

McLean UDG Advisory Group Meeting #8

October 2022



PLANNING & DEVELOPMENT



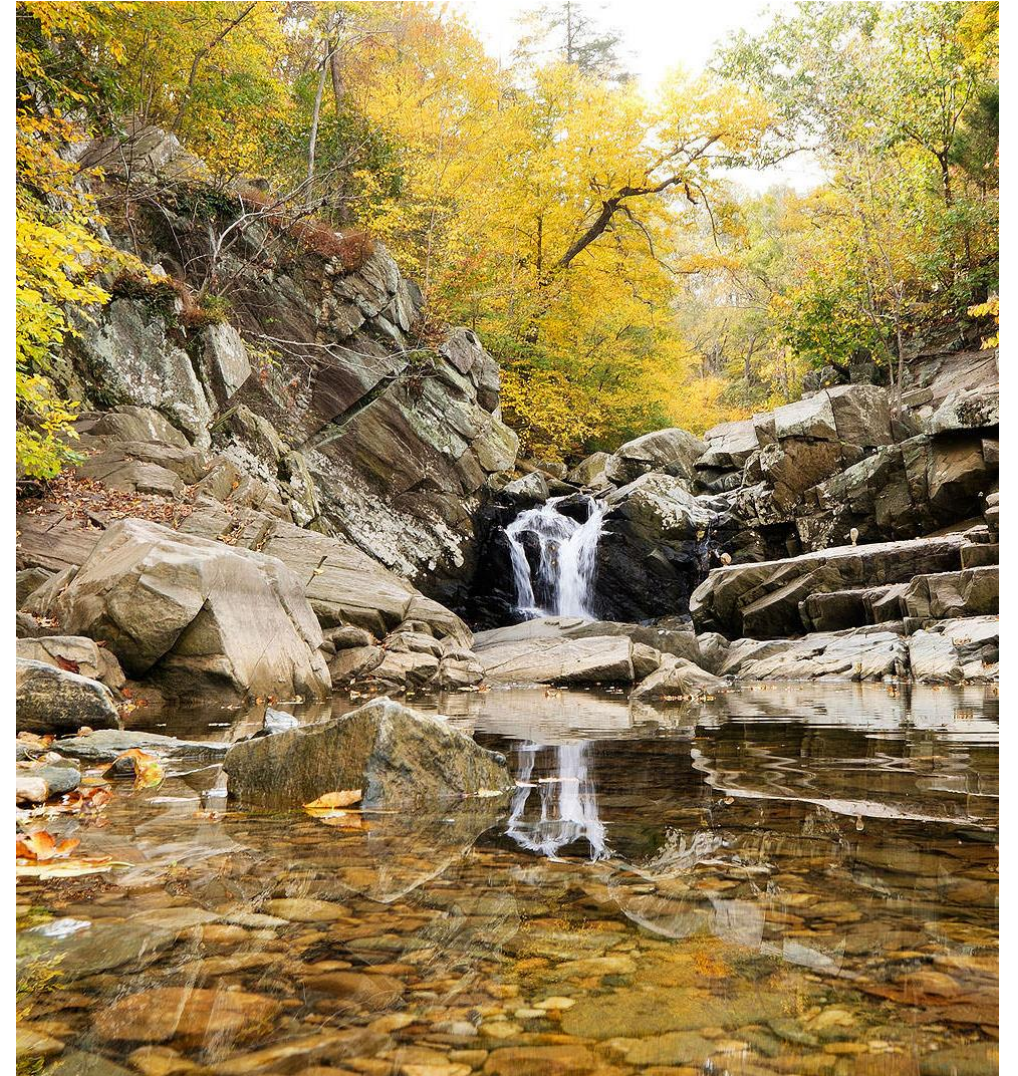
Environmental Features of the Design Guidelines

1. What does the Comprehensive Plan say about environmental features?
2. McLean Design Guidelines stormwater approach
 - A. Locations to consider for stormwater Best Management Practices (BMPs)
 - B. Case Studies:
 - Mission Bay San Francisco
 - Tysons Various Cases
 - C. Conclusions
3. Tree and Landscape Guidelines

McLean Comprehensive Plan Principles

Environment

1. *Create a more sustainable community by applying best practices and sustainable technologies in site design, streetscapes, stormwater management, resource conservation, and construction to protect and enhance the built environment and ecological resources, to improve energy and natural resource conservation and management, and to enhance human health and well-being.*
2. *Develop a connected network of green spaces and continuous green corridors, to include parks, open spaces, and streetscape areas with a unified theme and appearance that include street trees, multi-layered plantings, and seating areas to increase comfort throughout the CBC.*



McLean Comprehensive Plan

Select Recommendations: Environment

1. **Natural Landscaping:** use natural landscaping techniques to promote native species, pollinators, connected pervious areas, structural soils where needed to promote tree health.
2. **Green Building and Noise considerations:** certification requirements.
3. **Transportation corridors:** should fulfill ecological functions: continuous plantings, trees, and SWM. Use Green Infrastructure features in these corridors.

McLean Comprehensive Plan

Select Recommendations: Stormwater Management (SWM)

Stormwater runoff reduction targets: 25% less than existing (sites less than 1 acre) and 40% (sites greater than 1 acre) based on peak runoff from 10-year storm events.

1. **Green Stormwater Infrastructure (GSI):** GSI is expected of each new development. May include bioretention, green roofs, amended soils, rainwater harvesting.

GSI should provide the following benefits: environmental, habitat creation, species diversification, education, and aesthetic, heat island reduction.

2. **Imperviousness:** reduce the amount of existing impervious areas to infiltrate and treat stormwater prior to it entering Dead Run and Pimmit Run watersheds.

McLean Urban Design Guidelines

Stormwater Approach

- **Projects should form a network of Low-Impact Development facilities (parks)**
- **Implement decentralized systems on-site wherever possible.** Smaller distributed facilities that follow pre-development drainage patterns and mimic natural systems for infiltration are more resilient than traditional highly engineered systems.
- **Showcase natural beauty.** Aesthetic consideration should be given to SWM facility design.
- **Combine SWM with habitat creation, increase biodiversity**
- **Contribute positively to the public realm**

Locations to Consider for SWM / BMP Facilities

1. Alleys and Private Streets
2. Off-street Pathways
3. Building Zones
4. Green Roofs
5. Parks and Plazas
6. Public Streets

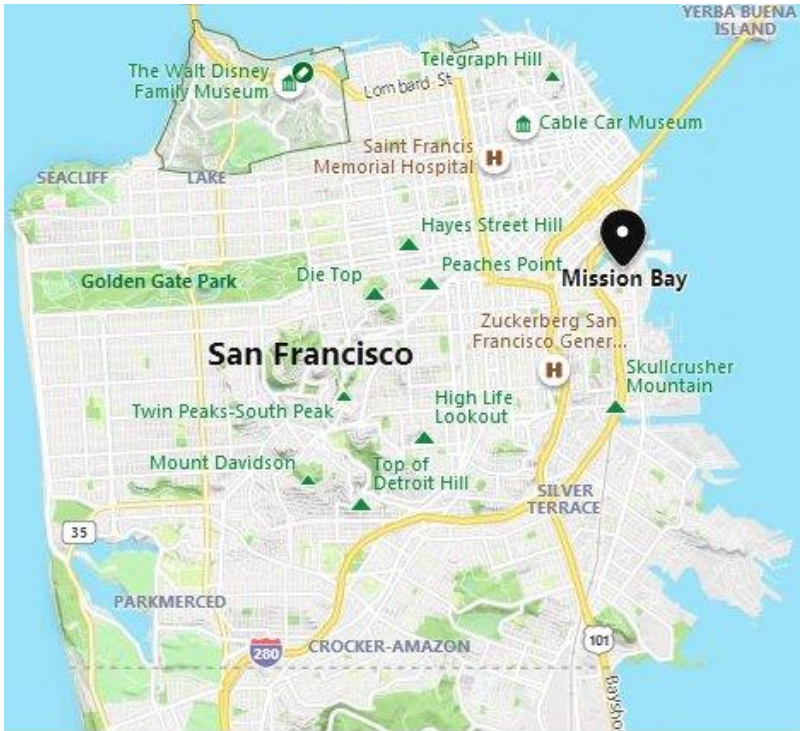


Case Study: Mission Bay San Francisco



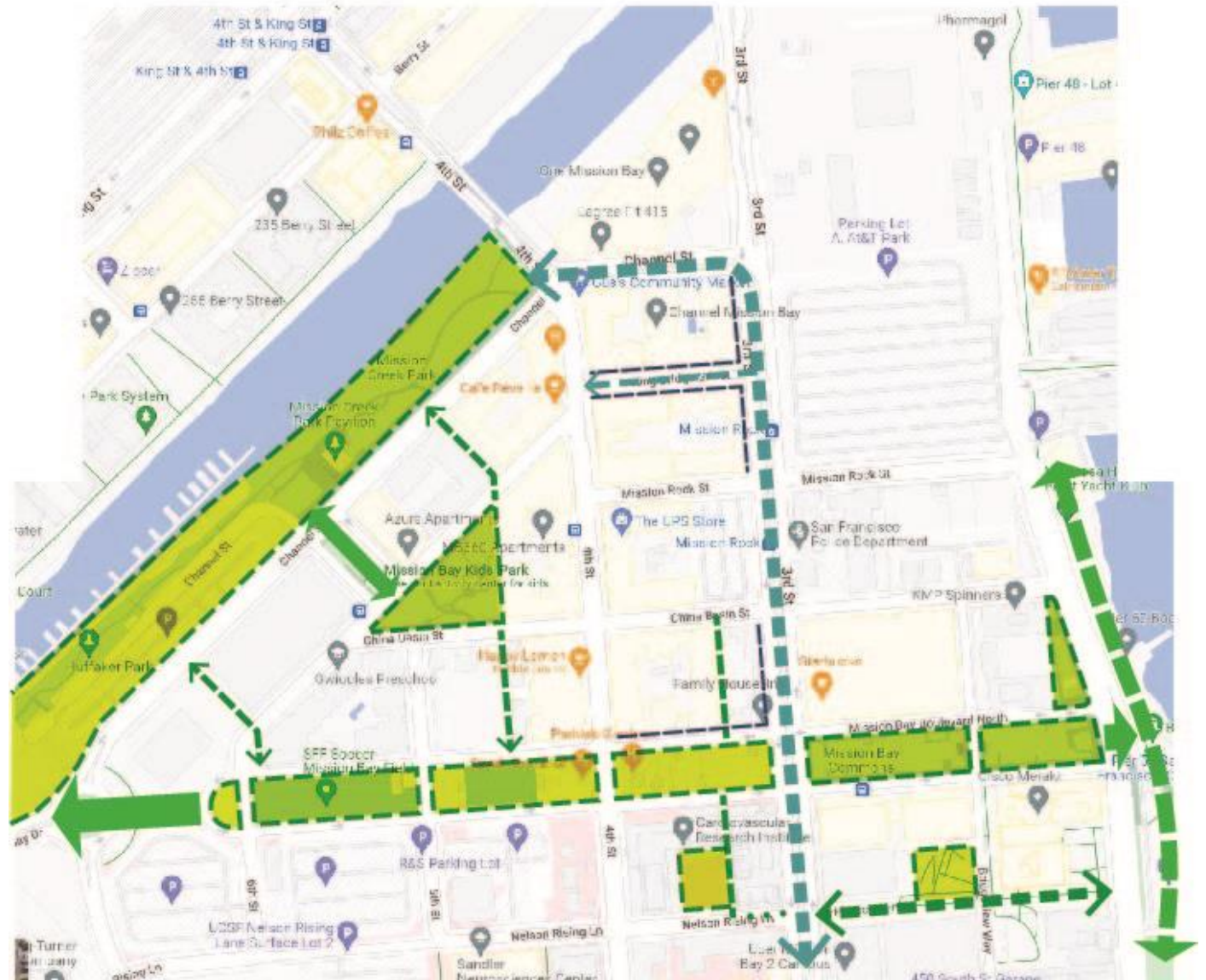
Mission Bay: Background

- Brownfield redevelopment began in 1998
- Award winning master plan
- High water tables and fill conditions
- Branded eco-district



Mission Bay: Green Infrastructure Network

- An interconnected network of parks and open spaces
- Prioritize views and connections to San Francisco Bay
- Use of Green infrastructure to mitigate and treat stormwater runoff
- Create urban wildlife habitats
- Heavily landscaped community



McLean Park and Path Map



Mission Bay: Streets & Alleys

Utilize the city's greatest asset, street and alleys, for reaching communities' ecological and resiliency goals



Utilize curb extension
for bioretention



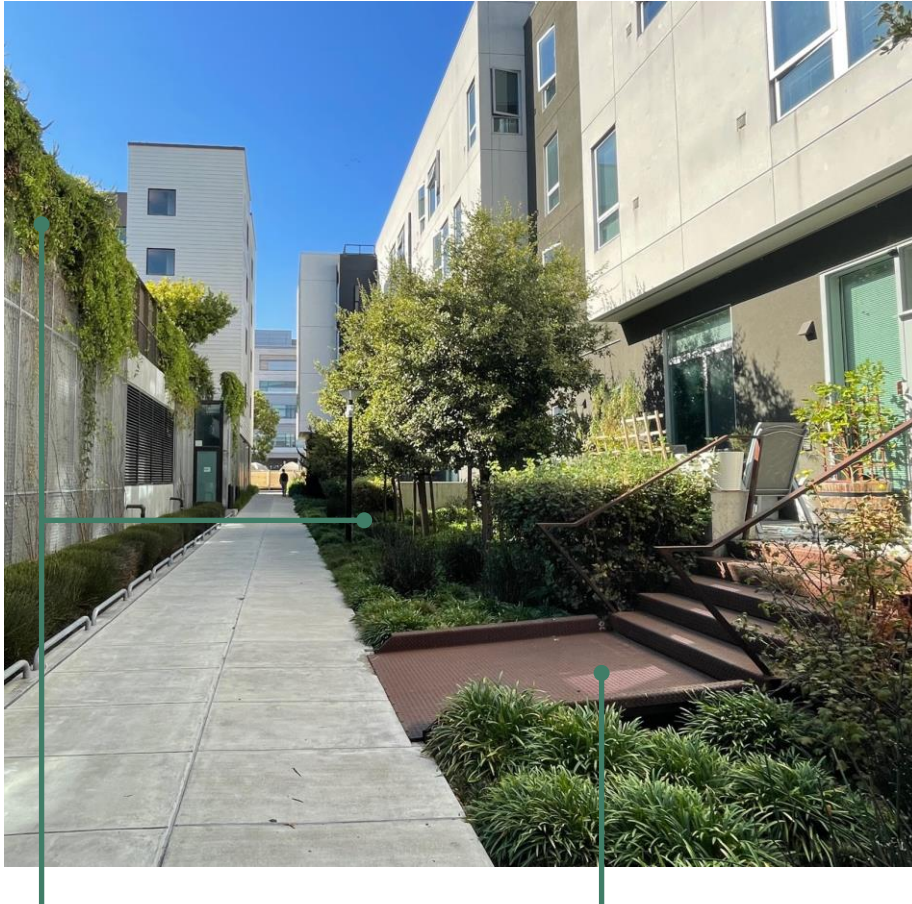
A detectable edge to
prevent incursions
(less than 24")



Step-off Zone when
adjacent to on-street
parking

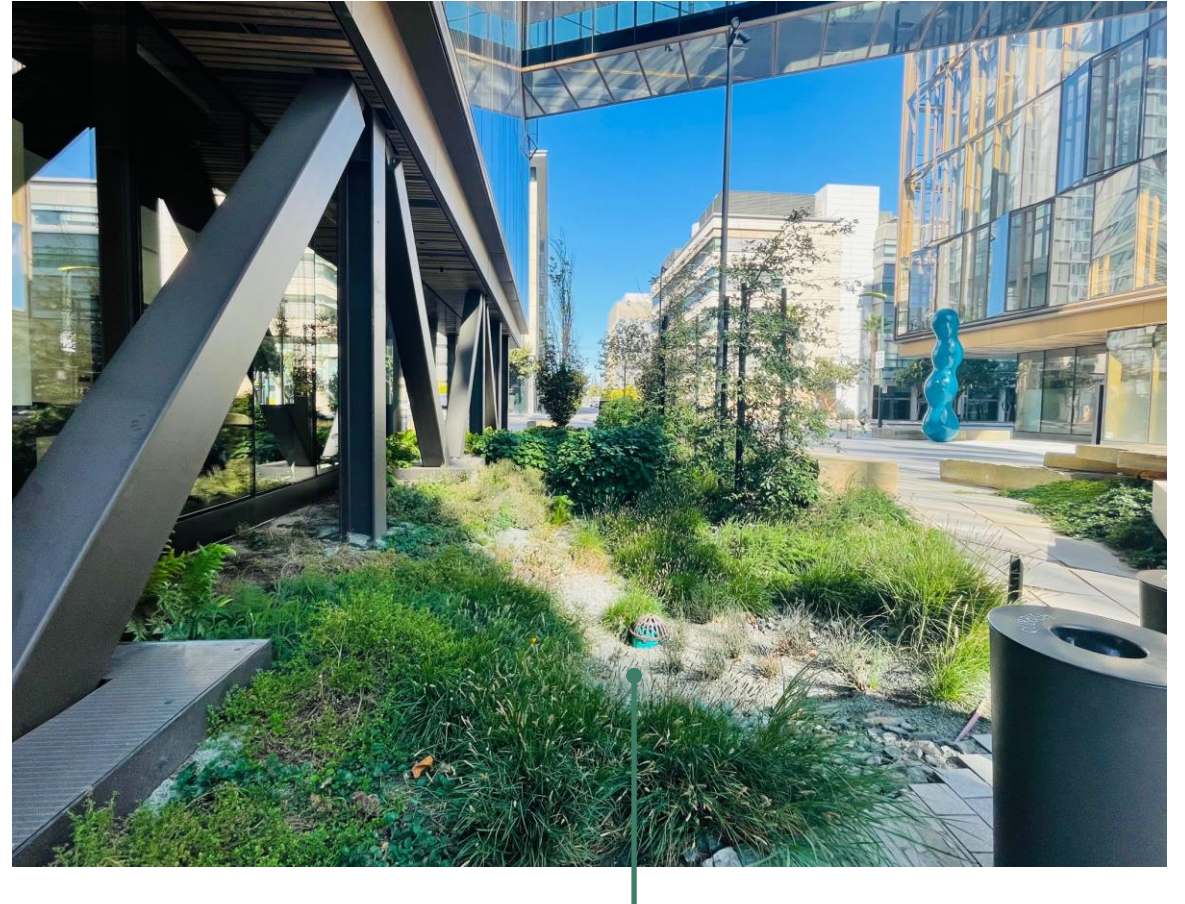
Mission Bay: Off-street Pathways

Off-street pathways not only provide additional pedestrian permeability, but also more opportunity for stormwater management



Maximize greenery in a limited space

Raised deck to prevent interruption to drainage flow

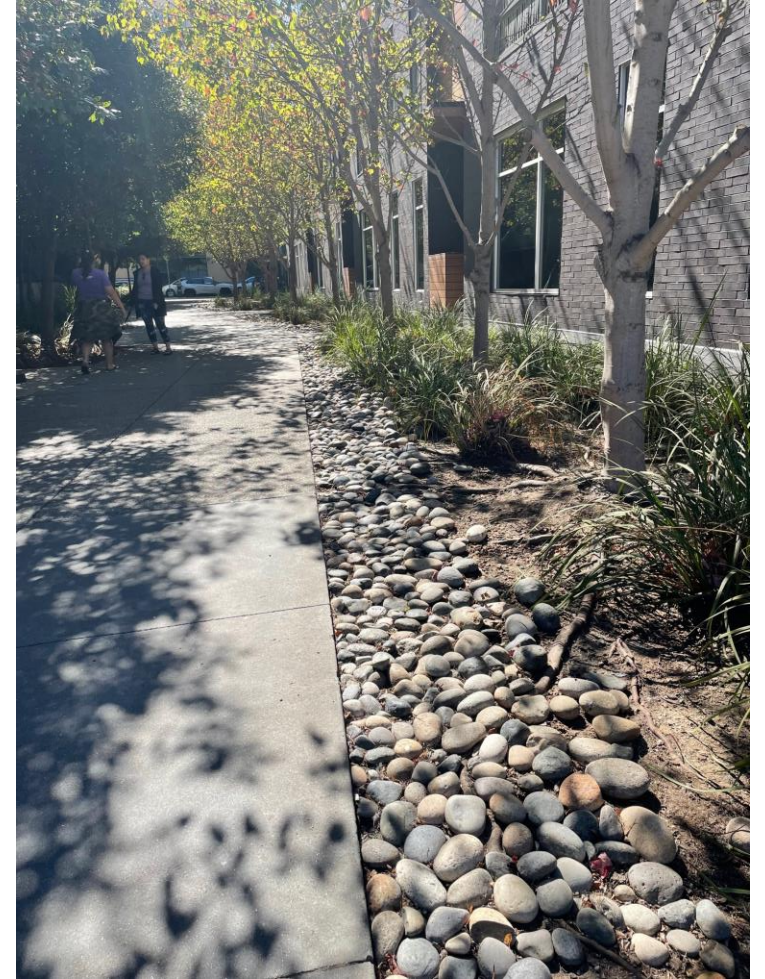
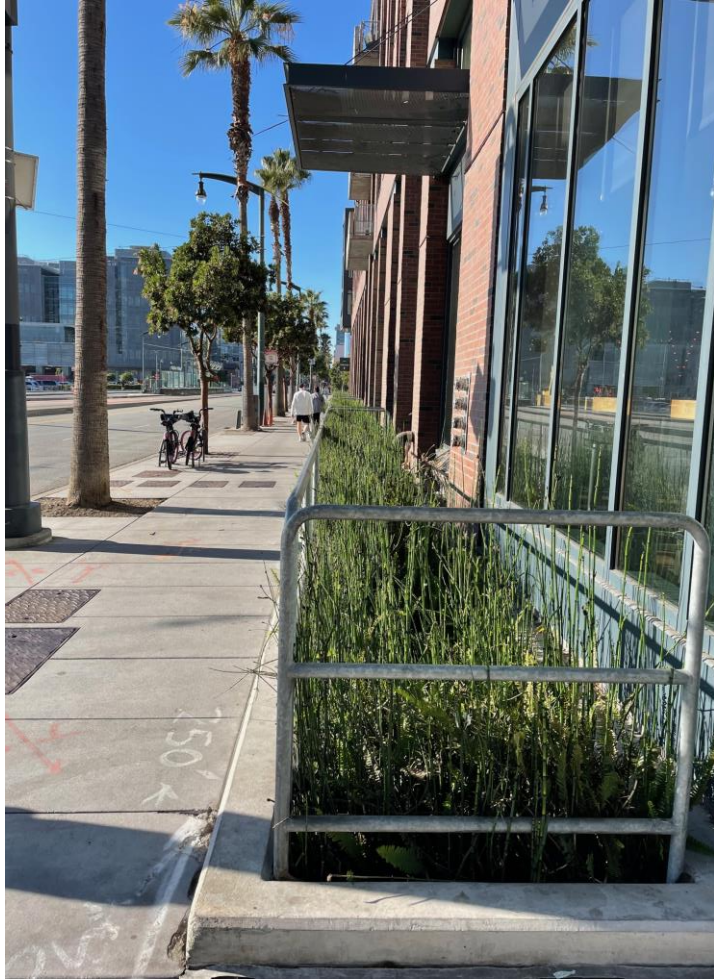


Lush vegetated swales for detention and filtration



Mission Bay: Building Zone

Rainwater boxes placed within the building zone detain and filter roof drainage, when paired with foundation planting will provide additional ecological and aesthetic benefits





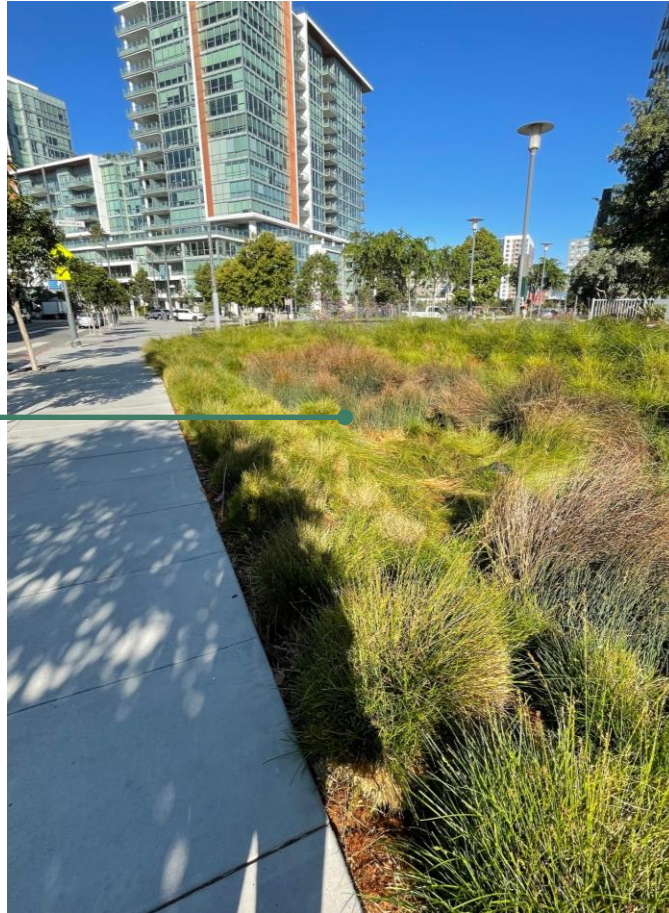




Mission Bay: Parks and Plazas

Parks and plazas in the urban areas are one of the best opportunity to collect and filter rainwater on a larger scale. Priority should be given to combine SWM, local habitat creation with recreation.

Coastal grass
planted in a swale
filters rainwater and
improves local
ecology



Recreated urban
wetland provides
visual interest and
SWM benefits





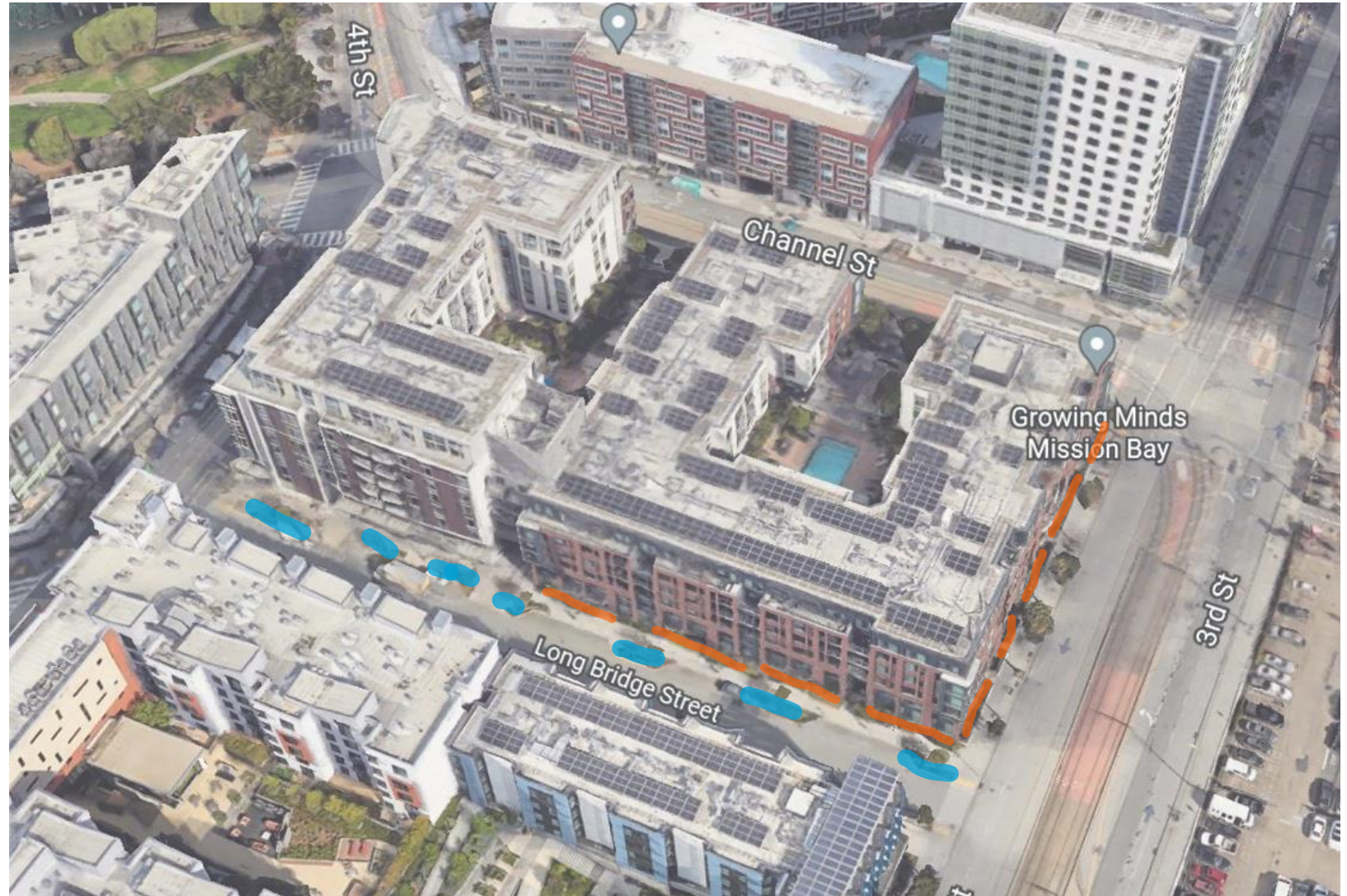
Mission Bay: Green Roofs

Green roof reduces impervious surface, reduce runoff and urban heat island effect.





SWM Facility Locations: Typical Block Configuration

-  Green Street Planters
-  Rainwater Collection box (bioretention)



SWM Facility Locations: Typical Block Configuration

-  Bioretention Planters & Rain Gardens
-  Rainwater Collection box (bioretention)



SWM Facility Locations: Typical Block Configuration

— Planters & Rain Gardens



Case Study: Tysons



Capital One @ Tysons: Locally Implemented SWM / BMP cases

Tightly spaced, layered mix of water loving perennials

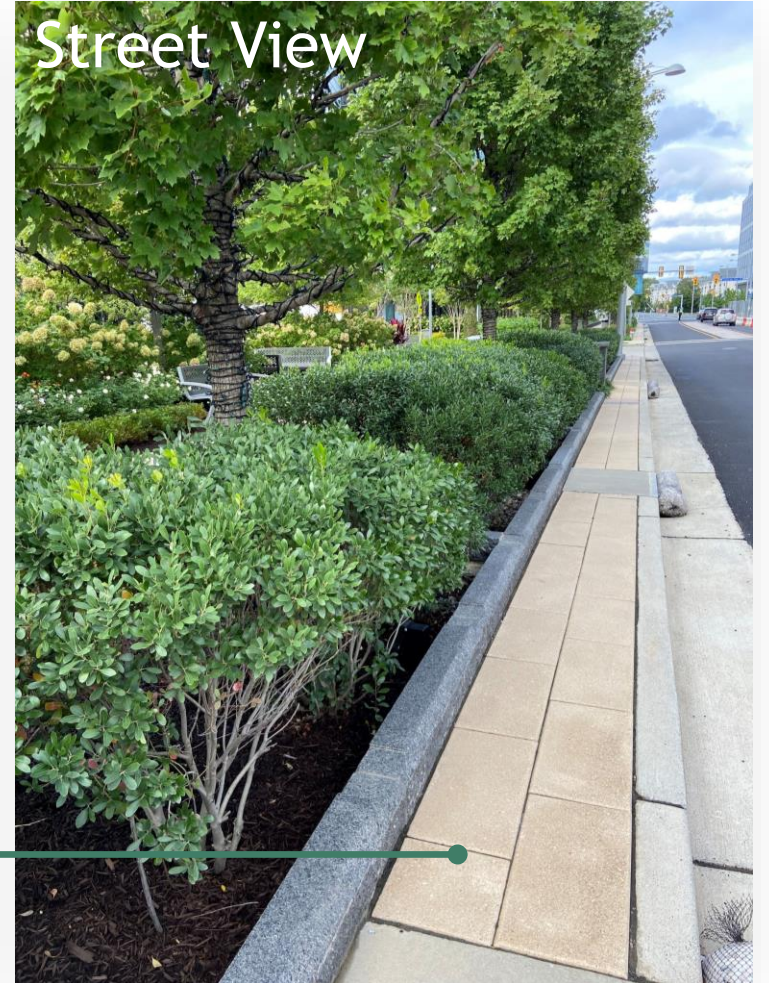
Sidewalk View



Attractive granite curbs provide overland relief for runoff from sidewalk

Step-off Zone when adjacent to on-street parking

Street View



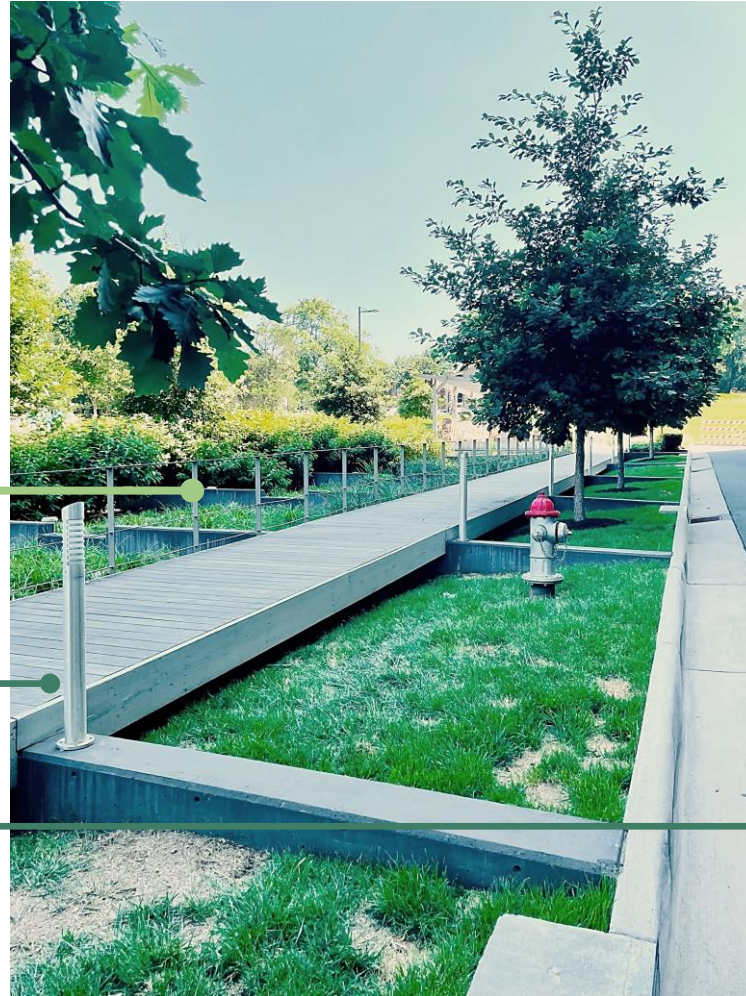
Green Street Planters

McLean Commons: Locally Implemented SWM / BMP cases

Terraced bio-retention
median provides linear
green on a slope

Elevated walkway allow
continued drainage flow

Continuous green
street planters



Low Impact Development

Bioretention Dimensions within Streetscape

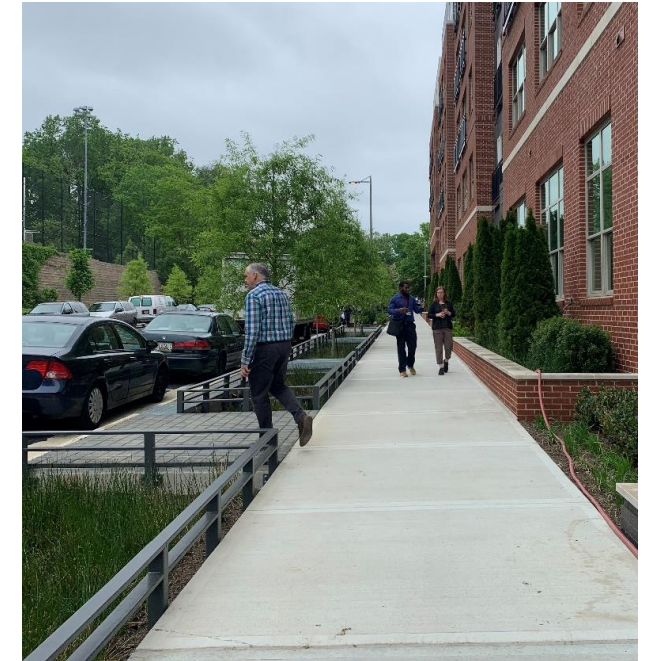
- Typically 8' wide minimum
- Typically less than 12" deep
 - If greater than 12", VDOT requires fence of 42"
 - Some developers may choose to have a short decorative fence when depth is less than 12"



Adaire



Capital One

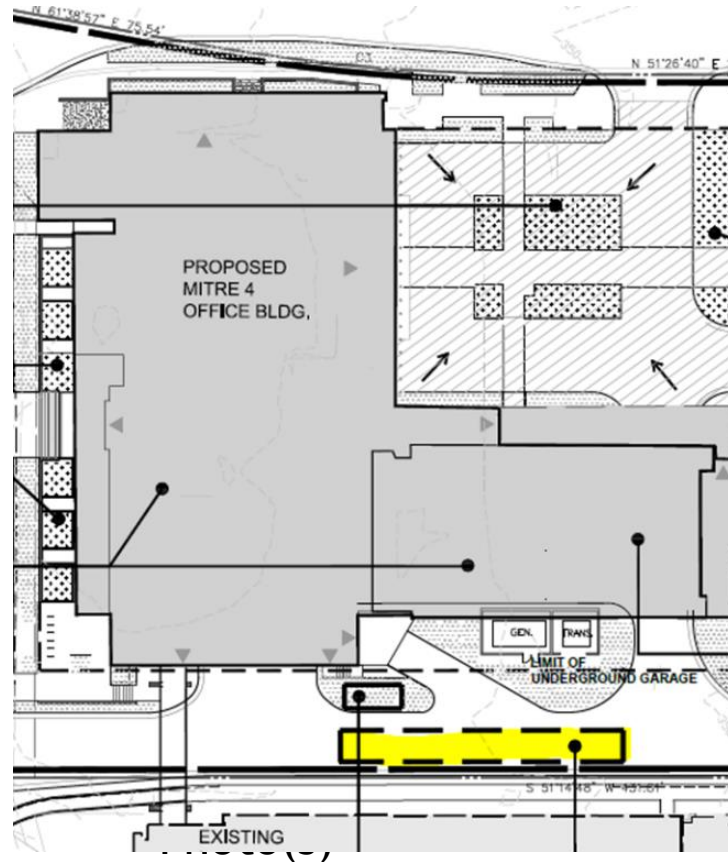


Hanover

Tysons: Locally Implemented SWM / BMP cases



Extensive green roof at Tysons Corner Center



Rainwater harvesting at MITRE campus, also at BORO



Infiltration underneath park space at Nouvelle building

Useful Resources

- [Green Infrastructure Configurations | National Association of City Transportation Officials \(nacto.org\)](https://nacto.org/green-infrastructure-configurations/)

Urban Street Stormwater Guide





Tree and Landscaping Guidelines

Environment: McLean Landscape Guidelines

1. Volume I: Urban Design Guidelines

- A. Principles on Tree Planting and Selection
- B. Street Tree Siting and Spacing
- C. Tree Planting, Caring and Maintenance
- D. Tree Planting Details and Alternatives (Appendix)
- E. Suggested Trees and Plant Species List (Appendix)

2. Volume II: McLean District Design Guidelines

- A. Urban Design Concept: *Neighborhood Village*
- B. Landscape Design Principles and Strategies

How does Neighborhood Village Concept Relate to Trees and Landscaping?

McLean has a **small town feel** with a **variety of human-scale gathering spaces** that foster social interaction and communal experiences. The diversity of local merchants meets many of the daily shopping and service needs of area residents. Dining options help define McLean as a destination for area residents. **Well-designed streetscapes and off-street pathways** offer comfortable connections to these destinations as well as from the surrounding neighborhoods into McLean. McLean showcases itself as a **sustainable** community with **shade trees, green areas, and innovative environmental features**. The history of McLean is embraced through the scale of blocks and the finer-grain texture of building fabric that contributes to the sense of community.

Landscape Design Principles and Strategies

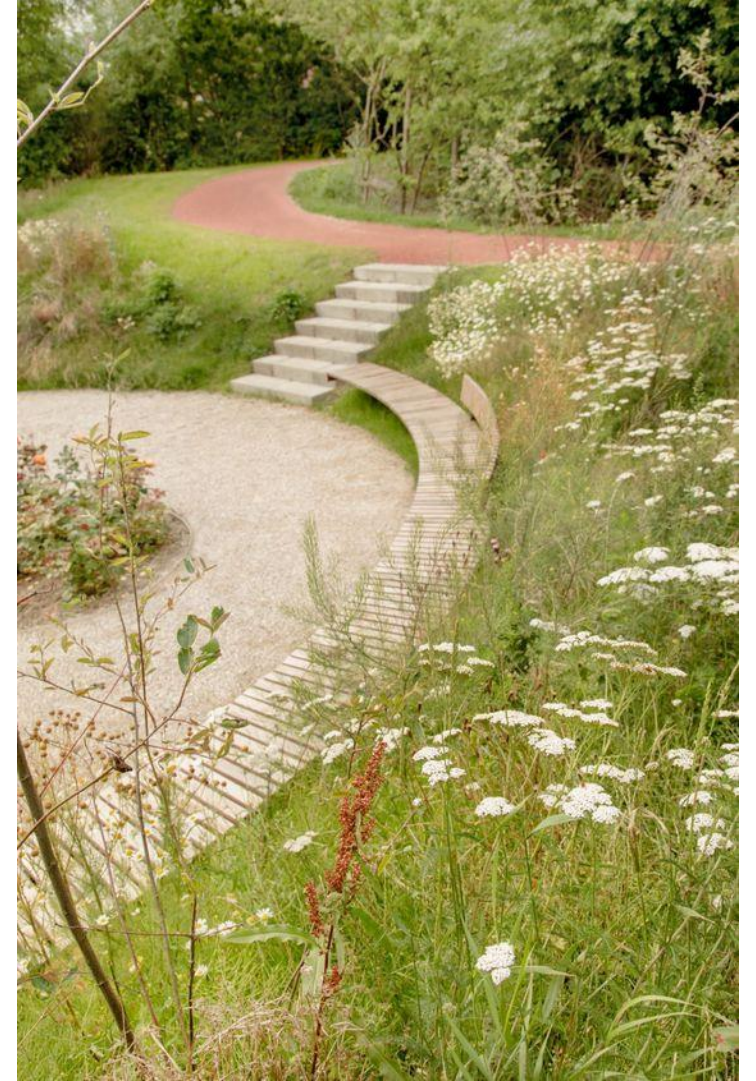
1. **Green Network:** Contribute to the planned network of open spaces and ecological corridors.
2. **Trees:** Maximize tree canopy coverage.
3. **Hardscape vs. Softscape:** Maximize softscape and minimize imperviousness.
4. **Multi-strata Landscapes:** Utilize a full spectrum of plant materials: ground cover, shrubs, under story trees, and large, shade trees to create multi-layered landscapes.
5. **Low-maintenance:** Encourage native, drought resistant, hardy and low maintenance species.
6. **Neighborhood Village Aesthetic:** Use informal planting design with flowering plants with bright colors (seasonal interest) to provide human scale, variety and interest to streetscapes as well as increase pollinator species. Plant specific tree species at certain locations or on certain streets.

Maximize Tree Canopy

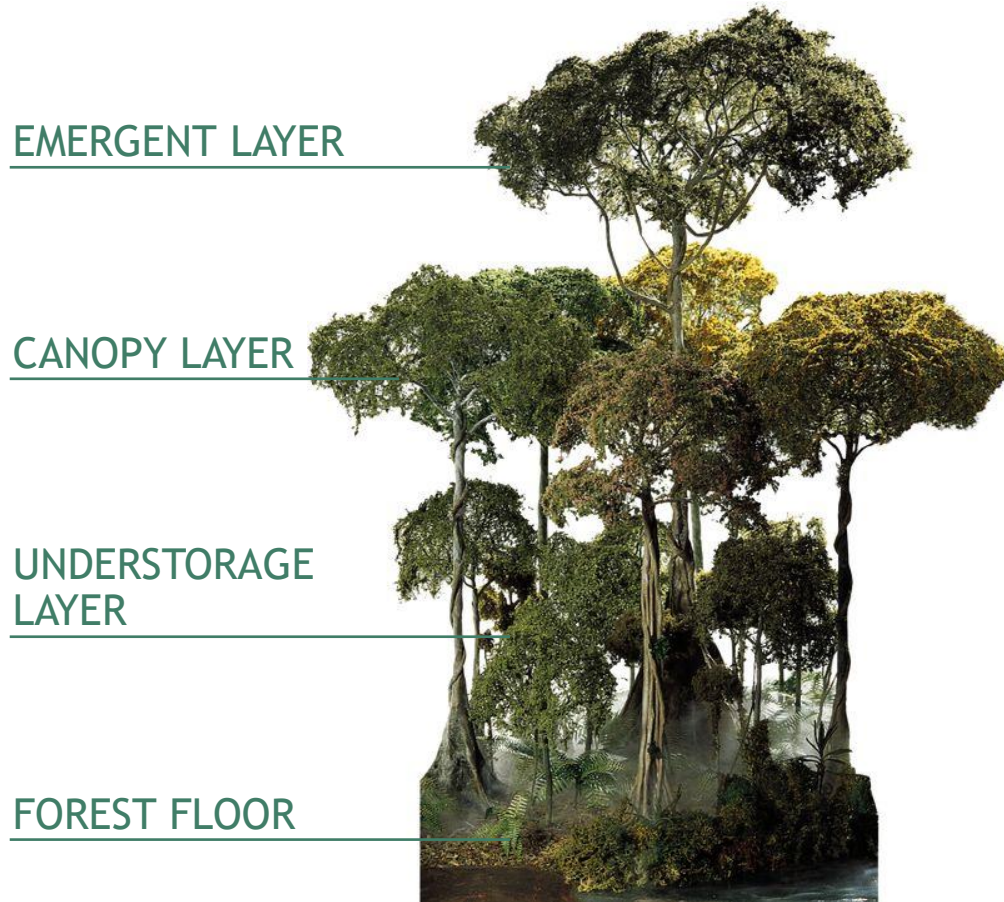


Plant trees in the building zone to create an Allee of trees

Maximize Softscape and Minimize Imperviousness



Utilize A Full Spectrum Of Plant Materials To Create Multi-strata Landscapes



Use Flowering Plants With Bright Colors

to provide human scale, variety and interest to streetscapes as well as increase pollinator species



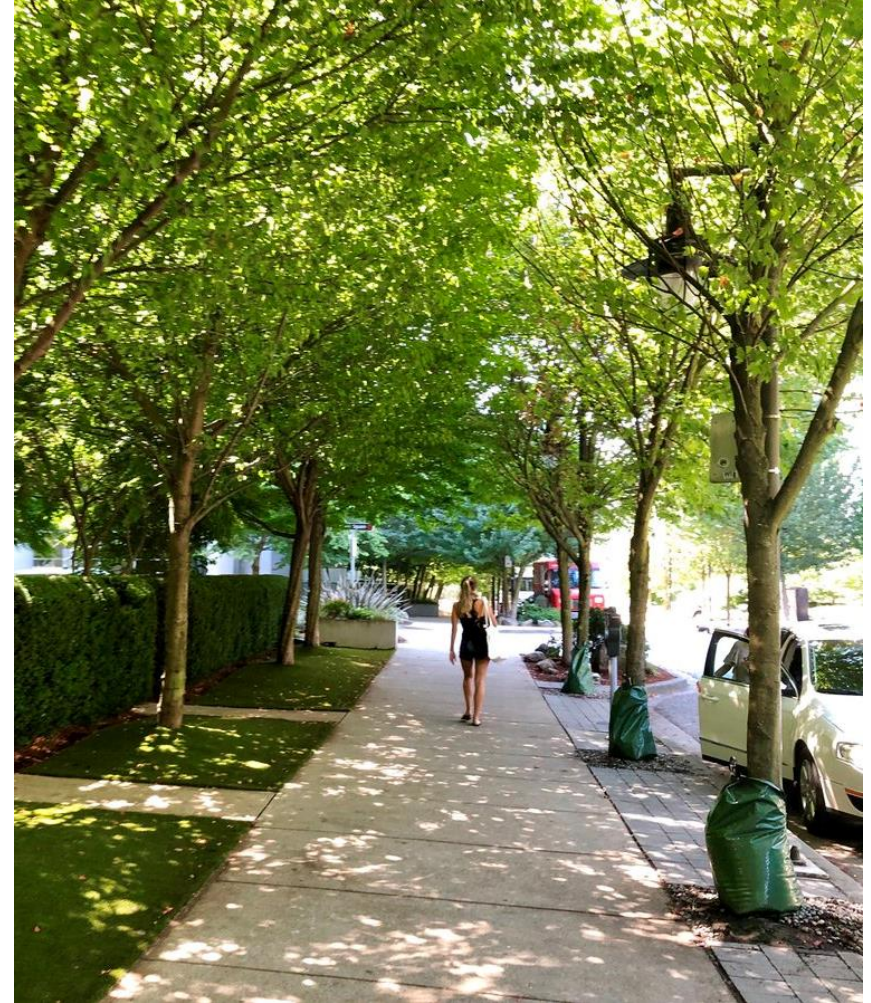
Landscap

- Avenues
- Local Streets
- Greenways
- Gateways
- Nodes



Avenues

Continuous tree cover, create Allée effect by tree planting in the building zone



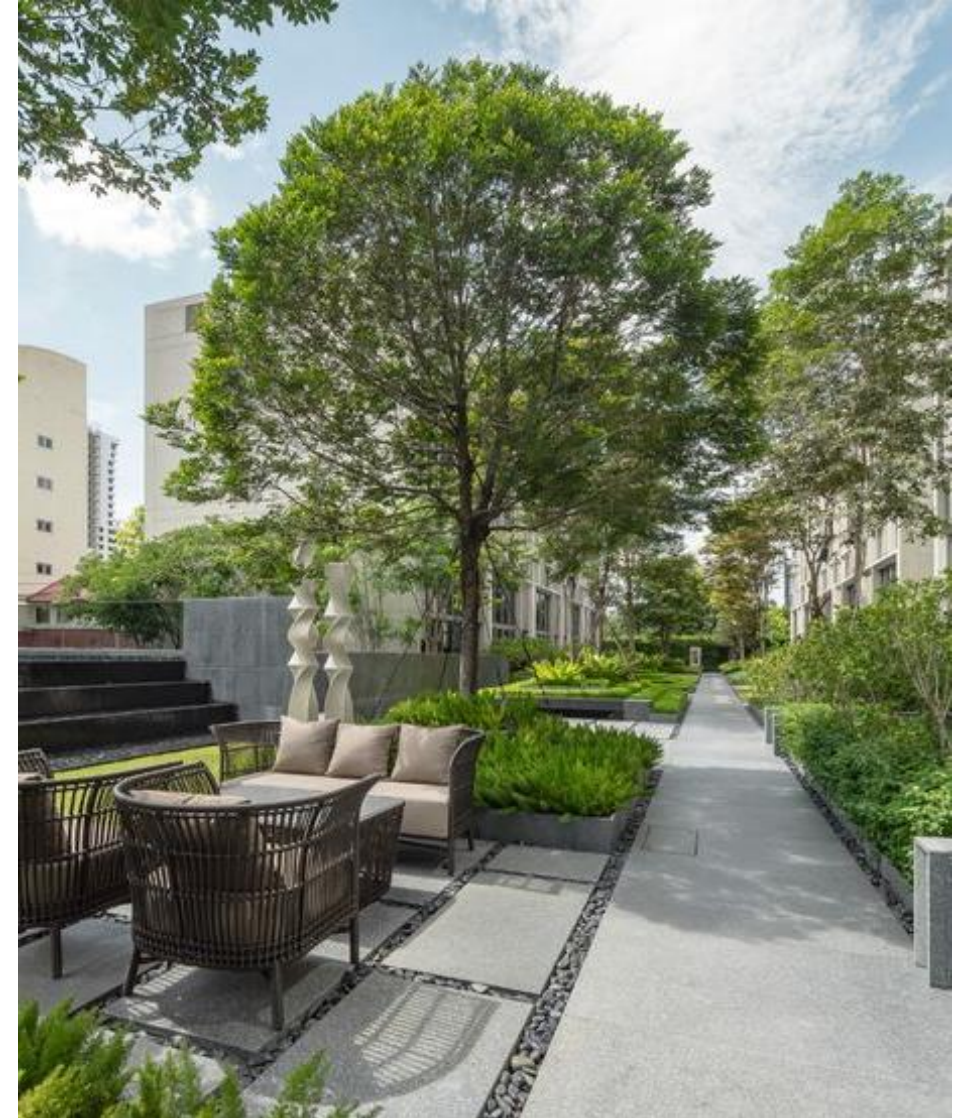
Local Streets

Coherent streetscape plantings, create pedestrian comfort, encourage inviting greenery within the building zone



Greenways

Attractive landscape for both active and passive greenways



Gateways

Use landscape and architecture to announce the arrival at a special district



Nodes

Use landscape to create an attractive backdrop for activity nodes





Questions & Comments?