Creating a Zoning Framework for Redeveloping Saint Paul's Ford Plant

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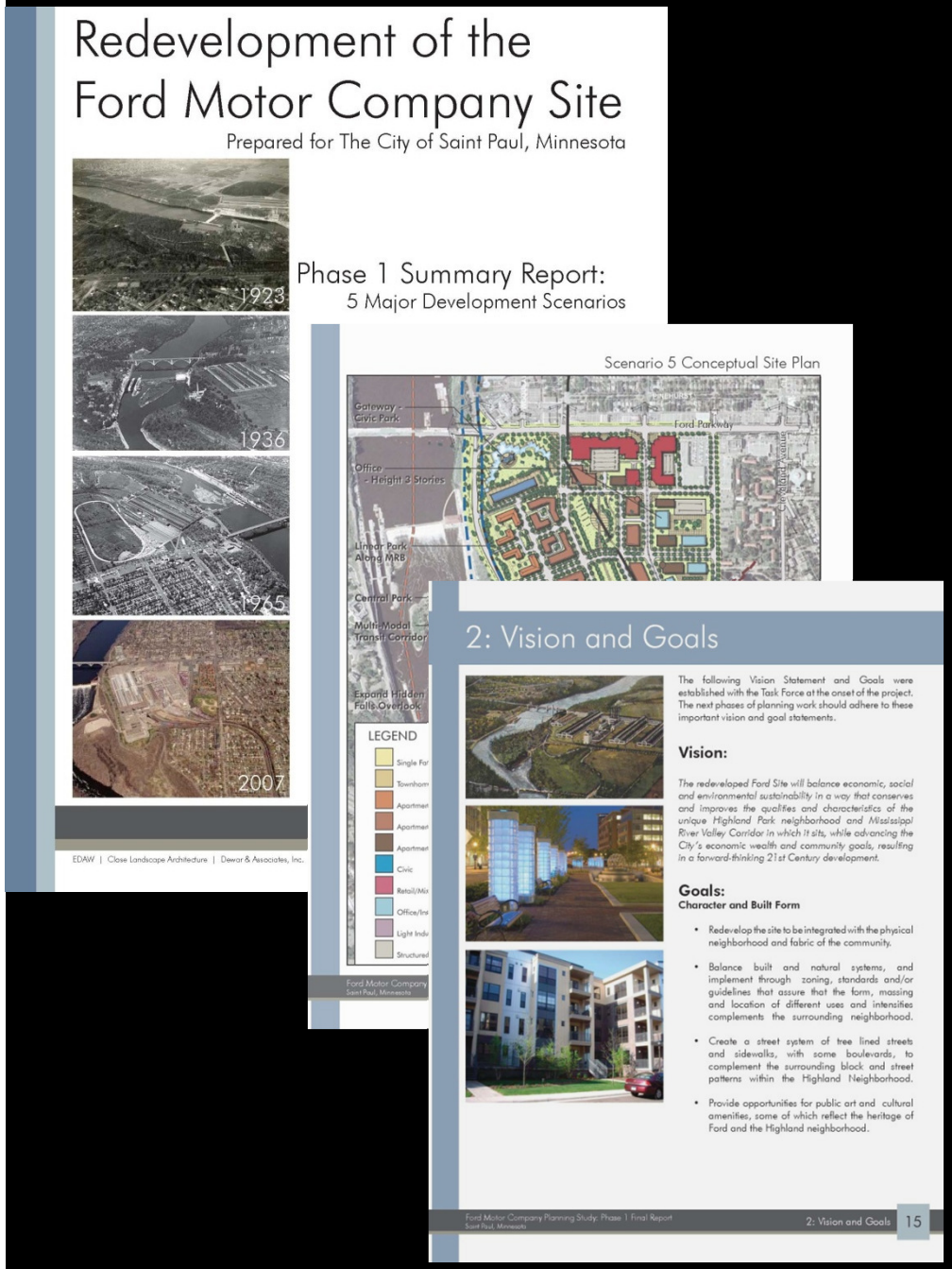
Outline:

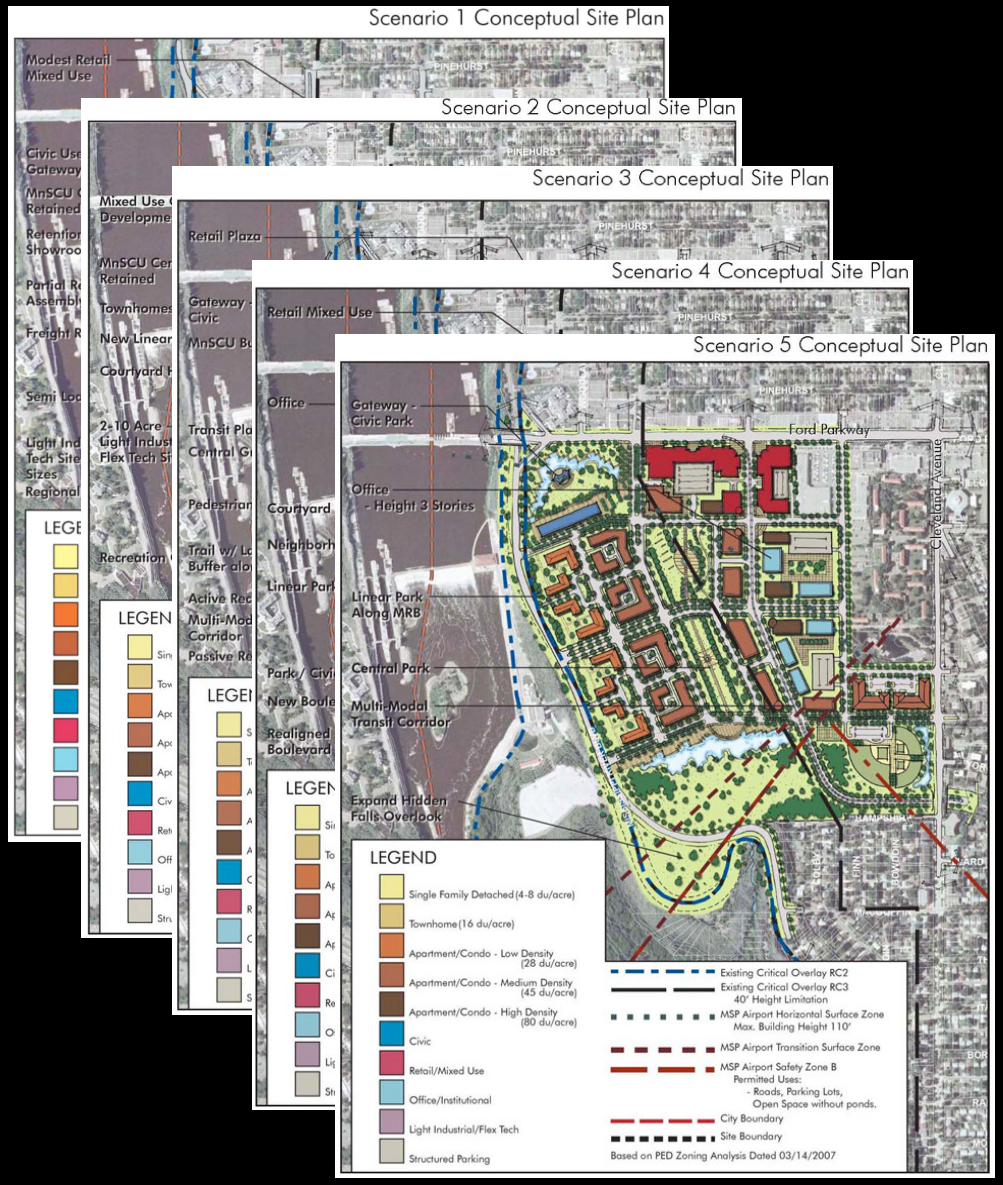
1. Redevelopment Planning
2. Examining Context and the Ford Site Transect
3. City Zoning for Redevelopment
4. Two Zoning Approaches
5. A Zoning Framework for Sustainable Redevelopment
6. What's Next

Redevelopment Planning



Redevelopment Vision:

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 in which it sits while advancing the City's economic wealth and community goals, resulting in a forward- thinking 21st Century development



Priorities:

- Provide mix of housing, commerce, employment, and civic/open space
- Strong urban form -- design for walking, biking and transit
- Weave site into neighborhood grid
- Respect and showcase the Mississippi
- Make site a model of sustainability

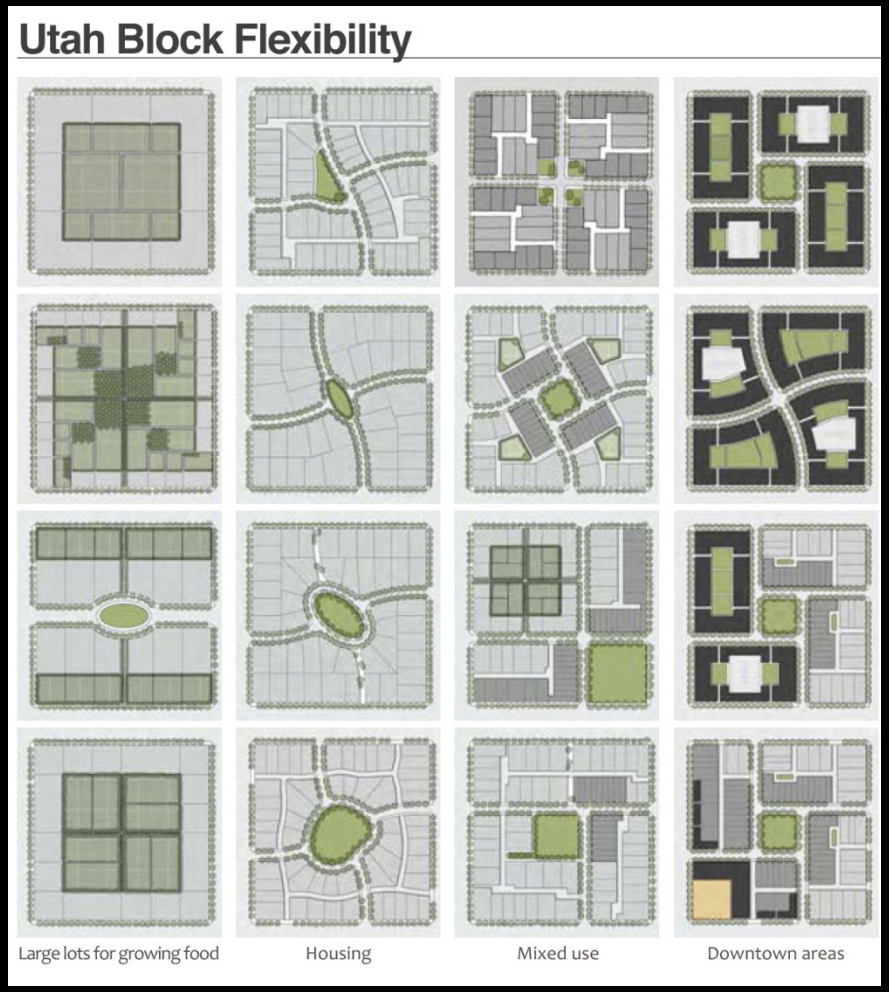
Tensions:

- Traffic concerns = density concerns
- Industry as infill? Job types?
- Tax base vs public space/amenities

Examining Context and the Ford Site Transect

Case Studies:

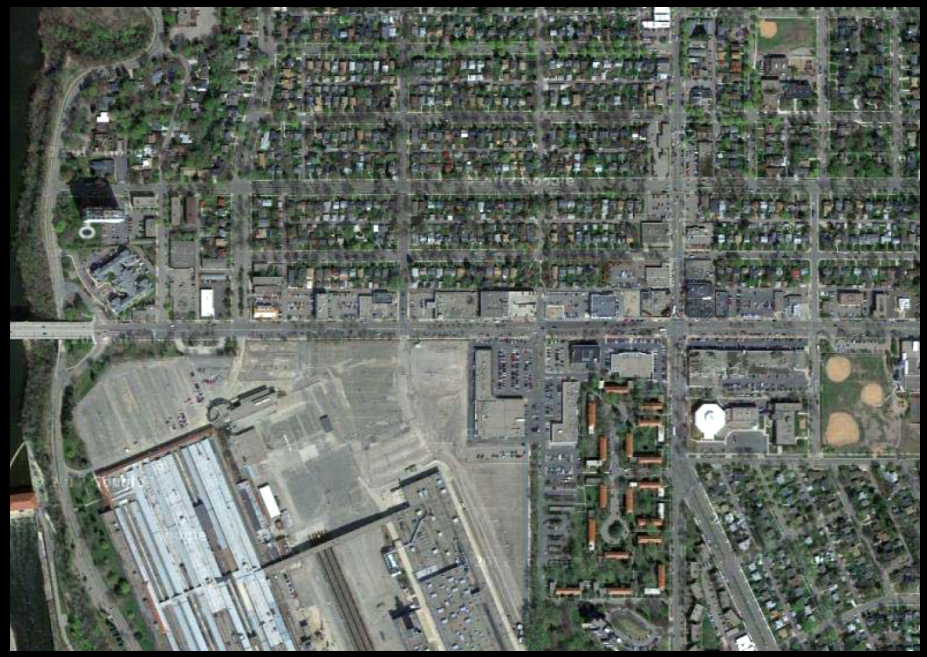
- Urban Renewal District, Billings, MT
- Port of Dubuque, IA
- False Creek, Vancouver, CA
- Greenpoint, Brooklyn, NY
- Habersham, SC
- New Town, Saratoga Springs, UT
- SmartCode version 9.2



Lessons Learned:

- 6 of 7 projects utilized alternative types of zoning, typically form or design-based regulations rather than use-based zoning.
- Zoning preparation (or modifications) typically preceded or coincided with project master planning.
- Community / stakeholders played strong role.

Analyzing Ford Site Context: Mississippi River and Highland Park Neighborhood



Analyzing Saint Paul Urban Fabric: multiple residential building types on one block

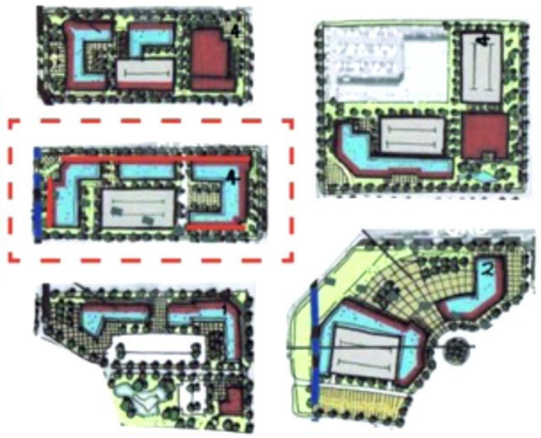
Analyzing Saint Paul Urban Fabric:

new blocks and buildings respect historic patterns, scale, massing and materials.

Example of downtown infill redevelopment.

Ford Plant – Block Metrics

Block Type – Retail / Office

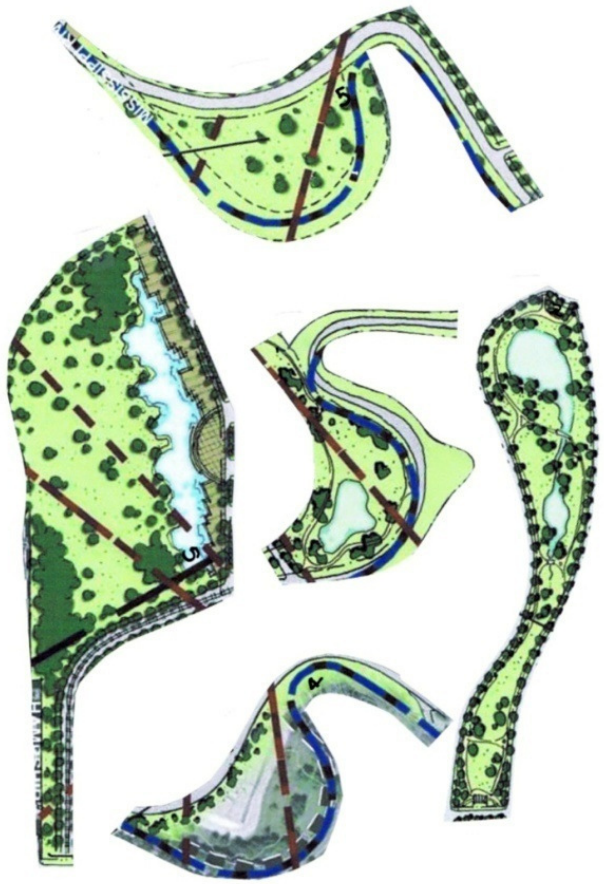


Housing Type	No. of this Building Type	No. of Dwelling Units	Frontage per Building Type	On-Street Parking
SINGLE FAMILY HOUSE				
TOWNHOUSE				
APARTMENT 28 du/ acre				
APARTMENT 45 du/ acre				
APARTMENT 80 du/ acre				
CIVIC				
RETAIL/MIXED USE	3	80,000 sf	950'	43
OFFICE/INSTITUTIONAL	3	80,000 sf/fl	950'	
LIGHT INDUSTRIAL/ FLEX TECH				
TOTAL	3	80,000 sf/fl	950'	43

– – – Typical block used for metrics ——— Frontage Line

Ford Plant – Block Metrics

Block Type – Natural Parks

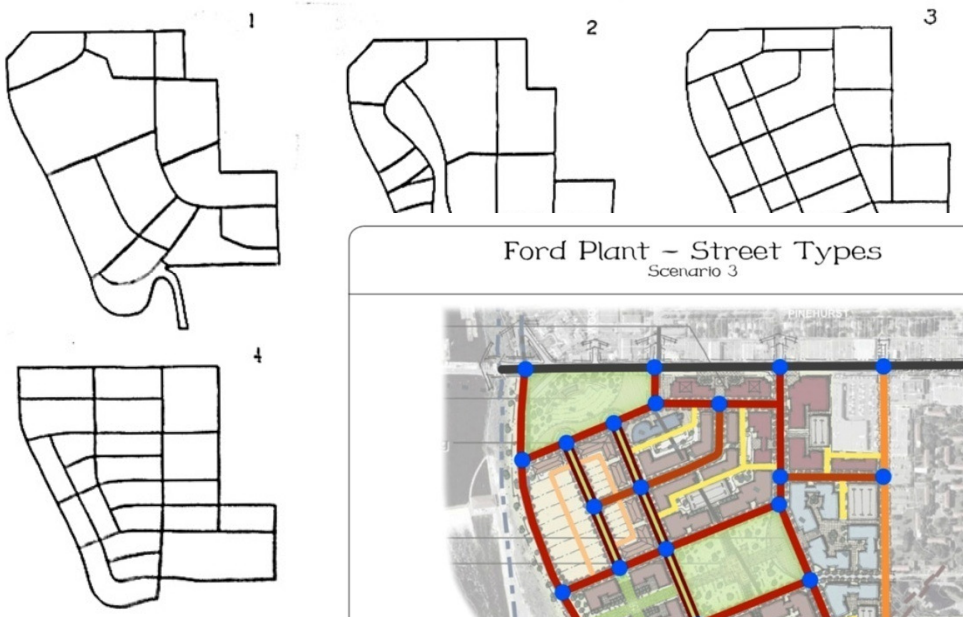


Average Size – 10 Acres

Step 9 – Document Street and Intersection Metrics

The following key indicates the metrics analyzed for each of the 5 scenarios

Street Type	Street Lengths
Boulevard	
A Street	
B Street	
C Street	
Rear Lane	
Alley	
Pedestrian / Open Space	
Intersections	
TOTAL	



Ford Plant – Street Types

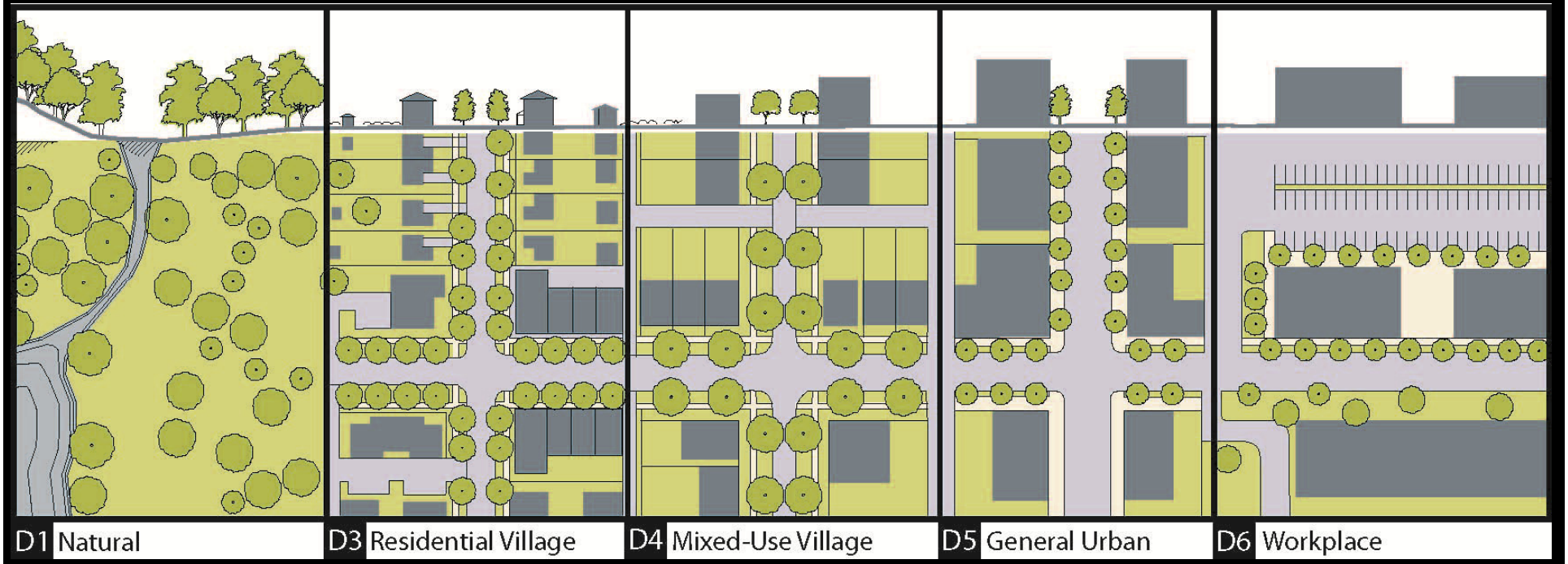
Scenario 3

Street Type	Street Lengths
Boulevard	5,500'
A Street	11,100'
B Street	1,800'
C Street	3,200'
Rear Lane	4,050'
Alley	3,200'
Pedestrian / Open Space	40 Acres
Intersections	33
TOTAL	28,850'

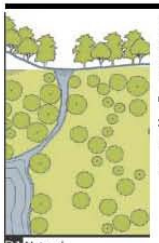
Draft: August 2, 2012

Transect Model Applied to Patterns of Development on Ford Site

Less Dense / Intense ..... More Dense / Intense



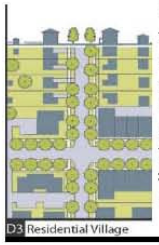
D-1 NATURAL


D1 Natural

D-1 Natural district consists of lands approximating or reverting to a natural condition, including lands unsuitable for settlement due to topography, hydrology and, or vegetation such as the areas within the RC2 Mississippi River Critical Overaly.

General Character:	Natural landscape with some recreational use.
Building Placement:	Not applicable
Frontage Types:	Not applicable
Typical Building Height:	Not applicable
Type of Civic Space:	Parks, Greenways

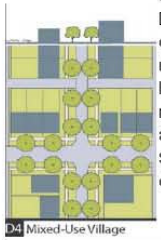
D-3 RESIDENTIAL VILLAGE


D3 Residential Village

D-3 Residential Village district consists of low to medium density mixed use areas. Home occupations, carige houeses and outbuildings are permitted. Planting is semi-formal to naturalistic and setbacks are moderately deep. Blocks range from regular to irregular in shape to adjust for topography. Streets with sidewalks, tree lawns and parking define medium sized blocks.

General Character:	Mix of houses, duplexes and townhomes,lawns and landscaped yards; occasional corner store, tree-lined streets with occaisional pedestrians and cyclists
Building Placement:	Moderate to deep front and rear setbacks
Frontage Types:	Common Yard, Porch and Fence
Typical Building Height:	1-1/2 to 2-Story with some 3-Story
Street Types:	Collector, Local 2-way Streets, Residential lane, Residential Alleyway
Type of Civic Space:	Natural Park, Greenway, Recreation Park, Playground, Community Garden, Rain Garden, Bioswale

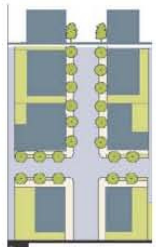
D-4 MIXED USE VILLAGE


D4 Mixed-Use Village

D-4 Mixed Use Village dsitrcit consists of a mix of moderate density resiidntial and mixed-use urban fabric. Setbacks are shallow and landscaping is semi formal to formal. Blocks range from regular to irregular in shape to adjust for topography.
Streets with sidewlaks, tree lawns and parking define medium to small-sized blocks.

General Character:	Mix of townhouses and stacked flats, with commercial nodes; shallow landscaped yards, tree-lined streets with moderate pedestrian and cycling activity
Building Placement:	Shallow to medium front and rear yard setbacks
Frontage Types:	Common Yard, Porch & Fence, Dooryard, Courtyard, Shopfront
Typical Building Height:	2 to 3-Story with a few taller mixed use buildings
Street Types:	Collector, Divided Boulevard, Local 2-way, Local 1-way, and Residential Alleyway
Type of Civic Space:	Recreation Park, Civic Park, Pocket Park, Playground, Community Garden, Bioswale

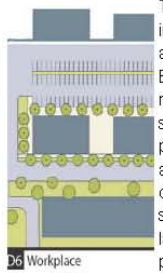
D-5 GENERAL URBAN


D5 General Urban

D-5 General Urban district consists of higher density residential, civic, and mixed use buildings that accommodate retail, service, offices, and residential. It has a tight network of streets, with parking, wide sidewalks, steady street tree planting, buildings set close to the sidewalks.

General Character:	Stacked flats and townhouses mixed with offices, shops, and Civic buildings; predominantly attached buildings; trees within the public right-of-way; substantial pedestrian, cycling and transit activity
Building Placement:	Shallow to no setbacks; buildings oriented to street defining a street wall
Frontage Types:	Forecourt, Stoop, Shopfront, Gallery and Arcade
Typical Building Height:	3 to 4-Story with some variation and taller mixed-use buildings
Street Types:	Collector, Divided Boulevard, Local 2-way, Local 1-way, Residential Alleyway and Commercial Alleyway
Type of Civic Space:	Pocket Park, Playground, Community Green, Plaza, Bioswale

D-6 WORK PLACE


D6 Workplace

The Workplace district consists of a mix of light industrial, office, employment-based mixed use and live-work multifamily residential blocks. Blocks are moderate to large in size and regular in shape. Building setbacks range from shallow to minimal. Services, under-building parking, surface parking and parking garages are accessed by a mix of limited curb cut-driveways and alleyways. The inteconnected street network includes sidewalks with tree lawns landscped boulevards and on-street parking.

General Character:	A variety of non-residential and mixed use block and building types with professional offices, research and development laboratories, manufacturing, assembly,parking garages with liner buildings; tree-lined streets and moderate pedestrian, cycling and transit activity.
Building Placement:	Shallow Setbacks or none; buildings oriented toward the street, defining a street wall
Frontage Types:	Stoops, Dooryards, Forecourts, Shopfronts, Galleries and Arcades
Typical Building Height:	4-plus Story with a few shorter buildings
Street Types:	Collector, Divided Boulevard (Parkway), Local 2-way, Local 1-way, Commercial or Industrial Alleyway
Type of Civic Space:	Pocket Park, Community Green Plaza, Bioswale

Transect District 3 “Residential Village”

The D3 district consists of low to moderate density residential areas adjacent to higher density mixed residential areas.

Home occupations, carriage houses, an occasional corner store are permitted.

Blocks range from regular to irregular in shape to adjust for topography.

Transect District 6 “Workplace”

The Workplace district consists of a mix of light industrial, office, employment-based mixed use and live-work multifamily residential blocks adjacent to medium to high density residential and mixed use areas.

It includes a variety of non-residential and mixed use block and building types such as research and development laboratories, manufacturing and assembly, and office parking garages with liner buildings.

City Zoning For Redevelopment

Analysis of Saint Paul's Zoning

Reviewed :

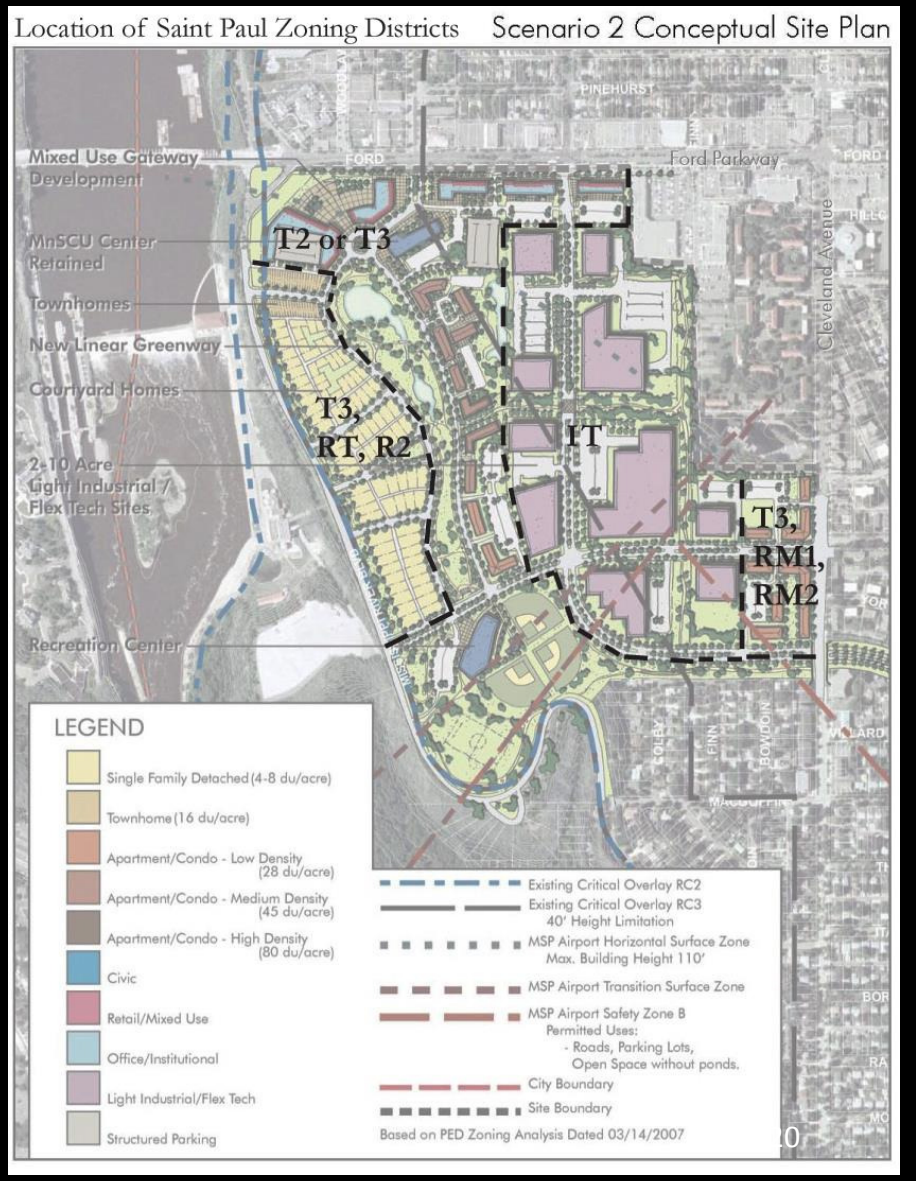
- Overlay Districts
- Traditional Neighborhood Districts (T-Districts)
- Relevant T-District Components
- Industrial Districts
- Planned Development Districts
- Subdivision Code & Other City Regulations
- Potential Additions and Revisions

T3M-Traditional Neighborhood w/Master Plan

Applied to Scenario 2 (example)

For larger sites focused on:

- higher-density, mixed use
- pedestrian and transit-supportive
- housing variety
- interconnected multi-modal streets and paths
- open space system and amenities with environmental features



Major Development Scenarios	Saint Paul Zoning Districts					
	T1	***T2***	***T3***	***T4***	***IT***	***Other***
1. AUAR Baseline - Primary Reuse for Industry 	Option for office/ institutional/ educational, civic, mixed commercial/ residential, modest retail along Ford Pkwy.	Option for mixed commercial/ office/instit./ educational/ residential/ retail and civic along Ford Pkwy.	Option for mixed commercial/ office/instit./ educational/ residential/retail and civic along Ford Pkwy.	0.5 min. FAR and 75' max. height excessive for this scenario	Would fit majority of the site	Green infrastructure features; open space: Low-density apt./ condo: RM1/RM2
2. Mixed Use - Light Industrial / Flex Tech 	Option for Commercial/ office/ institutional, and civic along Ford Pkwy - very limited retail	Option for commercial/ office/ institutional, and civic along Ford Pkwy	Option for commercial/ office/ institutional, civic and residential areas	0.5 min. FAR and 75' max. height provide excessive intensity for scenario	Would fit light industrial/flex tech, office/ institutional, retail/mixed use, and civic areas	Green infrastructure features; open space: Single-family: R2- R3:, Townhouse, apt./ condo: RT2, RM1, RM2
3. Mixed Use - Office/ Institutional 	Option for office/ institutional and mixed commercial/ residential, very limited retail	Option for office/ institutional, retail, and mixed commercial/ residential	Option for entire site	0.5 min. FAR and 75' max. height provide excessive intensity for scenario	Doesn't apply - no light industrial	Green infrastructure features; open space: Single-family: R2-R3; Townhouse, apt./ condo: RT2, RM1, RM2

Most applicable districts for the Ford Site:
T2, T3, T4, IT

Overall site Master Plan is desirable – may be initiated by developer or the City

City code doesn't regulate many aspects of sustainability found in the "Roadmap to Sustainability for the Ford Site" report.

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3. Mixed Use - Office/ Institutional 	Option for office/ institutional and mixed commercial/ residential, very limited retail	Option for office/ institutional, retail, and mixed commercial/ residential	Option for entire site	0.5 min. FAR and 75' max. height provide excessive intensity for scenario	Doesn't apply - no light industrial	Green infrastructure features; open space: Single-family: R2-R3; Townhouse, apt./ condo: RT2, RM1, RM2
4. Mixed Use - Urban Village 	Option for office/ institutional and mixed commercial/ residential, very limited retail	Option for office/ institutional, retail, and mixed commercial/ residential	Option for entire site	0.5 min. FAR and 75' max. height provide excessive intensity for scenario	Doesn't apply - no light industrial	Green infrastructure features; open space: Single-family: R2-R3; Townhouse, apt./ condo: RT2, RM1, RM2
5. Mixed Use - High Density Urban Transit Village 	Lacks sufficient intensity and mix of uses	Option for retail/office/ mixed use along Ford Parkway	Option for entire site	Option for entire site	Doesn't apply - no light industrial	Green infrastructure features; open space: Apartment/ condo: RM1, RM2, maybe RM3

Sample of Suggested Additions to City Zoning

Adjustments to T-District Provisions:

- Require greater block-level diversity of building types
- Increase bike parking requirements (all uses)
- Require share-car, electric car and bike share parking
- Allow accessory dwelling units and shorter front setbacks for single-family residential

Adjustments to Industrial Transition District:

- Specify minimum-maximum block sizes
- Provide range of requirements for inclusion of /or maximum distance from open space and park facilities
- Decouple building height and setbacks adjacent to T3M, T4M district uses – since they compromise urban form

Two Zoning Approaches

Essential Zoning Framework Components

General Component	Details
Uses	Range of Categories (residential, commercial, office, etc.)
Transportation	Street Types, Sidewalks, Trails, Transit Stops, Intersections, Connectivity, Parking (vehicle and bicycle)
Blocks	Types (mix of uses), Size/Shape (length/width)
Built Form	Building Types, Height, Placement (house, apartment, etc., number of stories, set backs/build-to)
Frontages	Private & Public Frontage Types (common yard, arcade, etc.)
Open Space	Types (recreation park, community garden, plaza, etc.)
Sustainable Design	Building Energy, Transportation & Public Realm Network, Materials, Water & Wastewater, Solid Waste, Stormwater & Groundwater, Soil, Vegetation & Habitat, Recreation & Publci Space, Night Sky Radiation, Urban Heat Island

Dual Path Framework Approach

City Zoning Tools Using T3, T4, IT Districts

OR

Alternative Zoning Tools

- Revisions and Additions to T3, T4, IT
- Sustainability Standards - LEED ND and MN B3
- Complete Streets Design Manual
- Master Plan Components and Provisions

- Ford Site Transect-based Districts
- 'SmartCode' Sustainability Modules and/or MN B3
- Complete Streets Design Manual
- Master Plan Components and Provisions

Differences Between Approaches

City Zoning

Relies on Master Plan to address details pertaining to urban form such as mix of building types, complexity of block types, and street designs tied to land use intensity versus functional class.

Alternative Zoning

Integrates highly detailed aspects of urban form into the zoning, so Master Plan can be less specific.

Differences Between Approaches

City Zoning

Created to facilitate walkable, transit supportive and contextual block and small site infill redevelopment in locations sharing similar characteristics throughout city.

To implement Ford site goals, existing zoning must be amended or a Ford Site-specific overlay district(s) created.

Alternative Zoning

Created specifically to address vision and goals for redeveloping the Ford Site.

Developed using a place-based analytical process, responsive to the Ford Site's context .

Differences Between Approaches

City Zoning

Uses text and tables to communicate all aspects of zoning and subdivision regulations.

Places information in several different sections within the city's code.

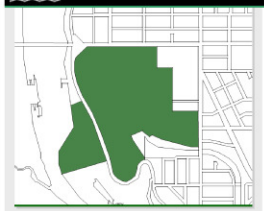
Alternative Zoning

Uses a combination of diagrams, tables, illustrations and text in a unified manner to address all aspects of land development in a single document.

A Zoning Framework For Sustainable Redevelopment

As published May 2, 2011 in the

Ford Site Sustainable Redevelopment Report:
Summary of Sustainability Goals for the Ford Site



The ultimate goal of the Ford Site Sustainable Redevelopment Report is to establish performance thresholds for site redevelopment ...

... inspiring policy makers and developers to make this site a national model for sustainable brown-field redevelopment.

Sustainable redevelopment of the 135-acre Ford site is a high priority for the City, regional and state agencies, the Ford Site Planning citizen task force, and much of the public.

A redeveloped Ford site can demonstrate that residents, employers, workers, and visitors can enjoy all the amenities and comforts of modern living while using much less energy, producing clean energy on site, reducing waste, reducing and treating storm-water runoff, restoring a natural ecosystem, and providing an infrastructure system that reduces vehicle trips and encourages walking, biking, and transit.

The report identifies key components of sustainable redevelopment for the Ford site, outlining goals, strategies and performance thresholds for each.

The District Sustainability Standards have eleven components:

The Ford Site Sustainable Redevelopment Report was produced by the City of Saint Paul with the assistance of consultants on the "Ford Site Green Team" under a grant provided by the Minnesota Pollution Control Agency.

1.0 Building Energy

Sustainability Goals

- To maximize the use of renewable energy for buildings and infrastructure.
- To reduce operating energy use in all buildings and infrastructure.
- To maximize energy self-sufficiency.

Minimum Performance Thresholds

1.1 Meet energy use and greenhouse gas (GHG) emission targets* specified in Minnesota 2030 program to be required for State buildings through Buildings, Benchmarks & Beyond (B3) Guidelines and consistent with Saint Paul's Green Building Policy:

- 60% reduction by 2010
- 70% reduction by 2015
- 80% reduction by 2020
- 90% reduction by 2025
- 100% reduction by 2030

Ultimate Condition

⇒ Zero net energy and zero greenhouse gas emissions*.

** Greenhouse gas (GHG) emissions can be calculated based on operating energy, as well as on many other contributing factors measured by the Minnesota Building Carbon Calculator, including water, wastewater, waste, embodied in materials, transportation, vegetation, and soil. Energy use can be measured per square foot, per person, per hour of operation, per product output relative to equivalent industrial process, or a combination of these.*

2.0 Transportation & Public Realm Network

Sustainability Goals

- To create a transportation infrastructure that balances modal choice between walking, biking, and vehicular movement.
- To reduce average vehicle miles driven by persons living, working and visiting the site.
- To increase average walking and biking miles per year for persons living or working on the site.
- To reduce energy use and Green House Gas (GHG) emissions) related to high vehicle miles driven (VMD).
- To reduce adverse human health affects (such as asthma) related to air pollution.
- To maximize the diverse human benefits (such as childhood obesity reduction and lower family transportation costs) of safe and pleasurable pedestrian and multi-modal access to and from (on-site & off-site) transit stops, daily services, institutions, parks and public spaces.

Minimum Performance Thresholds

2.1 Provide mix of office, industrial, residential, and commercial uses on site that complement the existing mix of uses and services in the area.

2.2 Minimum residential density (du/acre) greater than 20 du/acre (*Density to be calculated using LEED-ND computational method outlined NPD Credit 2*).

2.3 Minimum Non-Residential floor area ratio (FAR) greater than 1.50 (*Non-Res. FAR to be calculated using LEED-ND computational method outlined NPD Credit 2*).

2.4 Internal street connectivity (intersections/ square mile according to LEED-ND definition) equal to or greater than the highest connectivity found in adjacent neighborhoods, computed for adjoining area of same size and shape as site.

2.5 All streets and intersections to utilize design methodologies consistent with 2010 ITE Manual: Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, An ITE Recommended Practice and "Complete Streets" design principles.

2.6 Zero dead ends and zero cul-de-sacs except to serve the rear of buildings.

2.7 95% of streets lined on both sides with sidewalks minimum 54" wide. (Per ADA requirements)

2.8 Provide designated bike lanes on streets at least every ½ mile.

2.9 50% of all residential and non- residential building entries within ¼ mile of vehicle sharing site or transit services.

Ultimate Condition

⇒ Decrease average vehicle miles driven to 4,000 or less per driving resident per year, a 50% reduction in carbon per mile traveled.

3.0 Materials

Sustainability Goal

- To reduce embodied energy use, GHG emissions and other environmental impacts associated with building, infrastructure, and landscape materials.

Minimum Performance Threshold

3.1 Life-cycle performance of all buildings at least 10% better than the average building using Athena EcoCalculator in six of the eight output areas, or comply with State of Minnesota B3 Guidelines, Materials and Waste, section M.1 – Life Cycle Assessment of Building Assemblies.

3.2 Comply with State of Minnesota B3 Guidelines, Materials and Waste, section M.2 – Environmentally Preferable Materials.

3.3 At least 30 percent of the total value of materials used in site infrastructure are composed of pre- and post-consumer content.

Ultimate Condition

⇒ Life-cycle performance of all buildings at least 30% better than the average building using Athena EcoCalculator in seven of the eight output areas.

⇒ Exceed required performance criteria inof Minnesota B3 Guidelines, Materials and Waste, section M.2 – Environmentally Preferable Materials, by 10 percent.

⇒ At least 50 percent of the total value of materials used in site infrastructure are composed of pre- and post-consumer content.

4.0 Water & Wastewater

Sustainability Goals

- To reduce potable water consumption in all buildings and landscapes.
- To reduce wastewater leaving the site to treatment plants from all buildings and landscapes by increasing onsite wastewater reuse.

Minimum Performance Thresholds

4.1 Predicted potable water use must be 30% below EPA Policy Act of 1992 (consistent with Saint Paul Green Building Policy).

4.2 Predicted water use for landscaping must be at least 50% less than a traditionally irrigated site (consistent with Saint Paul Green Building Policy).

4.3 Fifty percent (50%) less black and/or gray water leaving the site than an average or typical development, during design phase and long-term operations.

Ultimate Condition

⇒ No more than five percent (5%) of the total daily water requirement/person imported to site.

⇒ Zero gray water leaving the site, and ten percent (10%) or less black water leaving the site during design phase and long-term operations.

5.0 Solid Waste

Sustainability Goals

- To reduce solid waste from construction in all buildings and landscapes.
- To reduce solid waste from operation of all buildings and landscapes.

Minimum Performance Thresholds

5.1 Seventy five percent (75%) of all construction waste must be recycled (consistent with Saint Paul Green Building Policy).

5.2 Fifty percent (50%) less household, commercial and industrial solid waste leaving the site than an average or typical development.

Ultimate Condition

⇒ Zero construction, residential, commercial and industry solid waste leaving the site.

6.0 Stormwater & Groundwater

Sustainability Goals

- To minimize surface and ground water pollution.
- To minimize negative impacts of development on the hydrological cycle by treating stormwater close to where it falls and recharging groundwater through infiltration as local soils and subsurface conditions allow.
- To not exceed natural erosion and sedimentation levels in streams and lakes.
- To protect plant, invertebrate, and animal life in lakes and streams.
- To utilize stormwater runoff as a resource rather than as a waste product.
- To pre-treat all water flowing to Hidden Falls and maintain a more constant flow volume.

Minimum Performance Thresholds

6.1 Comply with current local regulations for stormwater runoff volume and rate control (City of St. Paul, Minnesota Pollution Control Agency (MPCA), Capitol Region Watershed District (CRWD), State of Minnesota B3 guidelines).

6.2 Reduce runoff volume by at least 90% on an annual basis by infiltration (50%) and evaporation or re-use (40%) or provide a corresponding water quality benefit.

6.3 Reduce pollutants for which the water is impaired to 10% less than levels identified in Total Maximum Daily Load (TDML) study for that portion of the Mississippi River.

6.4 Maintain minimum cover (e.g. >3') above bedrock and follow Minnesota Pollution Control Agency (MPCA) Guidelines on infiltrating.

6.5 Produce and implement a Stormwater Pollution Protection Plan per MPCA guidelines for use pre, during and post construction.

Ultimate Condition

⇒ Zero discharge of untreated stormwater from site.

⇒ Re-direct low flows on adjacent properties away from untreated storm sewers and onto the Ford site for treatment in site's comprehensive stormwater management system.

7.0 Soil

Sustainability Goals

- To protect and restore soil structure, stability, and biological health to optimize plant health and species richness and optimize water infiltration and filtration.
- To reduce soil loss and minimize disturbance of existing quality soil.
- To maximize on-site reuse of existing soils.
- To address impacted soil conditions on site.

Minimum Performance Thresholds

7.1 Meet MPCA soil cleanup criteria with land use restrictions.

7.2 Meet State of Minnesota B3 Guidelines for soil management:

- **Organic matter** >1.5% by dry weight
- **Bulk density** < than 1.5 mg/m3
- **Aeration porosity** (% large pore volume) >2%
- **Infiltration rate** > 0.25 in/hr site wide, >1 in/hr in stormwater treatment areas
- **Soil pH** 6-8.5
- **Cation exchange capacity** > 5 meg/100g
- **Potassium** > than 124 lbs/acre
- **Phosphorus** > than 44 lbs/acre
- **Mycorrhizae** — Minimum 2 species in soil that are naturally found in Minnesota
- **Soluble salt content** < 600 ppm
- **Stormwater Pollution Prevention Plan** (SWPPP) - create and implement
- **Hydric and mesic soils profile** >10% of open space
- **Organic horizon** > 4 inches throughout

Ultimate Condition

⇒ Meet thresholds 7.1 & 7.2, and in addition;

⇒ Meet Minnesota Pollution Control Agency (MPCA) soil cleanup criteria with no land use restrictions.

⇒ Provide on-site composting location and provide composted material for on-site public and private gardening, landscaping and soil restoration.

⇒ Hydric and mesic soils—profile > 20% of proposed open space.

⇒ Organic horizon > 6 inches.

⇒ Minimum 4 species of mycorrhizae in soil that are naturally found in Minnesota.

8.0 Vegetation & Habitat

Sustainability Goals

- To maximize biodiversity of the site and provide maximum possible contribution to local landscape ecology.
- To reduce destruction and removal of existing vegetation.
- To increase vegetation on site with new plantings.
- To provide wildlife habitat.
- To maximize ecological services on site and for the surrounding area.

Minimum Performance Thresholds

8.1 Comply with applicable codes, regulations and standards, including B3 guidelines, St. Paul zoning and land use regulations, and City of St Paul River Corridor Overlay District.

8.2 Greater than fifty percent (50%) aerial tree cover over all impervious surfaces on-site except roofs.

8.3 Greater than fifty percent (30%) of buildings include vegetated roofs.

8.4 Greater than twenty percent (20%) of site open space covered with vegetation.

8.5 Greater than seventy five percent (75%) native species in new landscaping, including keystone species; (at minimum) Burr Oak, Hickory/Walnut & Big Blue Stem.

8.6 Minimum plant species diversity greater than eighty percent (80%) species of native vascular flora – herbaceous perennials. No invasive species on the site. Use ten percent (10%) or less species of native Deciduous Trees and > 3 species of native Coniferous Trees, but not greater than ten percent (10%) of any one tree genus, so as to avoid catastrophic tree loss e.g. Dutch Elm Disease, Emerald Ash Borer.

8.7 Do not disturb habitat or natural resources determined significant by Minnesota DNR Natural Heritage Program or by local, state or federal government; maintain or install appropriate buffer width around significant habitats that comprise part of a development.

Ultimate Condition

⇒ 70% aerial tree cover over non-roof impervious surfaces, and 50% of buildings include vegetated roofs.

⇒ 100% native tree, shrub, perennial and vine plantings compositions.

⇒ A species-rich, resilient, urban forest with ≥ 50% of tree population exceeding 20 inch Diameter Breast Height (DBH) and 20% exceeding 30 inch DBH.

⇒ Diverse ecosystem that supports at least the presence of key species as follows:
Amphibians (3 species); interior forest birds (10 species); interior grassland birds (3 species); bats (2 species); reptile (2 species).

9.0 Recreation & Public Space

Sustainability Goals

- To improve personal health through increased physical activity, by providing on site facilities for a variety of active and passive exercise and recreational choices such as recreational walking and biking, informal play, or participation in organized sport activities.
- To encourage the development of (and connections to) biking and walking trails within, to, from and through the site.
- To encourage provision of and/or access to a comprehensive set of public gathering spaces for a full range of civic and community events.
- To provide space for community gardens, local agriculture, and the sale of locally-grown food.

Minimum Performance Thresholds

9.1 Comprehensive network of ADA accessible off-road trails for walking and biking throughout the site, connecting the site's major uses and services and public spaces.

9.2 Four programmed sports fields on site.

9.3 One, large outdoor public gathering space for events, picnics, farm market, etc.

9.4 Twice weekly farmers' market on or within one half (1/2) mile of site.

9.5 Three or more indoor public spaces (or private spaces accessible to public use) for community meetings, clubs, parties, etc.

Ultimate Condition

⇒ Each resident shall have potential to receive 60% of their produce from on site food production facilities or gardens during the local growing season, and 20% during the winter months.

⇒ 1/2 acre civic or passive public space within ¼ mile of 90% of dwellings, and non-residential building entries.

⇒ Create community center for public gathering, civic events, and sports & recreational programming for all ages.

10.0 Night Sky Radiation

Sustainability Goals

- To reduce light emitted from site to the sky at night.
- To protect the environments of predator & prey.

Minimum Performance Threshold

10.1 The average phototropic lumens for the entire site shall be 40,000 lumens per net acre using full-cutoff (fco) lighting, with no one individual area of the site exceeding 70,000 lumens/net acre.

Ultimate Condition

⇒ The average phototropic lumens for the entire site shall be 10-20,000 lumens per net acre using full-cutoff (fco) lighting with no one individual area of the site exceeding 40,000 lumens/net acre.

11.0 Urban Heat Island

Sustainability Goals

- To reduce urban heat island effects on site by reducing the heat absorption of materials used in buildings, landscaping and infrastructure.
- To increase vegetative cover to help keep the site and buildings cool in the summer.
- To reduce the need for air conditioning and irrigation in the summer.

Minimum Performance Threshold

11.1 Average surface albedo for the entire site greater than 0.1.

Ultimate Condition

⇒ Average surface albedo for the entire site between 0.15-0.3.

Browse to the complete Ford Site Sustainable Redevelopment Report at the link below to see complete information about the categories, strategies for sustainable design, general findings, resources, and next steps to achieve this ambitious vision.

Minnesota Pollution Control Agency

For updated report: http://www.stpaul.gov/index.aspx?NID=1318

For updated report: http://www.stpaul.gov/index.aspx?NID=1318

2.0 Transportation and Public Realm Network

SAINT PAUL

District Sustainability Standards

Sustainability Goals

- To create a transportation infrastructure that balances modal choice between walking, biking, and vehicular movement.
- To reduce average vehicle miles driven by persons living, working and visiting the site.
- To increase average walking and biking miles per year for persons living or working on the site.
- To reduce energy use and Green House Gas (GHG) emissions) related to high vehicle miles driven (VMD).
- To reduce adverse human health affects (such as asthma) related to air pollution.
- To maximize the diverse human benefits (such as childhood obesity reduction and lower family transportation costs) of safe and pleasurable pedestrian and multi-modal access to and from (on-site & off-

Minimum Performance Thresholds

2.1 Provide mix of office, industrial, residential, and commercial uses on site that complement the existing mix of uses and services in the area.

2.2 Minimum residential density (du/acre) greater than 20 du/acre (*Density to be calculated using LEED-ND computational method outlined NPD Credit 2.*).

2.3 Minimum Non-Residential floor area ratio (FAR) greater than 1.50 (*Non-Res. FAR to be calculated using LEED-ND computational method outlined NPD Credit 2.*).

2.4 Internal street connectivity (intersections/ square mile according to LEED-ND definition) equal to or greater than the highest connectivity found in adjacent neighborhoods, computed for adjoining area of same size and shape as site.

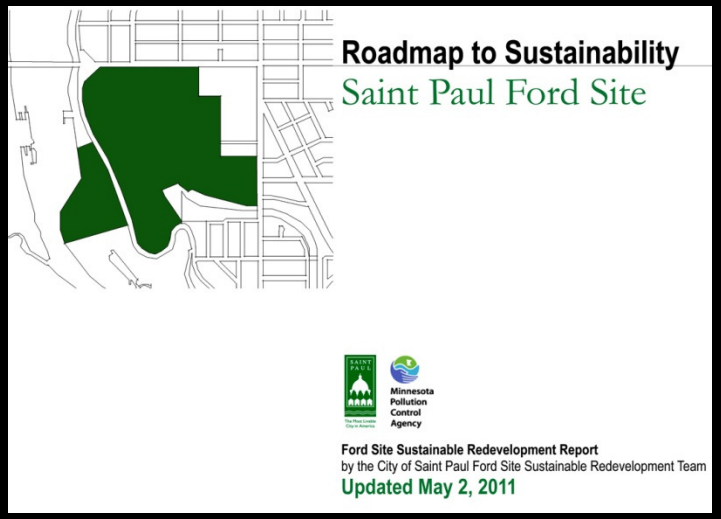
2.5 All streets and intersections to utilize design methodologies consistent with 2010 ITE Manual: Designing Walkable Urban Thoroughfares: A

Integrating Sustainability Provisions

Build upon foundation established in "Roadmap to Sustainability" which cites MN B3, LEED ND and LEED NC as model standards.

"Roadmap" recommends consideration of more design-oriented, form and function zoning as potential implementation tool.

Incorporating SmartCode's sustainability modules expands levels of applicability based on each transect zone or zoning district.



#	Topic	Goal	Sustainability Standards for Implementation in Ford Site Zoning
1	Operating Energy and Global Warming	Reduce bldg and infrastructure energy use and GHG emissions; increase use of renewables; encourage on-site energy self-sufficiency; reduce urban heat island effect	B3, LEED-ND, or Architecture 2030 standards for energy efficiency and energy generation. Block pattern in master plan designed for solar orientation needs. Require use of some renewables and on-site generation.
2	Potable Water	Reduce potable water consumption in bldgs and on site	Predicted use of potable water in the buildings must be at least 30% below EPA Policy Act of 1992. Predicted landscaping water use must be at least 50% less than traditionally irrigated site using typical water consumption for underground system. Some graywater use for irrigation.
3	Waste Water	Reduce wastewater going to off-site treatment	Retain minimum 50% average annual wastewater generated by buildings AND reuse wastewater to replace use of potable water
4	Solid Waste	Reduce solid waste (during construction and operation)	Actual solid waste of construction materials, excluding demolition waste, must be at least 75% recycled or otherwise diverted from landfills.
5	Life Cycle Impacts of Materials	Reduce embodied energy use, GHG emissions	Use MN B3 standards
6	Indoor and Outdoor Environmental Air Quality	Improve and protect indoor and outdoor air quality	Use St. Paul Green Bldg policy and B3 standards
9	Vegetation and Habitat	Reduce removal of existing vegetation, increase vegetation and biodiversity, and provide wildlife habitat	Comply with City code and B3 standards, plus... Greater than fifty percent (50%) aerial tree coverage of on-site impervious surfaces except roofs. Greater than thirty percent (30%) of buildings include vegetated roofs. Greater than seventy five percent (75%) native species in landscaping. Plant no more than 10 percent of any species, no more than 20 percent of any genus, and no more than 30 percent of any family.

Sustainability Provisions Using City Tools Approach

Develop project specific sustainability standards addressing “Roadmap to Sustainability” and incorporate into zoning code by reference.

And/or

Adopt LEED for Neighborhood Development and New Construction as Ford Site standards and require developer to achieve certification.

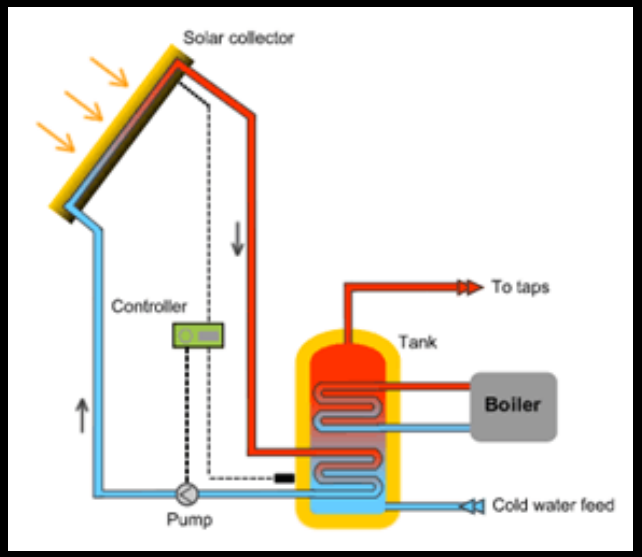
Sustainability Provisions Using Alternative Approach

Utilize Transect-based Sustainability Modules from the 'SmartCode':

- Agrarian Urbanism
- Bicycling
- Light Imprint Stormwater Matrix
- Natural Drainage
- Lighting Design and Public Darkness
- Vehicle Miles Traveled
- Tree Canopy Cover
- Renewable Resources
- Zero Net Energy Buildings
- Affordable Housing
- Visitability

Sustainability Provisions Using Either Approach

Encourage or incentivize LEED ND and LEED New Construction certifications using points system, density bonuses, or as a provision of a formal Developer's Agreement.



What’ Next

Next Step – Interim Zoning?

- Ford site will go on the market in 2015
- Ford has said that prospective buyers want to know the city's redevelopment parameters
- Final zoning and a master plan will be adopted when the city and master developer agree on a final redevelopment plan (2017-18?)
- In the meantime, interim zoning can set redevelopment parameters reflective of city priorities and provide clarity to the development market
- Interim zoning for the site could range in level of detail, design, sustainability parameters, and approach