



## Section 2 SUSTAINABILITY

The central organizing principle of the South Loop District Plan is *Sustainability*. Sustainability has multiple dimensions and there are no universally accepted definitions. It's meaning varies depending on context and perspective. One of the most widely cited definitions was developed in 1987 by the Brundtland Commission (formally the World Commission on Environment and Development), which describes sustainable development as: *development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*

### 2.1 The Responsible Approach

In the most basic sense, sustainability refers to the capacity to endure and thrive. It has environmental, economic, and social dimensions often referred to as the three pillars or triple bottom line. It implies a **responsible** approach to development and use of resources. In the context of the *South Loop District Plan*, this means:

- Living within environmental limits;
- Understanding the interconnections among economy, society, and environment; and
- Equitable distribution of resources and opportunities.

Other common aspects of sustainable and responsible development include:

- Respecting environmental capacity limits;
- Attention to maintenance and management;
- Balancing the range and types of costs and benefits;
- Flexibility and adaptation to change;
- Taking a comprehensive, holistic approach to planning and implementation; and
- Establishing measures or metrics to evaluate outcomes.





View the *State of Minnesota Sustainable Building Guidelines* (MSBG) online at <http://www.msbg.umn.edu/>.

## 2.2 Sustainability Goals and Measures

To ensure South Loop develops in a sustainable and responsible manner, this plan proposes a development framework that reflects the following sustainability goals:

### 1. Energy

Encourage efficient building, site, and infrastructure design that reduces fossil fuel use and carbon emissions.

### 2. Accessibility

Design and implement transportation systems that support planned development while allowing for reduced reliance on motor vehicles and promote use of transit and alternative transportation modes.

### 3. Green Infrastructure

Integrate natural system functions in the design of infrastructure systems, buildings, and sites to preserve and restore natural resources and maintain the area's natural resource base.

## Measuring Sustainability

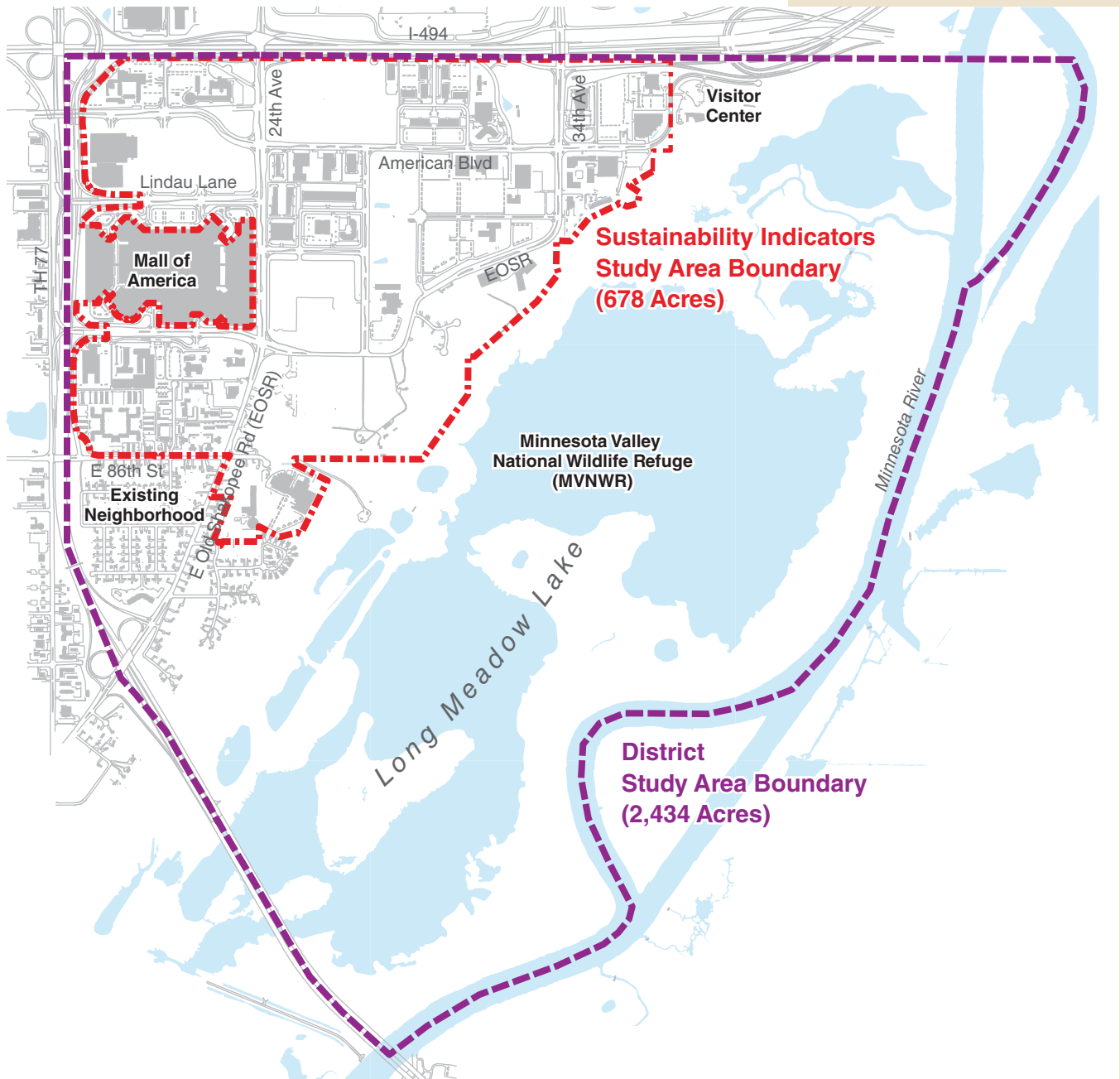
In preparing the South Loop District framework concept, INDEX software was used to evaluate sustainability based on select indicators that reflected the prime sustainability goals. INDEX is a geospatial-modeling tool that measures demographic, land use, housing, employment, recreation, environment, travel, and transportation implications of different physical design choices and development scenarios. For the South Loop District, the software was used to assess three development scenarios:

1. Existing conditions;
2. Trend scenario (future development based on current zoning and land use patterns); and
3. South Loop framework scenario (future development based on the proposed framework concept).

The study area used for the INDEX model only included the portion of South Loop where development changes are expected over the next 20-40 years. Thus, the existing Mall of America (MOA), the Minnesota Valley National Wildlife Refuge (MVNWR), and the existing residential neighborhood south of 86th Street were not included in the model. Due to their large numbers of jobs and open space, these areas would have greatly skewed the indicator results and made it difficult to detect differences among the scenarios. *See Figure 2.1 on next page.*

The three scenarios were analyzed based on measurable indicators for Energy, Accessibility, and Green Infrastructure.

Figure 2.1 INDEX Model Study Area



Source: Wallace Roberts & Todd. LLC, 2009.

**Energy**

Energy consumption and carbon emissions are leading indicators of sustainability. Buildings represent the largest segment of energy consumption, which is tied more strongly to building design and

operation than to the layout of streets and land uses within the district. Because building metrics change over time and the INDEX model does not measure building efficiency well, no specific indicators related to energy consumption



This LRT stop is located at Bloomington Central Station.

were used in the model. Instead, it is recommended that buildings in South Loop follow the *State of Minnesota B3 Sustainable Building Guidelines*, which exceed the State energy code by at least 30 percent. See sidebar, page 2.2.

The measurable sustainability goal for energy is:

- **At least 30 percent** more energy savings over those required in the State energy code.

### Accessibility

Making South Loop more accessible hinges on enhancing the bicycle network and increasing access to transit. A connected system of bicycle routes and convenient transit allows visitors, residents, and employees to travel to, from and within South Loop without getting into a car.

Four measurable sustainability indicators for accessibility show improvements over the trend scenario as follows:

- **Over 50 percent more** streets will have bicycle routes.
- **One third more** residents will be within walking distance (1/2 mile) of a transit stop.

- **Over 23 percent decrease** in the distance residents walk to reach transit.

- **Over 32 percent decrease** in the distance employees walk to reach transit.

### Green Infrastructure

Integrating green infrastructure into South Loop involves creating open spaces, such as parks and playgrounds, providing green connections between open spaces, such as tree-lined, landscaped boulevards, and using pervious materials where practical to allow on-site infiltration of rainwater. All of these “best practices” can improve aesthetics, provide cooling shade, and help manage stormwater runoff.

Two measurable sustainability indicators for green infrastructure show improvements over the trend scenario as follows:

- **Over 50 percent more** residents in the district will be within a short walk (1/4 mile) of a park or schoolyard.
- **Nearly one third** of all land in South Loop, north of 86th Street and excluding the MVNWR, will be dedicated open space.



## INDEX Results

In the INDEX model, the indicators were categorized under Accessibility and Green Infrastructure to correspond to the primary sustainability goals. As noted above, no specific numeric indicators were set for energy consumption, which is largely a factor of building design and operations. The table below compares the indicator scores of the two future development scenarios: one based on future development according to existing zoning and

land use patterns and the other based on the South Loop Framework concept described in this plan. See **Section 3.0, pages 3.1 - 3.86.**

As shown below, implementing the development pattern of land uses, streets, parks and trails proposed in the Framework Concepts can result in increased accessibility and green space beyond what might occur if development followed existing plans and zoning.

**Table 2.1 Summary of INDEX Results**

|                                      | Definition  | Trend Scenario | Framework Plan | Change from Trend   |
|--------------------------------------|---|----------------|----------------|---------------------|
| <b>Accessibility</b>                 |   |                |                |                     |
| Bicycle Network Coverage             | Percent of streets with designated bike route                                       | 27             | 41             | 14<br>(+52.0%)      |
| Transit-Oriented Residential Density | Dwelling units per acre within walking distance (a half mile) of transit stops      | 32             | 43             | 11<br>(+34.0%)      |
| Transit Proximity to Residential     | Average walking distance (ft.) between residential uses and closest transit stop    | 1,190          | 847            | 262<br>(-23.6%)     |
| Transit Proximity to Employment      | Average walking distance (ft.) between place of employment and closest transit stop | 1,360          | 920            | 440<br>(-32.0%)     |
| <b>Green Infrastructure</b>          |   |                |                |                     |
| Park/Schoolyard Adjacency to Housing | Percent of residents within a quarter mile of parks or schoolyards                  | 66             | 100            | 34<br>(+52.0%)      |
| Open Space Share                     | Percentage of land area dedicated to open space                                     | 0.4            | 31             | 30.6<br>(+7,650.0%) |

Source: INDEX Model Analysis, 2009.

