Great Streets BTV

Preliminary Observations

Prepared for Burlington's Great Streets Initiative:
Community & Economic Development Office
Department of Public Works
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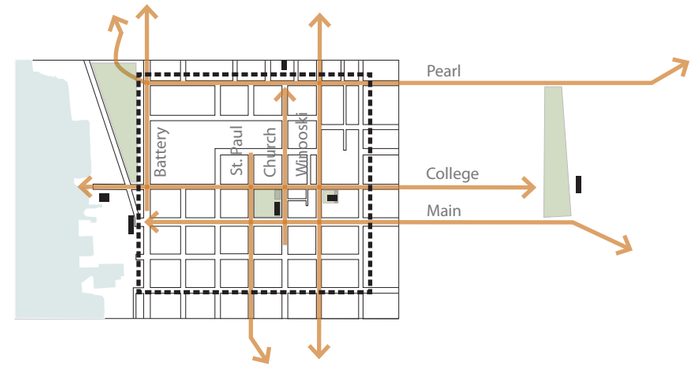
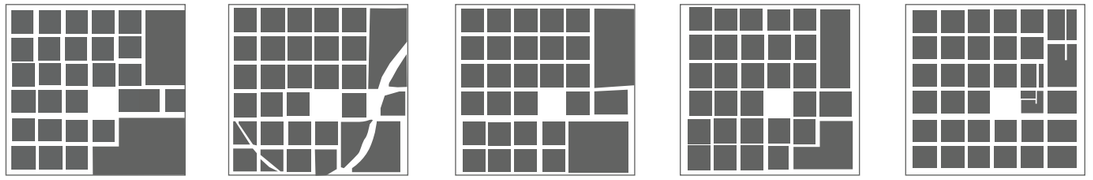
suisman
URBAN DESIGN

Understanding the Context of Downtown

Urban Linkages

Though deceptively similar in plan view, downtown's streets have very different scales of connection - some strictly local, others citywide or even regional.



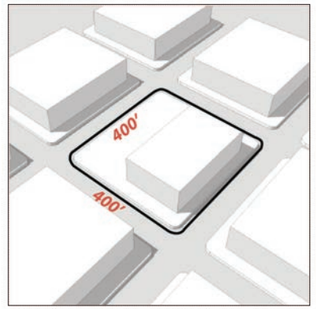


Evolution of the Downtown Street Grid

Though Downtown's street plan gives the appearance of a perfect design for 36-block square, the grid developed over time as the city grew and contended with its varied terrain. Larger blocks were ultimately divided into the standard 400'x 400' block, while others were later merged into "superblocks" during the redevelopment of the 1970's and 80's.

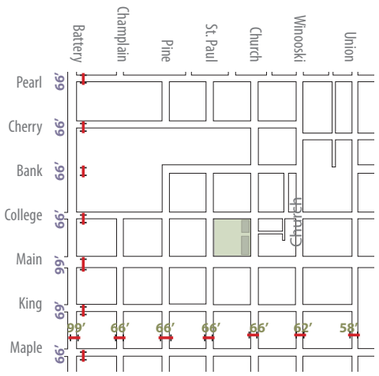
Typical Downtown Burlington Block Size

Burlington's blocks are somewhat unusual: the typical 400' x 400' size yields 4 acres of land. For comparison, Portland, Oregon's unusually small blocks are 200' x 200'. Many American cities have 300' x 600' blocks because they are a derivative of the Land Grant measuring system.



Typical Downtown Street Right-of-Way Widths

Most of the street blocks have a 66' ROW, except Battery and Main which have 99'



Understanding the physical context

The designated downtown quadrant for Great Street streets is about 3000' x 3000' (a little over a half mile on each side). It takes around ten minutes for the average person to walk from one side to the other. The quadrant contains 9 million s.f. or 206 acres. Of that total, streets and public space account for nearly 33%, i.e. 3 million square feet or 68 acres. The geographic impact of the street standards will be very significant.

Burlington's central quad is comprised of an idealized 36 square blocks which, due to historic development, terrain and combination, have currently resulted in roughly 32 blocks. 22 of the blocks have the regular dimension of 400' x 400'. The five blocks between Winooski and Union are all wider...around 500'. That leaves two superblocks created in the 1970's, one the result of a two-block merger (site of St. Paul's, Christ Church, and State court) and the other combining six blocks (site of the Town Center, Hilton, and other uses).

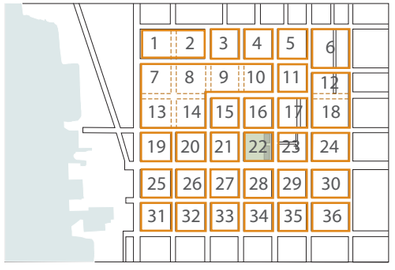
For comparison, many American cities in the Midwest and West have rectangular blocks around 330' x 660', dimensions which derive from the National Land Ordinance. Among cities with square blocks, Portland, Oregon's 200' x 200' are among the smallest. They produce a highly walkable grid but small building sites of 1 acre. Burlington's typical block are 4 acres. Walking a single 400' block takes the average person about 90 seconds.

Most of the streets have a 66' wide public right-of-way (from property line to property). Battery and Main are the major exceptions at 99' wide. Sidewalks are typically 15', which is considered adequate, even ample, but not generous in terms of providing space for a wide range of uses. Street slopes vary significantly, from the nearly flat stretches of Pearl to the 6% slopes near Winooski and Main.

THE MAN-MADE SETTING: DOWNTOWN STREET GRID CHARACTERISTICS

36 Blocks

this is the regularized completion of the grid, which has never been fully realized

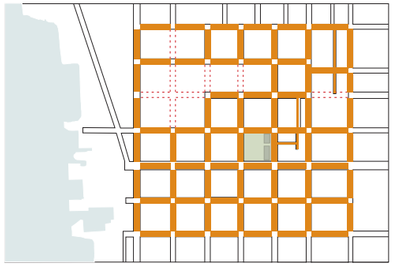


Historic Buildings

shows the clearing of many historic structures in the northwest quadrant for redevelopment

81 Street Segments

the new streetscape standards would apply to roughly 64 acres of land, and more than 6 linear miles of street

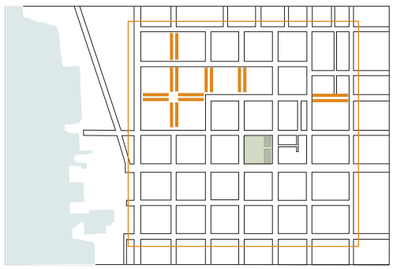


Pedestrian Scale

downtown is very walkable in scale, with route options roughly every 90 seconds

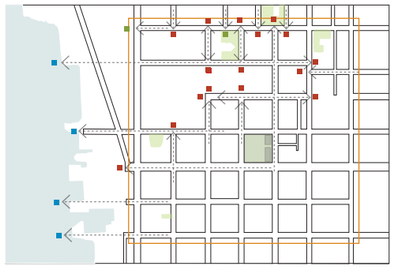
8 Missing Streets

2 of the 8 missing streets may be reopened through Burlington Town Center



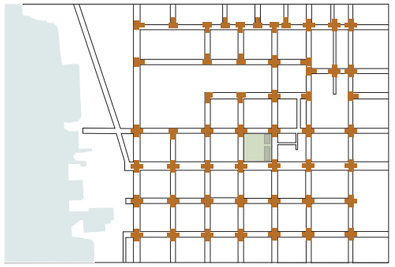
Terminations

water
park
building



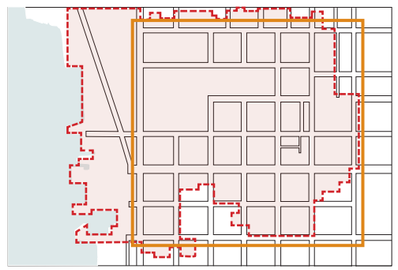
52 Intersections

each intersection in the project area will requre individual analysis and design



Proposed Downtown Development Area

coincides closely with the downtown Great Streets boundary, except for the more residential areas at the edges

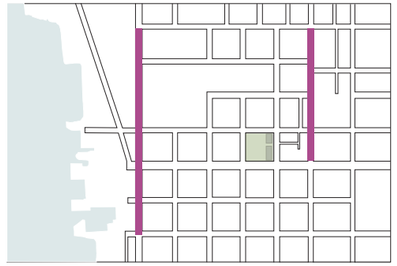


Street typology

The Burlington Street Design Guidelines establish a street typology that designates five street types in downtown: Complete, Transit, Bicycle, Pedestrian and Slow. In the years since these guidelines were developed, changes in plans or development proposals make it appropriate to reevaluate this typology:

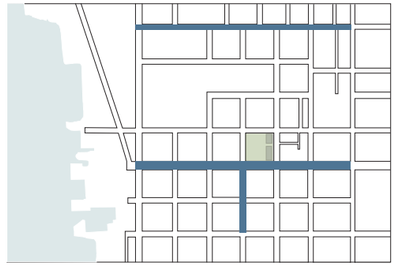
- the Downtown Transit Center, not envisioned at the time that these guidelines were written, has since been planned and is now under construction. This will alter transit routes, and therefore the designation of transit streets from what was proposed in the Burlington Transportation Plan.
- planBTV Walk Bike has identified future bikeway corridors based on extensive public input and current bikeway design guidelines, which have evolved considerably since the street design guidelines were developed. A significant change is that Main Street is proposed for protected bicycle lanes, currently undergoing a scoping study by members of the project team.
- The Burlington Town Center redevelopment is evaluating options to reconnect St Paul and/or Pine Streets, which would also substantially change the street functions and downtown circulation for all modes throughout the downtown core.
- With the current emphasis on green infrastructure to manage stormwater, it may also be appropriate to develop a typology or 'overlay' for "Green Streets." These may be corridors or even just single blocks that present special opportunities to integrate green infrastructure in a cost effective and attractive way.

DESIGNATED STREET TYPES IN DOWNTOWN



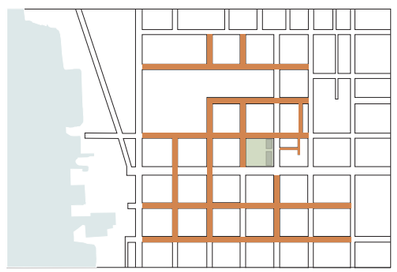
Complete Streets
10 blocks

Bicycle Streets
9 blocks



Transit Streets
12 blocks

Walk Streets
4 blocks



Slow Streets
~40 blocks

Innovative Standards for Green Infrastructure

Examples of the types of drawings the team has developed to explore economical and innnovative green infrastructure as part of the street standards repertoire

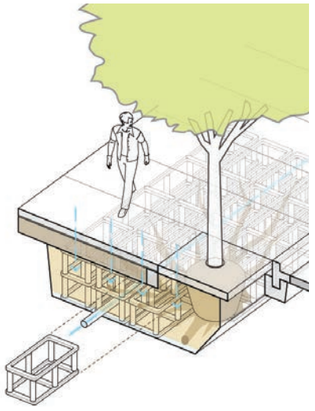
Green Pockets

Bump Out

Green Pocket Transit Ready

Green Pocket Parking

Green Pocket Parklette



Topography , Stormwater, and Landscape

Our design team believes in a landscape approach to stormwater management. Though each stormwater project is unique, the team adheres to some basic principles: manage stormwater runoff at the source and on the surface, allow plants and soil to manage stormwater and promote a natural watershed system, and create stormwater facilities that are cost effective, require minimal maintenance and enhance the aesthetics of the surrounding community.

In this context, the ideal Green Street is a "linear park with a landscaped system design to capture, cleanse, and potentially infiltrate stormwater runoff while at the same time providing a direct emphasis on multi-modal transportation and placemaking."

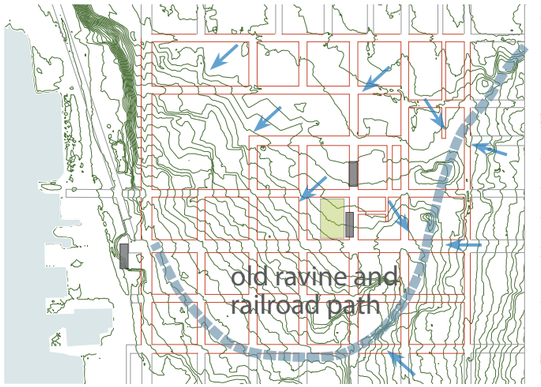
The best green streets are simple but elegant: shallow retention of stormwater runoff while maximizing the use of trees and ground plane landscaping. Stormwater facilities should blend seamlessly within all other streetscape elements.

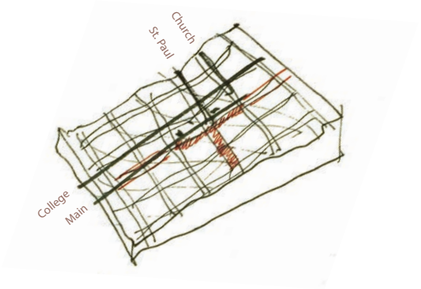
We believe that green streets should not only manage stormwater, but integrate all elements of the streetscape to create a more distinctive place. Many projects implemented by the design team have achieved success by using an array of green street design solutions such as stormwater planters, stormwater curb extensions, rain gardens, pervious paving, and green gutters. We anticipate that many of these design strategies will be explored for Burlington's streetscape. At the same time, unique conditions such as transportation facilities, right-of-way constraints, utility locations, and street programming will likely require new and adaptable green street solutions.

THE NATURAL SETTING

Terrain and Capturing Run-Off in Downtown Burlington

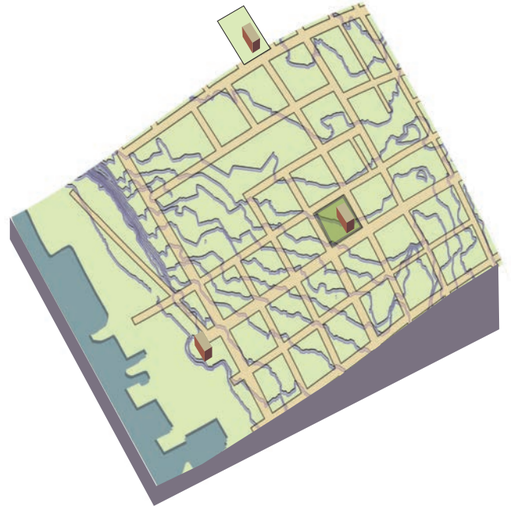
the grid was laid out at roughly 45 degrees to the prevailing contours, with the exception of the old ravine near Winooski; understanding this is key to an overall stormwater capture program for downtown's streets





Downtown Burlington's Warped Grid

examples of the sketch diagrams and modeled drawings that will be part of the analytical and community process

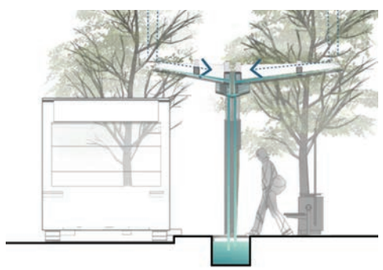


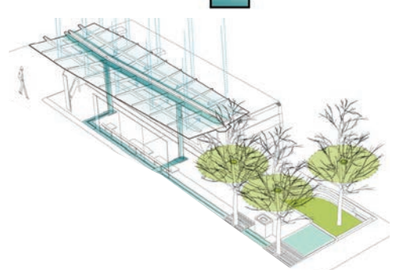
Light Fixtures and Poles

The Burlington Electric has approved three non-standard fixtures and poles, all by Lumec (L-70 Octagonal Lantern, Domus 50 series LED, and the Renaissance 20 series LED). We will start with these as a baseline for exploring any options which the City or stakeholders may wish to pursue.

New Standard for Green Transit Shelters

Examples of the type of designs the team has developed for innovative transit shelters that combine economy, protection, and green infrastructure





Street lighting is varied, from the upgraded ornamental lighting along Church and streets in the northwest quadrant to the functional "cobra head" lights in the south sector, some still supporting overhead power lines, especially on more residential blocks. Street trees are irregular. Some segments have generous and healthy rows, others have none at all, and some existing trees are in marginal condition due to less than ideal planting conditions (limited soil, roots constrained by paving). Street furnishings are plentiful in and around Church Street Marketplace but irregular elsewhere.

Transit stops and shelters have been upgraded around the cathedral park at St. Paul, and Cherry, with further improvements under construction with the new Downtown Transit Center. Stormwater is mostly treated conventionally, i.e. directed into the natural water system and Lake Champlain, but green infrastructure is now planned for many areas.

Transportation Analysis

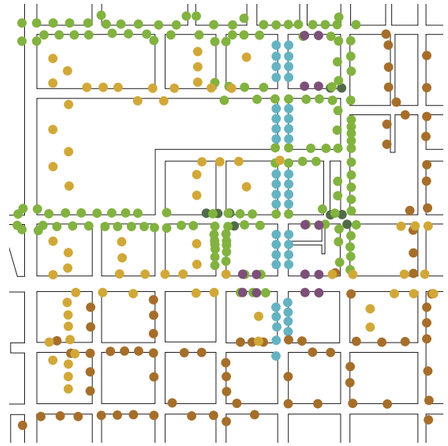
The Main Street corridor is surrounded by a fairly well connected street network. Its role as a major traffic artery into the city needs to be balanced with what is needed to create a vibrant downtown, a robust bikeway, and a highly walkable place. Vehicle volumes are significantly dispersed in the project area, with daily volumes less than 11,000 west of Winooski. The design of intersections is very critical for both safety and operations for all users, and we will use a complete streets approach, considering the optimum design for all users, rather than a "cars first" approach.

The current draft of planBTV Walk Bike includes a protected bikeway on Main Street between UVM and Battery Street, which is currently being scoped. With the generous right-of-way on Main Street, a number of concepts have been discussed that use contemporary bikeway designs, integrating parking and transit.

STREET LIGHTING

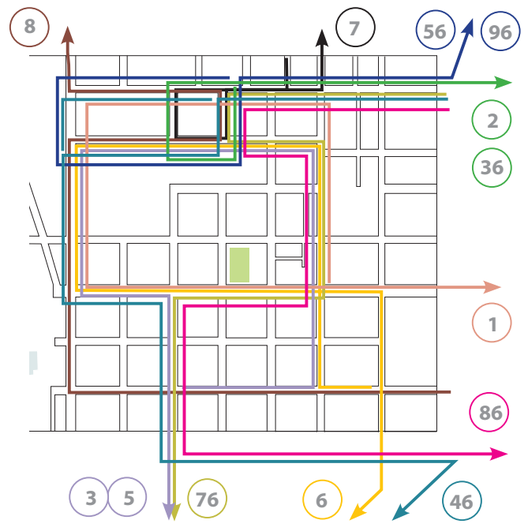
Inventory of Street Lighting

we conducted an initial survey of street lighting to determine the range of types and the pattern of location; this will help make decisions about street light types in the new standards

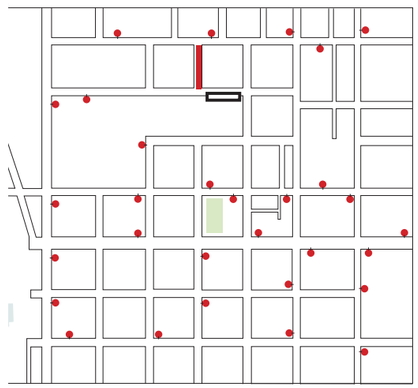


TRANSIT FACILITIES

the streetscape standards must be flexible enough to account for the complex pattern of bus movements and stop locations



Pattern of Bus Routes



Bus Stops & Transit Stations

Main Street Corridor

Most American main streets are relatively flat, often located along a ridge parallel to a river of waterfront, and serve as the primary commercial corridor for the downtown. In these respects, Church Street has historically functioned as more of a classic main street than Main Street itself (in fact in the original 1830 plan for Burlington, Main Street was named Fayette Street).

But Main Street's role is still unique. Along with Battery, it is the only truly wide street in downtown, with a nearly 100' right-of-way, with most of the other streets 66' wide. And along with College, it is the only central downtown street descending directly to the level of the lake. It abuts numerous important civic buildings, including the Federal and County Courthouses, City Hall, the old Armory and the old train station. Beyond downtown, Main extends eastward to connect to the rest of the region.

For all these reasons, Main is an important street with a changing and indefinite character. The Great Streets Initiative provides an opportunity to unify central Main Street and highlight its role as:

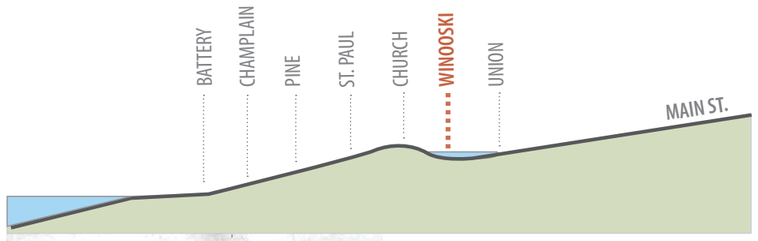
- a historic public space
- a key gateway into downtown from UVM
- a major crossroads at Winooski
- the southern entrance for Church Street Marketplace
- the southern boundary for City Hall Park
- an important crossroads with St. Paul and Pine
- a critical link to waterfront parks and the lake
- a truly multi-modal street for walking, biking, buses, cars, and trucks
- a potential green corridor that enhances the urban forest and that captures and recharges a very large footprint of stormwater

Main Street's crown

There is a significant crown along some sections of Main St. We will work with the City to see if this can be addressed within the Great Streets project through pavement reclamation. If not, the design will be constrained by existing pavement surface and drainage patterns. New treatments such as elevated intersections or pavements and crosswalks with new textures would need to be combined with the rehabilitation or reclamation of the pavement surface. Scoping of each project in terms of construction depth and how to treat pavement on Main St. will be important.

Main Street Corridor in 1890 (top) and 2016

Aerial view of the Main Street corridor and Projects 2-6



Ravine at Winooski and Main

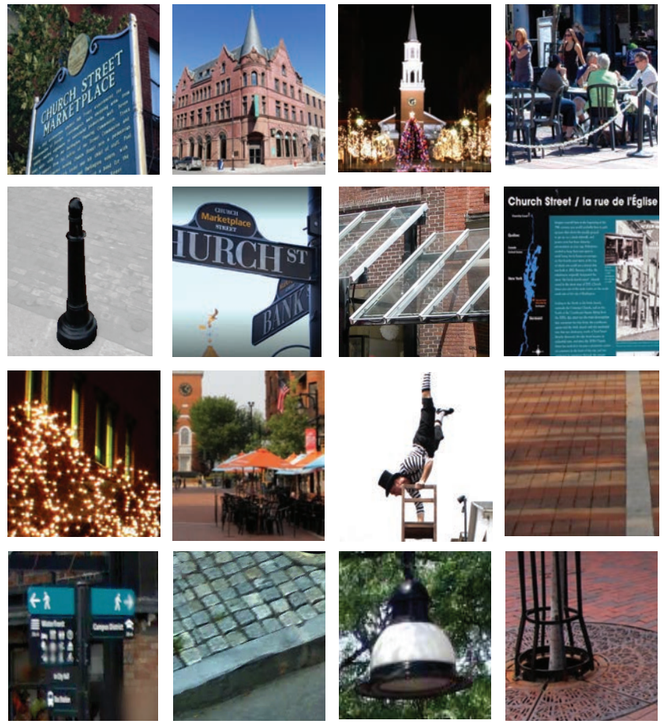
The ravine was probably an old branch of the Winooski River and was used at one point for the railroad tracks into downtown. It is now largely buried but still discernible.

1870s (bottom 1eft) and 2016 (bottom right)

Sledding Down Main Street into the ravine at Winooski

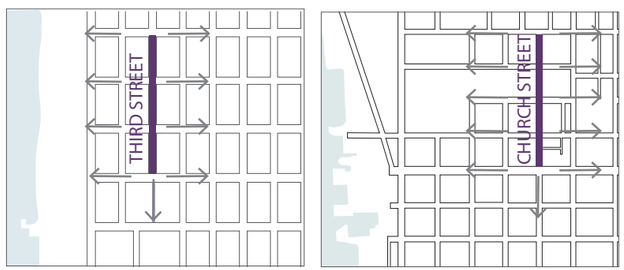
View looking east from Church Street during the 1887 Burlington Winter Carnival

THE URBAN LANGUAGE OF CHURCH STREET



- historic architecture (brick, stone)
- landmark terminus (brick, white)
- no cars, trucks, buses
- level street crossings
- intense social uses along edges
- active, articulated bulding corners
- ample outdoor dining zone
- awnings (multi-colored)
- special glass canopies (black, silver)
- pedestrian light poles (black)
- festival lighting over intersections
- kiosks for vending and information
- patterned brick paving (red, orange)
- bumpouts for shorter crossings
- brick crosswalks and ramps
- granite curbs and pavers (gray)
- consistent street lights (black, white)
- uniform outdoor chairs and tables
- metal, granite bollards (black, white)
- trees guards and grates (black)
- festoon lighting in trees
- wayfinding, historic plaques (teal)
- programmed festivals and events

EXPANDING AN EXISTING STREET LANGUAGE?



Burlington's Church Street and Santa Monica's Third Street Promenade

The two pedestrian streets are both very successful and have a number of similarities in scale and urban location. Santa Monica is seeking to expand the activity from the Promenade to adjacent streets and throughout downtown - the visual language of the Promenade is providing the foundation for that expansion (Suisman has developed the design). In Burlington, the question will be whether to extend the Church Street elements, modify them, interweave them with new elements, or adopt some combination of the three approaches.

Previous Efforts

Burlington Transportation Plan

A broad policy document that supports the Great Streets philosophy, Complete Street initiatives, and improved walking, biking and transit; anticipates the new transit center on St. Paul

Re-Imagining City Center

A new initiative to revitalize the mall, notably through the reopening of long-closed street segments on Pine and St. Paul

VAT Town Road and Bridge Standards

Establishes state standards that may apply to some segments of the downtown grid

NACTO Urban Street Design Guide

An influential national document that provides the policy support and detailed design guidance on creating urban streets that serve multiple users and purposes

Transportation Demand Management Action Plan

Offers strategies for City of Burlington to reduce automobile dependence and increase the use of transit, bikes, and walking, especially within downtown

Plan BTV Walk Bike (Draft)

Provides detailed guidance on pedestrian and bike improvements that directly affect downtown streets

Burlington Form Based Code (Draft)

Provides a dramatically new approach to citywide zoning which supports more housing, mixed-use and transit within downtown

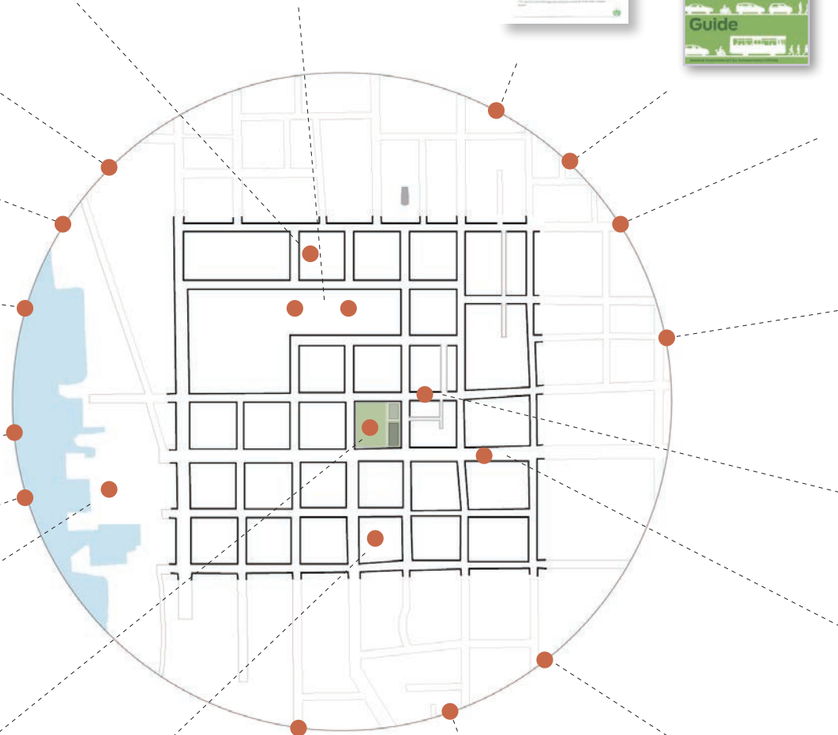
Complete Streets - A Guide for Vermont Communities

Establishes statewide standards and policy support, critical for the Complete Street segments in downtown

Burlington Street Design Guidelines

Defines and designates the street typologies for downtown: Transit, Complete, Bike, and Slow, and Pedestrian

GRAPHIC SYNTHESIS OF PREVIOUS EFFORTS AND STUDIES



Plan BTV Downtown & Waterfront

Extensive, long-term, citywide effort that provides the vision and direction for downtown as a livable, walkable, sustainable, transit-oriented district

College Street Stormwater Basin - Opportunities Toolkit

Provides a strong vision and range of tools for stormwater management on College that is widely applicable throughout downtown

Downtown Tax Increment Finance (TIF) Plan

Provides the basis for funding streetscape and public realm improvements, especially within downtown

Main Street Scoping Study

A current initiative looking at different roadway configurations for Main Street to accommodate all users, including bicyclists

Plan BTV Burlington Parks, Recreation & Waterfront Master Plan

Positions City Hall Park within a linked system of parks, open spaces, and waterfront; provides reference for City Hall Park and downtown waterfront park areas

Burlington Electric Department Street Light Policy

The citywide policy basis for improving the quality and efficiency of downtown street lighting with the new design and construction standards

City Hall Park Concept Design

Provides an advanced conceptual redesign of the park, with strong community input and support; critical link between College and Main

Champlain College - Eagle's Landing Development Plans

A key development within downtown that will be designed and built concurrently with the improvements on St. Paul Street

Downtown Parking & Transportation Plan

A comprehensive look at on-street and off-street parking in downtown, along with associated strategies for marketing, wayfinding, and development

Residential Parking Plan

A plan that considers permit parking residential neighborhoods to protect them from downtown visitor overflow