes, attempts to place credits with a targeted arena for fostering the changes needed to assure that the credit can be achieved. A more in depth explanation of the requirements, including relevant equations, for each credit can be found @ www.usgbc.org.

Policy + Operations

While policy can play a major role in mandating various aspects of land use and design, these credits deal with topics that are often guided by regulator measures and programs.

Neighborhood Pattern + Design

Credit 4: Affordable Rental Housing

1 – 2 PTS

Intent: To enable citizens from a wide range of economic levels and age groups to live within a community.

Qualification: Measures need to be implemented that assure at least 15% of total rental units are priced for households up to 50% of area median income (1 point), at least 30% of total rental units are priced for households up to 80% of area median income (1 point), or at least 15% of total rental units are priced for households up to 50% of area median income and an additional 15% of total rental units are priced for households at up to 80% of area median income (2 points). Steps must also be put into place that maintain these units at affordable levels for a minimum of fifteen years.

Credit 5: Affordable For-Sale Housing

1 – 2 PTS

Intent: To enable citizens from a wide range of economic levels and age groups to live within a community.

Qualification: Measures need to be implemented that assure at least 10% of for-sale housing is priced for households up to 80% of the area median income (1 point), at least 20% of for-sale housing is priced for households up to 120% of the area median income (1 point), or at least 10% of for-sale housing is priced for

households up to 80% of the area median income and an additional 10% of for-sale housing is priced for households at up to 120% of the area median income (2 points).

Credit 10: Transportation Demand Management

2 PTS

Intent: Reduce energy consumption and pollution from motor vehicles by encouraging use of public transit.

Qualification: There are three options for obtaining points in this credit. No more than 2 points can be earned.

Option 1 requires the creation and implementation of a comprehensive transportation demand management (TDM) program that seeks to reduce weekday peak period trips by at least 20% compared to the forecasted trip generation for the project without the TDM strategies; and fund for a minimum of two years following buildout of the project (1 point).

Option 2 provides subsidized (<50% of regular price) transit passes valid for at least one year, to each resident and employee locating within the project during, at minimum, the first three years of project occupancy (1 point).

Option 3 involves providing transit service to other major transit facilities and/or another major destination, with no less than five rides per weekday peak period. The service must be guaranteed for at least two years beyond project buildout (1 point).

Credit 14: Universal Accessibility

2 PTS

Intent: Enable the widest spectrum of people, regardless of age or ability, to more easily participate in their community life by increasing the proportion of areas that are usable by people of diverse abilities.

Qualification: For each residential unit type developed, design 20% of each type to comply with the accessible design provisions of the Fair Housing Amendments Act (FHAA) and Section 504 of the Rehabilitation Act (Rehabilitation Act), as applicable. All paths of travel between residential units and other buildings within the project shall also comply.

For projects with common-use or recreational facilities constructed as part of the project accessible design provisions of the American Disabilities Act (ADA) to facilities and rights-of-way must be applied for any non-residential areas.

Green Construction + Technology

Credit 12: On-Site Energy Generation

1 PT

Intent: Reduce air, water, and land pollution from energy consumption and production by increasing the efficiency of the power delivery system. Increase the reliability of power.

Qualification: There are two options for obtaining points in this credit.

Option 1 – (PRESCRIPTIVE) ELECTRICAL BASELINE

Develop on-site energy generation system(s) with peak electrical generating capacity of at least 5% of the project's specified electrical service load.

Option 2 – (PERFORMANCE) TOTAL ENERGY BASELINE

Develop on-site energy generation system(s) with capacity of at least 5% of the project's annual electrical and thermal energy consumption, as established through an accepted building energy performance simulation tool.

For both options, total CO₂ emissions shall be less than or equal to national average of CO₂ emissions for grid supplied electricity, which shall be calculated as the sum of 1545 lb per MWh produced by the onsite power generation system and 145 lb per MMBtu of thermal energy produced by the on-site power generation system.

Credit 13: On-Site Renewable Energy Sources

1 PT

Intent: Encourage on-site renewable energy self-supply in order to reduce environmental and economic impacts associated with fossil fuel energy use.

Qualification: There are two options for obtaining points in this credit.

Option 1 – (PRESCRIPTIVE) ELECTRICAL BASELINE

Design and incorporate the use of shared on-site nonpolluting renewable energy generation technologies such as solar, wind, geothermal, small scale/micro hydroelectric, and biomass with peak electrical generating capacity of at least 5% of the project's specified electrical service load.

Option 2 – (PERFORMANCE) TOTAL ENERGY BASELINE

Design and incorporate the use of shared on-site nonpolluting renewable energy generation technologies such as solar, wind, geothermal, small scale/micro hydroelectric, and biomass with peak electrical generating capacity of at least 5% of the project's annual electrical and thermal energy consumption, as established through an accepted building energy performance simulation tool.

Credit 14: District Heating + Cooling 1 PT

Intent: Reduce air, water, and land pollution resulting from energy consumption in buildings by employing energy efficient district technologies.

Qualification: Design and incorporate into the project a district heating or cooling system for space conditioning of all buildings in the project such that at least 80% of the project total square footage is connected, and at least 80% of the project total heating or cooling load is connected. The efficiency of each component of the system must have an overall efficiency performance at least 10% better than specified by the ASHRAE 90.1 - 2004 Prescriptive Requirements. Additionally, pumping power must not exceed 2.5% of the thermal energy output (with one kWh of electricity equal to 3,413 Btu).

Credit 19: Comprehensive Waste Management 1 PT

Intent: Reduce the waste hauled to and disposed of in landfills. Promote proper disposal of office and household hazardous waste streams.

Qualification: In order to achieve this credit, at least two of the following three requirements must be met and the availability and benefits of the drop-off point(s), station(s), or services must be publicized.

- 1) Include at least one drop-off point as part of the project available to all project occupants for office or household potentially hazardous wastes such as paints, solvents, oil, batteries; and establish plan for post-collection disposal.
- 2) Include at least one recycling or reuse station as part of the project available to all project occupants dedicated to the separation, collection, and storage of materials for recycling including, at a minimum, paper, corrugated cardboard, glass, plastics and metals; and plan for post-collection use.
- 3) Include at least one compost station as part of the project available to all project occupants dedicated to the collection and composting of food wastes; and establish a plan for post-collection use.

Urban Design + Architecture

These credits deal with larger site patterns and interactions. The credits in this category are capable of being achieved in the next iteration of refinement and design for each scenario.

Smart Location + Links

Credit 5: Bicycle Network

1 PT

Intent: To promote bicycling and transportation efficiency.

Qualification: Provide bicycle parking spaces or storage for a capacity of no less than 15% of the parking space capacity provided for cars as part of the non-residential portions of the project.

Credit 9: Site Design for Habitat or Wetland Conservation

1 PT

Intent: Conserve native wildlife habitat, wetlands and water bodies.

Qualification: Since the project is located on a previously developed site, this credit can be achieved by using native plants for 90% of vegetation, and using no invasive plants on any part of the site.

Neighborhood Pattern + Design

Credit 6: Reduced Parking Footprint

2 PTS

Intent: Design parking to increase the pedestrian orientation of projects and to minimize the adverse environmental effects of parking facilities.

Qualification: To achieve the points for this credit the final design will need to locate all off-street parking facilities at the side or rear of buildings, leaving building frontages and streetscapes free of parking facilities. Also, no more than 20% of the total development footprint area can be used for surface parking facilities, with no individual surface parking lot larger than 2 acres. In addition, any non-residential buildings or multifamily residential buildings must provide bicycle and carpool parking spaces (in any combination) equivalent to 10% of the total automobile parking on the site.

Intent: Provide appealing and comfortable pedestrian street environments in order to promote pedestrian activity. Promote public health through increased physical activity.

Qualification: The baseline (4 points) for achieving this credits requires the following:

- A principal functional entry of each building has a front façade that faces a public space.
- A minimum of 30% of all street frontages located within the project are planned for development that complies with the minimum building-height-to-street-width proportions of 1:3; and where building sites are planned along streets bordering the project, a minimum of 15% of the total street frontage of such sites contains (or is dedicated to) development that will produce a building-height-to-street-width proportion of 1:3.
- Continuous sidewalks, at least 4 feet wide, are to be provided along both sides of all streets within the project.
- All streets along exclusively residential blocks within the project are to be designed for a maximum speed of 20 mph.
- All streets along non-residential or mixed use blocks within the project are to be designed for a maximum speed of 25 mph.

If the above measures are achieved, the project may earn additional points as follows: 1 point for designing and building the project such that any three measures on the list below are accomplished (up to 4 additional points)...

- The front façades of at least 80% of all buildings are no more than 25 feet from front property line.
- The front facades of at least 50% of buildings are no more than 18 feet from the front property line.
- The front facades of at least 50% of mixed-use and non-residential buildings are contiguous to the sidewalk.
- Functional building entries occur every 75 feet, on average, along non-residential or mixed use blocks.
- All ground-level non-residential interior spaces that face a public space have transparent glass on at least 33% of the ground-level façade.
- No blank walls longer than 50 feet occur along sidewalks.
- Any ground-level storefront windows must be kept open and visible at night.
- On-street parking is provided on 70% of both sides of all new streets.
- Street trees occur between the vehicle travel way and sidewalk at intervals of no greater than 40 feet;
- At least 50% of ground-floor dwelling units have an elevated finished floor no less than 24 inches above the sidewalk grade.
- In non-residential or mixed use projects, 50% or more of the total number of office buildings include ground floor retail; and all businesses and/or other

community services on the ground floor are accessible directly from sidewalks along a public space.

- Trees or other structures provide shade within five years of project occupancy over at least half the length of sidewalks included within or contiguous to the project.

Credit 9: Transit Facilities

1 PT

Intent: Encourage transit use and reduce driving by creating safe and comfortable transit facilities.

Qualification: The design for these facilities should include covered and at least partially enclosed shelters, adequate to buffer wind and rain, with at least one bench at each transit stop within the project boundaries. Lighting for the shelters shall be illuminated to five average maintained footcandles (light levels may be reduced after hours). The facilities also need to provide kiosks, bulletin boards, and/or signs devoted to providing local transit information as part of the project, including basic schedule and route information at each transit stop that borders or falls within the project.

Green Construction + Technology

Credit 2: Energy Efficiency in Buildings

1 - 3 PTS

Intent: Encourage the design and construction of energy efficient buildings to reduce air, water, and land pollution and environmental impacts from energy production and consumption.

Qualification: To earn points for this credit, at least 90% of the buildings within a given scenario must meet one of the following requirements. The following breakdown is an over simplification of the requirements outlined by the LEED-ND rating system. For more detailed requirements, reference the LEED-ND rating system.

1 Point

Non-residential buildings and residential buildings over 3 stories

WHOLE BUILDING ENERGY SIMULATION

Demonstrate a minimum 10% improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/ IESNA Standard 90.1-by a whole building project simulation.

PRESCRIPTIVE COMPLIANCE PATH A

Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide for Small Office Buildings or the ASHRAE Advanced Energy Design Guide for Small Retail Buildings, as appropriate to building type.

PRESCRIPTIVE COMPLIANCE PATH B

Comply with the Basic Criteria and Prescriptive Measures of the Advanced Buildings Benchmark™ Version 1.1

For residential buildings 3 stories or fewer

Qualify as an ENERGY STAR Home.

2 Points

Non-residential buildings and residential buildings over 3 stories

WHOLE BUILDING ENERGY SIMULATION

Demonstrate a minimum 15% improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/ IESNA Standard 90.1-by a whole building project simulation.

PRESCRIPTIVE COMPLIANCE PATH A

Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide for Small Office Buildings or the ASHRAE Advanced Energy Design Guide for Small Retail Buildings.

For residential buildings 3 stories or fewer

Qualify as an ENERGY STAR Home.

3 Points

Non-residential buildings and residential buildings over 3 stories

WHOLE BUILDING ENERGY SIMULATION

Demonstrate a minimum 20% improvement in the proposed building performance rating compared to the baseline building performance rating per ASHRAE/ IESNA Standard 90.1-by a whole building project simulation.

PRESCRIPTIVE COMPLIANCE PATH A

Comply with the prescriptive measures of the ASHRAE Advanced Energy Design Guide for Small Office Buildings or the ASHRAE Advanced Energy Design Guide for Small Retail Buildings.

For residential buildings 3 stories or fewer

Exceed the ENERGY STAR for Homes requirements by achieving a minimum HERS Index of at least 75 for IECC Climate Zones 6-8.

Credit 3: Reduced Water Use

1 - 3 PTS

Intent: Minimize water use in buildings and for landscape irrigation to reduce the impact to natural water resources and reduce the burden on municipal water supply and wastewater systems.

Qualification: This credit is broken down into both an indoor and an outdoor option. The points can be earned independently or concurrently for a maximum of 3 points.

Indoor (1 to 2 points)

1 point can be earned if at least 90% of all buildings in the project meet one of the following requirements according to the appropriate category:

Non-residential buildings and residential buildings over 3 stories

Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building after meeting the Energy Policy Act of 1992 fixture performance requirements.

Residential buildings 3 stories or fewer

Comply with 2 out of 3 of the following requirements:

- average flow rate for all lavatory faucets \leq 2.0 GPM.
- average flow rate for all shower heads \leq 2.0 GPM.
- average flow rate for all toilets \leq 1.3 GPF.

2 points can be earned if at least 90% of all buildings in the project meet one of the following requirements according to the appropriate category:

Non-residential buildings and residential buildings over 3 stories

Employ strategies that in aggregate use 30% less water than the water use baseline calculated for the building after meeting the Energy Policy Act of 1992 fixture performance requirements.

Residential buildings 3 stories or fewer

Comply with all of the following requirements:

- average flow rate for all lavatory faucets \leq 2.0 GPM.
- average flow rate for all shower heads \leq 2.0 GPM.
- average flow rate for all toilets \leq 1.3 GPF.

Outdoor (1 point)

Use only captured rainwater, recycled wastewater, recycled graywater, or water treated and conveyed by a public agency specifically for non-potable uses for irrigation. Or, install landscaping that does not require permanent irrigation

systems. Temporary irrigation systems used for plant establishment are allowed only if removed within one year of installation.

Credit 9: Stormwater Management

1 -5 PTS

Intent: Reduce pollution and hydrologic instability from stormwater, prevent flooding, and promote aquifer recharge.

Qualification: Since the site has been previously developed, points can be earned for this credit by implementing a comprehensive stormwater management plan that infiltrates, reuses, or evapotranspirates runoff from 90% of the average annual rainfall or 1" of rainfall from a percentage of the project's development footprint and other areas that have been graded so as to be effectively impervious, as listed below.

- Minimum 15% of the development footprint (1 point)
- Minimum 30% of the development footprint (2 points)
- Minimum 45% of the development footprint (3 points)
- Minimum 60% of the development footprint (4 points)
- Minimum 75% of the development footprint (5 points)

Note: The stormwater management plan should identify practices to be employed, such as permeable pavements, rainwater harvesting systems or green roofs.

Credit 10: Heat Island Reduction

1 PT

Intent: Reduce heat islands to minimize impact on microclimate and human and wildlife habitat.

Qualification: There are two options for achieving this credit.

Option 1 requires the provision of any combination of the following strategies for 50% of the non-roof impervious site landscape:

- Shade (within five years of occupancy)
- Paving materials with a Solar Reflectance Index (SRI) of at least 29
- Open grid pavement system
- Place a \geq 50% of parking spaces under a cover with a minimum SRI of 29

Option 2 incorporates the use of roofing materials that have a Solar Reflectance Index (SRI) equal to or greater than the values in the table below for a minimum of 75% of the roof surface of all buildings within the project:

Roof Type	Slope	SRI
Low-Sloped Roof	\leq 2:12	78
Steep-Sloped Roof	\geq 2:12	29

An alternative for option 2 is to install a “green” (vegetated) roof for a least 50% of the roof area of all buildings within the project. Combinations of SRI compliant and vegetated roof can be used provided that they collectively cover 75% of the roof area of all buildings.

Credit 11: Solar Orientation

1 PT

Intent: Achieve enhanced energy efficiency by creating the optimum conditions for the use of passive and active solar strategies.

Qualification: Design and orient 75% or more of the project's buildings such that one axis of each building is at least 1.5 times longer than the other, and such that the longer axis is within 15 degrees of the geographical east/west axis.

Credit 15: Infrastructure Energy Efficiency

1 PT

Intent: Reduce air, water, and land pollution from energy consumption.

Qualification: Design or purchase any street lights, water and wastewater pumps and treatment systems that are included as part of the project to achieve a 15% energy reduction beyond an estimated baseline energy use for this infrastructure. If any traffic lights are installed as part of the project, use LED technology

Credit 16: Wastewater Management

1 PT

Intent: Reduce pollution from wastewater and encourage water reuse.

Qualification: Design and construct the project to divert at least 50% of the wastewater generated by the project, and reuse wastewater to replace the use of potable water. Provide for on-site wastewater treatment to a quality defined by state and local regulations for the proposed reuse.

Credit 20: Light Pollution Reduction

1 PT

Intent: Minimize light trespass from site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce development impact on nocturnal environments.

Qualification: For exterior lighting in shared portions of the project, only light areas as required for safety and comfort. Do not exceed 80% of the lighting power densities for exterior areas and 50% for building facades and landscape features as defined in ASHRAE/IESNA Standard 90.1-2004, Exterior Lighting Section, without

addenda. The continued adherence to these standards must also be stipulated via some form of binding document.

All projects shall be classified under one of the following zones, as defined in IESNA RP-33, and shall follow specific requirements for that specific zone:

LZ1 — Dark (Park and Rural Settings)

LZ2 — Low (Residential areas)

LZ3 — Medium (Commercial/Industrial, High-Density Residential)

LZ4 — High (Major City Centers, Entertainment Districts)

Construction Processes

These credits deal directly with the processes utilized during the construction and procurement of the site and buildings.

Green Construction + Technology

Credit 8: Contaminant Reduction in Brownfield Remediation 1 PT

Intent: Encourage brownfields cleanup methods that reduce contaminant volume or toxicity and thereby minimize long-term remediation or monitoring burdens.

Qualification: In addition to the requirements for SLL Credit 1, the project must use cleanup method(s) for 100% of the remediation that treat, reduce or eliminate the volume or toxicity of contaminated material found on the site. Cleanup methods which include only capping or translocation of contaminated material to an off-site location will not achieve this credit.

Credit 17: Recycled Content for Infrastructure 1 PT

Intent: Use recycled materials to reduce the environmental impact of extraction and processing of virgin materials.

Qualification: To achieve this credit, the project must use an aggregate base and subbase with 90% recycled aggregate materials such as Portland cement concrete and asphalt for roadways, parking lots, sidewalks, and curbs.

Credit 18: Construction Waste Management 1 PT

Intent: Divert construction and demolition debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.

Qualification: This credit can be earned by recycling and/or salvaging at least 50% of non-hazardous construction and demolition debris. It also requires the development and implementation of a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the materials will be stored on-site or commingled.

Extraneous

The following credits are obtainable within each of the five development scenarios for the Ford Plant site, but do not directly correlate to overall sustainability. The credits compliment or supplement existing credits, but have immeasurable or unknown impacts. The following breakdown looks at each credit and lays out the intent of the credit, along with the basis for achieving each credit. A more in depth explanation of the requirements, including relevant equations, for each credit can be found @ www.usgbc.org

Green Construction + Technology

Credit 1: LEED Certified Green Buildings

1 - 3 PTS

Intent: Encourage the design and construction of buildings to utilize green building practices.

Qualification: Design and construct a percentage of the square footage of buildings that are part of the project to be certified under one of the LEED building rating programs. Points are available as follows:

Percent of square footage of project's buildings LEED certified	Points
20% to 30%	1
> 30% to 40%	2
> 40%	3

Innovation + Design Process

Credit 1.1 - 1.5: Innovation in Design

1 PT/EA

Intent: To provide projects the opportunity to be awarded points for exceptional performance above the requirements set by the LEED for Neighborhood Development Rating System and/or innovative performance in green building, smart growth, or new urbanist categories not specifically addressed by the LEED for Neighborhood Development Rating System.

Qualification: In writing, identify the intent of the proposed innovation credit, the proposed requirement for compliance, the proposed submittals to demonstrate compliance, and the design approach and strategies that might be used to meet the requirements. (1 point each, up to 5 possible)

Credit 2: LEED Accredited Professional

1 PT

Intent: To support and encourage the planning and design integration required by a LEED for Neighborhood Development green neighborhood project and to streamline the application and certification process.

Qualification: This credit can be achieved by having a LEED Accredited Professional as at least one principal member of the project design team.

Unattainable

The following LEED-ND credits are not able to be achieved for any of the five development scenarios for the Ford Plant site. The following breakdown looks at each credit and lays out the intent of the credit, along with the rationale / evidences for why the credit is unattainable. A more in depth explanation of the requirements, including relevant equations, for each credit can be found @ www.usgbc.org.

Smart Location + Links

Credit 2: High Priority Brownfield Redevelopment

1 PT

Intent: Encourage the cleanup of contaminated brownfields sites in areas targeted for redevelopment.

Qualification: The site is not designated as a Federal Empowerment Zone, Federal Enterprise Community, Federal Renewal Community, Communities with Official Recognition (OR) from the Department of Justice, or a Qualified Low-Income Communities (LICs) as defined by the New Markets Tax Credit (NMTC) Program of the U.S. Department of the Treasury - Community Development Financial Institutions Fund (CDFI).

Credit 7: School Proximity

1 PT

Intent: Promote public health through physical activity by facilitating walking to school. Promote community interaction and engagement.

Qualification: There are no existing or planned schools within ½ mile walking distance of the site.

Credit 10: Restoration of Habitat or Wetlands

1 PT

Intent: Restore wildlife habitat and wetlands that have been harmed by previous human activities.

Qualification: Since the site is 100% developed, there are no native habitats or pre-development water bodies or wetlands on the project site to restore.

Credit 11: Conservation Management of Habitat or Wetlands

1 PT

Intent: Conserve native wildlife habitat, wetlands and water bodies.

Qualification: Since the site is 100% developed, there are no native habitats or pre-development water bodies or wetlands on the project site to restore.

Neighborhood Pattern + Design

Credit 16: Local food Production

1 PT

Intent: Promote community-based and local food production to minimize the environmental impacts from transporting food long distances and increase direct access to fresh foods.

Qualification: None of the scenarios dedicate permanent and viable growing space within the project for neighborhood farms and gardens, nor is it viable to participate in a Community Supported Agriculture (CSA) program located within 150 miles of the project site for at least 80% of the households within the project for two years.

Green Construction + Technology

Credit 5: Reuse of Historic Buildings

1 PT

Intent: Encourage use of historic buildings in a manner that preserves their historic materials and character.

Qualification: None of the scenarios incorporates a building designated, listed, or identified by a local government as a historic or contributing

BASELINE ASSESSMENTS

The first comparative assessment looks at the baseline conditions for each of the five scenarios. The baseline conditions include the inherent credits, as well as the variable credits. A breakdown of the comparison across the five scenarios can be found in [Appendix E](#). Each scenario presents a different base that will affect future decisions and prioritizations for value-added measures (these will be examined in the next assessment).

The five scenarios represent distinctly different approaches, both conceptually and ideologically. By looking at the valuation of each scenario, we can see that each scenario starts out with the following points based upon the assessment of their baseline conditions...

Scenario 1	28 pts
Scenario 2	34 pts
Scenario 3	36 pts
Scenario 4	36 pts
Scenario 5	38 pts

Each scenario is allocated points based upon the location of the current site. Given that the site is both an infill and a brownfield that has been 100% developed on a site with no steep slopes and strong connectivity to the surrounding neighborhood. In addition, the use of Ford Parkway and Cleveland Avenue as major transit corridors (451 weekday routes) makes this an ideal site to work with.

The primary reuse of the site for industrial uses hinders the overall diversity of Scenario 1. This eliminates credits for diversity of uses, and diversity of housing types. Given the limited percentage of the project that is dedicated to housing, the density (28 DU/acre) does help it earn 2 points towards the compact development credit. The fact that multiple buildings on the site are also being reused earns additional points for the reuse of existing structures credit.

Scenario 2 retains the MNSCU training building and incorporates a mixed-use scheme that brings a wider variety of land uses. While the density of housing on the site drops (19 DU/acre) the job creation, along with the housing components earns points for housing and job proximity. Another additional point is earned for a more connected street network.

Scenario 3 and 4 earn the same amount of points for their baseline conditions. The distinctions between the two fall under the reuse of MNSCU training building in scenario 3, and the increase in the diversity of housing typologies in scenario 4. Both scenarios have comparable housing density (29 and 21 respectively), similar connectivity in their street networks, and they both balance the proximity of jobs and homes

Scenario 5 earns the highest amount of points (38) for its baseline assessment. The distinctions for scenario 5 come from its increased density (45 DU/acre).

VALUE-ADDED ASSESSMENTS

We can evaluate the overall potential of each scenario to achieve the various degrees of LEED-ND certification, by integrating the value-added credits to the baseline assessments. For the purposes of this report, we assume that there are no preclusions for achieving the value-added credits for each scenario. All things being equal, the value-added credits can be prioritized in accordance with the overall vision and values of the future site. A breakdown of the value-added comparison amongst the five scenarios can be found in [Appendix F](#).

There are a total of 49 potential points that can be earned via the value-added credits outlined beforehand. We can generate the overall potential for certification by assuming that all points are earned for each scenario. The resulting figure gives the maximum achievable points for each scenario as follows:

Scenario 1	77 pts
Scenario 2	83 pts
Scenario 3	85 pts
Scenario 4	85 pts
Scenario 5	87 pts

Scenario 1 can only achieve a Gold certification, based upon its inherent credits and the potential for value-added measures. Meanwhile, the other four scenarios all have the capacity to achieve platinum certification. As noted earlier, the extent to which credits are earned will vary based upon the final design, construction, and implementation of strategies and practices.

CONCLUSION

Early assumptions indicated that the LEED-ND rating system could serve as a guiding document for assessing and comparing early planning and design options for a specific site. Given that each of the five scenarios presented a distinct approach and character for the potential future use of the Ford Plant site, the use of LEED-ND as an assessment tool should offer insight into the strengths, weaknesses, opportunities, and threats of each. The strengths and weakness were discussed in the baseline assessments, while the opportunities reveal themselves in the potential areas designated as value-added. Depending upon how the value-added practices and strategies get integrated, there is a chance that each of the scenarios could rate the same given their final form. So what does this mean?

In terms of sustainability, LEED-ND focuses on the environmental impacts of development decisions and best practices. However, LEED-ND does not provide a means of measuring or balancing the social and economic forces at play. It is important to note this, so that as the process moves forward, these variables can be addressed and used to refine the ultimate plans for the future of the site. Ultimately, conflicting ideologies will need to succumb to compromises and trade-offs, as well as the ever-changing nature of the world around us. The tension rooted in the three pillars of sustainability (environment, economics, equity) is "construed as a "multiobjective optimization" problem with objectives including: profit maximization, minimization of environmental damage, and maximization of social welfare to name just a few. Unlike single objective optimization, in the multiple objectives case, one seeks to find a "non-inferior" solution such that any improvement in one of the objectives must come at the expense of the other objectives. In essence, such a non-inferior solution gives one possible compromise between the competing objectives" (Moglen, 2001, p.1).

In the end sustainable development is merely an ethical aspiration that embraces a desire for sustainability. It is important that the principles of sustainability do not become the victim of a desire to set targets and measure progress in lieu of truly integrated systems (Adams, 2006). The human need for control and order is in direct competition with the dynamic nature of the world, thus opportunities have been largely inhibited by political and status quo barriers. The problem is more systematic and much larger in scale than anything to date has attempted to undertake.

The City of St. Paul and the Ford Site Taskforce work have a unique opportunity to use the remainder of the planning process to integrate policy, planning, and practice in a unique and innovative way that can produce an exemplary project that continues to further the development and discussion of sustainable development. Remember that "sustainability is not a static goal, but a state of dynamic equilibrium" and that the future may not be the past (Monto, 2005, p.24)

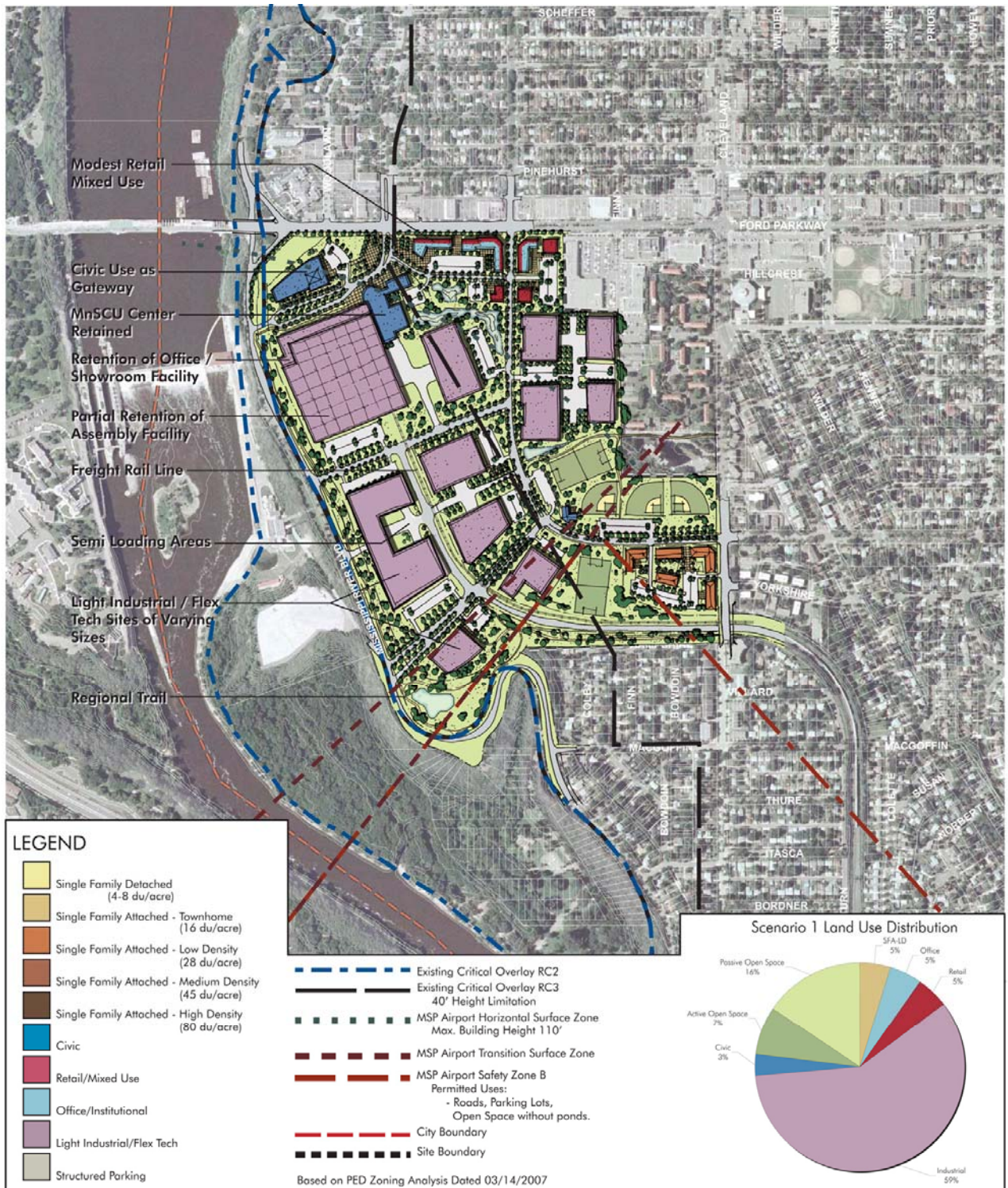
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APPENDICES

- A SCENARIO PLANS
- B SCENARIO LAND USE MATRIX
- C LEED-ND RATING SYSTEM
- D ASSESSMENT FRAMEWORK
- E BASELINE ASSESSMENTS
- F VALUE-ADDED ASSESSMENTS

APPENDIX A
SCENARIO PLANS



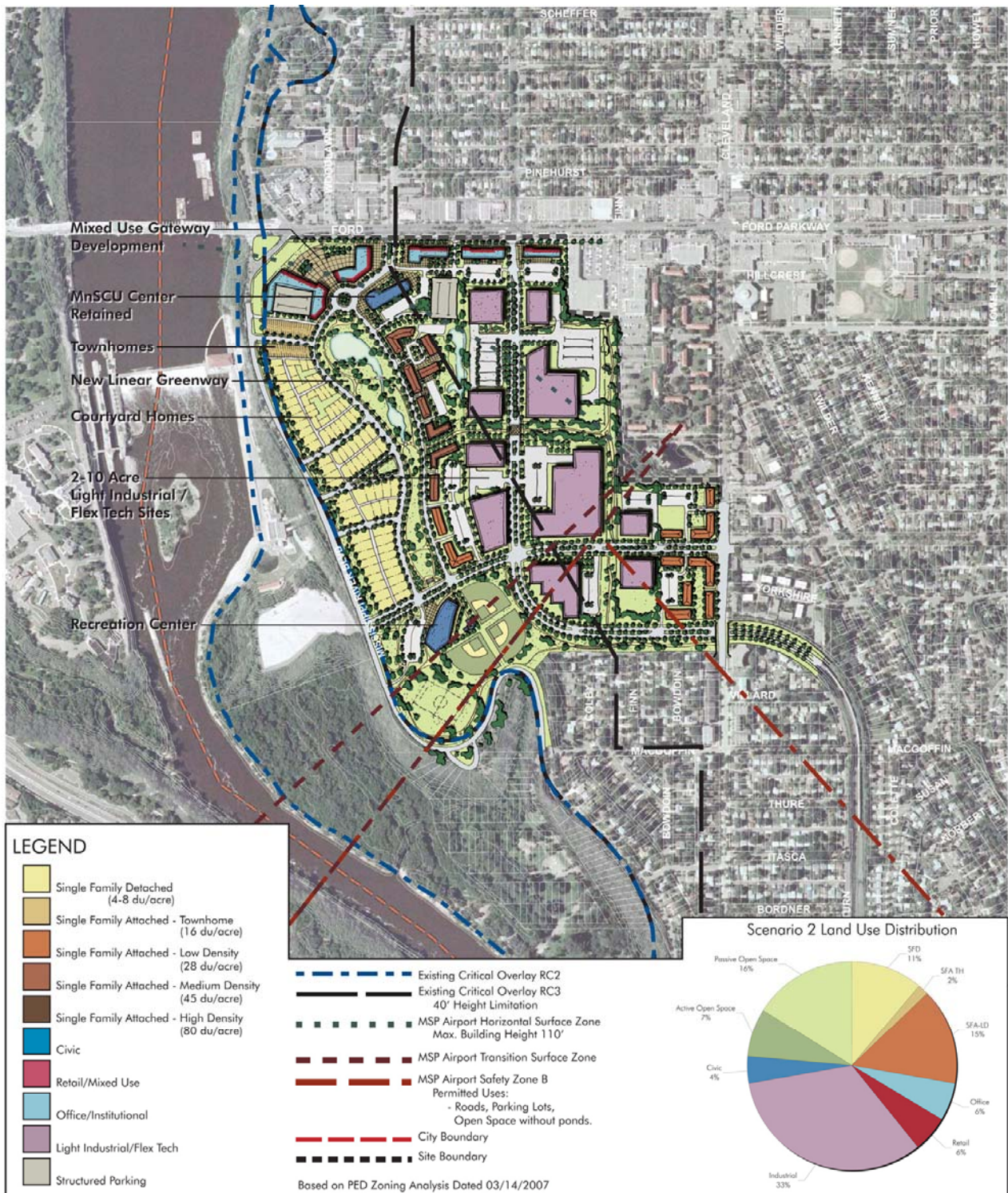
Ford Motor Company Planning Study: Phase 1
Saint Paul, Minnesota

1: AUAR Baseline - Primary Reuse for Industry

Major Development Scenario

EDAW|AECOM | Close Landscape Architecture | Dewar and Associates, Inc.
Elness Swenson Graham Architects, Inc. | Mayer, Mohaddes Associates, Inc. | URS

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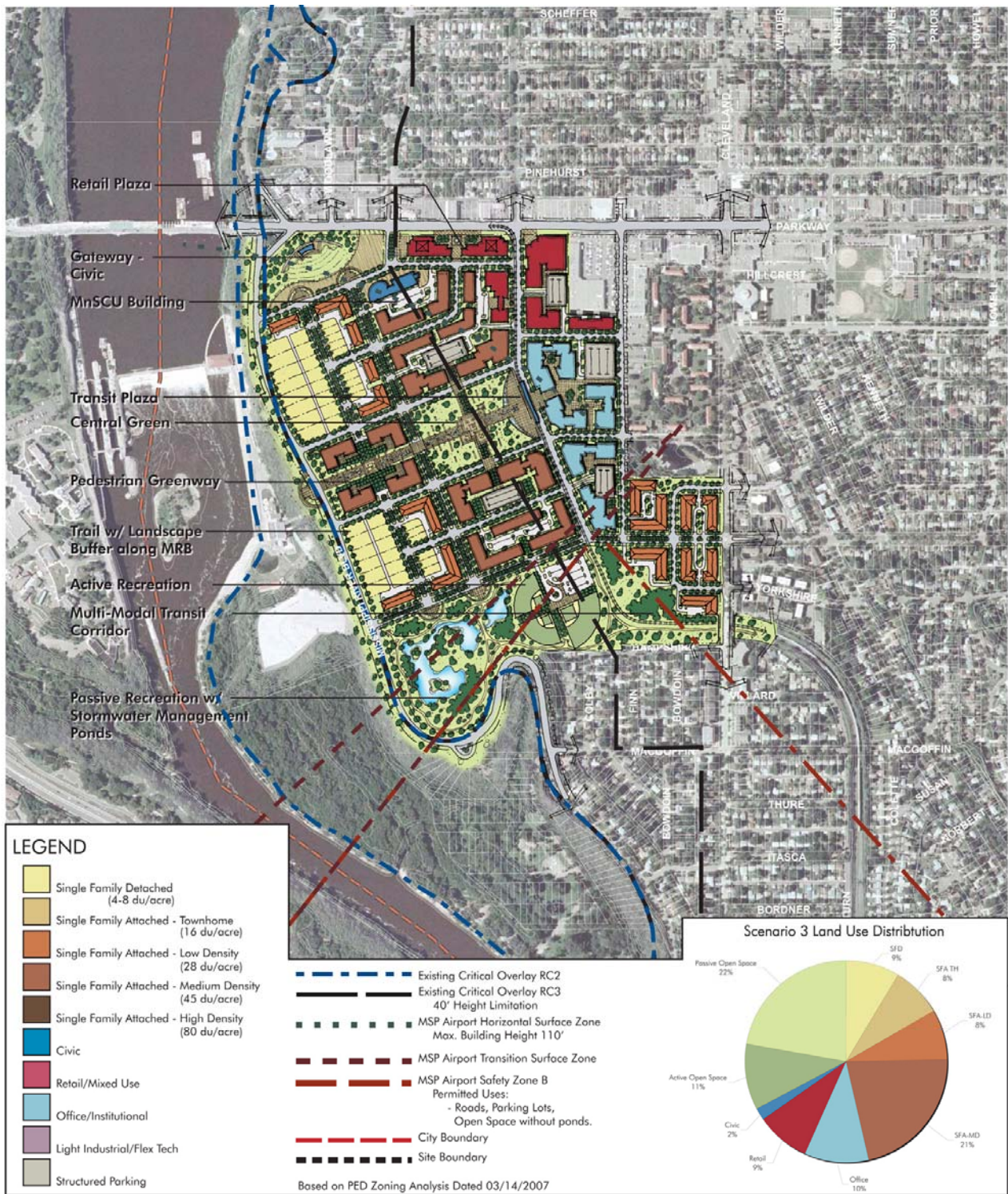
Ford Motor Company Planning Study: Phase 1
 Saint Paul, Minnesota

2: Mixed Use - Light Industrial/Flex Tech

Major Development Scenario

EDAW|AECOM | Close Landscape Architecture | Dewar and Associates, Inc.
 Elness Swenson Graham Architects, Inc. | Meyer, Mohaddes Associates, Inc. | URS

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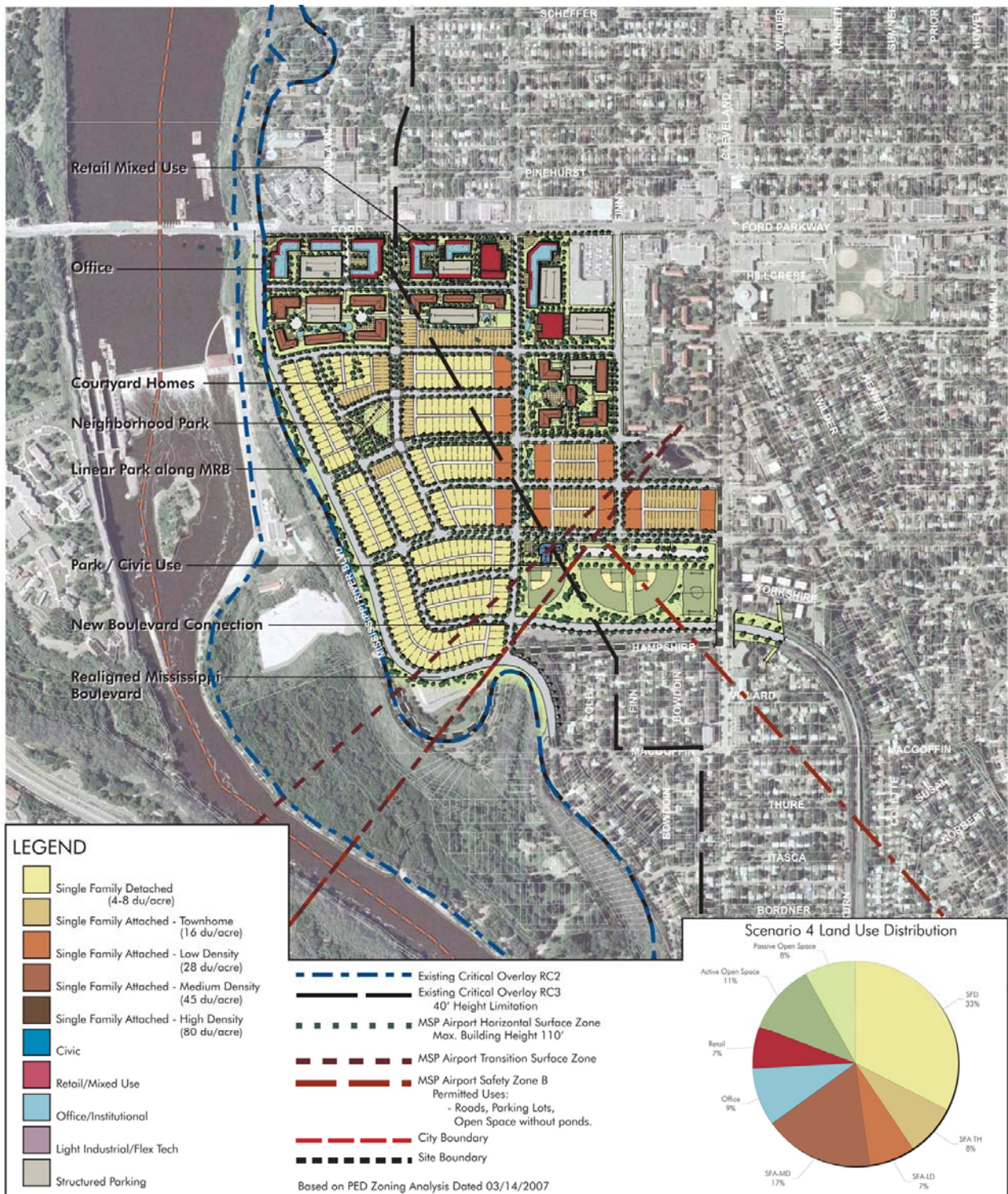


Ford Motor Company Planning Study: Phase 1
Saint Paul, Minnesota

3: Mixed Use - Office/Institutional

EDAW|AECOM | Close Landscape Architecture | Dewar and Associates, Inc.
Elness Swenson Graham Architects, Inc. | Meyer, Mohaddes Associates, Inc. | URS

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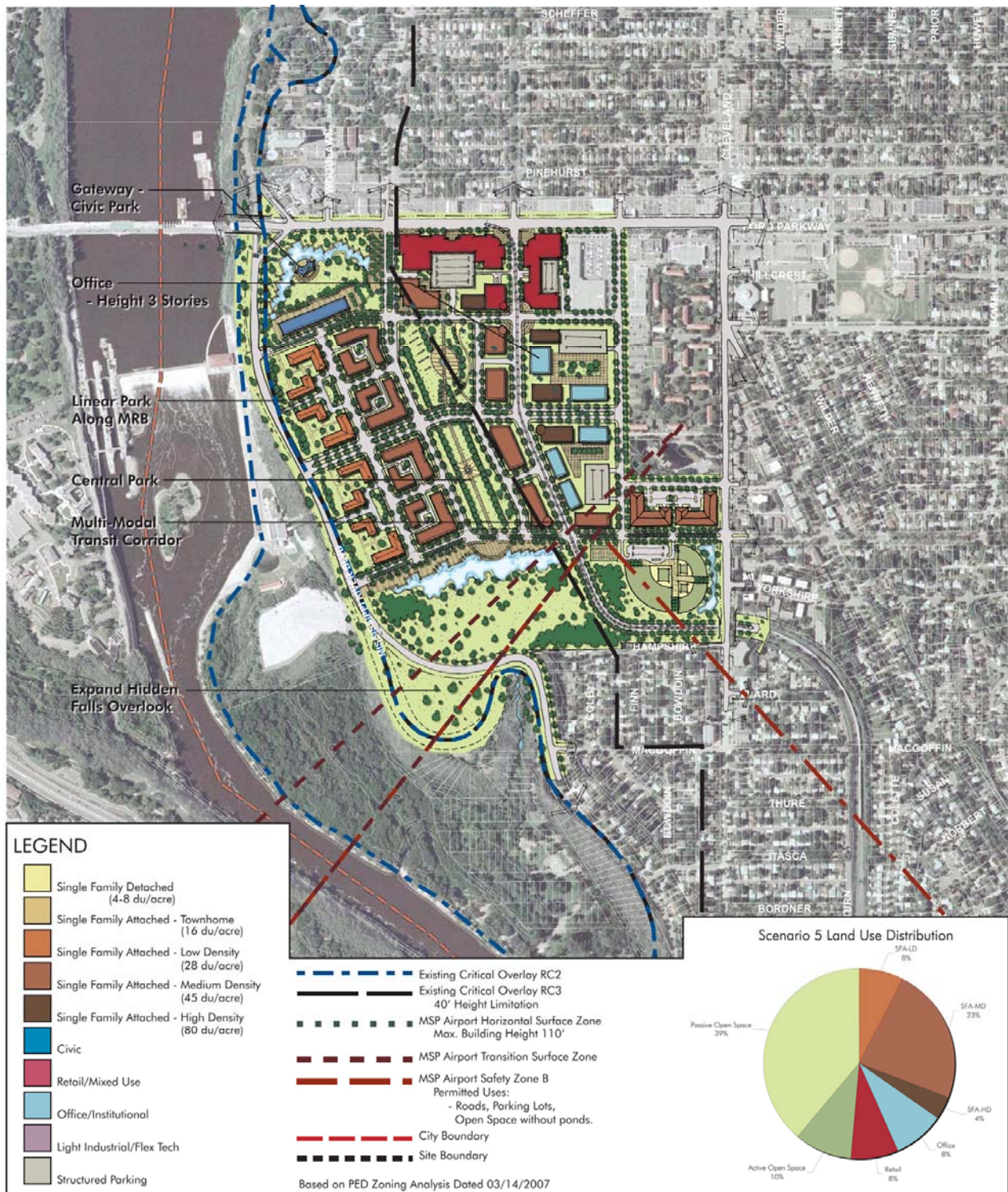


Ford Motor Company Planning Study: Phase 1
 Saint Paul, Minnesota

Major Development Scenario
4: Mixed Use - Urban Village

EDAW|AECOM | Close Landscape Architecture | Dewar and Associates, Inc.
 Elness Swenson Graham Architects, Inc. | Meyer, Mohaddes Associates, Inc. | URS

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Ford Motor Company Planning Study: Phase 1
Saint Paul, Minnesota

5: Mixed Use - High Density Urban Transit Village

Major Development Scenario

EDAW|AECOM | Close Landscape Architecture | Dewar and Associates, Inc.
Elness Swenson Graham Architects, Inc. | Meyer, Mohaddes Associates, Inc. | URS

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APPENDIX B
SCENARIO LAND USE MATRIX

APPENDIX C

LEED-ND RATING SYSTEM

Based upon Pilot Version dated February 2007

SMART LOCATION & LINKAGE

30 Possible Points

<i>Prerequisite 1: Smart Location</i>	Required
<i>Prerequisite 2: Proximity to Water and Wastewater Infrastructure</i>	Required
<i>Prerequisite 3: Imperiled Species and Ecological Communities</i>	Required
<i>Prerequisite 4: Wetland and Water Body Conservation</i>	Required
<i>Prerequisite 5: Agricultural Land Conservation</i>	Required
<i>Prerequisite 6: Floodplain Avoidance</i>	Required
<i>Credit 1: Brownfields Redevelopment</i>	2
<i>Credit 2: High Priority Brownfields Redevelopment</i>	1
<i>Credit 3: Preferred Locations</i>	2-10
<i>Credit 4: Reduced Automobile Dependence</i>	1-8
<i>Credit 5: Bicycle Network</i>	1
<i>Credit 6: Housing and Jobs Proximity</i>	3
<i>Credit 7: School Proximity</i>	1
<i>Credit 8: Steep Slope Protection</i>	1
<i>Credit 9: Site Design for Habitat or Wetland Conservation</i>	1
<i>Credit 10: Restoration of Habitat or Wetlands</i>	1
<i>Credit 11: Conservation Management of Habitat or Wetlands</i>	1

NEIGHBORHOOD PATTERN & DESIGN

39 Possible Points

<i>Prerequisite 1: Open Community</i>	Required
<i>Prerequisite 2: Compact Development</i>	Required
<i>Credit 1: Compact Development</i>	1-7
<i>Credit 2: Diversity of Uses</i>	1-4
<i>Credit 3: Diversity of Housing Types</i>	1-3
<i>Credit 4: Affordable Rental Housing</i>	1-2
<i>Credit 5: Affordable For-Sale Housing</i>	1-2
<i>Credit 6: Reduced Parking Footprint</i>	2
<i>Credit 7: Walkable Streets</i>	4-8
<i>Credit 8: Street Network</i>	1-2
<i>Credit 9: Transit Facilities</i>	1
<i>Credit 10: Transportation Demand Management</i>	2
<i>Credit 11: Access to Surrounding Vicinity</i>	1
<i>Credit 12: Access to Public Spaces</i>	1
<i>Credit 13: Access to Active Spaces</i>	1

<i>Credit 14: Universal Accessibility</i>	1
<i>Credit 15: Community Outreach and Involvement</i>	1
<i>Credit 16: Local Food Production</i>	1

GREEN CONSTRUCTION & TECHNOLOGY

31 Possible Points

<i>Prerequisite 1: Construction Activity Pollution Prevention</i>	Required
<i>Credit 1: LEED Certified Green Buildings</i>	1-3
<i>Credit 2: Energy Efficiency in Buildings</i>	1-3
<i>Credit 3: Reduced Water Use</i>	1-3
<i>Credit 4: Building Reuse and Adaptive Reuse</i>	1-2
<i>Credit 5: Reuse of Historic Buildings</i>	1
<i>Credit 6: Minimize Site Disturbance through Site Design</i>	1
<i>Credit 7: Minimize Site Disturbance during Construction</i>	1
<i>Credit 8: Contaminant Reduction in Brownfield Remediation</i>	1
<i>Credit 9: Stormwater Management</i>	1-5
<i>Credit 10: Heat Island Reduction</i>	1
<i>Credit 11: Solar Orientation</i>	1
<i>Credit 12: On-Site Energy Generation</i>	1
<i>Credit 13: On-Site Renewable Energy Sources</i>	1
<i>Credit 14: District Heating & Cooling</i>	1
<i>Credit 15: Infrastructure Energy Efficiency</i>	1
<i>Credit 16: Wastewater Management</i>	1
<i>Credit 17: Recycled Content in Infrastructure</i>	1
<i>Credit 18: Construction Waste Management</i>	1
<i>Credit 19: Comprehensive Waste Management</i>	1
<i>Credit 20: Light Pollution Reduction</i>	1

INNOVATION & DESIGN PROCESS

6 Possible Points

<i>Credit 1: Innovation and Exemplary Performance</i>	1-5
<i>Credit 2: LEED Accredited Professional</i>	1

PROJECT TOTALS

106 Possible Points

CERTIFICATION LEVELS

- Certified 40-49 Points
- Silver 50-59 Points
- Gold 60-79 Points
- Platinum 80-106 Points

APPENDIX D

ASSESSMENT FRAMEWORK

Smart Location & Linkage		30 Points Possible	Key Required Inherent Variable Policy / Operation Design Process Extraneous Unattainable
Prereq 1	Smart Location	Required	
Prereq 2	Proximity to Water and Wastewater Infrastructure	Required	
Prereq 3	Imperiled Species and Ecological Communities	Required	
Prereq 4	Wetland and Water Body Conservation	Required	
Prereq 5	Farmland Conservation	Required	
Prereq 6	Floodplain Avoidance	Required	
Credit 1	Brownfield Redevelopment	2	
Credit 2	High Priority Brownfields Redevelopment	1	
Credit 3	Preferred Location	10	
Credit 4	Reduced Automobile Dependence	8	
Credit 5	Bicycle Network	1	
Credit 6	Housing and Jobs Proximity	3	
Credit 7	School Proximity	1	
Credit 8	Steep Slope Protection	1	
Credit 9	Site Design for Habitat or Wetlands Conservation	1	
Credit 10	Restoration of Habitat or Wetlands	1	
Credit 11	Conservation Management of Habitat or Wetlands	1	
Neighborhood Pattern & Design		39 Points Possible	VALUE-ADDED
Prereq 1	Open Community	Required	
Prereq 2	Compact Development	Required	
Credit 1	Compact Development	7	
Credit 2	Diversity of Uses	4	
Credit 3	Diversity of Housing Types	3	
Credit 4	Affordable Rental Housing	2	
Credit 5	Affordable For-Sale Housing	2	
Credit 6	Reduced Parking Footprint	2	
Credit 7	Walkable Streets	8	
Credit 8	Street Network	2	
Credit 9	Transit Facilities	1	
Credit 10	Transportation Demand Management	2	
Credit 11	Access to Surrounding Vicinity	1	
Credit 12	Access to Public Spaces	1	
Credit 13	Access to Active Public Spaces	1	
Credit 14	Universal Accessibility	1	
Credit 15	Community Outreach and Involvement	1	
Credit 16	Local Food Production	1	
Green Construction & Technology		31 Points Possible	VALUE-ADDED
Prereq 1	Construction Activity Pollution Prevention	Required	
Credit 1	LEED Certified Green Buildings	3	
Credit 2	Energy Efficiency in Buildings	3	
Credit 3	Reduced Water Use	3	
Credit 4	Building Reuse and Adaptive Reuse	2	
Credit 5	Reuse of Historic Buildings	1	
Credit 6	Minimize Site Disturbance through Site Design	1	
Credit 7	Minimize Site Disturbance during Construction	1	
Credit 8	Contaminant Reduction in Brownfields Remediation	1	
Credit 9	Stormwater Management	5	
Credit 10	Heat Island Reduction	1	
Credit 11	Solar Orientation	1	
Credit 12	On-Site Energy Generation	1	
Credit 13	On-Site Renewable Energy Sources	1	
Credit 14	District Heating & Cooling	1	
Credit 15	Infrastructure Energy Efficiency	1	
Credit 16	Wastewater Management	1	
Credit 17	Recycled Content for Infrastructure	1	
Credit 18	Construction Waste Management	1	
Credit 19	Comprehensive Waste Management	1	
Credit 20	Light Pollution Reduction	1	
Innovation & Design Process		6 Points	VALUE-ADDED
Credit 1.1	Innovation in Design: Provide Specific Title	1	
Credit 1.2	Innovation in Design: Provide Specific Title	1	
Credit 1.3	Innovation in Design: Provide Specific Title	1	
Credit 1.4	Innovation in Design: Provide Specific Title	1	
Credit 1.5	Innovation in Design: Provide Specific Title	1	
Credit 2	LEED® Accredited Professional	1	
Project Totals (pre-certification estimates)		106 Points	

APPENDIX E BASELINE MATRIX

	Baseline	1	2	3	4	5
SMART LOCATION + LINKAGE						
SLL Prerequisite 1: Smart Location	X	X	X	X	X	X
SLL Prerequisite 2: Proximity to Water and Wastewater Infrastructure	X	X	X	X	X	X
SLL Prerequisite 3: Imperiled Species and Ecological Communities	X	X	X	X	X	X
SLL Prerequisite 4: Wetland and Water Body Conservation	X	X	X	X	X	X
SLL Prerequisite 5: Agricultural Land Conservation	X	X	X	X	X	X
SLL Prerequisite 6: Floodplain Avoidance	X	X	X	X	X	X
SLL Credit 1: Brownfields Redevelopment	2	2	2	2	2	2
SLL Credit 2: High Priority Brownfields Redevelopment	-	-	-	-	-	-
SLL Credit 3: Preferred Locations	9	9	9	9	9	9
SLL Credit 4: Reduced Automobile Dependence	6	6	6	6	6	6
SLL Credit 5: Bicycle Network	-	-	-	-	-	-
SLL Credit 6: Housing and Jobs Proximity	-	-	3	3	3	3
SLL Credit 7: School Proximity	-	-	-	-	-	-
SLL Credit 8: Steep Slope Protection	1	1	1	1	1	1
SLL Credit 9: Site Design for Habitat or Wetland Conservation	-	-	-	-	-	-
SLL Credit 10: Restoration of Habitat or Wetlands	-	-	-	-	-	-
SLL Credit 11: Conservation Management of Habitat or Wetlands	-	-	-	-	-	-
NEIGHBORHOOD PATTERN + DESIGN						
NPD Prerequisite 1: Open Community	X	X	X	X	X	X
NPD Prerequisite 2: Compact Development	X	X	X	X	X	X
NPD Credit 1: Compact Development	-	2	1	2	2	4
NPD Credit 2: Diversity of Uses	-	-	4	4	4	4
NPD Credit 3: Diversity of Housing Types	-	-	-	-	1	1
NPD Credit 4: Affordable Rental Housing	-	-	-	-	-	-
NPD Credit 5: Affordable For-Sale Housing	-	-	-	-	-	-
NPD Credit 6: Reduced Parking Footprint	-	-	-	-	-	-
NPD Credit 7: Walkable Streets	-	-	-	-	-	-
NPD Credit 8: Street Network	-	-	1	2	2	2
NPD Credit 9: Transit Facilities	-	-	-	-	-	-
NPD Credit 10: Transportation Demand Management	-	-	-	-	-	-
NPD Credit 11: Access to Surrounding Vicinity	1	1	1	1	1	1
NPD Credit 12: Access to Public Spaces	1	1	1	1	1	1
NPD Credit 13: Access to Active Spaces	1	1	1	1	1	1
NPD Credit 14: Universal Accessibility	-	-	-	-	-	-
NPD Credit 15: Community Outreach and Involvement	1	1	1	1	1	1
NPD Credit 16: Local Food Production	-	-	-	-	-	-
GREEN CONSTRUCTION + TECHNOLOGY						
GCT Prerequisite 1: Construction Activity Pollution Prevention	X	X	X	X	X	X
GCT Credit 1: LEED Certified Green Buildings	-	-	-	-	-	-
GCT Credit 2: Energy Efficiency in Buildings	-	-	-	-	-	-
GCT Credit 3: Reduced Water Use	-	-	-	-	-	-
GCT Credit 4: Building Reuse and Adaptive Reuse	-	2	1	1	-	-
GCT Credit 5: Reuse of Historic Buildings	-	-	-	-	-	-
GCT Credit 6: Minimize Site Disturbance through Site Design	1	1	1	1	1	1
GCT Credit 7: Minimize Site Disturbance during Construction	1	1	1	1	1	1
GCT Credit 8: Contaminant Reduction in Brownfields Remediation	-	-	-	-	-	-
GCT Credit 9: Stormwater Management	-	-	-	-	-	-
GCT Credit 10: Heat Island Reduction	-	-	-	-	-	-
GCT Credit 11: Solar Orientation	-	-	-	-	-	-
GCT Credit 12: On-Site Energy Generation	-	-	-	-	-	-
GCT Credit 13: On-Site Renewable Energy Sources	-	-	-	-	-	-
GCT Credit 14: District Heating & Cooling	-	-	-	-	-	-
GCT Credit 15: Infrastructure Energy Efficiency	-	-	-	-	-	-
GCT Credit 16: Wastewater Management	-	-	-	-	-	-
GCT Credit 17: Recycled Content in Infrastructure	-	-	-	-	-	-
GCT Credit 18: Construction Waste Management	-	-	-	-	-	-
GCT Credit 19: Comprehensive Waste Management	-	-	-	-	-	-
GCT Credit 20: Light Pollution Reduction	-	-	-	-	-	-
INNOVATION + DESIGN PROCESS						
ID Credit 1: Innovation and Exemplary Performance	-	-	-	-	-	-
ID Credit 2: LEED Accredited Professional	-	-	-	-	-	-
TOTAL	24	28	34	36	36	38

APPENDIX F VALUE-ADDED MATRIX

	1	2	3	4	5
SMART LOCATION + LINKAGE					
SLL Prerequisite 1: Smart Location	X	X	X	X	X
SLL Prerequisite 2: Proximity to Water and Wastewater Infrastructure	X	X	X	X	X
SLL Prerequisite 3: Imperiled Species and Ecological Communities	X	X	X	X	X
SLL Prerequisite 4: Wetland and Water Body Conservation	X	X	X	X	X
SLL Prerequisite 5: Agricultural Land Conservation	X	X	X	X	X
SLL Prerequisite 6: Floodplain Avoidance	X	X	X	X	X
SLL Credit 1: Brownfields Redevelopment	2	2	2	2	2
SLL Credit 2: High Priority Brownfields Redevelopment	-	-	-	-	-
SLL Credit 3: Preferred Locations	9	9	9	9	9
SLL Credit 4: Reduced Automobile Dependence	6	6	6	6	6
SLL Credit 5: Bicycle Network	1	1	1	1	1
SLL Credit 6: Housing and Jobs Proximity	-	3	3	3	3
SLL Credit 7: School Proximity	-	-	-	-	-
SLL Credit 8: Steep Slope Protection	1	1	1	1	1
SLL Credit 9: Site Design for Habitat or Wetland Conservation	1	1	1	1	1
SLL Credit 10: Restoration of Habitat or Wetlands	-	-	-	-	-
SLL Credit 11: Conservation Management of Habitat or Wetlands	-	-	-	-	-
NEIGHBORHOOD PATTERN + DESIGN					
NPD Prerequisite 1: Open Community	X	X	X	X	X
NPD Prerequisite 2: Compact Development	X	X	X	X	X
NPD Credit 1: Compact Development	2	1	2	2	4
NPD Credit 2: Diversity of Uses	-	4	4	4	4
NPD Credit 3: Diversity of Housing Types	-	-	-	1	1
NPD Credit 4: Affordable Rental Housing	2	2	2	2	2
NPD Credit 5: Affordable For-Sale Housing	2	2	2	2	2
NPD Credit 6: Reduced Parking Footprint	2	2	2	2	2
NPD Credit 7: Walkable Streets	8	8	8	8	8
NPD Credit 8: Street Network	-	1	2	2	2
NPD Credit 9: Transit Facilities	1	1	1	1	1
NPD Credit 10: Transportation Demand Management	2	2	2	2	2
NPD Credit 11: Access to Surrounding Vicinity	1	1	1	1	1
NPD Credit 12: Access to Public Spaces	1	1	1	1	1
NPD Credit 13: Access to Active Spaces	1	1	1	1	1
NPD Credit 14: Universal Accessibility	1	1	1	1	1
NPD Credit 15: Community Outreach and Involvement	1	1	1	1	1
NPD Credit 16: Local Food Production	-	-	-	-	-
GREEN CONSTRUCTION + TECHNOLOGY					
GCT Prerequisite 1: Construction Activity Pollution Prevention	X	X	X	X	X
GCT Credit 1: LEED Certified Green Buildings	-	-	-	-	-
GCT Credit 2: Energy Efficiency in Buildings	3	3	3	3	3
GCT Credit 3: Reduced Water Use	3	3	3	3	3
GCT Credit 4: Building Reuse and Adaptive Reuse	2	1	1	-	-
GCT Credit 5: Reuse of Historic Buildings	-	-	-	-	-
GCT Credit 6: Minimize Site Disturbance through Site Design	1	1	1	1	1
GCT Credit 7: Minimize Site Disturbance during Construction	1	1	1	1	1
GCT Credit 8: Contaminant Reduction in Brownfields Remediation	1	1	1	1	1
GCT Credit 9: Stormwater Management	5	5	5	5	5
GCT Credit 10: Heat Island Reduction	1	1	1	1	1
GCT Credit 11: Solar Orientation	1	1	1	1	1
GCT Credit 12: On-Site Energy Generation	1	1	1	1	1
GCT Credit 13: On-Site Renewable Energy Sources	1	1	1	1	1
GCT Credit 14: District Heating & Cooling	1	1	1	1	1
GCT Credit 15: Infrastructure Energy Efficiency	1	1	1	1	1
GCT Credit 16: Wastewater Management	1	1	1	1	1
GCT Credit 17: Recycled Content in Infrastructure	1	1	1	1	1
GCT Credit 18: Construction Waste Management	1	1	1	1	1
GCT Credit 19: Comprehensive Waste Management	1	1	1	1	1
GCT Credit 20: Light Pollution Reduction	1	1	1	1	1
INNOVATION + DESIGN PROCESS					
ID Credit 1: Innovation and Exemplary Performance	5	5	5	5	5
ID Credit 2: LEED Accredited Professional	1	1	1	1	1
TOTAL	77	83	85	85	87