



**City of Burlington**

# Great Streets BTV

City of Burlington  
Community & Economic Development Office  
Public Works  
Planning & Zoning

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Suisman Urban Design  
DuBois & King  
Michael Vergason Landscape Architects  
Wagner Hodgson Landscape Architects  
Urban Rain Design  
Domingo Gonzalez Associates  
Third Sector Associates

**Great Streets BTV**

Public V.6 Sept. 14, 2016

**suisman**  
URBAN DESIGN



# Introduction

## Vision of Downtown

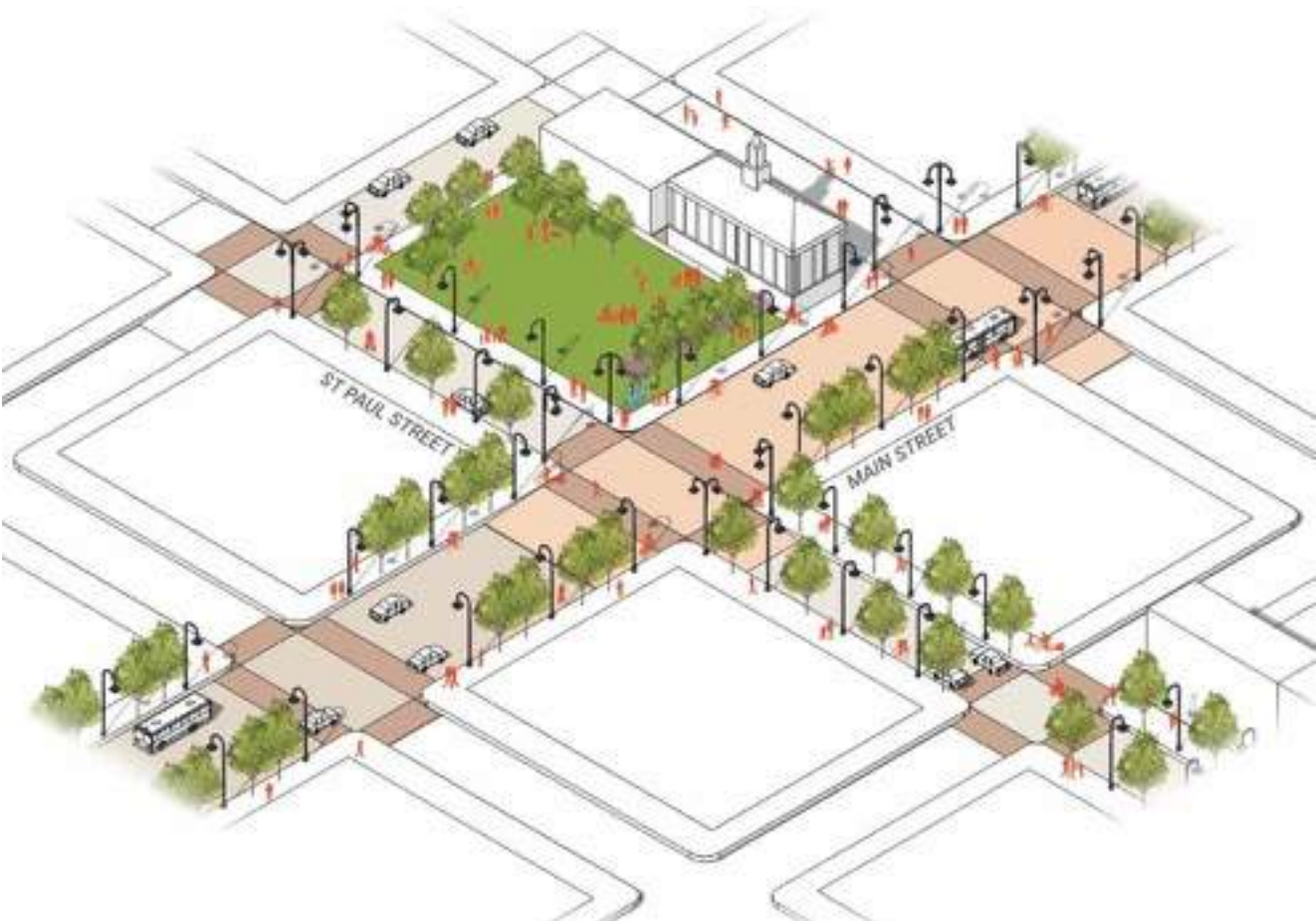
Burlington residents — through input into various plans, studies and other projects — have asked for a walkable, bikeable, sustainable, transit-friendly downtown.



Introduction

# Great Streets BTV

In order to meet this vision, the City has launched the "Great Streets Initiative" to implement the recommendations in these plans, and to guide further investment in the downtown public realm for decades to come.



## Great Streets BTV

*"A downtown that is a vibrant, walkable, and sustainable urban center"*  
—Residents of Burlington


Join us on September 14 or 15 for a presentation to learn more about the Great Streets Initiative, and to review draft concepts for Main Street and the downtown street design standards!

**If you miss the presentation on September 14, we have two encore presentations on September 15!**


Presentation	Encore Presentations
Wednesday, September 14, 2016 6:30–8:00 p.m. Contois Auditorium, City Hall	Thursday, September 15, 2016 9:00 a.m. and 12 noon Contois Auditorium, City Hall

For questions and information, please visit  
**[www.GreatStreetsBTV.com](http://www.GreatStreetsBTV.com)**  
or contact Diane Meyerhoff at 802.865.1794

The Great Streets Initiative is a project of the City of Burlington



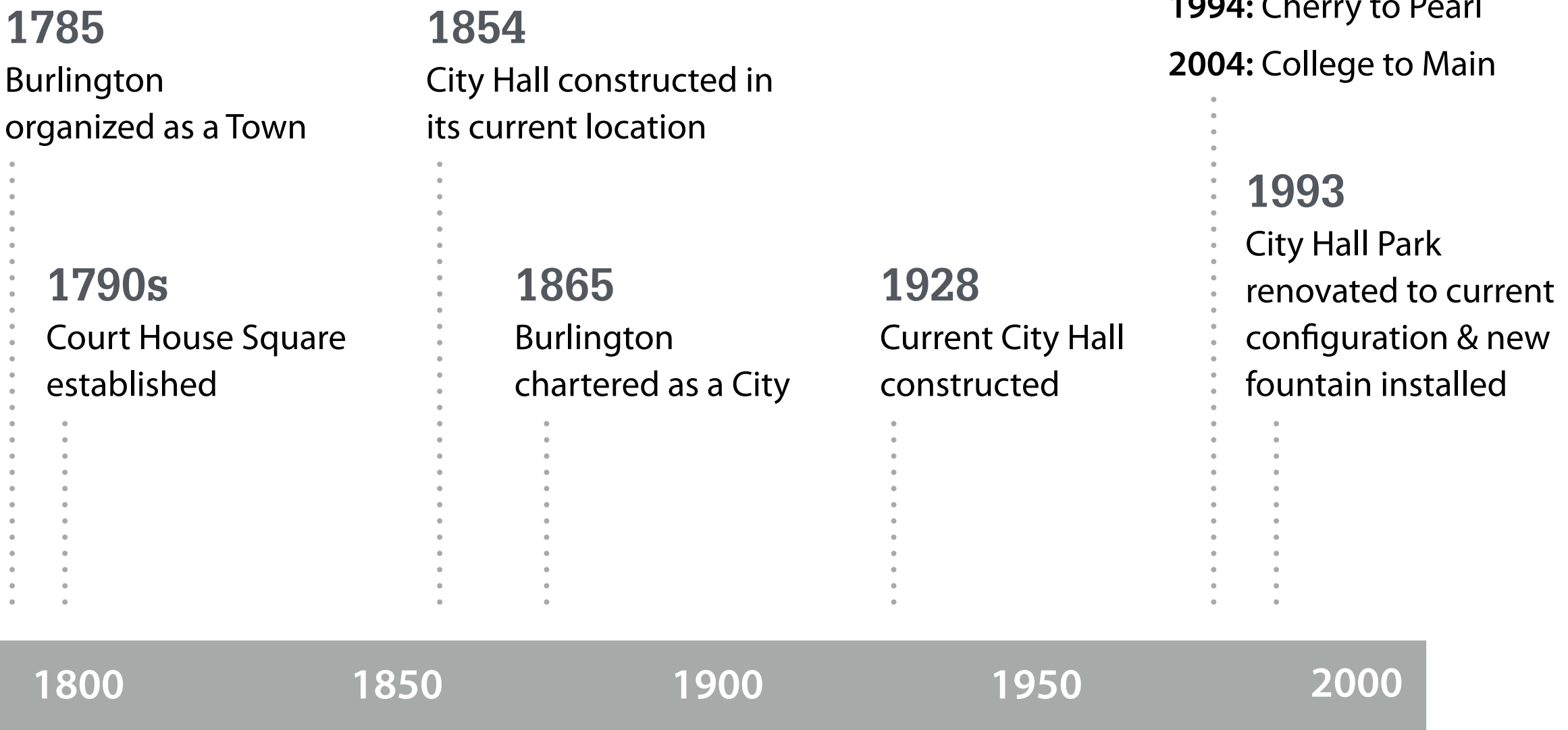
Individuals with disabilities who require assistance or special arrangements to participate in programs and activities of the Dept of Planning & Zoning are encouraged to contact the Dept at least 72 hours in advance so that proper accommodations can be arranged. For information, call 802-865-7138 (TTY 802-865-7144).



# Introduction

## Timeline

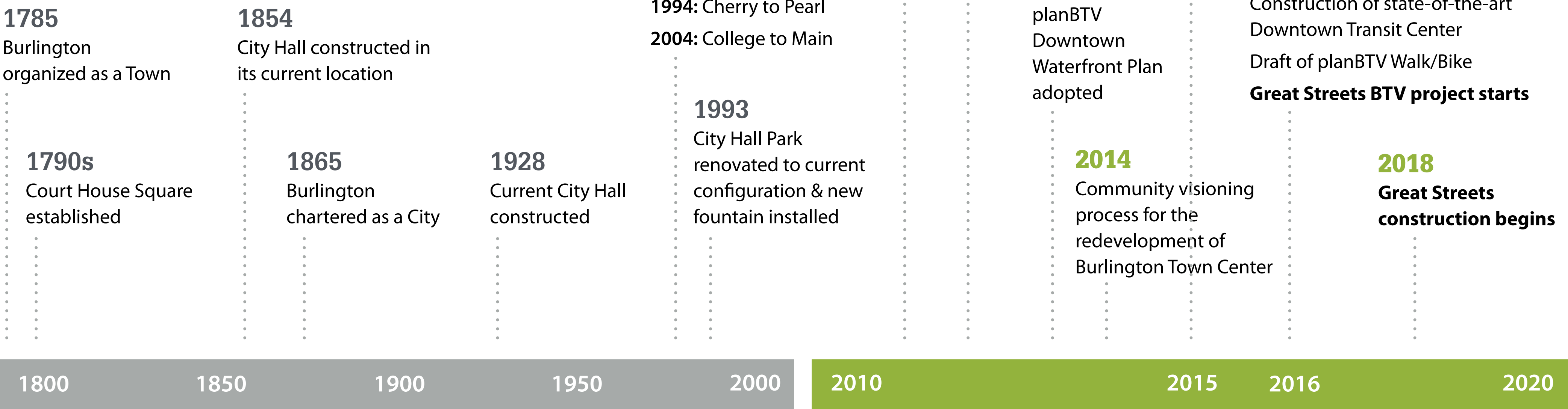
Throughout it's history, the City has made significant investments in downtown and the public realm. In recent years, residents have provided significant input on the next generation of investment in downtown.



# Introduction

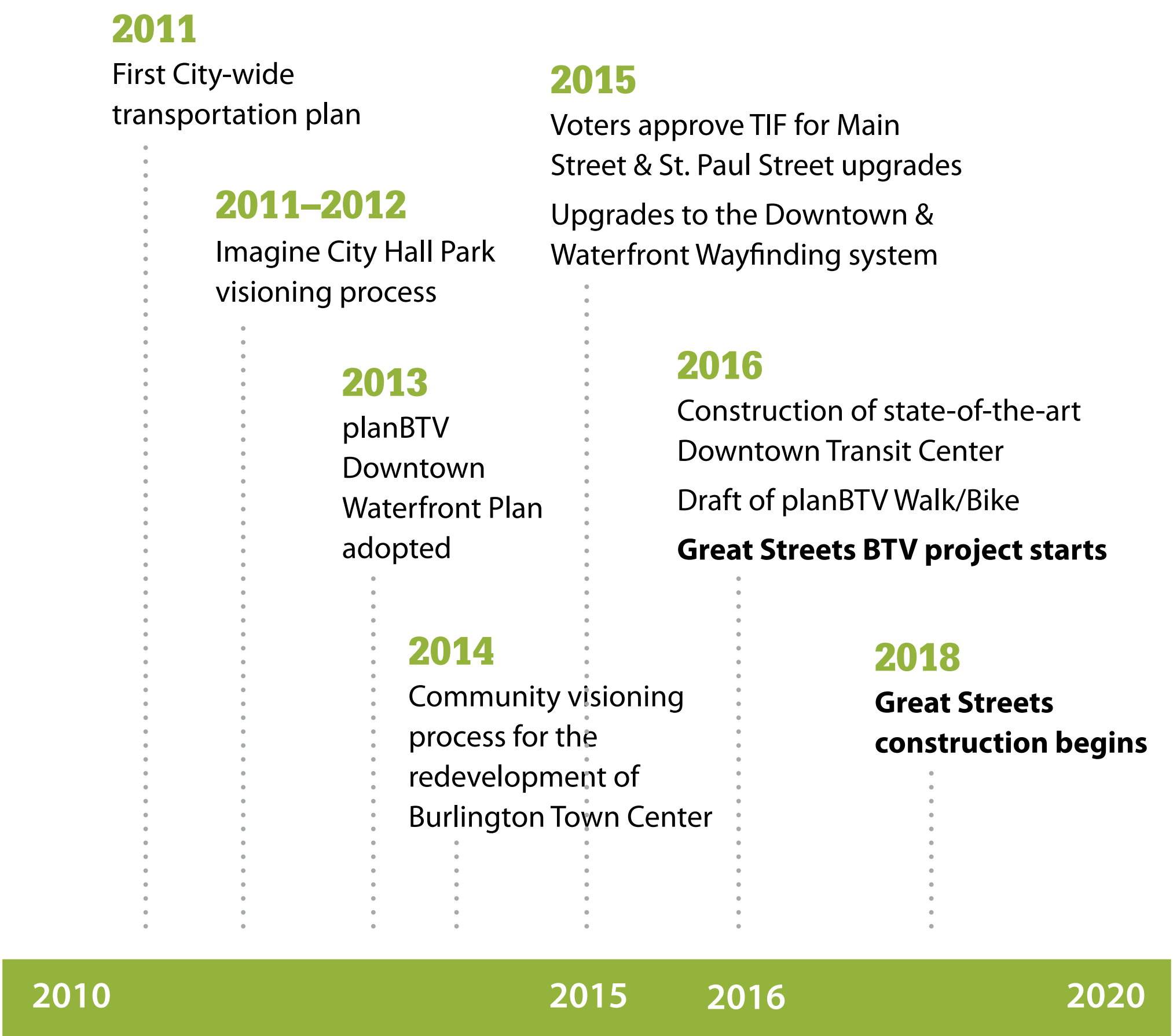
## Timeline

Throughout its history, the City has made significant investments in downtown and the public realm. In recent years, residents have provided significant input on the next generation of investment in downtown.



Introduction  
Information

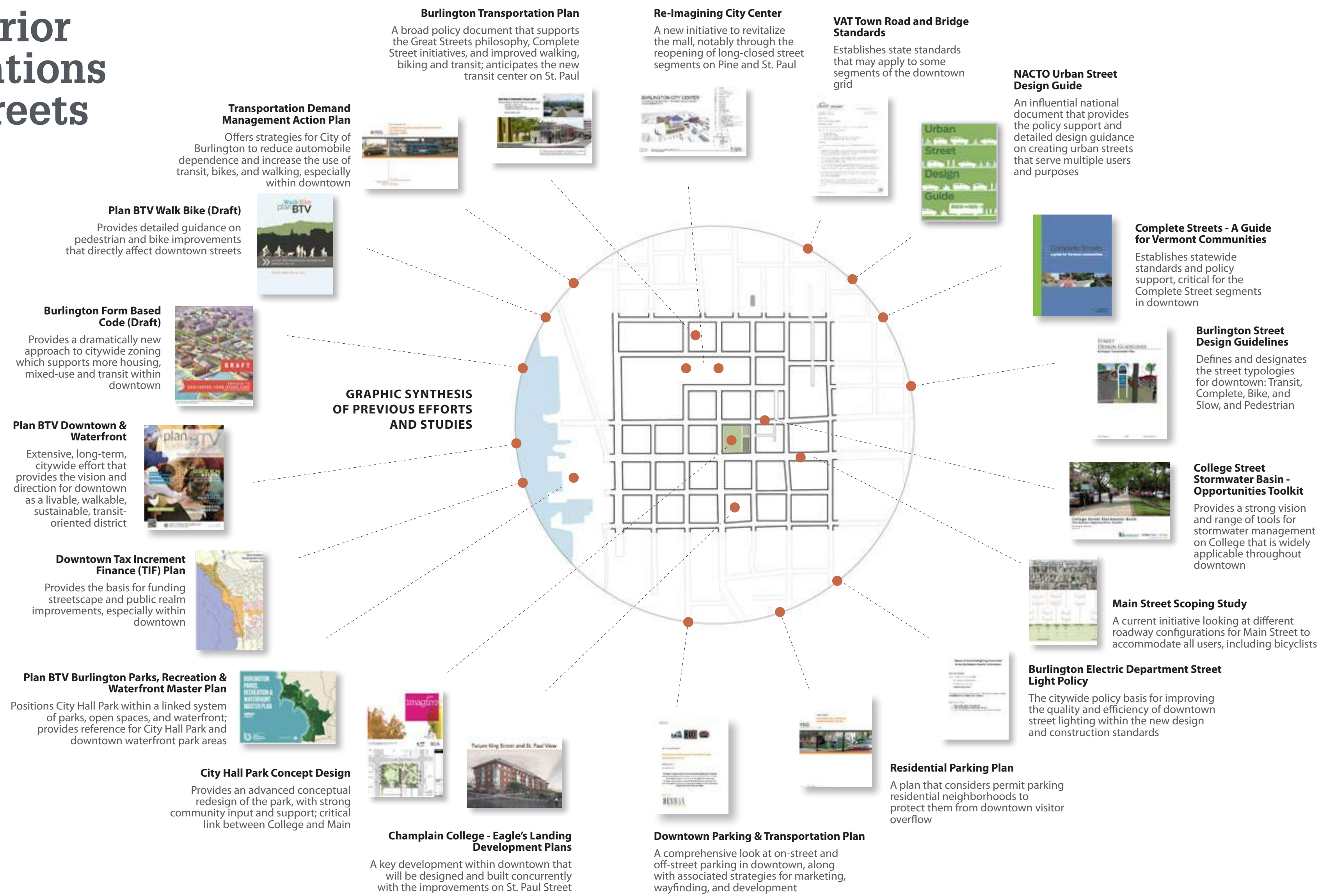
greatstreetsbtv.com



# Introduction

## Integrating Prior Recommendations into Great Streets

The Great Streets Initiative will draw upon local, state and national plans and guidance, including, but not limited to these:

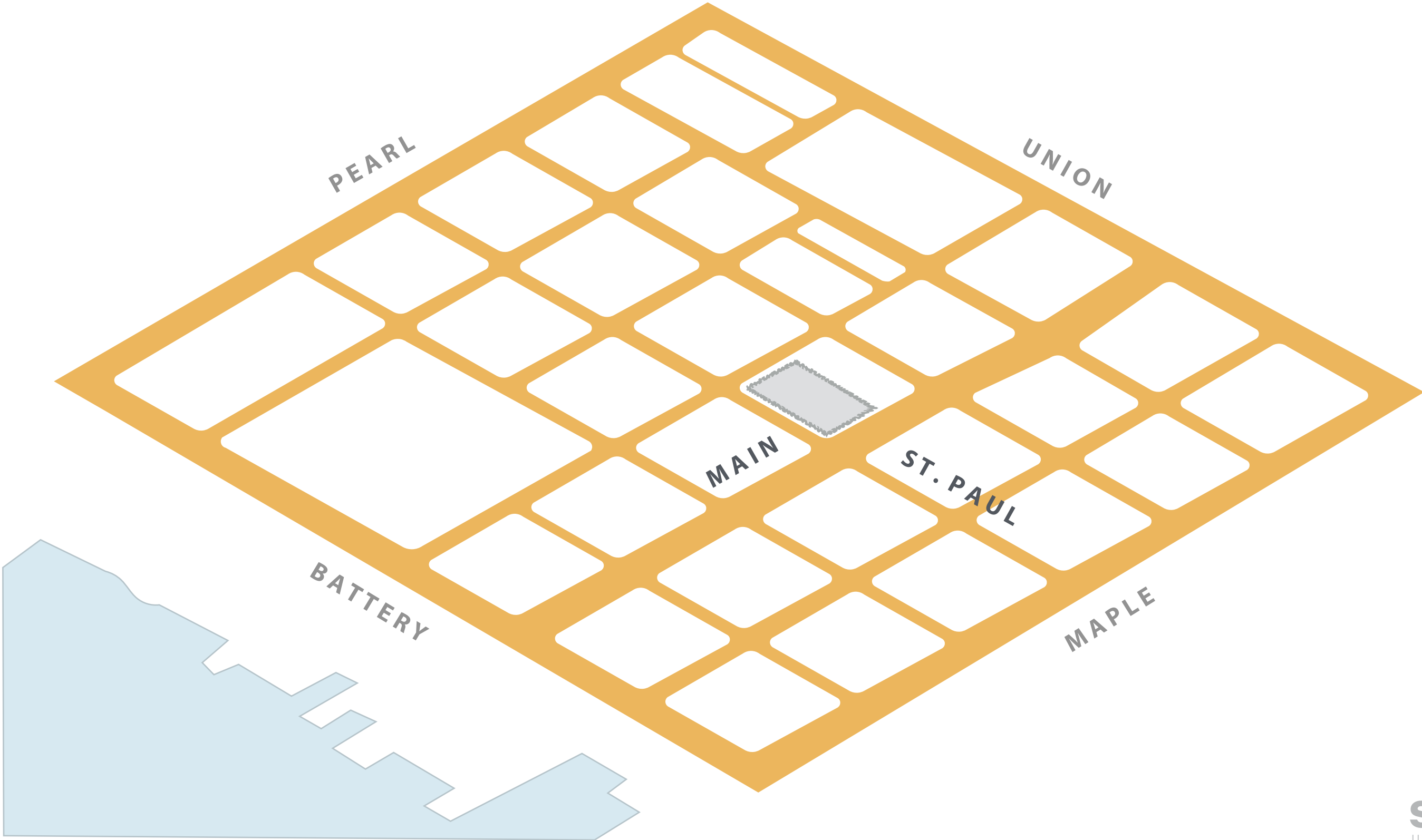


Introduction

# Three-Part Initiative

A  
Create  
**Downtown Street  
Design Standards**

- Stormwater
- Trees
- Lighting
- Furnishings
- Pathways



# Introduction

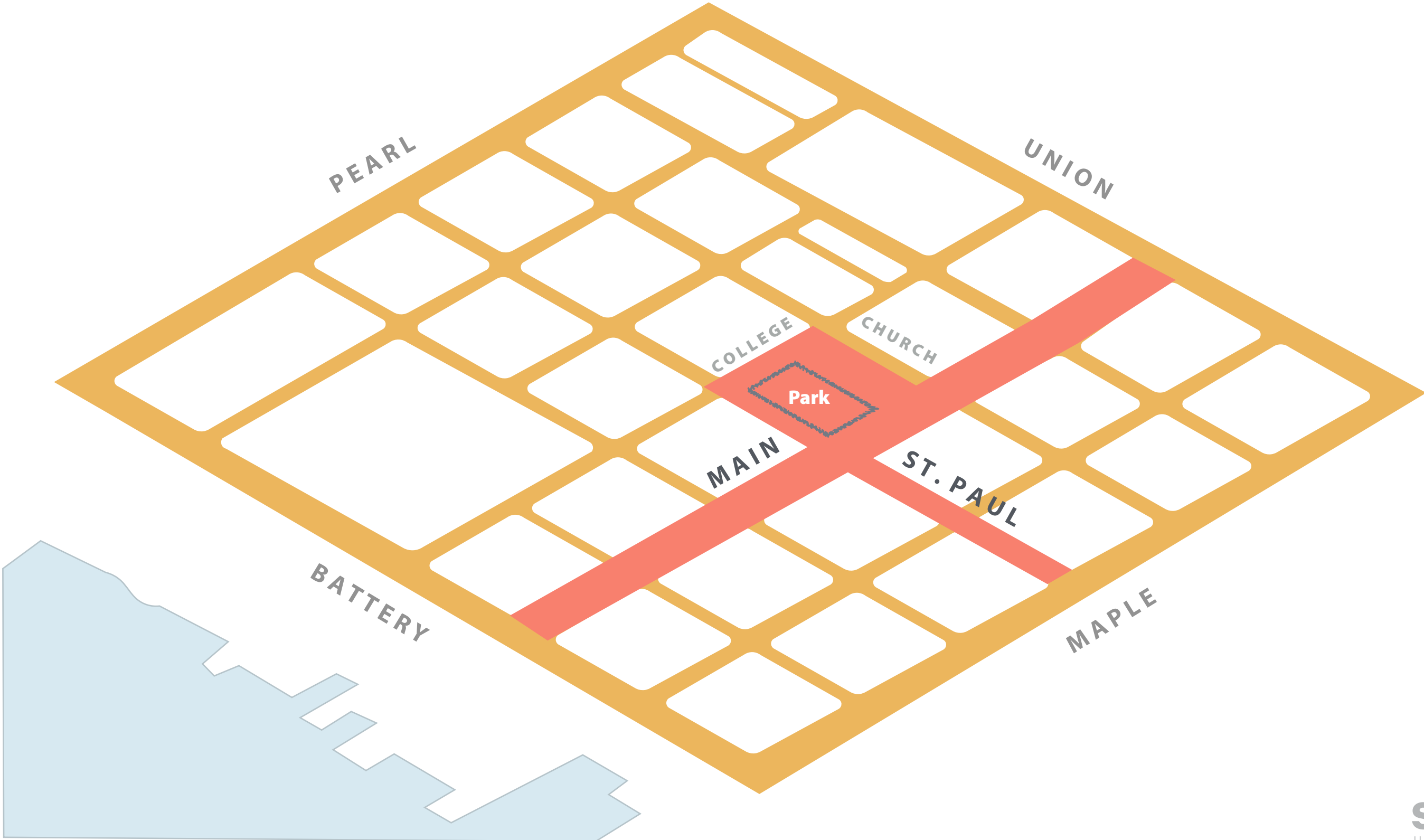
## Three-Part Initiative

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- Stormwater
- Trees
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- Furnishings
- Pathways

**B**  
Create  
**Main Street  
Concept Plan**

- Main Street (6 blocks)
- Park Square
- St. Paul Street (2 blocks)



# Introduction

## Three-Part Initiative

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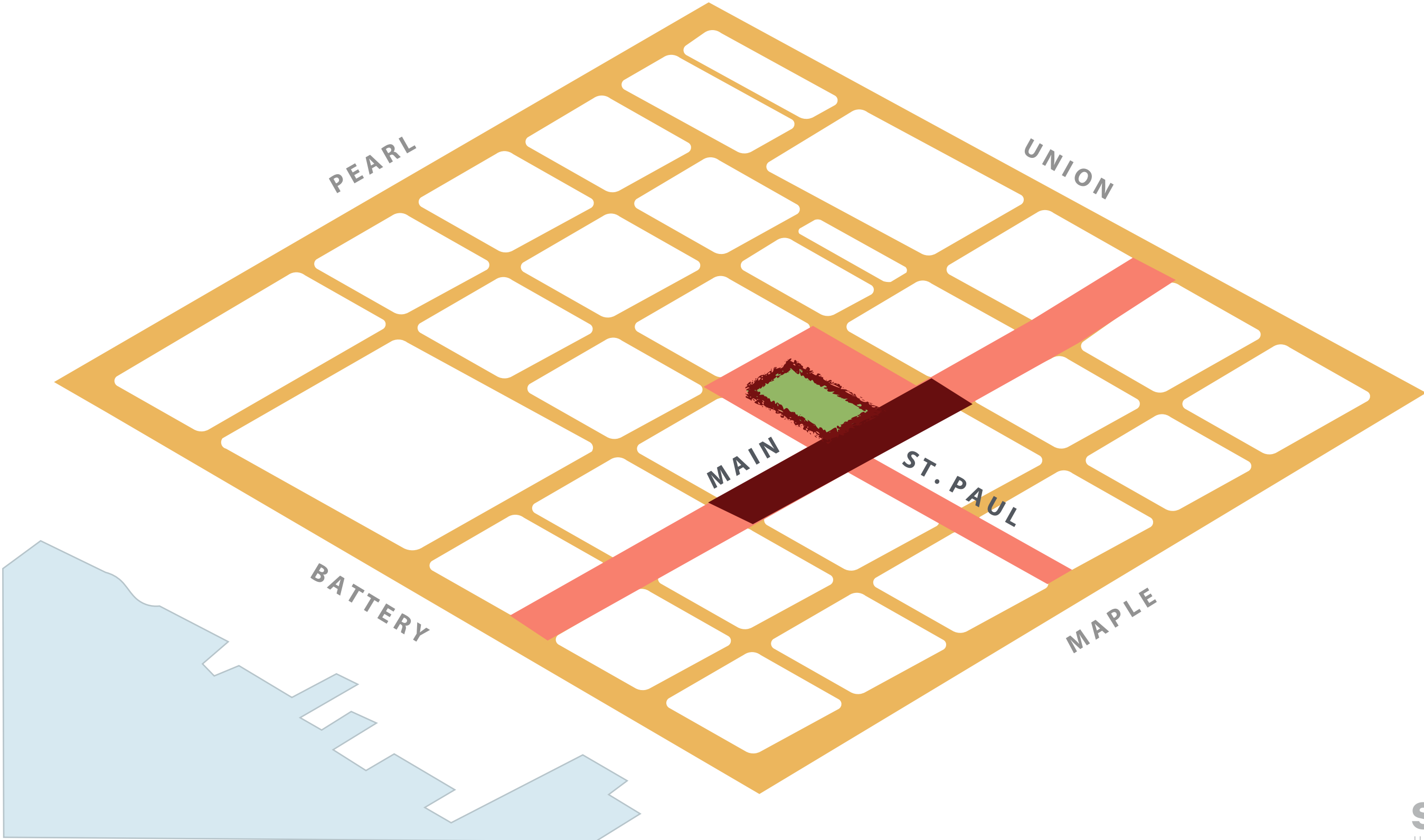
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- Main Street (6 blocks)
- City Square
- St. Paul Street (2 blocks)

**C**  
Design & Build  
**Park & Main  
Project**

- Main Street (2 blocks)
- City Hall Park



## Introduction

### What is a “great street”?

These are the high-level guiding principles for street design that are called for in the City's recently adopted plans/documents.

#### Walkable/Bikeable

high quality  
pedestrian and bike  
network, safe,  
convenient, shady,  
protective

#### Sustainable

benefits air and water  
quality, stormwater  
smart, energy efficient,  
transit-friendly

#### Vibrant

lively, attractive,  
diverse, accessible,  
inclusive, supports  
economic activity

#### Functional

works for all users,  
vehicles types,  
emergencies, events;  
affordable and  
maintainable

# Introduction

## Potential Features of a Great Street for Burlington



Durable  
Curbs



Advanced Street  
Tree Installation



Expanded  
Tree Canopy



Highlighting  
of Landmarks



Placemaking /  
Public Art



Enhanced  
Crosswalks



Snow  
Management



Accessible  
and Inclusive

Enhanced  
Lighting



Rain  
Gardens



Bike  
Lanes



Efficient  
Parking



Transit  
Facilities



Wider  
Sidewalks



Shared Space



Bike Parking





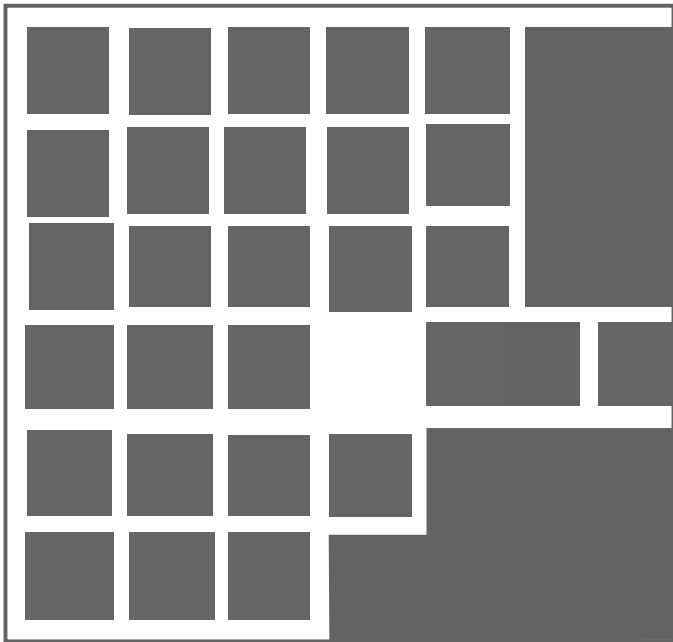
# Observations of Existing Conditions

## Checkerboard

study of the evolution of  
the downtown grid.....



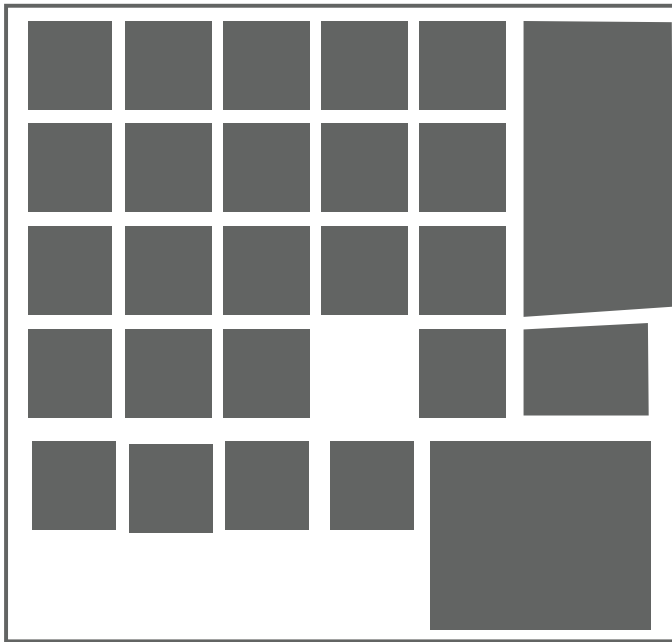
John Johnson  
**1830**



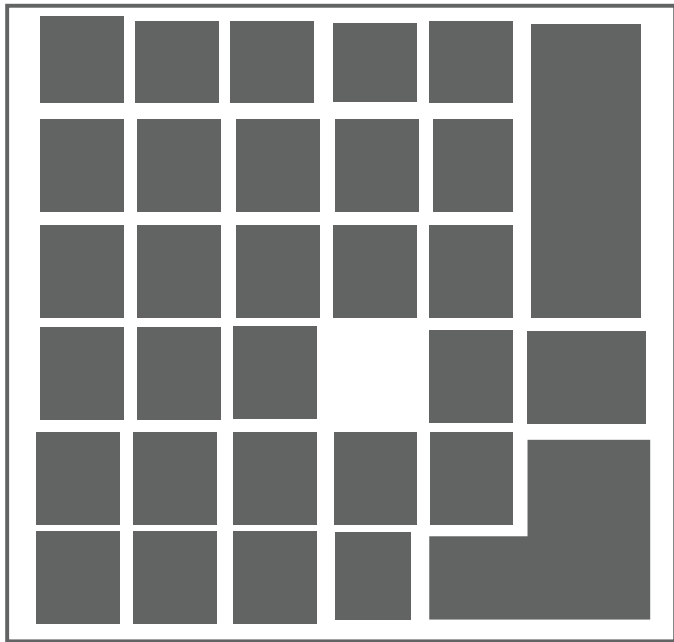
Presdee & Edwards  
**1853**



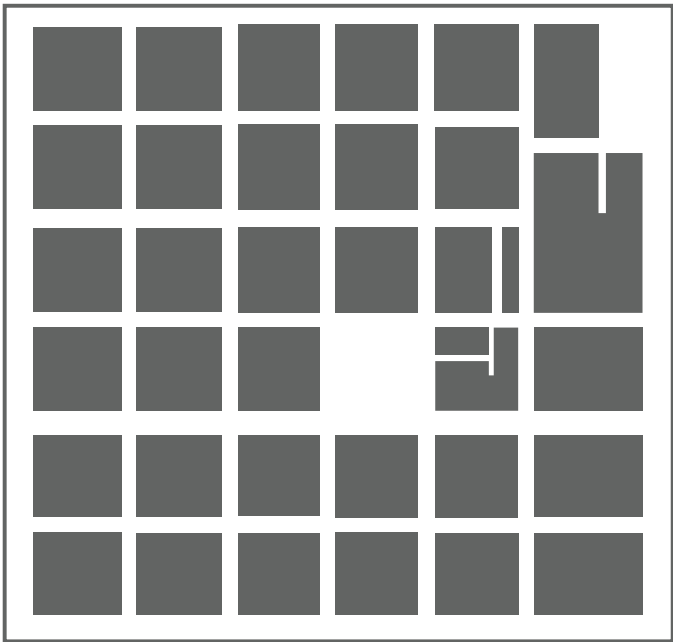
Worley  
**1873**



Hopkins  
**1890**



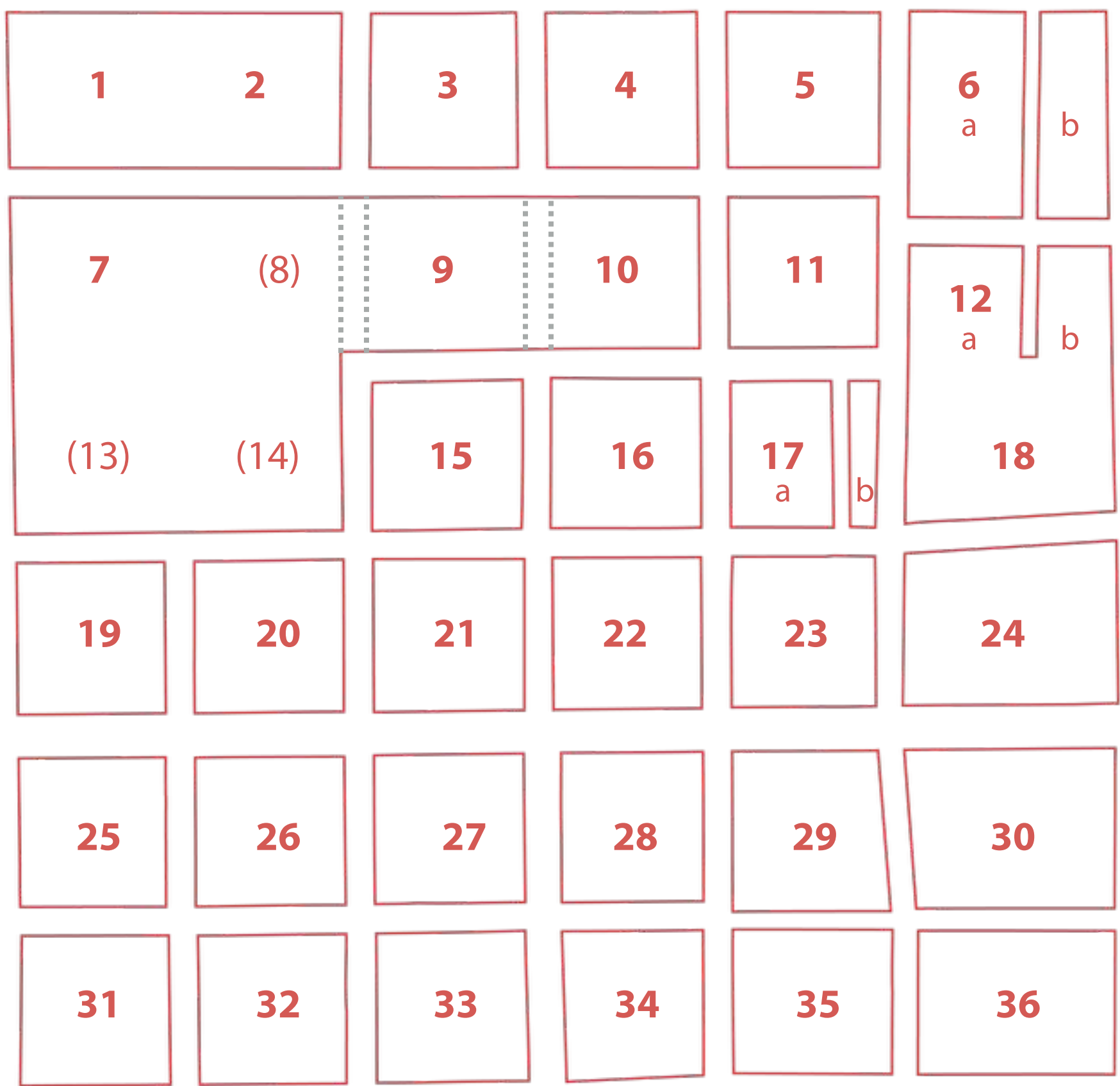
USGS map  
**1970**



# Observations of Existing Conditions

## Checkerboard Concept

...brings us to this current configuration-- some missing segments, some irregular shapes, etc.



# Observations of Existing Conditions

## 14 Primary Streets

14 major streets:  
7 north-south,  
7 east-west



# Observations of Existing Conditions

## Total Street Length

**Total: 6 miles - significant for improvements costs and ongoing maintenance**

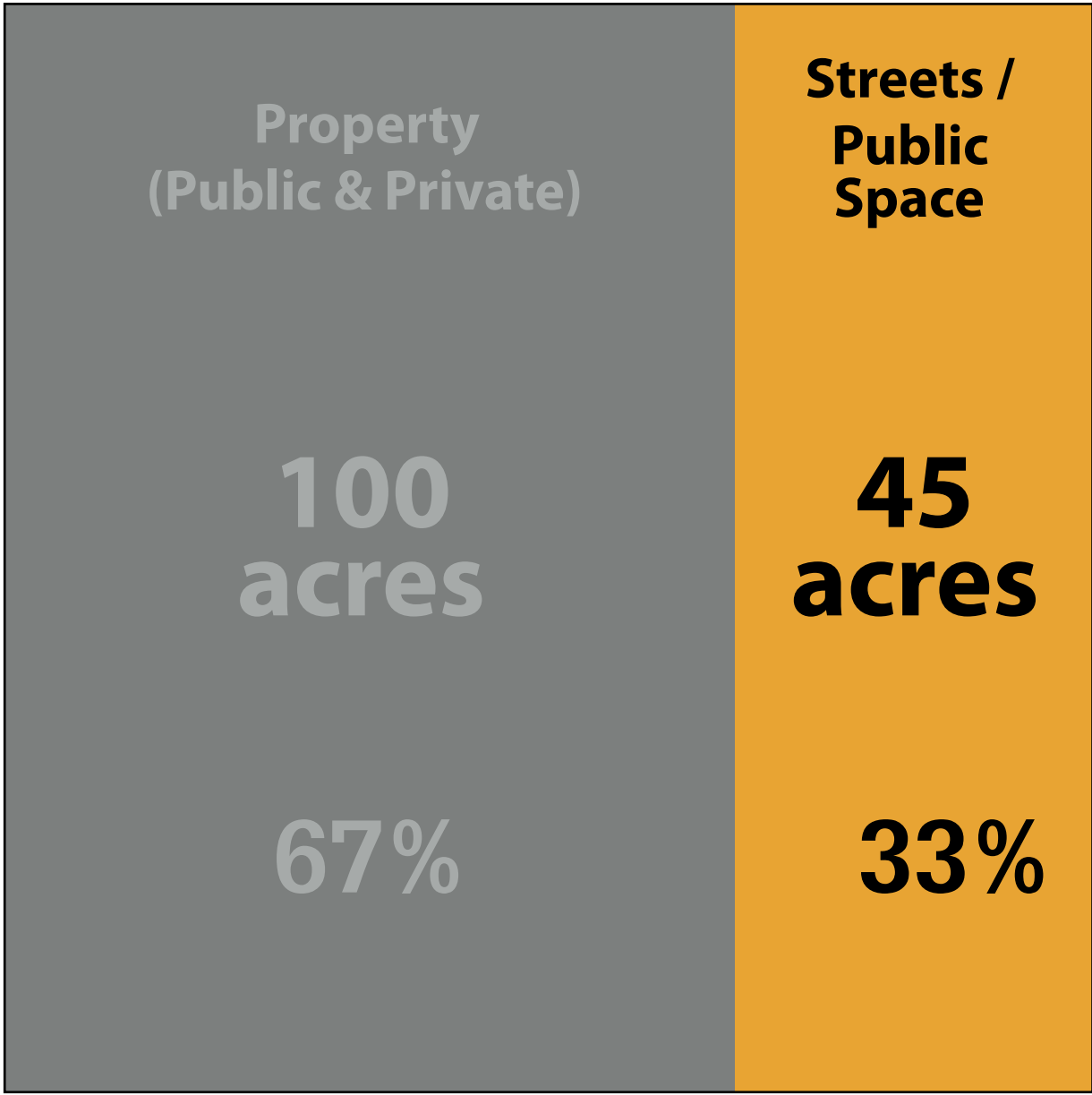
If all the streets in downtown were stretched end to end, they would add up to around 6 miles, the distance traveled from Pearl Street at Battery Park via Colchester Avenue and Route 15 to Essex. Design and maintenance standards should reflect the extent of their application.



# Observations of Existing Conditions

## Extensive Public Realm

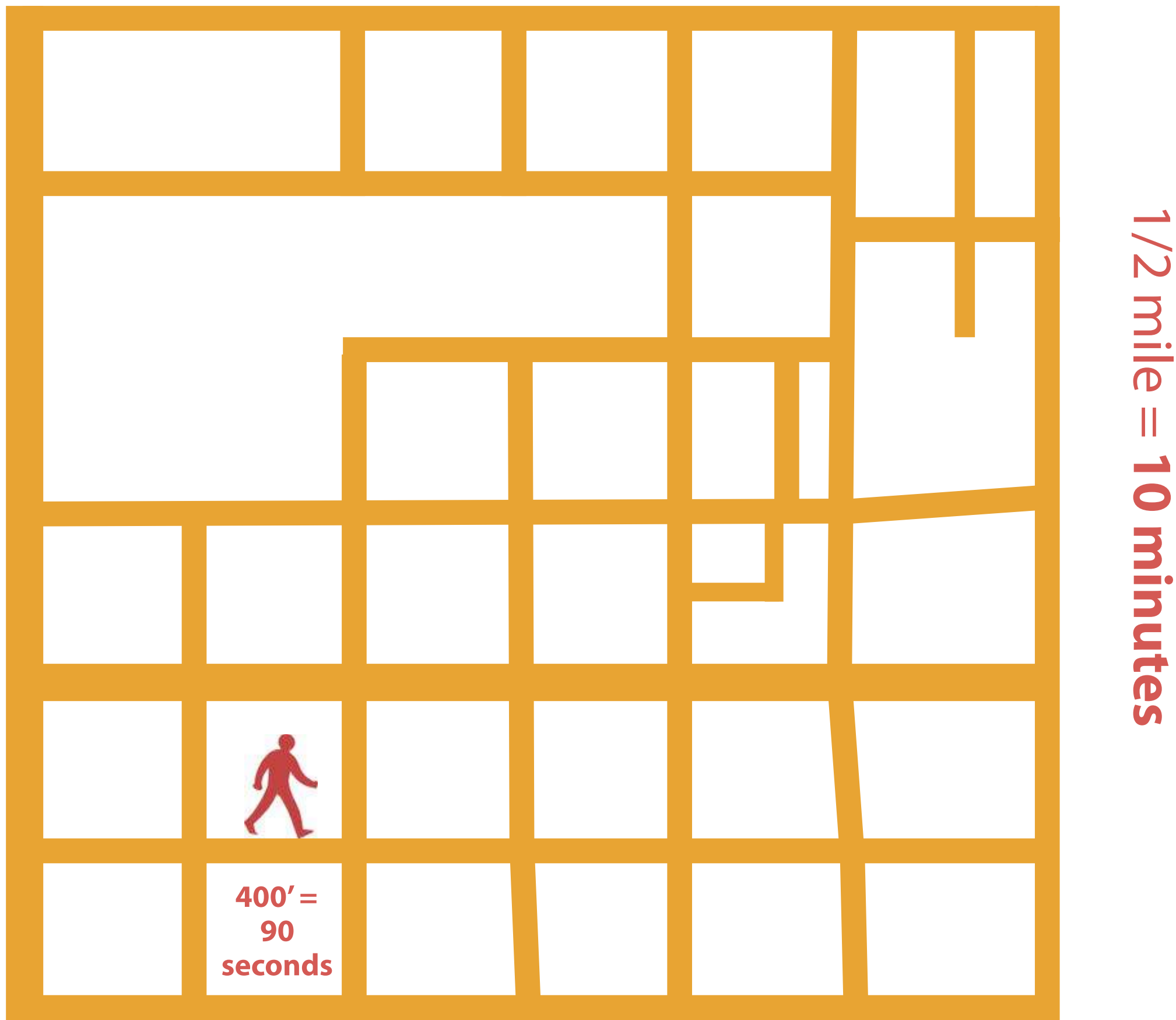
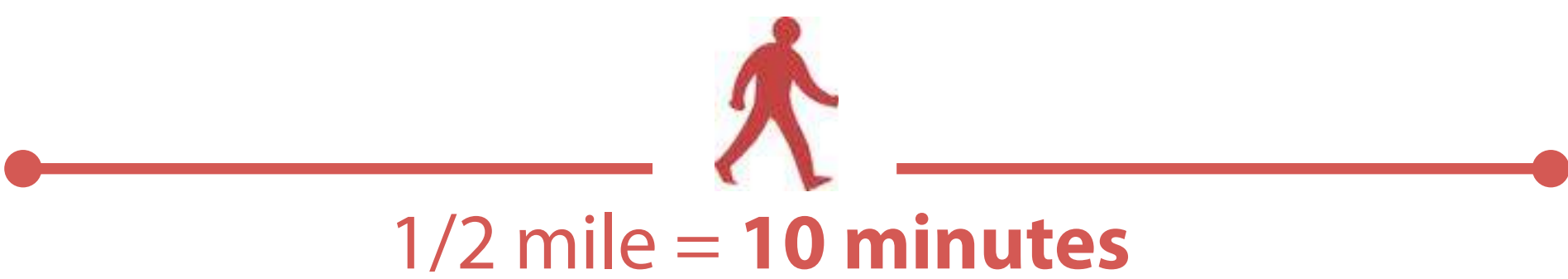
Streets take up around 45 acres - 33% of downtown land, making them an important zone for investment



# Observations of Existing Conditions

## Compact

Downtown is compact (10 minutes across) and that's good for walkability.

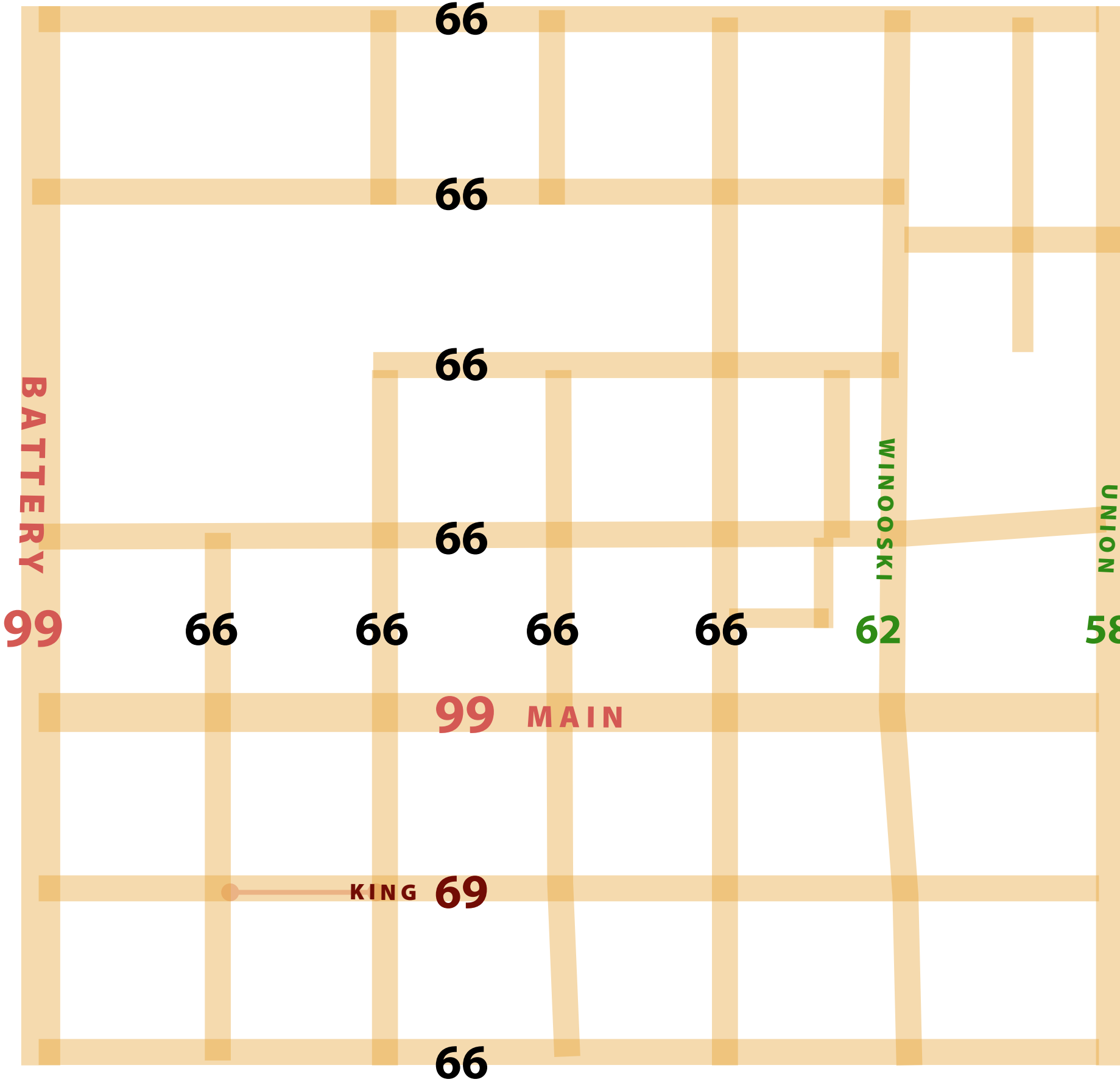


# Observations of Existing Conditions

## Mostly Narrow Streets

Downtown Burlington's typical street right-of-way is 66', which is narrow enough to provide favorably short pedestrian crossings - around 42' curb-to-curb. Bumpouts would shorten crosswalks further, making downtown more walkable.

Main Street and Battery are major exceptions at 99' and require special attention, since their crosswalks are as long as 50', making crossing more difficult for some pedestrians.

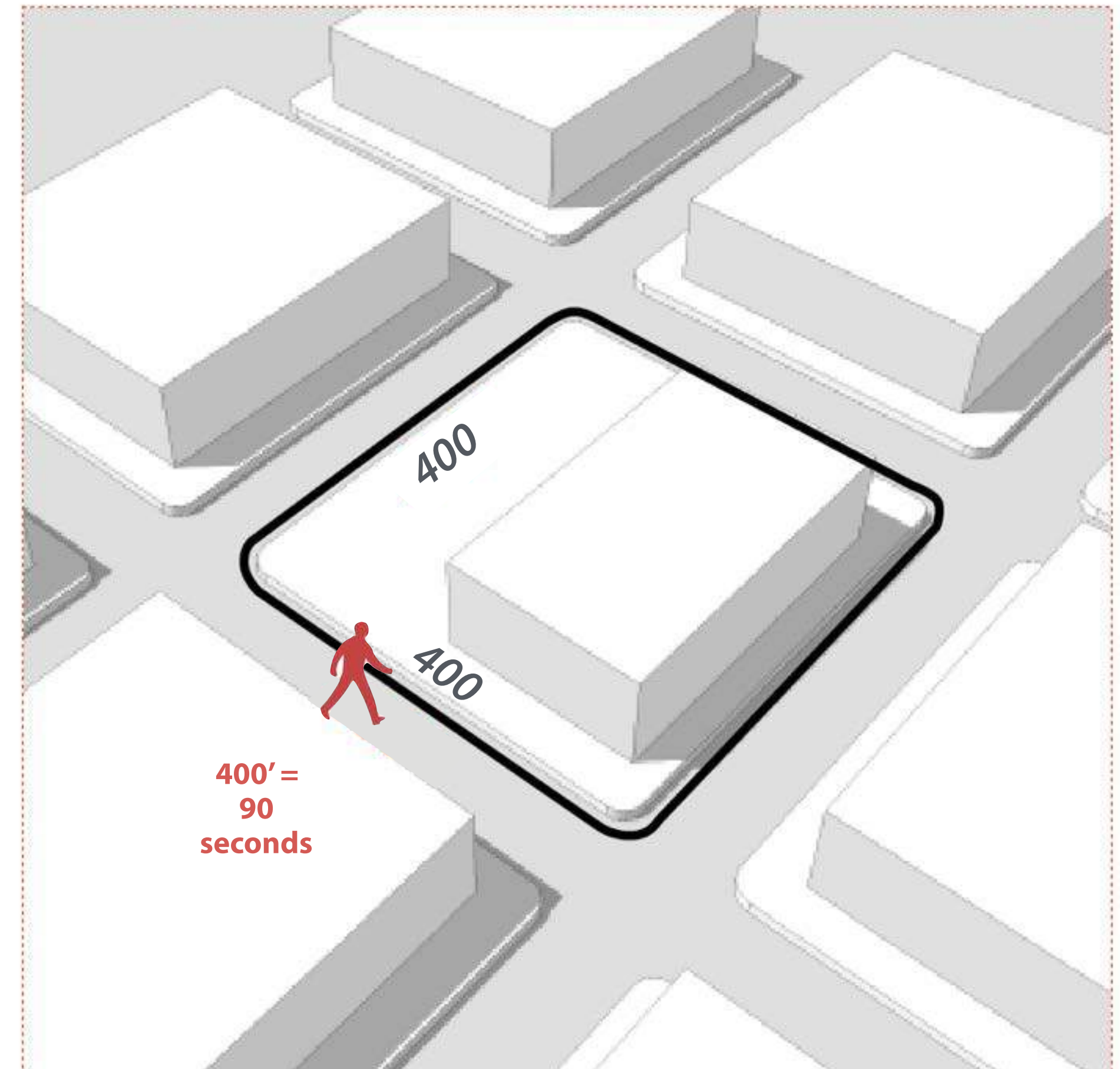


# Observations of Existing Conditions

## Fairly Short Blocks

**Typical 400' long (most city blocks range from 200'-600'): shorter blocks better for walkability (provide more route options)**

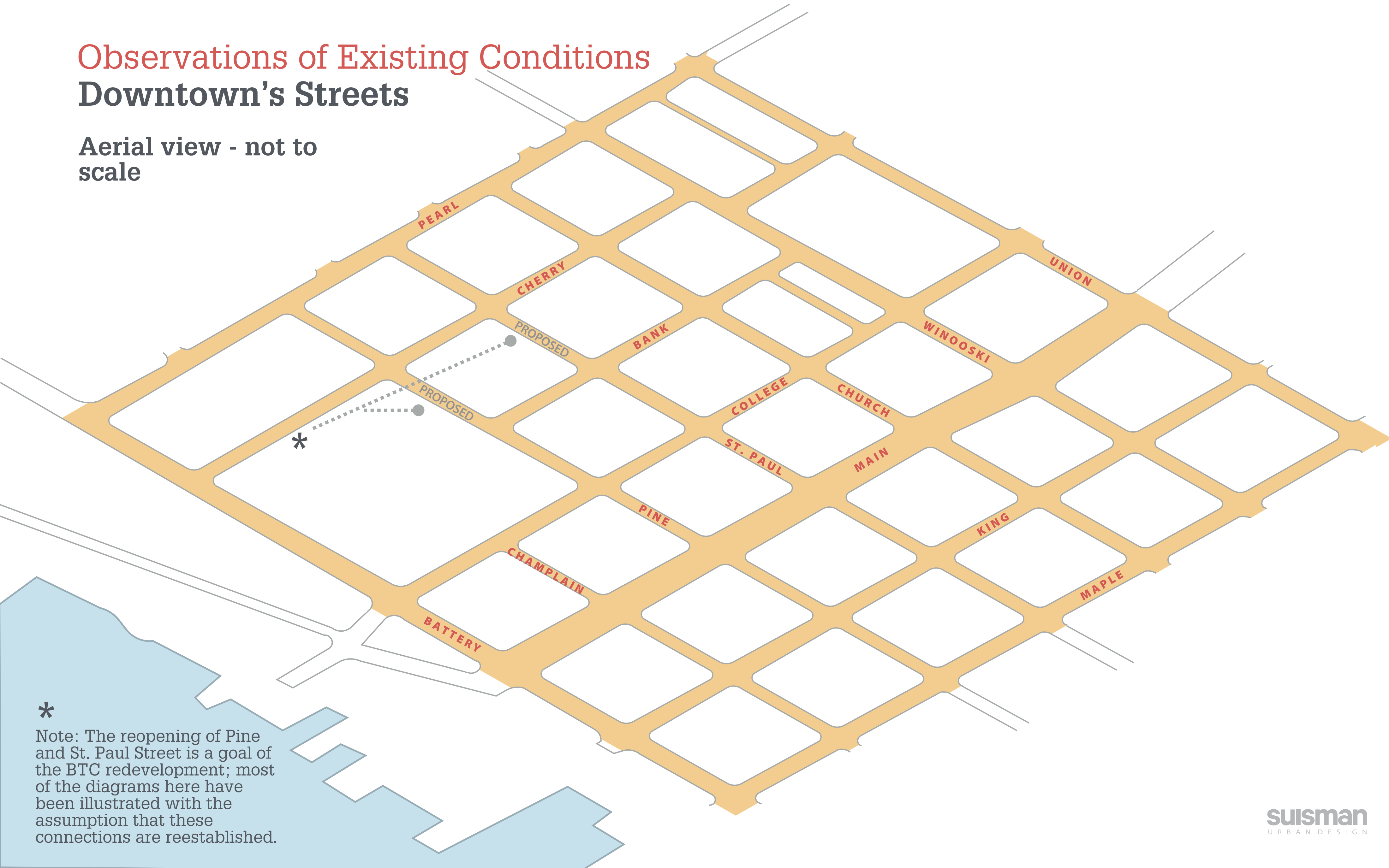
Burlington's 400' x 400' square blocks are somewhat unusual. They demarcate around 4 acres of land. For comparison, Portland, Oregon's unusually small blocks are 200' x 200'. Many American cities have rectangular 300' x 600' blocks because they are a mathematical derivative of the American Land Grant measuring system.



# Observations of Existing Conditions

## Downtown's Streets

Aerial view - not to scale



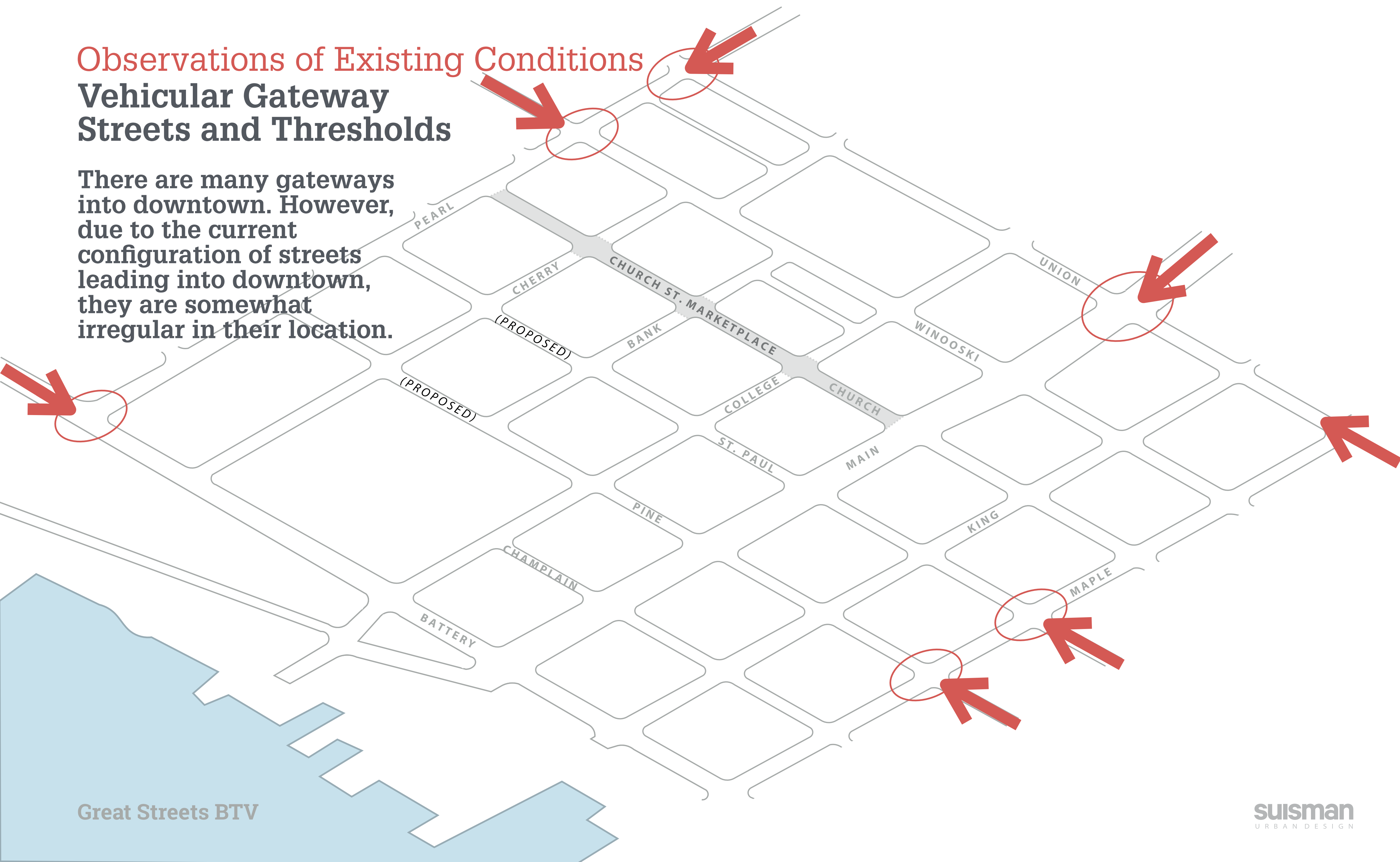
\*

Note: The reopening of Pine and St. Paul Street is a goal of the BTC redevelopment; most of the diagrams here have been illustrated with the assumption that these connections are reestablished.

# Observations of Existing Conditions

## Vehicular Gateway Streets and Thresholds

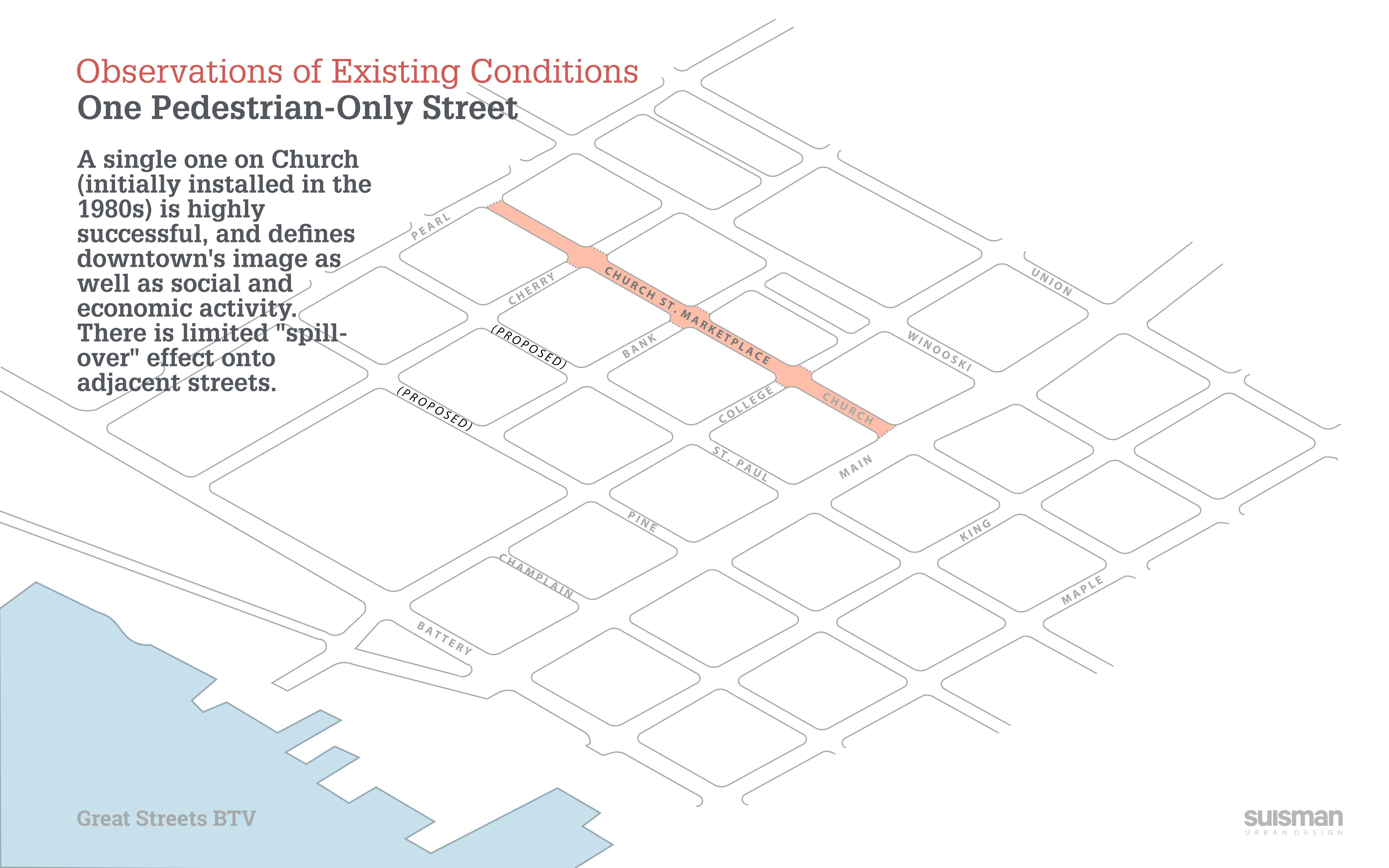
There are many gateways into downtown. However, due to the current configuration of streets leading into downtown, they are somewhat irregular in their location.



# Observations of Existing Conditions

## One Pedestrian-Only Street

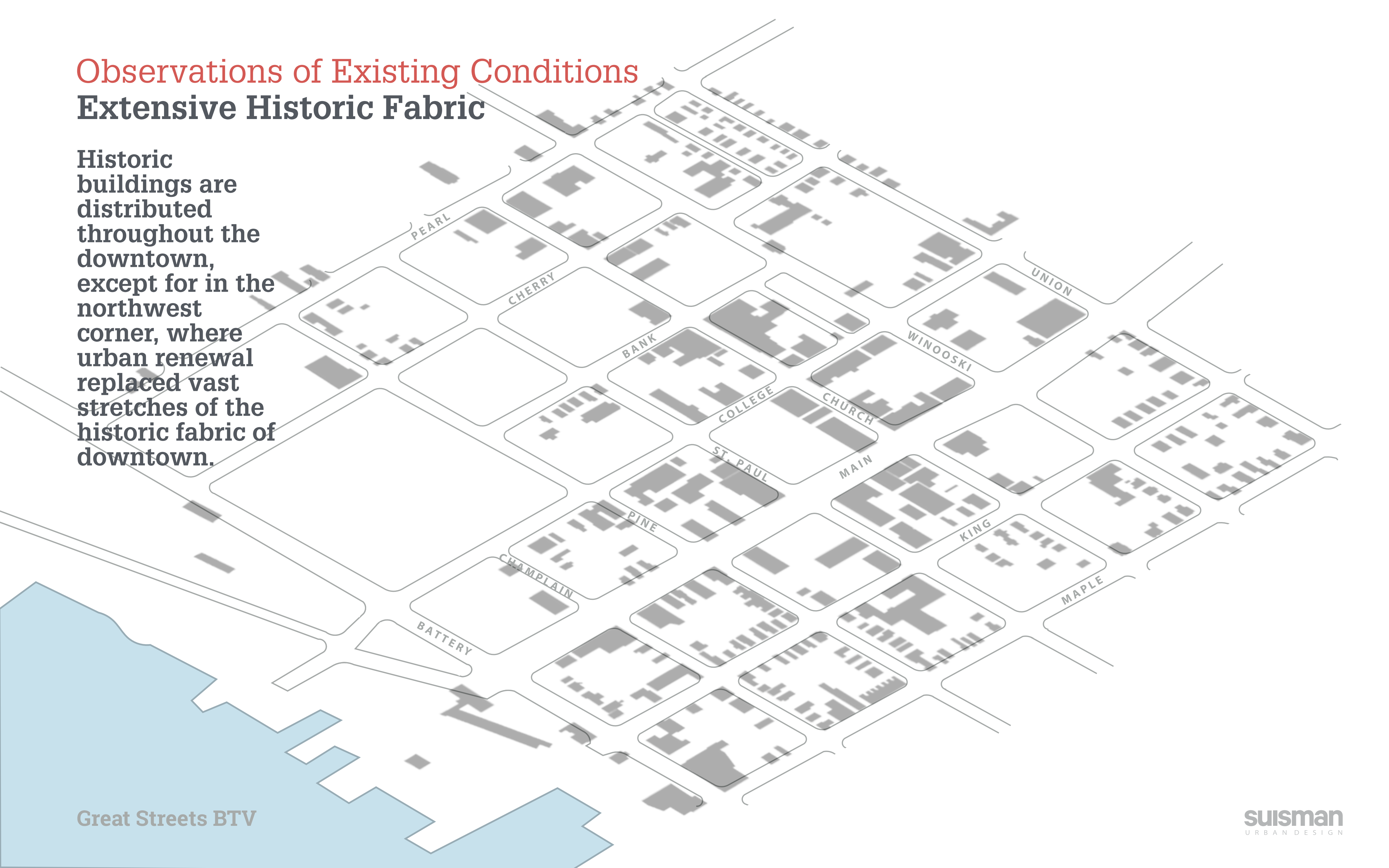
A single one on Church (initially installed in the 1980s) is highly successful, and defines downtown's image as well as social and economic activity. There is limited "spill-over" effect onto adjacent streets.



# Observations of Existing Conditions

## Extensive Historic Fabric

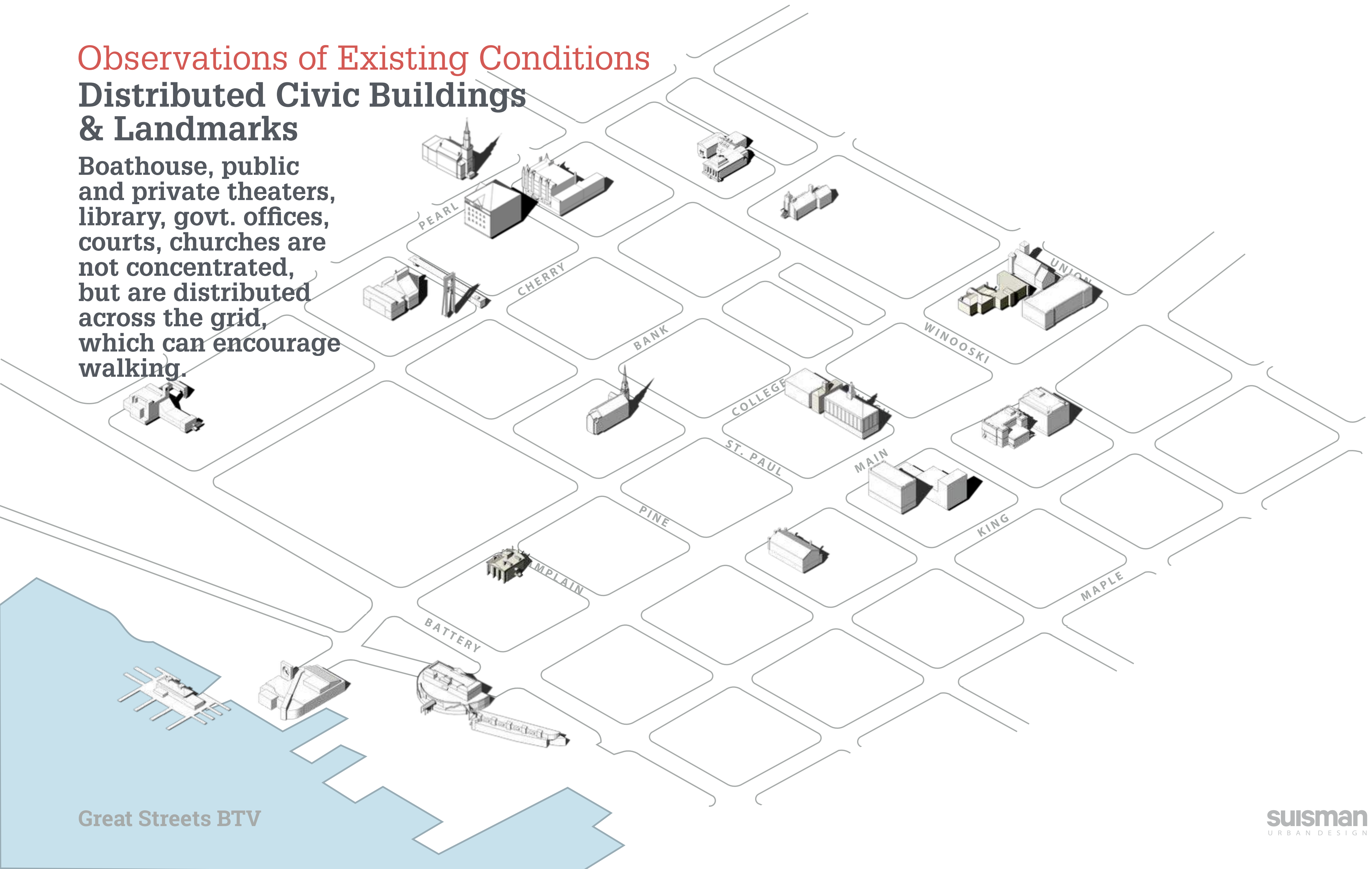
Historic buildings are distributed throughout the downtown, except for in the northwest corner, where urban renewal replaced vast stretches of the historic fabric of downtown.



# Observations of Existing Conditions

## Distributed Civic Buildings & Landmarks

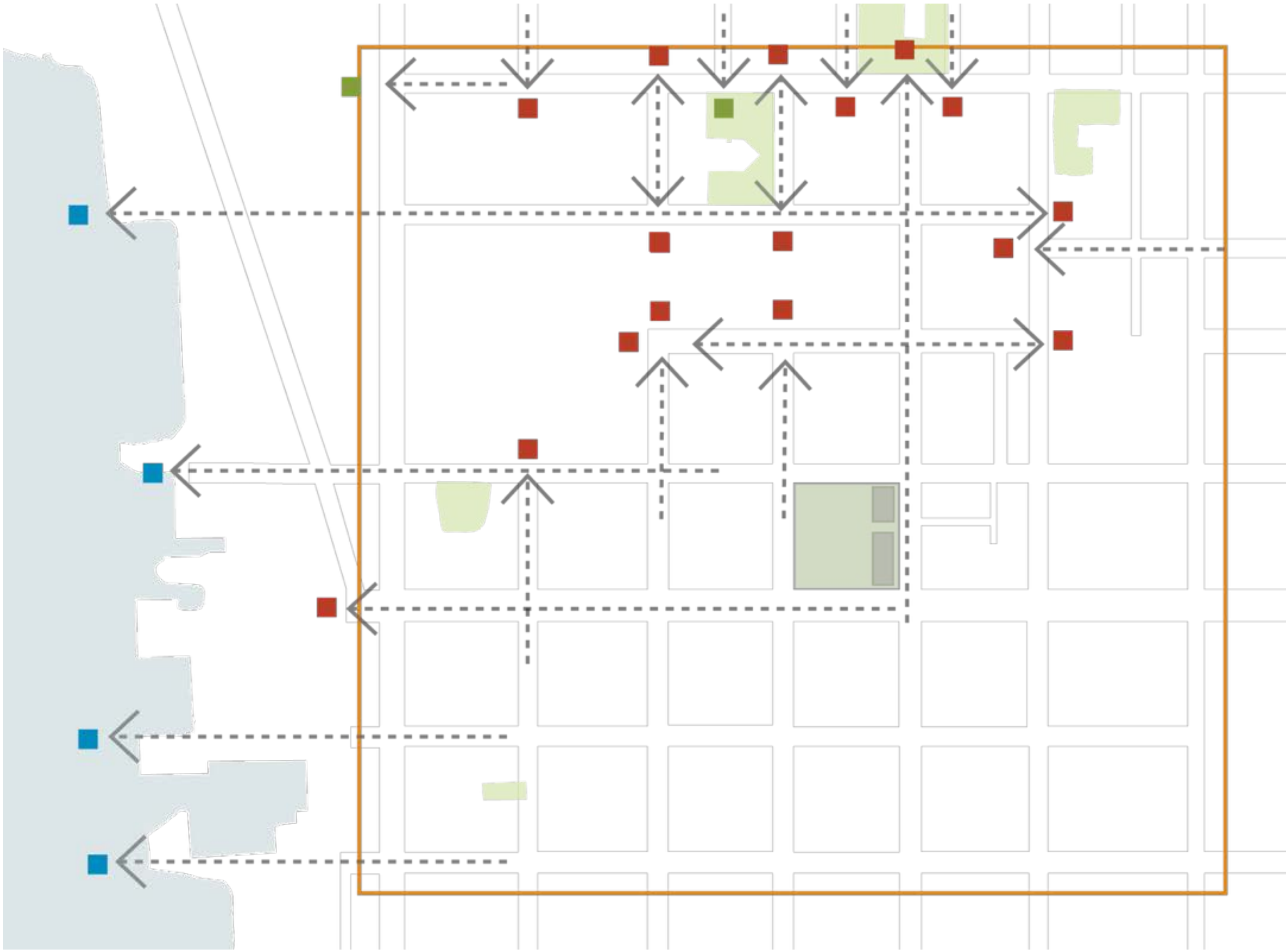
Boathouse, public and private theaters, library, govt. offices, courts, churches are not concentrated, but are distributed across the grid, which can encourage walking.



# Observations of Existing Conditions

## Key Visual Terminations

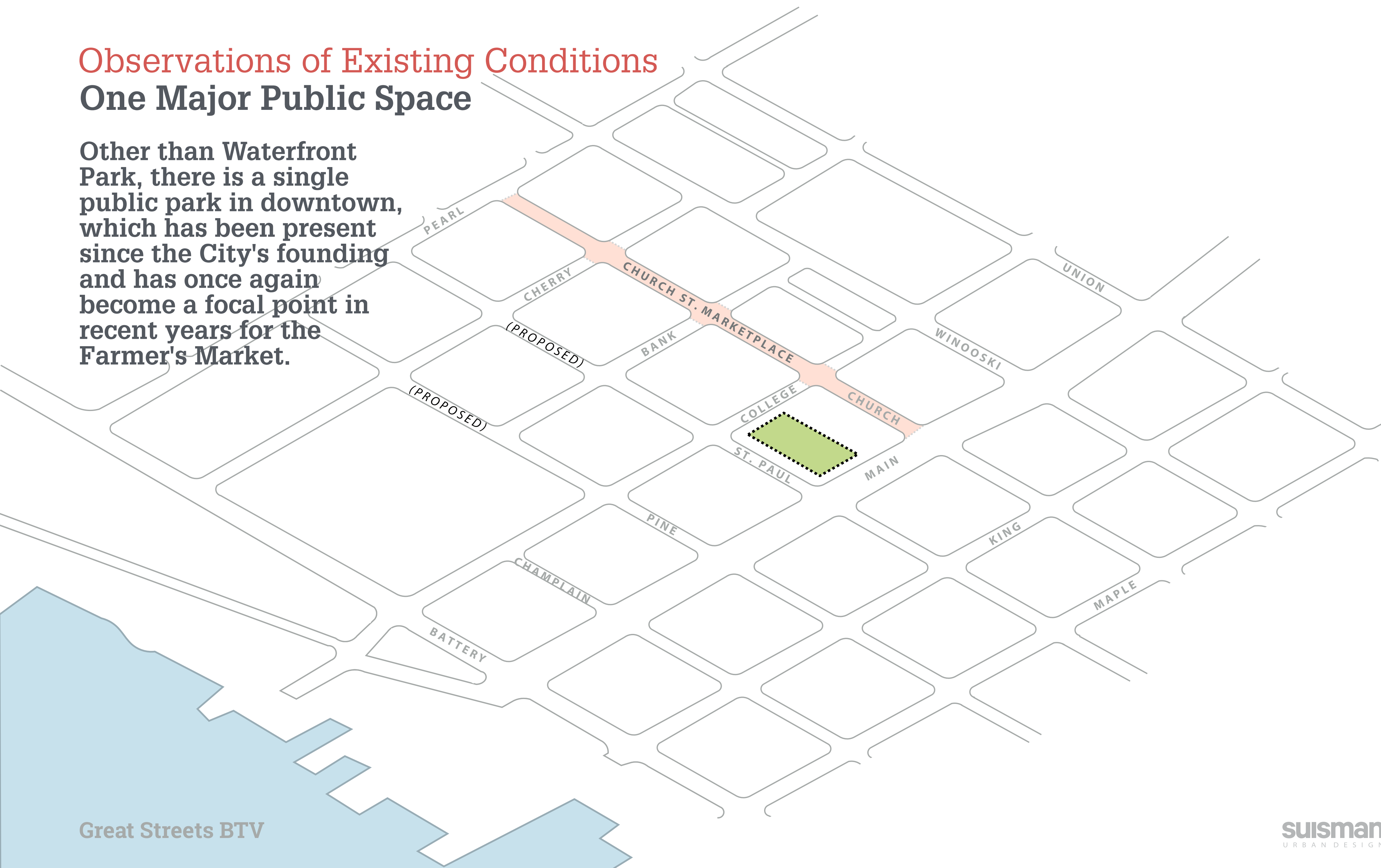
- water
- park
- building



# Observations of Existing Conditions

## One Major Public Space

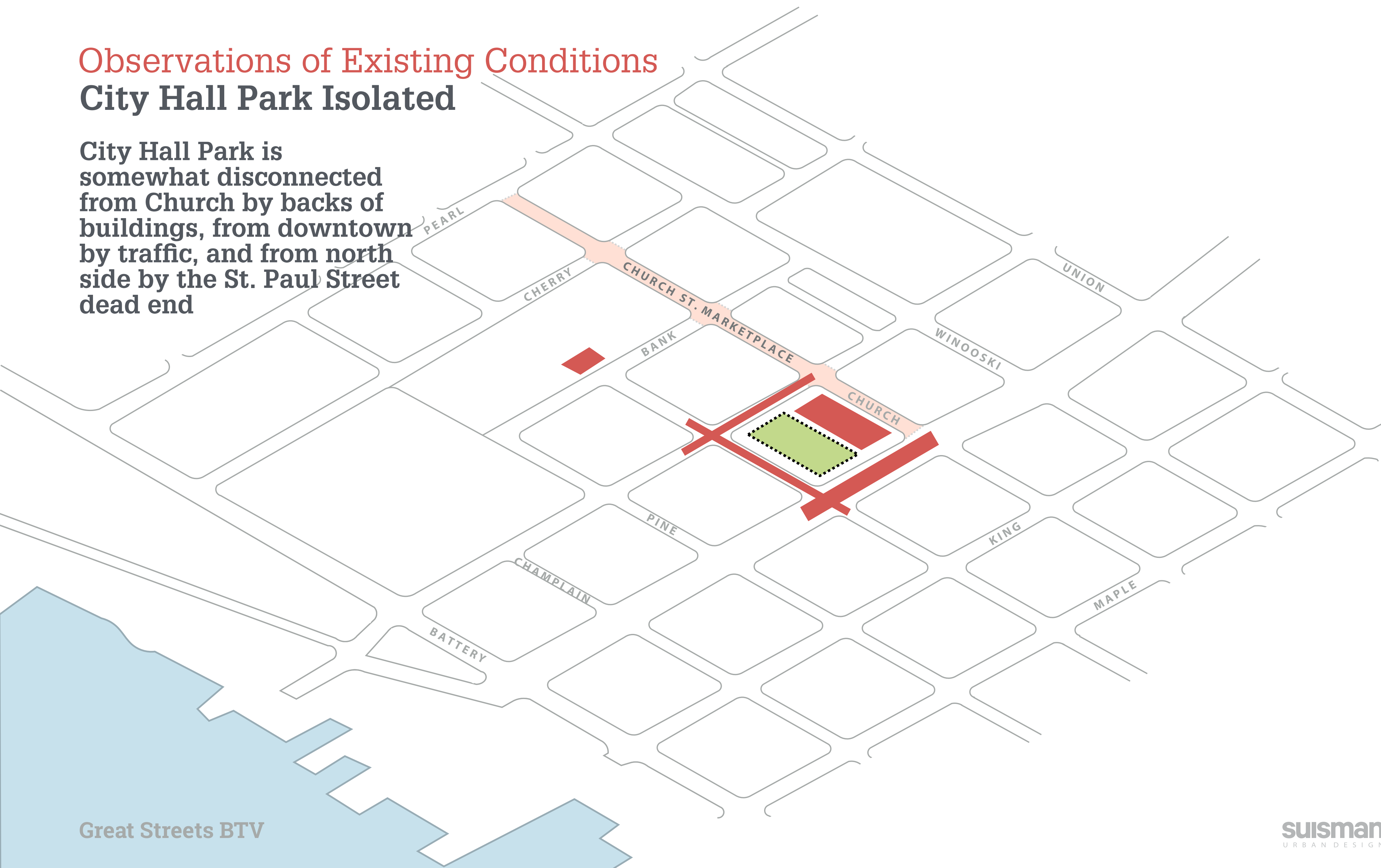
Other than Waterfront Park, there is a single public park in downtown, which has been present since the City's founding and has once again become a focal point in recent years for the Farmer's Market.



# Observations of Existing Conditions

## City Hall Park Isolated

City Hall Park is somewhat disconnected from Church by backs of buildings, from downtown by traffic, and from north side by the St. Paul Street dead end



# Observations of Existing Conditions

## Mixed Uses

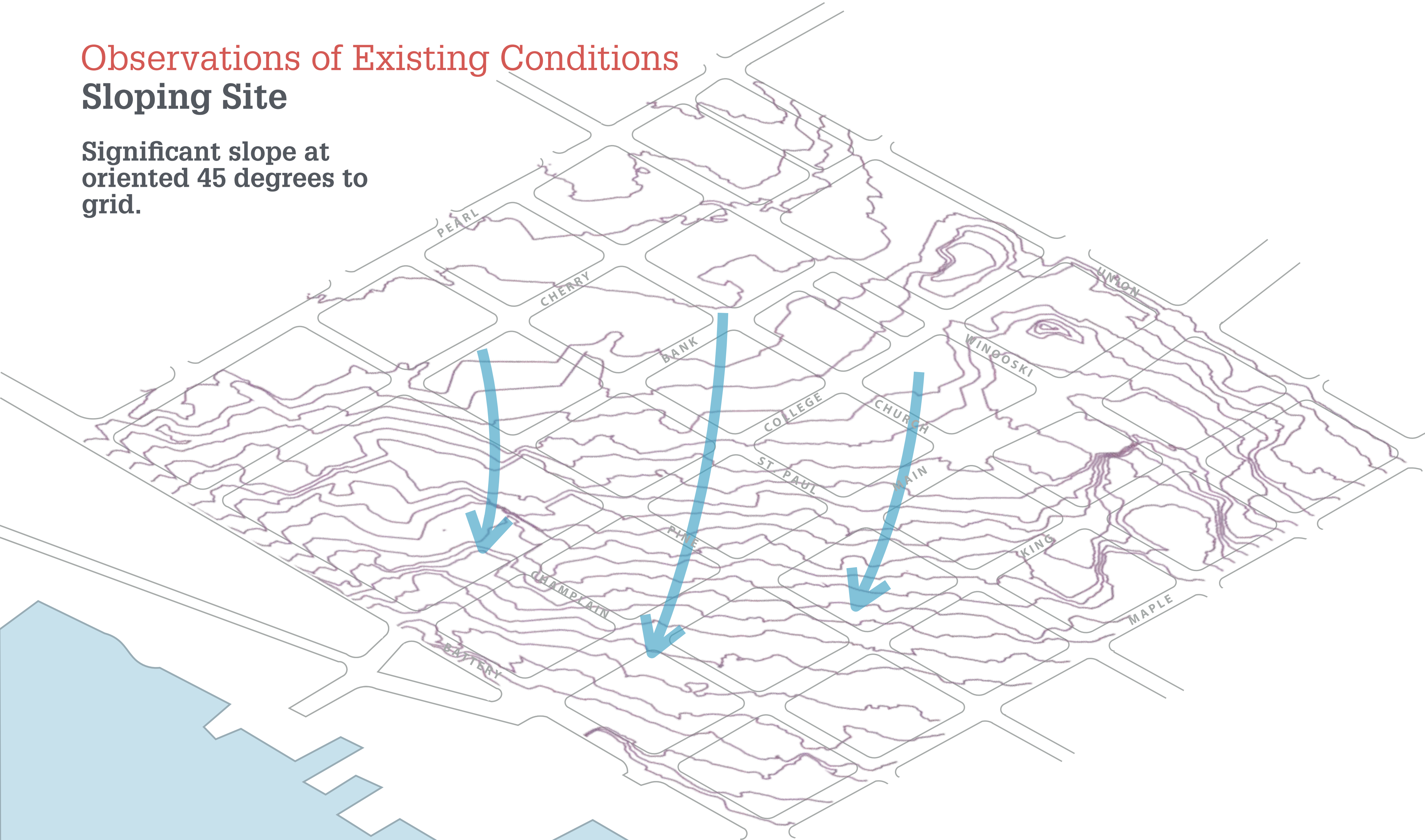
The character of our public streets both drives and is driven by the land uses along those streets. Within the area of downtown that will be included in the design standards, there is a typical mix of uses at the core with some historic residential pockets to the south, southeast and northwest edges. The area also includes most of the "Designated Downtown" district.



# Observations of Existing Conditions

## Sloping Site

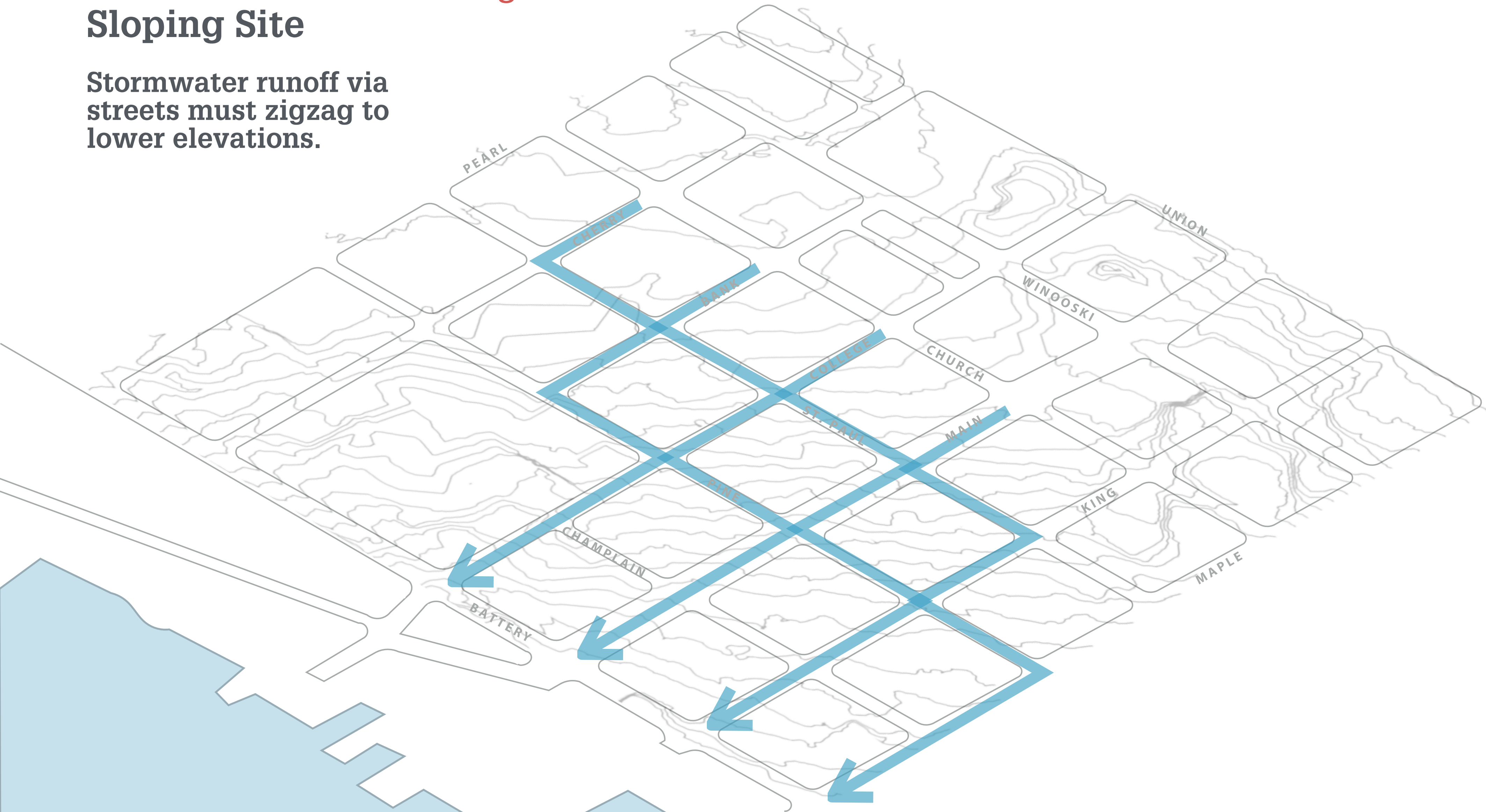
Significant slope at oriented 45 degrees to grid.



# Observations of Existing Conditions

## Sloping Site

Stormwater runoff via streets must zigzag to lower elevations.



## Key Design Ideas for Great Streets Hole in Tree Canopy

There is a large gap in Burlington's tree canopy in the densest part of downtown, where tighter sidewalk conditions are less favorable to tree growth.

While the area surrounding Burlington is lush and green, canopy coverage is severely limited downtown in areas of high pedestrian activity.

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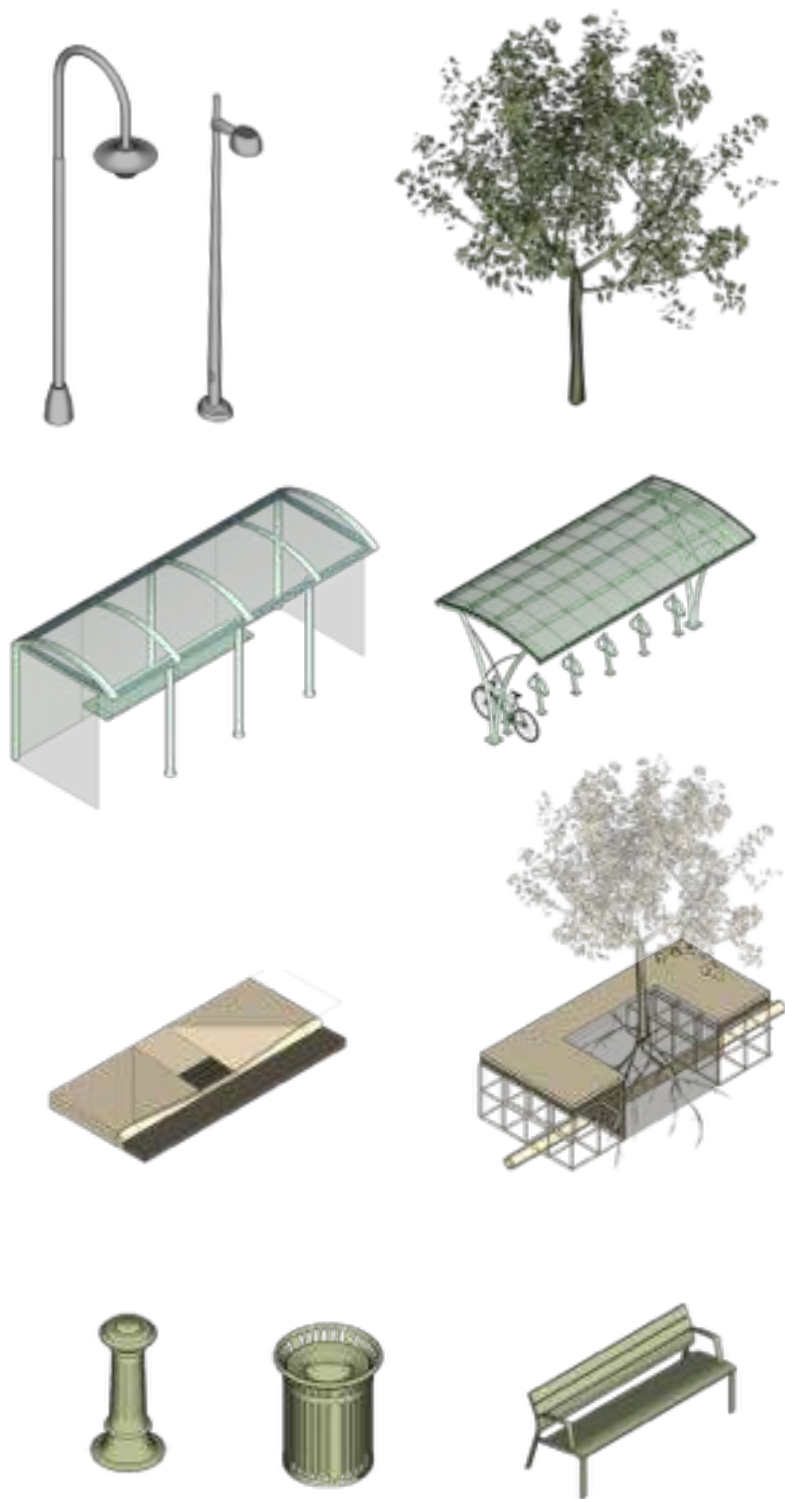
# Key Design Ideas for Great Streets

## Distinctive Design Standards

design standards should feel like Burlington and reflect its history, character, architecture, people



- Stormwater
- Trees
- Lighting
- Furnishings
- Pathways

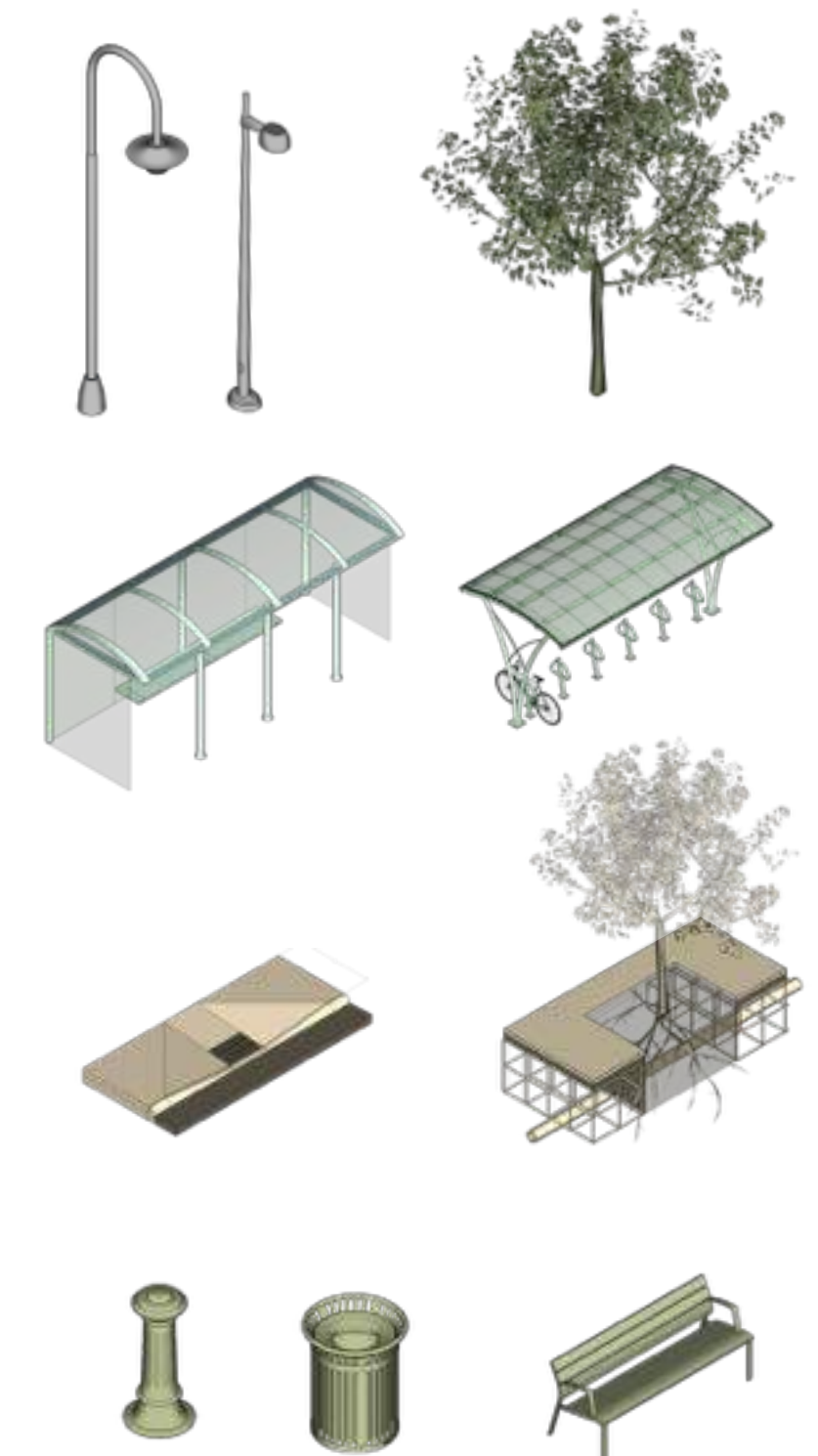
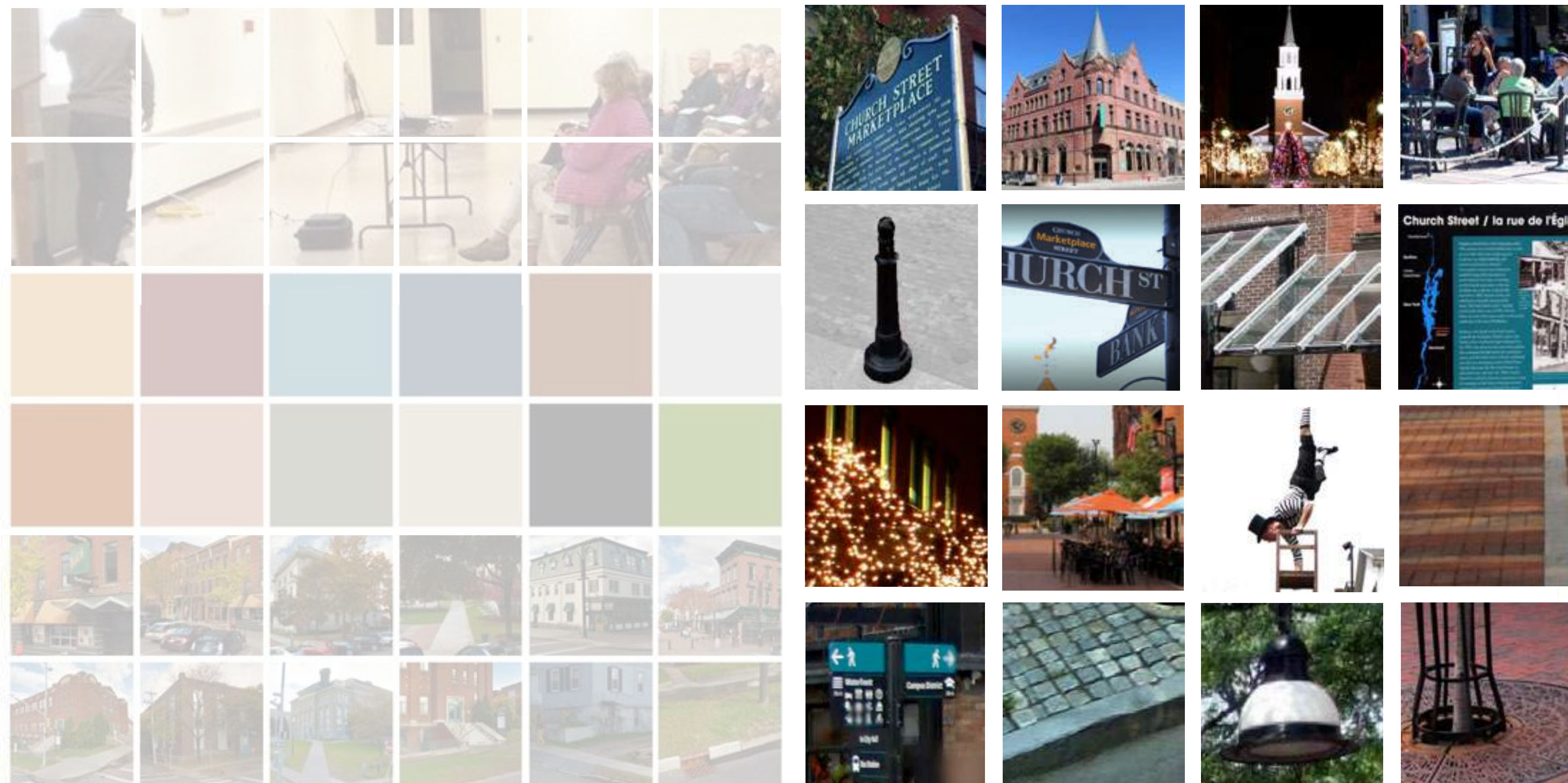


# Key Design Ideas for Great Streets

## Church Street Remains Special

**The Marketplace has its own design standards and this should continue, but harmonize with rest of downtown**

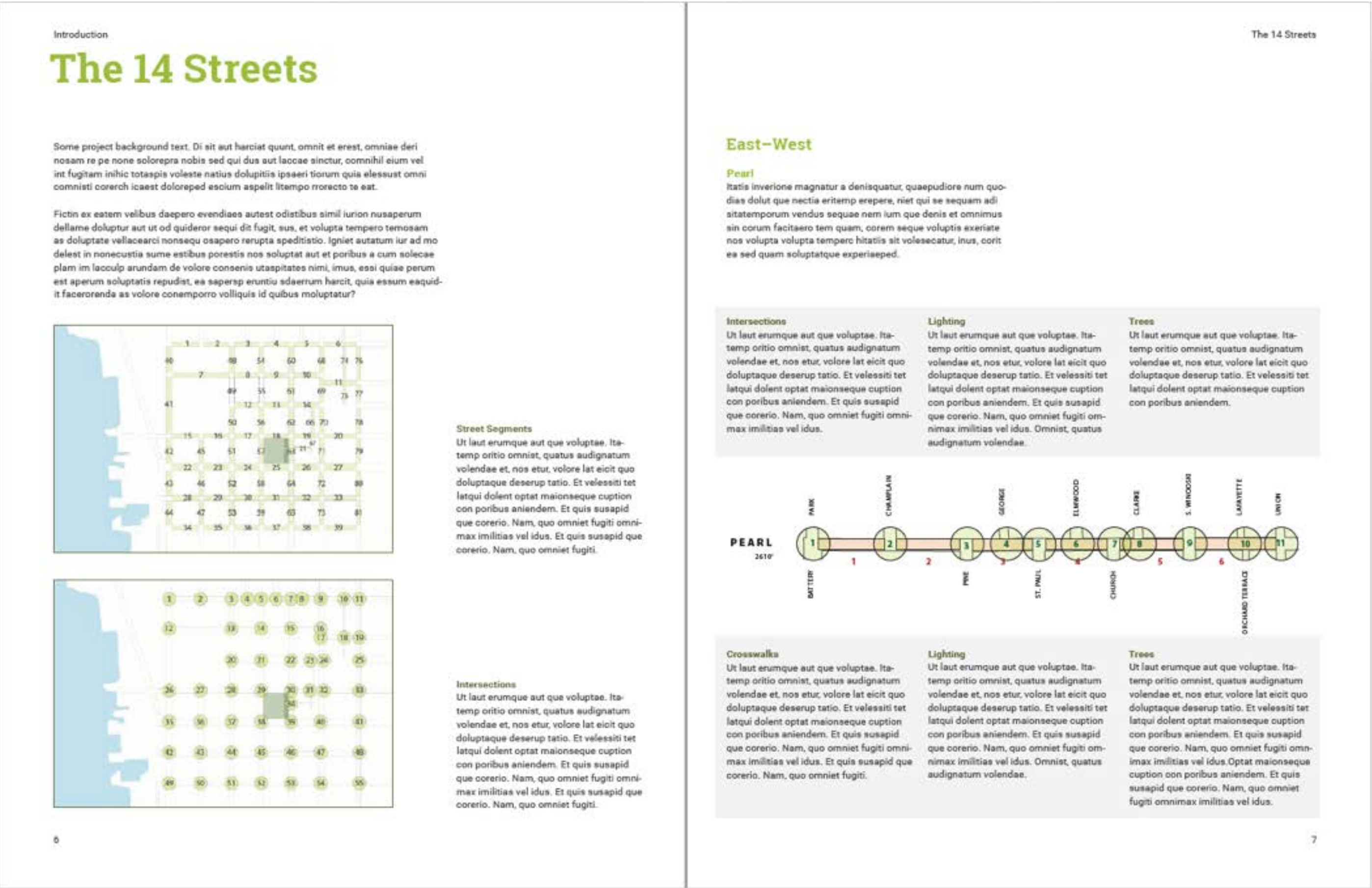
**Stormwater  
Trees  
Lighting  
Furnishings  
Pathways**



# Key Design Ideas for Great Streets

## 14 Corridors

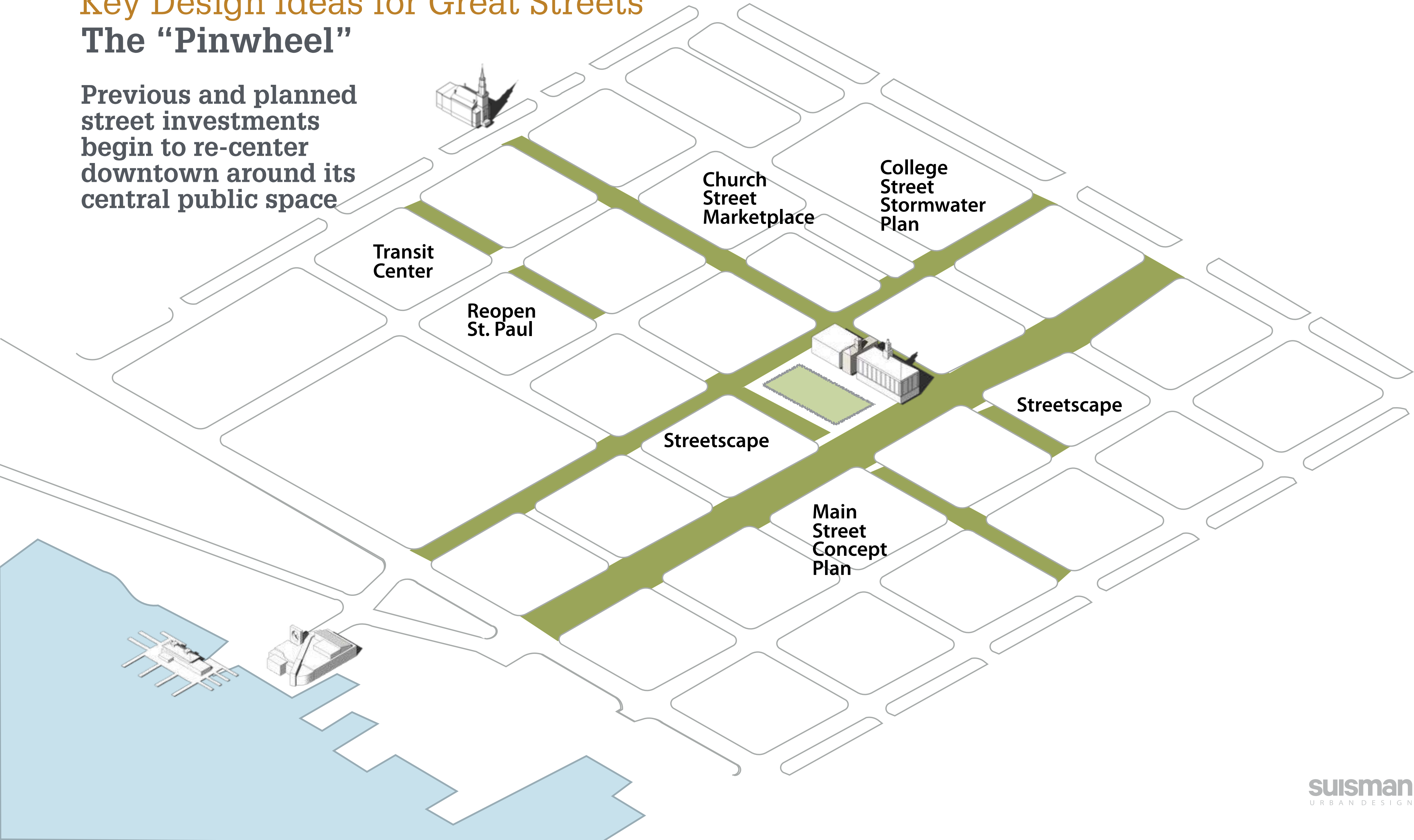
The character and uses along each of the 14 street corridors can help develop standards which guide the level and type of public infrastructure investments.



# Key Design Ideas for Great Streets

## The “Pinwheel”

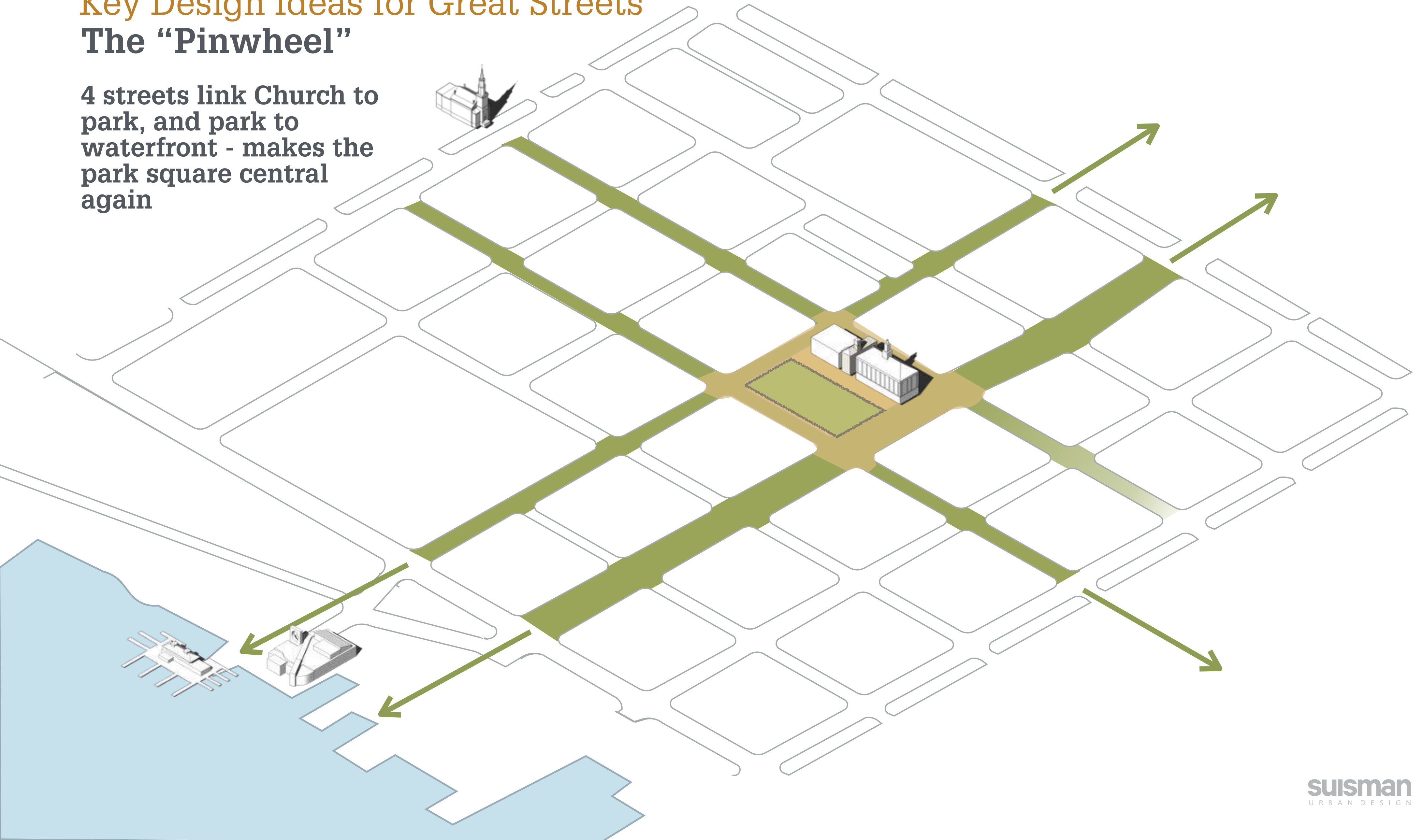
Previous and planned street investments begin to re-center downtown around its central public space



# Key Design Ideas for Great Streets

## The “Pinwheel”

4 streets link Church to park, and park to waterfront - makes the park square central again



# Key Design Ideas for Great Streets

## The “Pinwheel”

The Main Street Project builds out key elements of the Pinwheel



# Key Design Ideas for Great Streets Park “Square”

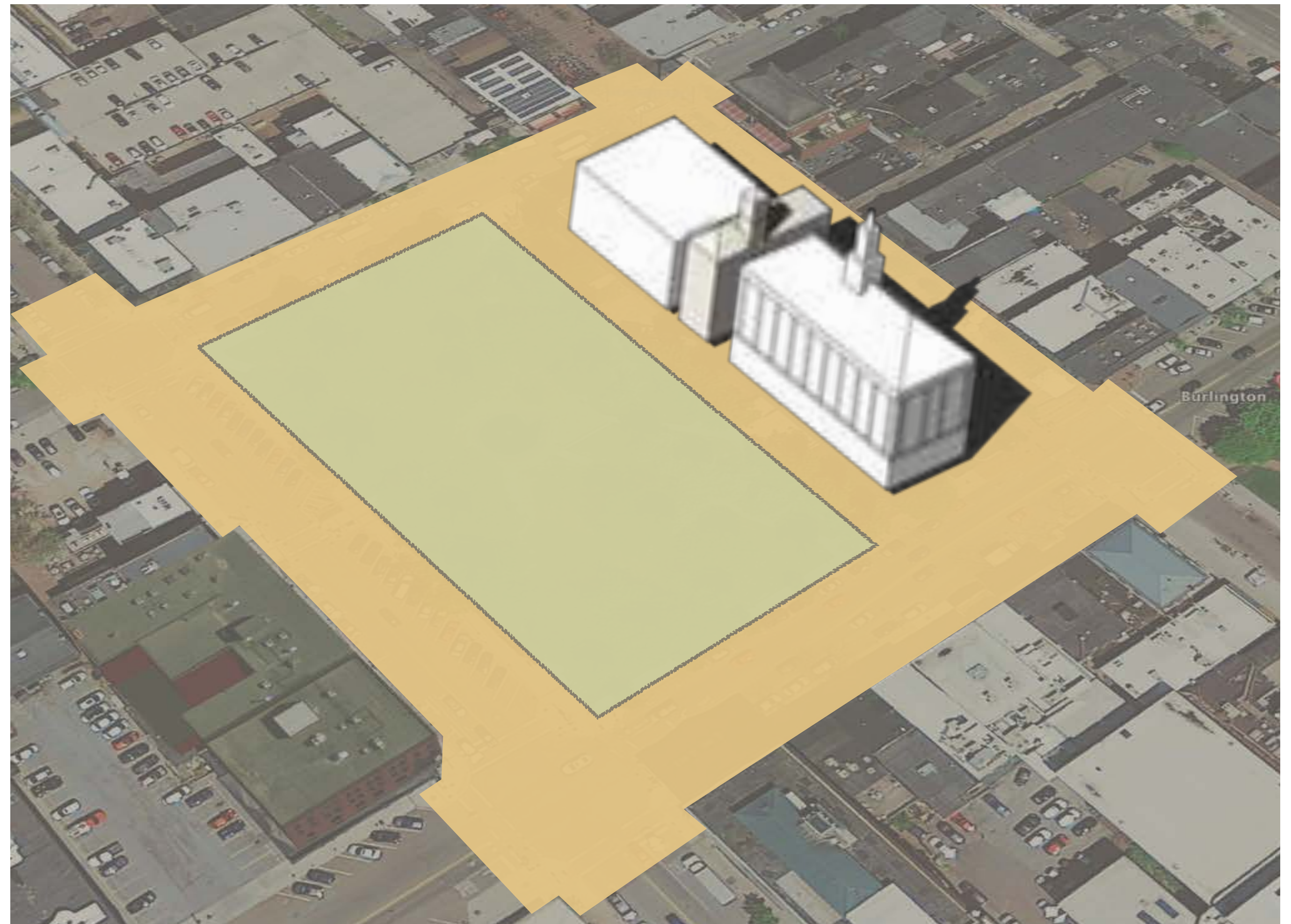
design entire block and space around the park, building face to building face - needs connecting - mid-block crosswalks? shared space? (park's final landscape design should come after the design standards, Main Corridor, and park square are clarified)



# Key Design Ideas for Great Streets

## Park “Square”

design entire block and space around the park, building face to building face - needs connecting - mid-block crosswalks? shared space? (park's final landscape design should come after the design standards, Main Corridor, and park square are clarified)



# Key Design Ideas for Great Streets

## Repair Hole in Tree Canopy

Downtown trees need help - weave street trees through the “oval hole”  
- improve planting conditions, increased soil volume

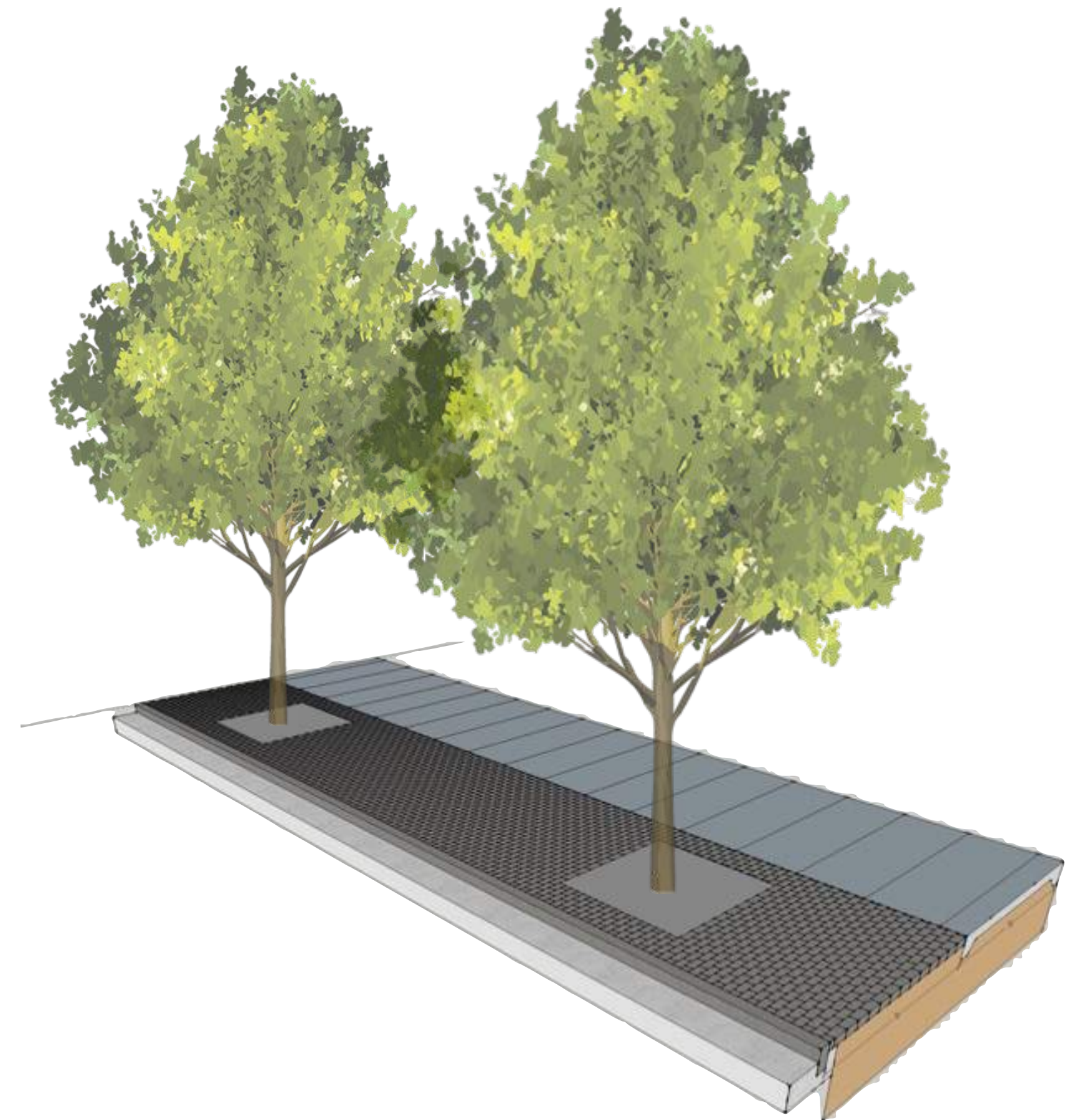
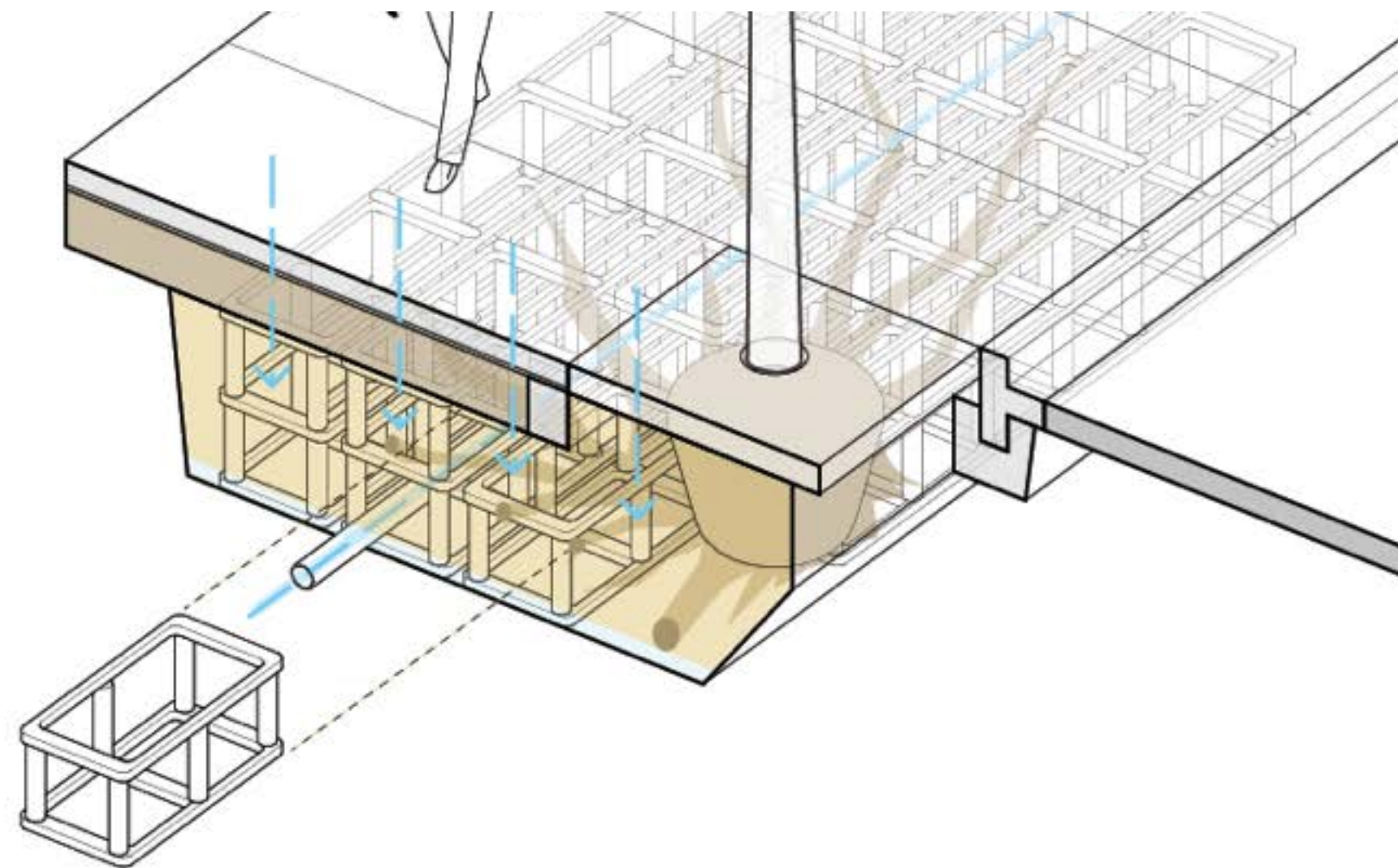
Burlington has the opportunity to extend the canopy into the downtown. By incorporating green infrastructure and adequate soil volumes in Great Street design guidelines, Burlington can weave trees throughout the downtown.

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# Key Design Ideas for Great Streets Green From Sidewalk Up

Let stormwater design and  
healthy tree installation help  
set design direction



# Key Design Ideas for Great Streets

## Durable Materials Needed

broken concrete curbs  
leave bad impression; in  
treebelt, grass not  
sustainable, existing  
cobblestones not performing  
well

The City now uses concrete curbs, which are not very durable, and show widespread damage from weather, snowplowing, and age. Materials like granite are historic, very durable, attractive, and locally available material. It is used by many cities, despite higher initial cost, because of lower life-cycle costs.



# Session A. Downtown Street Design Standards

**A**

Create

**Downtown Street  
Design Standards**

- Stormwater
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- Lighting
- Furnishings
- Pathways

**B**

Create

**Main Street  
Concept Plan**

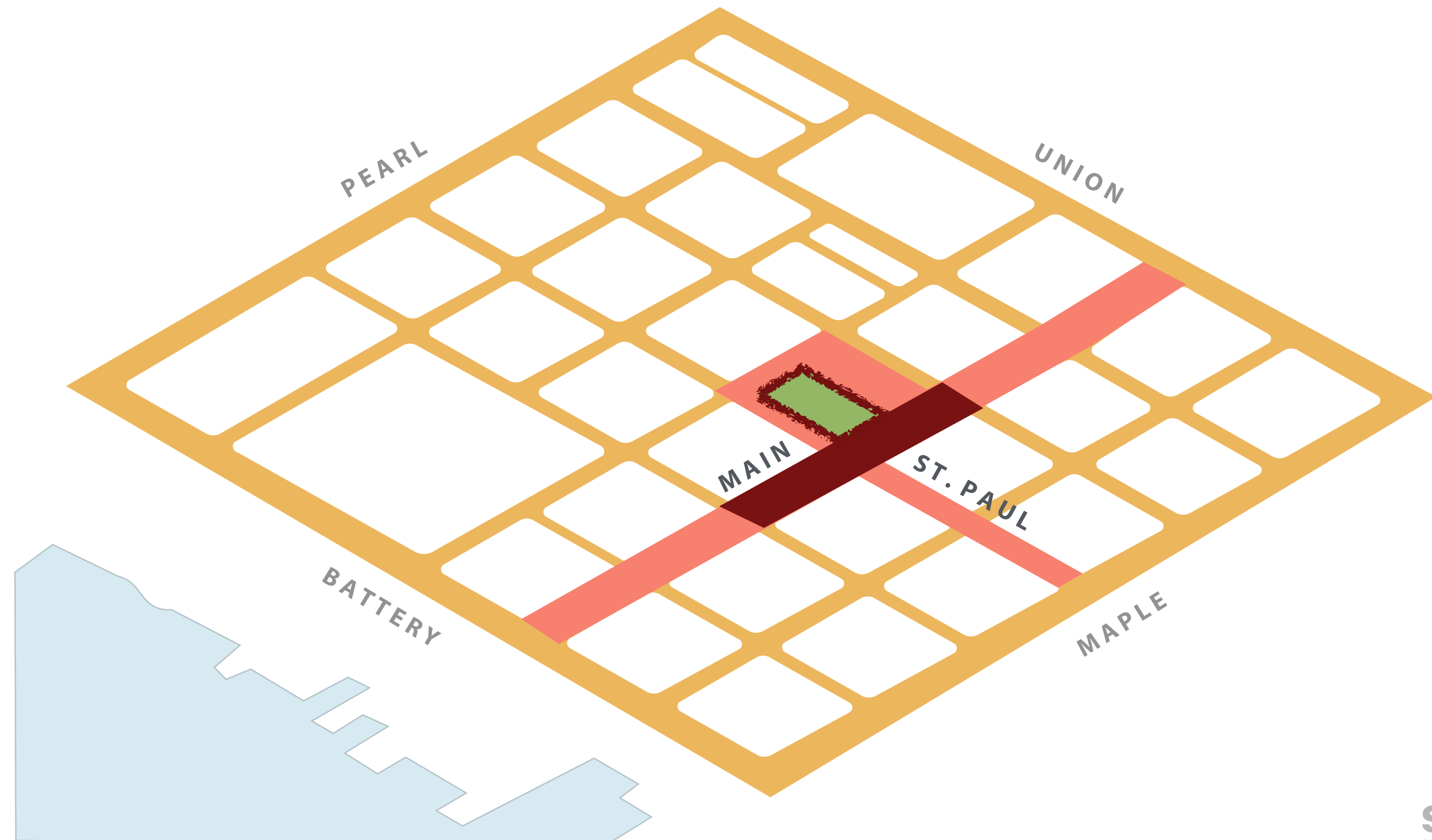
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- St. Paul Street (2 blocks)

**C**

Design & Build

**Park & Main  
Project**

- Main Street (2 blocks)
- City Hall Park



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Design Standards**

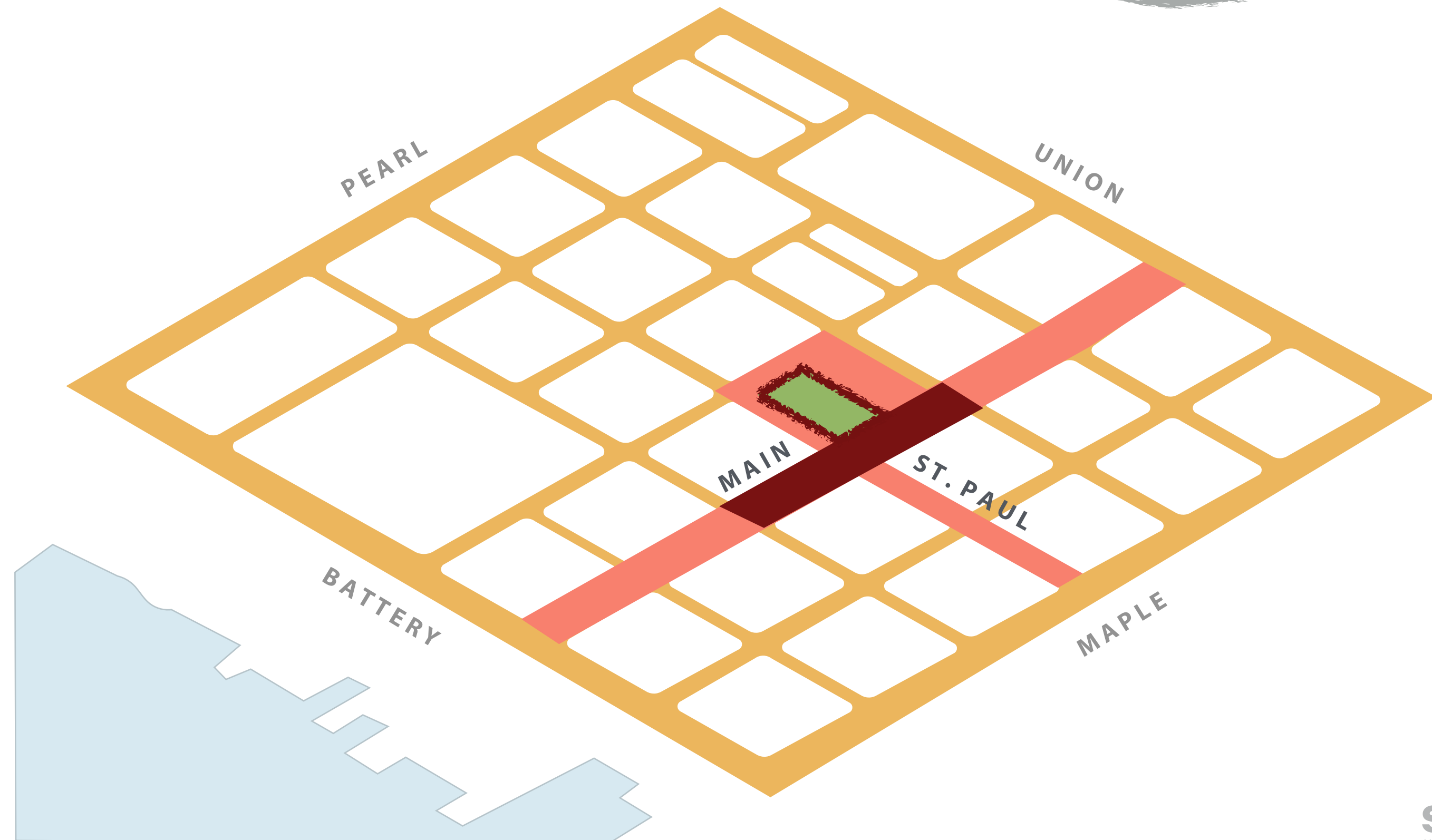
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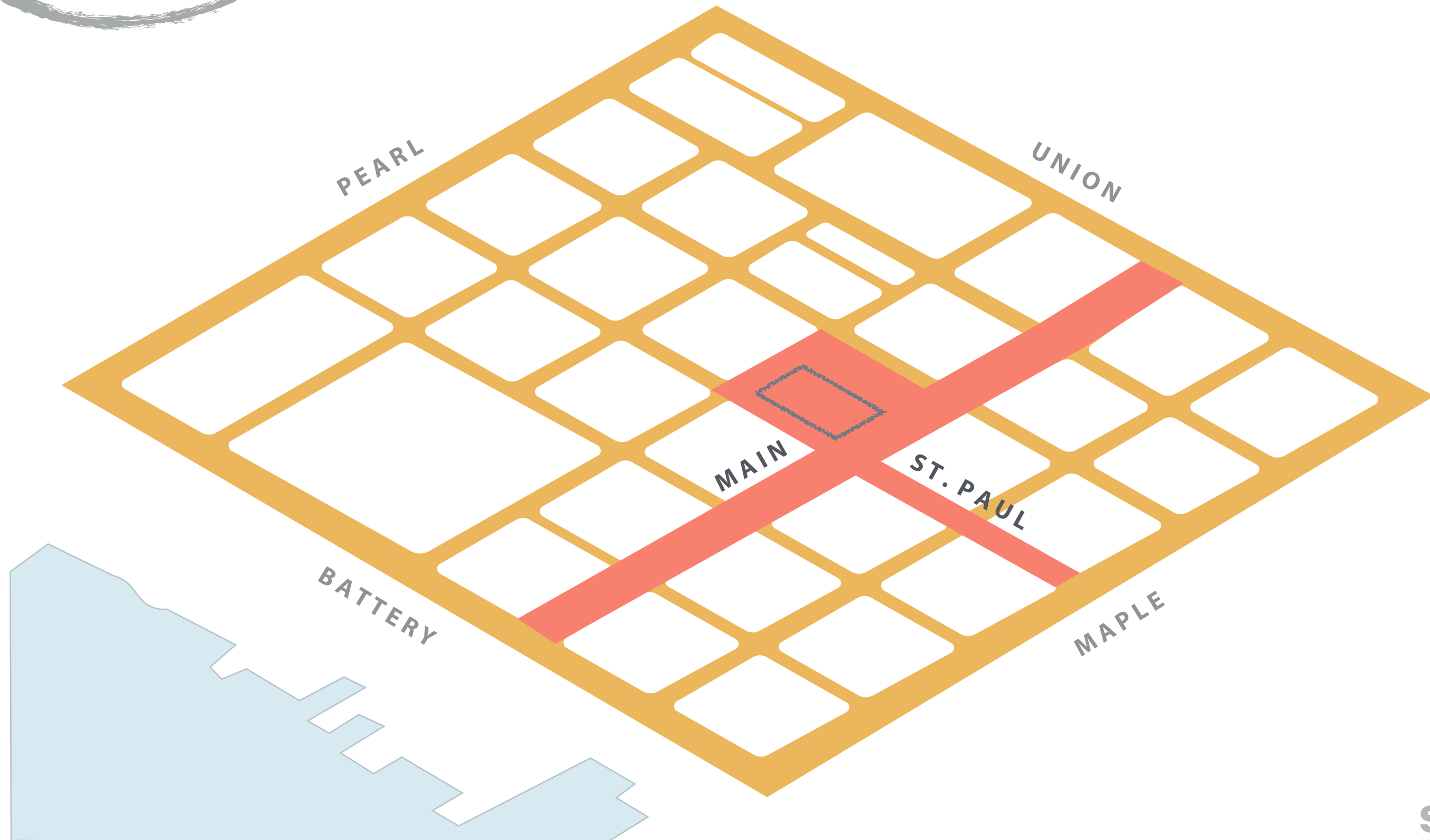
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# A Downtown Street Design Standards

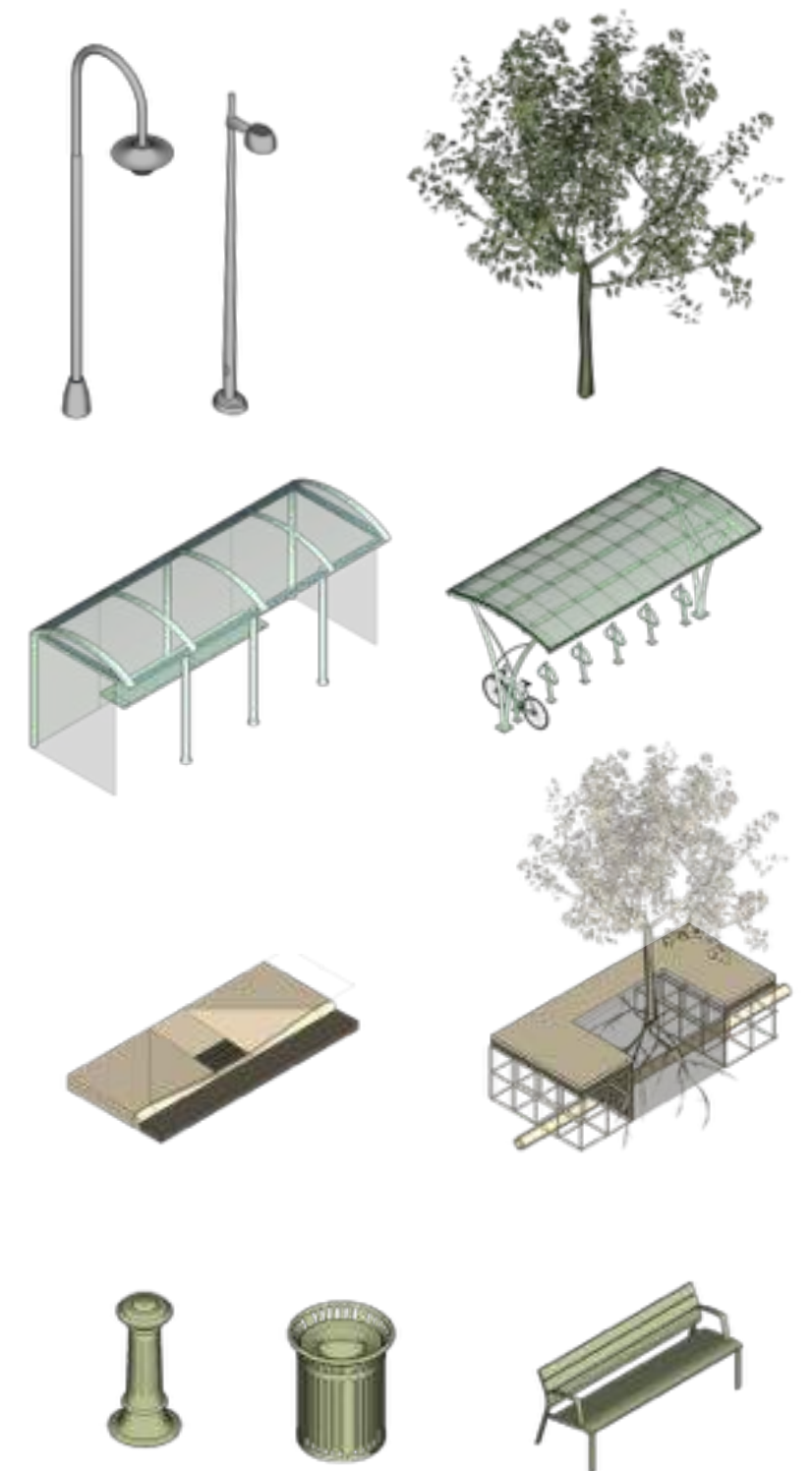
A manual to guide street design in downtown Burlington for the next generation

## Great Streets BTV

City of Burlington  
Street Design & Construction Standards

August 1, 2016

Stormwater  
Trees  
Lighting  
Furnishings  
Pathways



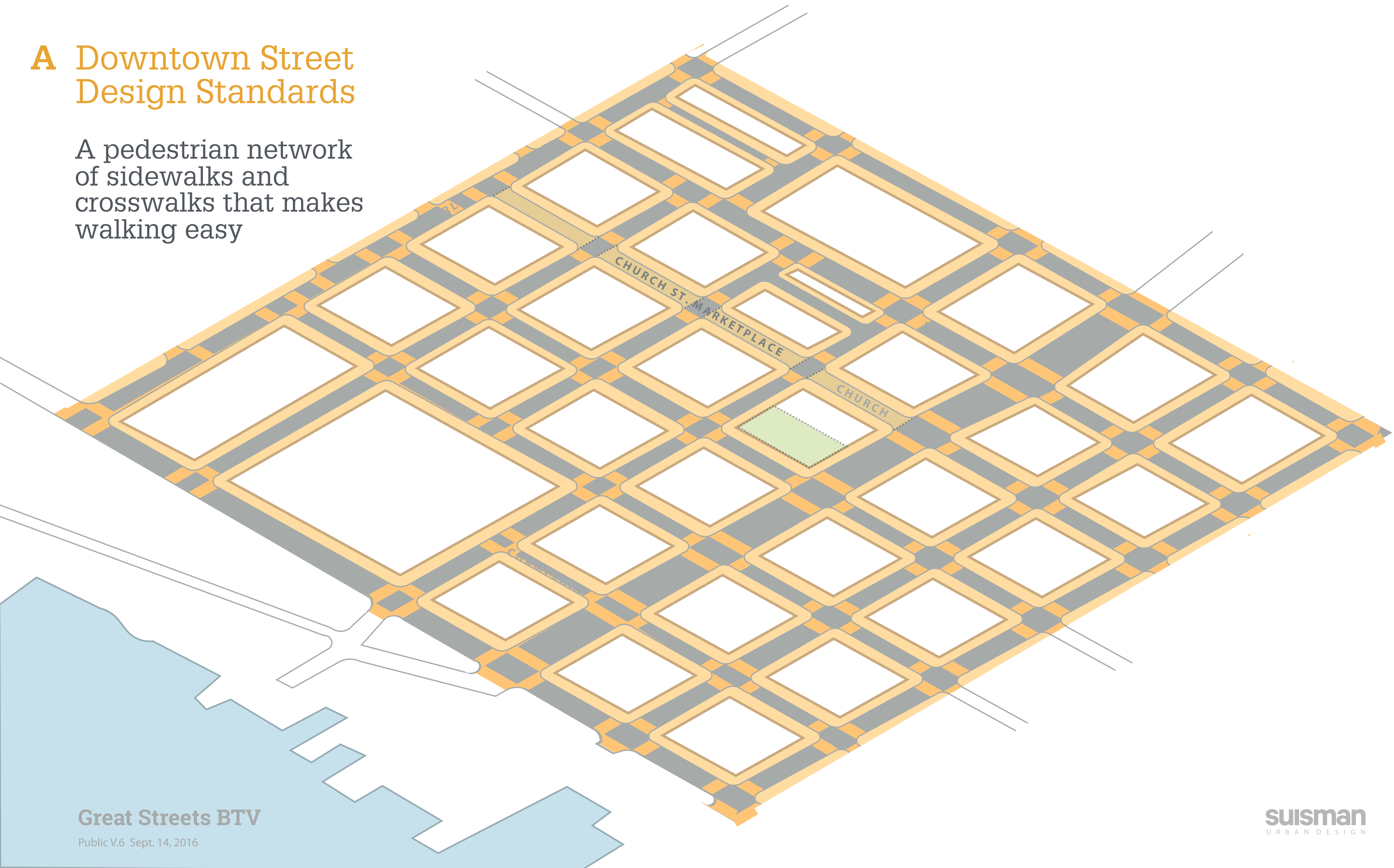
# A Downtown Street Design Standards

# A manual to guide street design in downtown Burlington for the next generation



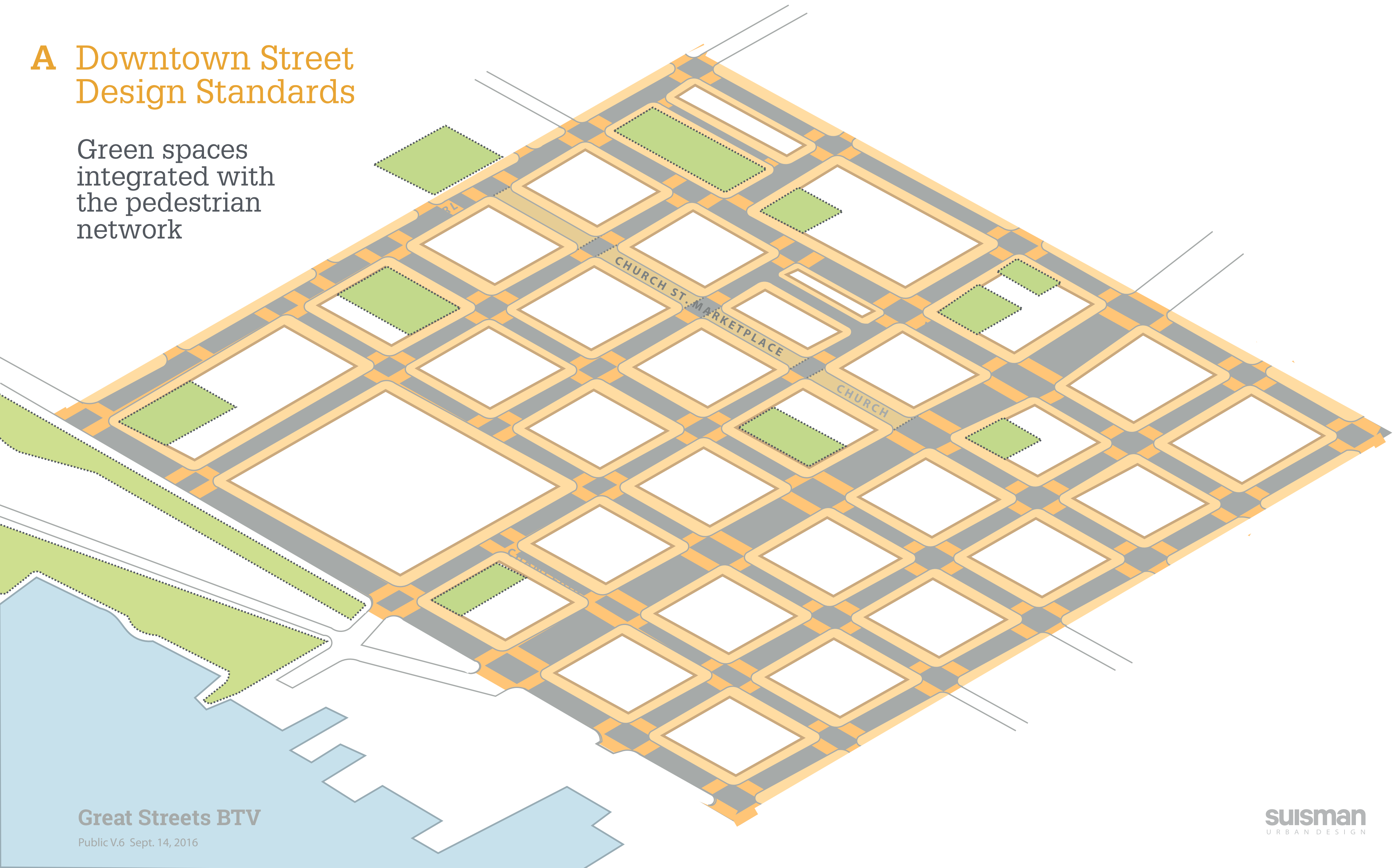
## A Downtown Street Design Standards

A pedestrian network of sidewalks and crosswalks that makes walking easy



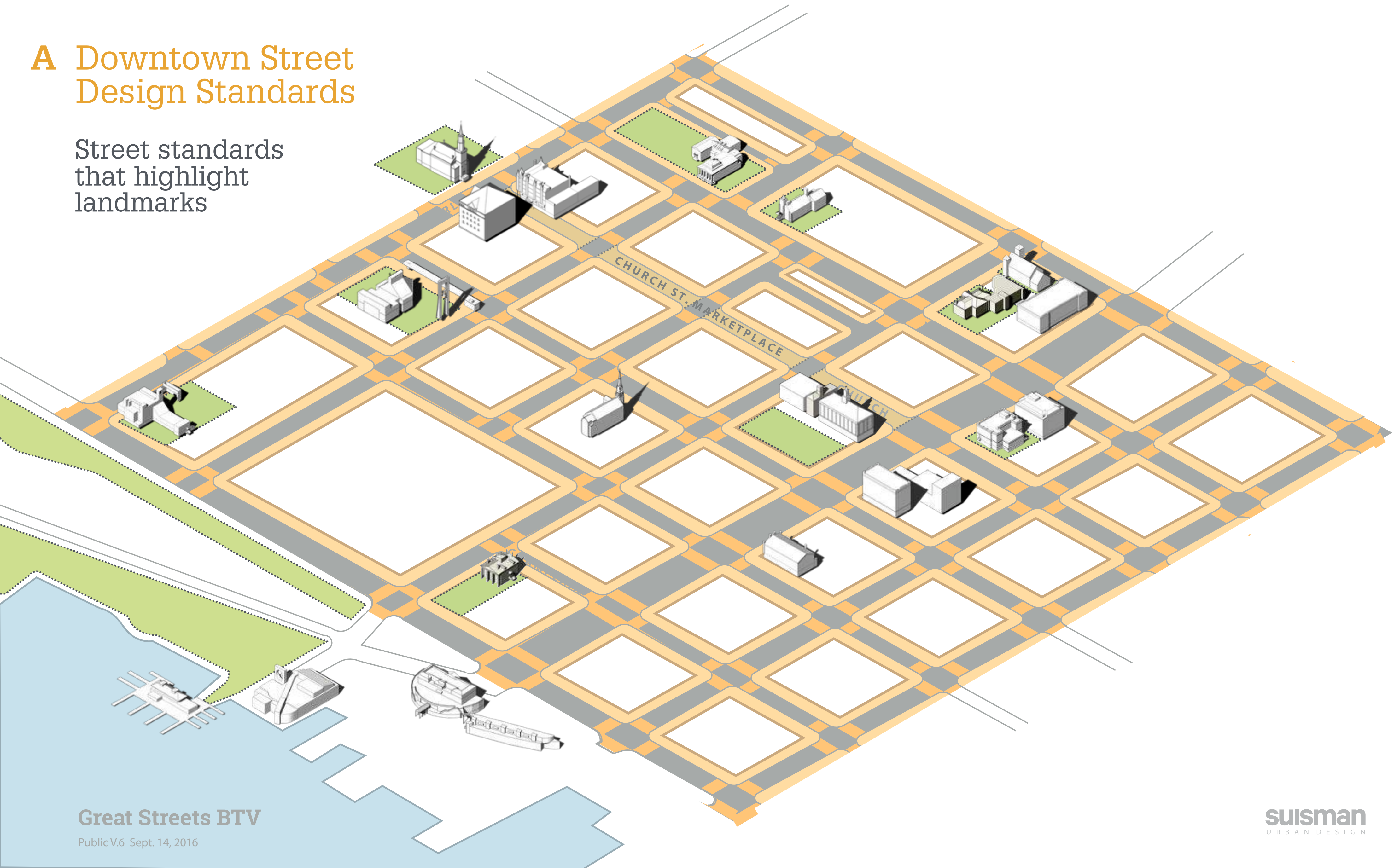
# A Downtown Street Design Standards

Green spaces integrated with the pedestrian network



# A Downtown Street Design Standards

Street standards that highlight landmarks



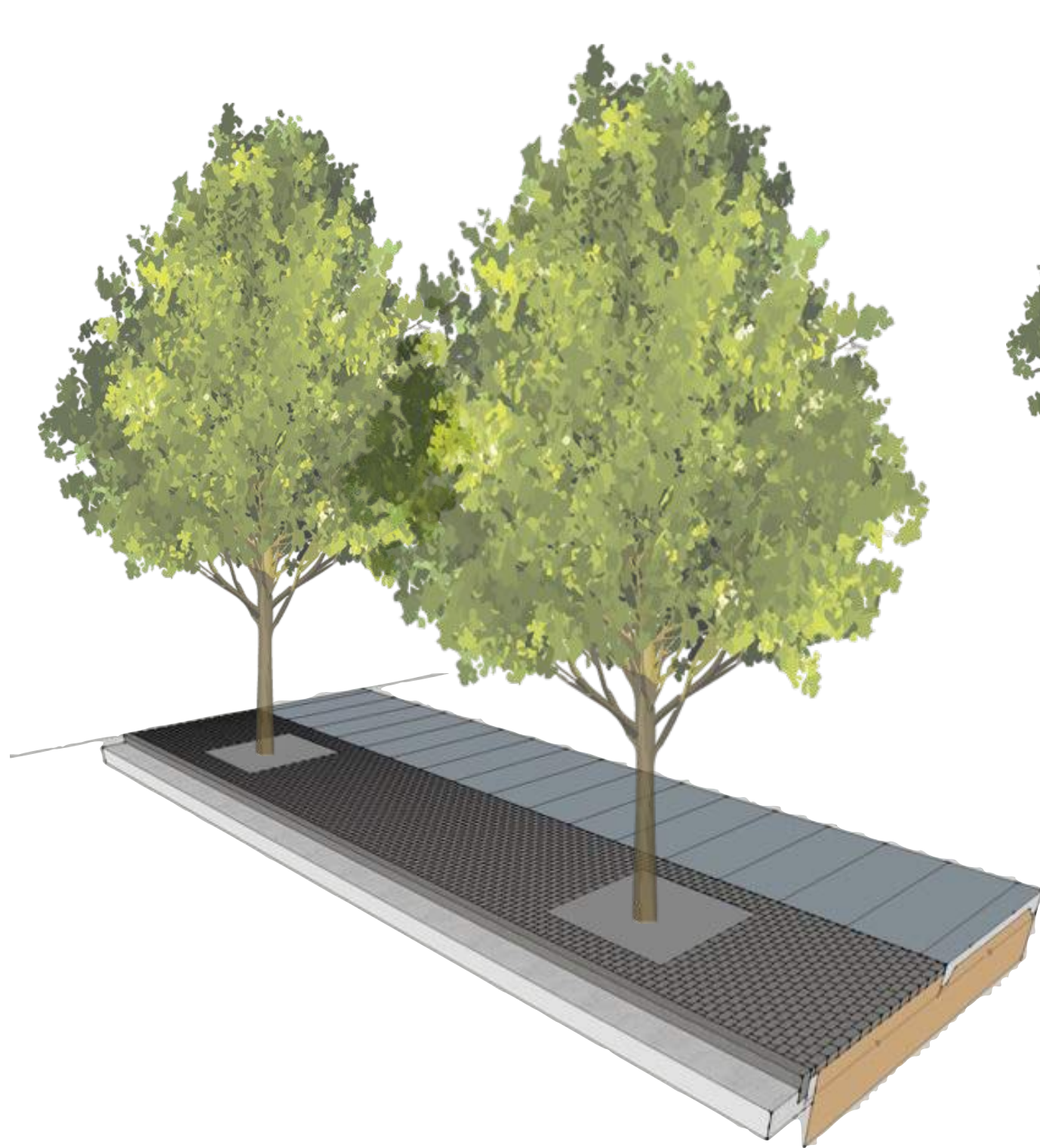
# A Downtown Street Design Standards

Standards that encourage vibrant adjacent land uses and storefronts

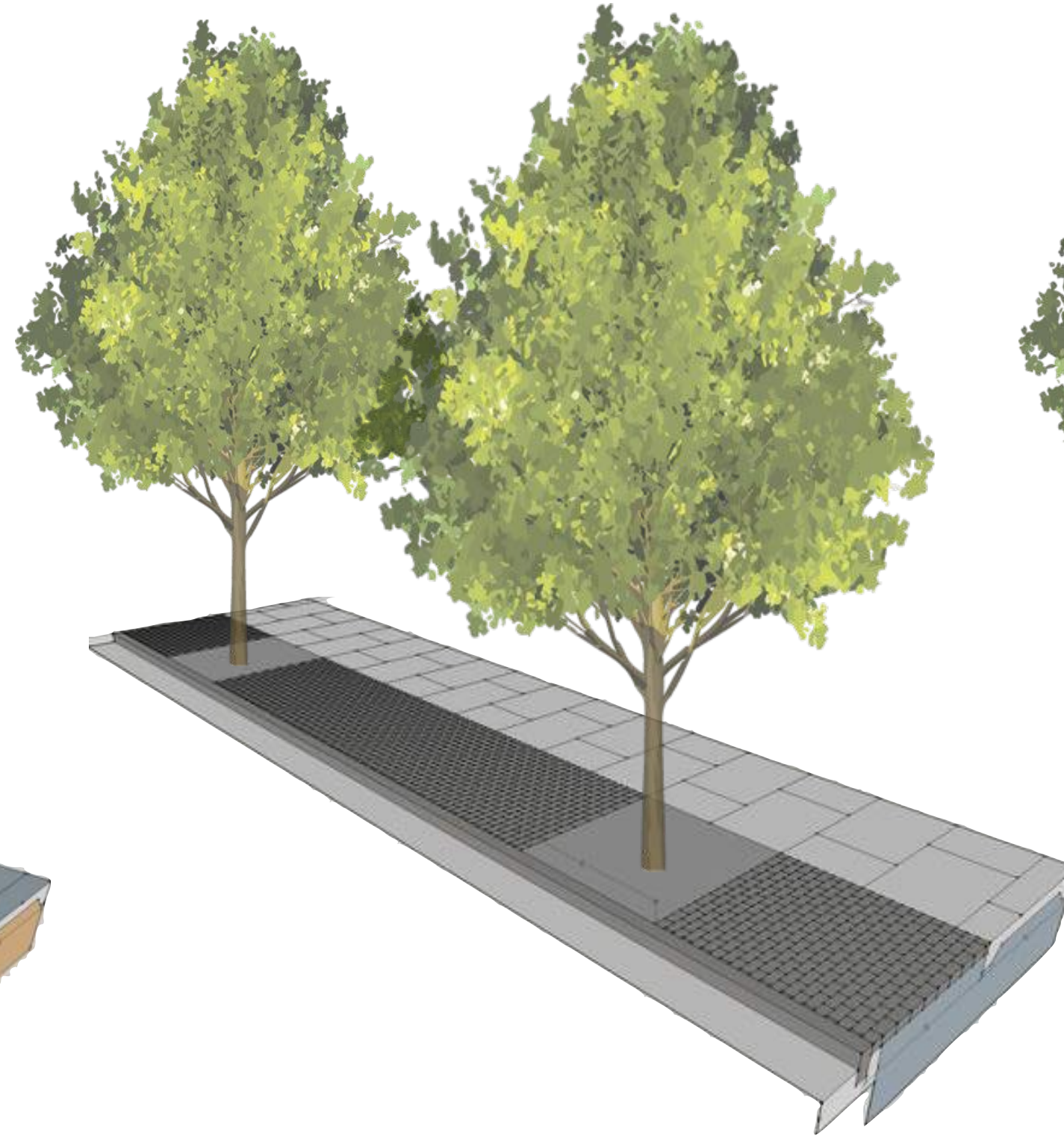


## A Downtown Street Design Standards

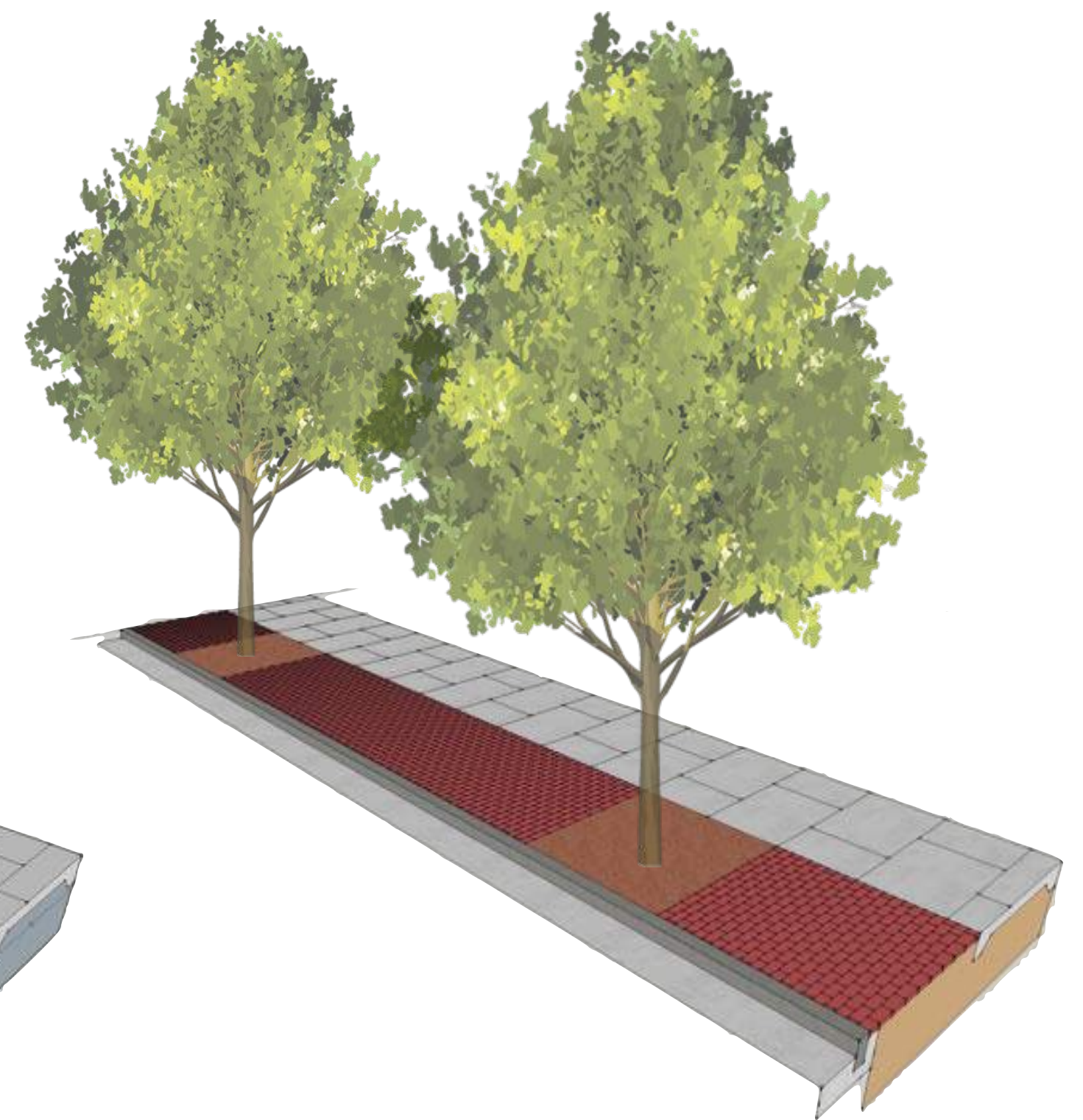
Example of design options that can address constraints/trade-offs that the City may be faced with when implementing these improvements.



Cobble Tree Belt - Type A



Cobble Tree Belt - Type B



Brick Tree Belt

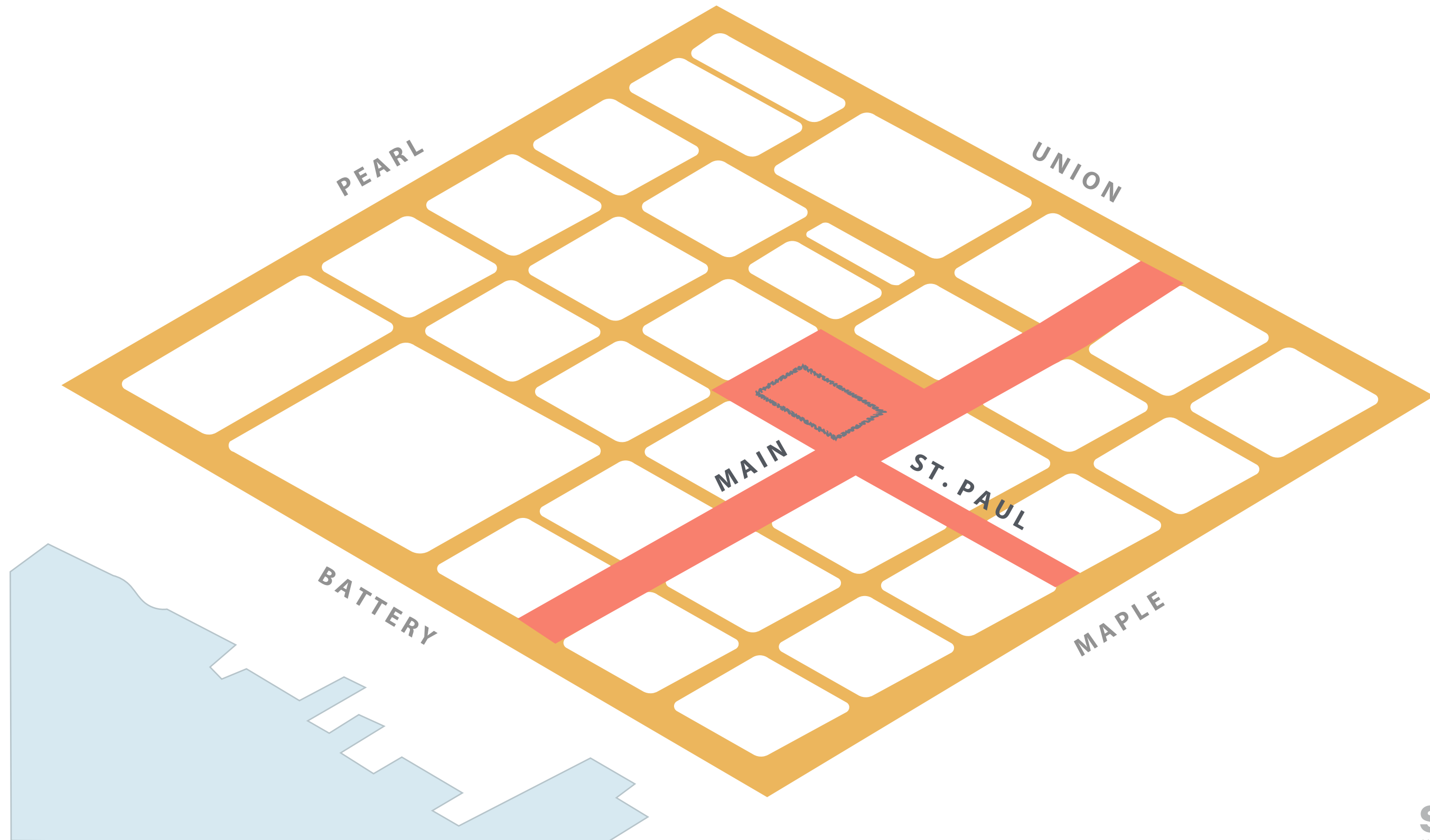


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# B Main Street Concept Plan The “Pinwheel”

The Main Street Project builds out key elements of the Pinwheel

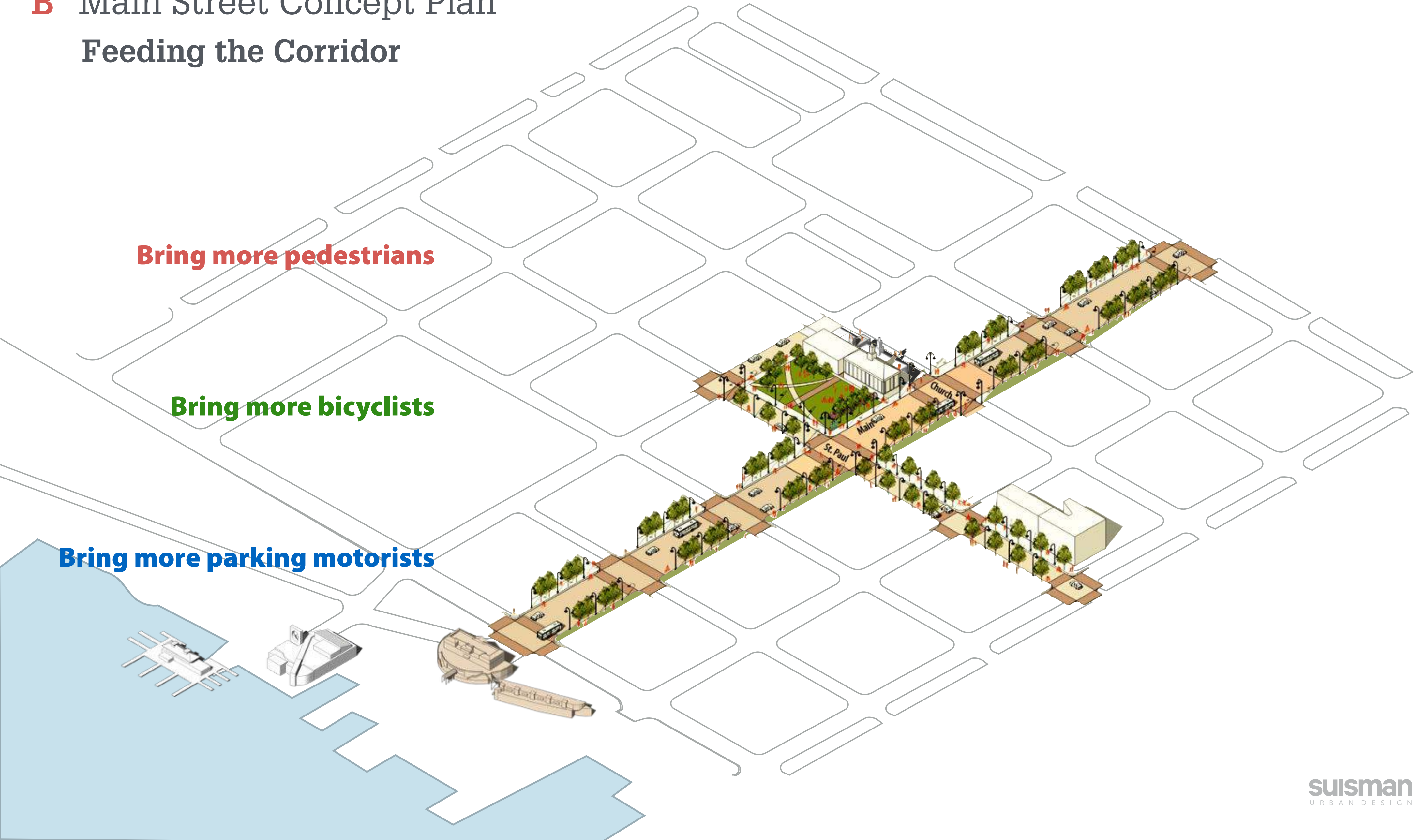


## **B** Main Street Concept Plan Feeding the Corridor

**Bring more pedestrians**

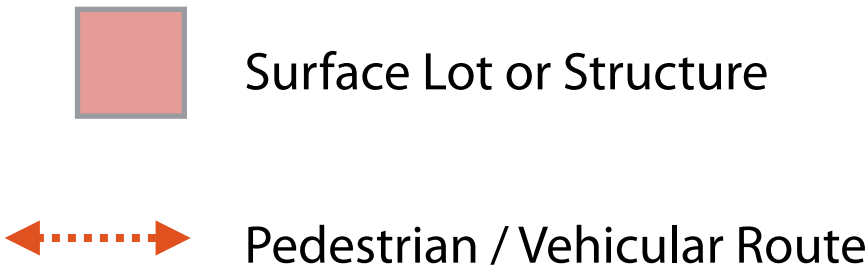
**Bring more bicyclists**

**Bring more parking motorists**



# B Main Street Concept Plan

Developing a dynamic district program to connect Main Street businesses with all parking resources, on street and off street



## B Main Street Concept Plan

Capitalizing on the benefits of a protected bike lane

### Long-Term Bikeway Network

- Shared Use Path
- Protected Bike Lane
- Neighborhood Greenway
- Buffered/Conventional Bicycle Lane
- Advisory Bicycle Lane
- Shared Use Lane Markings
- Potential Path Easement
- City Boundary
- Park
- University/Campus Area



## B Main Street Concept Plan

**Diagonal parking takes more pavement per parking space:**

- Wasted corners
- Circulation needed to maneuver into spaces

**Each diagonal parking space takes 150% the area of parallel**

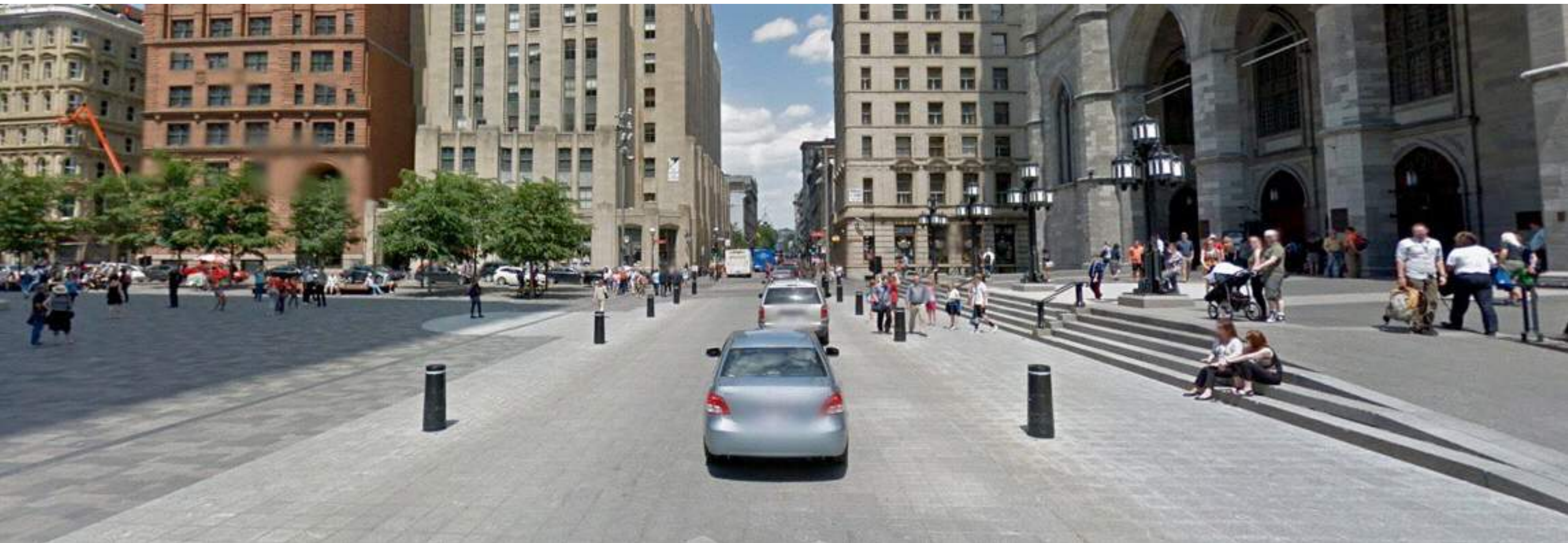


11 ft travel  
lane

Parking and  
Maneuvering

## B Main Street Concept Plan

Example of Shared space (Place d'Armes, Montreal)  
(note: shown for reference only; no conversion to one-way streets is anticipated for downtown Burlington)



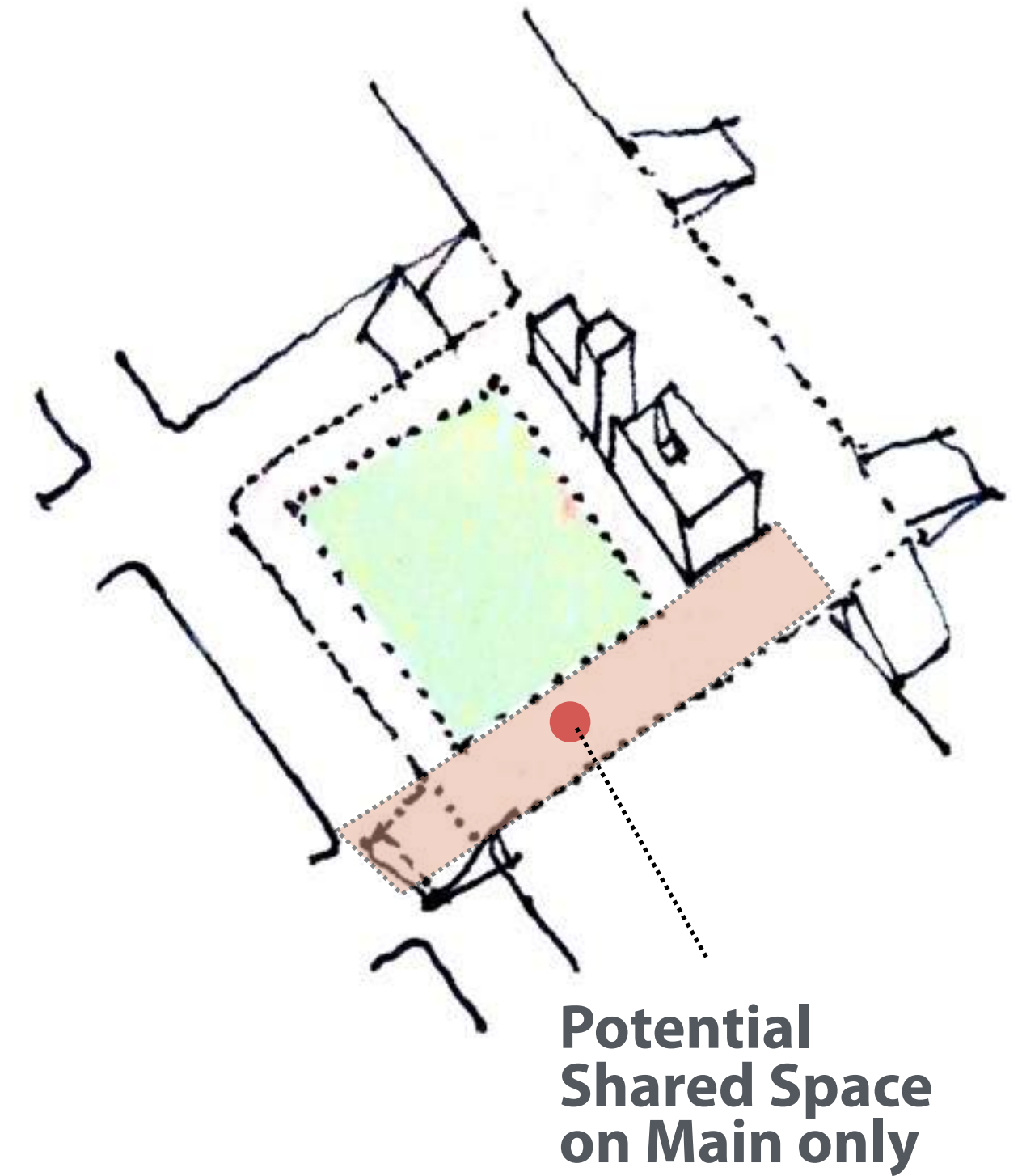
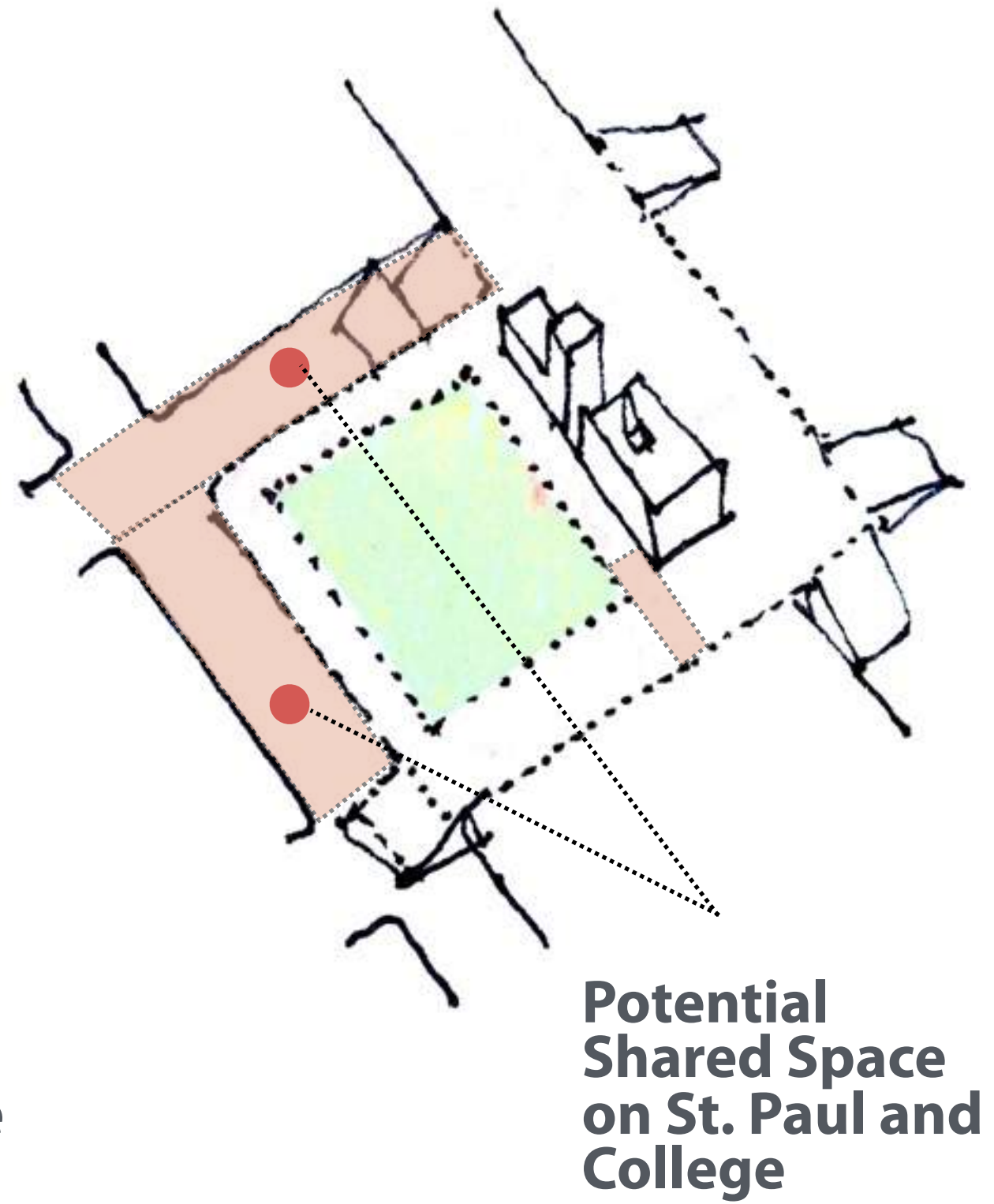
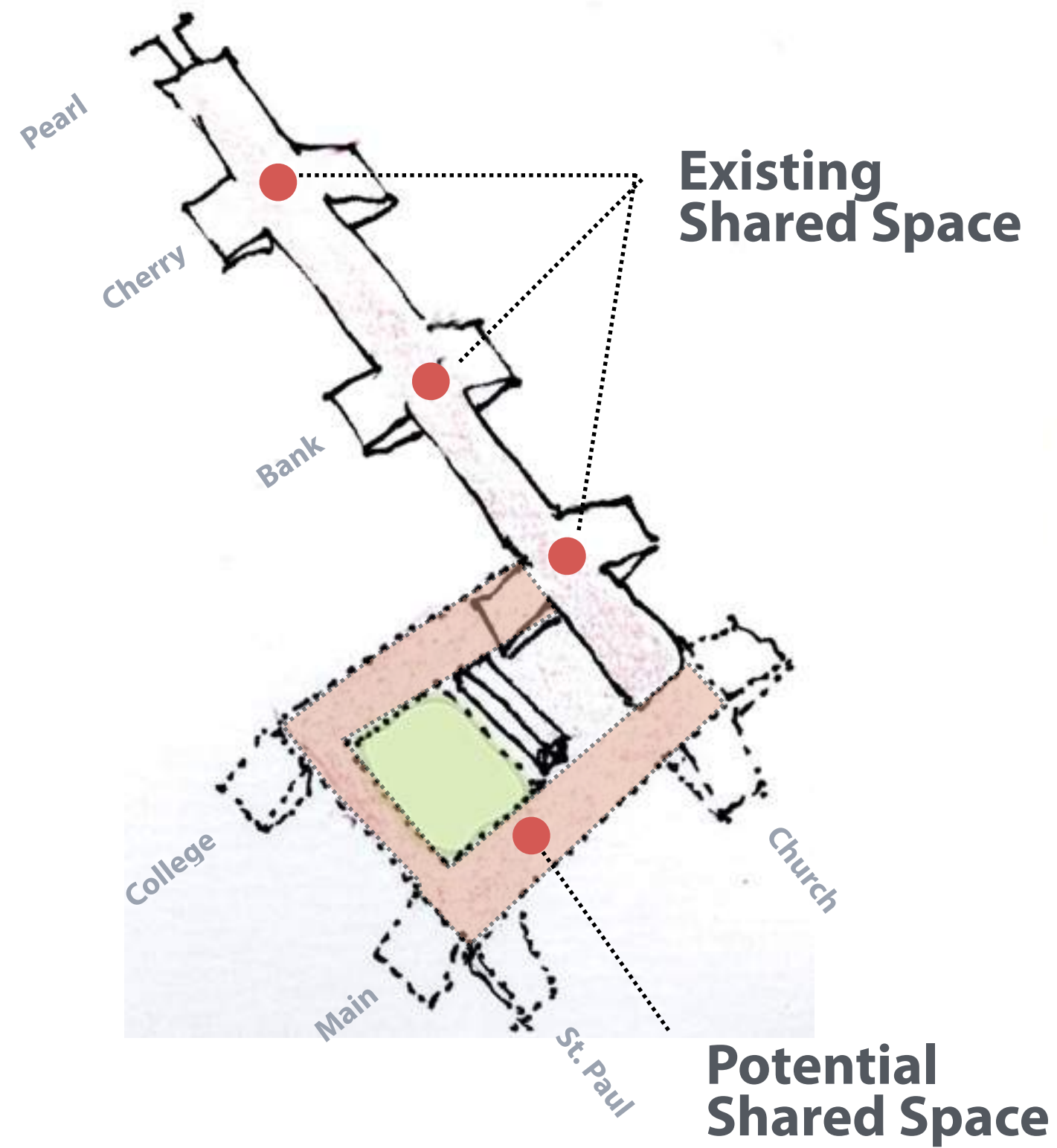
## B Main Street Concept Plan

Potential shared space  
for the park square



## B Main Street Concept Plan

Potential shared space  
for the park square



# Improved links from Main Street to the waterfront and bike path



# Design Team



Doug  
SUISMAN



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Lucy  
GIBSON



Matt  
SICKLE



Kevin  
PERRY



Diane  
MEYERHOFF

# Questions

## Question

# A Street Design Standards

## Stormwater

### Rain Gardens

Stormwater runoff contributes to the pollution of Lake Champlain. One method for reducing runoff is to introduce rain gardens into the sidewalk areas and bump-outs to help slow down and pre-treat runoff. Should the City invest in innovative approaches for stormwater management within its public streets?



# A Street Design Standards

## Stormwater

### Treebelt Paving

Many of downtown's street trees are growing in grass plots between sidewalks and parking lanes. These plots can cause problems for stormwater runoff and maintenance due to heavy pedestrian use downtown. Pavers or cobbles can be used instead to allow water to permeate, but must be well-designed and maintained. Should the City invest in permeable paving materials such as pavers, cobbles or bricks to encourage tree growth and protect from erosion?



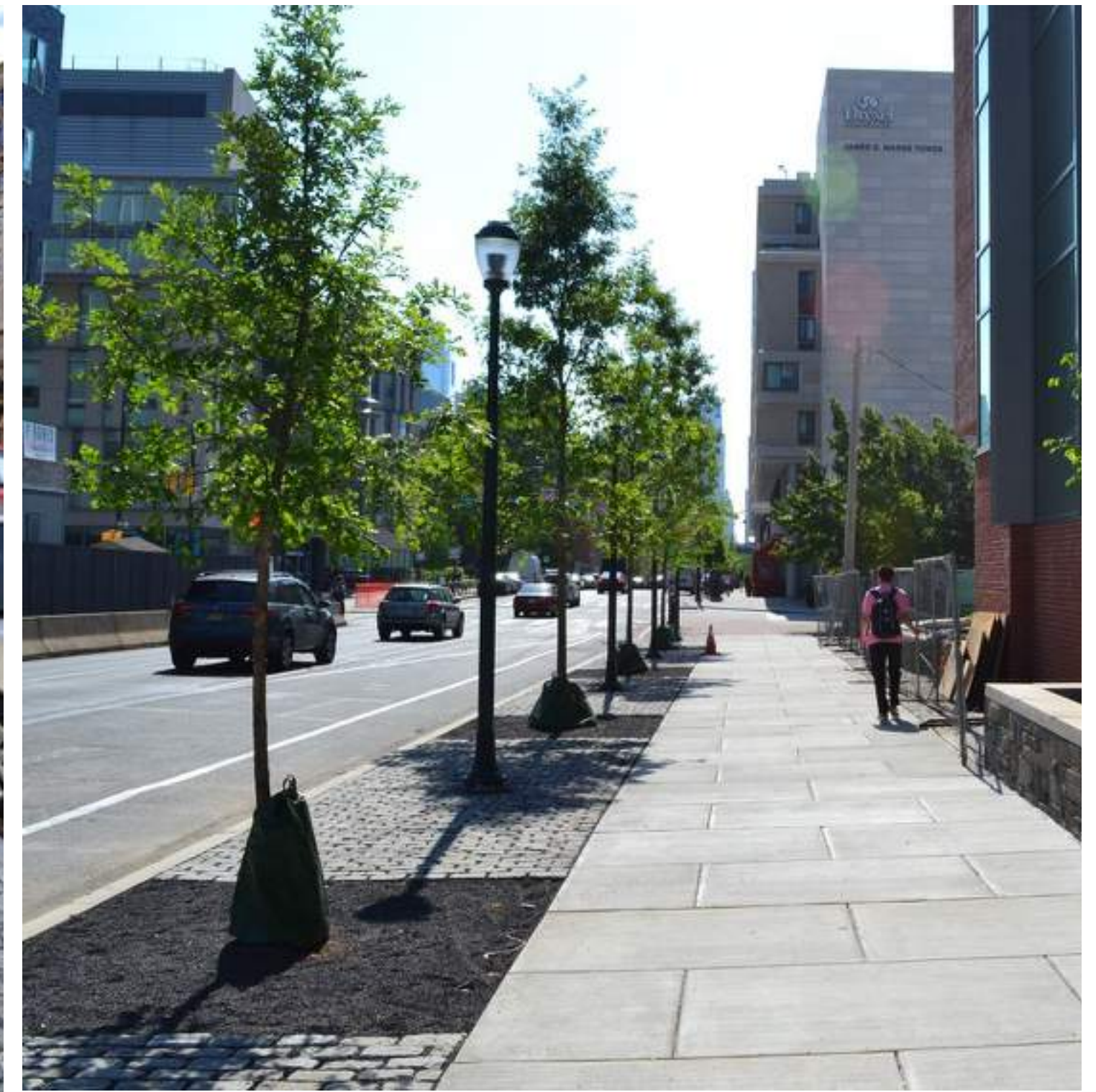
Existing



Existing



Possible Treatment



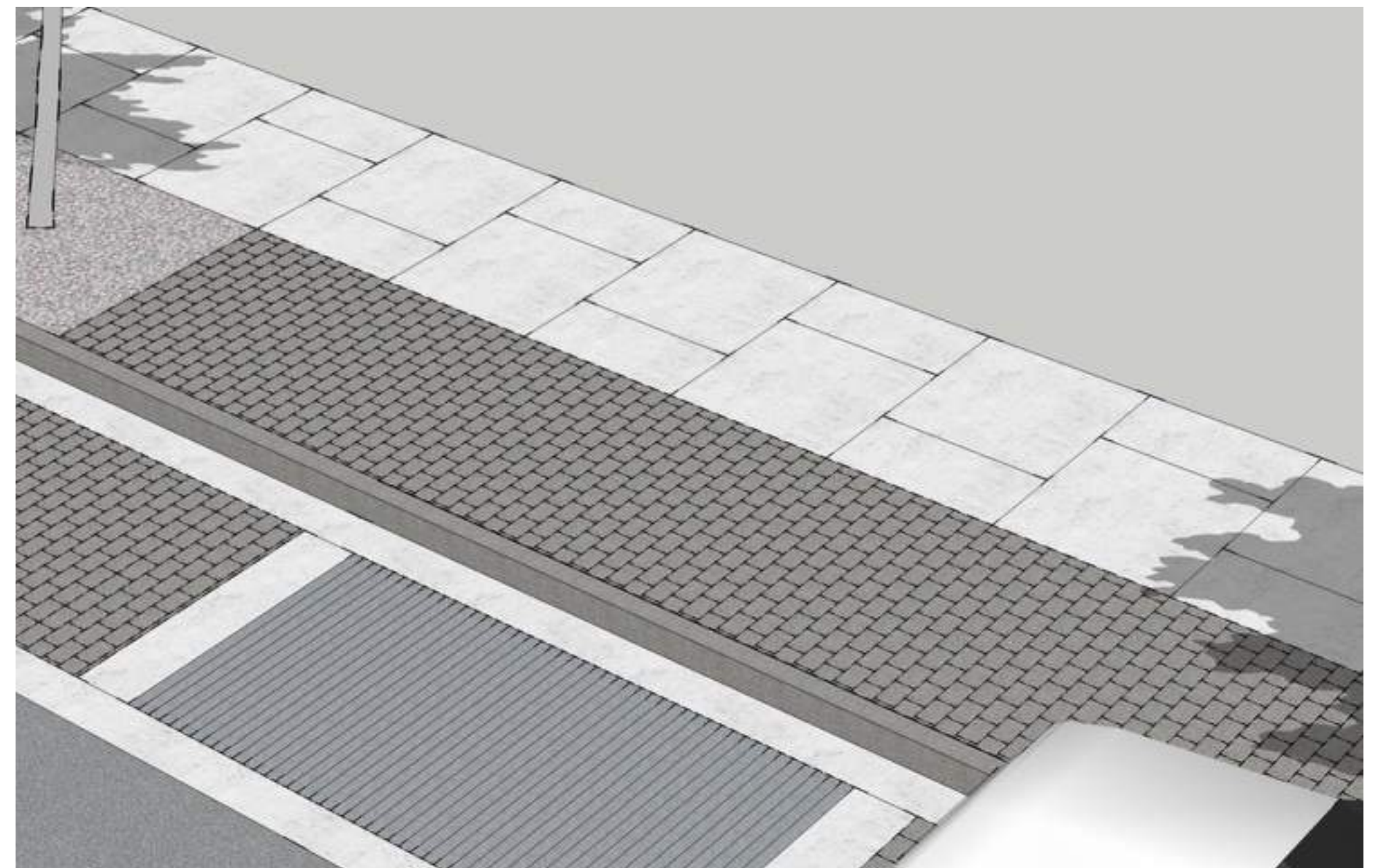
Possible Treatment

# A Street Design Standards

## Stormwater

### Parking Lane Grates

Stormwater runoff contributes to the pollution of Lake Champlain. One experimental method for reducing runoff is to introduce grates in parking lanes. These capture runoff and channel it to raingardens on bumpouts downstream. Should the City consider a pilot project to test innovative approaches such as this?

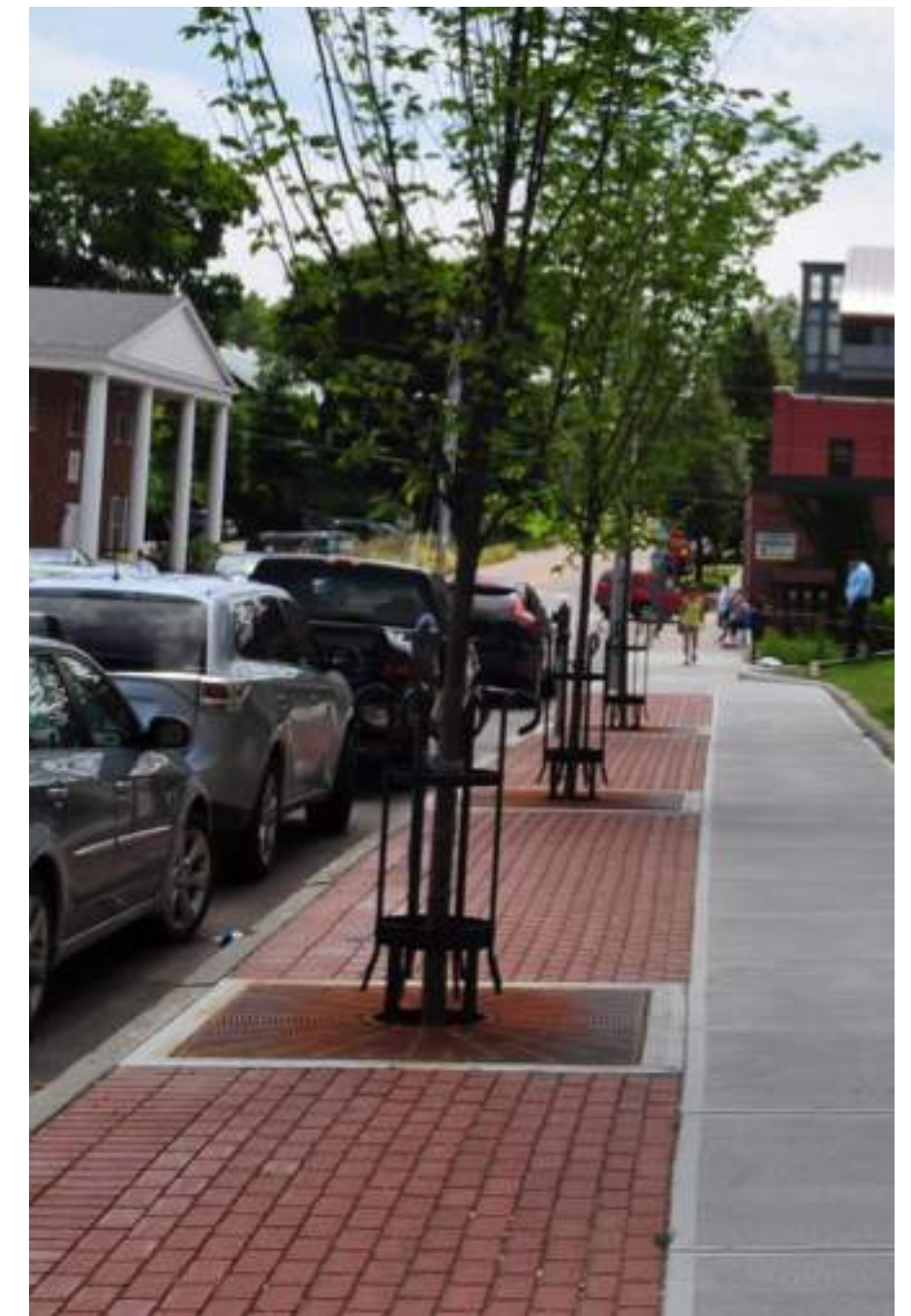
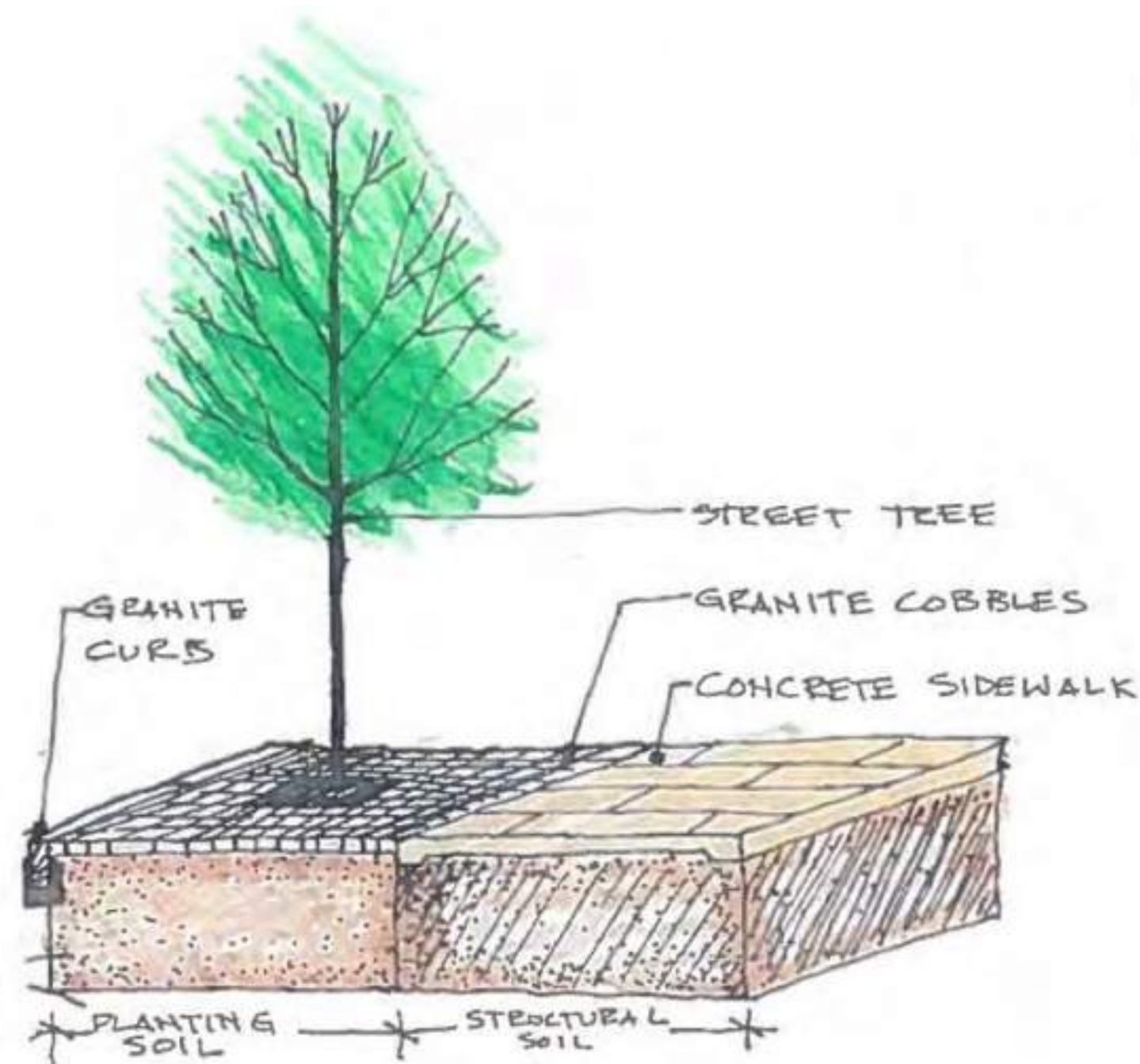
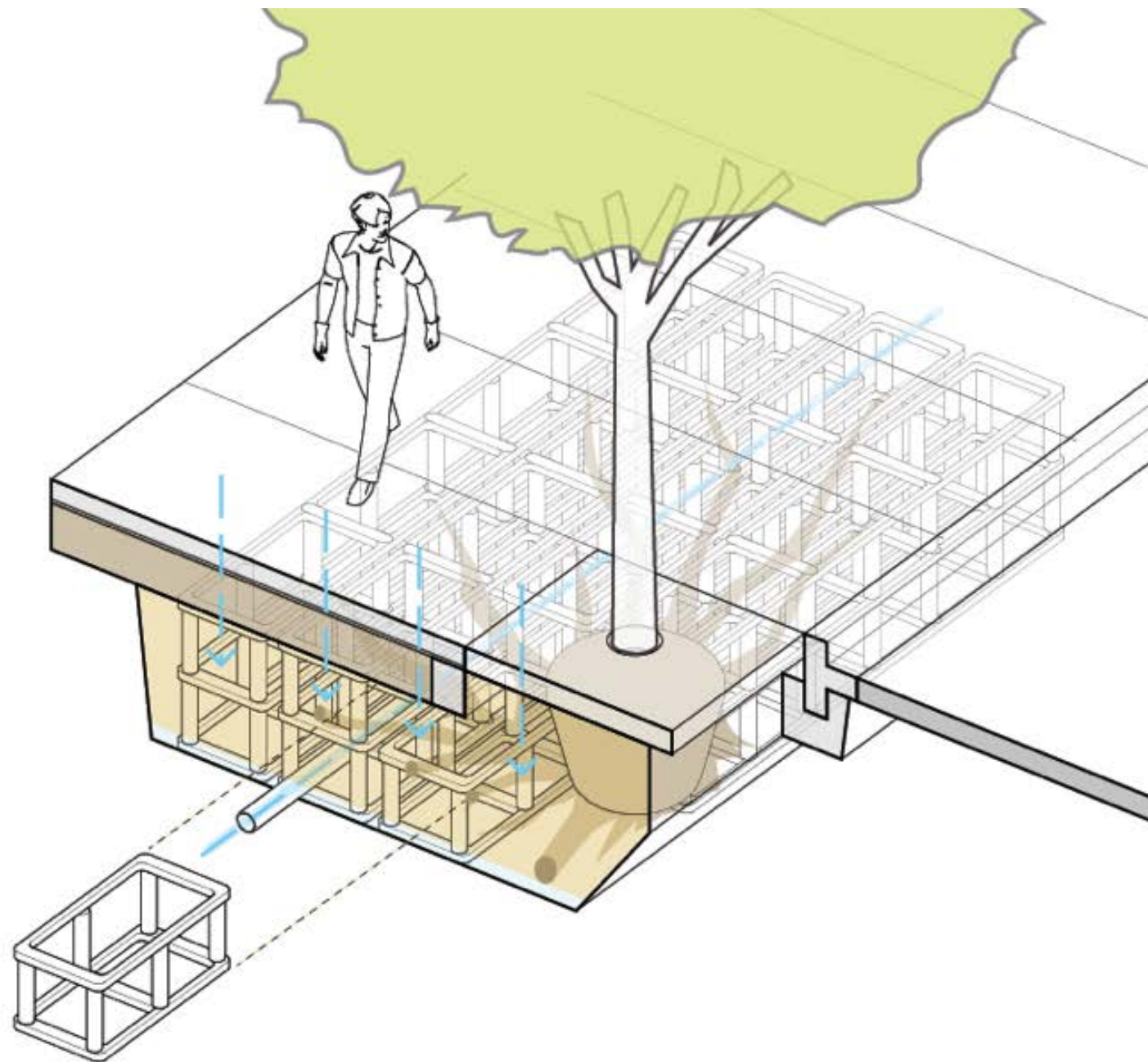


# A Street Design Standards

## Trees

### Silva Cells / Structural Soils

There is a large gap in the tree canopy in downtown; many trees are struggling to grow because compacted soil is preventing healthy root growth and others have been lost to disease or damage. Two methods for improving street tree health are silva cells, which is a below-grade cage, and the use of structural soils; both of these allow roots to spread out and grow; but are more expensive to install. Should the City invest in innovative approaches to expand the downtown tree canopy?



# A Street Design Standards

## Furnishings

### Covered Bike Parking

The DRAFT Bike/Walk Plan calls for Burlington to add more high-capacity bicycle parking facilities, and expand infrastructure that will encourage more winter cycling. Covered bike racks can help with both of these things, but they cost more. Should the City invest in covered bike racks in its downtown?



# A Street Design Standards

## Pathways

### Durable Curbs

In downtown outside of Church Street Marketplace, the City generally uses concrete curbs, which are not very durable and often show damage from weather, snowplows and age. Many New England communities use materials like granite, which have an historic and attractive aesthetic, long lifespan, durability in cold-weather climates, and local availability. Despite a higher initial cost, these curbs often have lower life-cycle costs. Should the City invest in a curb material like granite for both its durability and appearance?



# A Street Design Standards

## Pathways

### Bumpouts

Burlington already uses bumpouts at some intersections to widen pedestrian space, improve safety, and provide more room for street furnishings and landscaping. Should the City invest in more bumpouts throughout downtown as a way to improve these conditions?



# A Street Design Standards

## Pathways

### Concrete Sidewalks

Many downtown sidewalks need to be reconstructed and widened. Brick sidewalks, which are currently associated with Church Street, can be attractive to build and maintain. Some communities use colored concrete as an alternative, but it is not usually a convincing substitute. Should the City invest in less expensive, more durable concrete sidewalks with natural coloring and reserve more expensive materials for tree belts, accents, etc.?



# A Street Design Standards Pathways

## Enhanced Crosswalks

Downtown already has some enhanced crosswalks around Church Street, but most are the conventional painted type. There are new methods of scoring and thermoplastic patterning crosswalks that are more visible for safety, cost-effective, attractive and durable. Should the City invest in these innovative techniques?



## B The Main Street Project **Main Street** **Protected Bike Lane**

There is considerable public support for a “protected” bike lane (physically separated from traffic) on Main Street, from UVM to the lakefront. Such a lane is feasible through downtown if some on-street parking is reduced or the street trees are modified along some stretches of Main. Understanding these potential tradeoffs, should the City incorporate the protected bike lane in the design for Main Street?

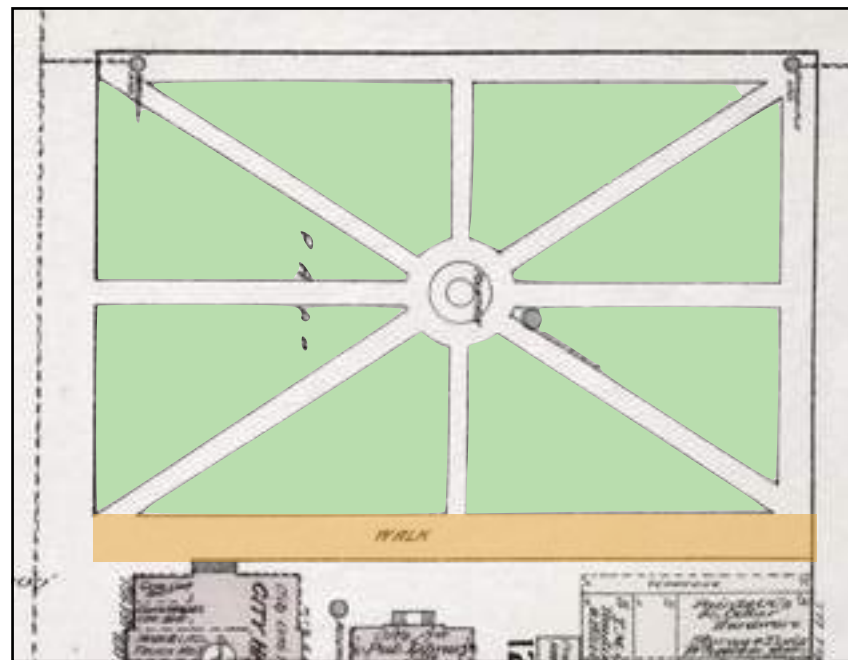


# B The Main Street Project

## Park Square

### Mid-block Crosswalks

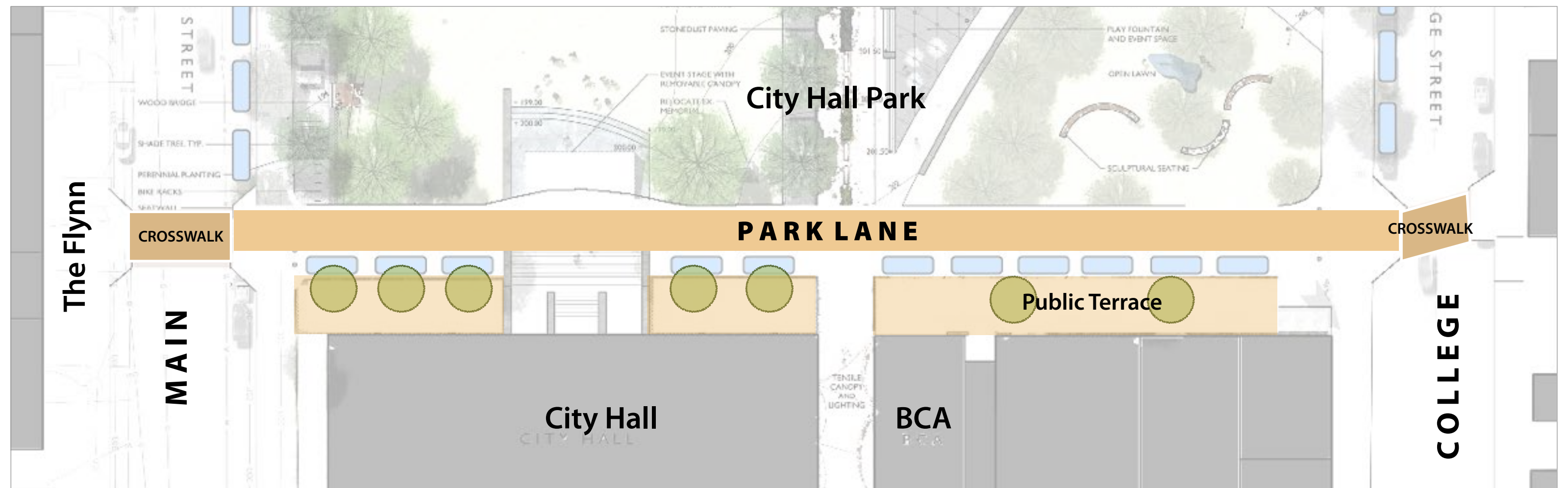
Mid-block crosswalks from City Hall Park across Main and across College would help connect the park to the Flynn and surrounding uses. They would also help bring more pedestrians to the historic “park lane” along the park’s eastern edge, adding to safety and vibrancy. The crosswalks could be at roadway level or raised “speed tables”. Should the City create such crosswalks?



Historic park “walk” or “lane”



Possible crosswalk to Flynn



## B The Main Street Project **Park Square** **“Shared Space” on Main**

Instead of just a raised crosswalk, the roadway along the entire block of Main along City Hall Park could be raised to create a level crossing (this is called “shared space” and already exists at Church St. Marketplace intersections). This would powerfully connect the Flynn block and the park. Should the City consider this approach?



(note: shown for reference only; no conversion to one-way streets is anticipated for downtown Burlington)

## B The Main Street Project **Park Square** “Shared Space” on St. Paul and/or College

Shared space, or raised roadways, could also be considered on St. Paul and/or College, which would entirely connect the park to its surrounding buildings (an example of this is Place d'Armes in Montreal). Should the City consider a complete shared space for the “square” around City Hall Park?



(note: shown for reference only; no conversion to one-way streets is anticipated for downtown Burlington)

## B The Main Street Project **Park Square** **Bike Hub along Main**

The majority of cyclists approaching Farmers Market and other events approach City Hall Park from Main. A bike hub with covered parking and other bike amenities along Main has been suggested (in association with a protected bike lane if built). Should the City explore such facilities?



# Extras

## B Main Street Concept Plan

Main Street as Public Space:  
Mardi Gras



## B Main Street Concept Plan

### Example of Shared space (Carlyle U.K.)

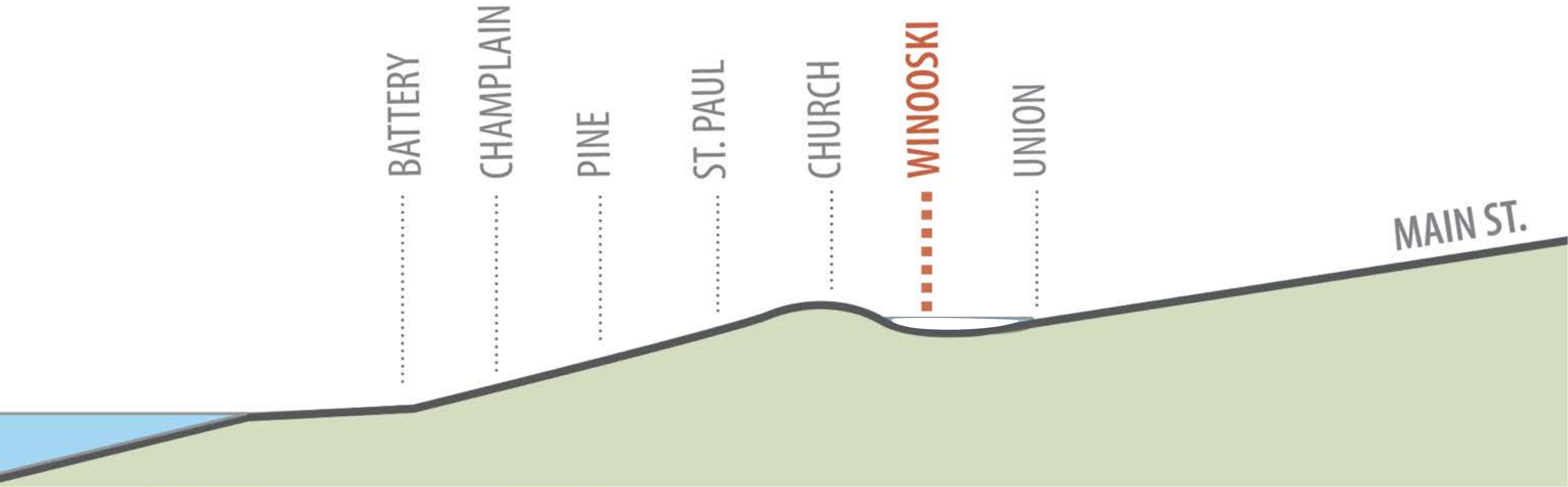
(note: shown for reference only; no conversion to one-way streets is anticipated for downtown Burlington)



# Observations of Existing Conditions

## Sloping Main Street

Main Street is an important and broad east-west link through downtown that connects the UVM campus to the lake. But does not function in the same way as typical commercial main streets, which are usually flat and parallel to water (like Church Street).



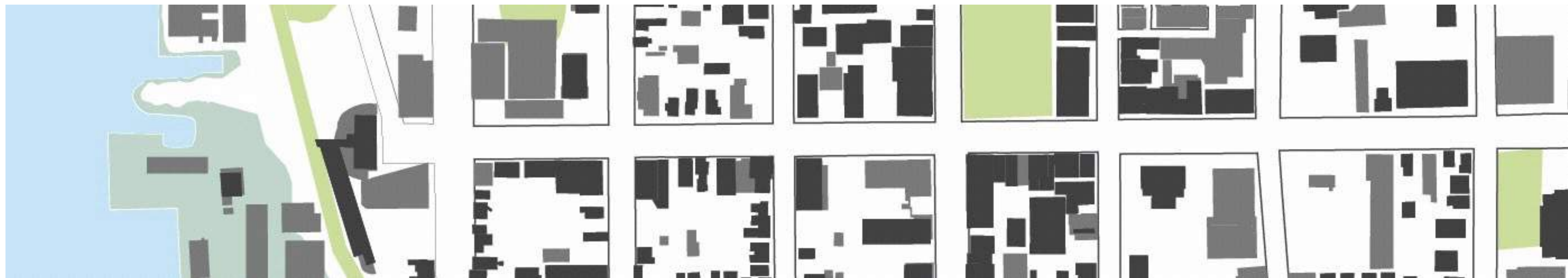
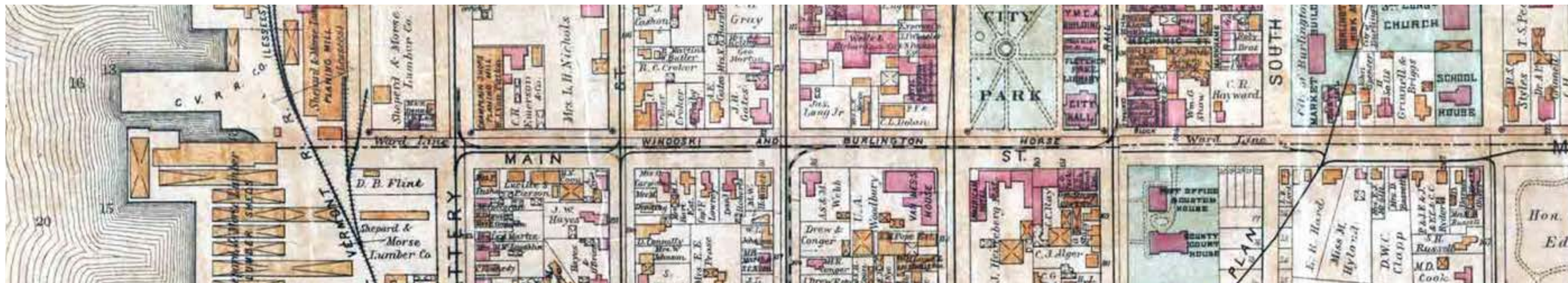
## Observations of Existing Conditions

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## B Main Street Concept Plan

## Historic / current land uses



## B Main Street Concept Plan

View from digital model



## B Main Street Concept Plan

Typical cross-section study



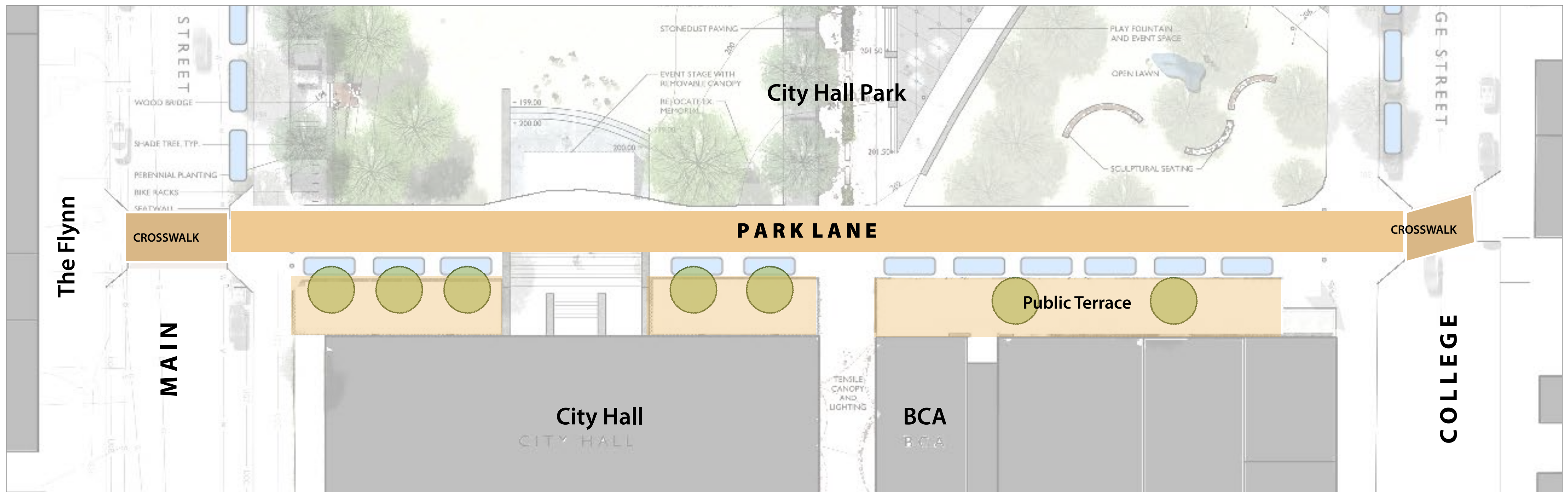
## B Main Street Concept Plan

Main Street frontage



## B Main Street Concept Plan

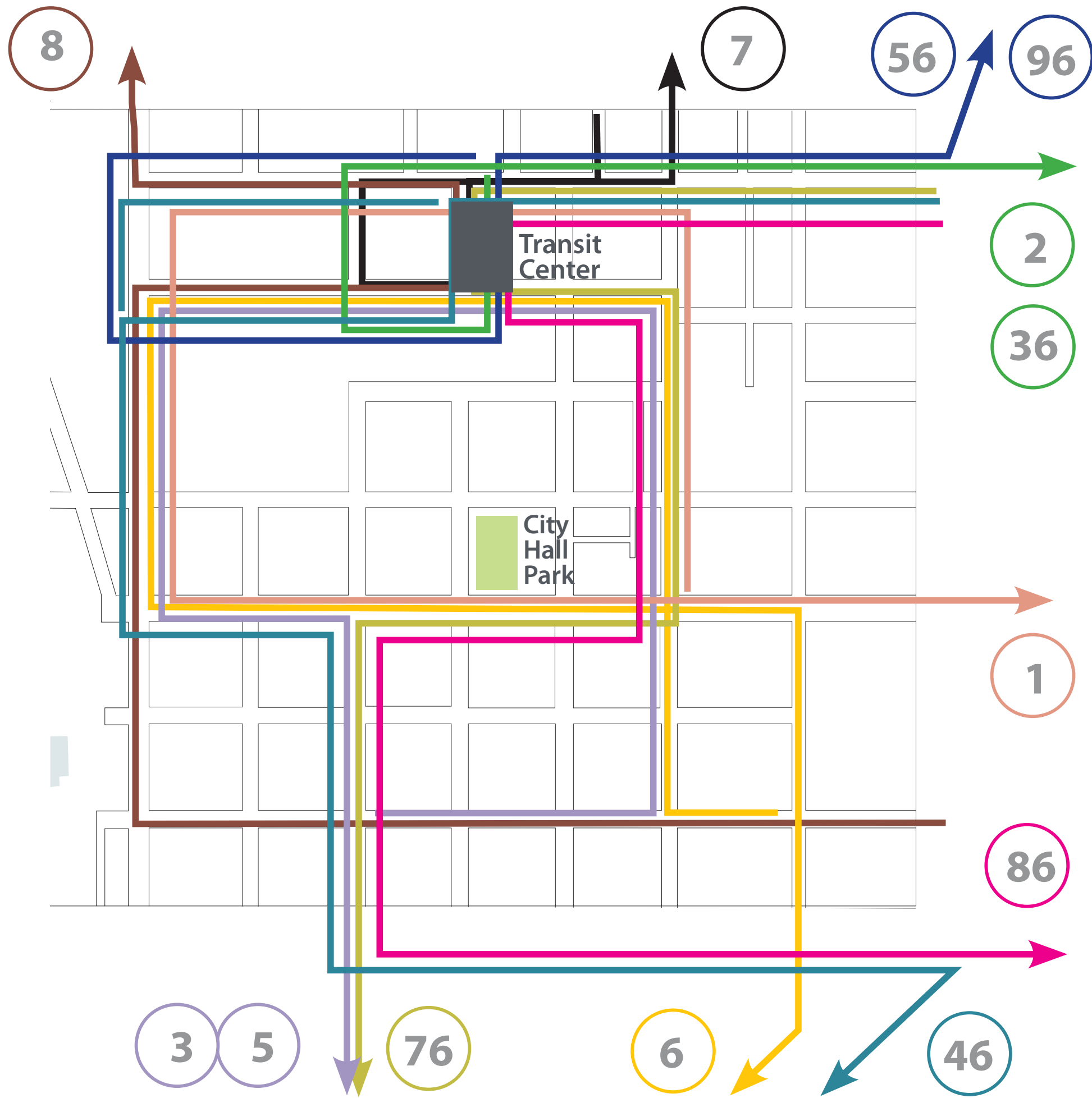
Mid-block crosswalks and “Park Lane”



# Observations of Existing Conditions

## Transit on 9 Streets

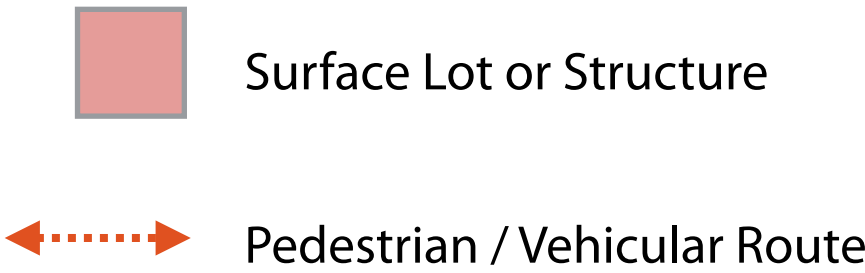
Transit buses are widely distributed across the street grid - there is no single primary corridor or corridors. 9 out of the 14 streets have at least some bus service. There is service on 41 of 81 street segments, with roughly 30 stops not including the new Transit Center.



Pattern of Bus Routes

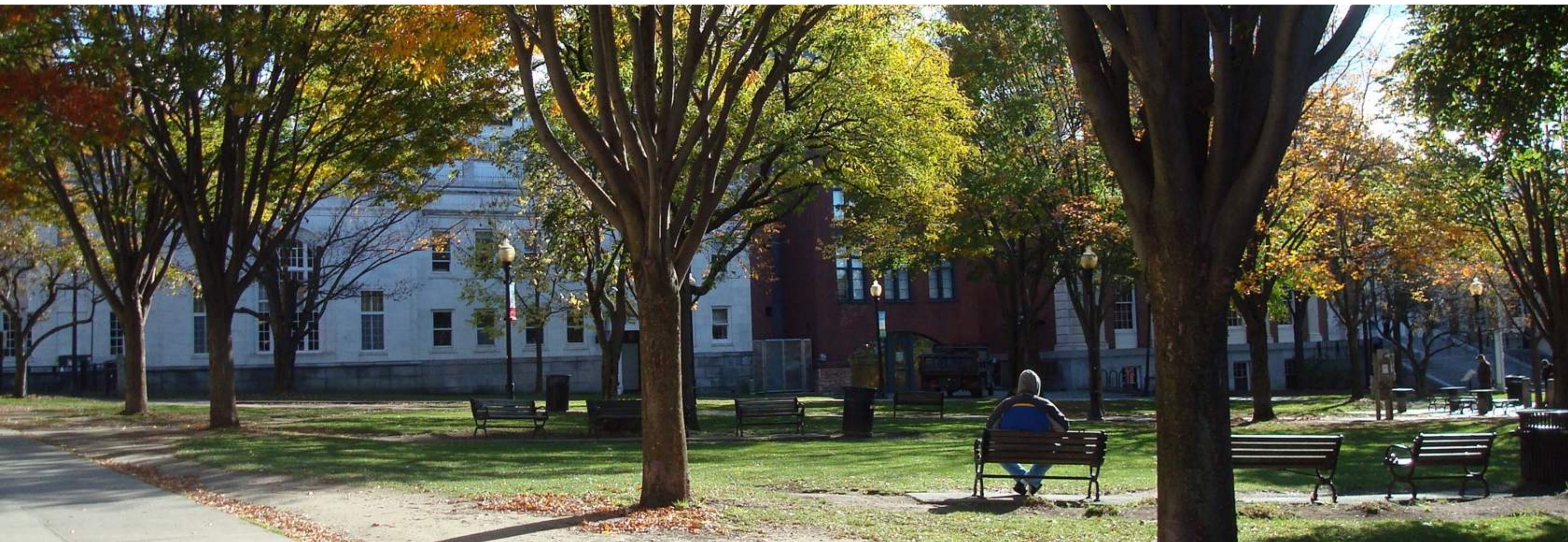
# B Main Street Concept Plan

Available off-street parking within walking distance of Main Street businesses



## B Main Street Concept Plan

City Hall Park Isolated  
disconnected from Church by backs of  
buildings, from downtown by traffic,  
from north side by St. Paul dead end



## B Main Street Concept Plan

City Hall Park Isolated

**disconnected from Church by backs of buildings, from downtown by traffic, from north side by St. Paul dead end**





## B Main Street Concept Plan

City Hall Park Isolated  
disconnected from Church by backs of  
buildings, from downtown by traffic,  
from north side by St. Paul dead end



## B Main Street Concept Plan

City Hall Park Isolated  
disconnected from Church by backs of  
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Downtown's Streets  
**Ravine**  
Map 1853



Downtown's Streets  
**Railroad**  
**Map 1853**



Downtown's Streets  
**Railroad Access to  
Waterfront**









B

The Main Street Project

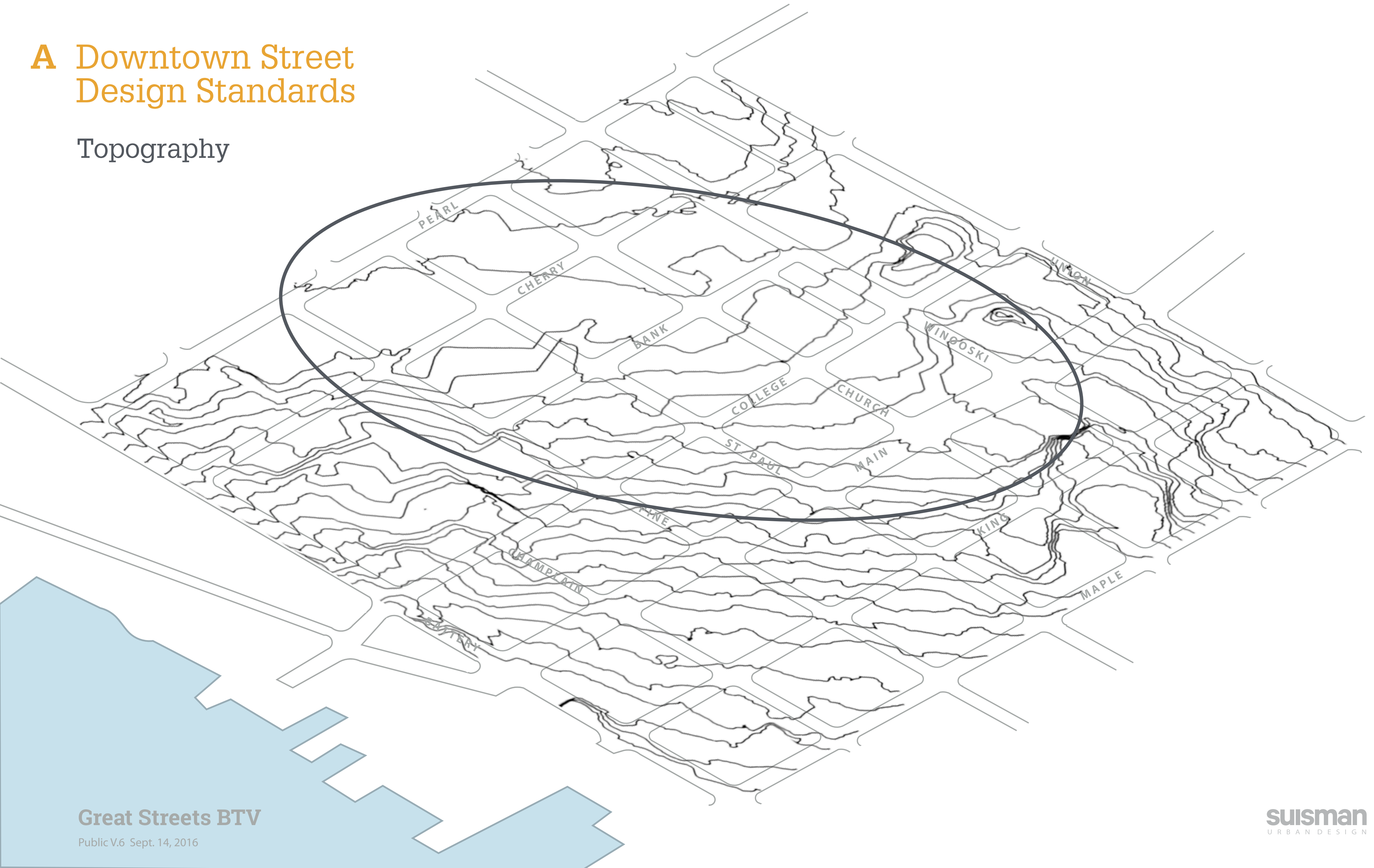
Park Square

Historic Roster of Names

Map	Year	Map Name	Name of Public Space
	1830		Court House Square
	1853		Square
	1862		[no name]
	1869		Public Square
	1873		City Park
	1877		[no name]
	1890		City Park

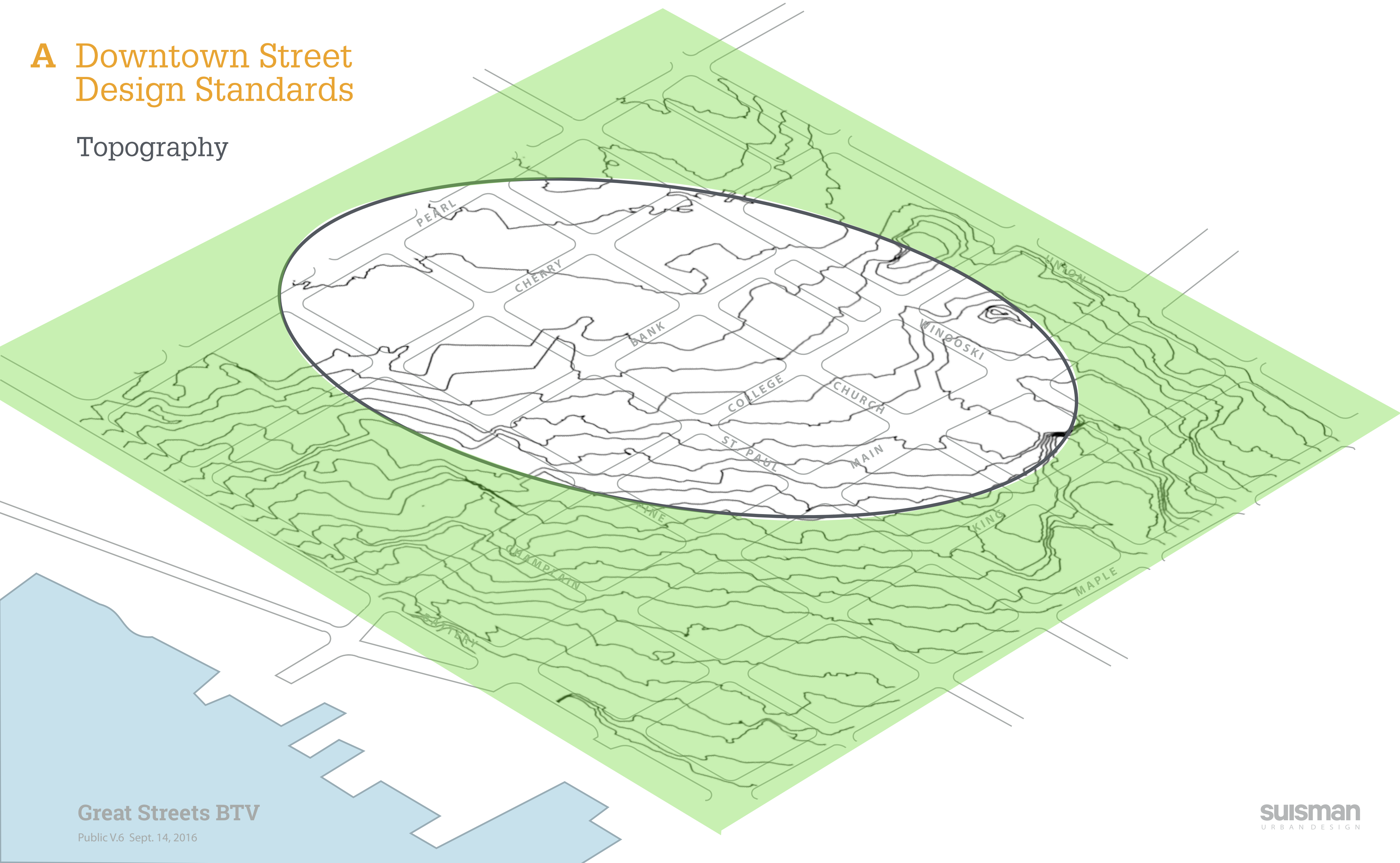
# A Downtown Street Design Standards

Topography



# A Downtown Street Design Standards

## Topography



# A Downtown Street Design Standards

## Tree Canopy

