

DRAFT

CONCEPT ALTERNATIVES ANALYSIS SUMMARY



FOR THE

WASHINGTON STREET COMPLETE STREETS REDESIGN



submitted to
CITY OF HOBOKEN



submitted by
THE RBA GROUP



APRIL 3, 2014

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 - Corner Enhancement Opportunities
 - Concept B – Bike Lanes, Downtown & Uptown
 - Corner Enhancement Opportunities
 - Concept C – Pedestrian & Transit, Downtown & Uptown
 - Corner Enhancement Opportunities, Downtown & Uptown

Chapter 1: Introduction

In 2010, Washington Street was designated as one of the top 10 “Great Streets” by the American Planning Association. Washington Street is a place already celebrated and valued by residents and visitors. The intent of “redesigning” Washington Street is to rehabilitate the existing infrastructure and build on the street’s assets. The concept alternatives have been developed to preserve the character and charm of an outstanding historic venue while:

- introducing measures to improve pedestrian safety, bicycling accommodation, and traffic flow;
- “cleaning-up” and refreshing the street furnishings;
- providing additional or improved amenities; and
- defining and reinforcing a unique identity or brand through a consistently applied aesthetic.

This report presents three design concepts and a range of streetscape elements to provide guidance to City decision-makers in selecting a preferred design concept and aesthetic or style. The alternatives and options are intended to spur discussion and vet ideas by the City officials and staff and by the public in upcoming meetings.

All facilities and streetscape elements presented, and each of the three scenarios, comply with current federal and state standards and, regardless of choice, would bring Washington Street up to date with the N.J. Department of Transportation’s Roadway Design Manual and consistent with the design guidelines of the National Association of City Transportation Officials (“NACTO”), the American Association of State Highway and Transportation Officials (“AASHTO”), the Manual on Uniform Traffic Control Devices (“MUTCD”), and the Americans with Disabilities Act Guidelines for Public Rights of Way (“PROWAG”).

A Guiding Vision

Development of the concept alternatives was based on findings described in the Existing Conditions Report. A review of complementary initiatives, such as the [Bicycle and Pedestrian Plan](#) and the [Hoboken Green Infrastructure Strategic Plan](#), provided insight into Hoboken’s priorities and direction. The Vision for Washington Street expressed during public workshops, stakeholder meetings, interviews, and in surveys was equally important in guiding the design approach. The Vision for Washington Street below summarizes the results of public outreach and describes key characteristics befitting a “Great Street.” This Vision represents the goals and objectives that guided concept development.

The Vision

Washington Street will be:

- *an economic engine that supports local business and attracts visitors and residents,*
- *a walkable and bike-friendly street where there is mutual respect for all users,*
- *safe for pedestrians,*
- *convenient for accessing bus transit,*
- *well-connected to surrounding neighborhoods, public destinations and the waterfront,*
- *a model “Green Street” with trees and vegetation, and*

Washington Street will provide:

- *efficient traffic flow and convenient parking,*
- *innovative technologies for the safety and convenience of the traveling public,*
- *places for art, social interaction, and recreation,*
- *opportunities to promote and display city history and historic architecture,*
- *state of the art strategies to address stormwater and mitigate flooding*

Exhibits

The report narrative references a set of exhibits that were developed to describe options and will be mounted on display boards to be presented at upcoming meetings with stakeholders and the public (images of the exhibits are included in this report). The exhibits will be presented first to the City for discussion and vetting, and then to the public to solicit input on a pallet of styles and design concepts. They will also be posted on the project Website.

List of Exhibits

- **Design Aesthetics and Visual Preferences**
Shows examples of three different styles for street furnishings and finishes, each of which would define a distinct aesthetic - the “look and feel” of Washington Street. The contrasting styles of “Romantic,” “Craft,” and “Sleek” are presented to spur discussion of visual preferences.
- **Materials and Performance**
Shows examples of types of street furnishings and finishes to consider within the context of the overall preferred aesthetic. These will be presented to City officials and staff for discussing preferences.

CONCEPT ALTERNATIVES ANALYSIS SUMMARY

1. Lighting
 2. Surfacing
 3. Auxiliary Furnishings
 4. Green Infrastructure
- **Concept Design Alternatives**
 - Concept A – 1-Way Cycle Track, Downtown & Uptown
 - Corner Enhancement Opportunities
 - Concept B – Bike Lanes, Downtown & Uptown
 - Corner Enhancement Opportunities
 - Concept C – Pedestrian & Transit, Downtown & Uptown
 - Corner Enhancement Opportunities, Downtown & Uptown

Chapter 2 - Overview

Complete Streets

Complete Streets are designed for everyone – all users, modes, and ability levels – balancing the needs of drivers, pedestrians, bicyclists, transit vehicles, emergency responders and goods movement. The redesign of Washington Street is intended to advance and put into practice the City of Hoboken’s “Complete Streets” policy adopted in 2010. The three concept alternatives presented in this report have been developed with Complete Streets as a core, guiding principle. Each design alternative improves multimodal functionality, balancing competing needs for access, safety, and vehicular travel in a heavily traveled commercial and residential corridor.

Complete Streets does not prescribe a one-size-fits-all design, but requires consideration of the context and sensitivity to existing character, design elements, destinations and uses. The context of Washington Street is complex. There are various ways to allocate the physical space of the roadway and sidewalk right-of-way to different travel modes, activities, and purposes. However, the combination of facilities and streetscape elements has limitations based on specific requirements for physical space.

Each of the three concepts presented in this report achieve efficiency in the use of the available physical space while accommodating the competing interests of pedestrians, bicyclists, transit users and vehicular travel. They share many features and design approaches. Their differences are a result of the types of facilities selected for each mode.

Vehicular uses include parking and loading, critical to businesses, their customers, visitors, and residents. In addition, businesses need physical space for purposes such as sidewalk advertising and outdoor seating for dining. Bicyclists require parking facilities. Pedestrian-friendly environments include places for resting. Transit users require places to wait and queue for busses. Each concept alternative takes these needs into account, but the types and combinations of facilities vary.

The report names each of the three concept alternatives for ease in referring to them. The names are based on differences that result from the facilities introduced to accommodate different roadway users. However, they share many facilities in common and they all result in a more Complete Street. Pedestrian safety remains a priority for each concept and achieves significant improvements in accommodating pedestrians. The concepts also vary based on changes in land use and context along Washington Street, which is primarily commercial to the south (Downtown) and residential to the north (Uptown). Typical blocks and intersections showing details and dimensions are illustrated on each conceptual plan.

CONCEPT ALTERNATIVES ANALYSIS SUMMARY

- *Concept A – 1-Way Cycle Track, Downtown & Uptown*
- *Concept B – Bike Lanes, Downtown & Uptown*
- *Concept C – Pedestrian & Transit, Downtown & Uptown*

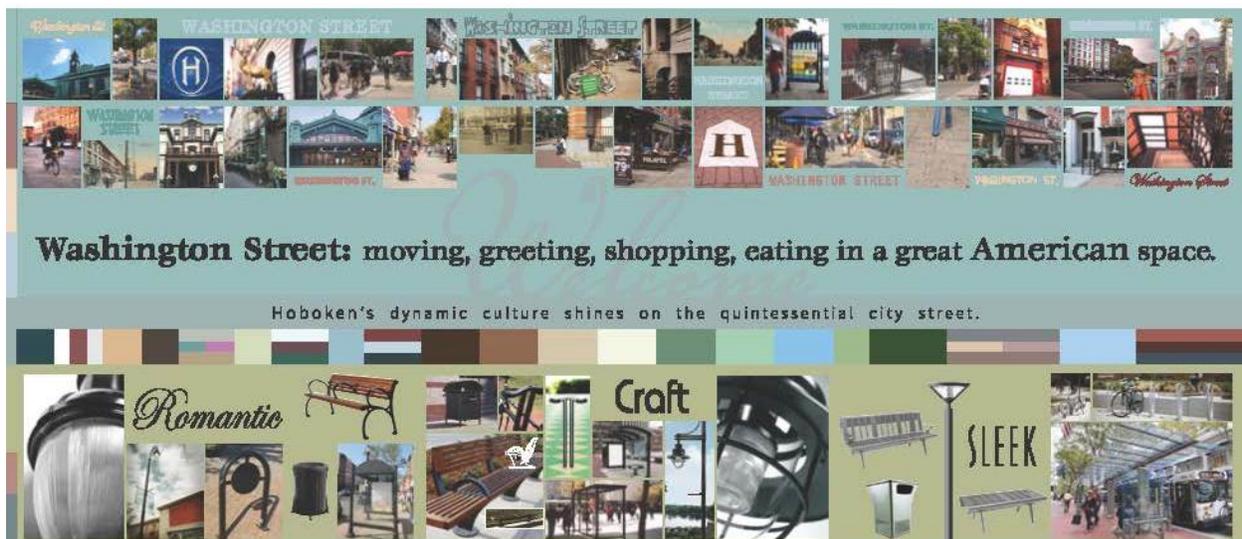
A *Corner Enhancement Opportunities* exhibit is provided for each concept. This further illustrates potential design features within the sidewalk/pedestrian realm. These exhibits can be found in Chapter 4.

Design Choices

In addition to functionality, the Washington Street redesign must take into consideration the aesthetic character of streetscape elements. Their design must be cohesive to create a coherent “look and feel” while complementing Washington Street’s historic architecture and eclectic charm. The neighborhood context and important nearby destinations such as the Hudson River Waterfront Walkway are also factors that may influence design choices.

This report is intended to spur discussion and guide future decisions in the selection of a style that will define a unique “brand” or identity for Washington Street. The brand is conveyed through the type, functionality and appearance of streetscape elements and surfaces. Selection of a “family” of furnishings and surfaces with complementary characteristics (e.g. benches, trash receptacles, streetlights, bus shelters, pavement treatments and crosswalks) ensure a unique, recognizable and authentic appearance throughout the corridor. Together, these elements contribute to the overall integrity of the Washington Street “character.”

Three distinct and contrasting styles are presented in an exhibit, **Design Aesthetics and Visual Preferences**, which will be used at upcoming meetings with City representatives and the public to generate discussion of visual preferences for Washington Street. The public will be given an opportunity to “vote” on visual preferences based on these choices.



Romantic – emulates or suggests a historic character from the 19th century, much like the existing streetlights; examples range from stock elements (often seen in other places) to custom designed authentic furnishings that are replicas from a specific time period.

Craft – contemporary, pleasing and artful styles developed by artists and designers.

Sleek – conveying a modern “look and feel” that is often minimalist, and which, because of its sleek character is sometimes used in conjunction with architecture that is more visually complex with ornate or detailed features.

Streetscape Inventory & Evaluation

The first step in the selection of furnishing and surfaces is to evaluate the type, style, condition and location of existing streetscape elements. The evaluation should take into account how well they serve users as well as how they contribute to the “look and feel” of the street. This report includes a photographic inventory organized as a chart to illustrate the process City staff might adopt in deciding whether to keep, remove, refurbish, relocate, replace, or regulate streetscape elements.

The report also presents a pallet of furnishings and surface treatments options to consider within the context of the overall aesthetic selected. These are displayed in the *Materials and Performance* Exhibits in Chapter 3, “Design Choices.”

Wayfinding

While Hoboken Terminal and the 14th Street Ferry Terminal have formalized systems of interrelated signs, there is no such structured wayfinding system that serves the greater City of Hoboken.

For wayfinding to be most effective, its elements should be part of a system—they should consider streets beyond Washington Street. This system might include:

- Gateway elements could welcome people into Hoboken first at main portals of entry for motorists and train passengers.
- Directional signs can point out what’s coming up ahead and/or indicate where to turn.
- Pedestrian-oriented elements comprised of “you are here” maps and other information

The needs of motorists, pedestrians, and bicyclists should be considered during the development of a wayfinding system.

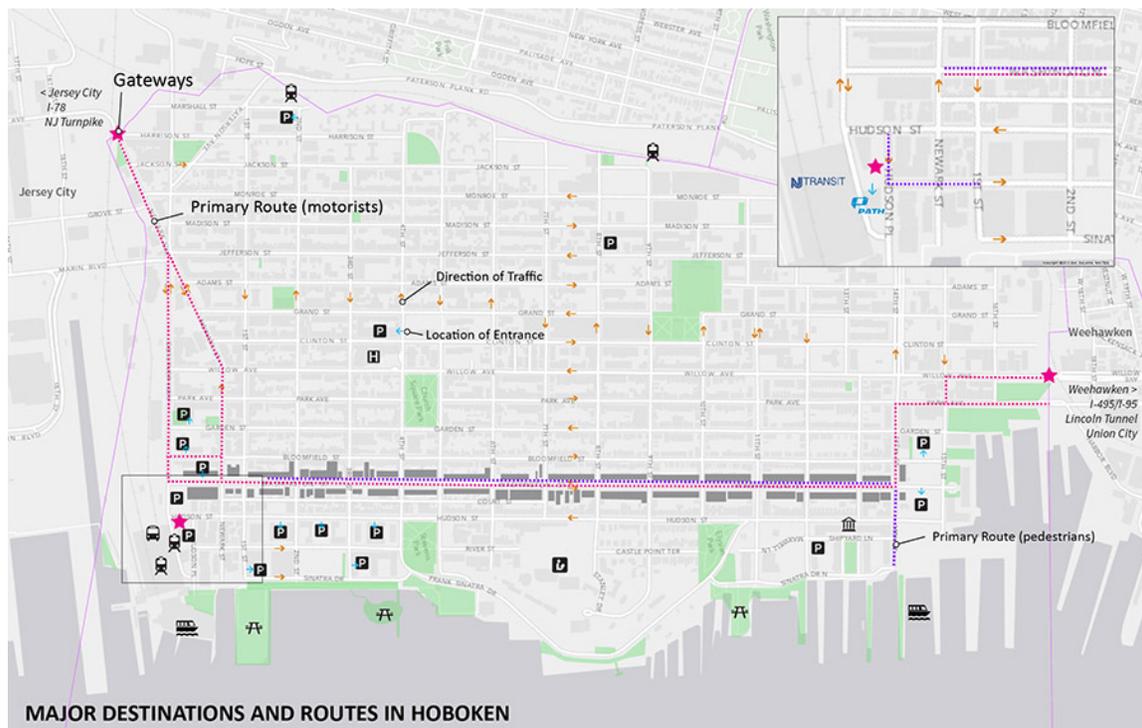
Important destinations can be grouped into five types:

- Washington Street
- Transit stations/portals

CONCEPT ALTERNATIVES ANALYSIS SUMMARY

- Parking garages
- Institutions (hospitals, universities)
- Waterfront Promenade/Parks

The pink and blue lines on the map below represent possible primary routes for a system of wayfinding elements that could serve both motorists and pedestrians along these routes. “Secondary routes” intersecting Washington Street connect people to major destinations. Secondary routes should also host wayfinding elements, continuing the process of navigating people to destinations.



Next Steps

The objective of project next steps is to arrive at a consensus as to the concept that will be advanced as the preferred alternative. The selection will be based on discussion and vetting of the conceptual plans and alternatives at a meeting with City staff and officials. The exhibit boards referenced in this report will be presented to spur discussion of concept alternatives, visual preferences, styles and streetscape elements.

A public meeting and other outreach activities and events will then be held where the exhibits will be displayed (with the exception of the Materials and Performance exhibits for review by City technical staff only).

Attendees will be provided with an opportunity to “vote” on the three styles presented in the Design Aesthetic and Visual Preferences exhibit and to comment on the three concept design alternatives.

Based on the selection of a preferred concept, The RBA Group will develop a final concept, incorporating comments or recommendations from the review process. The preferred concept will be further illustrated through supplemental graphics and cross sections.

An Estimate of Probable Cost and a Project Implementation and Phasing Plan will be prepared to support advancing the conceptual plans.

The final concept plan will be presented to the City Council along with the estimated costs and proposed project phasing.

Chapter 3: Design Choices

Streetscape Inventory & Evaluation

Washington Street is complicated and lively, interesting and fun. It is considered one of America's great streets. Important to that distinction is that the space of the street is framed by handsome brickfront buildings, 4 to 5 stories tall; making for a building height to street width ratio around 1:2+; a fine "urban room" that is comfortable, pedestrian oriented, human scaled, and yet urban environment. ***How the "urban room" of the street is furnished*** should make Hoboken's, block structure, scale, building traditions, grit, and history more vivid. The intention is to ensure that the experience of Washington Street is not diluted by an arbitrary collection of elements or an appropriated catalogue aesthetic. The selections of street furnishings and utility components should "add-up" to an authentically Hoboken-centric ensemble.

Today's Hobokenites and visitors see street surfaces, sidewalks, crosswalks, street lights, signal masts, signal boxes, parking signs, wayfinding signs, benches, and bus shelters that are often worn, broken or obsolete. Additionally, café seating, sidewalk merchandising, sandwich boards, private fencing, news boxes, bike parking and street signs can sometimes create unwelcome clutter. Though each of these issues has an individual remedy, an overall approach is necessary to contribute to the integrity of the city's public realm and to the experience of the street.

Other considerations to be accommodated in discussion of street furnishings include the innovative potential of community message kiosks, bike share pods, pop-up plazas, shop-front public art, curbside rain-gardens, stormwater inlets, and solar waste bins. The "look" of Washington Street, its identity as a recognizable, memorable place, is a product of its vital streetlife – shops, flats, and restaurants, set in short walkable city blocks of brickfront walls with cafes and entryways framed by 19th century ironwork. Some elements in the present "family" of street furnishings are repetitive and conspicuous and are, for better or worse, also part of Hoboken's "brand" or identity.

An inventory of streetscape elements resulted in the following counts:

- 205 Pedestrian Lights
- 69 Benches
- 11 Bus Shelters
- 54 Trash Receptacles
- 49 Bike Racks
- 195 Tree Pits
- 75,502 SF Paver Surface Area (crosswalks = 19,016 SF; sidewalk ramps = 10,743 SF; Amenity Strips= 45,743 SF)
- 209,737 SF Concrete Sidewalks

CONCEPT ALTERNATIVES ANALYSIS SUMMARY

- 2,198 LF Blue Stone Pavers (xwalks)
- 5,600 SF Hexagonal Asphalt Pavers
- 4 Message Boards (kiosks) (2 Boards between 5th&6th Streets, 2 boards between 1st&2nd Streets)
- 7 Pay Phone/internet (Near 11th & Wash.; Near 6th & Wash.; Near 3rd & Wash.; 2 between 1st&2nd St.; Near Newark & Wash.; Near Observer Hwy & Wash.)
- 6 Cobra head Lights

The **Streetscape Inventory & Evaluation Chart** that follows and the snapshots are intended to be a reference as the City selects products, commissions designers, specifies materials and considers bids from vendors and contractors. This chart, or one similar to it, can be used as a tool in the decision-making process, and addresses the following elements.

- Pedestrian Lights
- Benches
- Bus shelters
- Trash Receptacles
- Bike Racks
- Street Signals
- “Sandwich Boards”
- Sidewalk Merchandising & Displays
- Wayfinding
- Sidewalks
- Crosswalks
- Amenity Strip
- Street Trees
- Tree Pits and Edges
- Pots and Planting Beds

The four **Materials and Performance** exhibits that follow the chart show examples of types of street furnishings and finishes that might be considered within the context of the overall preferred aesthetic. These examples are intended to support discussion by City staff during the process of identifying preferred concept alternatives and styles.

PEDESTRIAN LIGHTS

Present number: 205
Average 16 per block
Approx. replacement cost:



NO ACTION
REMOVE
REFURBISH
RELOCATE
REPLACE
REGULATE



or



Notes

BENCHES

Present number: 69
Average 4 per block
Approx. replacement cost:



or



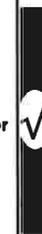
Notes

BUS SHELTERS

Present number: 11
2 every other block except
(missing at xx and xx streets)
Approx. replacement cost:
Advertising contract :



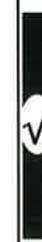
or



Notes

TRASH RECEPTACLES

Present number: 54
Average 4 per block,
1 @ ea. corner
Approx. replacement cost:



Notes

BIKE RACKS
 Present number: 49
 Average 3 per block
 Approx. replacement cost:



NO ACTION
 REMOVE
 REFURBISH
 RELOCATE
 REPLACE
 REGULATE

✓ or ✓

Notes

STREET SIGNALS
 Present number: n/a
 Average n/a per block
 Approx. replacement cost:



✓ or ✓

Notes

"SANDWICH BOARDS"
 Present number: n/a
 Approx. replacement cost:
 Advertising contract :



✓ ✓

Notes

SIDEWALK MERCHANDISING + DISPLAYS

Present number: n/a
 Average n/a per block,
 Approx. replacement cost:

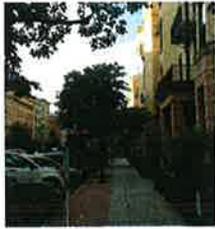


✓ or ✓

Notes

					NO ACTION	REMOVE	REPAIR	RELOCATE	REPLACE	REGULATE	
<p>WAYFINDING Present number: n/a Average n/a per block Approx. replacement cost:</p>									✓		Notes
<p>SIDEWALKS Surface Area: 210,000 f² Approx. replacement cost:</p>							✓	or	✓		Notes
<p>CROSSWALK Surface Area: 20,000 f² Approx. replacement cost: Advertising contract:</p>									✓		Notes
<p>AMENITY STRIP Surface Area: 46,000 f² Approx. replacement cost:</p>									✓		Notes

STREET TREES
 Present number: n/a
 Average 1n/aer block
 Approx. replacement cost:



NO ACTION

REMOVE

REFURBISH

RELOCATE

REPLACE

REGULATE



or



Notes

TREE PITS AND EDGES
 Present number: 195
 Average 12 per block
 Approx. replacement cost:



(See notes)

Notes

POTS + PLANTING BEDS
 Present number: n/a
 Average n/a per block
 Approx. replacement cost:



or



Notes



DRAFT Materials & Performance DRAFT

[SURFACING]

ROADWAY

ASPHALT BRICK PAVER COBBLESTONE

SIDEWALK

CONCRETE STYLIZED CONCRETE BLUESTONE UNIT PAVERS

CROSSWALK

PAINT OR THERMOPLASTIC STRIPING

STANDARD CONTINENTAL
 STAGGERED CONTINENTAL LADDER
 ERGONOMIC SCRAMBLE

UNIT PAVER DURATHERM

TRAFFIC

PAINTED STRIPE CONTRAST PAINTED FIELD CONTRAST MATERIAL CONTRAST

DRAFT Materials & Performance DRAFT

[AUXILIARY FURNISHINGS]

VERTICAL BARRIERS

PERMEABLE PARTITIONS

PORTABLE →
TO
PERMANENT

KNOCK-DOWN VERTICAL DELINEATORS →
 PLACED PLANTERS →
 PLACED BOULDERS

TRASH

BIGBELLY RECEPTACLES

A GIVEN?

BIKE STORAGE

POINT STORAGE

EXISTING

ALT.

FIELD STORAGE

EXISTING

ALT.

WHAT IS THE DESIRED BALANCE?

● EXISTING POINT STORAGE ▬ EXISTING FIELD STORAGE

POINT FIELD

POINT FIELD

POINT FIELD

DRAFT Materials & Performance DRAFT

GREEN INFRASTRUCTURE

STRATEGY

WHERE CAN THE WATER GO?

- INTO THE GROUND?
 - NO: SHALLOW BEDROCK, EMPTY COAL VAULTS, HIGH WATER TABLE, AND FLOODED BASEMENTS ELIMINATE AN INFILTRATION STRATEGY.
- INTO THE COMBINED SYSTEM?
 - WITH DELAY
 - CLIMB CUTS - ENTRY OF STORMWATER INTO PLANTING BED DELAYS CONCENTRATION OF FLOW
 - WITHOUT DELAY
 - CLIMB CUTS - ENTRY OF STORMWATER INTO TREE PIT DELAYS CONCENTRATION OF FLOW PLANTINGS TAKE IN AND EVAPORATE STORMWATER

EXISTING

CONCENTRATED FLOWS CAN OVERWHELM THE SYSTEM AND CONTRIBUTE TO FLOODING IN OTHER PARTS OF THE CITY

- CONTINUOUS CURB - RAPID CONCENTRATION OF STORMWATER VOLUME ENTERS COMBINED SEWER SYSTEM
- CONTINUOUS CURB - RAPID CONCENTRATION OF STORMWATER VOLUME

PROPOSED

PALETTE

PROVEN

Littleleaf Linden <i>Tilia cordata</i>	Blackgum <i>Nyssa sylvatica</i>	Sycamore <i>Platanus occidentalis</i>	Red Maple <i>Acer rubrum</i>	Sweetgum <i>Liquidambar styraciflua</i>	Kentucky Coffeetree <i>Gymnocladia dioica</i>

HARDY

Broomsedge <i>Antragonis</i> spp. -native/perennial grass -wet or dry soil tolerant -prefers sun -air pollution tolerant -winter interest	Blue Fescue <i>Festuca glauca</i> -naturalized perennial grass -drought/dry soil tolerant -full sun -pollution tolerant -winter interest	Switchgrass <i>Panicum virgatum</i> -native/perennial grass -wet or dry soil tolerant -prefers sun -air pollution tolerant -winter interest	Seaside Goldenrod <i>Solidago sempervirens</i> -native/perennial -salt tolerant -prefers sun -plant in massing -fall bloom	Northern Blueflag <i>Iris versicolor</i> -native/perennial -wet site tolerant -prefers sun -plant with grasses -spring bloom	Cutleaf coneflower <i>Rudbeckia laciniata</i> -native/perennial -wet site tolerant -prefers part shade -plant in massing -late summer/fall bloom

DURABLE

EXISTING			ALTERNATIVES			
	TREE GUARD	CONCRETE PAVERS		TREE GRATE	PAVER SURROUND	PAVER ACCENT

Chapter 4: Concept Alternatives

Methodology and Design Approach

The redesign of Washington Street should improve safety and aesthetic experience. It should create new facilities for multi-modal travel while preserving the efficiency of what is already there. It should blend the environmental sensitivities of the current day with the infrastructure of over a century past. It should do all these things while supporting economic growth, enhancing a “sense of place”, contributing to local culture, providing for comfortable travel and access to public transportation, providing parking, providing loading, reducing the urban heat island effect, and ensuring that all users can travel safely regardless of their physical capacity. The redesign of Washington Street should have a coherence that is logical and legible as much in the mind as in the physical space of the street.

How does one make something that can do all these things?

The redesign of Washington Street is multi-dimensional (having many goals) and has many solutions, none optimal for every goal. To generate comprehensive solutions, the RBA design team began by distinguishing between “design ideas” and “design concepts”. Design ideas are viewed as singular and focused on a specific goal, while design concepts are viewed as comprehensive, adapted to context, and working within a system. For example, each of a bike lane, parallel parking, or a bus bulb-out is considered a design idea. When these ideas are integrated within the specific context of Washington Street and modified to suit their own systemic interrelationships, they become a design concept.

In the design process for Washington Street, the RBA team generated a matrix of design ideas as a first step toward comprehensive design concepts. Design ideas were categorically assembled for bike facilities, pedestrian crossings, transit circulation, traffic signals, parking, loading, and green infrastructure. Ideas were sketched to scale on base mapping as a means of visual communication and an initial exploration of contextual suitability.

The concepts generated from this process were evaluated and three alternatives were selected for more detailed analysis and development.

The following **Concept Comparison Table** compares the three concepts based on their distinguishing characteristics and features, and highlights benefits and impacts.

CONCEPT ALTERNATIVES ANALYSIS SUMMARY

Downtown

Elements in Common	Concept A – 1-Way Cycle Track	Concept B – Bike Lanes	Concept C – Pedestrian & Transit
Roadway	<ul style="list-style-type: none"> • Maintains existing cartway and curb alignment • Curbed refuge islands offset from existing curb 	<ul style="list-style-type: none"> • Maintains existing cartway and curbing 	<ul style="list-style-type: none"> • Maintains existing cartway width • Installs new curb extension bulb-out at all intersections
Traffic Signals	<ul style="list-style-type: none"> • New signals and pedestrian countdown heads 	<ul style="list-style-type: none"> • New signals and pedestrian countdown heads 	<ul style="list-style-type: none"> • New signals and pedestrian countdown heads
Pedestrian Crossings	<ul style="list-style-type: none"> • Curbed refuge islands • Shorter crossing length • High visibility crosswalks • New ADA curb ramps 	<ul style="list-style-type: none"> • Painted bulb-outs • Shorter crossing length • High visibility crosswalks • New ADA curb ramps 	<ul style="list-style-type: none"> • Full curb extension bulb-outs at intersections • Shorter crossing length • High visibility crosswalks • New ADA curb ramps
Transit	<ul style="list-style-type: none"> • Maintains far side transit stops • Provides painted roadway pavement in transit area • Separates bike facilities from transit 	<ul style="list-style-type: none"> • Maintains far side transit stops • Provides painted roadway pavement in transit 	<ul style="list-style-type: none"> • Maintains far side transit stops • Provides bus bulb-outs • Reduces conflicts between transit riders and pedestrians
Parking	<ul style="list-style-type: none"> • Maintains parking totals • Maintains parallel parking • Maintains existing dimensions • Eliminates double parking opportunity 	<ul style="list-style-type: none"> • Maintains parking totals • Maintains parallel parking • Widens parking width to 9' 	<ul style="list-style-type: none"> • Maintains parking totals • Maintains parallel parking • Widens parallel parking to 9' with a 5' buffer between travel lane • Double parking/loading opportunity remains
Loading	<ul style="list-style-type: none"> • Designated parking spaces to be used as loading zones during specific, regulated times 	<ul style="list-style-type: none"> • Designated parking spaces to be used as loading zones during specific, regulated times 	<ul style="list-style-type: none"> • Allows existing double parking for loading purposes • Designated parking spaces to be used as loading zones during specific, regulated times
Landscape	<ul style="list-style-type: none"> • Increases all existing tree pits to proposed HSTC dimensions with tree guard fencing • Opportunity for landscaping within refuge islands 	<ul style="list-style-type: none"> • Increases all existing tree pits to proposed HSTC dimensions with tree guard fencing 	<ul style="list-style-type: none"> • Increases all existing tree pits to proposed HSTC dimensions with tree guard fencing • Opportunity for landscaping within bulb-outs

CONCEPT ALTERNATIVES ANALYSIS SUMMARY

Elements in Common	Concept A – 1-Way Cycle Track	Concept B – Bike Lanes	Concept C – Pedestrian & Transit
Utilities/Infrastructure	<ul style="list-style-type: none"> • Maintains existing inlets • Requires new inlets at intersections in coordination with proposed refuge islands and elevated cycle track 	<ul style="list-style-type: none"> • Maintains existing inlets 	<ul style="list-style-type: none"> • Requires new inlets at proposed curb extension bulb-outs
Bike Facilities	<ul style="list-style-type: none"> • 6' wide one-way cycle track • Elevated to sidewalk level 	<ul style="list-style-type: none"> • 5' bike lane 	<ul style="list-style-type: none"> • None indicated • Provides space to accommodate bike lanes/sharrows • Provides space for bike parking within bulb-outs
Constructability/Cost	<ul style="list-style-type: none"> • Moderate cost • Required sidewalk expansion and construction of curbed refuge islands 	<ul style="list-style-type: none"> • Low cost • No built elements, all roadway improvements are painted 	<ul style="list-style-type: none"> • Moderate to high cost • Requires sidewalk expansion and construction of curb extension bulb-outs

CONCEPT ALTERNATIVES ANALYSIS SUMMARY

Uptown

Elements in Common	Concept A – 1-Way Cycle Track	Concept B – Bike Lanes	Concept C – Pedestrian & Transit
Roadway	<ul style="list-style-type: none"> • Maintains existing cartway and curb alignment • Provides 11' travel lane • Curbed refuge islands offset from existing curb 	<ul style="list-style-type: none"> • Maintains existing cartway and curbing • Provides 11' travel lane 	<ul style="list-style-type: none"> • Maintains existing cartway width • Provides 11' travel lane • Installs new curb extension bulb-out at all intersections
Traffic Signals	<ul style="list-style-type: none"> • New signals and pedestrian countdown heads 	<ul style="list-style-type: none"> • New signals and pedestrian countdown heads 	<ul style="list-style-type: none"> • New signals and pedestrian countdown heads
Pedestrian Crossings	<ul style="list-style-type: none"> • Curbed refuge islands • Shorter crossing length • High visibility crosswalks • New ADA curb ramps 	<ul style="list-style-type: none"> • Painted bulb-outs • Shorter crossing length • High visibility crosswalks • New ADA curb ramps 	<ul style="list-style-type: none"> • Full curb extension bulb-outs at intersections • Shorter crossing length • High visibility crosswalks • New ADA curb ramps
Transit	<ul style="list-style-type: none"> • Maintains far side transit stops • Provides painted roadway pavement in transit area • Separates bike facilities from transit 	<ul style="list-style-type: none"> • Maintains far side transit stops • Constructed bus bulb-out • Provides painted roadway pavement in transit 	<ul style="list-style-type: none"> • Maintains far side transit stops • Provides bus bulb-outs • Reduces conflicts between transit riders and pedestrians
Parking	<ul style="list-style-type: none"> • Reverse angle back-in parking on west side • Angle parking changed to parallel on east side • Maintains existing angled dimensions • Eliminates double parking opportunity 	<ul style="list-style-type: none"> • Maintains parking totals • Maintains stall dimensions • Reverses angle to back-in only parking 	<ul style="list-style-type: none"> • Reverse angle back-in only parking • Maintains existing angled dimensions with a 4' buffer to travel lane • Double parking/loading opportunity remains
Loading	<ul style="list-style-type: none"> • Designated parking spaces to be used as loading zones during specific, regulated times 	<ul style="list-style-type: none"> • Designated parking spaces to be used as loading zones during specific, regulated times 	<ul style="list-style-type: none"> • Allows existing double parking for loading purposes • Designated parking spaces to be used as loading zones during specific, regulated times
Landscape	<ul style="list-style-type: none"> • Increases all existing tree pits to proposed HSTC dimensions with tree guard fencing • Opportunity for landscaping within refuge islands 	<ul style="list-style-type: none"> • Increases all existing tree pits to proposed HSTC dimensions with tree guard fencing 	<ul style="list-style-type: none"> • Increases all existing tree pits to proposed HSTC dimensions with tree guard fencing • Opportunity for landscaping within bulb-outs

CONCEPT ALTERNATIVES ANALYSIS SUMMARY

Elements in Common	Concept A – 1-Way Cycle Track	Concept B – Bike Lanes	Concept C – Pedestrian & Transit
Utilities/Infrastructure	<ul style="list-style-type: none"> • Maintains existing inlets • Requires new inlets at intersections in coordination with proposed refuge islands and elevated cycle track 	<ul style="list-style-type: none"> • Maintains most existing inlets • Requires new inlets at bus bulb-outs 	<ul style="list-style-type: none"> • Requires new inlets at proposed curb extension bulb-outs
Bike Facilities	<ul style="list-style-type: none"> • 5' wide one-way cycle track • 3' wide buffer • At grade with roadway 	<ul style="list-style-type: none"> • 4' bike lane 	<ul style="list-style-type: none"> • None indicated • Provides space to accommodate bike lanes/sharrows • Provides space for bike parking within bulb-outs
Constructability/Cost	<ul style="list-style-type: none"> • Moderate cost • Requires construction of curbed refuge islands 	<ul style="list-style-type: none"> • Low cost • Minimum build (bus bulb-outs) • Other roadway improvements are painted 	<ul style="list-style-type: none"> • Moderate to high cost • Requires sidewalk expansion and construction of curb extension bulb-outs

CONCEPT ALTERNATIVES ANALYSIS SUMMARY



DOWNTOWN

ROADWAY

- MAINTAINS EXISTING GARTWAY AND CURB ALIGNMENT
- PROVIDES 11' TRAVEL LANE
- CURBED REFUGE ISLANDS OFFSET FROM EXISTING CURB

TRAFFIC SIGNALS

- NEW SIGNALS AND PEDESTRIAN COUNTDOWN HEADS

PEDESTRIAN CROSSINGS

- CURBED REFUGE ISLANDS
- SHORTER CROSSING LENGTH
- HIGH VISIBILITY CROSSWALKS
- NEW ADA CURB RAMPS

TRANSIT

- MAINTAINS FAR SIDE TRANSIT STOPS
- PROVIDES PAINTED ROADWAY PAVEMENT IN TRANSIT AREA
- SEPARATES BIKE FACILITIES FROM TRANSIT

PARKING

- MAINTAINS PARKING TOTALS
- MAINTAINS PARALLEL PARKING
- MAINTAINS EXISTING DIMENSIONS
- ELIMINATES DOUBLE PARKING OPPORTUNITIES

LOADING

- 10' SHARED PARKING SPACES TO BE USED AS LOADING ZONES DURING SPECIFIC REGULATED TIMES
- COORDINATE OFF-AREA DELIVERY PROGRAM

LANDSCAPE

- INCREASES ALL EXISTING TREE PITS TO PROPOSED HEIGHT DIMENSIONS WITH TREE GUARD FENCING
- OPPORTUNITY FOR LANDSCAPING WITHIN REFUGE ISLANDS

UTILITIES/INFRASTRUCTURE

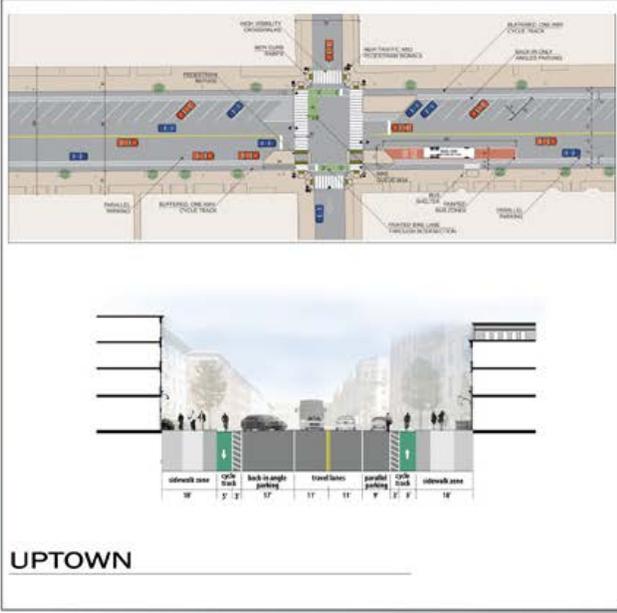
- MAINTAINS EXISTING RLETS
- REQUIRES NEW RLETS AT INTERSECTIONS IN COORDINATION WITH PROPOSED REFUGE ISLANDS AND ELEVATED CYCLE TRACK

BIKE FACILITIES

- 1' WIDE ONE-WAY CYCLE TRACK
- ELEVATED TO SIDEWALK LEVEL

CONSTRUCTABILITY/COST

- MODERATE COST
- REQUIRES SIGNIFICANT EXPANSION AND CONSTRUCTION OF CURBED REFUGE ISLANDS



UPTOWN

ROADWAY

- MAINTAINS EXISTING GARTWAY AND CURB ALIGNMENT
- PROVIDES 11' TRAVEL LANE
- CURBED REFUGE ISLANDS OFFSET FROM EXISTING CURB

TRAFFIC SIGNALS

- NEW SIGNALS AND PEDESTRIAN COUNTDOWN HEADS

PEDESTRIAN CROSSINGS

- CURBED REFUGE ISLANDS
- SHORTER CROSSING LENGTH
- HIGH VISIBILITY CROSSWALKS
- NEW ADA CURB RAMPS

TRANSIT

- RELOCATES FAR SIDE TRANSIT STOPS
- PROVIDES PAINTED ROADWAY PAVEMENT IN TRANSIT AREA
- SEPARATES BIKE FACILITIES FROM TRANSIT

PARKING

- RELOCATES DOUBLE PARKING ON WEST SIDE
- ANGLE PARKING CHANGED TO PARALLEL ON EAST SIDE, NET LOSS OF 80 SPACES
- MAINTAINS PARKING ANGLES DIMENSIONS
- ELIMINATES DOUBLE PARKING OPPORTUNITIES

LOADING

- 10' SHARED PARKING SPACES TO BE USED AS LOADING ZONES DURING SPECIFIC REGULATED TIMES
- COORDINATE OFF-AREA DELIVERY PROGRAM

LANDSCAPE

- INCREASES ALL EXISTING TREE PITS TO PROPOSED HEIGHT DIMENSIONS WITH TREE GUARD FENCING
- OPPORTUNITY FOR LANDSCAPING WITHIN REFUGE ISLANDS

UTILITIES/INFRASTRUCTURE

- MAINTAINS EXISTING RLETS
- REQUIRES NEW RLETS AT INTERSECTIONS IN COORDINATION WITH PROPOSED REFUGE ISLANDS AND ELEVATED CYCLE TRACK

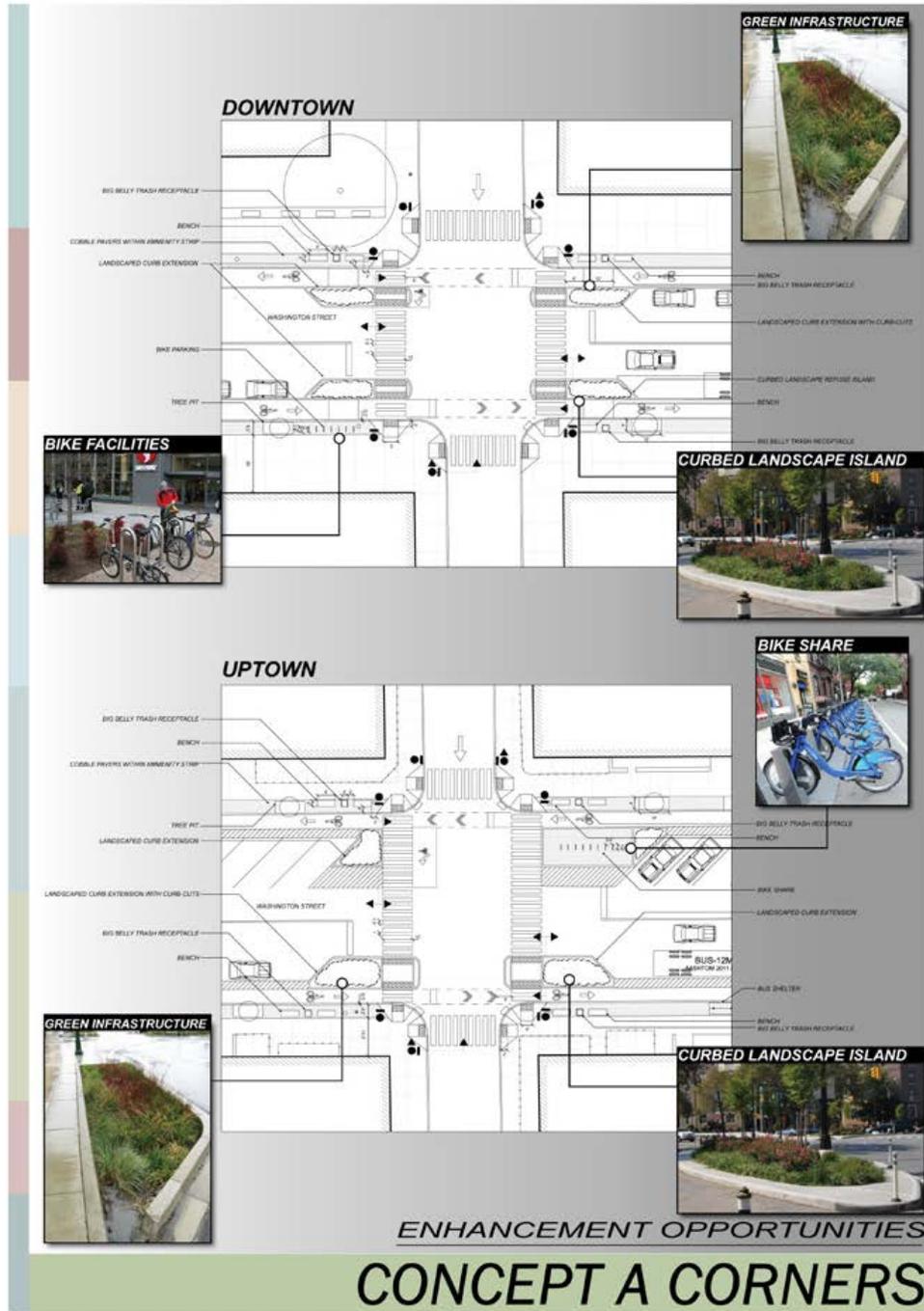
BIKE FACILITIES

- 1' WIDE ONE-WAY CYCLE TRACK
- 1' WIDE BUFFER
- AT GRADE WITH ROADWAY

CONSTRUCTABILITY/COST

- MODERATE COST
- REQUIRES CONSTRUCTION OF CURBED REFUGE ISLANDS

CONCEPT A - 1-WAY CYCLE TRACK



CONCEPT ALTERNATIVES ANALYSIS SUMMARY

DOWNTOWN

ROADWAY

- MAINTAINS EXISTING CANTARY AND CURBING
- PROVIDES 11' TRAVEL LANE

TRAFFIC SIGNALS

- NEW SIGNALS AND PEDESTRIAN COUNTDOWN HEADS

PEDESTRIAN CROSSINGS

- PAINTED CROSSINGS
- SHORTER CROSSING LENGTH
- HIGH VISIBILITY CROSSINGS
- NEW ADA CURB RAMP

TRANSIT

- MAINTAINS FAR SIDE TRANSIT STOPS
- PROVIDES PAINTED ROADWAY INFRASTRUCTURE IN TRANSIT AREA

PARKING

- MAINTAINS PARKING TOTALS
- MARKS NEW PARKING SPACES
- WIDENS PARKING WIDTH TO 8'

LOADING

- DESIGNATED PARKING SPACES TO BE USED AS LOADING ZONES DURING SPECIFIC REGULATED TIMES

LANDSCAPE

- INCREASES ALL EXISTING TREE FTES TO PROPOSED 40% DIMENSIONS WITH TREE GUARD FENCING

UTILITIES/INFRASTRUCTURE

- MAINTAINS EXISTING INLETS

BIKE FACILITIES

- 1.5 BIKE LANE

CONSTRUCTABILITY/COST

- LOW COST
- NO BUILT ELEMENTS. ALL ROADWAY IMPROVEMENTS ARE PAINTED

UPTOWN

ROADWAY

- MAINTAINS EXISTING CANTARY AND CURBING
- PROVIDES 11' TRAVEL LANE

TRAFFIC SIGNALS

- NEW SIGNALS AND PEDESTRIAN COUNTDOWN HEADS

PEDESTRIAN CROSSINGS

- PAINTED CROSSINGS
- SHORTER CROSSING LENGTH
- HIGH VISIBILITY CROSSINGS
- NEW ADA CURB RAMP

TRANSIT

- MAINTAINS FAR SIDE TRANSIT STOPS
- CONSTRUCTS NEW BUS BAYS
- PROVIDES PAINTED ROADWAY INFRASTRUCTURE IN TRANSIT AREA

PARKING

- MAINTAINS PARKING TOTALS
- MARKS NEW STALL CONFIGURATIONS
- REVERSES ANGLE TO BACK-IN ONLY PARKING

LOADING

- DESIGNATED PARKING SPACES TO BE USED AS LOADING ZONES DURING SPECIFIC REGULATED TIMES

LANDSCAPE

- INCREASES ALL EXISTING TREE FTES TO PROPOSED 40% DIMENSIONS WITH TREE GUARD FENCING

UTILITIES/INFRASTRUCTURE

- MAINTAINS MOST EXISTING INLETS
- REQUIRES NEW INLETS AT BUS BAY/OUTS

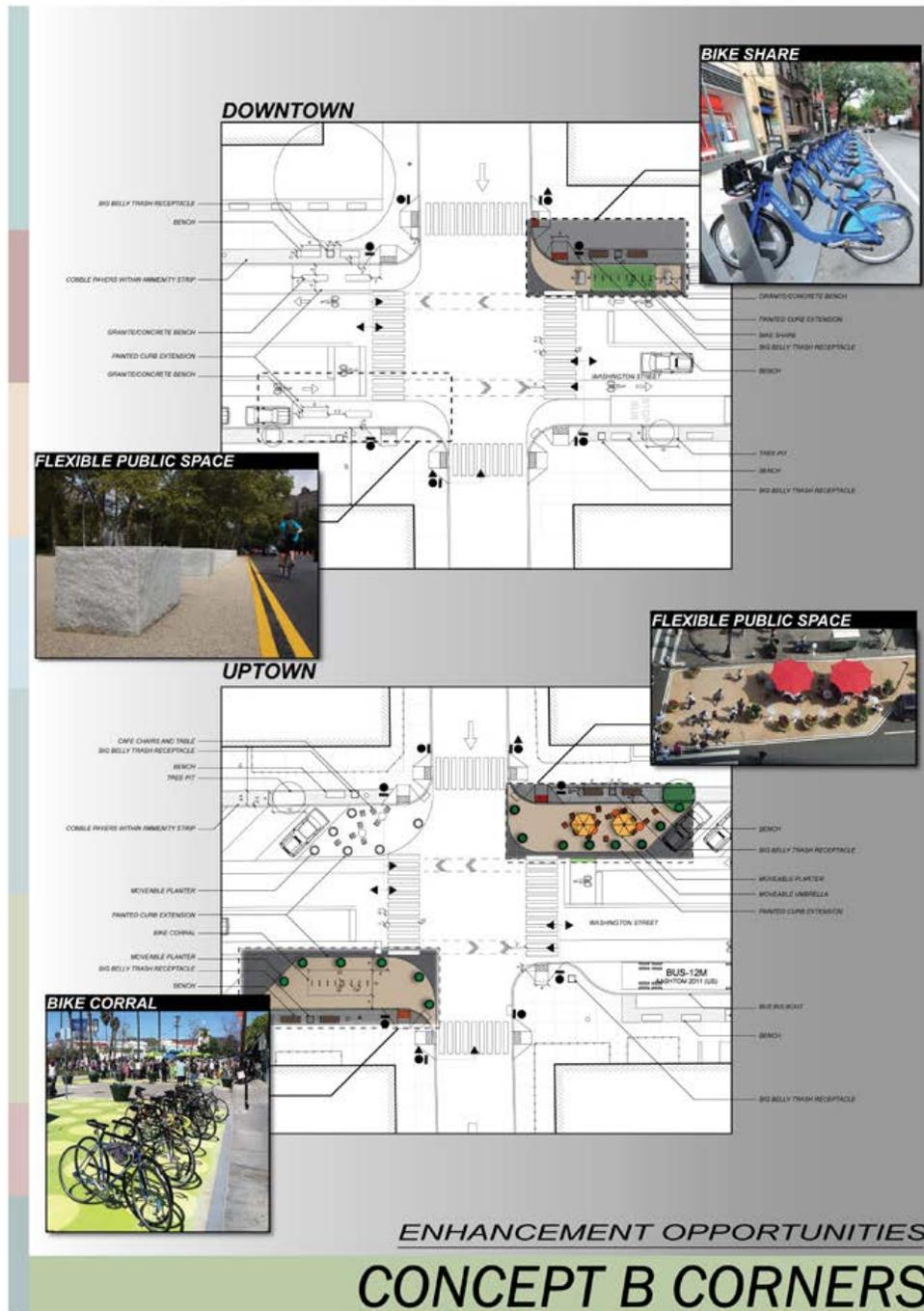
BIKE FACILITIES

- 1.5 BIKE LANE

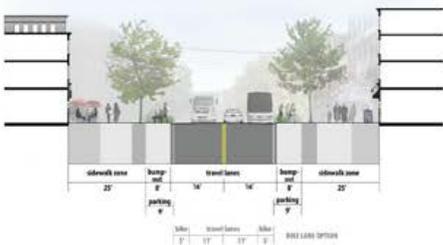
CONSTRUCTABILITY/COST

- LOW COST
- MINOR BUILD (BUS BAY/OUTS)
- OTHER ROADWAY IMPROVEMENTS ARE PAINTED

CONCEPT B - BIKE LANES



CONCEPT ALTERNATIVES ANALYSIS SUMMARY

DOWNTOWN

ROADWAY

- MAINTAINS EXISTING CARRYWAY WIDTH
- PROVIDES 11' TRAVEL LANE
- INSTALLS NEW CURB EXTENSION BULB-OUTS AT ALL INTERSECTIONS

TRAFFIC SIGNALS

- NEW SIGNALS AND PEDESTRIAN COUNTDOWN HEADS

PEDESTRIAN CROSSINGS

- FULL CURB EXTENSION BULB-OUTS AT INTERSECTIONS
- SHORTER CROSSING LENGTH
- HIGH VISIBILITY CROSSINGS
- NEW ADA CURB RAMP

TRANSIT

- MAINTAINS FAR SIDE TRANSIT STOPS
- PROVIDES BUS BULB-OUTS
- REDUCES CONFLICTS BETWEEN TRANSIT RIDERS & PEDESTRIANS

PARKING

- MAINTAINS PARKING SPACES
- MAINTAINS PARALLEL PARKING
- PROVIDES PARALLEL PARKING TO 2' WITH A 6' BUFFER BETWEEN TRAVEL LANE
- DOUBLE PARKING LOADING OPPORTUNITY REMAINS

LOADING

- ALLOWS EXISTING DOUBLE PARKING FOR LOADING PURPOSES
- DESIGNATED PARKING SPACES TO BE USED AS LOADING ZONES DURING SPECIFIC REGULATED TIMES

LANDSCAPE

- INCREASES ALL EXISTING TREE PITS TO PROPOSED HETC DIMENSIONS WITH TREE GUARD FENCING
- OPPORTUNITY FOR LANDSCAPING WITHIN BULB-OUTS

UTILITIES/INFRASTRUCTURE

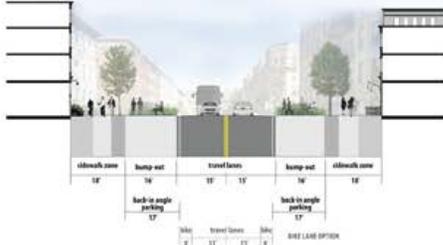
- REQUIRES NEW UTILITIES AT PROPOSED CURB EXTENSION BULB-OUTS

BIKE FACILITIES

- NONE REQUIRED
- PROVIDES SPACE TO ACCOMMODATE BIKE LANES/SHARROWS
- PROVIDES SPACE FOR BIKE PARKING WITHIN BULB-OUTS

CONSTRUCTABILITY/COST

- MODERATE TO HIGH COST
- REQUIRES SIGNALK EXPANSION AND CONSTRUCTION OF CURB EXTENSION BULB-OUTS

UPTOWN

ROADWAY

- MAINTAINS EXISTING CARRYWAY WIDTH
- PROVIDES 11' TRAVEL LANE
- INSTALLS NEW CURB EXTENSION BULB-OUTS AT ALL INTERSECTIONS

TRAFFIC SIGNALS

- NEW SIGNALS AND PEDESTRIAN COUNTDOWN HEADS

PEDESTRIAN CROSSINGS

- FULL CURB EXTENSION BULB-OUTS AT INTERSECTIONS
- SHORTER CROSSING LENGTH
- HIGH VISIBILITY CROSSINGS
- NEW ADA CURB RAMP

TRANSIT

- MAINTAINS FAR SIDE TRANSIT STOPS
- PROVIDES BUS BULB-OUTS
- REDUCES CONFLICTS BETWEEN TRANSIT RIDERS & PEDESTRIANS

PARKING

- REMOVES ANGLE BACK-IN ONLY PARKING
- MAINTAINS EXISTING ANGLED DIMENSIONS WITH A 6' BUFFER TO TRAVEL LANE
- DOUBLE PARKING LOADING OPPORTUNITY REMAINS

LOADING

- ALLOWS EXISTING DOUBLE PARKING FOR LOADING PURPOSES
- DESIGNATED PARKING SPACES TO BE USED AS LOADING ZONES DURING SPECIFIC REGULATED TIMES

LANDSCAPE

- INCREASES ALL EXISTING TREE PITS TO PROPOSED HETC DIMENSIONS WITH TREE GUARD FENCING
- OPPORTUNITY FOR LANDSCAPING WITHIN BULB-OUTS

UTILITIES/INFRASTRUCTURE

- REQUIRES NEW UTILITIES AT PROPOSED CURB EXTENSION BULB-OUTS

BIKE FACILITIES

- NONE REQUIRED
- PROVIDES SPACE TO ACCOMMODATE BIKE LANES/SHARROWS
- PROVIDES SPACE FOR BIKE PARKING WITHIN BULB-OUTS

CONSTRUCTABILITY/COST

- MODERATE TO HIGH COST
- REQUIRES SIGNALK EXPANSION AND CONSTRUCTION OF CURB EXTENSION BULB-OUTS

CONCEPT C - PEDESTRIAN & TRANSIT

