OPUS STATION AREA
SUSTAINABLE DEVELOPMENT PLAN
Humphrey Institute of Public Affairs
Master of Urban and Regional Planning Capstone Project

in cooperation with

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THE PROJECT
The proposed Southwest Light Rail Transit line will run from downtown Minneapolis to Eden Prairie, with the Opus station planned for the center of the Opus Business Park in the city of Minnetonka. The Opus Business Park is the largest employment center in Minnetonka and one of the largest in the Twin Cities. With the addition of light rail, there are opportunities for redevelopment that could create more jobs, increase housing, and provide additional recreational amenities. The City of Minnetonka envisions the 25-acre site adjacent to the proposed light rail station as an opportunity to create sustainable, compact development with a mixture of businesses and housing serviced by multiple modes of transportation. This plan outlines a framework for sustainable development, with guiding principles and specific policies the City can use to guide future redevelopment of the site.

SUSTAINABLE DEVELOPMENT PLAN
Sustainable development attempts to balance economic vitality, environmental and resource conservation, and community well-being and equity. The sustainable development framework for the Opus redevelopment site offered in this plan includes four sustainability systems: Natural Environment; Accessibility and Connectivity; Community, Equity, and Prosperity; and Health and Wellness. The plan is based on a five-month process that has included case studies of sustainability master plans and suburban light rail redevelopment plans in other communities, analysis of existing conditions on the Opus redevelopment site, public input via a resident survey and interactive public meeting, and input from local businesses.

NATURAL ENVIRONMENT SYSTEM
The Natural Environment system addresses the health and conservation of the natural environment. The guiding principles and policies proposed for this system strive to find a balance between human interventions in the natural world and maintaining the health and resilience of natural ecosystems. There are serious environmental concerns on the redevelopment site including a large amount of impervious surface area, poorly buffered wetlands, highly fragmented natural areas, high-runoff soils, and the presence of invasive species.

The Natural Environment guiding principles and policies address ways to restore and conserve the natural environment. The guiding principles for this system include:

- Enhance and capitalize on the natural hydrologic system
- Protect and enhance green infrastructure and scenic vistas
- Increase tree canopy cover
- Reduce greenhouse gas emissions and use of non-renewable energy
- Minimize solid waste production
- Provide opportunities for learning about ecologically sustainable practices

CONNECTIVITY AND ACCESSIBILITY SYSTEM
Connectivity and Accessibility focuses on efficient access to key destinations using various modes of transportation. Currently, motor vehicle access to the Opus Business Park is good, but the existing one-way street system can be confusing for those unfamiliar with the business park. Other transportation options in the park are limited. Only two bus lines service the park. The established trail system is utilized by local residents to walk or bike, but poor signage and trail conditions limit use.

The Connectivity and Accessibility guiding principles and policies address the infrastructure, built form, access, and amenities for multiple forms of transportation. The guiding principles for this system include:

- Improve facilities for non-motorized transport
- Improve access to multiple modes of transportation
- Integrate homes, shops, workplaces, and public amenities on the site
- Integrate and enhance the pedestrian, bicycle, and automobile transportation systems

COMMUNITY, EQUITY, AND PROSPERITY SYSTEM
The Community, Equity, and Prosperity system focuses on fostering a sense of community, healthy economic conditions,
and fairness for individuals and organizations. People who feel connected to their neighborhood are more inclined to be invested in its social, environmental, and economic well-being, which is critical for long-term vitality and sustainability. The Opus Business Park has an established business environment and residential developments in the area. Currently, the campus is home to approximately 2,000 residents, and businesses on the campus employ roughly 10,000 people, largely in white-collar and service-related jobs. Most of the 1,200 housing units are apartments, condominiums, or townhomes, and few qualify as affordable. In addition, there are few retail or service establishments within walking distance of residential areas on the campus. The addition of light rail provides an opportunity to develop additional housing, office, commercial-retail, and commercial-service areas on the campus.

The Community, Equity, and Prosperity guiding principles and policies emphasize developing the site to serve a diverse range of residents, workers, and visitors to the Opus campus. The guiding principles for this system include:

- Provide pedestrian infrastructure and amenities
- Increase awareness of and programming for existing recreational facilities
- Create easy access to healthy foods

**DEVELOPMENT SCENARIO**

This plan provides a recommended development scenario for the Opus Station redevelopment site, informed by the guiding principles and recommendations in this document. The development scenario includes apartments, condominiums, townhomes, and live-work units that offer a variety of housing options. First-floor neighborhood retail would be concentrated around the light rail station in the four large office/residential buildings on the site. A pedestrian plaza and promenade would link the light rail station to open space on the site, and new trail, park, and recreational facilities would be located for maximum accessibility.

**NEXT STEPS**

Sustainability is not an end point to be achieved, but a continuous process. Although the plan itself is limited to consideration of the Opus Station Area, the City of Minnetonka could use the redevelopment on the site as an educational opportunity to raise awareness of sustainability citywide. In addition, many of the guiding principles and policies in this document could be applied to the larger Opus Business Park. The city might also consider adopting a citywide sustainability framework to coordinate and integrate sustainability efforts throughout the community.
INTRODUCTION

The proposed Southwest Light Rail Transit (LRT) line—which will travel from downtown Minneapolis through the suburbs of St. Louis Park, Hopkins, Minnetonka, and Eden Prairie—carries the potential to change transportation and development patterns in the southwest Twin Cities metropolitan area in significant ways. The system is expected to have a ridership of 24,000–30,000 per day by the year 2030, and will encourage new investment and development along the route, creating more jobs, housing, and recreational opportunities.

One of the stops, the Opus Station, will be located on an underutilized parcel in the heart of the Opus Business Park, providing an opportunity for more compact, mixed-use, transit-supportive, and sustainable development that will benefit current and future businesses and residents on the campus. The purpose of this plan is to recommend to the City of Minnetonka ideas for sustainable development on and adjacent to the site of the proposed Opus Station. The report emphasizes guiding principles and specific policies that can be implemented to guide future redevelopment in the area. The report includes two conceptual land use scenarios and a more detailed site plan for the station area to illustrate how the proposed guiding principles and policies might affect redevelopment of the site when implemented. With the understanding that development is only sustainable in broader contexts, a brief section of recommendations for sustainable development that reach beyond the site is also presented in the final section of this report.

SUSTAINABILITY STATEMENT

Sustainability is a broad concept that is difficult to define. As applied to development, the term was famously defined by the United Nations World Commission on Environment and Development (UNWCED) in 1987 as “development which meets the needs of the present without compromising the ability of future generations to meet their own needs.” Since then, the concept has been refined, adapted, and applied in numerous ways. In essence, however, sustainable development is a balanced approach that focuses on economic vitality, environment and resource conservation, and community well-being and equity. Sustainability is not an end-state, but rather “a process of continuous, ongoing improvement, and a realignment of community goals and practices to grow in a more responsible and resilient manner.”

At the core of most approaches to sustainability is a recognition that the world functions and evolves as the result of a series of interconnected and complex systems of environmental, social, and economic relationships. Similarly, this report is organized around four systems: the natural environment; connectivity and accessibility; community, equity, and prosperity; and health and wellness.

One of the key principles of sustainability planning is to consider the multiple temporal, geographic, and other social contexts in which a plan will be implemented. Although the report focuses primarily on the Opus Station site, it acknowledges that whatever plan for the Opus Station is adopted today will have impacts that affect future generations and that reach well beyond the boundaries of the redevelopment site or even the surrounding Opus Business Park.
FIGURE 1: OPUS BUSINESS PARK AND DEVELOPMENT AREA

Legend
- Opus Light Rail Station
- Redevelopment Area
- Opus Business Park Campus
- Streets, Roads, and Highways

Development Plan Context Map

Map Prepared by: Nick Flanders
INTRODUCTION

THE DEVELOPMENT SITE

The Opus Station is currently proposed to be constructed on the site of the existing Minneapolis Gift Mart (referred to as the Opus redevelopment site hereafter), which is located in the heart of the Opus Business Park in southeastern Minnetonka, Minnesota (see Figure 1). The redevelopment site is a 25-acre parcel situated between a series of one-way roads (see Figure A-24, Appendix A):

- Northern Boundary: Bren Road West (traffic flow: west)
- Southern Boundary: Bren Road East (traffic flow: east)
- Eastern Boundary: Green Oak Drive (traffic flow: south)
- Western Boundary: Bren Road East (traffic flow: south)

The proposed Southwest Light Rail Transit line and the Opus Station will be located along Bren Road East on the west side of the redevelopment area. Trains will travel from downtown Minneapolis to Eden Prairie.

The Opus Business Park, a 640-acre development, is home to several major corporations, a multitude of small businesses, and hundreds of residents. It is the largest business park in Minnetonka. The built environment reflects the intent of the original developer of Opus, Gerry Rauenhorst, that the area be a mixed-use development that includes offices, retail establishments, residential units, and recreational amenities.

The Opus Business Park is bounded by several major roads (Figure A-13, Appendix A):

- Northern Boundary: Smetana Road (traffic flow: bidirectional)
- Southern Boundary: Minnesota Highway 62 (traffic flow: bidirectional)
- Eastern Boundary: Minnesota Highway 169 (traffic flow: bidirectional)
- Western Boundary: Shady Oak Road (traffic flow: bidirectional)

EXISTING CONDITIONS

Minnetonka’s 2030 Comprehensive Guide Plan identifies the Opus Business Park as one of the primary locations in the city where there is opportunity to develop more housing, as well as expand opportunities for employment in the area. This section briefly considers existing conditions on the Opus redevelopment site and broader Opus Business Park, which establish the context for future sustainable development of the site and which influenced the guiding principles and recommendations in this report. A summary of existing conditions is presented in Table 1.

BUSINESSES & EMPLOYMENT

The Opus Business Park has approximately 12,000+ employees working within its boundaries, the majority of whom commute to the area. These employees represent potential users of the Southwest LRT or other public transit options that become available—such as expanded bus service—once the Opus Station is in operation.

White-collar and service-related jobs represent the majority of employment opportunities available on the campus; blue-collar jobs in manufacturing, construction, or maintenance are more limited. Considering the large number of corporate offices on the campus, it is not surprising that the primary occupations represented on campus are Administrative Support, Executive and Management, and Specialized Professionals.

The Opus Business Park has several highly visible tenants such as United Healthcare, Comcast, Opus Northwest, Datacard, American Medical, and American Family Insurance. However, the campus is also home to many smaller companies that engage in a variety of activities such as wholesaling, manufacturing, retail, and professional services. The four largest sectors in the area are general Business Services, Retail, Financial-Insurance-Real Estate (FIRE), and Wholesale activities.

In general, the commercial real estate market on the Opus Business Park is sluggish due to the current economic recession. Vacancy rates are high and infrastructure is underutilized. The challenge of reviving commercial real estate in the area while
strengthening the local economy provides an opportunity to think holistically about how to redevelop the site.

### TABLE 1: OPUS BUSINESS PARK CHARACTERISTICS

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Jobs</td>
<td>12,381</td>
</tr>
<tr>
<td>Primary Occupations</td>
<td>Administrative Support, Executive and Management, and Specialized Professionals</td>
</tr>
<tr>
<td>Primary Types of Businesses</td>
<td>Business Services; Retail; Financial, Insurance, and Real Estate (FIRE); and Wholesale</td>
</tr>
<tr>
<td>Residential Population</td>
<td>Approximately 2,000</td>
</tr>
<tr>
<td>Residents Over Age 65</td>
<td>18.4 percent</td>
</tr>
<tr>
<td>Percentage of Population with a Bachelor’s Degree or Higher*</td>
<td>50.7 percent</td>
</tr>
<tr>
<td>Percentage of Site Devoted to Industrial or Office Use</td>
<td>60.0 percent</td>
</tr>
<tr>
<td>Percentage of Site Devoted to Residential Use</td>
<td>18.0 percent</td>
</tr>
<tr>
<td>Access to Major Freeways</td>
<td>Highway 62 and Highway 169</td>
</tr>
<tr>
<td>Access to Public Transit</td>
<td>Two bus lines to/from downtown Minneapolis, running throughout the day with at least one bus per hour.</td>
</tr>
<tr>
<td>Internal Transportation Network</td>
<td>A one-way, circular street system; a mostly grade-separated pedestrian and bicycle trail network</td>
</tr>
</tbody>
</table>

Sources: MetroGIS 2009 Regional Parcel Dataset; Bureau of the Census, American Community Survey; MetroMSP.com
*Persons over age 25.

### RESIDENTIAL AND HOUSING

The residential population of the Opus Business Park is estimated to be around 2,000 residents. The population is mostly adult, with only 15.8 percent of the residents under the age of 21. Seniors (65 years and older) are a substantial part of the residential population (18.5 percent), followed closely by persons between 50 and 64 years of age (25 percent). These figures closely resemble the age structure of the population as a whole in Minnetonka. The age structure of the population indicates that there is a growing demand for amenities geared toward elder residents in the Opus area, but also suggests a need and an opportunity for the city to attract younger residents to the community.

A high level of educational attainment is present among the Opus Business Park residential community; more than 50 percent of persons 25 years and older have at least a bachelor’s degree, similar to educational levels citywide.

There are approximately 1,200 housing units located on the Opus campus. The housing stock is mostly multifamily, with a mix of apartments, condominiums, and townhomes. The most recent addition to the residential stock was the conversion in 2005 of an unused office tower into a condominium development called the Cloud 9 Skylflats. Prior to that, the most recent residential development had been the Beachside Condominiums, constructed in 1986.

Few units in the Opus Business Park are classified as affordable housing. The Green Circle Drive condominiums are considered affordable, owner-occupied housing units. The Elmbrook Townhomes, on the north side of the business park, are subsidized, low-income units. Per its comprehensive plan, the City of Minnetonka needs to add more than 380 affordable housing units by 2020 to meet its obligation under the 2010 Livable Communities Act, which establishes affordable housing benchmarks for cities in the metropolitan area.
INTRODUCTION

LAND USE
The future land use map for the Opus campus in the 2030 Minnetonka Comprehensive Plan designates the majority of land to mixed use, reflecting the desire to accommodate a variety of uses as envisioned by the business park’s developer almost 40 years ago. The existing land uses in the Opus Business Park are diverse, but industrial and office uses together account for more than 60 percent of the land uses by acreage, whereas residential uses comprise nearly 19 percent. Table 2 presents total area (in acres) for different land uses in the Opus Business Park. In general, residential, business, commercial, and retail uses are segregated from each other, with residential development primarily near the north and east boundaries of the park, retail/commercial concentrated on the west edge of the park, and business uses located everywhere else (see Figure A-1, Appendix A).

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Area (ac.)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial</td>
<td>185</td>
<td>31.1</td>
</tr>
<tr>
<td>Office</td>
<td>178.1</td>
<td>30.0</td>
</tr>
<tr>
<td>Residential</td>
<td>110.6</td>
<td>18.7</td>
</tr>
<tr>
<td>Commercial</td>
<td>13.4</td>
<td>2.2</td>
</tr>
<tr>
<td>Institutional</td>
<td>8.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Parks</td>
<td>1.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Vacant</td>
<td>11.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Open Space</td>
<td>85.4</td>
<td>14.4</td>
</tr>
<tr>
<td>Right of Way</td>
<td>0.6</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>594.2</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: MetroGIS 2009 Regional Parcel Dataset

The redevelopment site itself and the surrounding parcels within one-quarter mile of the proposed Opus Station location are occupied almost entirely by industrial uses, with a few office parcels and one vacant parcel. Interestingly, the majority of industrial and office parcels in the business park are within a one-half-mile radius, but only about one-quarter of the residential parcels are within one-half mile. Currently, a significant amount of land adjacent to the station area and within one-quarter mile of it is dedicated to surface parking; much of this located on the redevelopment site itself.

TRANSPORTATION
Visitors to the Opus Business Park generally arrive via private automobile, although some public transit bus routes do serve the area. Two major freeways, both of which connect to major interstate highways, provide access to the Opus campus: Minnesota Highway 62 via Shady Oak Road and Minnesota Highway 169 via Bren Road. Bren Road runs directly into the heart of the Opus Business Park, whereas Shady Oak Road provides multiple access points to the Opus campus from the west (Figure A-13, Appendix A). The internal road network on the Opus campus is composed of a series of interconnecting one-way, circular streets that provide high-speed, but often less-than-direct, routes to destinations (Figure A-24, Appendix A). The primary advantages of this system are continuous flow and capacity; the primary disadvantages are longer travel times, a hard-to-navigate road network for persons unfamiliar with the system, and safety hazards for pedestrians and bicyclists. Neither sidewalks nor road shoulders are present along the roadways to facilitate non-motorized transportation.

Options for pedestrians and bicyclists do exist on the campus. An internal trail network provides a grade-separated, independent system of pathways that link major destinations within the Opus Business Park to areas adjacent to the campus (Figure A-30, Appendix A).

Public transit access is relatively limited in the area, with only two bus routes providing service to the business park (Figure A-17, Appendix A). Metro Transit Route 12 ends its outbound journeys from downtown on the Opus campus, using the one-way road network to perform a loop through the area. Route 665 is an express, rush-hour only route that provides service from the north side of the Opus Business Park to downtown Minneapolis. The Southwest LRT line will bring high-frequency and reliable transit to the heart of the Opus Business Park. It is likely that bus transit routes in the area will be reconfigured, and perhaps augmented with expanded or additional routes, once light rail service begins.
NATURAL RESOURCES AND ENVIRONMENT
The City of Minnetonka is locally recognized for its natural resources and takes many measures to protect environmental quality. Nonetheless, there are serious environmental issues on the Opus Business Park, including threats to open space and wildlife habitat, the presence of invasive species, and the impacts of urbanization in a hydrologically sensitive area.

One major environmental concern is the large amount of land in the area that is covered by impervious surfaces. Nearly three-quarters of all land in the business park is covered by impervious areas such as buildings and pavement (Figure A-2, Appendix A). The redevelopment site is comprised of approximately 50 percent impervious areas. The impervious surfaces create challenges for future development and redevelopment in the Opus Business Park. Currently, the City of Minnetonka and Nine Mile Creek Watershed regulations both require that for all new development, the first one-inch of rainfall must be infiltrated on-site. The risk of contamination of the local groundwater aquifer through stormwater infiltration is considered low due to the depth of the aquifer, but real threats to water quality exist for surface water features, primarily due to stormwater runoff.

Two large wetland complexes and several smaller wetlands exist in the Opus Business Park (Figure A-10, Appendix A), but development has encroached on these wetlands, increasing the risk of surface water contamination and sedimentation. The Opus redevelopment site contains a wetland that is poorly buffered from surrounding development and in some places is located less than 20 feet from large areas of impervious cover. The City of Minnetonka has programs in place to manage water resources and minimize the impact of development on wetlands. Any redevelopment of the station area site will be subject to these water quality regulations, as well as regulations imposed by the Nine Mile Creek Watershed District.

Natural communities of vegetation and animal habitat exist throughout the Opus Campus, although they have become highly fragmented by development in the business park (Figure A-11, Appendix A). In addition, invasive species such as buckthorn have infested remaining vegetated areas on the redevelopment site, as well as adjacent forested areas. Nonetheless, there are natural areas on and adjacent to the redevelopment site that are viable for restoration or preservation based on their ecological and aesthetic value. The site plan for the redevelopment area presented in this report proposes to extend a green corridor along the north side of the site to connect an existing forest and wetland area north of the redevelopment site to the wetland located on the redevelopment site. In addition, restoring the wetland itself can improve wildlife habitat and offer ecosystem services such as better water quality and stormwater management.

PARKS AND RECREATION FACILITIES
The Opus business park has 8.7 acres of parkland in a single park in addition to a nine-mile trail system that connects various locations within and outside of the business park (Figures A-29 and A-30, Appendix A). The redevelopment site is in close proximity to Green Circle Park, and is at the nexus of the trail network in the area. The trail system and park are areas for passive recreation by residents, employees, and visitors to the area. An unscientific survey of a small sample of residents within one mile of the redevelopment site showed that more than one-third regularly use the trails and parks in the Opus business park (see Appendix B for survey details).

Greater trail use is hindered by lack of accessibility, lack of amenities, poor maintenance, and perceptions of safety. The results from the community survey and observations of the site indicate the following issues are important:

- Lack of signage directing users through the site and to destinations on the Opus campus contributes to confusion and lower trail usage;
- The trail system lacks other amenities such as bike racks, benches, water fountains, and trash cans that might make the area a more inviting space for potential users;
- Poor maintenance of the trail system discourages its use by bikers and those using other devices to assist their mobility;
- The absence of pedestrian-scale lighting makes users feel unsafe when walking in the evening, or especially in winter months when the sun sets earlier.
SUSTAINABILITY RECOMMENDATIONS

SYSTEMS, GUIDING PRINCIPLES, AND LINKAGES

A key aspect of the project team’s research and development of the Opus Station Area Sustainable Development Plan involved the review of plans from other communities across the nation. The team prepared several case studies of redevelopment around suburban light rail stations (see Appendix C), and drew upon cases studies of sustainability master plans. Together, these case studies provided a foundation for designing a suitable framework for the guiding principles and recommendations contained in this document.

The framework is grounded in four interconnected systems of sustainability: Natural Environment; Connectivity and Accessibility; Community, Equity, and Prosperity; and Health and Wellness (Figure 2). The systems offer a way to categorize sustainability concepts as they apply to the Opus Station redevelopment site.

The team developed guiding principles for each system, and site-specific recommendations for each guiding principle that are based on real-world examples. Each recommendation includes an explanation of the concepts or issues related to the recommendation, an analysis of existing conditions on the Opus Station redevelopment site as they relate to the concept, examples or principles from the literature explaining the practical application of the recommendation, and specific ideas for how the recommendation might be implemented or applied in the context of the Opus redevelopment site. Finally, specific policies are suggested for each recommendation.

Although the four systems are discussed in discrete sections in this document, all four systems are interconnected, and many recommendations are consistent with more than one system. Figure 3 shows how each guiding principle in the plan fits within the four systems. These connections and interrelations are also made manifest throughout this document.

FOUR SUSTAINABILITY SYSTEMS

Natural Environment focuses on the health and preservation of the natural environment, including air, water, soil, vegetation, and wildlife habitat.

Accessibility and Connectivity calls attention to creating efficient access to destinations using various modes of transportation, either through enhancing the transportation network or through the built environment.

Community, Equity, and Prosperity promotes the development of community institutions, healthy economic conditions, and fairness for individuals and organizations.

Health and Wellness focuses on how the natural environment, the built environment, and personal interaction with nature can affect and improve both physical and mental health.

FIGURE 2: SYSTEMS OF SUSTAINABILITY
### Natural Environment Guiding Principles
1.1: Enhance and capitalize on the natural hydrologic system.
1.2: Protect and enhance ecosystems and scenic vistas.
1.3: Increase tree canopy cover.
1.4: Reduce greenhouse gas emissions and use of non-renewable energy.
1.5: Minimize solid waste production.
1.6: Provide opportunities for learning about ecologically sustainable practices.

### Connectivity & Accessibility Guiding Principles
2.1: Improve facilities for users of non-motorized transport.
2.2: Improve access to multiple modes of transportation.
2.3: Integrate homes, shops, workplaces, and public amenities on the site.
2.4: Integrate and enhance the pedestrian, bicycle, and automobile transportation systems.

### Community, Equity, & Prosperity Guiding Principles
3.1: Create a neighborhood that is appealing and welcoming through architecture, landscaping, and amenities.
3.2: Create opportunities for community gathering and interaction.
3.3: Provide flexible and affordable residential and commercial spaces.

### Health & Wellness Guiding Principles
4.1: Provide pedestrian infrastructure and amenities.
4.2: Increase awareness of and programming for existing recreational facilities.
4.3: Create easy access to healthy foods.
DEVELOPMENT SCENARIOS

The creation of the sustainable development plan presented in this document involved working through several iterations of potential land use mixes on the development site.

CONCEPTUAL LAND USE PLANS

The conceptual land use maps (Figures 4 and 5) provide an overview of where certain uses might be concentrated on the redevelopment site. The team felt that retail and office uses should be located in areas with high pedestrian and transit access, notably near the Opus Light Rail station platform. In both of the conceptual plans, a central plaza through the middle of the site connecting the light rail station to the large wetland on the site provides a public space for pedestrians in the heart of the site.

The first conceptual land use map (Figure 4) focuses on creating a green corridor along the northern portion of the site that would provide a contiguous connection between existing natural areas to the north of the site, the wetland on the redevelopment site, and Green Circle Park to the northeast of the redevelopment site. The remaining portion of the site would be developed in a “stepped” fashion to preserve the viewshed to the north, with townhomes and live-work dwelling units adjacent to the green corridor, mid-rise residential buildings along the north side of the pedestrian plaza, and the higher density development on the south end of the parcel.

The second conceptual land use map (Figure 5) retains some of the base features of the first concept plan, such as retail near the light rail station and a pedestrian plaza. However, development densities are generally higher, and green space is integrated into the pedestrian plaza and is concentrated around the wetland.

SUSTAINABLE DEVELOPMENT PLAN

After consideration of the two concept plans, the project team chose the first concept as the basis for a more detailed development site plan (Figure 6). This plan shows the proposed location of buildings on the site drawn to scale, as well as the anticipated uses of each of the structures. Other public amenities are detailed, such as sidewalks, trails, and the pedestrian plaza and promenade.

In addition to the sustainable development site plan, the team also produced several aerial and ground level perspectives of the site using Google SketchUp (Figures 7-10). These renderings provide a sense of the scale of the development, as well as the pedestrian experience of the site from the light rail station.

SUSTAINABILITY RECOMMENDATIONS
Opus Light Rail Station Area:
Land Use Concept - Green Corridor

Legend
- Protected Space
- Residential
- Retail & Office
- Open Space
- Plaza and Pedestrian Corridors
- Light Rail Alignment
- Trail Network
- Site Boundary

SUSTAINABILITY RECOMMENDATIONS

FIGURE 4: LAND USE CONCEPT - GREEN CORRIDOR

View Corridor from LRT to Protected Space
View Corridor from LRT to Natural Space
View Corridor from LRT to Residential
View Corridor from LRT to Retail & Office
View Corridor from LRT to Open Space
View Corridor from LRT to Plaza and Pedestrian Corridors
View Corridor from LRT to Light Rail Alignment
View Corridor from LRT to Trail Network
View Corridor from LRT to Site Boundary

1 inch = 300 feet
SUSTAINABILITY RECOMMENDATIONS

Opus Light Rail Station Area:
Land Use Concept - Central Plaza

Legend
- Protected Space
- Residential
- Retail & Office
- Open Space
- Plaza and Pedestrian Corridors
- Light Rail Alignment
- Trail Network
- Site Boundary

FIGURE 5: LAND USE CONCEPT - CENTRAL PLAZA
### TABLE 3: ESTIMATED AREA OF STRUCTURES & NUMBER OF DWELLING UNITS

<table>
<thead>
<tr>
<th>Structures</th>
<th>Sq. Ft.</th>
<th>DU</th>
<th>DU Size*†</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Detached Structures</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Pavilion</td>
<td>2,200</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Townhomes</td>
<td>36,000</td>
<td>18</td>
<td>2,000</td>
</tr>
<tr>
<td>Live-Work Townhomes</td>
<td>19,200</td>
<td>6</td>
<td>3,200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>57,400</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mixed-Use Buildings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Four Floor Scenario</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>565,600</td>
<td>314</td>
<td>1,800</td>
</tr>
<tr>
<td>Retail</td>
<td>36,800</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Office</td>
<td>181,600</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>784,000</td>
<td>314</td>
<td>1,800</td>
</tr>
<tr>
<td><strong>Six Floor Scenario</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>859,600</td>
<td>478</td>
<td>1,800</td>
</tr>
<tr>
<td>Retail</td>
<td>36,800</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Office</td>
<td>279,600</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,176,000</td>
<td>478</td>
<td>1,800</td>
</tr>
</tbody>
</table>

*Townhomes and Live-Work Townhomes areas exclude a 400 sq. ft., 1-car garage.

**Excludes underground parking facility

†Mixed-Use Residential Units estimated sizes include internal non-residential space (hallways, laundry, elevators)

### TABLE 4: ESTIMATED AREA OF EXTERIOR SITE FEATURES

<table>
<thead>
<tr>
<th>Natural Spaces</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Space</td>
<td>620,000</td>
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<tr>
<td>Water</td>
<td>120,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>740,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Paved Surfaces</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaza &amp; Promenade</td>
<td>105,200</td>
</tr>
<tr>
<td>Parking &amp; Driveways</td>
<td>66,000</td>
</tr>
<tr>
<td>Road</td>
<td>46,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>217,200</td>
</tr>
</tbody>
</table>
SUSTAINABILITY RECOMMENDATIONS

Opus Light Rail Station Area:
Sustainable Development Scenario

Legend
- Office
- Neighborhood Retail
- Multifamily
- Live-Work Townhomes
- Townhomes
- Community Pavilion
- Trees and Foilage
- Raingarden
- Sidewalks
- Trail Network
- Plaza & Promenade
- Open Space
- Water
- Light Rail & Station
- Development Site Boundary

FIGURE 6: SUSTAINABLE DEVELOPMENT SCENARIO - GREEN CORRIDOR
FIGURE 7: PEDESTRIAN PLAZA LOOKING EAST FROM LIGHT RAIL STATION
FIGURE 8: PROMENADE LOOKING NORTH FROM THE LIGHT RAIL STATION
FIGURE 9: AERIAL VIEW OF SUSTAINABLE DEVELOPMENT SCENARIO WITH 4 AND 6 FLOOR BUILDINGS, FROM SOUTH
FIGURE 10: AERIAL VIEW OF SUSTAINABLE DEVELOPMENT SCENARIO WITH 4 AND 6 FLOOR BUILDINGS, FROM LRT/WEST
SYSTEM 1 | NATURAL ENVIRONMENT
Sustainability System: Natural Environment

Guiding Principles

1.1: Enhance and capitalize on the natural hydrologic system.
   1.1.1: Enhance the existing wetlands on the site by restoring natural vegetation and controlling invasive species.
   1.1.2: Require post-construction soil decompaction to increase natural water infiltration.
   1.1.3: Require low-impact development approaches for all new development on the site.
   1.1.4: Promote compact development to reduce impervious surfaces.
   1.1.5: Require or encourage use of low-water, low-maintenance landscapes.
   1.1.6: Encourage use of rainwater and greywater for irrigation.

1.2: Protect and enhance ecosystems and scenic vistas.
   1.2.1: Create connections between natural areas on and adjacent to the site.
   1.2.2: Remove existing and prevent future introduction of non-native species.
   1.2.3: Require or encourage use of plants native to Minnesota for all landscaping.
   1.2.4: Preserve and enhance scenic viewsheds from the development site.

1.3: Increase tree canopy cover.
   1.3.1: Protect and preserve trees on the development site.
   1.3.2: Encourage strategic planting of new trees.

1.4: Reduce greenhouse gas emissions and use of non-renewable energy.
   1.4.1: Maximize natural heating and cooling through good site design.
   1.4.2: Install solar-powered street lights, traffic signals, and irrigation systems. Encourage or require solar systems for new and existing buildings.
   1.4.3: Require or encourage geothermal heating and cooling systems.
   1.4.4: Create incentives for ridesharing, car sharing, and other alternative transportation options to reduce automobile trips.
   1.4.5: Require that all new construction be eligible for LEED certification.
   1.4.6: Create “no vehicle-idling” zones near all buildings.

1.5: Minimize solid waste production.
   1.5.1: Establish onsite recycling/reuse/composting program.
   1.5.2: Promote recycled and recyclable building materials in new construction.

1.6: Provide opportunities for learning about ecologically sustainable practices.
   1.6.1: Install educational displays and signage to highlight ecologically sustainable practices.
   1.6.2: Encourage businesses to offer public tours of green and LEED-certified buildings.
Opus Light Rail Station Area: Sustainable Development Scenario
System 1: Natural Environment

Legend
- Office
- Neighborhood Retail
- Multifamily
- Live-Work Townhomes
- Townhomes
- Community Pavilion
- Plaza & Promenade
- Water
- Open Space
- Raingarden
- Trees and Foilage
- Light Rail & Station
- Trail Network
- Sidewalks
- Development Site Boundary

FIGURE 11: NATURAL ENVIRONMENT SYSTEM MAP

- Reestablish natural areas to create connections between natural areas for wildlife habitat and ecosystem health
- Incorporate educational displays to identify sustainable practices, such as native plants and composting
- Restore natural vegetation and control invasive species
- Install low-water, low-maintenance landscapes and native plants
- Plant shade trees along south and west facing facades to reduce cooling costs
- Pervious pavers for the plaza and sidewalks
- Locate raingardens and bioswales adjacent to impervious surface to protect water resources
- Plant trees adjacent to parking lots and roads to reduce stormwater runoffs and mitigate the urban heat island effect
- On-site composting and community garden
- Solar powered outdoor lighting in key areas for safety and visibility
- Incorporate green roofs into building design
- Protect and enhance viewsheds
SUSTAINABILITY SYSTEM 1: NATURAL ENVIRONMENT

The elements of our natural environment—air, soil, water, plants, wildlife, and other living organisms—make up the context in which humans live and human society functions. Both individually and collectively as ecosystems, these elements are crucial to human existence, and occasionally threaten human existence in the form of natural disasters. Human efforts to alter, control, or “enhance” nature have damaged natural ecosystems throughout the world, and have frequently created more intense or intractable problems than the interventions were originally intended to address.

Increasingly, we are coming to understand that the most effective solution to our “problems” often lies not in altering or controlling nature, but rather in finding a balance between human interventions in the natural world and maintaining the health of ecosystems. Maintaining this balance is the goal of sustainable development.

On the Opus Station area redevelopment site, the natural environment has been significantly altered by development, impacting the original wetland, vegetation, and wildlife that existed on the site prior to human settlement. Nonetheless, many natural processes and functions can be restored and the ecosystem services and benefits they provide—such as clean air, clean water, and abundant wildlife—can be recovered. The following guiding principles and recommendations offer ideas for how the natural environment on the redevelopment site can be protected and restored to support a more sustainable community.

Guiding Principle 1.1: Enhance and capitalize on the natural hydrologic system.

A healthy hydrologic system is key to maintaining the resilience and sustainability of the ecological system as a whole. The following recommendations are intended to both enhance and capitalize on the many functions and benefits provided by wetlands and other water resources on the development site, including reducing stormwater runoff, improving water quality, reducing water consumption, and providing natural amenities for humans to enjoy.

1.1.1: Enhance the existing wetland on the site by restoring natural vegetation and controlling invasive species.

Wetlands provide many economic, health, and aesthetic functions, including improving water quality, reducing flooding, providing habitat, recharging groundwater supplies, offering scenic vistas, and providing recreational opportunities. Over time, however, the hydrologic functioning, stormwater storage capacity, and habitat value of wetlands may be reduced through sedimentation and the presence of nonnative invasive species. Well-designed native vegetative buffers can help to maintain healthy wetland function by filtering or assimilating sediments and pollutants, providing additional stormwater absorption and infiltration capacity, offering shading to regulate microclimate, stabilizing shoreland, providing needed organic material for fish and aquatic invertebrates, and maintaining wildlife habitat. The Center for Watershed Protection recommends that areas within 100 feet of surface drainage features and wetlands be established as buffer zones that are off limits to development to protect these resources from degradation.

The City of Minnetonka Water Resource Management Plan (2009) calls for the use of native vegetation mixtures as a buffer to help filter sediment, nutrients, and other pollutants before they drain into wetlands, and both the City of Minnetonka and Nine Mile Creek Watershed (NMCW) District rules require buffers of varying distances depending on the quality rating of the wetland, up to a minimum buffer of 30 feet for the highest quality wetlands. Wetland PWI 27-795 W, located on the eastern side of the redevelopment site (Figure A-10, Appendix A), is not classified in the City’s wetland management system, and is classified as a low-value wetland under NMCW rules requiring only a 10-foot minimum buffer. The wetland is poorly buffered from adjacent development, particularly the large surface parking lot for Minneapolis Gift Mart (see photo at right).
As part of its Water Management Plan, the City of Minnetonka might consider classifying PWI 27-795 W to ensure that impacts to the wetlands are minimized and that invasive species are controlled or removed. In addition, the City might consider instituting a special buffer requirement of 100 feet for this wetland because it is the receiving body for stormwater from a large catchment area (see Figure A-9, Appendix A), and because the wetland is currently home to the common merganser and other aquatic birds and wildlife that would benefit from larger buffer areas to minimize the impact of human activity adjacent to their nesting and breeding territory.

Specific Policies:
- Require a 100-foot native vegetative buffer around PWI 27-795 W for all future redevelopment projects that impact the wetland.
- Initiate efforts to control existing and prevent future introduction of nonnative invasive species to PWI 27-795 W.

1.1.2: Require post-construction soil decompaction to increase natural water infiltration.

Soil composition influences soil permeability, infiltration rate, and the rate and amount of stormwater runoff. The lower the soil infiltration rate, the greater the potential for high runoff volumes, high peak stormwater discharge rates, and movement of nonpoint source contaminants across the landscape to bottomland sink areas such as streams, lakes, and wetlands. Figure A-3 (Appendix A) shows areas on the Opus Station redevelopment site characterized by high-runoff soils (Natural Resource Conservation Service hydrologic group C or D soils).

Development can also alter infiltration capacity, both by covering soil with impervious surfaces and by disturbing and compacting soils during the construction process. Compaction caused by heavy construction equipment, and intentional compaction around structures and in road rights-of-way to stabilize the ground, reduces infiltration rates and increases both the rate of stormwater runoff (how rapidly runoff occurs) and the volume of runoff (how much runoff occurs). An increase in runoff rate or volume increases the risk of erosion, and sediment and pollutant movement into surface waters. 5,6

Nine Mile Creek Watershed rule 5.1.6 requires that soil compaction from “land-disturbing activities” be minimized, and encourages decompaction of soil after land-disturbing activities have occurred. According to NMCW district administrator Kevin Bigalke, limited staff at the watershed makes it difficult to monitor compliance with this requirement.7 In addition, the standards do not specify how soil decompaction should be achieved, and do not include provisions for amending high-runoff soils to increase infiltration capacity. Research suggests that tilling or ripping compacted soil and/or amending the soil with organic matter such as compost, fly ash, or peat can help to reduce compaction and increase infiltration capacity.8

If the development site is redeveloped as a planned unit development (PUD), the City of Minnetonka might consider adding as a condition of the PUD a post-construction requirement to till and/or add organic material to high-runoff soils and soils impacted by development on the site. This provision could be adopted citywide to reduce soil compaction and increase infiltration rates.

Specific Policies:
- Adopt a local requirement that after land-disturbing activities have occurred, all impacted soils on the site must be scarified to a depth of 18 inches.
- Adopt a local requirement to incorporate compost or other organic material into areas with high-runoff soils.

1.1.3: Require low-impact development approaches for all new development on the site.

In urban areas, stormwater is the major contributor of both pollutants and sediment to surface waters such as wetlands, lakes, and streams. On-site stormwater management practices can help to reduce pollution, flooding, and erosion. Low Impact Development (LID) is an ecosystem-based approach to development and stormwater management, the goal of which is to maintain the historic, pre-development volume, rate, frequency, and duration of stormwater discharges. LID is
grounded in the concept of managing rainfall at the source by mimicking the site’s natural hydrologic regime, using a variety of design techniques to infiltrate, filter, store, evaporate, and detain runoff. Specific implementation practices include raingardens and other infiltration systems, stormwater wetlands, pervious pavement, and green roofs.\(^9,\)\(^10\)

Over 50 percent of the development site is covered by impervious surface in the form of a commercial building complex and several surface parking lots. To minimize stormwater runoff impacts city-wide, the City is considering an ordinance to limit the amount of allowable impervious surface on a parcel based on the type of land use.\(^11\) Limiting the total impervious surface on the site to less than 50 percent of the site will decrease the surface water runoff from the site.\(^12\) When there are large amounts of impervious surface on a site, water cannot infiltrate into the ground. When a site is covered with more than 50 percent impervious surface, a majority of water from the site will become runoff, carrying contaminants into the storm water management system, water bodies, and soils off site.\(^13\)

Pervious paving systems can reduce the amount of runoff by two-thirds when compared to impervious surfaces.\(^14\) Types include pervious pavers and pervious concrete. Both will allow some storm water to filter through the spaces in the material. It is best used in lower traffic areas such as parking lots and access roads. However, because of increased cost compared to regular impervious materials and maintenance required, implementation should be limited to service driveways and possibly for trails and pedestrians plazas, seating areas, and pathways.

On-lot infiltration systems such as raingardens and bioswales are typically designed where natural depressions in the landscape occur and are intended to capture and infiltrate stormwater at its source at the individual lot level (generally an area of one acre or less). Infiltration basins and trenches are designed to capture stormwater for a larger area, require more substantial engineering, and are generally used for “end-of-pipe” installations. Despite the difference in scale, these systems share many common design features, and all are intended to capture and hold stormwater for a period of a few hours or days until the water either infiltrates or evaporates. Some installations include pretreatment to reduce the amount of sedimentation and to filter out pollutants.\(^15\)

Implementing an extensive or intensive green roof will decrease storm-water runoff and conserve energy. A green roof can retain 60-100 percent of water from a storm event.\(^16\) Much of the water will be retained and eventually will be released through evapo-transpiration. Green roofs also provide additional green space and habitat for many animals, birds, and insects.

**Specific Policies:**
- Require or create incentives for Low-Impact Development (LID) practices and ongoing monitoring programs to ensure that the volume, rate, frequency, and duration of storm-water discharge does not exceed estimated pre-development levels.
- Limit the percentage of impervious surface area permitted on the entire redevelopment area or individual building sites.
- Encourage or require use of pervious paving materials where possible, including in constructing the central plaza and promenade adjacent to the rail line.
- Encourage or require installation of green roofs.

### 1.1.4: Promote compact development to reduce impervious surfaces.

The problem of storm-water runoff comes from building and paving over natural land cover. Compact, or “cluster,” development helps mitigate storm-water runoff by minimizing the amount of land paved over for roads and driveways and built upon when development occurs. Compact development not only minimizes negative impacts on water quality, it also is typically implemented with preservation of public open space, which promotes community gathering and recreation, preserves natural views, and protects habitat and sensitive natural areas. Further, compact development can reduce the need for non-motorized transport and promote more pedestrian, bicycle, and transit activity.
Traditional development in Minnetonka has been single-family homes built on large lots and widely dispersed. This spread out type of development marks the landscape of Opus Business Park and was the product of inexpensive land prices at the time the park was originally being developed. The Gift Mart building that currently exists on the redevelopment site is a one-story building that extends across approximately 1/3 of the site. With little land left available for development and land prices at a premium relative to many other areas in the Twin Cities metro, compact development is likely to be financially appealing for the developer. Moreover, compact development is an effective method for accomplishing many goals of sustainable development.

The primary means of accomplishing compact development are to make buildings with more floors rather than a larger footprint, to group buildings together while setting aside public open space, and reducing the amount of road needed. Compact development has been the basis for many famous master-planned communities and other developments seeking to promote environmental conservation and livability. One example of such development is Village Homes in Davis, California, which contains 25 percent open space and was designed around the natural drainage of the site. A study of residents at Village Homes showed that residents use 36 percent less energy for vehicular travel than comparable residents in traditional developments in the city.17

Open space preservation requirements, density bonuses, and regulations limiting surface area of parking lots/structures can be used to achieve more compact development and to limit the surface area of parking lots. For example, LEED guidelines dictate that no more than 20 percent of the total development footprint should be used for surface parking facilities. In order to promote compact development on the redevelopment site, the City might consider requiring or incentivizing preservation of open space.

Specific Policies:
- Offer a density bonus to the developer for preserving public open space.
- Implement parking maximums in place of parking minimums to limit the amount of the site used for parking.
- Arrange shared parking agreements between residential and business uses on and adjacent to the site to decrease paved parking areas.
- Incorporate parking into building structures to decrease overall footprint of development.

1.1.5: Require or encourage use of low-water, low-maintenance landscapes.

Fresh water supplies are dwindling in many parts of the United States. In the Twin Cities metropolitan area, development has put increased pressure on groundwater supplies, both because greater population leads to greater demand for water and because the spread of impervious surfaces has reduced the amount of groundwater recharge area. The City of Minnetonka obtains all of its fresh water supply from groundwater sources. One of the most significant uses of fresh water is irrigation of turf and landscape installations. It is estimated that landscape watering consumes as much as 50–70 percent of all fresh water used in the United States.

Xeriscaping is a method of landscaping that reduces the amount of water used and eliminates the need for some fertilizers and pesticides, primarily by using drought-tolerant native plant species that are adapted to the local microclimate and require less maintenance than standard landscape plant varieties. Xeriscaping relies on seven principles: good planning and design, use of soil improvements, appropriate plant selection, minimization of turf areas, efficient irrigation, use of mulch, and appropriate maintenance. Xeriscapes may also incorporate nonvegetative features such as art installations, water features, or hardscapes.18

Created by the Denver Water Department in 1978, this landscaping technique was originally developed for areas with low water availability, but examples of xeriscapes can be found throughout the United States and this approach can be used anywhere to conserve water. In California, the East Bay Municipal Utility District estimates that it has saved roughly 860,000 gallons of water per day through a program that audits
commercial and industrial outdoor water use, and reimburses companies for changing their landscaping to drought-tolerant plantings and upgrading their irrigation systems to lower water usage. Closer to home, the City of Fargo participated in a National Xeriscape Demonstration Project sponsored by the U.S. Bureau of Reclamation to test the feasibility of xeriscaping in northern climates. The demonstration project resulted in a 10–50 percent water savings, with maximum results achieved in installations where turf was limited to one-third to one-half of the landscape area.21,22

The City of Minnetonka can create incentives for new development in the Opus Station Area to limit the use of turf and install xeriscapes in place of traditional landscaping. Incentives might include a reduction in water or sewer utility fees, reimbursements for the additional cost of xeriscape installations over traditional landscape installations, or simply public recognition as a “Green Landscape Community Member” for businesses that agree to install and maintain xeriscapes.

Specific Policies:
- Encourage new developments to reduce the amount of turf to no more than 50 percent of all vegetative surface area.
- Use low-water, low-maintenance landscaping (xeriscaping) and low-flow irrigation systems.

**1.1.6: Encourage use of rainwater and greywater for irrigation.**

Greywater (wastewater produced from baths and showers, clothes washers, and restroom sinks) and rainwater represent untapped sources of water that can be used for landscape irrigation, reducing the amount of fresh water used for this purpose. In addition, diverting rainwater and greywater from the stormwater and wastewater systems that would transport the water downstream also increases natural infiltration and helps to recharge groundwater supplies.

Rainwater can be captured and stored in below-ground cisterns and above-ground rain barrels for later use. For example, Ashton Woods Homes, a five-acre community of 32 townhomes near Atlanta, has constructed a system that collects rainwater from 20 of the units and stores the water in large cisterns for irrigating lawns, trees, and other plants on the site.21 Commercial, industrial, and institutional installations are also available. Seattle’s King Street Center is a downtown office building that includes a rooftop system for collecting rainwater, which is then used to irrigate landscaping and flush toilets in the building.22

The use of greywater for irrigation requires installation of separate greywater and blackwater (sewage and kitchen water) waste lines. Some greywater recycling systems include filtration units, storage tanks, and distribution systems. Typically rainwater and greywater systems use sub-surface irrigation, which can be used to irrigate plant beds, shrubs, and trees.23,24

On the development site, greywater and rainwater, in conjunction with low-maintenance xeriscapes, could potentially provide most or all of the water needed for landscape irrigation. The City might consider offering incentives in the form of lower water or sewer utility rates for all new buildings on the site that incorporate greywater or rainwater collection systems into their design.

Specific Policies:
- Offer incentives for water capture/reuse and water conservation practices.
- Encourage use of recycled greywater or rainwater for all non-turf irrigation.

**Guiding Principle 1.2:**
Protect and enhance ecosystems and scenic vistas.

Natural ecosystems are important elements of the landscape. Ecosystems have functional value as green infrastructure that serve in place of expensive engineering solutions, sustain wildlife, and provide the natural setting and scenery that makes the redevelopment site and the surrounding business park appealing and unique. Protecting and enhancing the natural ecosystems of the site and surrounding areas is important to
maintaining their function and beauty.

1.2.1: Create connections between natural areas on and adjacent to the site.

According to the MnDNR, at the time of settlement, the vegetation in Minnetonka was primarily oak openings and barrens, with occasional maple-basswood forest, conifer bogs and swamps, wet prairies, and open water lake systems. Figure A-11 (Appendix A) shows existing vegetation on the redevelopment site and adjacent Opus campus, and Figure A-4 (Appendix A) shows remaining high-quality natural communities (Oak Woodlands and Oak Brushlands), as well as the relationship of the Opus Business Park and redevelopment site to planned greenways and ecological corridors. Minnetonka’s citywide greenway corridor extends to the western edge of the Opus Business Park along Shady Oak Road, encompassing the area around Lone Lake and all of the natural communities remaining in this area. The DNR Regional Ecological Corridor extends to the southern edge of the campus, and encompasses a large DNR-designated Regionally Significant Ecological Area characterized by a grassland–deciduous tree complex. The proximity of both corridors to the Opus Campus presents an opportunity to begin creating natural connections to the remaining natural communities and other terrestrial and aquatic ecological areas on the campus. Connecting these natural areas is beneficial to promote wildlife diversity, which serves as a local amenity and is important for ensuring the continued health and existence of the natural landscape.

Specific Policies:
• Encourage or require dedication of open space to create connections between natural areas on and adjacent to the site.
• Work with private property owners to create, protect, and enhance ecological corridors.

1.2.2: Remove existing and prevent future introduction of nonnative species.

Invasive species are nonnative species that inhabit land or water and cause ecological or economic problems, such as loss of biological diversity or contamination of small grain crops. Invasive species populations can rapidly increase, allowing them to outcompete native species and disrupt native plant communities. They can also disrupt the habitat of other species beyond those they directly displace, such as birds, mammals, and aquatic wildlife.

Two invasive species are present on the Opus campus in abundance: garlic mustard and European buckthorn. In addition, the presence of these invasives nearby means there is a constant threat that they will spread from currently infested areas to existing and new woodland areas on the development site. Both buckthorn and garlic mustard spread rapidly, and can quickly come to dominate the understory of wooded areas, choking out other species. Therefore, it would be best to treat buckthorn and garlic mustard as campus-wide problems on the Opus Business Park.
The City's 2030 comprehensive plan contains implementation practices and strategies related to management of natural areas, including educational efforts such as the “backyard conservation” program to encourage restoration of native plant species, removal and control of invasive species, and replanting woodland herbaceous plants. To address the problem on the development site and Opus campus, the City could enlist volunteers such as local residents, employees at businesses on campus, members of the local cycling club, or Scout troops to work with the city forester and natural resources personnel to remove buckthorn and garlic mustard on public property (and on private property, where permission is obtained). In the Twin Cities area, Great River Greening has a very successful volunteer program to control buckthorn along the Mississippi River. Where feasible, controlled burns could help to combat garlic mustard and control regrowth of buckthorn after manual removal. Finally, the City could offer training to private landowners to teach them to identify and encourage them to control invasive species on their property.

**Specific Policy:**
- Establish a plan for the site and wider area to eradicate invasive species.
- Work with local nonprofits to offer training for invasive species removal to community members.
- Seek community help to remove invasive species.

**1.2.3: Require or encourage use of plants native to Minnesota for all landscaping.**

Native species are those that are indigenous to a particular region. In Minnesota, plants are considered “native” if they occurred here at the time of the Public Land Survey (1847-1907). Native grasses and wildflowers provide many ecosystem services. Native plants in the Midwest are adapted to fire, and thus have deep root systems that help to prevent erosion and infiltrate precipitation. Native flowers and grasses also attract pollinators and other beneficial insects, and provide habitat for birds, amphibians, and mammals.

Native plants are, by definition, adapted to the local climate and soil conditions. Consequently, they are an excellent choice for landscaping or habitat plantings because they require little water, mulching, fertilization, or other maintenance. The U.S. EPA’s A Source Book on Natural Landscaping for Public Officials contains numerous national examples of “natural landscaping” on corporate office campuses and industrial parks, including the Prairie Stone Business Park in Hoffman Estates, Illinois; the AT&T Corporate Campuses in Lisle, Illinois; and the Lakeview Industrial Park in Pleasant Prairie, Wisconsin.

The LEED ND criteria include a section on site design for conservation and restorative efforts. To receive certification, a site must use native plants for 90% of all vegetation, and must use no invasive plants. The City of Minnetonka development code restricts some non-native species from being planted in new development. The City could also consider requiring or providing incentives to encourage that a certain percentage of all vegetation accompanying a new development must be native plants. Incentives might include stormwater credits, a reduction in stormwater utility fees, or public recognition as an “environmental steward.” A list of native plants for the Twin Cities area can be found on the Great River Greening website.

**Specific Policies:**
- Encourage or require use of native species for landscaping through incentives.
- Educate community members on the importance of native species.

**1.2.4: Preserve and enhance scenic viewsheds on site and within view of the redevelopment site.**

In addition to sustaining wildlife and providing ecological services such as clean air and clean water, preserving natural open space is also important for maintaining scenic beauty and a peaceful setting. Views of nature correlate with many benefits to communities. Research by the U.S. National Park Service and others has shown a positive correlation between property values and views of nature. One study found that dwellings with a view of wooded areas were, on average, 4.9 percent higher valued than similar dwellings without a view. Reduction of mental fatigue and stress are also correlated with...
views of nature.35, 36, 37

The natural scenery in the Opus Business Park creates a peaceful and enjoyable setting for residents, employees, and visitors. The public meeting held with residents of the Opus Business Park elicited many comments indicating the high value residents place on their natural surroundings (see Appendix B for details). In light of the values associated with natural scenery on and around the redevelopment site, measures should be taken to protect, enhance, and expand highly visible natural areas. Generally accepted elements of landscapes that are deemed the most visually appealing include water bodies, forested areas, and varied topography. Specific areas to protect and enhance include the wetland to the north of the site, the wetland area on the northeast corner of the site, and the wetland area to the west of the site (see Natural Environment System Map).

Specific Policies:
• Protect, enhance, and expand the natural wetlands on and directly adjacent to the site.
• Establish building requirements on site that will maximize views of natural areas and prevent obstruction of view corridors.

Guiding Principle 1.3:
Increase tree canopy cover.

In many ways trees are an optimal tool for promoting sustainability. From sequestering carbon and slowing climate change to calming traffic and reducing stress, trees offer solutions to many of the economic, environmental, and equity challenges of urban and suburban communities. Protecting existing trees on site and increasing the number and size of trees through proper planting and maintenance is an economical and effective way to increase sustainability.

Currently the redevelopment site is estimated to have approximately 15-20 percent tree and shrub cover. Most of that vegetation is located on the perimeter of the site, along walking paths, and near the wetland area on the northeast corner of the site. The remaining trees and shrubs are located adjacent to the existing building and sparsely in small planting areas in the parking lot. The non-profit American Forests suggests that suburban areas have an average of 35 to 50 percent tree canopy cover in order for communities to benefit most from trees.38 The recommendations in this section pertain to increasing vegetation on the redevelopment site.

1.3.1: Protect and preserve trees on the redevelopment site.

Protecting existing healthy trees is the most economical way to increase tree canopy cover and capture the benefits of trees. A United States Forest Service Study cost-benefit study of urban/suburban trees showed that the average annual net benefits per tree increased with tree size. A large tree produced $58 to $76 per tree, including costs of planting and maintenance and environmental, economic, and social benefits.39 Strategically planted trees can cool homes in the summer and help protect homes from winter winds, reducing energy bills, which is especially important to residents with less disposable income.

Chapter 3 of Minnetonka’s zoning ordinance contains numerous requirements for tree protection during development and redevelopment. For example, the City may waive building setback requirements to protect significant stands of trees. When redevelopment of the site occurs, it is feasible and advisable to protect and preserve the existing healthy trees.

Unfortunately, installing the light rail line is likely to require removal of trees along the western perimeter of the site. In addition to requiring developers of the site to comply with the City’s current tree protection guidelines in the code, the City should work with the Hennepin County Regional Rail authority to protect trees along the rail line alignment and minimize the number of trees that are removed. Measures should also be taken to ensure that trees needing to be modified to provide sufficient clearance for the train are pruned properly so they remain healthy.

Specific Policies:
• Identify large, healthy trees on site that merit preservation efforts and work with the Regional Rail Authority to protect trees along the light rail line.
• Inform developers of the value of healthy, mature trees and encourage them to preserve those trees on the redevelopment site, where feasible.
• Encourage proper maintenance of trees onsite to ensure maximum benefits, including aesthetic appeal, energy conservation, and pollution reduction (air and water).

1.3.2: Encourage strategic planting of new trees.

In an urban/suburban environment trees struggle to regenerate naturally and are often unsuccessful amidst the pavement and landscape habits of property owners. In order for trees to persist amidst development, people must plant young trees to replace those that are removed or that die. Planting new trees is integral to maintaining tree canopy and continuing to capitalize on the green infrastructure services that trees provide. Planting new trees provides the opportunity to select a species and a location for the trees that will optimize benefits and minimize conflict with human uses and needs, and also can be done with volunteers as a fun community event.

Chapter 3 of Minnetonka’s zoning ordinance contains tree planting requirements. For example, one tree must be planted for every 15 parking spaces in new development or significantly modified development. Encouraging and/or incentivizing large canopy trees on the development site will provide greater benefits to the environment, such as carbon sequestration, stormwater runoff reduction, and mitigation of the urban heat island effect. Additionally, the trees will enhance the local ecosystem and can be planted strategically to produce a more pedestrian-friendly environment.

The existing trees adjacent to the Minneapolis Gift Mart building and many trees in the parking area are generally in poor condition and should be removed and replaced. Unfortunately, few mature trees will be left on the site once redevelopment occurs and, therefore, requiring and incentivizing tree planting is advisable, in addition to proper maintenance and long-term protection.

The proposed redevelopment plan for the site contains substantial area for planting new trees. The importance of selecting an appropriate species and locating it in an area which fits the tree’s growth and cultural habits cannot be understated; planting trees in an ill-advised location will negate many possible benefits and even cost the city and property-owners more money in maintenance costs. The city code sets some requirements/limitations on new tree planting, such as a 25 percent maximum use of any single species (to prevent loss by spread of disease). Collaboration between the city forester and developer should be encouraged to confirm appropriate locations and species to maximize the vitality and future benefits of new trees planted.

When maintenance is not properly carried out over the life of a tree, it not only creates hazards, but it also compromises the health of the tree and reduces the net benefits the tree provides. In addition to Minnetonka’s city-wide regulations regarding tree protection and planting, all new development on the Opus site should require consultation with the city forester to determine optimal species and planting schemes (see Recommendation 1.3.1). This regulation will prevent unnecessary maintenance costs, such as pruning or removal of a tree that outgrows its site and ensure that trees are healthy and provide maximum benefits to the community.

Specific Policies:
• Ensure that all tree species planted are appropriate for the site on which they will be planted, by requiring the tree planting plan be reviewed and approved by the city forester or a certified arborist.
• Encourage developers to plant trees along southern and western building facades to reduce energy used for heating.
• Plant trees along the four major roadways bordering the site to enhance the pedestrian and bicycle environment and to slow traffic.
Guiding Principle 1.4:
Reduce greenhouse gas emissions and use of non-renewable energy.

Reducing the consumption of non-renewable energy and reducing greenhouse gas emissions are two guiding principles reflected in the LEED ND criteria. Criteria for certification include heat island reduction, solar orientation, on-site energy generation, LEED certified buildings, and energy efficient buildings. The recommendations in this section draw inspiration from the LEED standards, and offer suggestions for reduction of consumption of nonrenewable energy.

1.4.1: Maximize natural heating and cooling through good site design.

Southern and western window exposures are significant components of passive solar heating systems. Buildings oriented to take greater advantage of solar energy can reduce the energy expended in their heating. This strategy would necessarily need to be applied in conjunction with strategic tree planting. Deciduous tree plantings on the south sides of buildings will shade them from excess heat in the summer months while allowing the buildings to have maximum solar exposure in the winter months after the leaves have fallen. Evergreen trees can be planted along north/northwestern sides of buildings to reduce heating costs during winter by providing protection from cold winds.

There is no comprehensive plan strategy for using building orientation and planting to reduce energy costs. However, the City of Minnetonka’s website identifies strategic tree and shrub planting as a way to conserve energy and reduce heating and cooling bills. The tree planting for energy conservation suggestion is intended for residents looking to reduce energy costs sustainably.

The Austin Energy Green Building sourcebook suggests the use of passive solar design and building orientation to assist in heating and cooling buildings. Austin Energy is a publicly owned power company and city department that initiated Austin Energy Green Building, one of the nations’ most comprehensive energy efficiency programs for residential and commercial buildings.

As part of its natural resource and energy conservation goals, the City should consider requiring tree plantings for all structures on the site as well as requiring good site design for all new buildings to decrease overall energy usage on heating and cooling. Planting trees between 10 and 50 feet from a building will ensure that they effectively block sunlight without damaging the structure's foundation. Requiring these trees to be native species will ensure the success of the plantings and contribute to a more sustainable natural environment.

Specific Policies:
- Require all new buildings on the site to be oriented to maximize solar exposure and encourage strategic tree planting to reduce energy costs and consumption of non-renewable resources.
- Encourage developers to plant trees along western and northern areas of the development to provide a windbreak and reduce energy use for winter heating.
- Promote planting of large canopy trees in and around areas prone to stormwater runoff, including along the pedestrian promenade and along roads and parking areas.

1.4.2: Install solar-powered street lights, traffic signals, and irrigation systems.

Employing solar energy to power street lights and signals aligns with LEED ND goals to reduce consumption of non-renewable resources. Solar powered irrigation systems are less expensive than traditional irrigation systems and can help to maintain the natural beauty of the site. Solar energy lighting and irrigation systems are dependent on a renewable resource, making them energy independent as well as sustainable.

The City of Minnetonka does not have any regulations or policies requiring the implementation of solar powered lighting or irrigation. The city website advocates considering alternative energy resources such as solar, but these suggestions are directed toward residents and not the City
Itself. The City might consider directing some of the funds from the Energy Efficiency and Conservation Block Grant it received from the Department of Energy into the use of solar lighting for the redevelopment site. Suggestions for use of the grant include “retrofitting parking lot lights at facilities for energy use reduction.”

Dania Beach, Florida and Louisville, Kentucky have installed solar powered street lights in their cities to determine their feasibility in an urban setting. These lights will not contribute pollutants and may even reduce overall energy costs. According to the City of Louisville website, “The lights may be ideal for remote locations in parks because there is no need for trenching or connectivity to an electrical grid.”

Using solar powered lights on the development site would reduce the overall impact of implementing a lighting system, reduce electrical infrastructure costs, reduce energy costs, encourage use of renewable resources, and cause fewer impacts on the natural environment. These light fixtures should be installed near the LRT station and on the platform to provide lighting for what will likely be the most-used portion of the development site. Lighting located at trail connections could be used as a wayfinding device and encourage people to use the trail system in the evening hours.

Specific Policies:
- Require all new developments on the site to use solar powered irrigation systems for landscaping.
- Develop a lighting plan for the station area and redevelopment site that requires that all outdoor lighting be solar powered.

1.4.3: Require or encourage geothermal heating and cooling systems.

Geothermal energy sources are highly efficient and renewable because they take advantage of the earth’s constant temperature. The upper 10 feet of the earth’s surface maintains a temperature between 50 and 60 degrees Fahrenheit. A geothermal heat pump—consisting of pipes buried in the shallow ground near the building, a heat exchanger, and a network of ducts—equalizes a building’s temperature, reducing costs of heating in the winter and nearly eliminating cooling costs in the summer. Excess heat removed during the summer months can also be used as no-cost energy to heat water.

The City of Minnetonka does not have an energy use plan, but it has made suggestions about how to direct funding from its Energy Efficiency and Conservation Block Grant. One of these suggestions is to upgrade existing systems in the community center, police department, fire station, and city hall to be more energy efficient.

The Calpine Geothermal Visitor Center, in Middletown California, has incorporated many “green” features, one of which is the largest geothermal power generating operation in the world. The annual energy savings for the building is estimated at $5,080 with a 4.7 year payback period on investment.

A policy requiring new buildings on the site to have geothermal systems would dramatically reduce the amount of energy needed to heat and cool the buildings. These systems, in addition to the building orientations to maximize solar gain described in recommendation 1.4.1, would significantly reduce overall heating and cooling costs through sustainable means. Such a policy would directly contribute to the sustainability of the site by reducing consumption of non-renewable resources.

Specific Policies:
- Require that all new buildings on the development site be heated and cooled through geothermal systems to reduce costs and use of non-renewable resources.

1.4.4: Create incentives for ridesharing, car sharing, and other alternative transportation options to reduce automobile trips.

The introduction of the Southwest LRT line will ultimately reduce the number of auto trips by substituting light rail for some of these journeys. Creating additional incentives...
Transportation

Demand Management

Transportation Demand Management (TDM) aims to make more efficient use of transportation resources already in place by shifting demand (e.g., into carpools, or outside the peak) or eliminating trips altogether (e.g., telecommuting). The TDM approach embraces the adage “You can’t pave your way out of traffic congestion.”

to reduce personal automobile trips to or from the redevelopment site would help to reduce traffic in the area. Reduced car trips to the LRT station and development site would contribute to a reduction of greenhouse gases and the amount of parking spaces (and thus, impervious surfaces) needed to accommodate motor vehicles.

Implementing transportation demand management (TDM) strategies such as lowered parking requirements and incentives for use of alternative forms of transportation is one of the goals of Minnetonka’s comprehensive plan, and some businesses on the Opus campus currently participate in these efforts. The City’s encouragement of these TDM strategies helps increase use of alternative forms of transportation including carpooling, bus, walking, and bicycling.51

Monetary incentives to encourage use of alternative transportation modes could increase overall usage. Reduced cost transit passes, offered for a limited time, have been used to stimulate ridership and encourage potential transit users to try alternate forms of transportation, especially for commuting. A monetary incentive program for ridesharing and alternative transportation use was implemented by the Riverside County Transportation Commission and San Bernardino Associated Governments in Southern California. The program offers a $2 a day incentive to “new ridesharers who try carpooling, vanpooling, riding the bus or Metrolink, bicycling, walking, or telecommuting for each day they rideshare for the first three months.”52 Free light rail passes were distributed to residents at Orenco LRT Station in Portland Oregon to encourage them to try public transit.53

Implementing TDM strategies on the redevelopment site would help to limit travel by personal automobile, and TDM efforts elsewhere on the Opus campus could be expanded for greater impact once the light rail line is in operation.

Specific Policies:
- Reduce available parking on the redevelopment site to encourage other forms of transportation
- Implement an incentive program to encourage initial use of the Southwest LRT for travel.

1.4.5: Require that all new construction on the site be eligible for LEED certification.

The U.S. Green Building Council’s construction guidelines for LEED certification set a standard for sustainable construction and building operation and reducing the amount of energy consumed on the site. According to the U.S. Green Building Council’s website, building construction and operations account for nearly three-fourths of all electricity use and nearly 40 percent of overall energy use.

In its Strategic Framework adopted in 2007, the City of Minnetonka outlines the community’s value of promoting the “use of green technology and sustainable development.” The City’s Public Works Department maintains a website that discusses several aspects of sustainable development. The site focuses specifically on limiting waste during the construction phase and provides links to several websites that focus on how to build sustainably. The U.S Green Building Council’s website for LEED certification is among the websites listed.

Even though the City has indicated it does not want to require LEED certification for any development on the Opus Station redevelopment site, there are other ways to encourage incorporation of some aspects of the LEED criteria. For example, a number of cities have instituted some aspects of the LEED certification criteria in their ordinances, but stopped short of requiring that buildings achieve certification. Boston and Dallas are two examples of this approach. In other cases, cities have required that new development be eligible for LEED certification, again without requiring that the buildings actually achieve certification.54

Minnetonka appears to be following the practice of other U.S. cities in promoting aspects of LEED without requiring full certification for a new development. The City might consider using the Opus Station site as the first development for which being eligible for LEED certification is a requirement.
Specific Policy:
• Require at least half of new development on the Opus redevelopment site be eligible for LEED certification and enforce such a policy through sustainability building inspection.

1.4.6: Create “no vehicle-idling” zones near all buildings.

Vehicle idling increases air pollution concentration in the vicinity of the vehicle. Often vehicle idling occurs near a building entrance. Emissions from the vehicle can enter the building and degrade the interior air quality. Requiring vehicles to shut off their engines when the vehicle is stationary will not only reduce the negative effects on air quality but save fuel. According to the Washington State Department of Ecology, idling a vehicle for 10 minutes a day will consume an average of 22 gallons of gas in a year.56

Currently on the redevelopment site there are policies prohibiting parking in fire lanes, but there is no policy limiting vehicle idling, even in loading areas or near building entrances.

Many individual businesses and cities have no idling policies for vehicles owned by the company or city, or for vehicles on their property. For example, Ventura, California, has an anti-idling policy that forbids idling vehicles from remaining on for more than five minutes. Companies like UPS have implemented policies against idling delivery vehicles anywhere.57 UPS views it as a cost-saving measure and good corporate policy.

Creating no vehicle idling waiting zones near all entrances and loading zones on the redevelopment site would reduce air pollution, conserve fuel, and prevent emissions from entering buildings on the site. These zones can be designated with a simple sign, and enforced by building management.

Specific Policy:
• Establish no-idling zones within 100 feet of all entrances, loading zones, and air intakes for building climate control systems.

Guiding Principle 1.5:
Minimize solid waste production.

As landfills and waste incinerators reach capacity around the country, attention has increasingly focused on reducing the production of solid waste. Reducing solid waste ultimately reduces climate change by reducing the trucking of waste for disposal, improves regional air and water quality, minimizes the costs of extracting and using raw materials, and reduces the need to bury or incinerate waste. The three primary categories of waste reduction are reducing production of waste in processing raw materials into products; reusing materials that are considered waste in one circumstance as a resource that produces value in another circumstance; and recycling materials. Minnetonka has a long-running city-wide curbside and drop-off recycling program, and distributes informational materials to the community to promote recycling and reuse of materials. However, an opportunity still exists to reduce waste and save money through preventing waste production.

1.5.1: Establish on-site recycling/reuse/composting program.

Recycling, reuse of materials, and composting are actions individuals can take every day to be more sustainable, and recycling programs particularly are commonplace. However, some waste management companies only recycle a small portion of the recycling they collect. Many communities have established reuse centers and composting programs to reduce the amount of waste produced. According to Eureka Recycling, at least 25 percent of household trash is food wastes or other materials that are compostable. Benefits of reducing waste by these methods include financial savings from smaller waste volumes, less frequent waste pick-up, reduced organic wastes that can produce methane (a potent greenhouse gas) in the anaerobic conditions found in landfills, and a source of compost that can be used as a fertilizer and soil conditioner for landscaping and gardening.57a

Currently, individuals and housing developments in Minnetonka contract with a sanitation service of their choice, and the recycling practices of these companies can vary widely. There is no current practice of reuse or composting of waste
on the redevelopment site or the Opus campus.

One local example of a good recycling programs can be found at the Solhem development in the Uptown area of Minneapolis. This residential development not only has its own recycling program and uses a waste management company that has a recycle rate of nearly 80 percent, but it also encourages residents to divide their trash into two categories: inorganic and organic. The organic trash can then be composted.

Recycling programs that require sorted recycling among all businesses and residential units on the redevelopment site could be instituted. This should include sorting recycling by material type and dividing trash into organic and inorganic. Organic trash can then be used for an on-site composting system. A reuse center could also be established for the redevelopment site and larger Opus campus. The center would offer a place where residents can place items in good condition for others to purchase, thus reducing the amount of solid waste generated.

**Specific Policies:**

- Require waste disposal contracts with companies that recycle at least 70 percent of items collected as recycling.
- Establish a program to encourage composting of organic materials on the redevelopment site and larger Opus campus.
- Locate recycling receptacles in public spaces.

1.5.2: **Promote recycled building materials in new construction.**

A key part of sustainable building practices is salvaging material from the demolition process that can be used in construction, and using recycled building materials whenever possible in new construction. Reuse and use of recycled materials is one of the criteria in the U.S Green Building Council’s LEED programs. The LEED certification guidelines require a minimum of 55 percent of structural elements include recycled material.

According to the Minnetonka website, reusing and recycling construction materials is one of the guidelines the City outlines for building green in the city. It is unclear if the current building on the development site was constructed with recycled materials or what could be salvaged during demolition.

Programs such as The ReUse Center in Minneapolis accept recycled building materials and sell recycled materials for new construction. Some private companies, such as Wood from the ‘Hood, purchase and reuse materials salvaged from demolition sites. Such companies may be willing to enter into a volume contract to haul reusable materials from demolition sites at low or no cost.

The City could require or create incentives for reuse of materials salvaged from demolition of old structures, or encourage donation of reusable construction materials to companies such as The ReUse Center.

**Specific Policies:**

- Require that for new development, construction should meet the minimum LEED certification requirement of use of 55 percent recycled materials.
- Require or create incentives for demolition crews to contract with companies that will salvage reusable materials from demolition sites.

**Guiding Principle 1.6:**

*Provide opportunities for learning about ecologically sustainable practices.*

Education is an essential component of changing individual behaviors and cultural beliefs to encourage living sustainably. The Opus redevelopment site offers several opportunities for capitalizing on sustainable practices to educate the public (and especially future generations) about the importance and benefits of these practices, as well as how to incorporate them into their own homes, schools, workplaces, and daily lives.
1.6.1: Install educational displays and signage to highlight ecologically sustainable practices.

Based on daily station boarding estimates for the Opus LRT station, roughly 900–1,000 people will use the station daily, in addition to local employees and residents who might not use light rail but will pass near or through the station area. The development site can thus become an important place for educating people about sustainability through interpretive displays that identify sustainable practices on the site and the social, economic, and environmental benefits they engender.

Currently, there is an opportunity on the redevelopment site to highlight one significant natural feature: the wetland/storm water pond in the northeast corner of the site. Nine Mile Creek Watershed rules require that signs be posted at the edge of wetland buffers to identify them as such, but this rule applies only to new developments that require a permit from the watershed district. The existing development that fronts on the wetland predates the watershed rules, so neither a buffer nor signage is required.

At the Minnesota Landscape Arboretum, an educational display is adjacent to many of the Arboretum’s parking lot rain gardens. The displays identify the rain gardens, explain how they were designed, and list the types of plants appropriate for rain gardens. Another good example of an educational display can be found near the Minnesota Landscape Arboretum’s Learning Center building, where a series of bays have been constructed to test the effects of different combinations of pervious and impervious surfaces on the amount of storm water runoff generated. Each bay is accompanied by a sign that describes the percentage of pervious and impervious surface area and the results of the tests.

Based on the recommendations in this report, there may be opportunities for educational displays to accompany a number of development features and best practices, such as LEED-certified buildings, the ecological role of wetland buffers, the stormwater benefits provided by raingardens and bioswales, the water absorption and insulating effects of green roofs, and the infiltration benefits of pervious pavement. Natural resource and design students from local colleges or universities might be enlisted at no cost to help design the displays. The City could pursue a cost-sharing arrangement with local businesses to install signs or interpretive displays that highlight sustainable practices the businesses use. For sustainable elements of the LRT station, the City could work with MetroTransit and the Hennepin County Regional Rail Authority to design and install displays near the station.

Specific Policies:
- Create a uniform design for interpretive and educational displays on the redevelopment site and the rest of the Opus Business Park campus.
- Identify funding for interpretive and educational displays on the redevelopment site and the rest of the Opus campus.
- Adopt a policy to install and maintain interpretive and educational displays that highlight environmentally sustainable practices on the redevelopment site and Opus campus.

1.6.2: Encourage businesses to offer public tours of green and LEED-certified buildings.

Leadership in Energy and Environmental Design (LEED) is a certification system created by the U.S. Green Building Council that includes benchmarks for the design, construction, and operation of green buildings. Certification assures that a building project is, among other things, environmentally responsible and a healthy place to work.

The City of Minnetonka has many LEED-certified buildings, including the Opus headquarters building (LEED-Gold certified) just northeast of the site of the future Opus light rail station and the United Health Group headquarters (LEED-Gold certified.) Given the City’s interest in fostering sustainable development around the station area, it is likely that at least some of the redevelopment on or immediately adjacent to the site will achieve LEED certification. This presents another educational opportunity: public tours of these buildings that point out innovative sustainable design features.
Great River Energy gives tours of its LEED-Platinum certified headquarters in Maple Grove “to educate and inform cooperative members, industry-related professionals, and teachers and students on energy efficiency, conservation and sustainability.” In addition, the company extensively documented the planning, design, and construction of the building to advance green building practice and help others achieve LEED certification.59

The City of Minnetonka Economic Development Authority (EDA) could encourage local businesses on the redevelopment site and surrounding Opus campus to offer free public building tours of LEED-certified buildings, and perhaps to create a walking tour of buildings on the site and campus. In addition, the EDA could coordinate a marketing effort that promotes the city as a green business community based on the number of LEED-certified buildings, using the Opus station area and Opus campus as a centerpiece of the campaign to capitalize on the publicity that will surround the opening of the LRT station, currently estimated for 2017.

**Specific Policies:**
- Encourage or provide incentives for businesses in LEED-certified buildings to participate in and help fund a citywide “green business community” marketing effort, beginning with those adjacent to the Opus LRT station.
- Encourage or provide incentives for businesses in LEED-certified buildings on the redevelopment site and Opus campus to offer public tours of their buildings at least quarterly as part of a city-sponsored and city-funded LEED-certified walking tour.
SYSTEM 2 | CONNECTIVITY & ACCESSIBILITY
Sustainability System: Connectivity & Accessibility

Guiding Principles

2.1: Improve facilities for users of non-motorized transport.
   2.1.1: Upgrade the sidewalk/trail network on the redevelopment site in order to increase accessibility.
   2.1.2: Institute traffic-calming measures to slow traffic speeds on roads adjacent to and on the redevelopment site.
   2.1.3: Provide a better pedestrian environment by adding amenities for safety and aesthetics.
   2.1.4: Promote bicycling by providing bicycle infrastructure and facilities and supporting a bike sharing program.

2.2: Improve access to multiple modes of transportation.
   2.2.1: Provide expanded bus service from surrounding residential areas to increase light rail ridership.
   2.2.2: Encourage businesses on the Opus Business Park campus to expand the scope of their existing transportation demand management programs.
   2.2.3: Provide a high-frequency circulator shuttle that serves the redevelopment site and the Opus campus.
   2.2.4: Locate transit stops in areas that are visually interesting and that provide diversions for people who are waiting.

2.3: Integrate homes, shops, workplaces, and public amenities on the site.
   2.3.1: Encourage mixed-use development on the redevelopment site.
   2.3.2: Institute maximum parking requirements, shared parking, and other parking reduction strategies to facilitate infill development and reduce the amount of impervious surface.

2.4: Integrate and enhance the pedestrian, bicycle, and automobile transportation systems.
   2.4.1: Simplify the transportation network to accommodate transportation volumes and to function efficiently as an integrated system of auto and non-auto transport.
   2.4.2: Use signage and other safety features to make it easier and safer for pedestrian, bicycle, and motor vehicle activities to occur in the same space.
Opus Light Rail Station Area:
Sustainable Development Scenario
System 2: Connectivity & Accessibility

A. Elevated crosswalks at the north and south ends of the light rail stop crossing the tracks and Bren Road East

B. Supplemental on-street parking should be metered to discourage extended parking

C. Traffic calming measures to promote safety: sidewalks, on-street parking, traffic circle, minimum road widths, and roadside trees

D. Central plaza of benches, trees and plantings, to provide connection from the light rail station to buildings, natural areas, and trails at the east end of the site.

E. Structured parking integrated into main mixed use buildings to be shared by multiple users of the site

F. Two-way neighborhood street providing access to residences and businesses

G. Pedestrian and bicyclist amenities to be distributed across the site: outdoor lighting, shade trees, directional signs, water fountains, bicycle racks, and benches

H. Public bus service and high frequency circulator shuttle stop and/or boarding area adjacent to light rail station

I. Surface parking lots with approximately 16 spaces each, to serve residents, visitors, and delivery and emergency vehicles.

J. Arrange parking agreements to share surface parking lots between different businesses and users

K. New trail connections

L. Reverse direction of Green Oak Drive to flow north rather than south

Legend:
- Office
- Neighborhood Retail
- Multifamily
- Live-Work Townhomes
- Townhomes
- Community Pavilion
- Plaza & Promenade
- Water
- Open Space
- Raingarden
- Trees and Foilage
- Light Rail & Station
- Trail Network
- Sidewalks
- Development Site Boundary

FIGURE 12: CONNECTIVITY AND ACCESSIBILITY SYSTEM MAP
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SUSTAINABILITY SYSTEM 2: CONNECTIVITY & ACCESSIBILITY

Transportation issues are essential to any discussion of sustainability. Different modes of transportation can have vastly different effects on the natural environment, depending upon what sort of fuel and how much fuel per passenger, if any, those modes of transportation require. If a particular mode of transportation requires the consumption of fuel that either depletes a finite resource or adversely affects the natural environment, longer trips have worse effects than shorter trips.

If environmental sustainability were the only objective being considered, public transit and non-motorized transportation would be given unconditional preference over the automobile and most people would only make very short trips each day. However, economic sustainability requires the availability of the widest possible range of transportation modes and access to types of destinations that are often far removed from one another geographically. Finally, the equity component of sustainability requires that transportation options be provided to people who are either financially or physically limited in how far they can travel and by what mode they can travel. Taken together, these objectives dictate the availability of many different modes of transportation, relatively direct routes that can be traveled between destinations, and destinations that are relatively close to one another.

Currently, transportation systems around the redevelopment site are not very consistent with sustainable development. Transit and non-motorized transportation are both marginalized, with the vast majority of trips taking place by automobile. Consequently, the site is presently reliant on a single mode of transportation, a mode that consumes large amounts of fuel and produces large amounts of pollution, including greenhouse gases. Furthermore, the redevelopment site is presently occupied by a single land use and is surrounded mostly by land uses of a similar type, with great distances in between buildings. The following guiding principles and recommendations offer ideas as to how transportation connections on or near the redevelopment site might be made more direct, how trips that begin or end on the site might be made shorter, and how the rate of use of environmentally sustainable modes of transportation might be increased.

Guiding Principle 2.1: Improve facilities for users of non-motorized transport.

According to the U.S. Green Building Council, a sufficient street network is one in which there are high levels of internal connectivity, especially for cyclists and pedestrians. The proposed development plan for the Opus LRT area emphasizes improvements to non-motorized transportation facilities such as upgrading the existing pedestrian/bicycle trail system, introducing sidewalks on the roads bordering and within the site, and adding amenities for pedestrians and cyclists.

2.1.1: Upgrade the sidewalk/trail network on the redevelopment site in order to increase accessibility.

A high-quality grid of pedestrian connections, whether they are sidewalks or trails, is an important sustainability measure. The creation of such connections makes it easier to travel by non-motorized means, which is likely to result in more people choosing to travel by non-motorized means. The more times people choose to travel by non-motorized means, the fewer times they choose to travel in motor vehicles that pollute the atmosphere and consume fossil fuels that are in finite supply. In addition, adequate pedestrian connections are an equity concern for individuals who cannot afford to travel by motor vehicle, and an economic concern for businesses that want their customers and employees to be able to reach their facilities as easily as possible. Pedestrian networks that follow a grid pattern and run close to buildings’ entrances, such as may be found in many old city centers in the United States, tend to be the most effective at accommodating travel by foot.60

Currently, a north-south trail runs along the western edge of the redevelopment site where the future light rail line will likely be located, and an east-west trail runs along the southern edge of the site. There are no trails through the redevelopment site itself.
Business Improvement District

Business improvement districts are designed to provide revenue to pay for improvements and services that mutually benefit businesses in the district. Businesses in the specified area establish an agreement with the local government to pay additional taxes or fees that are then escrowed and dedicated to carrying out specific, predetermined activities from which all businesses in the district benefit. Districts of this sort already exist in more than 1,500 locations in the United States and Canada.

A business improvement district for the Opus station area could potentially be extended to encompass the broader Opus campus, so that the trail system might be improved throughout the business park.

In conjunction with new development adjacent to the Opus station, new trail connections could be constructed that provide greater access to the station for pedestrians and bicyclists, and that allow multiple access points to the many amenities on the site. New trail segments should be paved and landscaped in a similar fashion to sidewalks throughout the development; the existing trail system should be upgraded to this standard as well. Ideally, any new pavement would be permeable pavement, in order to minimize water runoff, as described in recommendation 1.1.3 in the natural environment section of this report.

Construction and maintenance of these pedestrian and bicycle facilities could possibly be funded through the establishment of a business improvement district or through the sustainable improvement district concept discussed later in this report (3.2.3).

Specific Policies

- Install new trails along the northern edge of the redevelopment area and west of the wetland at the eastern edge of the site.
- Install a pedestrian plaza running east-west across the center of the development.
- Install sidewalks along any new roadways that are built within the site.
- Require that all buildings on the redevelopment site have sidewalks around their perimeters.

2.1.2: Institute traffic-calming measures to slow traffic speeds on roads adjacent to and on the redevelopment site.

The primary goal of traffic calming is to increase pedestrian safety through road-design measures that force motorists to slow down and/or take more notice of their surroundings. Traffic calming serves the purpose of sustainability by making roadway crossings less of a barrier to travel by non-motorized means. As was discussed in the recommendation immediately preceding this one, enabling people to choose walking or bicycling over driving contributes to environmental sustainability.

On the roadways that currently surround the redevelopment site, there is very little in the way of traffic calming. Because all of the roads are one-way, drivers do not need to look out for oncoming traffic. As a result, posted speed limits are very easily exceeded. Traffic speeds are also increased by the fact that the nearest stoplight to the redevelopment site is at the edge of the Opus campus. Crosswalks are rare and sidewalks are absent entirely. As a result of this, drivers are unlikely to be on the lookout for pedestrians trying to cross the street or bicyclists riding on the edge of the road, increasing the odds of a collision. The only significant traffic calming element to be found in the area around the redevelopment site is the fact that most of the roads in the area are curvilinear. As a result, drivers frequently need to moderate their speed in order to navigate the curves in the road.

A good example of traffic calming may be found in the Heart of the City development in Burnsville. A raised crosswalk connects two residential developments on a high-traffic street where there is significant pedestrian activity. The raised crosswalk is indicated by a sign, and the crosswalk acts much like a speedbump, causing automobile traffic to slow down as it approaches.

If the redevelopment site is developed more densely and has a new, high-frequency transit station, there are likely to be more pedestrian crossings of the surrounding roads than is currently the case, especially on the north-south segment of Bren Road East, and hence more opportunities for pedestrian-vehicle collisions. Traffic calming measures would slow down vehicle traffic, making pedestrian-vehicle collisions less likely to occur. In any location where there is an at-grade pedestrian crosswalk, especially next to the light rail station, the crosswalks should be raised and should be indicated by signage. Also, any new road that is built through the development site should be narrower than other roadways on the Opus campus to encourage reduced automobile speeds.

The speed reductions caused by using these measures on the site’s internal roadways would both reduce pedestrian accidents and make motorists less inclined to cut through the development site in order to make a through trip. Finally, the
portions of Bren Road West, Bren Road East, and Green Oak Drive that surround the redevelopment site on all sides can be converted into a large traffic circle by reversing the direction of the one-way traffic (from south to north) on Green Oak Drive. A traffic loop around the development site would both help to reduce vehicle speeds and simplify the overall road network on the Opus campus.  

Specific Policies:  
- Plant trees along roadways at the perimeter of the site to calm traffic and make pedestrians/bicyclists safer.  
- Turn all at-grade crosswalks into raised crosswalks to make them more visible and to encourage motorists to slow down.  
- Add high-visibility signage to indicate to motorists the location of at-grade crosswalks.  
- Slow down traffic through the redevelopment site by making any new roads narrower than roads that exist elsewhere on the Opus campus.  

2.1.3.: Provide a better pedestrian environment by adding amenities for safety and aesthetics.

Evidence indicates that physical features of the pedestrian environment that provide comfort, safety, and interest increase the use of trails, sidewalks, and public spaces. In addition, providing safe and pleasing pedestrian environments is a quality-of-life issue for residents, a public health issue for the city, and an issue of equity to the extent that residents who live in other areas of the city have greater opportunities to walk in comfort and safety.

Residents who participated in a focus group in conjunction with the preparation of this report cited safety as one of their primary concerns with the existing trail system on the Opus Business Park campus. Poor trail conditions, inadequate lighting, lack of visibility from the street, and infrequent use during certain times of day create conditions that are both uninviting and potentially dangerous for trail users, particularly at night.

Simple amenities can create more inviting and safe environments for pedestrians. For example, trees and other vegetation can be used to shelter pedestrians from high traffic levels on the street. Benches and drinking fountains can provide an opportunity for rest or refreshment. Good lighting can increase perceptions of safety and reduce the incidence of crime. Public art or water features offer interesting focal points and gathering places. A well-designed system of informational and wayfinding signage can increase the legibility of the landscape, contributing to a sense of security and comfort.

It is recommended that the City of Minnetonka undertake a walking audit of the pedestrian environment on the development site and adjacent Opus campus to identify ways to improve the existing trail system to encourage greater pedestrian use. Other sections of this report, particularly the Health and Wellness System, provide more detailed recommendations for improvements that could be made to the pedestrian environment.

Specific Policies:
- Conduct a walking audit of the pedestrian environment on the redevelopment site and surrounding areas within a half-mile walkshed.  
- Plant shade trees strategically along walkways to provide shade and a buffer from traffic for pedestrian users.  
- Install benches, drinking fountains, public art, and other amenities at regular intervals along pedestrian trails and sidewalks.  
- Install lighting and signage to improve the legibility of the landscape and pedestrian safety.

2.1.4: Promote bicycling by providing bicycle infrastructure and facilities, and supporting a bike sharing program.

Biking is one of the most sustainable modes of transportation available, and next to walking, perhaps the most low-impact and cost-effective—with the added bonus of contributing to better health. In addition, substituting bicycle trips for automobile trips can result in a substantial reduction in gasoline usage and air pollution, and can help to reduce traffic congestion. Finally, enhancing bicycle access and amenities...
at the Opus LRT station to encourage biking is a potentially cost-effective way to increase the service areas of the station beyond the traditional one-quarter mile walkshed.

Conditions for biking on the Opus campus near the redevelopment site are less than ideal. There are no designated bike lanes or paths anywhere on the campus. In addition, there are no bicycle facilities currently available on or near the redevelopment site, not even bike racks.

A good bicycle infrastructure provides safe, convenient, accessible, and pleasant travel routes that link housing, jobs, shopping, and recreation areas. Bicycle infrastructure can include a variety of types of bikeways, including bike paths with their own right-of-way, designated bike lanes on public roadways, and multi-use paths that can accommodate bicycles, pedestrians, and other nonmotorized travelers. Other recommendations for bicycle infrastructure improvements are provided elsewhere in this report.

To take full advantage of the bicycle - light rail connection, facilities to support bicycling should ideally be located at or adjacent to the transit station, near housing and commercial areas, and in office buildings on the Opus campus. Mobis Transportation Alternatives markets the BikeStation, a customized, full-service bicycle-transit installation that can include 24/7 bike access and storage, bicycle repair, equipment and accessory sales, a changing room, lockers, restrooms, showers, and snack bars/cafes. Members pay a monthly fee to securely park their bike at the station. Capital development costs range from $100,000 for an automated modular facility to $2 million for a full-service stand-alone facility.65

Finally, bike sharing systems provide short-term bike rentals through an automated system, where users check out a bike from a rental station by credit card, membership card, or cell phone. Bike sharing provides an additional, flexible transportation mode for people traveling to or from the Opus LRT station. Although there are roughly 100 bike sharing programs in Europe, Washington, D.C. is the only city in the United States with a full-fledged system (110 bikes) that has survived for any length of time.66 Locally, the City of Minneapolis will be starting a bicycle-sharing program in 2010. The City might consider including in its zoning ordinance a requirement for bicycle access in all redevelopment projects, as well as a requirement for a minimum number of secure bicycle parking spaces near all retail and service commercial uses. In addition, the City could consider adopting a bicycle master plan for the Opus station area and surrounding Opus campus that assesses existing conditions for bicycling, analyzes local needs, and provides policy and facility recommendations. Such a plan might include analysis of local conditions and needs, a user profile, identification of bicycle trip-making patterns, identification of corridors and routes that serve particular destinations and present trail opportunities, recommendations for facility improvements, and an implementation strategy.67

Specific Policies:

- Establish a minimum standard for bicycle parking requirements for all businesses and residential complexes within the Opus Business Park to encourage bicycle usage.
- Provide bicycle racks, secure storage lockers, changing rooms, and bicycle repair facilities at the LRT station to maximize convenience and security.
- Encourage businesses on the redevelopment site and surrounding Opus campus to fund a bike-sharing system through a Business Improvement District.
- Create and adopt a bicycle master plan for the redevelopment site and surrounding Opus campus.

Guiding Principle 2.2: Improve access to multiple modes of transportation.

According to the U.S. Green Building Council, transit should be pursued as a means of reducing automobile usage, and hence reducing fuel consumption and motor vehicle pollution. In addition, transit improvements are an important equity measure, because people who cannot afford to travel by automobile are usually dependent on public transit for transportation. The proposed development plan for the Opus LRT area emphasizes measures to enhance the light rail line’s connections to other transportation modes, including bus transit lines and a circulator shuttle, and measures to make...
the prospect of riding transit more appealing to travelers, such as business-based Travel Demand Management and making the light rail station a more pleasant facility to make use of.

2.2.1: Provide expanded bus service from surrounding residential areas to increase light rail ridership.

For the light rail station on the redevelopment site to be economically sustainable, it needs to attract a large number of transit passengers. Also, achieving environmental sustainability requires that as many people as possible ride on each transit vehicle, thus minimizing the amount of fuel consumed per passenger and the amount of motor vehicle emissions produced per passenger. Because there is only a 100-space park-and-ride facility planned for the development site, most users of the light rail station must either walk to and from the station or travel there by bus. Since someone can travel farther on a bus than by walking, adequate connections to bus routes at the light rail station would significantly increase the total number of potential transit customers who can reach the light rail station.

Currently, there are no bus stops near the future site of the light rail station on the redevelopment site. Although there are bus stops at other locations throughout the Opus campus, only two bus routes use these stops. Furthermore, one of those bus routes is an express bus line, only making a small number of trips in the morning and evening. Both of these bus routes travel between the Opus campus and downtown Minneapolis, the same basic direction in which the Southwest Corridor light rail line will travel. Because these existing bus routes run parallel to the future light rail alignment rather than perpendicular to it, they are ill-suited to serving as feeder routes for the light rail line.

The concept being put forward here is that of a multimodal transit station, with bus lines feeding into a light rail line. An example of such a multimodal transit stop may be found in the waterfront district of Cleveland, Ohio. According to the plan for the waterfront district, this multimodal transit station is meant to enhance the connectivity of the local transit system. Another good example of using a multimodal transit station to link bus feeder routes to a rail trunk line may be found in the sustainability plan of Stapleton, a new planned neighborhood in Denver, Colorado.

The city is encouraged to work with the MetroTransit to establish a bus stop near the light rail station and introduce new bus routes that will use that bus stop. These bus routes should be organized as feeder routes for the light rail line, which will function as a trunk line. As a result, the transit service area feeding into the light rail station on the redevelopment site would be expanded to include a larger number of potential passengers. If MetroTransit is not willing or able to expand bus service, the City of Minnetonka does have the option of creating its own transit service, like the nearby community of Plymouth has done, by exercising its legal option to “opt-out” of Metro Transit.

Specific Policies:

• Construct a traffic bay on the side of Bren Road East, just west of the light rail alignment, which may serve as the location of a future bus stop.
• Work with MetroTransit to conduct a study to determine which potential east-west bus routes that might be connected to the light rail station have sufficient transit demand to actually be used as bus routes.

2.2.2: Encourage businesses on the Opus Business Park campus to expand the scope of their existing Transportation Demand Management programs.

Transportation Demand Management (TDM) involves policies and strategies to reduce or redistribute travel demand, most notably single-occupant vehicle travel. Managing demand is a more cost-effective alternative than increasing system capacity, reduces fossil fuel use and carbon emissions from vehicles, and encourages healthier activities like walking and biking. In the context of the Opus LRT station, TDM is also critical to increasing use of the light rail option among residents and workers on the campus.

Many businesses on the Opus campus currently have TDM programs that provide such things as reduced-price bus
passes, incentives for carpooling, and options for flexible work schedules and telecommuting. Because the Southwest LRT will be a new mode of transportation for the area, additional efforts will be necessary on the part of businesses to familiarize their employees with the benefits of light rail transit and encourage more people to use this mode of transportation.

LEED ND guidelines establish as a benchmark for TDM a reduction of weekday peak-period motor vehicle trips by at least 20% compared with a baseline case. The guidelines also require that the program be funded for a minimum of three years after the project is built out. There are several strategies businesses can use to capitalize on a new transit station to reduce travel demand, including highly publicizing the new transportation option, subsidizing transit passes, and providing shuttle service to and from the station for employees. For residential developments, strategies such as offering incentives to share vehicles, unbundling the cost of parking from the cost of housing, and subsidizing transit passes can reduce travel demand.

The goals of expanding and enhancing the TDM program among Opus businesses should be to reduce the number of single-occupant vehicle trips during peak periods and to reduce vehicle miles traveled (VMT) during peak periods. The TDM program could be expanded by involving more businesses in the effort. Enhancing the programs will require some form of subsidy for transit passes, and the distance most businesses on the campus are located from the LRT station means that providing shuttle service or other transportation to and from the station may be critical to the use of LRT. For residents of the business park, a subsidy may also be necessary to encourage use of light rail. For residential development that occurs adjacent to the station itself, strategies such as unbundling parking or offering incentives to share vehicles may encourage use of light rail and reduce single-occupant vehicle trips.

Specific Policies:
- In cooperation with local businesses, create a marketing campaign to market LRT to employees on the Opus campus.
- Offer tax incentives for local businesses to subsidize the cost of transit passes for their employees.
- Subsidize transit passes for residents of the Opus business park for a minimum of three years from the time the station opens.
- Reduce parking requirements for residential developments in the Opus station area that institute a TDM program.

2.2.3: Provide a high-frequency hybrid circulator shuttle that serves the redevelopment site and the Opus campus.

Use of LRT stations depends heavily on how accessible the station is to people traveling by all modes of transportation. For those walking to the station, the standard rule is that most people are unlikely to walk more than one-quarter mile to reach a station in cold climates such as Minnesota.

The proposed location for the future Opus LRT Station is not easily accessible, except by automobile. Because few companies or residences in the Opus Station area are within the one-quarter mile walkshed, access to the station will need to be improved. Various strategies for connectivity and accessibility are addressed in this plan such as improving trail connections, enhancing bike access, and increasing bus service. Another highly effective method to improve access is to provide a hybrid shuttle service which connects people from the LRT station to other areas of the Opus Business Park. Using hybrid buses instead of standard buses will produce fewer emissions and require less energy to operate the service.

The Denver Technological Center has implemented a high frequency shuttle service that provides access between transit stops and the surrounding building park. Hybrid buses use on average 30 percent less fuel and produce 40 percent fewer nitrogen oxides, 30 percent less greenhouse emissions, and 95 percent less particulate matter. There is roughly a $150,000 increased capital cost for hybrid buses over conventional buses. However, there is generally less maintenance required with hybrid vehicles, so there is a reduction of costs over the long term.

To help cover the initial capital purchase cost, tax increment
financing could be used to provide funds. The service itself could either be operated by the City, the companies in the Opus Business Park, or as a contract transit service from the Metropolitan Council or a private company.

**Specific Policies:**
- Establish a shuttle service through tax increment financing or other financial tools. To make this service sustainable, require hybrid vehicles be used for the service. The operator of the service shall be determined through discussions between the city, the business park, and Metro Transit.
- Subsidize or create incentives for use of hybrid circulator shuttles for the Opus Campus originating from the development site.

2.2.4: **Locate transit stops in areas that are visually interesting and that provide diversions for people who are waiting.**

The objective of environmental sustainability is served by increasing the number of people who travel by transit on a regular basis, because transit vehicles consume less fuel per passenger and emit fewer pollutants per passenger than private automobiles. One tool that may be used to convince more people to travel by transit is the positioning of various amenities in close proximity to transit stops, so that the use of those stops may be viewed as something other than a burden. These amenities may include, but are not necessarily limited to, public artwork, lighted shelters for waiting transit passengers, and restaurants and other retail establishments that are within easy walking distance of the stations. Many of the same amenities that encourage people to use transit are amenities that also encourage the use of pedestrian and bicycle facilities, as previously described in recommendations 2.1.3 and 2.1.4, as well as in Guiding Principle 4.1 in the Health and Wellness section of this report.

At the April 17, 2010 public meeting, Opus campus residents liked the idea of having a small restaurant near the light rail station. Locating restaurants and retail stores near light rail stations is a very common practice. A prime example of this is Mockingbird Station, located along the DART light rail system in Dallas, Texas, where several different retail uses were built with high-end architecture in very close proximity to a light rail station and subsequently received very large numbers of customers. However, a much smaller scale of development would need to be employed for the retail establishments around the light rail station dealt with in this plan. This is on account of the relatively low-density development patterns found in Minnetonka, which limit the availability of customers from outside the TOD site.

A good example of a light rail station designed with visually interesting surroundings may be found in Phoenix, Arizona, at the 12th St. & Washington/Jefferson station. This light rail station features a public art installation called “Arizona Quilts” created by San Francisco artist Victor Mario Zaballa that consists of ceramic tile murals that are made to resemble detailed woven quilts. The murals also incorporate photographs of neighborhood landmarks and longtime residents.

The light rail station and its surroundings should feature architecture and landscaping of a high aesthetic quality, in order to make it a facility where people do not mind waiting around. Also, small restaurants (and possibly stores) should be built in close proximity to the light rail station, preferably along a promenade running parallel to the light rail tracks. The light rail station and these retail establishments will serve to provide one another with customers.

**Specific Policies:**
- Accept designs and bids for a public art installation at the light rail station.
- Plant trees and install outdoor lighting and benches near the light rail station.
- Zone buildings along the western edge of the redevelopment site for first-story retail.
Guiding Principle 2.3:  
Integrate homes, shops, workplaces, and public amenities on the site.

More compact development and a mix of land uses are both important elements of creating an inviting and pedestrian-friendly urban form that facilitates shorter, more convenient trips and encourages people to substitute walking for driving to their destinations. Integrating a mix of uses can help to transform the Opus station area into a vibrant and inclusive neighborhood that is welcoming for visitors and provides many of the daily needs of residents and employees.

2.3.1: Encourage mixed-use development on the redevelopment site.

A mix of land uses is essential to the success and sustainability of a transit-oriented, traditional neighborhood or livable community development. The variety as well as proximity of uses in a neighborhood increases the likelihood that individuals will use alternative forms of transportation including cycling and walking.

The redevelopment site is zoned for mixed use development, although only one actual use occurs on the site: industrial. After the arrival of light rail, any redevelopment plan should require buildings on the development site to be mixed in use and purpose. Having a variety of uses on the site, such as residential, retail, and office, could assist the city’s transportation and land use goals. The mix of land uses in areas where infrastructure is already present encourages the use of alternative forms of transportation.

Walnut Station, along the BART Line in the San Francisco Bay area, provides an example of mixed use development adjacent to rail. The Bay Area Rapid Transit Authority recognized the importance of supportive land uses surrounding the station in the overall success of the stop and station area. A Transit-Oriented Development, supportive of high densities and mixed uses, was created for the station area. Mixed uses and multimodal connectivity are widely seen as beneficial strategies in the success of station areas and Transit-Oriented Developments.

Creation of truly mixed-use development surrounding the Opus light rail station, instead of merely having mixed-use zoning, can serve to support transit use, take advantage of high commuter volumes, and create a vibrant public space in the heart of the Opus campus. A mix of uses in close proximity will better connect people to services and contribute to biking and walking as a means of transportation.

Specific Policy:

- Require that at least half of all new buildings on the site be mixed use to encourage sustainable growth as well as use of alternative forms of transportation.

2.3.2: Institute maximum parking requirements, shared parking, and other parking reduction strategies to facilitate infill development and reduce the amount of impervious surface.

Since the 1950s, minimum parking requirements have been the traditional way for municipalities to regulate parking. Typically such requirements specify the minimum number of parking spaces that must accompany each particular land use. As planner Donald Shoup has noted, “Free parking gives the largest subsidy per mile to the shortest vehicle trips—the ones that, without a parking subsidy, we would most likely make by walking, cycling, or public transit. Free parking is an invitation to drive wherever we go.” During the past decade, Shoup and others have begun to question the traditional parking orthodoxy by documenting the impacts of free and abundant parking, which range from its negative effects on the natural environment and visible effects on urban form to its hidden impacts on transportation choices, land values, the cost of goods and services, and housing affordability.

Currently there is an overabundance of parking, both on the redevelopment site itself and on the Opus campus more generally. Much of the existing development on the Opus station site is a surface parking lot that sits unused all but a few days per year. The parking lot of the neighboring Opus Headquarters is also largely empty on most days. The City of
Minnetonka zoning regulations establish minimum parking requirements by land use category, generally on the basis of number of employees or square footage of buildings.

Increasingly, cities are instituting innovative policies to minimize off-street parking. Some have simply lowered or eliminated their minimum parking requirements for development, or replaced parking minimums with parking maximums or caps. Centralized off-street parking may be provided by allowing shared provision of parking among several land uses that require parking at different times of the day—for example, an office building, where people are present during business hours, and a restaurant, where people dine primarily in the evening, after normal business hours. Another approach is to allow or require developers to pay a fee in lieu of providing off-street parking, and then using these fees to finance construction of a centralized parking facility or surface lot. Finally, parking pricing—that is, charging for parking rather than providing it free to employees, residents, or customers—would encourage some people to use alternative means of transportation.21 In addition to reducing off-street parking, strengthening requirements for off-street parking location and design to minimize curb cuts, buffer parking areas, and visually de-emphasize parking as a design element can create a more inviting pedestrian and cycling environment.

Although the redevelopment site is not located in a dense downtown location, maximum parking standards would still be effective at limiting the percentage of land devoted to parking, minimizing the amount of impervious surface, and increasing space for infill and redevelopment. Allowing shared parking or using cash-in-lieu to pay for construction of a shared parking facility such as a ramp could be an effective way to meet the parking needs of retail and service establishments on the redevelopment site, particularly if this facility could also serve the LRT station. Parking pricing could be instituted by major employers within the service area of the LRT station and for new residential development on the redevelopment site to encourage employees and residents to use public transit. By reducing the need for parking, all of these approaches can facilitate more compact, contiguous development, which will further the goals of accessibility.

A local example of using these strategies occurs at Quality Bicycle Products (QBP) in Bloomington. Employees are paid a small amount each day to not drive which encourages the use of alternative modes of transportation and reduces parking requirements on-site.

**Specific Policies:**

- Replace minimum parking requirements with maximum parking requirements for all new development or redevelopment within the LRT station service area.
- Allow shared parking between uses near the redevelopment site where appropriate and feasible.
- Use cash-in-lieu of parking to help fund construction of a shared pay parking ramp on the redevelopment site to serve the LRT station and new office, retail, and residential development.
- Institute more stringent parking design standards that visually de-emphasize parking lots and create a safer pedestrian and cycling environment.

**Guiding Principle 2.4:**

Integrate and enhance the pedestrian, bicycle, and automobile transportation systems.

A fully integrated, intermodal transportation network provides opportunities for the reduction of greenhouse gas emissions through reduced motor vehicle use, transportation options for people of all walks of life, increased recreational opportunities that can contribute to better health, and cost savings for both residents and businesses.

**2.4.1: Simplify the transportation network to accommodate transportation volumes and to function efficiently as an integrated system of auto and non-auto transport.**

A well-designed transportation network helps to facilitate connectivity and accessibility on the site. Improving the roadway network would allow more people to travel to the site and take advantage of amenities in the station area. It will also encourage use of light rail by increasing access.

The road system within the larger Opus site is unique in its use of curvilinear one-way streets. As it currently exists,
such conflicts. For cyclists, traffic speeds and blind approaches make for perilous conditions for on-street biking, particularly since there are no designated bike lanes on the Opus campus.

Consistently rated one of the top cities in the nation for bicyclists, Seattle has a bicycle program that has become a model for the nation. The mission of the program is to implement a safe, comprehensive system of interconnected bikeways that link neighborhoods with popular destinations throughout the city. Although Seattle’s approach has been ambitious, dozens of smaller communities throughout the country have looked to Seattle for ideas on how to implement their own bikeway system. The Seattle Bicycle Program is managed by the City’s Department of Transportation. A Commission composed of community members provides input on design and safety elements, and the Bicycle Spot Improvement Program identifies smaller projects—such as patching potholes, replacing drainage grates with bicycle-friendly covers, adding signage, and installing bicycle racks—on an ongoing basis. The City has also established partnerships with local advocacy groups such as the Bicycle Alliance of Washington to sponsor both community- and staff-initiated projects that improve safety and convenience for bicyclists.

Adequate lighting along paths and roadways on or adjacent to the Opus station redevelopment site can improve the environment for pedestrians and cyclists. Pedestrians feel safer in well-lit areas, and are more visible to motorists and bicyclists. Creating designated trails, sidewalks, and on-street bike lanes for pedestrians and cyclists in the station area can also help to minimize conflicts between these uses by separating them where appropriate, and traffic calming measures (2.1.2) can help to slow traffic speeds and reduce the danger of auto-pedestrian and auto-bike conflicts. Finally, clear signage on trails that specifies the “rules of the road” can help to avoid conflicts between pedestrians and cyclists.

Specific Policies:
- Provide designated on-street bike lanes and regular maintenance of the surface quality of road shoulders and bike trails to improve safety for bicyclists.
- Provide adequate lighting to make bicyclists and
pedestrian visible to each other and to automobile drivers at night.

- Install signage to encourage pedestrians and bicyclists, as well as automobile drivers to “share the road.”

**SYSTEM 2 | CONNECTIVITY & ACCESSIBILITY**

**Bicycle Signage**

Clear signage on multi-use paths, such as these from the Grand Rounds National Scenic Byway in Minneapolis, can help to mitigate traffic flow conflicts between cyclists and other path users.

**Image R: Combined Bicycle & Pedestrian Signage**
SYSTEM 3 | COMMUNITY, EQUITY, AND PROSPERITY
Sustainability System: Community, Equity, & Prosperity

Guiding Principles

3.1: Create a neighborhood that is appealing and welcoming through architecture, landscaping, and amenities.
   3.1.1: Invest in amenities at the redevelopment site that promote safety and comfort.
   3.1.2: Institute a form-based development overlay district for the station area to encourage innovative, function-appropriate, mixed use development.
   3.1.3: Involve community members throughout the planning, design, and implementation processes.

3.2: Create opportunities for community gathering and interaction.
   3.2.1: Incorporate a large plaza, seating, open space, and other public facilities into the redevelopment site.
   3.2.2: Initiate a network of new businesses located on the redevelopment site to collaborate on sustainability issues.
   3.2.3: Establish an improvement district that focuses on sustainability issues and upgrades.
   3.2.4: Conduct a regular community sustainability event on the redevelopment site.

3.3: Provide flexible and affordable residential and commercial spaces.
   3.3.1: Develop affordable, flexible space for businesses and industry.
   3.3.2: Incorporate live/work housing into the redevelopment site.
   3.3.3: Prioritize affordable housing on the redevelopment site.
Opus Light Rail Station Area:
Sustainable Development Scenario
System 3: Community, Equity, and Prosperity

Legend:
- Office
- Neighborhood Retail
- Multifamily
- Live-Work Townhomes
- Townhomes
- Community Pavilion
- Plaza & Promenade
- Water
- Open Space
- Raingarden
- Trees and Foliage
- Light Rail & Station Trail Network
- Sidewalks
- Development Site Boundary

A. Live-Work dwelling units where people can have an office or small business located in the same place they live
B. First-floor retail uses near the light rail alignment and the plaza
C. Office space close to the light rail and central plaza
D. Flexible space that can be quickly adapted to retail or office uses
E. Welcoming architecture and human scale development creates an urban feel that is not overwhelming
F. Three to four story multifamily buildings with limited retail components attached
G. Community pavilion area that provides a reliable meeting room for gatherings as well as the farmers’ market
H. Single-family townhomes with integrated garages allow development to scale-up from open space to larger buildings
I. Large, linear plaza provides public space connecting the four largest buildings
J. Promenade along the light rail alignment extends sidewalks to retail storefronts
K. Affordable housing component integrated into both the townhomes and the multifamily housing
L. Large, open space provides unstructured recreational space
SUSTAINABILITY SYSTEM 3: COMMUNITY, EQUITY, AND PROSPERITY

The Community, Equity, and Prosperity system encompasses equitable access to social and economic resources, as well as creating a sense of community identity that attracts residents and visitors. When people enjoy their surroundings and feel connected to their neighborhood, they are more inclined to advocate for and invest time and money in the social, environmental, and economic well-being of their neighborhood, which is critical for long term-vitality and sustainability.

Conventional suburban development, with its nondescript design and automobile orientation, often precludes healthy community interaction or a sense of place. In response, numerous approaches to development and built form, from smart growth to new urbanism, have emerged to promote sustainable community development that encourages the creation of more inclusive, egalitarian, and community-oriented neighborhoods, cities, and towns where all residents can prosper. The recommendations in this section draw inspiration from these and other approaches.

Guiding Principle 3.1:
Create a neighborhood that is appealing and welcoming through architecture, landscaping, and amenities.

Aesthetic details can easily be neglected in development projects as the required additional up-front costs mean that developers must take on the risk of having to rent or sell properties at higher prices. Many developers choose to include only the minimal architectural and landscaping details required by code. However, developers that pay attention to aesthetic quality and design preferences and that are willing to incur slightly higher construction costs often are able to command higher prices for their products. In addition, because residents take pride in their neighborhood and its unique amenities and architectural qualities, these neighborhoods often engender a greater sense of community cohesion and more community involvement.

3.1.1: Invest in amenities at the redevelopment site that promote safety and comfort.

Covered shelters, benches, external lighting, and kiosks that provide detailed transit information into the area around the light rail station are important elements to integrate into site plans. These amenities make people feel more comfortable and safer, which translates to more active spaces, can command higher rents, create busier and more successful businesses, attract more residents, and create a more vibrant community.

Development with such a heavy orientation toward transit and in the business park environment is something not common in the city of Minnetonka. Certain neighborhoods in Minnetonka offer examples of how some amenities can and should be integrated into the station area plan. For example, the Glen Lake area includes benches and external lighting that serve pedestrians—especially residents of nearby senior housing—well. However, the redevelopment site will likely merit much more extensive application of these amenities. The most important of the amenities is likely to be the transit/orientation kiosks, given the likelihood of a variety of users, both from within and outside of the community, and the confusing nature of the road and trails systems.

The aforementioned amenities are standard in transit oriented developments across the country. Examples are found at many stations along the Hiawatha light rail line that runs through South Minneapolis and Bloomington. Many rail stations have incorporated washrooms, indoor/heated waiting areas, and a police or private security station as amenities.

When planning for redevelopment, the City of Minnetonka should consider incorporating pedestrian/transit-user amenities throughout the site, and especially along and within areas that will receive high-frequency use, such as along the light rail line, the plaza, and at significant pedestrian access points.
How Does a Form-Based Code Work?
The regulations and standards in form-based codes are presented in diagrams and words, which are keyed to a visual regulating plan/map.

As the Form-Based Code Institute explains, a form-based code is a tool that is only as effective as the community plan it is intended to implement. Thus, the City of Minnetonka should be clear about the community vision for the redevelopment site and have a strong plan in place before enacting a form-based code.

Specific Policies:
- Insist on pedestrian amenities at primary access points and gathering areas.
- Work with developers to integrate these amenities into their development plans.

3.1.2: Institute a form-based development overlay district for the station area to encourage innovative, function-appropriate, mixed-used development.

Form-based development codes use physical form as the organizing principle to regulate development, rather than conventional zoning that segregates uses. Such an approach to zoning allows communities to establish places with integrated uses and cohesive built form, while avoiding strict separation of uses and densities that cause accessibility problems, connectivity challenges, and spatial disconnect.

On the development site, form-based codes could be used to address design form at a range of scales, from building placement and landscaping to architectural details. Form-based codes would better integrate land uses on the site, encouraging cohesive and complementary mixed-use development.

Currently, the redevelopment site is zoned for mixed-use development. Under a mixed-use zoning designation, a developer has a higher degree of flexibility to determine uses than if the development were designated as a single-use designation. Consequently, the emphasis of the form-based coding would be less about flexibility in uses, and more about cohesion of design forms, building scale, and other aesthetics. A model form-based code, called “Smartcode,” is offered by the urban planning firm Duany/Plater-Zyberk and has been adapted to cities nationwide, including Taos, New Mexico; Miami, Florida; and Lawrence, Kansas.

Of the many possible regulatory guidelines integrated into form-based coding, one component that will certainly be applicable at the redevelopment site is the issue of scale and building-height-to-street-width ratio. This ratio will be important to dictate scale and the character of the development. If the building-height-to-street-width ratio is too high the spaces in between buildings can feel like claustrophobic urban canyons, with a large portion of the area’s open space being in shadow for much of the day. At the same time, a building-height-to-street-width ratio that is too low will create the impression of a barren, underutilized space, much like conventional suburban sprawl development.

In either of these cases, the risk is presented of creating an environment that is uninviting. If maintaining an appropriate ratio between the height of building facades and the space between them comes to represent an undue limitation on development densities, one solution is to construct buildings whose top floors are set farther back from the street than the lower floors. This common practice allows buildings to be made taller without their psychological impact or the shadows they cast being made much larger.

Specific Policies:
- Work with developers and the community to establish an overlay district and form-based code for the redevelopment site.
- Require along streets and major pedestrian corridors (excluding plazas) that the height of buildings’ facades and the width of the space between them amount to a ratio between 1:1 and 1:2.
- Encourage building “set-back” techniques for upper floors to reduce shadows at ground level and to protect viewsheds.

3.1.3. Involve community members throughout the planning, design, and implementation processes.

If community members are involved in the process of designing the site’s public spaces, it is more likely that those spaces will be of a sort that they are inclined to use. Involvement in the planning process can also help inform community members of the issues that must be addressed to implement a project, such as technical requirements that may create project constraints. Community involvement can also help draw out issues that can easily be addressed when development occurs, but that may go unnoticed by planners and developers without intimate knowledge of the community. This element
of planning processes can be thought of as a preventative mechanism, helping to assure that community members are happy with the outcomes or at least understand the reasoning behind outcomes they do not fully agree with, which is crucial to the long-term viability and sustainability of a project.

Currently, the City of Minnetonka has been working with the Opus area community on the Bren Road/Highway 169 interchange project. Through the project, members of the business and residential communities have been identified and can be contacts and resources for community participation in the Opus Station area redevelopment planning. Preliminary public participation was used to inform this report to draw out some general preferences of the surrounding community, and there is clearly interest in the project and how it will affect businesses and residents on the Opus campus. (Details of the public participation process used for this project can be found in Appendix B.)

At a minimum, public meetings and on-going means of communication should be provided for community members to suggest design and planning elements and voice their comments on various proposals related to the redevelopment site and the public spaces within it. One effective method for gathering community input to help inform planning and design is the Visual Preference Survey, which involves community members viewing a series of images depicting potential developments and then rating the images based on their visual preferences. This method may be especially effective for site level planning and design, and should be considered for informing the redevelopment site at Opus.

Specific Policies:

- Inform community members in the redevelopment of the station area by communicating regularly and through various modes of communication, for example: e-mail; websites (e.g. Green Circle Condos maintain a resident-only accessed website); public meetings; flyers; and postings around the community.
- Involve community members in determining site layout and design details using the visual preference survey method.

Guiding Principle 3.2:
Create opportunities for community gathering and interaction.

Welcoming, friendly community spaces are often viewed as an amenity in a transit-oriented development. Sustainability principles incorporate community interaction as a way to ensure public participation in decision making processes as well as promote social cohesion.

3.2.1: Incorporate a large plaza, seating, open space, and other public facilities into the redevelopment site.

Opportunities for community gathering and interaction should be provided through the creation of indoor and outdoor public spaces. Vibrant public spaces can help to create stronger communities by fostering social interaction, building community cohesion, and encouraging economic investment. Feedback from the public meeting indicated that participants felt that the redevelopment site would be an excellent central public space for the greater Opus Business Park community.

According to the Project for Public Spaces (PPS), designing effective public spaces is a difficult enterprise. PPS has identified eleven principles for creating vibrant and successful public spaces, including having a vision, focusing on creating a place and not a design, identifying partners, and recognizing that form supports function. The PPS website offers a variety of assessment tools and examples of effective public places to help communities identify best practices for placemaking.

One way to encourage the creation of public spaces is to require dedication of a minimum amount of public space for any new development or redevelopment project. On the development site, this approach might be used to dedicate a central plaza area leading from the Opus LRT station to adjacent retail areas and the central park that surrounds the wetland. Providing at least one indoor location that can serve as a reliable community meeting space would also be optimal, given the region’s climate.

The Project for Public Spaces: 11 Elements of Effective Placemaking

1. The community is the expert
2. Create a place, not a design
3. Look for partners
4. You can see a lot just by observing
5. Have a vision
6. Experiment, Experiment, Experiment.
7. Triangulate
8. They always say “It can’t be done”
9. Form supports function
10. Money is not the issue
11. You are never finished.
Sustainable Business Networks

- The Sustainable Business Alliance (San Francisco Bay area): emphasis on promoting businesses committed to environmental and social responsibility.

- The Sustainable Business Network of Greater Philadelphia: emphasis on promoting local businesses and entrepreneurship to create a more environmentally, socially, and financially sustainable local economy.

- The Green Exchange (Chicago): started by private developers, it is an old factory building retrofitted to be an incubator for green businesses; offers sustainable business consulting, networking opportunities; and a green merchandise mart.

- The Business Alliance for Local Living Economies (BALLE): serves as a national umbrella organization connecting sustainable business networks nationwide and serving as a resource to foster development of local and regional sustainable business networks; there are no BALLE member organizations located in Minnesota.

Specific Policies:
- Work with developers to dedicate an ample amount of the site to public spaces.
- Locate a simple indoor event space or pavilion at the eastern end of the plaza, adjacent to the wetland.

3.2.2: Initiate a network of new businesses located on the station area site to collaborate on sustainability issues.

Sustainable business networks are becoming more common across the country as businesses realize that what is good for the environment and for people can also be good for profit. Sustainable business networks exist in numerous forms. Often the networks function at a regional scale and place emphasis on green entrepreneurship. The essential factor of a sustainable business network is communication. Generating awareness of available resources and opportunities, and creating links between supply and demand, are what make the network valuable to its members. Sustainable business networks commonly:

- Educate businesses about sustainable business practices.
- Support an environmentally-friendly business sector.
- Coordinate events to bring like-minded businesses together.
- Advocate for policies and programs that support the green economy.
- Promote collaboration and partnerships among local businesses.
- Provide green business development resources.

Applied to the Opus Station area redevelopment, a sustainability group could promote sustainability on the site by communicating ideas and opportunities, spreading awareness, and collaborating. Although the primary examples of this type of group only include businesses, the group may be comprised of residents, professionals, and other community members, who will communicate and collaborate on strategies to foster sustainable practices on the site. The scope of the group’s activities may vary, ranging from simply connecting through email communication or organizing a more formal monthly meeting to discuss community issues. Such activity may fluctuate depending on opportunities available at different times. Expansion of the group to the wider Opus campus and beyond could be encouraged after an initial start-up period and might be modeled after the Waste-to-Profit Network of Chicago, or the Sustainable Business Network of Philadelphia. Eventually, the group may want to join the Business Alliance for Local Living Economies for advice, guidance, and broader networking opportunities.

Specific Policies:
- Present the idea for a sustainability network during planning for the project to gauge community interest and gather additional ideas.
- Once formed, offer assistance to the sustainability network, such as grants and supplemental networking and group coordination.
- Collaborate with the group to spread the sustainability ethic across the city.

3.2.3: Establish an improvement district that focuses on sustainability issues and upgrades.

Similar to the concept of a business improvement district (BID), a sustainability improvement district (SID) would designate the station area as a district in which an additional tax or fee would be assessed to property owners to help fund sustainability-related improvements. These funds would go toward projects or services above and beyond what the municipality already offers all property owners in the municipality. For example, funds might be used for running a community composting program, maintenance of trees and landscaping, or installation of a graywater harvesting and irrigation system.

Alternatively, the structure of the SID could function similarly to a tax increment financing (TIF) district, in which funding would be provided up-front by issuing bonds. This development tool would serve to help fund improvements to the redevelopment site and provide sustainability incentives. Projects that promote all three elements of sustainability—environment, economics, and equity—could be prioritized for
SID funding. Strategic tree planting and maintenance provides a good example. Cities such as Portland, Philadelphia, and Chicago have begun to prioritize trees and green infrastructure as part of their sustainability efforts because they promote human health, protect the environment, and reduce costs. In places where there is not yet enough political support for green-infrastructure over gray-infrastructure, through an SID a community may generate the needed funding for the more progressive option that will pay-off in the long-run.

This type of economic development strategy should be used with caution. If TIF districts are implemented, it is important to establish contractual agreements with businesses to define what benefits the firm has agreed to provide through such mechanisms as community benefits agreements or other “clawback” strategies. This will help to prevent instances where a firm locates on the site because of the financial incentives, but does not make a long-term investment in the community.

**Specific Policies:**
- Explore the possibility of implementing a sustainability improvement district by working with financial managers in the City and conducting cost-benefit analyses.
- Discuss the SID mechanism with the developer (and businesses and residents that eventually locate at the redevelopment site) to determine how it could best be designed and implemented.

**3.2.4: Conduct a regular community sustainability event on the development site.**

In addition to having spaces for community meetings and events, hosting a regular event on the site could promote awareness of sustainability, provide an opportunity for building community, and encouraging networking. Beyond its educational purposes, a community event can help attract new residents and businesses, and pique the interest and involvement of current businesses and residents. A regular community event is also a way to bring the community together, to get people to know their neighbors, invest some time in their community, and learn about issues that are important to their fellow-community members. With numerous businesses in the area, some of whom have indicated interest in operating in an environmentally friendly way, a community event could be of interest as a way to market themselves as a green community member.

Organizing and hosting a community event oriented toward sustainability aligns well with many of the other recommendations in this report, especially: recommendation 3.3.1 for a sustainable business network; recommendations 1.6.1 and 1.6.2 for environmental education; and recommendation 3.2.1 for the community-gathering infrastructure.

Numerous non-profit organizations share sustainability as either a direct or indirect goal for the organization. Likely, an organization could be found to partner with the community to organize and carry-out a sustainability event. For example, the organization Tree Trust, based in St. Paul, promotes tree planting and environmental stewardship, as well as job and skills training. They conduct their work across the Twin Cities metro and might be engaged to conduct a tree planting event on the Opus redevelopment site.

**Specific Policies:**
- Work with the network of sustainable businesses (see recommendation 3.3.2, above) and other local organizations to plan and host a community sustainability event.
- Market the event city-wide as a way to bring awareness to the issue of sustainability and gather community input and support.

**Guiding Principle 3.3:**
Provide flexible and affordable residential and commercial spaces.

Creation of new structures that can be used for a variety of purposes initially and easily re-purposed as demand changes is a key feature of a sustainable development. Businesses and residents should be able to coexist in close proximity to each other and share spaces when appropriate.
3.3.1: Develop affordable, flexible space for businesses and industry.

Providing different sizes, locations, and configurations of work and business space can help to support small start-up businesses and encourage a variety of business sizes and types. When buildings can be easily reconfigured, they are easier to lease or sell. Furthermore, the building is less likely to become obsolete and require demolition, as it has the flexibility to adapt and change with the market. Preventing demolition by creating adaptable spaces decreases the production of waste and the need for costly reconstruction.

The current development on the site does not offer much flexibility for any use other than an industrial or warehouse purpose. The building format is limited and could not be easily subdivided for future redevelopment.

Office and business space incorporated into the redevelopment site could be well-served by common bathrooms, meeting areas, and break areas, which would lower costs to individual businesses.

**Specific Policy:**

- Provide incentives for the developer to construct business spaces that will cater to a variety of business types and sizes.
- Work with the developer to determine the most desirable and viable business types for the redevelopment site so that building types help attract businesses that will fit in well with the development and surrounding Opus campus.

3.3.2: Incorporate live-work housing into the redevelopment site.

Housing that facilitates running a small business out of one’s home contributes to the achievement of equitable, environmentally sensitive, economically viable development. Live-work housing offers residents/employees extremely low transportation costs, which amounts to reduced traffic and reduced environmental impact. Live-work housing also contributes to having activity on-site during daytime and nighttime hours, which can be a concern for strictly business or strictly residential developments, where spaces are deserted during certain hours of the day. Having people present in communities during all hours promotes safety and community.

For certain segments of the community, living and working from the same building can be appealing and effective. Examples of businesses that would function well in such a set-up include: small, one-to-three-employee operations, such as a design firm; an individual entrepreneur or consultant; or a small retail business, such as a beauty salon or bakery. The neighborhood of East Clayton in Surrey, Ontario, incorporated live-work housing into their sustainable community plan. The methods for implementation included modifying the local zoning code to allow for certain activities and design specifications that would be favorable to live-work lifestyle, including:

- Allowing up to 30 percent of the dwelling to be used for business or retail uses
- On-street parking required, but no additional parking requirements
- Reduced front yard setback
- No restrictions on storage/display of goods on the premises for business purposes
- Small signs permitted

The City of Minnetonka currently allows businesses to be run out of residences. Taking action to foster even more live-work friendly regulations should be considered. By designating the Opus campus as a live-near-your-work pilot project, the City could offer incentives for employees to move closer to their place of employment. Residential development on the redevelopment site may respond to the experiment by providing proximity to the employment center. Implementing such a program within the Opus campus, focusing on the redevelopment site, would create a need for residential housing as well as encourage alternative and non-motorized forms of transportation.
Specific Policies:
- Encourage developers to offer live-work housing in the development by designating certain areas of the redevelopment site for live-work housing, for example through an overlay district.
- Offer business assistance and resources to residents in live-work housing.
- The city’s current ordinance (Section 300.16 h) states that for “home occupations” exterior signs are not allowed. To support entrepreneurship and a healthy business climate for all sizes of business, the city should designate certain residential areas as “live-work” spaces that incorporate less rigid requirements for home business operations in designated areas.

3.3.3: Prioritize affordable housing on the development site.

Providing all community members the opportunity to fully be a part of their community, both as residents and workers, is an important and effective way of encouraging stronger attachment to one’s community. If neighborhoods are to be sustainable, they must include integration of building uses (see Recommendation 2.3.1). A consequence of integrating a variety of uses (such as housing, corporate offices, retail, and restaurants) is that the working population associated with those uses is often very diverse. The variety of workers needed to maintain the aforementioned businesses have substantially different incomes. If development is to be sustainable, housing options should be available to workers of all income levels, so that all workers have the option to live near their work.

Chaska’s Clover Ridge development offers an example of the cooperative effort of the City and developer to provide attractive, livable, affordable single-family homes and row houses. The City offered incentives, such as a density bonus, and the developers creatively approached the design and build to create flexible, appealing homes that were affordable. To meet affordability requirements, the developers built on smaller lots, used manufactured, modular housing, and also included unfinished space (called an expansion attic) that could be built out when families were able to finance the work.

Housing can also be made more affordable by reducing resident’s transportation costs. Live-near-your-work incentive programs provide financial incentives for employees to purchase homes or live near their workplaces. In addition to decreasing commute times and distances, and thus reducing consumption of fossil fuels, such programs could stimulate home ownership. A live-near-your-work program has been implemented in St. Louis Park, called “Live Where You Work.” The program is managed by the City and provides eligible employees of businesses in St. Louis Park a grant of $2,500 to purchase a home in the city near their work. The program also encourages employers to contribute matching funding.

The City should continue to seek funding through the Metropolitan Council’s Liveable Communities Act to support affordable housing on the redevelopment site and help Minnetonka provide its fair share of affordable housing. The City’s Economic Development Authority has a policy that 10 to 20 percent of units in a new development must be affordable.

Specific Policies:
- Establish a partnership between the City, developers, and businesses in the Opus Park to encourage newly hired employees to live in the development.
- Offer financial incentives for residents who live in the area, such as a property tax abatement, coupons for local businesses, and other perks.
- Offer density bonuses, for example allowing an additional floor on the building, to developers for incorporating 15 percent affordable units into the development.
- Offer TIF financing to affordable developments.
SYSTEM 4 | HEALTH AND WELLNESS
Sustainability System: Health & Wellness

Guiding Principles

4.1: Provide pedestrian infrastructure and amenities
   4.1.1: Regularly inspect and maintain the quality of trail surfaces at a standard that encourages usage by all age groups and ability levels.
   4.1.2: Install signals and paint crosswalks adjacent to the redevelopment site to enhance safety for pedestrians and cyclists.
   4.1.3: Install pedestrian scale lighting fixtures to increase safety in the station area as well as on the trail system.
   4.1.4: Provide amenities such as water fountains, benches, and trash cans to encourage extended use of the trail system, and offer opportunities for people to rest and socialize.
   4.1.5: Expand the existing park and trail systems to allow for greater recreational opportunities.

4.2: Increase awareness of and programming for existing recreational facilities
   4.2.1: Develop standards for and implement a wayfinding or signage system that guides users of the system and its amenities.
   4.2.2: Include opportunities for public art to make the trails and parks more engaging and contribute to wayfinding.
   4.2.3: Provide park programming such as community vegetable or flower garden opportunities.

4.3: Create easy access to healthy foods
   4.3.1: Sponsor a farmers’ market on the redevelopment site to promote healthy eating and local food production.
Opus Light Rail Station Area: Sustainable Development Scenario
System 4: Health & Wellness

FIGURE 14: HEALTH AND WELLNESS SYSTEM MAP

A. Install pedestrian scale lighting fixtures to increase safety in the station area as well as on the trail system.
B. Sponsor a farmers’ market at the community Pavilion to promote healthy eating and local food production.
C. Add crosswalks across major roads.
D. Provide amenities such as benches, water fountains, waste bins, and bicycle service area.
E. Install wayfinding signage along trails and near the light rail station.
F. Promote a community garden on site.
G. Install bicycle racks and lockers.
H. Extensive trail and sidewalk network encourages pedestrian and bicycle use that offer health benefits.

Legend:
- Office
- Neighborhood Retail
- Multifamily
- Live-Work Townhomes
- Townhomes
- Community Pavilion
- Plaza & Promenade
- Water
- Open Space
- Raingarden
- Trees and Foliage
- Light Rail & Station
- Trail Network
- Sidewalks
- Development Site Boundary
- 300 feet

Extensive trail and sidewalk network encourages pedestrian and bicycle use that offer health benefits.
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SUSTAINABILITY SYSTEM 4: HEALTH & WELLNESS

Planning and design impact human health in numerous ways. A growing body of research illustrates the intricate relationships between community design and what we eat, how much physical activity we get, the quality of the air we breathe and the water we drink, and the quality of our social interactions with others in the community. Sprawling development increases our dependence on automobiles and limits the amount of walking we can incorporate into our daily activities. Exhaust from increased motor vehicle usage in turn reduces air and water quality. As development encroaches on green spaces, there is less land available for recreation, less vegetation to reduce particulate matter, and fewer scenic views to provide a respite and reduce mental and physical stress. At the community level, the impacts of sprawl can rise to the level of a public health concern.

Although individual choices, lifestyle, and biology also impact our health, good design can increase opportunities for healthy living and improve wellness. Creating such opportunities is a significant component of an equitable and sustainable community. The guiding principles and recommendations in this section are focused on ways to create opportunities for health and wellness on the Opus Station redevelopment site.

Guiding Principle 4.1: Provide pedestrian infrastructure and amenities.

High-quality sidewalks, trails, and bicycle pathways can provide a means for people to combine both exercise and travel. Short and long trips can be conducted through non-motorized transportation modes with the added benefit of contributing to personal health.

4.1.1: Regularly inspect and maintain the quality of trail surfaces at a standard that encourages usage by all age groups and ability levels.

Maintained trail surfaces are integral to encouraging their use. Well maintained trails are more likely to be used than ones in disrepair or out of compliance with the Americans with Disabilities Act (ADA). Better quality trails would encourage greater trail use and lead to a more active and healthy community.

Currently, the trails on the site are not adequately maintained. Trails adjacent to the site as well as those within the Opus campus as a whole are deteriorating. Since these other trails will make important connections between the station area and local offices and businesses, it is imperative to maintain them on a regular schedule so that they can be used to support alternative modes of transportation as well as the city’s transportation goals. Snow clearing on trails often neglects the Opus trail system. Winter months are especially hard on the trails and its users. The Minnetonka Parks, Open Space and Trails Plan identifies a need for regular use of their existing maintenance standards to “maintain the infrastructure of city parks, trails, open space and recreational facilities in a manner that encourages sustainability; and to ensure public safety.”

Trail surfaces in Minneapolis are regularly inspected by their users who are encouraged to report poor maintenance conditions. Park Maintenance Standards were developed for parks and recreational areas in the city of College Station, Texas. These standards allowed the City’s Parks and Recreation Department to better maintain and enhance the quality of their facilities. These standards include a survey to be completed by maintenance inspectors and a list of regular maintenance specifications. The standards are surveyed quarterly and the percentage of standards met is recorded.

With the addition of the LRT, trails, and trail connections on the development site will require a regular inspection and maintenance schedule. Well-maintained trails on the site will encourage LRT riders to use them when traveling to other places at their destination within the Opus campus.
Specific Policies:
- Develop an inspection schedule to record issues needing attention by trail maintenance crews on a yearly basis.
- Provide trail users with a venue for reporting poor trail condition to decrease responsibility and hours worked by Parks and Recreation staff.
- Comply with ADA guidelines on maintenance to ensure people of all ages and abilities can use the trails.

4.1.2: Install signals and paint crosswalks adjacent to development site to enhance safety for pedestrians and cyclists.

Signals and crosswalks indicating street crossings are accepted ways to decrease confusion at intersections and increase safety for pedestrians and cyclists. Currently the entire Opus campus has few, if any, pedestrian crossing signals. This is likely due to the fact that the trail system supplants a regular pedestrian network of sidewalks and at-grade street crossings. In addition to implementing sidewalk construction, as detailed in the Connectivity and Accessibility System section of this report, installing pedestrian signals and painted crosswalks will greatly enhance safety for pedestrians on the development site and adjacent areas (also see Recommendation 2.4.2).

The City of Boulder, Colorado Division of Transportation has prepared guidelines for pedestrian crossing treatments. The pedestrian crossing treatment guidelines state that the installation of crosswalk marks and signs alert drivers to the presence of pedestrians and the likelihood of pedestrian activity. Crosswalks also encourage pedestrians to cross streets at locations where drivers can expect their presence.

Adding crosswalks on streets within and surrounding the development site and station area will be important considerations with increased pedestrian traffic from the light rail station. Making connections between the station area and the rest of the Opus campus will encourage people to use alternative forms of transportation, especially walking, to reach their destinations on the site.

Specific Policy:
- Require pedestrian crossing devices and crosswalks at all intersections adjacent to the development site to enhance safety and encourage walking.

4.1.3: Install pedestrian-scale lighting fixtures to increase safety in the station area as well as on the trail system.

Pedestrian scale lighting fixtures make a park or separated trail safer as well as inviting. Lighting on trails will be especially important in winter months when users are more likely to be walking after dark in the early evening. Good outdoor lighting can create an environment that is pedestrian-friendly by increasing safety and increasing businesses’ exposure.

There are few lights on the trail system currently. In a community meeting conducted as part of this project, residents stressed that more lighting would make them feel safer on the trail system and encourage them to use the trails more, especially in the evening and at dusk.

The City of Seattle has identified pedestrian-scale lighting as one of the aspects that create a thriving business district. Pedestrian-scale lighting improves walkway illumination as well as enhances safety and business exposure.

Installing pedestrian-scale lighting on the development site would enhance the pedestrian atmosphere of the station area and increase the perception of safety on the development site. The city may consider decorative pedestrian-scale lighting in the plaza and open spaces recommended for the development site to create a more inviting atmosphere. Businesses located on the development site will benefit from greater exposure.

Specific Policies:
- Incorporate pedestrian-scale lighting on the redevelopment site to increase visibility of pedestrians and cyclists travelling to and from the LRT station.
- Use pedestrian-scale lighting on trails within the redevelopment site and the larger Opus campus to encourage their use and increase the perception of
safety, especially after dark.

4.1.4: Provide amenities such as water fountains, benches, and trash cans to encourage extended use of the trail system, and offer opportunities for people to rest and socialize.

The addition of amenities such as benches, water fountains, and trash cans will encourage greater use of the trail system as well as make the area more inviting to recreational users. Currently there are few amenities along the trail system at the Opus campus. There are no amenities on the development site for trail and park users.

The San Francisco Department of Health has developed a Healthy Development Measurement Tool to evaluate proposed developments. The criteria include increasing park space so that a greater proportion of the population is within one-quarter mile of a neighborhood or regional park. The department’s health-based rationale for including amenities in a park is that amenities are associated with physical activity in children.

These amenities should be encouraged in park and trail areas adjacent to the light rail station to maximize their use. Placing benches and water fountains near buildings may contribute to a more inviting atmosphere and encourage people to gather in common spaces. Water fountains at intersections and trail connections between the redevelopment site and Opus campus may encourage greater and longer use of the trail system. The use of public trash cans on the redevelopment site will encourage responsible cleanup by users and will make for a more pleasant pedestrian environment.

Specific Policy:
• Install additional park and trail amenities such as benches, water fountains, and trash cans throughout the site as well as at key intersections and trail connections.

4.1.5: Expand the existing park and trail systems to allow for greater recreational opportunities.

Numerous studies show that green and park spaces with high levels of accessibility are associated with increased physical activity. Accessibility of parks is fundamentally an issue of equity. Some areas may be underserved by parks and other recreational facilities, putting residents of those areas at higher risk for poor health, and youth at risk of problem behaviors because of a lack of safe and healthy recreational opportunities.

Currently access to trails is high on the Opus campus, but there is only one park on the site. The redevelopment site contains a wetland that is a significant natural amenity, but it is currently not easily accessible as a destination and offers no amenities such as benches or picnic tables.

Many cities, including Berkeley, California, have created goals in their comprehensive plans for the amount of park space per 1,000 residents. The City of Minnetonka has identified improving and expanding access to park facilities, especially in underserved areas, as a major issue.

Creating a park and other open spaces on the redevelopment site will encourage community gathering, promote greater use of the trail system, and provide access to open space to a greater number of residents and employees of the Opus campus. It may also increase LRT ridership by offering an attractive area for people to relax or recreate before and after work while they are waiting for the light rail.

Connecting trails on or near the redevelopment site to existing trails elsewhere on the campus, and increase trailing access through the redevelopment site, is also an important step in encouraging their use as a means of transportation, especially to places of employment.

Specific Policies:
• Create a park on the redevelopment site.
• Ensure adequate trail connections between the redevelopment site and the surrounding Opus campus.
Guiding Principle 4.2:
Increase awareness of and programming for existing recreational facilities.

In addition to providing additional park and recreational opportunities on the redevelopment site, the City can explore ways to increase use of the existing facilities on the site and campus. This section includes recommendations for increasing use of existing parks, trails, and open space.

4.2.1: Develop standards for and implement a wayfinding or signage system to guide users of the trail system and its amenities.

Wayfinding and signage are important aspects to the accessibility of any trail system. If potential users are unaware of the trail’s course they are less likely to use it. Currently there are no maps of the trail system on the Opus campus. There is a scantly detailed version of the entire Minnetonka trail system located on the City’s website, but this information is not useful to visitors of the extensive trail system on the campus.

The City of Berkeley, California, has focused on the use of improved signage as a means of directing trail and park users and encouraging overall open space use. The organization American Trails offers a resource library for trail-building that emphasizes trail design and construction. The signage requirements suggest several sign types including historical markers, points of interest, location on trail, and trail facilities.

A wayfinding system should be clear, concise, and visible to transit riders. The system should include maps, pictures, and destination signage. Maps should illustrate where the viewer is within the development site as well as the Opus campus. Signage should direct transit users to destinations such as the new park on the development site, businesses, and recreational opportunities connected to the station area. These maps should be illustrated with pictures and be places in visible locations near the station platform as well as at intersections and trail connections.

Specific Policies:
- Develop standards for and implement a wayfinding or signage system to guide users through the trail system.
- Create a detailed version of the Opus campus trail system map, including trail routes, residential and office buildings, and businesses, for the City’s website.

4.2.2: Include opportunities for public art to make the trails and parks more engaging and contribute to wayfinding.

The idea for station art was identified in an interactive community meeting with residents of the Opus campus. Opportunities for public art on the station site were seen as important aspects of creating a unique station atmosphere. There are other areas on the site that could benefit from public art installations as well.

The Hiawatha LRT project commissioned station art for each of the stops along the line. The purpose of the artwork is to “improve aesthetics, public safety, economic vitality, and wayfinding.” The art also helps each station area to establish a distinct identity through visual themes.

Station art can be used as a way to attract visitors and encourage them to explore the station area as well as the Opus campus. Station art should be located within the development site plaza or adjacent to the station platform area. Art installations could be paid for by Percent for Art, a program administered by the Minnesota State Arts Board. The program is funded by encouraging state-built projects to dedicate one percent of their total budget to purchasing or commissioning art for the site.

Specific Policy:
- Develop a station-area public art program to commission art installations for the redevelopment site.
4.2.3. Provide park programming such as community vegetable or flower garden opportunities.

Residents at the community meeting conducted as part of this project saw opportunities for community vegetable or flower gardens as a way to engage residents, employees, and visitors to the Opus campus.

There are several existing flower gardens on the redevelopment site as part of the overall landscaping scheme, but nothing that is open to the public. Any redevelopment would remove existing flowers gardens.

A California study found that community gardens enhanced nutrition and physical activity as well as promoted the role of public health in improving the quality of life. Locally, the City of Chanhassen recently established the Olson Community Garden on a piece of vacant land. Individual garden plots are generally 10 feet by 10 feet, and Master Gardeners are available throughout the growing season to offer advice and help to all gardeners. The City requires that garden plots be free of pesticides and well maintained.

Implementing a community garden on the redevelopment site can contribute to a sense of community and wellness. Because housing on the Opus campus consists of multifamily apartment buildings and townhomes, there are few spaces for residents to have their own gardens to grow vegetables. A community vegetable garden could provide a way to educate people about the importance and sustainability of local food production.

Specific Policy:
- Dedicate one-half acre of the total redevelopment site to the creation of a community garden.

Guiding Principle 4.3:
Create easy access to healthy foods.

Community plans are beginning to recognize the interdependence of land use, energy use, public health, social equity, and the supply of food. The recommendations in this section suggest ways that the City of Minnetonka can increase access to local food and ensure that all residents of the community have easy and convenient access to food.

4.3.1: Sponsor a farmers’ market on the redevelopment site to promote healthy eating and local food production.

It has been estimated that on average, a piece of “fresh” produce travels 1,300 miles from where it is grown to where it is ultimately consumed, taking roughly 7–10 days for the trip. Transporting food such distances requires packaging and refrigeration, and consumes fossil fuels that contribute to global warming and exacerbate air and water pollution. In addition, because produce varieties are chosen for uniformity, transportability, and shelf-life—not taste or nutritional value—produce transported from distant locations is not only less fresh, but may be less healthy than locally grown produce. Locally grown food can help communities to become more self-sufficient, as farmers’ market revenues are typically spent locally as well.

Currently, the nearest farmers’ market appears to be roughly four miles away in downtown Hopkins, and is open only on Saturdays. Another farmers’ market is located near the Minnetonka City Hall, which is more distant from the redevelopment site.

According to the Farmers’ Market Federation of New York, successful farmers’ markets have, among other things, a time, location and season that coordinates the needs of farmers, consumers, and the local community; a central, visible, and permanent location; a strong market manager who is passionate about the market; adequate funding; and involvement from the community it serves. There are numerous examples of successful farmers’ markets in the Twin Cities metropolitan area, in both urban and suburban locations.

The City of Minnetonka could designate an area on the pedestrian promenade or plaza recommended in the redevelopment site plan for use by a farmers’ market at no cost to vendors. In addition, the city would need to amend its zoning ordinance to allow farmers’ markets as a permitted use.
or provide a variance to the site to allow such a market. Local retailers would benefit from the presence of the market, and might be persuaded to form an Opus Station Area Business Improvement District to offset the cost for any additional demand on city staff and services that would be created by the farmers’ market.

Specific Policies:
- Designate an area on the Opus Station pedestrian promenade for a weekly farmers’ market.
- Amend city ordinances to allow a farmers’ market as a permitted or conditional use subject to obtaining a license from the city, with an annual renewal process.

4.3.2: Offer incentives to attract a grocery store or food co-op to the redevelopment site.

Food is a necessity of life, and grocery stores and food co-ops are the primary sources of daily food for most households. However, they have become more than places to seek wholesome food; more and more, grocery stores and food co-ops are social spaces where people seek personal connections. Many grocery stores include espresso bars and cafes, and food co-ops also may include staffed personal care counters, recreational and wellness classes, and shareholder meetings that allow direct participation in the governance of the cooperative. Grocery stores and food co-ops can serve as a neighborhood anchor in multiple ways.\(^{110}\)

The nearest grocery store or food co-op to the redevelopment site is Driskill’s Market in downtown Hopkins, nearly three miles away. More than half of Opus Business Park residents who responded to a recent survey indicated that a grocery store was one of the types of retail development they would prefer to see on the redevelopment site.

Grocers are beginning to rethink their business model, moving away from an insistence on large single-story stores surrounded by a sea of parking, and instead are targeting mixed-use developments and neighborhoods with more compact floor plans and little or no parking. Orenco station outside of Portland, Oregon (see case study in Appendix C), offers one such example. The mixed-use, transit-oriented neighborhood features a grocery store close to housing, offices, and other retailers, and one of the principles that informed the development was being able to “walk to get a quart of milk.” A survey of Orenco residents in 2009 showed that more than half walked to a local store to shop five or more times per week, compared to only five percent of residents in typical suburbs.\(^{111}\)

The City of Minnetonka Economic Development Authority might considering offering incentives to attract a grocery store or food co-op to the redevelopment site. The location would be attractive to a supermarket given the amount of residential development and the proximity of light rail and other public transit, and the market for such a store is likely to be strong given the lack of full-service grocery stores in the area.

Specific Policy:
- Provide incentives such as reduced minimum parking or building setback requirements, tax breaks, or assistance with project financing in an effort to attract a grocery store or food co-op to the site.
WHAT’S NEXT?

SUSTAINABILITY: BEYOND THE STATION AREA

The following are recommendations for how the City of Minnetonka might pursue sustainability on a broader scale beyond the Opus Station redevelopment site.

• The City of Minnetonka could use the Opus Station redevelopment as an opportunity to promote community awareness of a full range of sustainability issues. Although the City is already committed to many sustainability efforts, staff have acknowledged that the city does better with respect to the environment than it does the other two legs of the sustainability triad: economy and equity. Building on the recommendations in this report, the City could use the Opus redevelopment as an opportunity to provide residents and businesses with information about other aspects of sustainability that may be less emphasized in the City’s current efforts, and offer ideas for how residents and businesses can incorporate sustainable principles and practices into their own daily lives.

• The City of Minnetonka, in cooperation with residents and businesses on the Opus Business Park, could adopt a sustainability plan for the Opus campus built on many of the principles and recommendations in this plan. Creating such a plan would not only create greater visibility for sustainability efforts, but could also create a sense of community and neighborhood identity for residents and businesses in the business park, and provide assurances to new businesses that the City has a vested interest in the success of the Opus community. The Hacienda Business Park, which is included as one of the case studies in Appendix C, adopted a voluntary sustainability plan through its business park association.

• The City of Minnetonka could adopt a citywide sustainability plan to guide city development and operations decisions, and to demonstrate the city’s commitment to sustainability. The city is already involved in a variety of activities that foster sustainability, but formulating a sustainability plan would help to provide momentum for other efforts and help align goals and strategies among the various city departments. A citywide sustainability effort could also be used as an economic development tool to attract new and “green” businesses to the community.

• The City of Minnetonka could establish sustainability monitoring programs to gauge progress. Monitoring systems should be incorporated into the redevelopment on the Opus Station site. These systems should include baseline data before redevelopment that can be compared to data collected after redevelopment. Systems might be included for storm water volume and rate, water quality, heat island effect, air quality, use of trails, average daily vehicle trips, greenhouse gas emissions, and energy savings. Monitoring and tracking the impact of sustainability efforts can also help to inform marketing and informational materials that may attract other residents, businesses, and even state and federal grant money.
REFERENCES


[13] Ibid.


water/lid/LID_studies/rooftop_rainwater.htm.


REFERENCES


[43] Ibid.


[49] Ibid.


[58] Hennepin County Regional Rail Authority [Hennepin County RRA]. (September 2009). “Southwest LRT Technical Memorandum No. 6: Ridership Forecasting Methodology and Results.” Minneapolis: Hennepin County RRA.


[62] Ibid.


[72] Ibid.


REFERENCES


[86] Ibid.


[100] Ibid.
[101] Ibid.


[103] Ibid.


[105] Ibid.


[111] Ibid.

SIDEBAR REFERENCES:


PHOTO CREDITS
Image A: Southwest LRT Map, Hennepin County RRA
Image B: Minneapolis Gift Mart, Photo by Michael D. Greco
Image C: Parking Lot, Photo by Michael D. Greco
Image D: Green Roof, WetlandStudies.com
Image E: Pervious Pavers, HumboltStormwater.com
Image F: Raingardens, UrbanWaterQuality.org
Image G: Tree Canopy, 20 Prospect
Image H: Prairie Grass, Pipestone National Monument
Image I: Xeriscapes
Image J: Buckthorn, Photo by Michael D. Greco
Image L: Raingarden Signage, Photo by Michael D. Greco
Image M: Raised Crosswalk, Photo by Michael D. Greco
Image N: Amenities in Burnsville, Photo by Michael D. Greco
Image O: Hybrid Shuttle Bus
Image P: Existing Surface Parking, Photo by Michael D. Greco
Image Q: Bicycle Lane
Image R: Combined Signage, Photo by Michael D. Greco
Image S: Street Lights, City of Milwaukee
Image T: Wayfinding Signage, Buffalo Bayou
Image U: Fresh Produce
Image V: Farmers’ Market
FIGURE A-1: LAND USE IN THE OPUS BUSINESS PARK

[Map of land use in the Opus Business Park with various land use categories such as Commercial, High-Density Residential, Industrial, Institutional, Medium-Density Residential, Open Space, Park & Recreation, Office, Right-of-Way, Vacant, and Opus LRT Station Area.]

Map prepared by: Abdul Qadir Sheikh

Source: City of Minnetonka
FIGURE A-2: OPUS PARK AREA: OPEN SPACE AND PERCENT IMPERVIOUS

Map prepared by: Mike Greco
Sources: MnDNR, LMIC

Opus Park Area:
Open Space and Percent Impervious
Map prepared by: Mike Greco
FIGURE A-3: OPUS PARK AREA: STEEP SLOPES AND HIGH-RUNOFF SOILS

MAP PREPARED BY: MIKE GRECO

SOURCES: METROPOLITAN COUNCIL, MN GEOLOGICAL SURVEY, LMIC, AND U.S. DEPARTMENT OF AGRICULTURE

10-FOOT ELEVATION CONTOURS

- Slopes 12% to 18%
- Slopes > 18%
- High-Runoff Soils
- UMAGA Site
- Opus Center Campus
- Creek/Stream
- Water and Wetlands

Opus Park Area:
Steep Slopes and
High-Runoff Soils

Map prepared by: Mike Greco
APPENDIX A: EXISTING CONDITIONS MAPS

FIGURE A-4: OPUS PARK AREA: GREENWAY CORRIDORS

Map prepared by: Mike Greco

Sources: MnDNR, LMIC

City Greenway Concept

Regional Ecological Corridors (DNR)

Regionally Significant Ecological Area (DNR)

Natural Communities

Opus Park Area: Greenway Corridors

Map prepared by: Mike Greco
FIGURE A-5: OPUS PARK AREA: GROUNDWATER RECHARGE AREAS

Recharge Travel Time
- 1 year
- 2-5 years
- 6-10 years
- > 10 years

City Wellheads
Opus Business Park

Opus Park Area: Groundwater Recharge Areas

Map prepared by: Mike Greco

Source: MN Department of Public Health
FIGURE A-6: MINNETONKA: HAZARDOUS WASTE SITES

Map prepared by: Barr Engineering

Minnetonka: Hazardous Waste Sites
Map prepared by: Barr Engineering
FIGURE A-7: MINNETONKA: GROUNDWATER SENSITIVITY TO POLLUTION

Groundwater Sensitivity to Pollution

- Very High
- High
- Moderate
- Low

Legend:
- Municipal Boundary
- Interstates (MN/DOT)
- Trunk Highways (MN/DOT)
- CSAH (Hennepin County)
- Local Streets
- Railroad
- Lakes & Streams

Source:
MNGS for Groundwater Sensitivity.
MDNR for Lakes Outside Minnetonka.
MNDOT for Roads Outside Minnetonka.
City of Minnetonka for all other Data.
FIGURE A-8: OPUS PARK AREA: DRINKING WATER SUPPLY VULNERABILITY TO CONTAMINATION

Vulnerability to Contamination

- Very High
- High
- Moderate
- Low
- Very Low

City Wellheads
Opus Business Park

Source: MN Department of Public Health

Opus Park Area: Drinking Water Supply Vulnerability to Contamination

Map prepared by: Mike Greco
FIGURE A-9: OPUS PARK AREA: SUBWATERSHEDS (HYDROLOGIC UNITS)

Map prepared by: Mike Greco

Sources: The Lawrence Group, MnDNR, MetroGIS, and City of Minnetonka
FIGURE A-10: OPUS PARK AREA: WETLAND MANAGEMENT CLASSIFICATION

Wetland Management Classifications

- Blue: Manage 1
- Orange: Manage 2
- Light Blue: Unclassified
- Dark Blue: Creek/Stream
- White: Opus Campus

Sources: MetroGIS, MnDNR, City of Minnetonka
FIGURE A-11: OPUS PARK AREA: LAND COVER TYPES

Map prepared by: Mike Greco

Sources: MN DNR, LMIC

Opus Park Area:
Land Cover Types

Maintained grasses
Maintained trees, shrubs, vines
Shrubland
Grassland and forbs
Grassland tree complex
Oak/aspen savannah or openings
Bottomland forest and woodland
Upland forest & woodland
Water
Wetland
Creek/Stream
Opus Business Park
UMAGA Site

Shady Oak Lake
Lone Lake
PWI-27-796 W
PWI-27-798 W
PWI 27-793 W
PWI 27-794 W
PWI 27-808 W
PWI 27-797 W

City of minnetonka
Where quality is our nature

Opus Park Area: Land Cover Types

Map prepared by: Mike Greco
FIGURE A-12: OPUS PARK AREA: FLOOD HAZARD AREAS
FIGURE A-13: OPUS PARK AREAS TRANSPORTATION SYSTEM

Legend
- Proposed LRT Station Site
- Existing Bus Stop
- Streets, Roads, & Highways
- Pedestrian and Bike Trails

Sources:
City of Minnetonka, MN
The Lawrence Group
Metro Transit
Minnesota Geospatial Information Office: Land Management Information Center

Opus Park Area Transportation System
Prep. by: Nick Flanders
FIGURE A-14: OPUS PARK AREA: LAND USES EMPLOYED IN TRANSPORTATION ANALYSIS

Legend
- Proposed LRT Station Site
- streets, Roads, & Highways
- Low Income Housing
- Residential Parcels
- Commercial Parcels
- Industrial Parcels

Sources:
The Metropolitan Council
Hennepin County
The Lawrence Group

Opus Park Area:
Land Uses Employed in Transportation Analysis

Prep. by: Nick Flanders
FIGURE A-15: ACCESS TO PARKS AND WATER BODIES OUTSIDE THE OPUS SITE

Legend
- Proposed LRT Station Site
- Streets, Roads, & Highways
- Park
- Water

Nearest Public Park or Water Body
- Within 1/4 mile
- Between 1/4 mile and 1/2 mile
- Between 1/2 mile and 1 mile
- Beyond 1 mile

Sources:
The Metropolitan Council
Hennepin County
The Lawrence Group

Access to Parks and Water Bodies Outside the Opus Site
Prep. by: Nick Flanders
FIGURE A-16: OPUS PARK AREA: ACCESS TO LRT STATION

Legend
- Proposed LRT Station Site
- Streets, Roads, & Highways

Proximity to Proposed LRT Station
- Within 1/4 mile
- Between 1/4 mile and 1/2 mile
- Between 1/2 mile and 1 mile
- Beyond 1 mile

Sources:
The Metropolitan Council
Hennepin County
The Lawrence Group

Opus Park Area: Access to LRT Station
Prep. by: Nick Flanders
FIGURE A-17: OPUS PARK AREA: ACCESSIBILITY OF BUS STOPS

Legend
- Proposed LRT Station Site
- Existing Bus Stop
- Streets, Roads, & Highways

Proximity to Nearest Opus Bus Stop
- Within 1/4 mile
- Between 1/4 mile and 1/2 mile
- Between 1/2 mile and 1 mile
- Beyond 1 mile

Sources:
The Metropolitan Council
Metro Transit
Hennepin County
The Lawrence Group

Opus Park Area: Accessibility of Bus Stops
Prep. by: Nick Flanders
FIGURE A-18: OPUS PARK AREA: EMPLOYMENT CENTROIDS

Legend
- Proposed LRT Station Site
- Streets, Roads, & Highways
- Geographic Center of Employment Parcels
- Geographic Center of Commercial Parcels
- Geographic Center of Industrial Parcels

Sources:
The Metropolitan Council
Hennepin County
The Lawrence Group

Opus Park Area:
Employment Centroids

Prep. by: Nick Flanders
APPENDIX A: EXISTING CONDITIONS MAPS

FIGURE A-20: OPUS PARK AREA: INDUSTRIAL PARCEL SUBSETS

Legend
- Proposed LRT Station Site
- NW Industrial Center
- NE Industrial Center
- S Industrial Center
- Streets, Roads, & Highways
- Opus Industrial Parcels
- Sub-Analysis Zones
  - Northwest
  - Northeast
  - South

Sources:
The Metropolitan Council
Hennepin County
The Lawrence Group

Opus Park Area: Industrial Parcel Subsets
Prep. by: Nick Flanders
FIGURE A-21: OPUS PARK AREA: HOUSING PROXIMITY TO EMPLOYMENT

Legend
- Proposed LRT Station Site
- Streets, Roads, & Highways
- Pedestrian and Bike Trails
- Low Income Housing
- Residential Parcels
- Proximity to Employer Parcels
  - Within 1/4 mile
  - Between 1/4 mile and 1/2 mile
  - Commercial Parcels
  - Industrial Parcels

Sources:
City of Minnetonka
The Metropolitan Council
Hennepin County
The Lawrence Group

Opus Park Area:
Housing Proximity to Employment

Map Trans.-9
Prep. by: Nick Flanders
FIGURE A-22: OPUS PARK AREA: HOUSING PROXIMITY TO COMMERCIAL PARCELS

Legend
- Proposed LRT Station Site
- Streets, Roads, & Highways
- Pedestrian and Bike Trails
- Low Income Housing

Residential Parcels
Proximity to Commercial Parcels
- Within 1/4 mile
- Between 1/4 mile and 1/2 mile
- Between 1/2 mile and 1 mile
- Commercial Parcels
- Industrial Parcels

Sources:
City of Minnetonka
The Metropolitan Council
Hennepin County
The Lawrence Group

Opus Park Area:
Housing Proximity to Commercial Properties

Prep. by: Nick Flanders
FIGURE A-24: OPUS PARK AREA: ONE-WAY AND TWO-WAY STREETS

Legend
- Proposed LRT Station Site
- Existing Bus Stop
- 1-way street or divided hwy.
- 2-way street

Sources:
The Lawrence Group
Metro Transit

Opus Park Area:
One-way and Two-way Streets
Prep. by: Nick Flanders
APPENDIX A: EXISTING CONDITIONS MAPS

FIGURE A-25: OPUS PARK AREA: SPEED LIMITS

Legend
- Proposed LRT Station Site
- Existing Bus Stop
- Roads (with speed limit)

Sources:
The Lawrence Group
Metro Transit

Opus Park Area:
Speed Limits

Prep. by: Nick Flanders
FIGURE A-26: OPUS PARK AREA: AVERAGE ANNUAL DAILY TRAFFIC

APPENDIX A: EXISTING CONDITIONS MAPS

Legend
- Proposed LRT Station Site
- Existing Bus Stop
- Road with AADT Reported
- Other Roadways
- Pedestrian and Bike Trails

Sources:
- City of Minnetonka
- MnDOT
- The Lawrence Group
- Metro Transit

Opus Park Area: Average Annual Daily Traffic
Prep. by: Nick Flanders
FIGURE A-27: OPUS PARK AREA: RESIDENTIAL RENTAL UNITS

Legend
- Roads
- Parcels
- Rental
- Owner Occupied
- Proposed Light Rail Site
- Water

Opus Park Area: Residential Rental Units
Prep. by: Andrea Trablesi
FIGURE A-28: OPUS PARK AREA: RESIDENTIAL PARCELS

Legend
- Roads
- Residential parcels within 1 mile of LRT*
- Proposed Light Rail Site
- Parcels--Other
- Apartment Condominium/Apartment
- Condominium
- Single Family Residential
- Disabled
- Townhouse/Triplex
- Housing - Low Income > 3 units
- Water
- Utility

*within 1 mile and has reasonable road access

Opus Park Area Residential Parcels

Prep. by: Andrea Trablesi
FIGURE A-29: OPUS PARK AREA: REGIONAL AND CITY PARKS, ECOLOGICAL CORRIDORS, AND GREENWAY CONCEPT

Minnetonka City Parks
Regional Parks
Greenway Concept
DNR Regional Ecological Corridor
Water
LRT proposed alignment
UMAGA redevelopment site
All Roads

Sources:
City of Minnetonka
Metro GIS Datafinder
Minnesota Department of Natural Resources

Map prepared by: Sarah Curtner
APPENDIX A: EXISTING CONDITIONS MAPS

FIGURE A-30: OPUS PARK AREA: CITY AND REGIONAL TRAILS

Source:
City of Minnetonka
Metro GIS Datafinder
Minnesota Department of Natural Resources
A variety of public participation methods were used to gather community input to inform the proposed station area plan. Although some of the results of the participation efforts are specifically referenced in the recommendations section of the plan document, much of the information gathered but not explicitly acknowledged was also informative to the plan. The following pages contain:

- Notes taken at a community meeting on the topic of redevelopment of the site;
- Results from a survey of residents within a one-mile radius of the development site;
- A summary of responses from a bicycle commuter group on the Opus campus; and
- Highlights from communication with members of the Opus Park business community.

This information may be useful for future efforts to develop a plan for redevelopment of the station area.

COMMUNITY MEETING NOTES
MEETING DATE
April 17, 2010

PARTICIPANTS
Eight residents of Green Circle Drive Condominiums; two representatives from the City of Minnetonka Planning Department; two representatives from Hennepin County Regional Rail Authority; Humphrey Institute Sustainability Capstone group.

OVERVIEW OF MEETING
A brief introduction to the Opus Station Area Sustainable Development Plan, followed by an explanation of the concept of sustainability and presentation of three case studies of redevelopment master plans for suburban light rail developments (see Appendix C). After presenting a hypothetical conceptual land use plan for the site, participants were divided into two groups to discuss redevelopment opportunities and concerns. Notes from these group discussions follow.

HOW RESIDENTS GENERALLY ENVISION THE SITE
- Reverse commute (commute to the site rather than from)
- There will be a benefit for existing residents—connection to downtown Minneapolis, airport
- An opportunity to advertise parks and trails system and encourage use by non-Minnetonka residents
- No buildings over five stories
- Similar to Excelsior and Grand development in St. Louis Park, but on a smaller scale
- Low-impact development
- Connections to amenities
- Livability
- Maintain or improve quality of life in the area

Wildlife
- Mergansers live in the wetland onsite and the wetland north of Bren Road West
- Don’t want trail all the way around the wetland if possible
- Residential density increase may be bad for wildlife
- There are more and different species of birds every year on the site and in the Opus Business Park as a whole
- Wetland(s) will need more protection; increase plantings and buffer around wetland
- Berms used presently to protect residences from business/delivery drop-off; use them to protect wildlife from new development

Natural Amenities/Systems
- Replace trees removed during construction
- Add more trees after construction
- Plant trees on berms
- “Max out” all possible planting areas
- Provide a system to capture stormwater and use it to irrigate green/park space (catch basin under parking lot for this?)
- Rain gardens
- City should provide information/education about what the city or county will help with regarding sustainability
- Capture/absorb runoff water created by new structures (maybe even existing structures)
• The green buffer around the wetland could include a berm lined with trees
• Provide a community-wide recycling and composting program (possibly onsite) especially if there will be residential development (design it to make it easy and convenient)
• Decrease human impact

**Trails, Parks, and Recreation**
• Exercise stations along the trails
• “Turn the whole station area into a park”
• Park or greenway onsite; the park should be a major design feature
• A plaza onsite as a gathering space
• Like Edina Centennial Park—art, connections, could connect to Hopkins Center for the Arts
• Green Circle Park—nice to look at, see people walking during lunch hour
• Signage is a must! Bike/trail maps, especially close to the LRT, maps to destinations on the site/campus
• Difficult to get around on foot efficiently
• Adding sidewalks would help a lot
• Community gardens
• Do not want dog park
• Bike racks
• Some Opus businesses have bicycle groups
• More gathering places on the Opus campus
• A corridor of green space connecting to United Health
• Redevelopment should bring the community together, for example through a farmers’ market or amphitheater
• There are many users of the trails from the local companies (e.g. lunchtime/breaktime exercise)
• Adding parks of mowed grass to the area is not a high priority, as many of the individual developments have such grassy areas and picnic areas
• Green Circle Park used to be mowed grass; some like the areas better now in their naturalistic form as it prevents garbage/vandalism

**Safety**
• Trails can be isolated
• No lights after dark—need lighting to make trails safer

**Businesses and Services**
• Retail businesses are not needed
• Downtown Hopkins is very close

**Transportation and connectivity**
• People may use the light rail line to keep from getting lost on the Opus campus roads
• In the springtime, motorcyclists pass through the area, which can be very noisy and irritating
• In addition to signage, there should be a trail map by the rail station, because people are directionally challenged
• Support for the idea of a circulator shuttle service, especially during the evening
• Support for using light rail to be removed from the central city and yet have quick access to it at the same time
• Several residents indicated that they would be likely to take the light rail train downtown to events
• Residents also indicated they would like to be able to take light rail to the airport to avoid costs of parking at airport or of shuttle/taxi transit to the airport, even if transferring in downtown Minneapolis was necessary
• “The more independent you are, the happier you are”—older resident
• Transit is most appealing if it fits with daily schedule of activities
• Fear increased use of Green Circle Drive by drivers trying to avoid having to wait at the light rail crossing; some drivers already intentionally drive the wrong direction on a small stretch of Green Circle Drive to avoid having to circle all the way around in the other direction
• Concerned about increased traffic from the kiss-and-ride
• Even though there is no plan for a park-and-ride at this site, concern over the traffic a park-and-ride would produce
Retail business additions on the site should not affect the existing businesses off of the site
Would like to see a “good restaurant”
There could be food services related to the light rail station (sandwich, etc.)
Opportunities for local businesses to be on the site
There are services on the Opus campus already that exist within buildings (cafeteria, health facility, convenience store) but these are not open to residents of the area
There is some organization of Opus residents, but less organization of Opus businesses
One resident owned and operated a company for 15 years in the Opus Business Park, but recently moved his business to a home/office location in Chanhassen because rent in Opus had tripled
Residents supportive of a small grocery story (something like the Lund’s store on University Ave., NE Minneapolis)

**Residential**
- The addition of residential development on the site would increase the need for more commercial/retail opportunities
- Doubtful that new residential development would be used to its fullest (cited various other developments nearby that are half vacant)
- Residents understand there is to be significant development at the Hopkins station area and they’d like to have some estimates of population growth closer to the site to understand if there is a need for residential development
- Opposition to high-rise buildings, but acknowledge that land on the Opus campus is already mostly filled, meaning that building upward may be necessary
- Provide a grant program for developments in the area to improve their surroundings
- Seeing a slight shift toward younger residents at the Green Circle Drive Condos in the past few years

**Other**
- Desire to think long term
- The only gathering space is the pool
- No real interaction in buildings
- They like the idea of geothermal energy, like what the Opus building uses
- Any on-site recycling program should include large recycling containers placed conveniently
- Public mailboxes are hard to locate
- They floated the possibility of the light rail station area featuring a rotating display of artworks (federally-funded rail projects are required to spend 2-5% of their budget on art)
- The United Health building is LEED Gold and the Opus building is LEED Silver (they would like to know how these businesses do their recycling)
- One meeting participant drew his own concept map for the site, featuring an open corridor between the light rail station and the wetland, with a public sculpture positioned on the corridor’s axis and near its eastern end.

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**OPUS AREA RESIDENT SURVEY**

A survey was distributed to approximately 800 households in and around the Opus Campus to gather information about residents’ preferences, and transportation and recreational habits. The survey was distributed to individual residential units where possible, or to building management staff where direct access was not available. A stamped and preaddressed return envelope was provided to encourage people to return the survey. A total of 211 surveys were returned, for a response rate of 20 percent. Results from the survey are presented below.

The survey had eight questions. The first question asked residents if they were employed with a company within the Opus Business Park. Only 6 percent of respondents replied “yes.” The vast majority are either employed elsewhere, unemployed, or retired.
FIGURE B-1: BUSINESSES RESIDENTS WOULD LIKELY USE AT THE OPUS STATION AREA

Question 3: What businesses would you be likely to use at the Opus Station site?

![Bar chart showing the percentage of respondents by likelihood of use for different businesses at the Opus Station Area.]

TABLE B-1: RESPONDENTS BY RESIDENTIAL DEVELOPMENT

<table>
<thead>
<tr>
<th>Location</th>
<th>Count</th>
<th>Pct.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beachside</td>
<td>71</td>
<td>34%</td>
</tr>
<tr>
<td>Deer Ridge/Raspberry</td>
<td>49</td>
<td>23%</td>
</tr>
<tr>
<td>Elmbrooke</td>
<td>1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Green Field</td>
<td>1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>Green Circle</td>
<td>36</td>
<td>17%</td>
</tr>
<tr>
<td>Single Family West</td>
<td>12</td>
<td>6%</td>
</tr>
<tr>
<td>Shady Oak</td>
<td>9</td>
<td>4%</td>
</tr>
<tr>
<td>South Hampton</td>
<td>14</td>
<td>7%</td>
</tr>
<tr>
<td>St. Therese</td>
<td>18</td>
<td>9%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>211</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
The second question asked residents about the likelihood of their using light rail if it was to become operational. Approximately one-quarter (27 percent) indicated they were very likely to use the service while another one-quarter (25 percent) indicated they were somewhat likely. One-fifth (20 percent) indicated they were not very likely to use the service and 28 percent responded that they were not likely at all to use the service.

For Question 3, respondents were able to choose more than one type of business. Four business types were clearly chosen above the others. Restaurant, convenience store, post office, and full-service grocery store were all chosen by more than half of all respondents. The least frequent choice was daycare (Figure B-1).

Questions 4 through 8 were designed to gauge residents’ use of public facilities and their opinion of how to improve recreational amenities on the Opus campus. Question 4 asked how frequently residents use the trail system. Roughly one-fifth (18 percent) of respondents indicated they use the trails almost daily. Another 18 percent said they use the trails at least once a week, and 8 percent indicated they use the trails every few weeks. Thus, nearly one-half (44 percent) of all respondents identify themselves as occasional or frequent users of the park’s trail system. Only 31 percent indicated they never used the trail system, and several of those respondents were from St. Theresa’s Nursing Home. Question 5 asked residents who indicated they use the trails what they use the trails for. The vast majority (90 percent) of respondents indicated they use the trail system for recreation. Only 2 percent indicated they use the trails as a means of traveling to destinations in the business park, such as retail shops. Another 8 percent said they use the trails for both purposes. Many respondents indicated that safety was a primary concern because the trails are neither properly maintained nor well lit. In addition, respondents indicated that a lack of signage and maps indicating where the trails lead to decreases their willingness to use the trail system.

When asked how often they use Green Circle Park, the only designated park on the Opus campus, the majority of respondents (59 percent) replied they have never used the park. Many did not know the park existed or did not know how to find it. Roughly one-third (29 percent) of residents indicated they use the park occasionally or frequently. Only 7 percent indicated they use the park daily, and many of those users only use it as a place to stretch or rest while walking the trails. Responses indicate the park is not used for recreation.

When respondents were asked which recreational activities they participate in, more than three-fourths (76 percent) indicated they walk the trails. Less than half (45 percent) indicated they bike on the trails. Other options such as tennis, baseball, and soccer were chosen infrequently. When asked what improvements would increase their use of Green Circle Park, almost half (47 percent) indicated that nothing would increase their use of the park. The next most frequent responses were picnic facilities (38 percent) and community garden plots (26 percent). For both questions 7 and 8, respondents were allowed to choose all that applied.

BICYCLE COMMUTER SURVEY RESPONSES
A seven-question bicycle commuter survey was distributed by e-mail to employees at United Health Group. City of Minnetonka Planning Department staff identified a contact for this group, who forwarded the survey to all members. Thirteen responses were received. Although responses clearly reflect consideration of an area wider than the redevelopment site, the comments were useful in determining how bicycle commuters use the trail system and what they would like to see improved when the area redevelops. The results below reflect all responses to the questions. An effort was made to consolidate answers to avoid repetition.

1. Where do people commute to work?
   - United Health Group, South Building, North Building

2. Why do you choose to commute by bicycle?
   - Exercise
   - Convenience
   - Time
   - Part of going green (environmental benefit,
sustainability, environmental responsibility)
• Role modeling for children
• Finances—money savings on gas and car maintenance
• Personal challenge
• Fun and enjoyment

3. How long is your average bicycle commute?
• 45–50 minutes (each way)
• 45 minutes
• 1 hour
• 50 minutes 9–10 months out of the year
• 7.5 miles
• Less than 30 minutes
• 10 miles each way
• 9 miles
• 11 miles

4. How have you identified cycle commuting routes?
• Map from Cyclopath
• Figured it out on own, test rides
• Word of mouth, talking with other cyclists
• Maps from Google
• Knowledge of the area
• Same as driving route

5. What are the main barriers to commuting by bicycle?
• Path maintenance
• Road maintenance—potholes are along side of road where cyclists are riding
• Animals hit and left on roadside are often not removed for a week or more
• Bridge that crosses 169 (from Londonderry Rd.) is in disrepair and has a lot of debris making cycling difficult (including the walkway/path)
• Weather
• Safety—cars do not expect or appreciate sharing the road
• Traffic
• East to west signage seems fine, but north to south needs work
• Discomfort to riding in the dark near auto traffic (lighting!)

6. Do you find the trails on the Opus site to be adequate for your use?
*No (negative)*
• Drivers speed (possibly because it’s one way system)
• Maintenance issues (huge one)
• No. I’m fine for 95% of the trip, even thru the ghetto and past the homeless under the bridge. The real death trap is the couple mile radius around the building. Drivers don’t pay attention to other cars much less a bike.
• Bike lanes needed
• Better bike paths
• Better trail mapping tools
• Inadequate signage
• Some riders do not bike on the trails at all
• The trail is good for running on but the surface is too uneven for biking

*Yes (positive)*
• But trails could use patchwork
• Maintenance where roots have grown through the path

7. Is there anything that could make your cycle commute trip easier or more enjoyable?
• A marked lane on the bride over 169
• Bicycle path on one-way roads maintained to narrow wheel standard
• A sign displaying “expect to see cyclists”
• Resurface Opus trails
• Legislation (making it inconvenient to hit a biker)
• Shoulder for bikers on Minnetonka Blvd. by community center (focusing on wider area than the site)
• Overall there are few options for north south travel by bike on designated trails in the west metro
• The SW LRT Trail needs flashing lights for crossing to let bikes have a chance to cross the high traffic roads

Other Comments
• Sharp turns and blind corners—difficult to see cyclists when coming up fast around a corner
• Some cyclists avoid the one way system as much as possible by entering the UGH car ramp and cycling though it to get to the other side to the Data Park Building
• Cars are the main issue
• Generally pleased with the road system in Minnetonka and the trails on the Opus site
• Bridge over 494 just south of Excelsior is helpful
• Having a locker at work has been extremely helpful and good motivation for riding a bike

BUSINESS COMMUNITY QUESTIONNAIRE & INTERVIEW FEEDBACK
Individual interviews and questionnaires were used to gather feedback from businesses in the Opus Business Park. Two written questionnaires were returned and approximately eight other businesses answered a few questions over the phone. These sources, in addition to information gathered from business websites, informed the following summary regarding the business community on the Opus campus and how likely those businesses are to become involved in sustainability efforts on the redevelopment site and Opus campus.

- Approximately half of business employees/owners were not aware of the proposed light rail station.
- At least two companies in the Opus Park are working or have worked with others located in the park.
- No one expressed discontent with the addition of light rail; most were very happy about it.
- One business owner was willing to talk broadly about the light rail, but not willing to discuss the questionnaire; he feared that if he answered some questions that indicated lack of interest in or commitment to sustainability principles the information could, at worst, lead to officials moving the stop from Opus; overall a fear of business climate competition; concerned that other businesses will fudge answers to gain political edge on bringing the light rail stop to their locale and benefit from property interest.
- Cigna’s website says that the company “take[s] corporate and social responsibility seriously.”
- Two businesses were explicitly supportive of sustainability.
- At least two businesses do not participate in any business networks locally or regionally.
- Most employees and business owners were only somewhat familiar or were not familiar with concepts of sustainability/green business practices.
- At least two businesses have employees who personally promote sustainable practices at work, such as turning off lights, recycling, and bicycling to work.
- Most businesses that were contacted recycle.
APPENDIX C: CASE STUDIES

SUMMARY
This report summarizes six case studies of transit-oriented or transit-supportive development in suburban contexts that can serve as precedents for the Opus Business Park Campus and proposed Opus Light-Rail Station in Minnetonka. The case studies include Orenco Station (Oregon), Denver Technological Center (Colorado), Dublin/Pleasanton Station (California), Galatyn Park (Texas), Bellevue Station (Colorado), and Walnut Creek Station (California).

Although the developments vary widely in location, size, and intensity of use, several common themes can be identified across the cases:

- Creating a higher density “town center” or “transit village” in close proximity to the transit station with uses that serve residents, commuters, and nearby neighborhoods
- Permitting horizontal and vertical mixed-use development—including residential, office, retail, and service establishments—to create a relatively self-sufficient neighborhood
- Designing for livability through pedestrian-friendly and pedestrian-scale development, incorporation of open space and recreational opportunities, creation of civic spaces, and other design features that help to foster a sense of community
- Using a range of development and regulatory mechanisms to ensure good design, such as developer agreements, form-based codes, and restrictive covenants
- Providing good access and connectivity, both within the station area development and to adjoining neighborhoods
- Providing other public transit options in addition to light-rail service, including local and regional bus service and local shuttles
- Planning for development/redevelopment beyond the immediate one-quarter mile station service area to take advantage of transit-supportive development potential
- Incorporating sustainability principles into design, development, and maintenance of the site

The case studies summarized here will be included in an appendix to our final report to the City of Minnetonka, and will serve as reference points for our recommendations to the City.

ORENCO STATION TOD SITE PLAN
Location: Hillsboro, Oregon (western suburb of Portland)
Size: Approximately 210 acres and 3,000 people
Context: Greenfield site located in suburban, primarily white, affluent community

Land Use Mix: Mixed use town center, compact residential (emphasis on multifamily units), and in close proximity to some significant regional employers

Description: Planning for the Orenco station began in the 1990s after the decision was made that the Portland Westside light-rail transit line would stop in Hillsboro. To receive funding for the light rail, the city was required to rezone the land surrounding the station stop to accommodate compact mixed-use development. One of the corporate entities that had purchased much of the land surrounding the station area gathered a group of professional consultants to make plans for a new urbanist community, to include compact development, pedestrian access, mixed uses, public transit, and preservation of public open space. Another major landholder, Intel, developed a corporate campus one mile to the north of the station. The consequent master plan emphasized pedestrian-friendliness, transit use, design guidelines, and fostering community.

The first phase of the project involved developing the mixed-use town center about 500 yards north of the station, as well
as a variety of housing in the area, including live-work row houses (resident lives on upper floors and has an office on the first floor). In later stages, another developer bought 82 acres and developed high-density housing to the south of the site with the intent to build more residential and mixed-use.

To date, the development has experienced the following outcomes:

- 1/5 of residents had at least one member using light rail regularly (in 1999) and more than one-half reported using light rail more than they thought they would.
- A few of the early apartment developments were located within walking distance of one of the major regional employers, Intel, and consequently many employees of the company live in the Orenco development.
- Most housing units sell for 20–30% more than similar housing units elsewhere.
- Early in the process the developers surveyed 1,500 local employees, which revealed valuable information about their housing interests and other needs. Many of their preferences were toward walkable, traditional-style communities. Many interviewees were single, had no or few children, or were empty nesters, similar to current or potential future residents of development at Opus.

**Takeaways:**

**Successes**

1. Good design, especially of individual housing units, is important.
   - Recent retail occupancies at 99% despite economic slump
   - A survey of Orenco residents conducted in 2001 revealed that the majority were pleased with the overall character and livability of their neighborhood. Residents were most satisfied with the design of the community, the greenspace and parks, the community orientation, and the town center. Survey respondents identified living close to their place of work as not of great significance. The most frequently identified problems in the community were “dog problems” and “traffic problems” (Podobnik, 2002). A general conclusion that could be drawn from the survey was that people were drawn to live in the community in great part for the quality of design of individual residences, the sense of community fostered in the neighborhood, and the overall organization of the community (e.g. pedestrian-friendly streets, parks, and town center).

2. Partnerships foster success.
   - Good public-private relationship led to mechanisms like form-based zoning that allowed for flexibility in development and content developers
   - PacTrust, which is the primary developing firm and which specializes in commercial/industrial development, partnered with a residential building firm to develop in a way that would best meet the goals of TOD.

**Challenges**

1. Cars will still be relied upon heavily.
   - Podobnik (2002) concluded that residents continued to rely on their cars regularly despite the proximity of transit and the more compact design. However, survey respondents indicated that proximity to local stores and recreation areas has reduced reliance on cars for recreational activities and certain errands.
   - Development has concentrated nearer to main roadway, rather than the station area.
   - Many of the light-rail users arrive by car, rather than walking or biking. Notably, residents of the new residential units were given free light-rail passes for their first year in the community to encourage trying public transit.
   - Three of the large employers around the light-rail stop provide shuttle service, thereby reducing the full value of transit as a way to reduce air pollution and traffic.
   - The area around the station is seeing close to 10,000 additional daily auto trips resulting from use of park-and-ride.

APPENDIX C: CASE STUDIES
2. Change in community character may draw negative response from long-time residents.

   • Long-time residents of Hillsboro, who lived in low-density, single-family housing, were not pleased with higher densities and a busier community. An historic neighborhood protection district overlay was used to limit density in those areas.

3. New policies and techniques can lead to frustrating delays.

   • Coordinating zoning and the associated process of developing under regulations was time-consuming. Delays increased costs for the developers, especially early on when regulations were being developed.

Sources:


DENVER TECHNOLOGICAL CENTER

Location: Straddles the border between the City of Denver and one of its southern suburbs

Size: 909 acres

Context: An automobile-oriented suburban environment near a freeway interchange. A light-rail station is located on the opposite side of the freeway. The site is a fifteen-minute drive from downtown Denver.

Land Use Mix/Density: The primary land use is office space. However, the site also features dwelling units (almost all of which are multi-family), hotels, and retail land uses. The site incorporates a “town center” area, containing some of the site’s retail facilities. Approximately 40% of the Denver Technological Center is open space. There are 35,000 employees on the 909-acre site, with an employment density of 38.5 workers per acre.

Brief description/narrative: The Denver Technological Center was started in the 1960s so that office workers who live in the suburbs would not have to contend with the traffic and parking situations in downtown Denver. Marketing by the development company emphasizes measures to make the site more aesthetically pleasing rather than sustainability principles. Nonetheless, some noteworthy sustainability elements are to be found on the site. First, the site is divided into a series of “superblocks” of thirty or more acres, featuring large pedestrian areas between buildings. Sustainability is also advanced by the fact that some multi-family dwelling units are included in the mixed-use office park. There is also a high-frequency shuttle that circulates throughout the site and a rideshare program. Common green spaces are watered with non-potable water. Utility infrastructure facilities are designed to have their capacities easily expanded. Because this development was created through a private initiative rather than a public initiative, land-use regulations are enforced through a series of restrictive deeds.

Takeaways:

• Couch sustainability measures in terms of how they are convenient for occupants of the office park.
• Use non-potable water to water green spaces.
• Run a high-frequency shuttle service throughout the site to complement pedestrian and transit facilities.
• Operate a rideshare program for workers. Give rideshare vehicles priority for parking in certain spaces.
• Use restrictive deeds to require that a certain amount of open space be maintained.
• When dwelling units are incorporated into an office park setting, make the majority of them multifamily.
• When an office park includes retail uses, place some of those retail uses in a “town center”-like area of the development.
• Increase opportunities for pedestrian connectivity through “superblocks”—large areas of land that are not bisected by roads, but do have pedestrian facilities.
• Place some, but not all, parking under buildings. Use landscaped artificial ridges to conceal the remaining parking from view.

Source:

DUBLIN/PLEASANTON BART STATION AND HACIENDA BUSINESS PARK
Location: Pleasanton, CA

Size: Hacienda Business Park is approximately 20 square blocks (875 acres) in size

Context: Pleasanton, California is a major suburb roughly 25 miles east of the San Francisco/Oakland metro area. The city’s population in 2000 was 66,544. In 2005 and 2007, the U.S. Census Bureau ranked Pleasanton the wealthiest middle-sized city in the United States. More than 30% of the city’s residents are 18 years old or younger, and more than 45% are in their prime working years (aged 20 to 54). Hacienda Business Park, a large master-planned employment center, adjoins the BART station to the south. The station and business park are located near the intersection of two Interstate freeways. The station itself is an island platform in the center median of Interstate 580

Land Use Mix: The business park features high-rise and mid-sized office buildings, commercial-retail, and 1,500 housing units that include a mix of single-family detached homes, townhomes, and apartments.

Description: Dublin/Pleasanton Station is primarily considered a “reverse commute” station. Hacienda Business Park was originally envisioned by local and county planners to create office space close to affordable homes and cheaper than what is typically available in Silicon Valley or San Francisco. Employers in Hacienda have access to a large labor pool that includes both local residents and workers who live well beyond the traditional 30 minute automobile commute. Several companies have national or regional headquarters in the business park, including Oracle and Kaiser Permanente. Currently, the park supports 17,000 employees and is home to 3,200 residents. More than 10 million square feet of existing, mixed-use space is occupied by some 475 companies that locally employ approximately 18,000 people.

Development of the business park has included a significant focus on sustainability, including ongoing air quality and water quality monitoring, a separate water system to use recycled water for landscape irrigation, water efficiency mechanisms, energy-efficient lighting retrofits for lights in public spaces, clean energy installations on some buildings (mostly solar), a waste reduction initiative and recycling program, a construction debris ordinance, a range of commuter assistance programs, parking management efforts, a management office for the park that is green-business certified and serves as a resource and information hub for local businesses on sustainability issues, and a housing assistance program to increase affordability. In addition, all projects in the park that have been built since the late 1990s are LEED-certified.

Takeaways:
• Increasing access and connectivity are important goals. Despite Hacienda’s location near two busy interstate freeways, initial and continued investments to increase connectivity to the business park have resulted in lack of congestion and easy access to neighboring areas of the community. In addition to rail and the interstates, local and regional bus service connects the business park to the larger Bay Area region, and well-planned trails and paths provide excellent pedestrian and bike access. Local sales tax measures, bonds, and federal

APPENDIX C: CASE STUDIES
grants have allowed for continued transit, highway, and pedestrian improvements in or near the business park. Minnetonka should consider ways to improve both internal and external access and connectivity on the Opus Campus across a range of transportation modes.

- Recreational opportunities are a significant amenity for residents and workers. More than twelve acres of parks are situated in the center of Hacienda. In addition, convenient pedestrian pathways and trails connect areas within the development and create a park-like setting. Recreational amenities such as linear parks and an 18 station parcours for walkers and joggers are integrated into the thoroughfares within the park. Street landscaping, decorative features, street lighting, traffic control systems, and wayfinding devices serve to enhance enjoyment of Hacienda for tenants and the general public. Hacienda also hosts frequent running and cycling events, which attract many participants and spectators to the area. Minnetonka should consider ways to build on existing green infrastructure and pedestrian/cycling opportunities on the Opus Campus.

- A mix of housing, office, and retail creates a more affordable and livable community. Hacienda is home to a large residential community who have found the park’s housing and its proximity to office, retail, and service establishments to be an important asset in their daily lives. Many Hacienda residents also work in the park, making Hacienda a convenient commuteless living choice. Additional housing opportunities are located immediately adjacent to the park. The mix of housing sizes and types in the area provides a range of affordable options for residents. Both home ownership and rental assistance programs are available to aid people with housing needs who are currently either living or working within Pleasanton. Minnetonka should consider how to create affordable housing opportunities and live-work opportunities on and near the Opus Campus that would be attractive to a range of residents.

- A mix of integrated uses can serve residents, commuters, and the surrounding community. Hacienda Business Park is fully equipped with restaurants, services, entertainment, lodging, and recreation opportunities to meet everyday business and living needs, resulting in a fully self-contained development. The BART station and business park are also major attractions to shoppers, commuters, and nearby residents who use the station’s surrounding amenities and services. Amenities include four major retail centers located within or near the development, restaurants, service-retail establishments, parks and trails, a full-service hotel, medical clinics, a fitness center, adult education/extension courses, a childcare center, an elementary school, a business park shuttle, and 24/7 private security patrols. Minnetonka should strive to diversify uses within the Opus Campus to make it a more vibrant and attractive destination for workers, commuters, and residents.

- Capitalizing on regional economic clusters can help spur investment and development. The East Bay area where Hacienda is located has a number of significant economic clusters—geographic concentrations of interdependent businesses in related industries that fuel economic growth. By investing in infrastructure, technology, and related development that supports these clusters, the developers of Hacienda Business Park capitalized on the region’s dominance in environmental technology, healthcare technology, multimedia technology, telecommunications, computers and related electronics, and food processing and attracted hundreds of new businesses and several large regional or national headquarters. Minnetonka should consider participating in the Urban Land Institute–Regional Council of Mayors economic cluster analysis project that is currently under way.

- A Business Park Owners Association can facilitate sustainability efforts. The Hacienda Business Park Owners Association plays an integral role in making Hacienda a great place to work, live and do business. The Association is a private, non-profit corporation that
coordinates and manages many of the sustainability efforts that characterize the business park, and helps to educate and assist residents and business owners on sustainability issues.

Sources:


BELLEVIEW STATION
TOD GENERAL DEVELOPMENT PLAN
Location: Near the southern border of the City of Denver

Size: 51 acres

Context: This TOD development is in an inner-ring suburban context, next to a freeway and a light-rail line. On the other side of the freeway is the Denver Technological Center office park. Pre-development, most of the site was occupied by a golf course.

Land Use Mix/Density: The Belleview Station TOD is meant to be mixed-use and high-density, in the model of a traditional transit-oriented development. Densities increase with proximity to the light-rail station. The mixed-use aspect of the site applies both between buildings and within buildings. Approximately 12.6 acres of the site are intended to be transportation rights-of-way and 5.1 acres will be open space. At buildout, there will be 2,000 for-sale and rental housing units, 2.1 million square feet of office space, 162,000 square feet of retail and entertainment uses, 120,000 square feet of hospitality uses.

Brief description/narrative: This is a very detailed, parcel-by-parcel plan for a transit-oriented development, characterized by cooperation between the City of Denver and the two private companies that owned the site and develop it. Sustainability principles are explicitly referenced throughout the document. Especially high priority is placed on connectivity between land uses and walkability. Because this is a transit-oriented development, the focal point of the development is the light-rail station, which is linked to the other side of the freeway (and the Denver Technological Center) by way of a pedestrian tunnel. Other sustainability measures include a plan for the area’s water mains and drainage sheds and the integration of green spaces throughout the development. Furthermore, the location of the development does not interfere with any wildlife corridors, wetlands, or floodplains.

Takeaways:
• Pedestrian tunnels are an option for providing connectivity across busy thoroughfares.
• Building heights and development densities should increase with proximity to the light rail station, which should be designed as a focal point.
• On small-scale plans, it is sometimes necessary to produce detailed, parcel-by-parcel designs.
• Green spaces throughout a development ought to be linked to one another.
• It is best to create transit-oriented developments in stages.
• Plans for a sustainable development need to consider where stormwater detention ponds and water mains will be built.

Sources:
WALNUT CREEK STATION
BAY AREA RAPID TRANSIT (BART)

Location: Walnut Creek, California (east of interstate 680 to the northeast of Oakland)

Size: 5.3 acres (currently in use as parking lots)

Context: Greyfield site located in a suburban community that is considered the business and arts center of Contra Costa County.

Land Use Mix: The development would add residential units, 33,000 square feet of retail, 8,700 square feet of office, and 1,373 structured parking spaces.

Narrative: The Walnut Creek station is located east of interstate 680 to the northeast of Oakland, California. The area is a desirable location for corporate business. The station is located in a traditional suburban setting characterized by curvilinear streets, single-family homes, and auto-oriented commercial and business centers. The station is accessible by most forms of transportation. There are large parking garages and parking lots as well as a drop off area, a taxi stand, and a bus stop connection.

The Walnut Creek Station is a destination for a large number of suburban commuters, and has the second highest number of peak period AM boardings in the BART system. The station’s accessibility from the freeway, ample parking, and proximity to development contribute to its high usage, especially by commuters. The majority of people using the station arrive alone in a personal vehicle. Most passengers are dropped off or arrive by bus. The land uses to the west of interstate 680 from the station are predominantly suburban residential. The area to the east of 680 is business-oriented and much of the land is used for parking. Immediately surrounding the station there are several types of businesses including banks, a dentist’s office, an architecture firm, law offices, investment and business advisor offices, and a fitness center. Other businesses in the area include mobile phone companies, rental car facilities, hotels, used auto dealers, auto service shops, a bath store, a shipping center, restaurants, and clothing stores.

The Walnut Creek Station has benefited from policies encouraging high-density TOD. BART supports the creation of a TOD within all of its station areas, as well as in areas in close proximity to the stations. The TOD at Walnut Creek Station is still in the planning phase. The project would cover 5.3 acres which are now in use as parking lots. The development would add residential units, 33,000 square feet of retail, 8,700 square feet of office, and 1,373 structured parking spaces.

The land use vision concentrates on the area immediately surrounding the station, but identifies the need to make connections to the Golden Triangle area and the downtown area of Walnut Creek. Accessibility and connectivity goals include pedestrian and bicycle environment improvements to create better access between downtown Walnut Creek and the BART Station. These improvements mainly include wayfinding systems and better street crossings. Although the station mainly serves automobile drivers and park-and-ride users, the plan anticipates a change in the future and a need for more transit, bicycle, and pedestrian linkages.

Takeaways:
Although the Walnut Creek Station Plan may not exemplify the type of development Minnetonka currently desires for the Opus site, the case study provides a relevant example of suburban land uses surrounding a rail station. This case study will hopefully encourage Minnetonka City and planning staff to begin thinking more creatively about what they want for the Opus site as a new light-rail stop. It should also encourage a more comprehensive understanding of the role of supportive land uses surrounding light rail stations.

Of particular significance in Minnetonka may be the key strategies for incorporating automobiles into the transit station area. These strategies include developing a solution to the existing circulation deficiencies surrounding passenger drop-off areas, increasing opportunities for midday parking, and supporting spaces for car sharing and carpooling.