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**DRAFT**

# Great Seneca Science Corridor

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Design Guidelines

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June 10th, 2010

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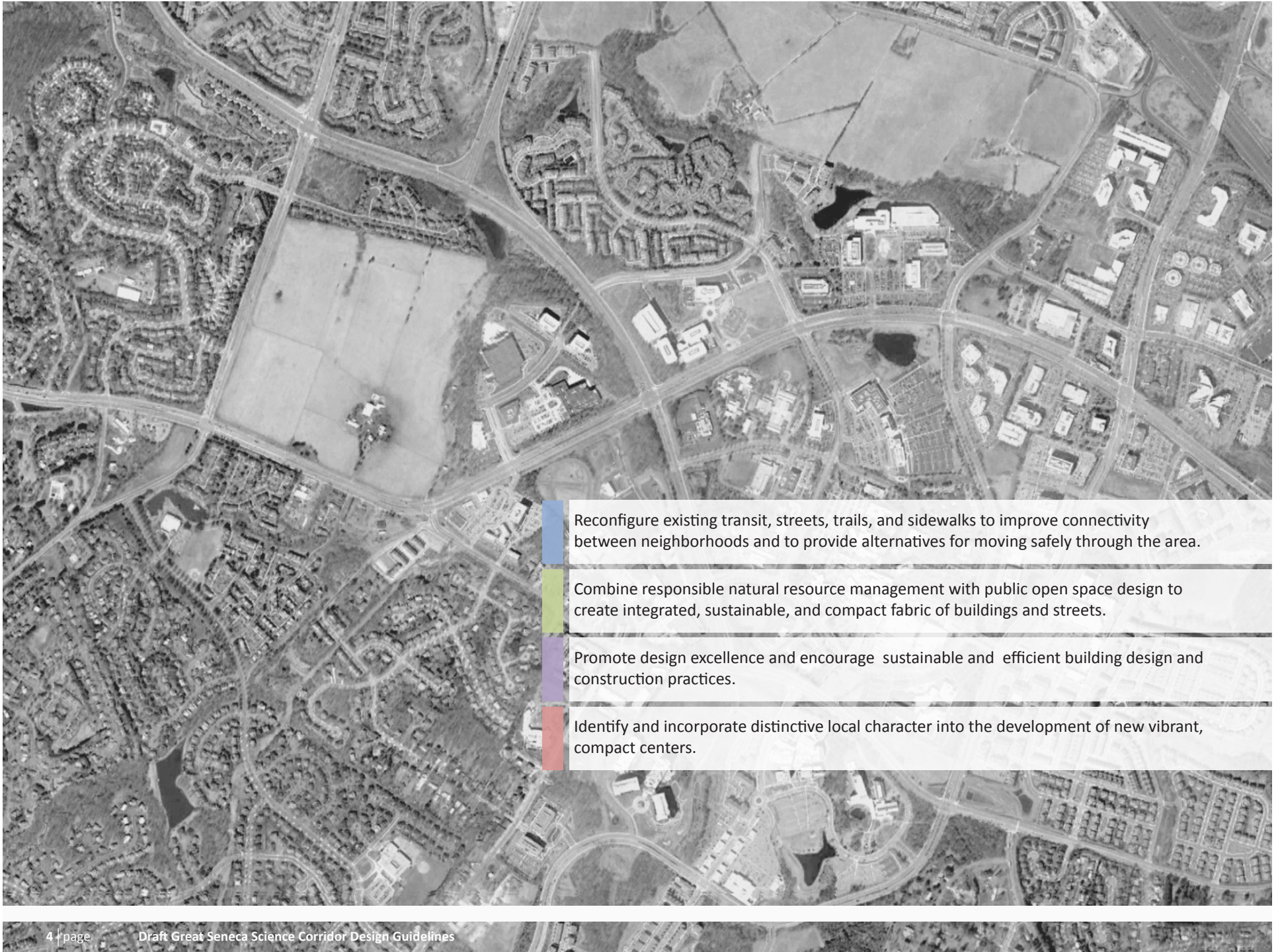


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Reconfigure existing transit, streets, trails, and sidewalks to improve connectivity between neighborhoods and to provide alternatives for moving safely through the area.

Combine responsible natural resource management with public open space design to create integrated, sustainable, and compact fabric of buildings and streets.

Promote design excellence and encourage sustainable and efficient building design and construction practices.

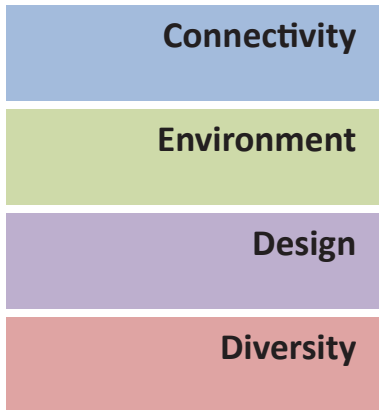
Identify and incorporate distinctive local character into the development of new vibrant, compact centers.

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## How to Use the Guidelines

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### Design Principles



The Urban Design Guidelines help implement the recommendations in approved and adopted master plans or sector plans. They provide information on how Plan recommendations and Zoning Code requirements can be met; the area or district context for individual sites; and ideas about best practices in building and site design.

The planning process is structured in a hierarchy of decisions.

- Master and sector plan recommendations provide the vision for a specific area.
- Zoning Ordinance and other codes establish standards and regulations for development.
- Design Guidelines provide inspiration and suggestions to fulfill the plan’s vision, and serve as a problem-solving tool.

The guidelines are developed through work with property owners, residents, institutions, interest groups, and Executive agencies. They are approved by the Planning Board for use by Planning Staff in developing and evaluating proposed building projects and other applications. They will be revised and updated as necessary.

**With the exception of street standards and other specific recommendations included in the Plan, the Guidelines are not regulations that mandate specific forms and locations for buildings and open space. They illustrate how Plan recommendations and principles might be met, and encourage applicants to propose designs that create an attractive and successful public realm.**

The examples and case studies are intended to frame discussions regarding building design in a flexible way, without prescribing specific standards.

## Relationship to the Great Seneca Science Corridor Master Plan

“The Master Plan establishes a blueprint for the Life Sciences Center that includes an expanded, first class medical center, research facilities, academic institutions, and an array of services and amenities for residents, workers, and visitors. It will have an open space system that incorporates the area’s natural environmental features into a larger network, connecting destinations by paths and trails, and providing opportunities for a range of outdoor experiences.

The Life Sciences Center of the future will be served by a fully integrated transit system that links mid-County activity centers via the Corridor Cities Transitway (CCT). Access to high quality transit is increasingly important to businesses trying to attract knowledge-based, creative class workers. The LSC will continue to be a specialized employment center, but it will be connected by transit with nearby residential communities at the Shady Grove Metro Station, the King Farm, the Crown Farm, Kentlands, and the Watkins Mill Town Center.”

## Vision

Today the Great Seneca Science Corridor Master Plan area exists as a series of tenuously linked adjacencies whose sum is less than their individual parts. Though these areas are complimentary in use and function, they are unsustainable as self-sufficient entities. Instead, they function like typical research parks, with wide roadways and setback buildings forming visually separated spaces and physical barriers that prevent a cohesive, accessible built environment.

A successful corridor would maintain the identity and function of individual areas by creating a framework for expansion and growth to bring places closer each other. The eventual result should be a continuous built environment that meets the needs of a larger community and the science community, while providing specialized sites for research and medical functions, as well as places for living and recreation.

In the Life Sciences Center, the creation of a successful corridor should also spur the development of a sustainable community, one that evolves with a holistic perspective of its impact on the environment, the economy, and well being of its residents.

Sustainable communities use strategic building orientation and site design to the greatest use of natural resources to create a variety of open spaces and community amenities. By protecting and augmenting existing resources on site, sustainable communities enhance local ecosystems through the planting of native landscaping, preservation of open space and wildlife habitat, and restoration of natural water cycles.

This is particularly true of science and research facilities where ever-evolving fields demand that are receptive to constant change. They must simultaneously allow for concentrated individual work while also actively promoting interdisciplinary communication. Flexibility and expandability are extremely important to ensure continued growth.

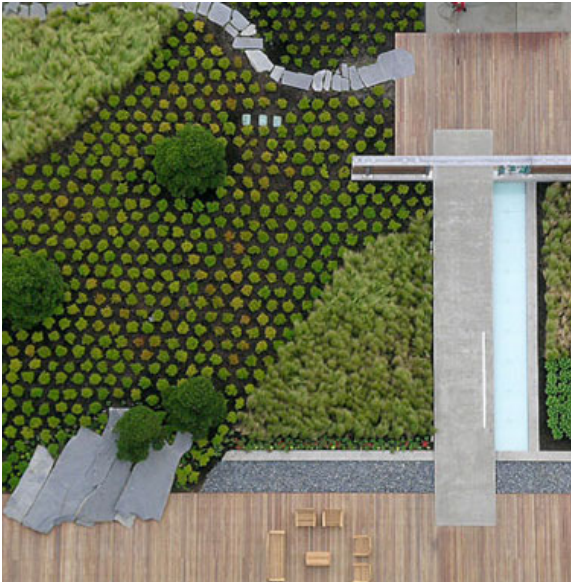
The Guidelines do not issue specific design directives but highlight techniques and approaches that can help create five distinct neighborhoods that coalesce into a single corridor that will evolve as a premier environment for medical, science, and technology research and applications.



*Lightrail Station  
Strasbourg, France*



*British Columbia Cancer Research Center  
Henriqz Partners Architects  
Vancouver, BC*



*Washington Mutual Center  
Phillips Farevaag Smallerberg  
Seattle, WA*

## Design Objectives

### Connectivity

Establish comprehensive transit, pedestrian, bicycle and road networks providing connections to retail, life sciences employment, academic facilities, and local and regional parks by:

- improving pedestrian safety at major intersections and strengthening connections between the districts in the Life Sciences Center
- using building facades to create an engaging pedestrian environment along streets that define and activate the public realm
- providing on-street parking wherever possible
- connecting people to the regional Metrorail system via the CCT.

### Environment

Reduce impact on the natural environment by:

- creating walkable environments that reduce our reliance on automobiles
- using innovative stormwater management techniques to meet Environmental Site Design (ESD) guidelines for urban areas
- promoting energy conservation and generation as a primary building and public space design feature
- encouraging building massing that sustains air flow and access to natural light
- integrating active and passive sustainable features and technologies into building and open space design.

### Design

Create a sustainable community focused on cutting-edge medical, science, and technology research and applications by:

- supporting the construction of flexible and multi-purpose buildings that allow rapid changes in use
- encouraging aggressive use of building systems and technologies to decrease energy use, and reduce carbon emissions
- encouraging design excellence through use of innovative building materials, facade articulation, street-oriented buildings, and sustainable building practices

### Diversity

Create a true mix of choices to support an active urban environment that supports the life sciences by:

- implementing land use patterns that combine laboratories, offices and academic institutions along with residential, office, and retail uses
- creating housing opportunities that accommodate a range of family needs
- creating an attractive, compact built environment that fosters collaboration between professionals and academics in a variety of disciplines.

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# The Corridor Cities Transitway

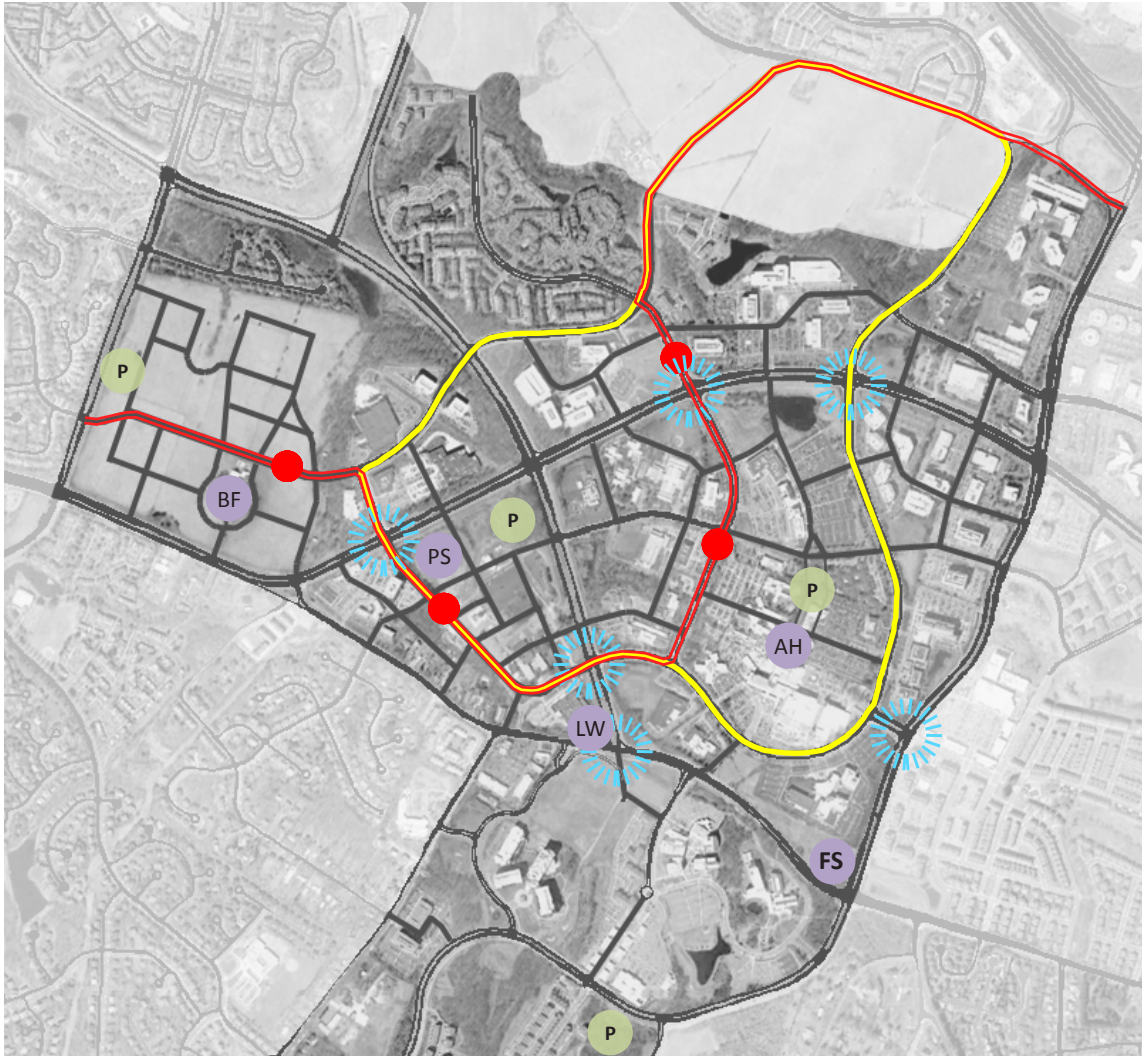
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## The Science Corridor: Establishing and Connecting Community

In the Great Seneca Science Corridor, the Corridor Cities Transitway (CCT) will be the catalyst for new development, building on and reorganizing existing low-density building patterns around transit stations. Transit station plazas will provide a hub of activity at each station. New roads and recreational amenities will create a more connected pedestrian and cyclist environment by linking the CCT, LSC Loop, and local and regional trails to encourage healthier, less automobile-dependent lifestyle choices. Over time, development will radiate from transit centers and create opportunities to strengthen connections between districts.







## Opportunities

### Buildings

Key properties present opportunities for landmark buildings and are crucial to establishing neighborhood character. They include:

- FS Fire Station
- PS Park School
- LW LSC West at Great Seneca Highway and Darnestown Road
- AH Adventist Hospital
- BF Belward Farm

### Open Space

CCT plazas, linear greens and stream valley parks can create an extensive network of recreational space that is tied into the regional network.

### Streets

CCT crossings on major roadways provide an opportunity to create pedestrian-friendly crossings to enhance connectivity. Additionally, connections across major roadways that link to significant community assets outside the plan area should be considered for improvements.

The LSC Loop, a shared-use path for pedestrians, joggers, and cyclists also presents recreational opportunities linking each of the districts in the Life Sciences Center.

Intersection improvements

Key sites and landmark buildings

CCT stations

LSC Loop

New parks and open spaces



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# Guidelines

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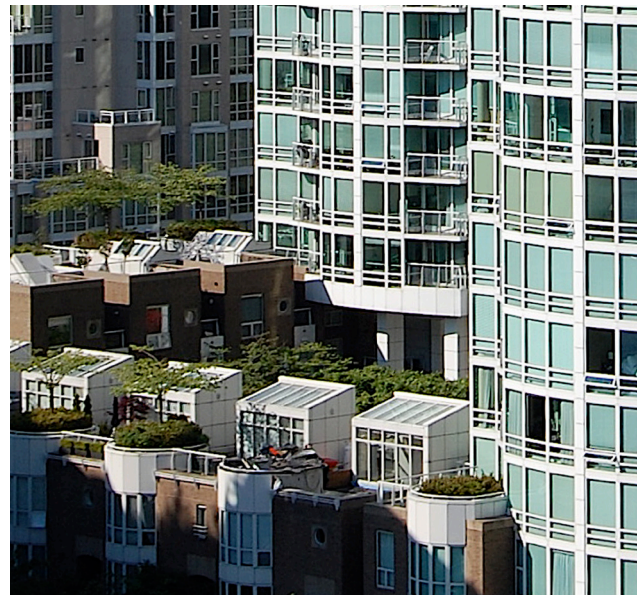
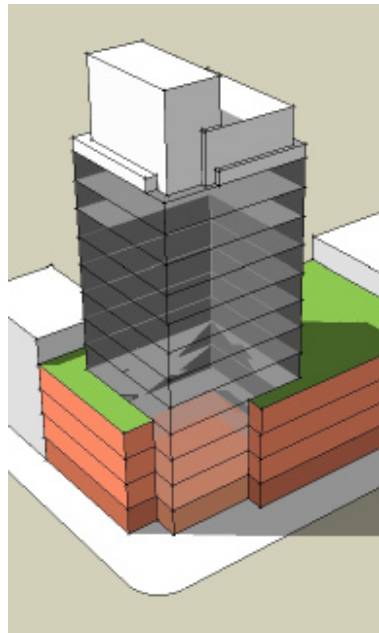
## Buildings

The Great Seneca Science Corridor Master Plan's building recommendations include height, street-orientation, design character and scale, and retail locations. It encourages use of sustainable building practices and site design to reduce energy use and stormwater runoff. The Life Science Center (LSC) and Commercial-Residential (CR) zones limit density and height, and have other standards regulating development.

The guidelines help visualize the Plan's recommended building heights with building examples for each district, and by illustrating how buildings might define the public realm.

Building design should:

- provide landmarks and street walls
- create a design character for the area
- be energy-efficient, adaptable, and mitigate environmental impacts.



## Building Rooflines

Encourage distinctive building rooflines in towers.

## Towers

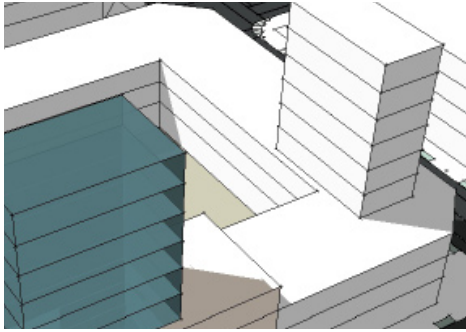
Set back or located to reduce their impact on the streets below, allowing for light and air flow.

Towers to the south of residences or open space should be located farther away as possible and be as high as permitted by the Plan to reduce bulk.

## Podiums

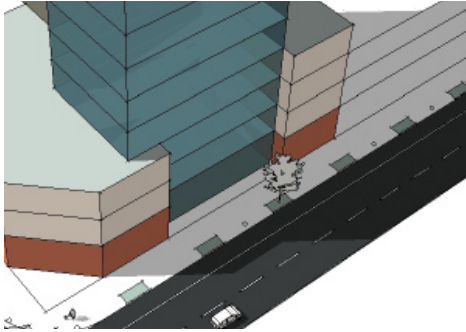
The structure's lower floors should establish continuity with adjacent buildings. Height should vary from two to five stories, depending on location.

Consider use of townhouses or apartments with individual walk-up entrances to activate non-retail streets.



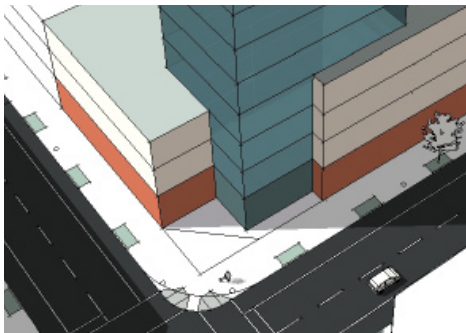
### Tower Setback

Should be used on streets with right-of way of 70 feet or less. Amount of setback to be determined by building's structure, but should be no less than 15 feet.



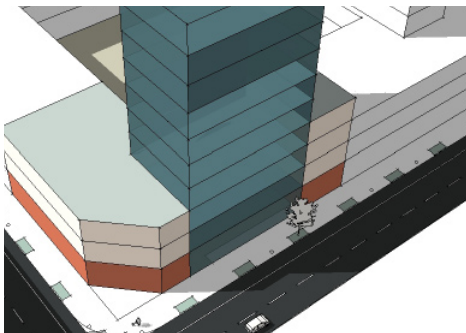
### Street Wall Recess

Full tower height may be shown in relation to primary entrances or open space and may be set back from right-of-way.



### Corners

Full tower height may be expressed at corners, as part of building articulation. Street wall continuity should be maintained through distinct articulation.

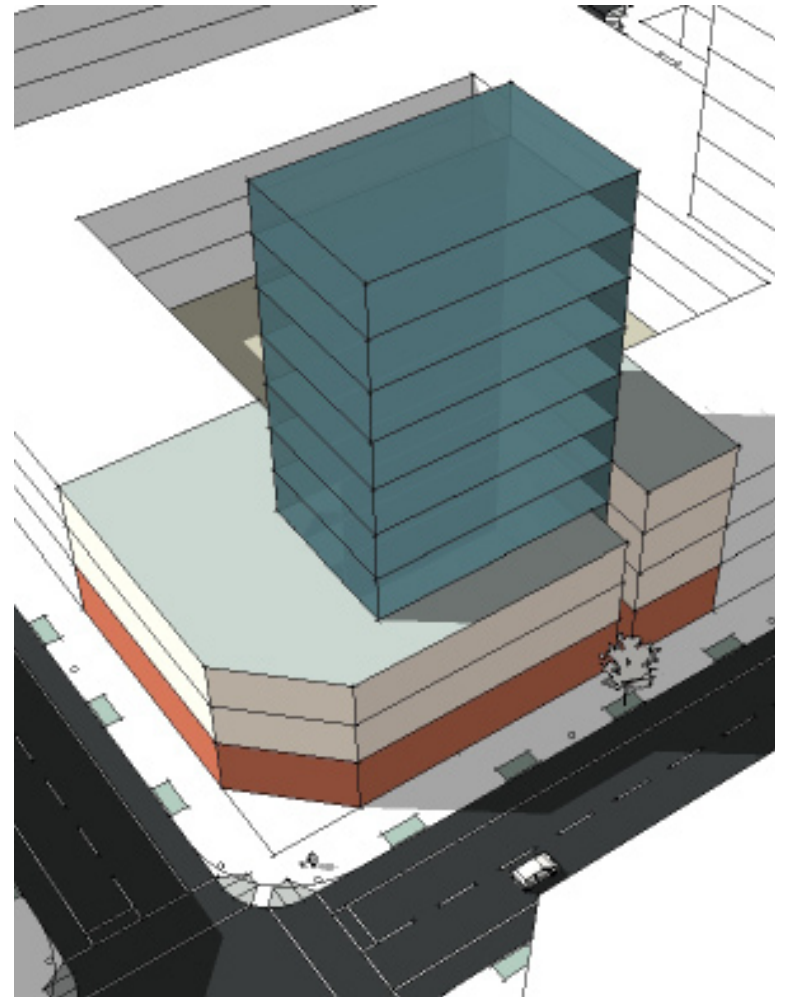


### Tower Separation

Podiums should meet walls at corners. Facade articulation is strongly encouraged.

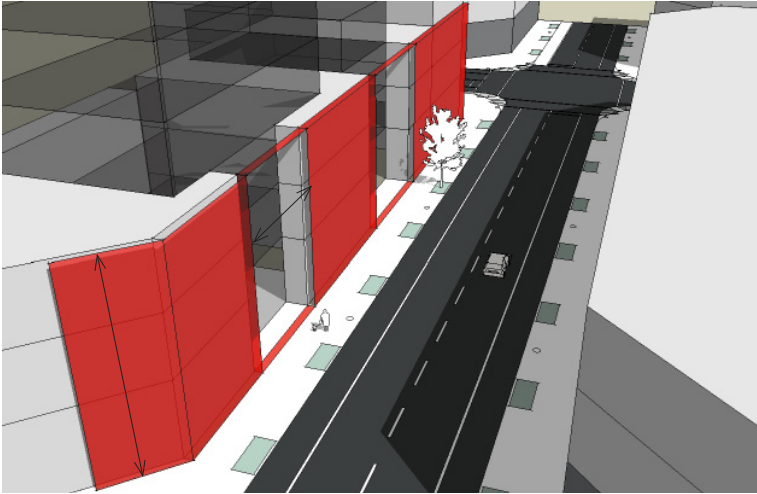
## Building Towers

Building towers should be located to reduce their impact on the street's pedestrian environment and on adjacent open space.

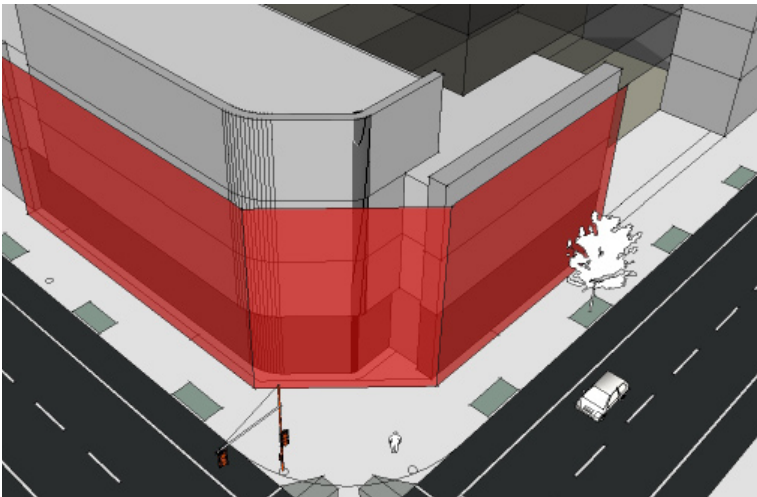


## Street-Defining Buildings

Streets should be defined by consistent street walls. Building podiums should meet build-to lines on both sides of the street where indicated on district maps.



*The Ellington  
Washington, D.C.  
Torti Gallas and Partners*



*40 Mercer  
New York, NY  
Jean Nouvel Ateliers*



*Memorial Sloan-Kettering Cancer Center  
New York, NY  
Granary Associates*

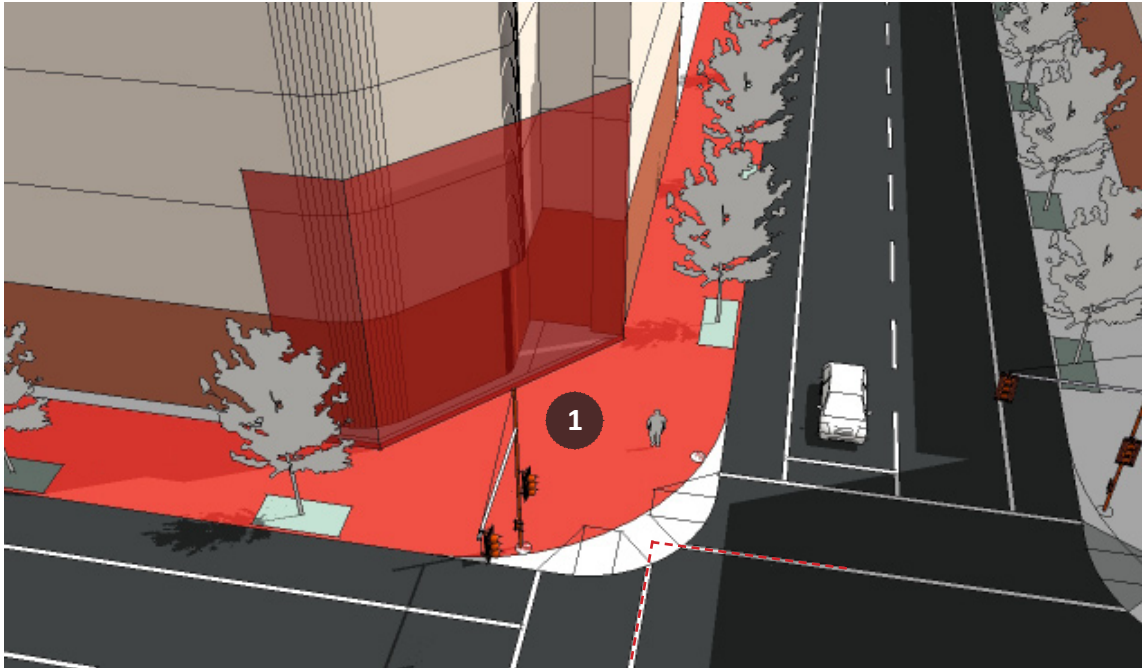
## Street Walls

Breaks along street walls with block frontages 200 feet or longer are appropriate. Breaks should occur away from block corners, and should be infrequent on retail streets.

## Podiums

Podium heights should range between 2 and 5 stories, as indicated on street sections.





## Urban Corners


Urban street corners should be safer for pedestrians and efficient for safety and service vehicles.



**1. Road Code** - Highlighted area indicates sidewalks and required corner truncation per MCDOT standards at the intersection of two hypothetical streets. A corner radius of 30 ft is shown. This standard requires a handicapped ramp oriented toward the center of the intersection.

**2. Design Guidelines** - Corner radii should be tighter than suburban standards (15 feet shown), and should include a double ramp at the corner, waiving the truncation requirement for most urban streets. Ramps should align with path of pedestrian travel and street crossings.

**3. Vehicle turning radius** - The effective turning radius, not the curb radius, should be 30 feet in the recommended configuration.

 Focus Elements

## Green Roofs and Living Walls



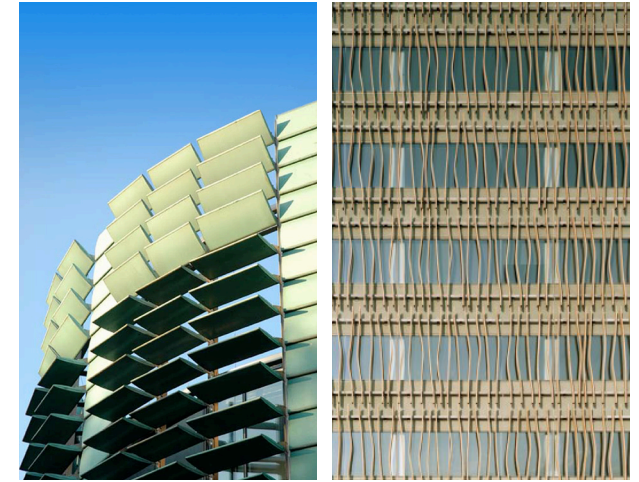
Use green walls and green roofs to reduce heat island effect and increase perviousness. Where possible, use native vegetation and species that require little or no water and fertilization. Green roofs should cover at least 33 percent of the roof, excluding mechanical equipment space, and have a minimum depth of four inches. Green walls should be on blank walls facing streets and open spaces and parking garage facades as well as for general aesthetic enhancements.

## Natural Ventilation



Use building design and mechanical systems to reduce HVAC loads and improve indoor air quality. Where possible, design buildings with thin floor plates and operable windows to allow natural cross ventilation. Consider use of fan-assisted cooling systems and open staircases to provide stack ventilation.

## Recyclable and Renewable Materials



Use rapidly renewable building materials and materials made from recycled content. Rapidly renewable materials, typically harvested within a ten-year cycle, and FSC Certified Wood products are encouraged. Materials extracted, harvested or recovered as well as manufactured within 500 miles of the project site are strongly encouraged.

## Building Sustainability

**The Great Seneca Science Corridor Master Plan strongly encourages use of sustainable building practices and site design:**

- use existing infrastructure and adaptive re-use of existing buildings
- site and building design and orientation for passive solar heating and lighting
- maximizing potential for renewable solar energy systems
- passive cooling through proper shading and ventilation
- reduce energy and water consumption
- recycled building materials, locally produced materials, and local labor
- building deconstruction techniques to facilitate re-use and/or building material recycling
- minimum energy efficiency standards of 17.5% below baseline performance or the appropriate ASHRAE advanced energy standard for new buildings
- renovated buildings should meet 10.5% energy efficiency standard below calculated baseline performance
- incorporate renewable energy systems such as wind, solar power, and geothermal heating and cooling systems
- use of light-reflecting roof surfaces where green roofs cannot be used

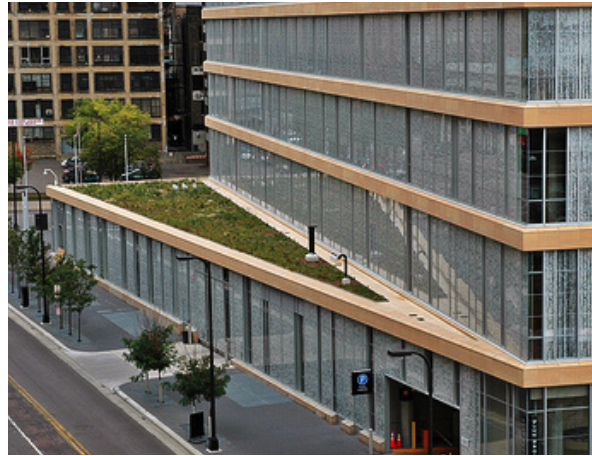


## Adaptive Reuse



Reuse existing buildings to mitigate construction and demolition waste. Reuse can strengthen neighborhood character and create a diversity of architectural styles.

## Passive Solar Design



Reduce the need for artificial lighting with extensive glazing and building orientation. Shifting buildings to maximize solar exposure can accommodate additional sustainability features.

## Renewable Energy



Use building-integrated renewable energy sources such as wind turbines and photovoltaics to reduce energy use. Photovoltaics can be placed on roofs, surface-mounted, or embedded in transparent surfaces to diffuse light entering the building.



*Right:  
The Beauregard  
Washington, D.C.  
Sorg & Associates*

*Far Right:  
Memorial Sloan-Kettering Cancer Center  
New York, NY  
Polshek Partnership*

*Below:  
156 West Superior  
Chicago, IL  
Miller Hull Partnership*

## Facade Articulation



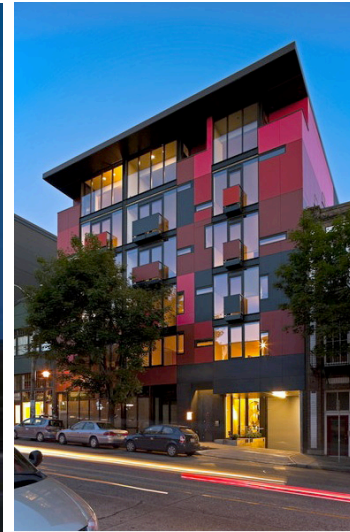
Facades should be articulated to promote pedestrian activity, enhance the overall urban environment, and create a diversity of architectural styles.

- Incorporate the most public and active building space on the ground floor to activate the street.
- Frontages for retail use should be as transparent as possible. Avoid long stretches of blank walls.
- Design building entrances to be prominent elements in the street frontage.
- Provide vertical articulation along street walls to reduce their visual length.
- Use materials, finishes, and architectural features that refine building facades by creating visual interest and texture.
- For residential buildings, consider balconies to provide variation in facade depths.

## Design Excellence

To improve design quality, a diverse range of buildings styles will attract growth that may otherwise locate to other jurisdictions. Contemporary design, flexible structures, and innovative building materials will advance the cause of better design. In the Life Sciences Center, the vision for a world class research and development applied science community should produce equally inspired architecture.

To achieve a higher design standard, discussions between citizens, planning staff, and property owners is strongly encouraged early in the design process. Buildings should always be considered in context of the neighborhood, street, and established design goals.



*Above:  
Islington Towers  
London, UK  
Benson & Forsyth*

*Left:  
1111 E. Pike Mixed-Use  
Seattle, WA  
Olson Kundig Architects*

*Far Left:  
Biomedical Research Building  
University of Michigan  
Ann Arbor, MI  
Polshek Partnership*

## Parking

### Great Seneca Science Corridor Master Plan

The Master Plan recommends a strong pedestrian orientation for future development, reducing the amount of surface parking lots:

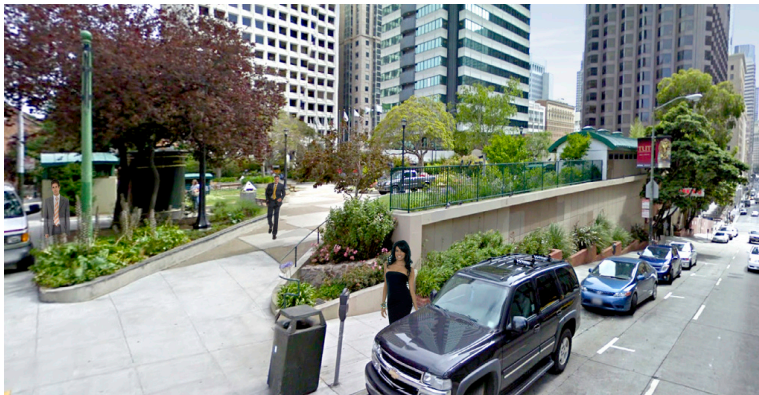
- Use of reduced parking requirements and structured and/or shared parking
- Relief from self-park requirement for smaller properties
- Establish a 30 percent non-auto driver mode share goal for LSC employees

Public garage sites will be defined at Preliminary Plan for publicly owned properties in the LSC Central and LSC West districts.

### Zoning Ordinance

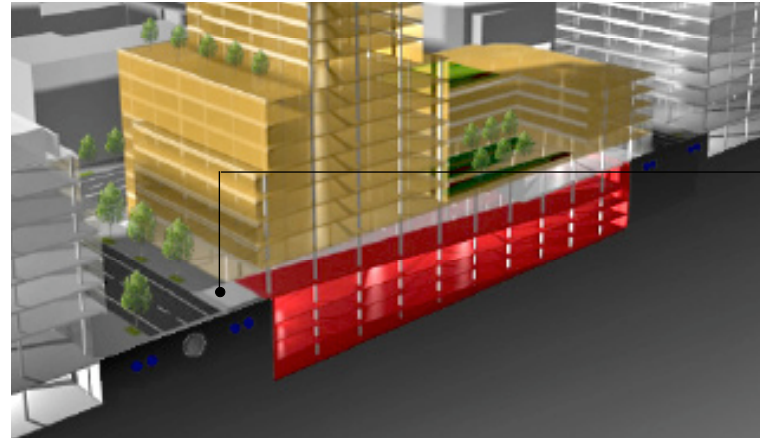
Parking requirements in the Great Seneca Science Corridor Master Plan area are set by the Montgomery County Zoning Ordinance. **For most uses, see Section 59-E of the Zoning Ordinance.**

The Commercial-Residential (CR) Zone has specific parking requirements, **see Section 59-C-15**, and provides incentives for constructing below-grade parking facilities.

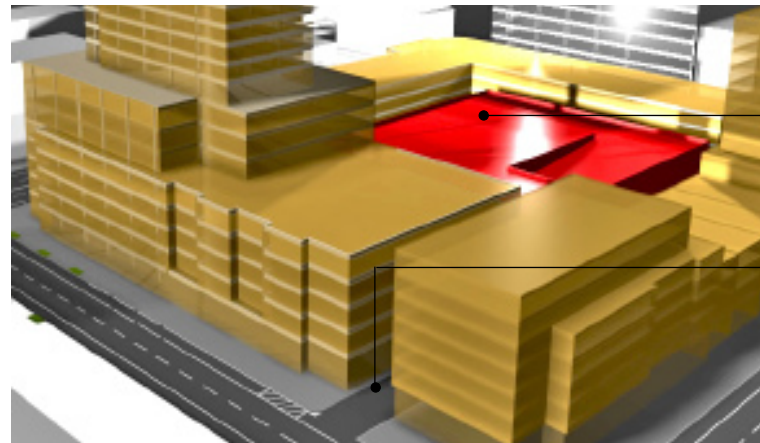


*St. Mary's Square Garage and Park  
San Francisco, CA*

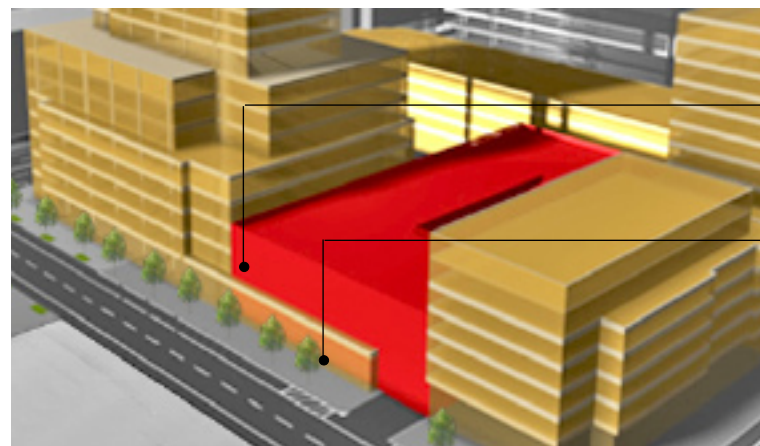
Using the site's sloped topography, St. Marys Garage is built into the side of a hill and covered with a public park. The park is heavily vegetated to mitigate runoff and reduce the garage's visual impact on the street.



**Narrow Entrance**  
minimize width of entrance  
and egress lanes



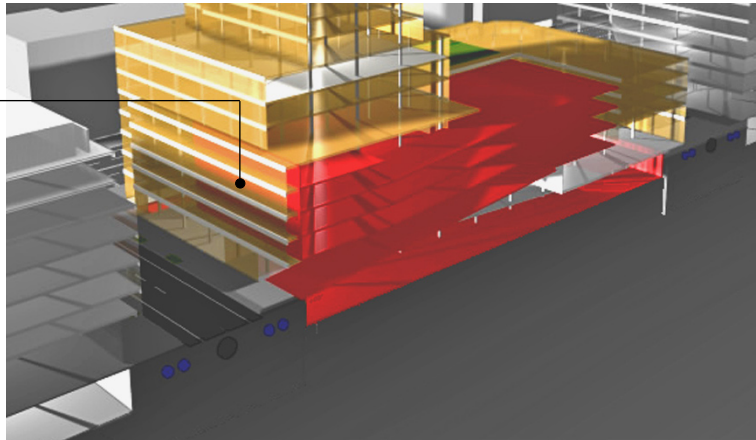
**Wrapped Parking Deck**  
place garage centrally within  
the block



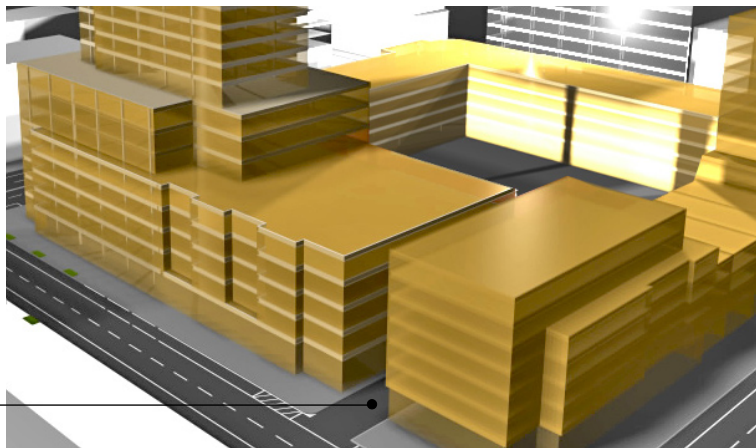
**Minimize Street Exposure**  
reduce the amount of garage  
facade facing the street

**Ground Floor Frontage**  
activate ground floor with  
retail or other uses

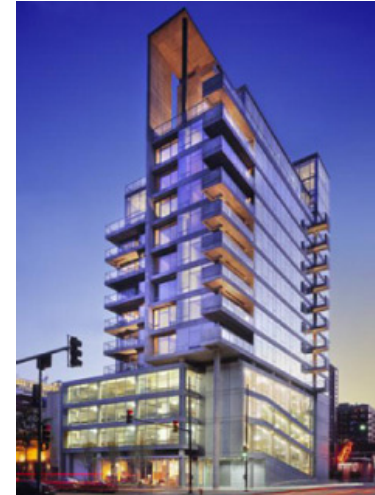
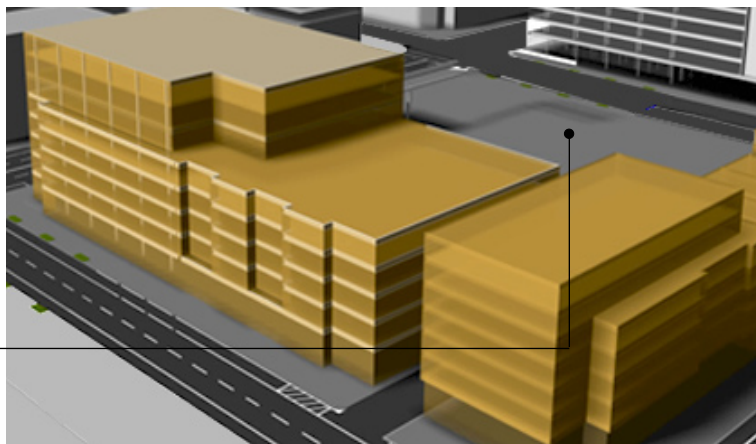
**Integrated Building Facade**  
garage and building are indistinguishable



**Access off Side Street**  
provide side street access to minimize traffic impact



**Parking Behind Building**  
internalize parking structures where possible



The Contemporaine creates an integrated aesthetic by applying the same materiality and design sensibility to both the podium parking structure and residential units. The ground floor of the building is activated by retail on the primary street while the garage is accessed from an alley in back.

*The Contemporaine*  
Chicago, IL  
Perkins + Will

## Parking Best Practices

### Underground and Structured Parking

Parking should minimize its impact on the pedestrian environment and public realm.

- Locate entrances and exits on an alley or business district street.
- Minimize impact on building's architectural character. Buildings above structured parking should make no distinction between the facades of the garage and building unless they enhance the overall architectural quality of the building. Enhancements may include artwork such as murals or interactive features or a vegetative screen that obscures the garage.
- Minimize the width of driveways and height of garage entrances.
- Combine loading dock and garage access.

### Surface Parking

When surface parking cannot be avoided, locate parking on the back or side of the building, with the building fronting the primary streets and sidewalks. Surface parking should not be visible from primary streets.

- Cover surface with a low-albedo pervious surface to reduce heat island warming and use landscaping to treat stormwater. Provide tree canopy and permeable areas to treat stormwater.

## Open Space

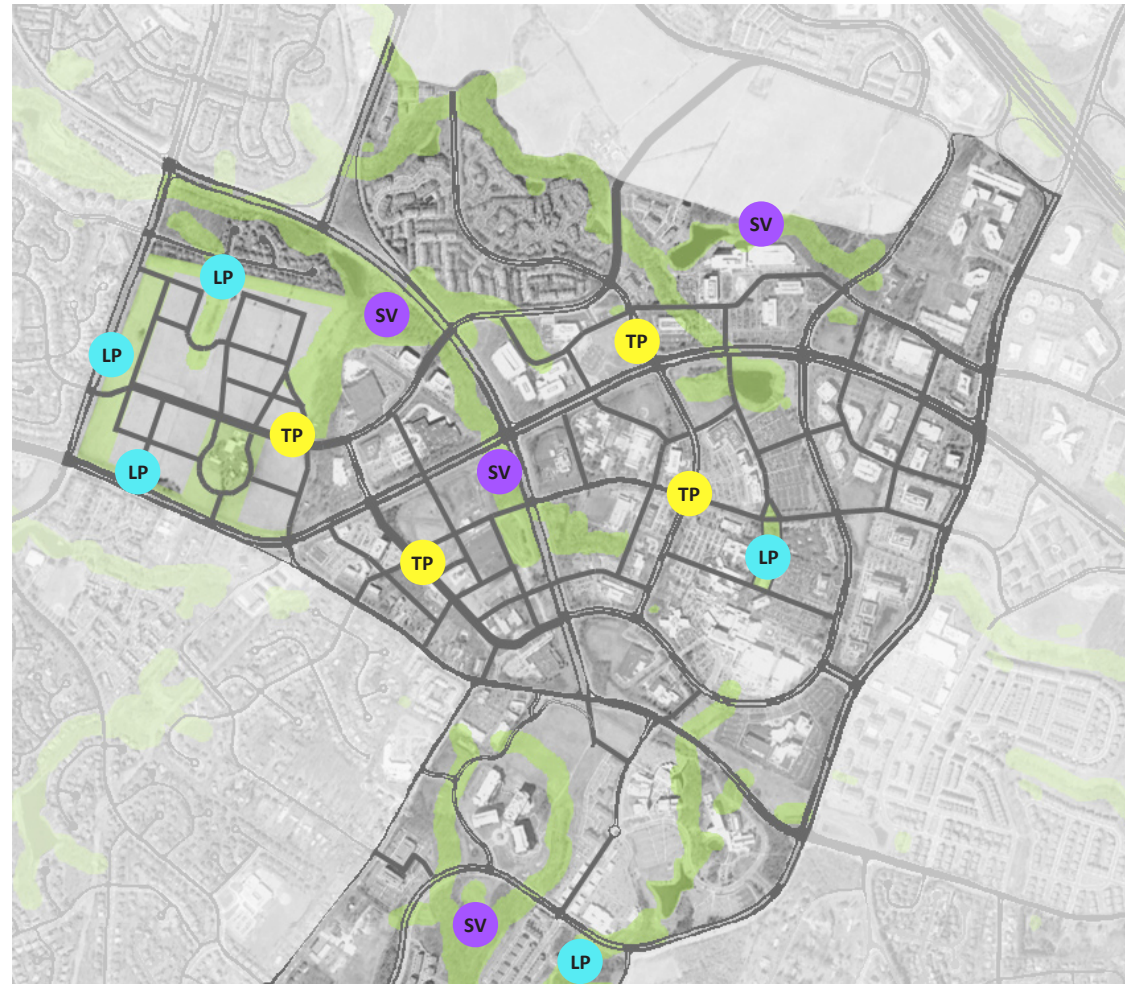
A hallmark of the Great Seneca Science Corridor Master Plan is its wealth and variety of open spaces, ranging from urban transit plazas to stream valley parks and forests. These spaces are critical to the Master Plan's sustainability goals, which include:

- use the following to the maximum extent feasible through aggressive Environmental Site Design:
  - Bioswales
  - Planter beds
  - Rain gardens
  - Pervious pavement
- use landscaping and plants that do not require extensive water and fertilization
- use plants that serve as hosts for butterflies and other pollinator insect species
- target unforested portions of regulated areas for reforestation.

The Plan also gives the following design guidance:

- create civic greens at each CCT station
- attractively design open spaces as destinations to draw pedestrians and cyclists
- use open spaces and green roofs for community gardens to promote the consumption of locally-grown seasonal fruits and vegetables
- create or enhance connections to existing neighborhoods
- design open spaces as part of a comprehensive system that contributes to a sustainable community.

Public use space required by zoning should respond to project needs and adjacent uses. When open space does not contribute to a development's needs, public use space should be provided off site or through an in-lieu payment.



- TP Transit Plazas
- SV Stream Valley Buffers
- LP Linear Parks



**TP CCT Transit Plazas**

CCT Transit Plazas are designated for each of the four stations in the Plan area and should:

- be 1/4 to 1/2 acre in size
- be integrated with station platform
- balance green space and hard surfaces
- maximize sunlight exposure
- provide bicycle storage
- use special lighting to create ambiance and a unique setting
- use site design features such as low walls and steps for informal seating



**Public Use Space**

Small public open spaces will be created under the Zoning Code requirements for open space. They should:

- allow active or passive recreation
- be visible and usable
- have a strong relationship to adjacent architecture and open space networks
- not create barriers between buildings from public streets

Outdoor public use spaces can be combined from several projects to create a larger public use areas.

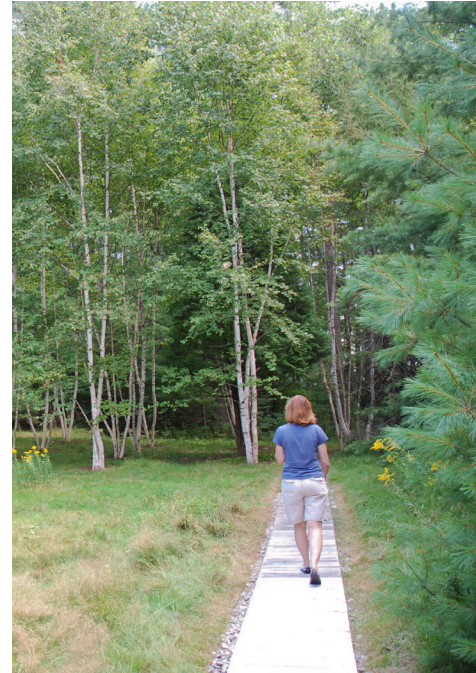


**LP Linear Parks**

Linear parks are green spaces that serve one of two purposes:

- buffer areas between new development and neighboring communities or busy roadways
- create urban green space running the length of one or more blocks.

Guidance and design considerations for specific linear parks are discussed in the districts sections.



**sv Stream Valley Buffers**

The existing forest and wetland areas, including the Muddy Branch and Great Seneca stream valleys, Great Seneca Creek State Park, and connected lands should be preserved and enhanced for recreation and enjoyment of the natural environment.

- Minimize impact of new development on stream valleys
- Minimize impervious groundcover through use pervious paths or raised boardwalks
- Restore and enhance natural setting, native plant species, and indigenous ecosystems

# Streets

## Road Code

Chapter 49 of the Montgomery County Code, the Road Code, codifies street classification standards, including rights-of-way and paving widths. The Road Code emphasizes context sensitive street design to create a network of “complete streets” for automobiles, transit, cyclists, and pedestrians for an area such as the Great Seneca Science Corridor Master Plan area.

All applicants must comply with the Road Code. Applicants pursuing streetscape designs inconsistent with the Road Code must apply for a waiver.

## Utilities

Utilities should be accommodated underneath sidewalk paving and streets within the right-of-way limits, and be coordinated by MCDOT and utility companies.

## Streetscape

Closely-spaced street trees will be included along all streets. Sidewalks should be at least 15 feet from curb to building. Street trees and streetscaping will be provided along all streets.

## Intersections

The Great Seneca Science Corridor Master Plan identifies the possibility for grade separated intersections, including urban diamonds at:

- Great Seneca Highway and Muddy Branch Road
- Shady Grove Road and Key West Avenue.

Improvements of other intersections should include:

- Special crosswalk paving
- Raised and planted medians
- Pedestrian priority signal timing.

## B2-B12 Business District Streets



### Master Plan

Min. R.O.W.: 70 ft  
Lanes: 2

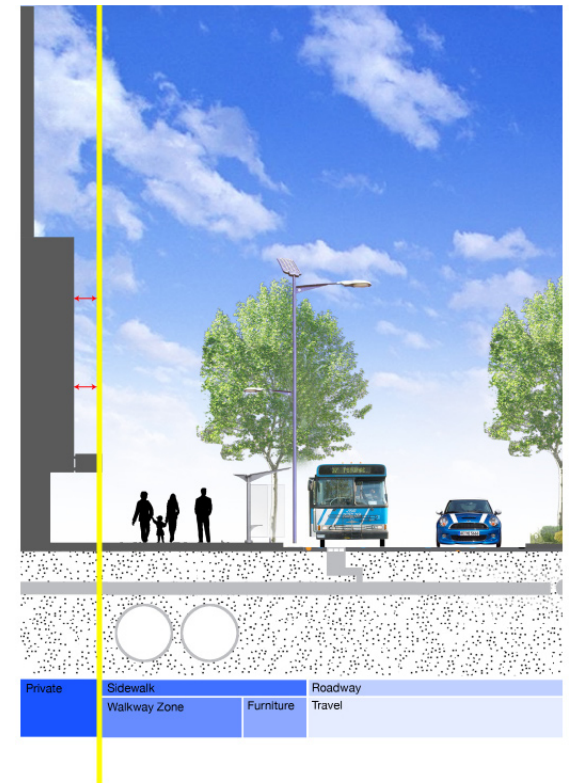
### Guidelines

Parking: Both Sides  
Trees: 30-35' o.c.  
Sidewalk: Minimum 15'  
Setback: None  
Median: None

### Comments

The proposed Business District Streets show the general location of streets, not actual alignments. Specific alignments, parking and streetscape will be determined during regulatory review.

## Medical Center Drive Arterial Street (A-261)



### Master Plan

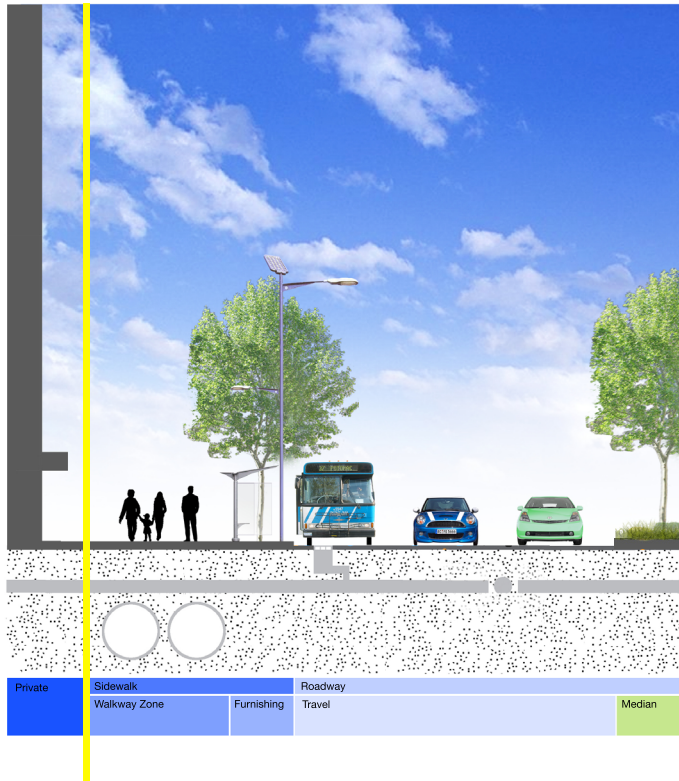
Min. R.O.W.: 100 - 150 ft  
Lanes: 4 - 6

### Guidelines

Parking: Off-peak  
Trees: 30-35' o.c.  
Sidewalk: 20' wide  
Setback: 10' from R.O.W.  
Median: Planted with turn lanes



## Major Highways



### Master Plan

Min. R.O.W.: 150 ft

Lanes: 4-6

### Guidelines

Parking: Off-peak\*

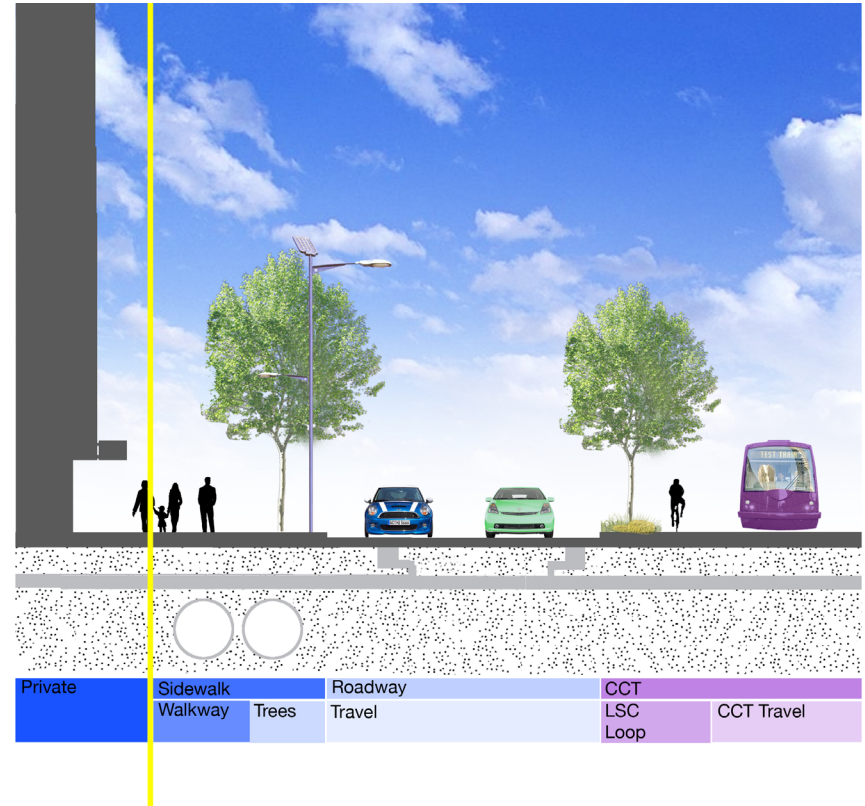
Trees: 40'-50' o.c.

Sidewalk: 20' wide

Setback: 10'

Median: Planted with turn lanes

## Transitway



### Master Plan

Min. R.O.W.: 150 ft

Lanes: 4

### Guidelines

Parking: Both sides

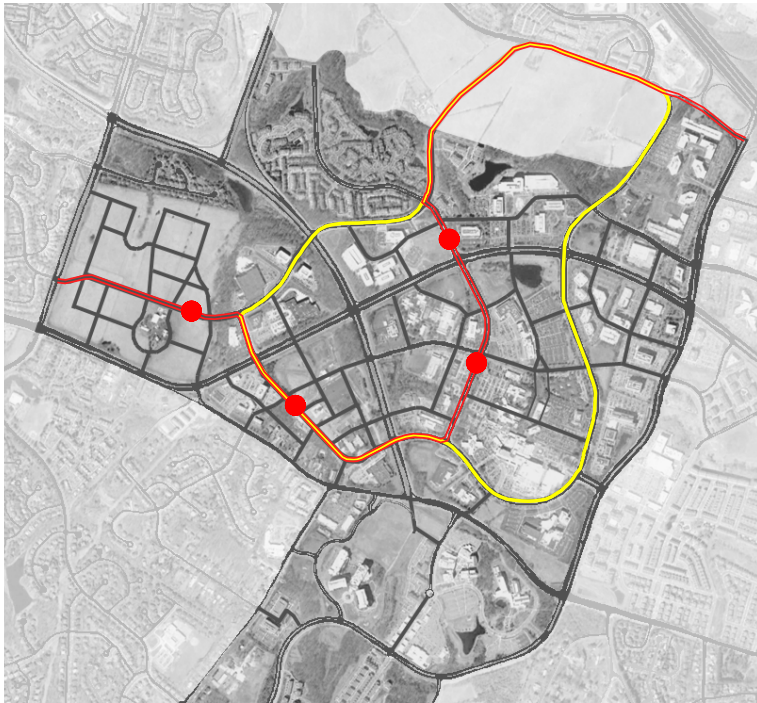
Trees: 30-35' o.c.

Sidewalk: 20' wide

Setback: 5' from R.O.W.

Median: Accommodate CCT transitway and LSC Loop in transit median

## The LSC Loop



The LSC Loop is a multi-use recreation path connecting all of the LSC districts and the surrounding areas. It will run along existing streets, including the CCT alignment, as well as through off road trails. The 3.5 mile LSC Loop will incorporate a path as part of the CCT as it runs through the LSC West and the LSC Belward areas. The loop should include:

- recreational feature that connects the districts and destinations throughout the area
- connections from the Loop to area amenities, including the natural path system, the historic Belward Farm, and the civic spaces in each district



### CCT Right-of-Way

Where they coincide, the LSC Loop will run parallel to the CCT alignment.

- If the CCT is located in the middle of the roadway, the LSC Loop should be located on the opposite side of the transit plazas to minimize pedestrian/bicycle conflicts.
- If the CCT is located on the side of the roadway, the LSC Loop should be located on the inside of the CCT, and perform similar to the on-road LSC Loop.



### On-Road LSC Loop

Where the CCT is absent, the LSC Loop should be located between the sidewalk and roadway.

- Use street trees and plantings to differentiate the LSC Loop from sidewalk
- Allow approximately an additional width of two to three feet adjacent to the roadway for vehicle unloading and door opening.
- Include transition areas prior to intersections to prevent conflicts



### Off-Road Trails

In certain areas, the trail will leave the roadway.

- Minimize impact of trail on existing trees.
- Include a pervious trail next to the shared use path to allow pedestrians and joggers to avoid trail traffic
- Areas not along roadways may use asphalt, blacktop, or other surface.



### Road Crossings

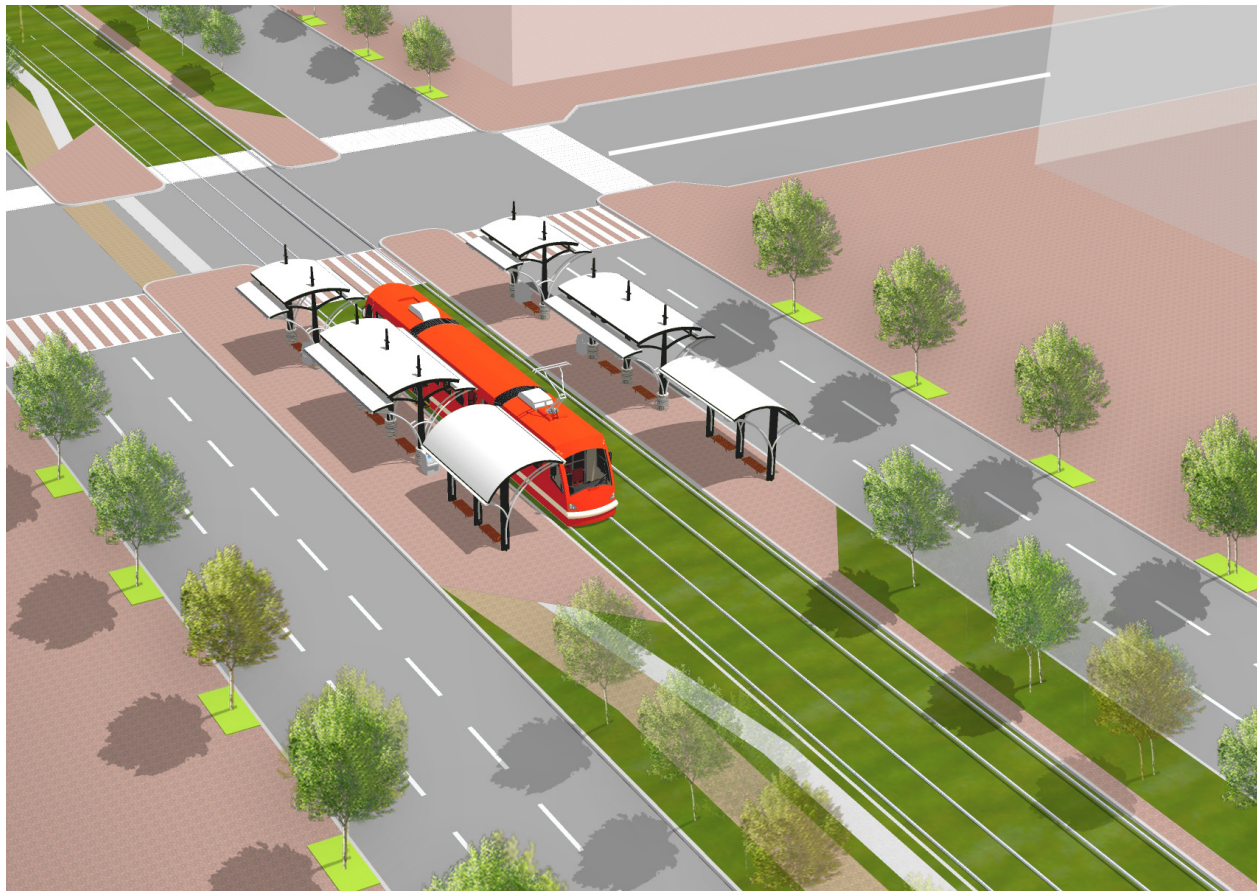
Road crossings should be marked with separate travel areas and designed to enhance the street character



### Defined Travel Areas

Use signage and special paving to distinguish the LSC Loop from the sidewalk.

- The shared use path should be paved to make it distinct from the sidewalk
- Creative use of materials is encouraged.
- Orient street furniture and other sidewalk features to be equally accessible from the sidewalk and the shared use path

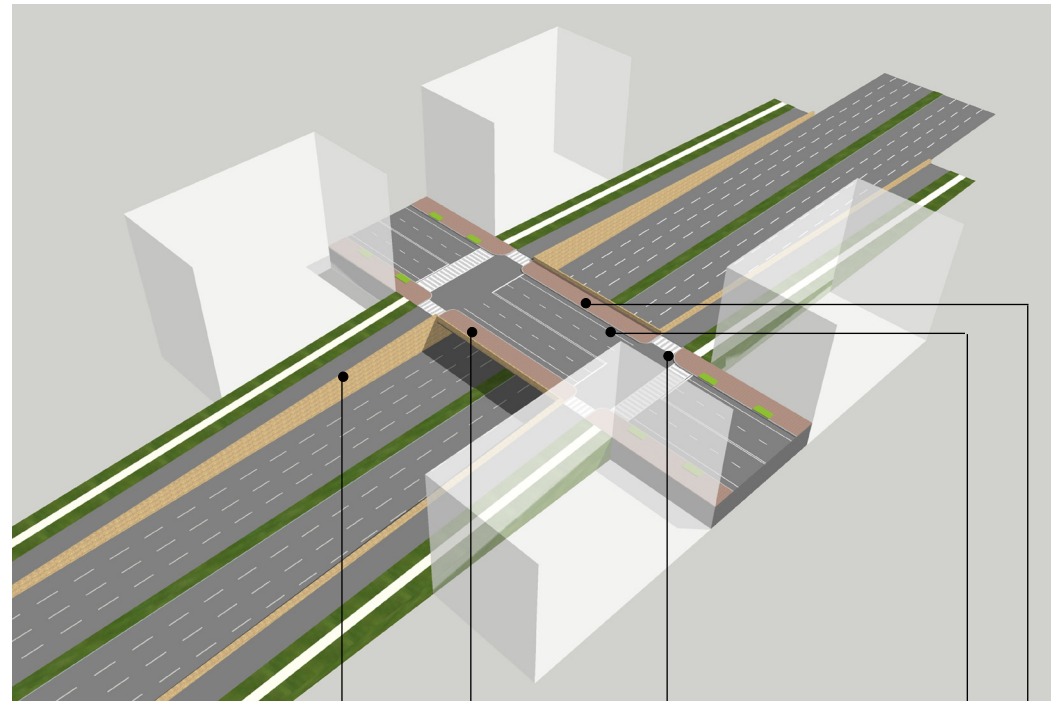


## Grade-Separated Intersections



*The Duke Ellington Bridge  
Washington, D.C.*

The Duke Ellington Bridge maintains consistent lighting and sidewalk widths, and employs an elegant, vertically oriented fence on a stone base to create a context-sensitive crossing linking pedestrians from Metrorail to restaurants and nightlife in Adams Morgan. The bridge also incorporates an on-road bike lane in each direction.



### **Minimize Crossing Distance**

Create the shortest possible pedestrian crossing. Consider use of retaining walls and minimize turning radii.

### **Mitigate Fast Entry and Egress**

To the extent possible, reduce the number of turning lanes and width of turning radii to encourage slower automobile travel.

### **Continuous Streetscape**

To the extent possible, maintain consistent streetscaping, sidewalk widths, and lighting.

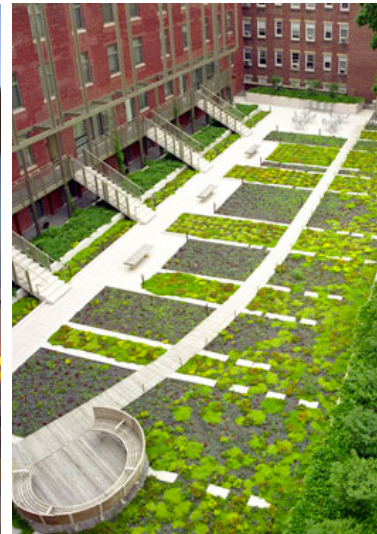
### **Bike Lanes**

Where possible, incorporate bike lanes to define travel space in contested areas and encourage multi-modal travel patterns.

### **Aesthetic Enhancement**

Discourage use of chain-link fencing and concrete. Consider material upgrades, and integrated artwork to enhance overall appeal.





*Far Left:  
University of Toronto Biosciences Lab  
Toronto, ON  
Foster + Partners*

*Middle:  
Calit2, UC San Diego  
La Jolla, CA*

*Left:  
Harvard Graduate Housing  
Cambridge, MA  
Richard Burck Associates*

### Great Seneca Science Corridor Master Plan

The Great Seneca Science Corridor Master Plan focuses on the future of the Life Sciences Center (LSC) and makes recommendations for five districts:

- LSC Central
- LSC West
- LSC Belward
- LSC North
- LSC South

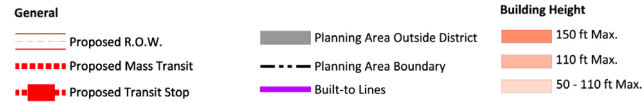
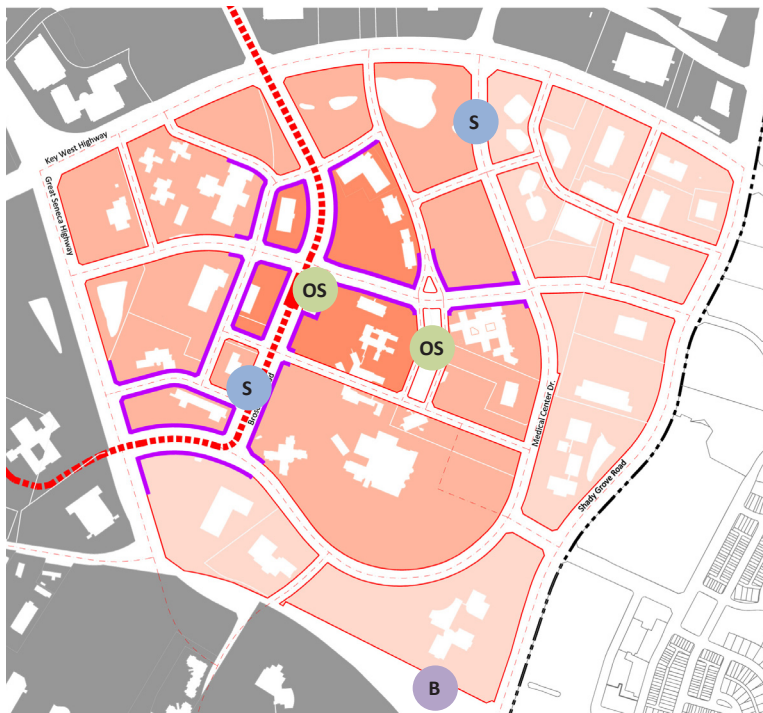
The Plan notes that the guidelines will provide detail to shape new development and implement the urban form recommendations. Plan recommendations include standards for density, and percentage of housing and commercial use, along with the desired character of development for each district. The guidelines illustrate the desired design quality and character of development in each district with recommendations for streets, buildings, and open space. Case studies follow district guidelines to clarify recommendations and provide solutions exemplifying design excellence that address potential issues in the Life Sciences Center.

# Districts

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# LSC Central: A Medical and Biotechnology Center



## Great Seneca Science Corridor Master Plan

The LSC Central district envisions redeveloping portions of the block surrounded by Broschart Road, Medical Center Drive, Great Seneca Highway, and Blackwell Road. This redevelopment will transform surface parking lots and aging medical support buildings into a highly concentrated medical, research, science and technology district. These uses will be augmented with local retail, housing, and public use open spaces.

**Zoning:** Life Sciences Center (LSC)

## Key Recommendations

- Design Broschart Road as an urban street, lined with buildings and activating street-level uses.
- Create an identifiable LSC Loop along Medical Center Drive that connects pedestrians to other transit centers, natural pathways, and open spaces.
- Establish a fire station at Shady Grove Road and Darnestown Road
- Establish a CCT station on Broschart Road near Blackwell Road
- Establish a linear park south of Blackwell Road

Above right:  
 Peter L. and Clara M. Scott Laboratory  
 Ohio State University  
 Columbus, OH  
 Polshek Partnership



## Streets



*K Street Transit Corridor  
Washington, D.C.*

- Create a tree-lined boulevard on Broschart Road and Medical Center Drive.
- Create block lengths no longer than 800 feet. An average of 400 to 500 foot long blocks is desirable.
- Integrate LSC Loop.
- Enhance intersections for pedestrian safety across Shady Grove Road at Falls Grove Boulevard and Blackwell Road.
- Create pedestrian connections through Adventist Hospital campus.

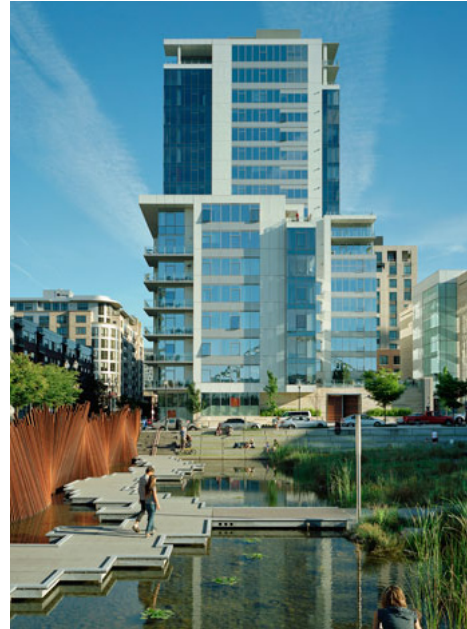
## Buildings



*North New Women & Infants Center  
Indianapolis, IN  
RTKL Associates Inc.*

- Concentrate tallest buildings along Broschart Road.
- Design buildings to allow the evolution of advanced research, science, and technology industries.
- Consolidate and conceal delivery areas to minimize impact on streetscape and building frontage.
- Expansion of Adventist Hospital should create entrances on Broschart Road and the future road between Broschart Road and Medical Center Drive.
- Create a mixed-use retail center at the CCT station and on the block north of Blackwell Road.

## Open Space



*Tanner Springs Park  
Portland, OR  
Peter Walker & Partners Landscape Architecture*

- Consider relocating existing stormwater ponds to create a central landscape and/or water amenity in common space between buildings.
- Where possible, use native plant species.
- Design public spaces to accommodate a variety of civic activities and community life.

### Transit Plaza

- About 1/4 acre in size
- Balance green space and landscaping with hardscaped plaza to accommodate pedestrian activity.



*Medical Quadrangle and Esplanade  
Duke University, Durham, NC  
Olin Partnership*

### Linear Park

- Design for passive recreation with benches and trees for shade.
- Design the park as an entry feature to the Adventist Hospital.

## Case Study: Urban Hospital Expansion



**Project:** Cleveland Clinic  
**Location:** Cleveland, OH  
**Architect:** NBBJ

The expansion of the Cleveland Clinic allowed the reorganization of the building's functions to create an identifiable entrance, while filling a city block to create a more defined presence within the urban fabric.

In the Life Sciences Center, similar opportunities for the future expansion of Shady Grove Adventist Hospital and Johns Hopkins University present opportunities to strengthen the quality of the urban environment and enhance the area's overall architectural quality.



### Linear Green Space

The linear green space accommodates an artistic water feature that doubles as stormwater management, creating a strong axial promenade leading to the main entrance of the building.



### Access and Frontage

Automobile drop-off space is recessed from the street, allowing the curved facade to create a distinct, identifiable building entrance.



### Filling the Block

On all other sides, the hospital fills the urban block, providing secondary entrances and transparent facades to enhance the streetscape.

### Civic Presence

The red-framed glass bay doors showcase the fire engines inside, establishing them as a visually prominent civic icon. Through the arrangement of the building's mass and use of materials, the building feels firmly anchored in the site, giving it a strong presence in the community.



### Anchor Site Edges

The fire station provides a street wall along three major street fronts, continuing the urban fabric while ensuring that the technical needs for emergency response activities are unhindered.



### Attractive Facade and Noise Buffer

Given its security requirements, the front is relatively closed off. The fire station uses attractive streetscaping and public artwork, as well as a narrow band of windows to mitigate the lack of activation on the street. By positioning the larger mass of the building closest to residences across the street, the building simultaneously anchors a well-defined streetfront and shields residents from siren noise.



### Case Study: Fire Station on a City Block

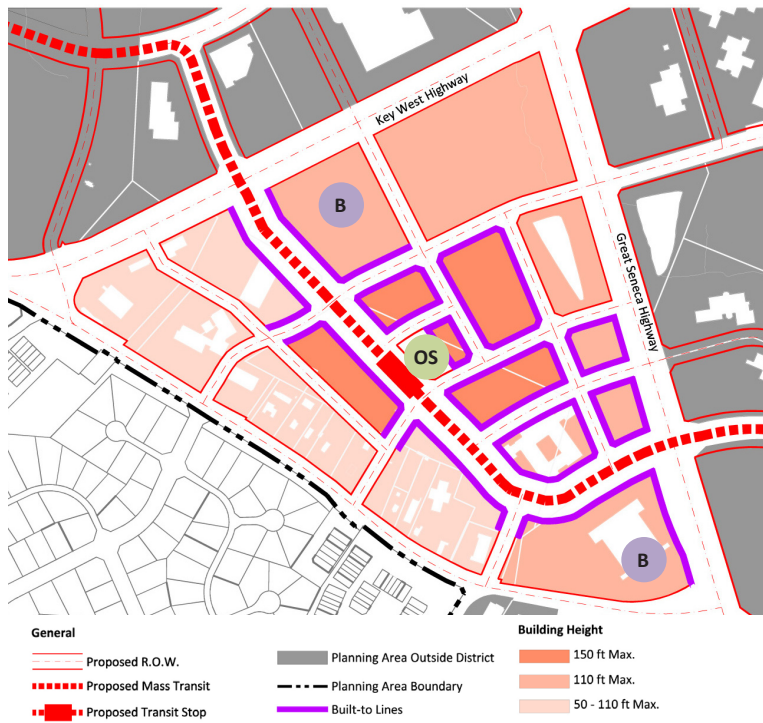


**Project:** Fire Station 10  
**Location:** Seattle, WA  
**Architect:** Weinstein A+U

Balancing the technical needs of large vehicles and equipment with the role of the building in an urban context, Seattle's Fire Station 10 is at once a secure, high-functioning emergency dispatch facility and a bold civic building.

The presence of a fire station at the corner of Shady Grove Road and Darnestown Road provides an opportunity to create highly visible civic building that can establish itself within the fabric of the LSC Central District.

# LSC West: A New Residential Community



## Great Seneca Science Corridor Master Plan

The existing Public Safety Training Academy (PSTA) should be redeveloped with housing, neighborhood-serving retail, employment uses, and active public spaces that engages outstanding practitioners of sustainable town planning, layout, and design. An interconnected street grid will create walkable blocks with a synergistic mix of uses, including street level retail and wide sidewalks to accommodate outdoor cafes.

## Zoning:

Commercial-Residential (CR)  
Residential-Townhouse (RT-8)  
Commercial, Transitional (C-T)

## Key Recommendations

- B** Use corner of Darnestown Road and Great Seneca Highway as a signature site for a significant building.
- B** Locate a multi-story elementary school, if needed.
- OS** Create a new central, civic open space serving the residential community.

Above right:  
*Dockside Green*  
Victoria, BC  
Perkins + Will

## Streets



*Portland Streetcar  
Portland, OR*

- Create block lengths no longer than 800 feet. An average of 400 feet long blocks is desirable.
- Integrate LSC Loop with CCT alignment.
- Create pedestrian-friendly crossings at Great Seneca Highway at Darnestown Road and at the CCT crossing to improve pedestrian safety and connectivity between districts.

## Buildings



*Greenbridge  
Chapel Hill, NC  
McDonough + Partners*

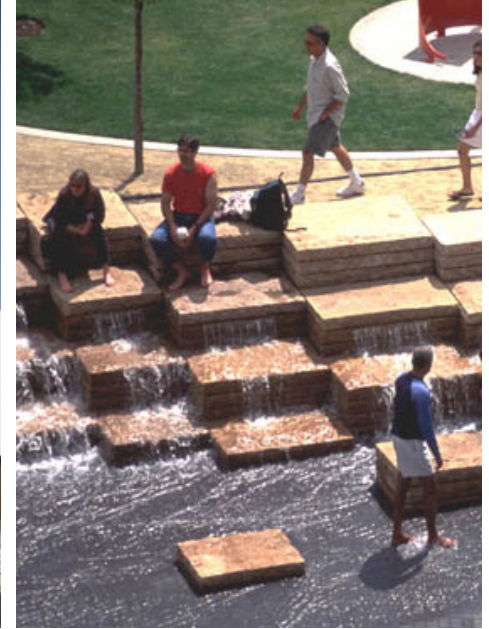
- Create a landmark building at the corner of Great Seneca Highway and Darnestown Road
  - concentrate height along Great Seneca Highway
  - anchor corner through use of visually prominent design features at Great Seneca Highway and the CCT crossing,
- Establish strong building frontage and maximum building heights along Medical Center Drive extended.



*Hancock Lofts  
West Hollywood, CA  
Koning Eizenberg*

- Maximize energy efficiency and environmental responsibility by establishing a comprehensive sustainable development plan to guide the project over the course of build out.
- All buildings should strive for LEED platinum rating.

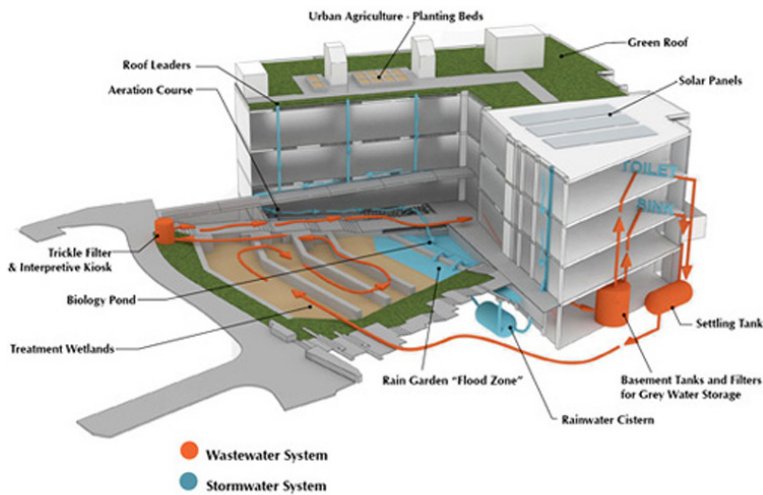
## Open Space



*Jamison Square  
Portland, OR  
Peter Walker & Partners Landscape Architecture*

- Transit plaza should include a civic green with interactive space for children.
- Encourage use of sustainable site features that are also community amenities.

## Case Study: Sustainable Park School



**Project:** The Sidwell Friends School  
**Location:** Washington, DC  
**Architect:** KieranTimberlake

The Sidwell Friends is a model for a school that combines sustainable architectural and site design practices on a compact, urban site. By reusing and expanding on an existing building, Sidwell Friends minimized the amount of additional materials and construction waste generated by the project. The building recycles both stormwater and wastewater, held first in a treatment tank before recycling out into artificial wetlands to filter contaminants. This water is eventually used as greywater for the building's non-potable uses.

In the LSC West, the potential establishment of the Park School creates similar opportunities to use architecture as a didactic resource while working within the constraints of a smaller lot. The building can also establish itself as a key civic asset by establishing a relationship to the street as part of the larger community fabric.



### Green Roof and Garden

The school maintains a large green roof as well as a garden that is maintained and harvested by students. Access to the roof also allows use of photovoltaic panels. Students are given a hands on learning experience with this technology, making the roof an instructional as well as function component of the building.



### Recycled and Renewable Materials

The building makes use of numerous renewable interior finishes such as cork, gypsum, linoleum, bamboo, and wheatboard substrate that were harvested with little environmental impact. The vertical wood building skin is made from western red cedar reclaimed from wine casks.

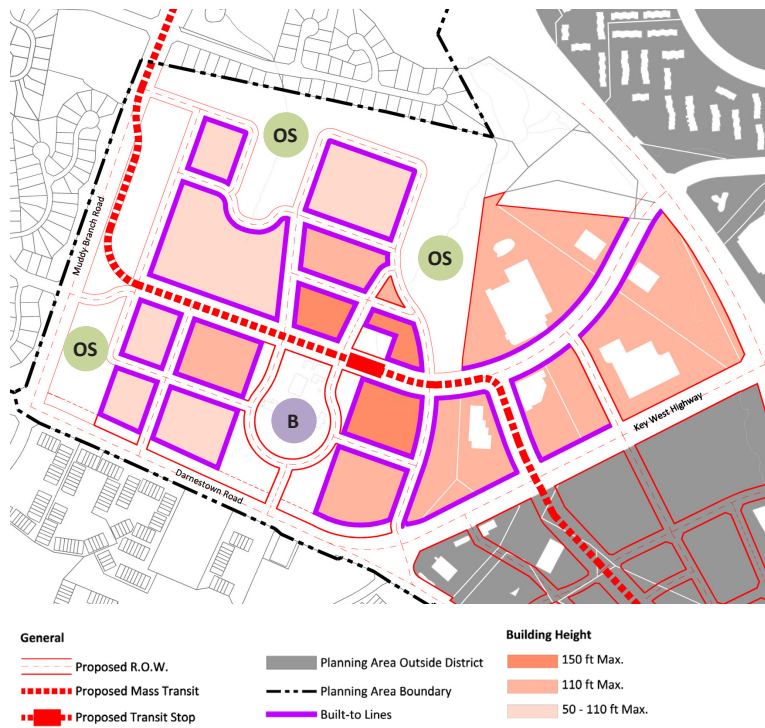


### Anchoring an Urban Street

The school building establishes a clear relationship with the street while maintaining a degree of separation through the use of landscaping, terracing, and stair and ramp access.



# LSC Belward: A Science and Research Community



Above right:  
 Daniel L. Malone Engineering Center  
 Yale University  
 New Haven, CT  
 Pelli Clarke Pelli Architects

## Great Seneca Science Corridor Master Plan

The LSC Belward presents a unique opportunity to create a world-class research and academic facilities on 107 acres of largely undeveloped land. The Plan locates the most intensive building heights adjacent to the CCT station while establishing a 10-12 acre historic farm setting. A new grid of streets will enhance mobility options. Open space buffers to the north of the site and along Muddy Branch Road provide transitional space between existing neighborhoods.

**Zoning:** Life Sciences Center (LSC)

## Key Recommendations

- OS** Create substantial open space through dense building pattern with structured parking.
- B** Preserve views of the farmstead, to the extent practicable, from Darnestown Road and residential neighborhoods to the south and west.
- OS** Create an open space along Muddy Branch Road with a minimum width of 100 feet with a 60-foot landscaped buffer on Darnestown Road.
- S** Create new streets with short blocks.



## Streets



Madrid Tramway  
Paris, FR

- The map on page 40 identifies the plan's requirement to preserve views of the farmstead.
- Create a grid of streets with an average block length of 400 feet to disperse congestion and improve pedestrian connectivity.
- Connect to the residential neighborhoods south of Darnestown Road by creating pedestrian friendly crossings.
- Create a tree-lined transit boulevard along Decoverly Drive extended.
- Include services for multi-modal transit hub of vehicles, bicycles, pedestrians, and transit riders.

## Buildings



Charles Commons  
Johns Hopkins University  
Baltimore, MD  
Design Collective

- Use clusters of buildings to create niche open spaces.
- Design buildings to accommodate evolution of advanced research, science, and technology industries.
- Locate parking in garages surrounded by buildings.
- Provide flexible, unprogrammed areas for social interaction.
- Consider Belward Farm for reuse as a cultural venue.
- Concentrate retail immediately adjacent to CCT station.

## Open Space



Mill Canyon Creek Eartworks Park  
Kent, WA  
Herbert Bayer

- Consider use of artistic landscaping and reforestation to enhance the setting and safety along Muddy Branch Road.
- Maintain plantings and trees in the historic farm setting along Darnestown Road.
- Incorporate stormwater management and environmental site design (ESD) features into open space on Muddy Branch Road.
- Enhance stream valley buffers through reforestation.



Tulip Poplar Alley  
University of California, Berkeley

- Given the proximity of the Belward Farm open space, the CCT plaza should form a narrow, linear open space linking the CCT to the to the farm along Decoverly Drive.
  - The linear open space should average 15 feet in width
  - Use special pavement, street furniture, and public art to differentiate this area from the rest of the sidewalk.

## Key Site: The Belward Farm



The Belward Farmstead will be preserved on a 10-12-acre historic setting that provides views from Darnestown Road as well as the surrounding neighborhoods. The farmstead should be reused for civic purposes and establish a relationship with the future Decoverly Drive through landscaping and site design. Auxiliary buildings, such as animal sheds are not required for preservation.



### Architectural Relationship to Farm

Facades immediately adjacent to the Belward Farm should establish a clear architectural relationship with the farm through creative use of scale, form, materials, and texture. This relationship does not have to be historicist, and should be informed to integrate the farm into the overall science campus concept.

*Stephen M. Ross School of Business  
University of Michigan, Ann Arbor, MI  
Kohn Pederson and Fox Associates*



### 10 - 20 Foot Setback

Buildings immediately to the east and west of the Belward Farm viewshed should maintain a setback of 10 to 20 feet above 60 feet. The setback does not apply to buildings north of Decoverly Drive extended. Setbacks provide opportunities to alter the architectural character in response to surrounding context.

*Center for Biotechnology & Interdisciplinary Sciences  
Rensselaer Polytechnic Institute, New York  
Bohlin Cywinski Jackson*



### Extended Linear Open Space

The linear open space at the transit plaza should link the station to the Belward Farm open space through consistent design treatment.

Future landscaping and site alterations on the farm should provide primary frontage and access to Decoverly Drive.

*Life Sciences Building/Shortlidge Mall  
Pennsylvania State University, State College, PA  
Payette Architects*



## LSC North: Residential and Office



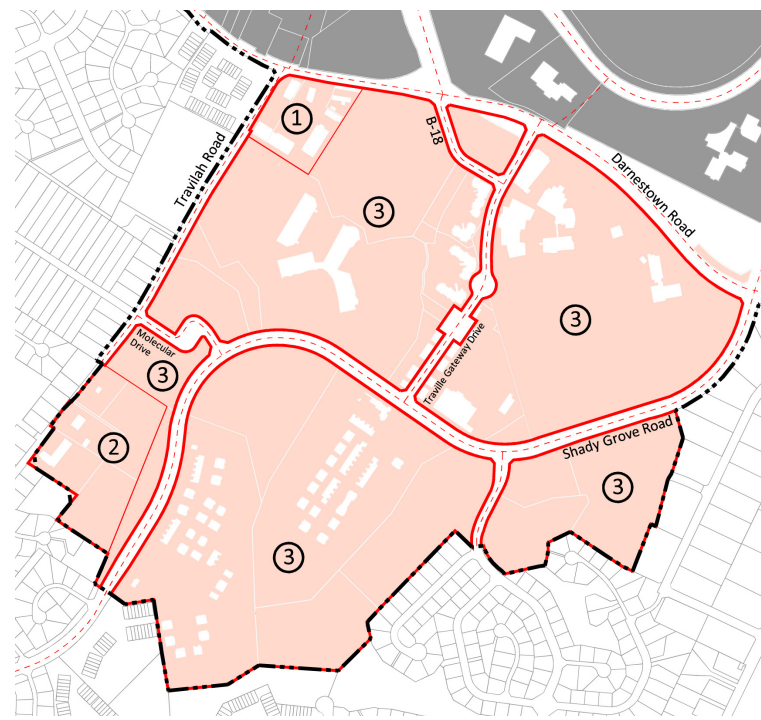
### Great Seneca Science Corridor Master Plan

**Zoning:** Life Sciences (LSC)  
Residential (R-60/TDR)  
Commercial-Residential (CR)  
Office Building, Moderate (OM)  
Hotel-Motel (H-M)  
General Commercial (C-2)

#### Key Recommendations

- Extend Discoverly Drive into and through Crown Farm to Fields Road
- Create LSC Loop from Fields Road along CCT alignment connecting to the LSC Belward and Central districts.
- Create new streets with short blocks
- Construct interchanges at Great Seneca Highway and Sam Eig Highway and at Key West Avenue at Shady Grove Road

## LSC South: Mixed-Use Center



### Great Seneca Science Corridor Master Plan

**Zoning:** Life Sciences (LSC)  
Commercial-Residential (CR)  
Planned Development (PD-22)

#### Key Recommendations

- Improve pedestrian connections between LSC South and areas to the North, emphasizing connections to future transit stations
- Protect the Piney Branch sub-watershed
- Construct Traville Local Park
- Extend Great Seneca Highway as a business district street south of Darnestown Road

## Streets



*Metro Light Rail  
Phoenix, AZ*

- Create safe, context-sensitive crossing at Great Seneca Highway and Darnestown Road and at Key West Avenue and Broschart Drive.
- Crossings should use special pavement, as well as other methods to alert drivers of intersection.
- If grade-separated interchanges are necessary, minimize the total crossing distance and create pedestrian and bicycle friendly crossings to the extent possible as shown on page 28.

## Buildings



*The Terry Thomas  
Seattle, WA  
Weber + Thompson*

- In LSC North, street-oriented buildings should continue the urban fabric from Crown Farm
  - wstablish primary street wall along Broschart Drive and Decoverly Drive.
  - locate tallest building heights along Shady Grove Road and Key West Avenue.
- In LSC South, street-oriented buildings connect to LSC Central and West by focusing height at Darnestown Road crossings.
  - Continue street wall along Travilah Gateway Boulevard.

## Open Space



*South Boston Maritime Park  
Boston, MA  
Machado Silveti Architects*

- Create the Traville Local Park as a large community oriented park with athletic fields and connections to trails in the stream valley parks.
- Enhance stream valley buffers with native planting and reforestation
- Use trees to provide shading for field spectators and create a sense of enclosure around athletic fields



*Woodley Gardens Park  
Rockville, MD*