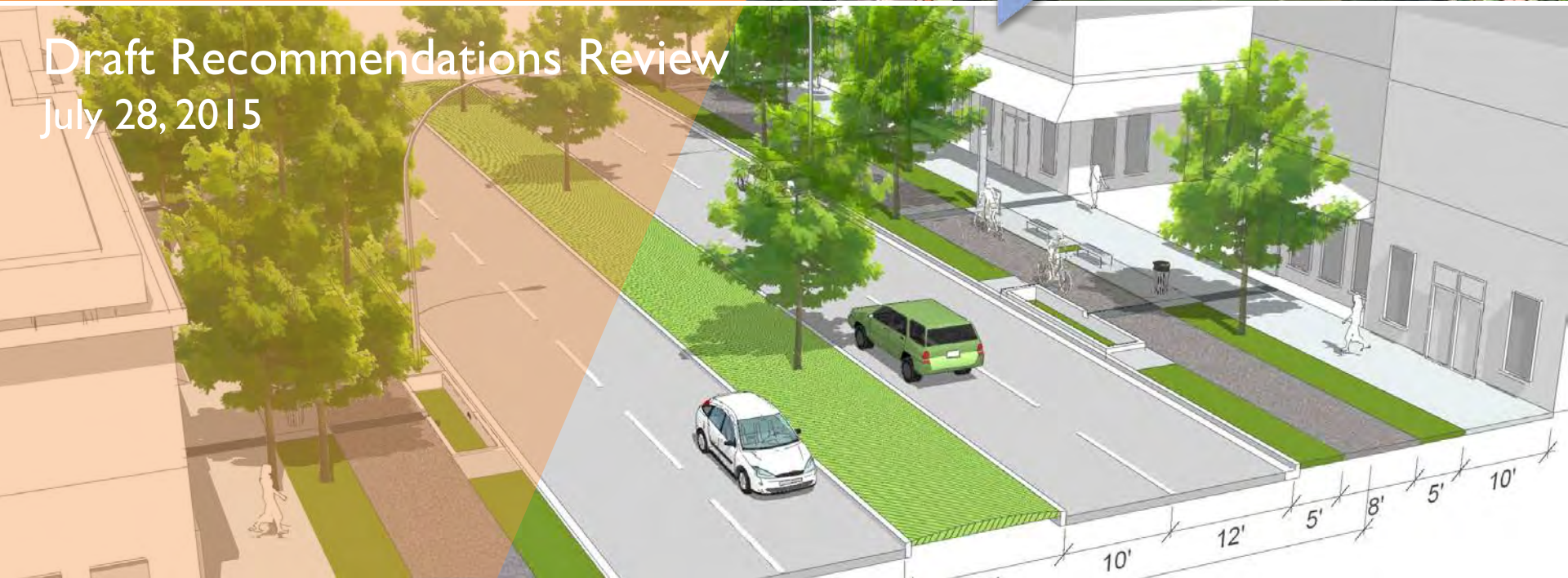
Downtown Mobile
Non-Motorized Mobility Study

Draft Recommendations Review

July 28, 2015



Project Purpose

To study bicycle and pedestrian safety and connectivity in Downtown Mobile and the radial connections to the Henry Aaron Loop.

Critical Considerations

- Support economic development
- Build on previous work
- Contribute to livable, vibrant downtown
- Coordinate with Water Street study
- Develop practical solutions that directly address:
  - Fresh approach to Henry Aaron Loop
  - Safety, comfort, convenience
  - Network enhancement
  - ADA accessibility
  - Intersection improvements
  - Implementable – cost estimates, prioritization

Limits of Study

Design Workshop

by the numbers

4 days

3 public meetings

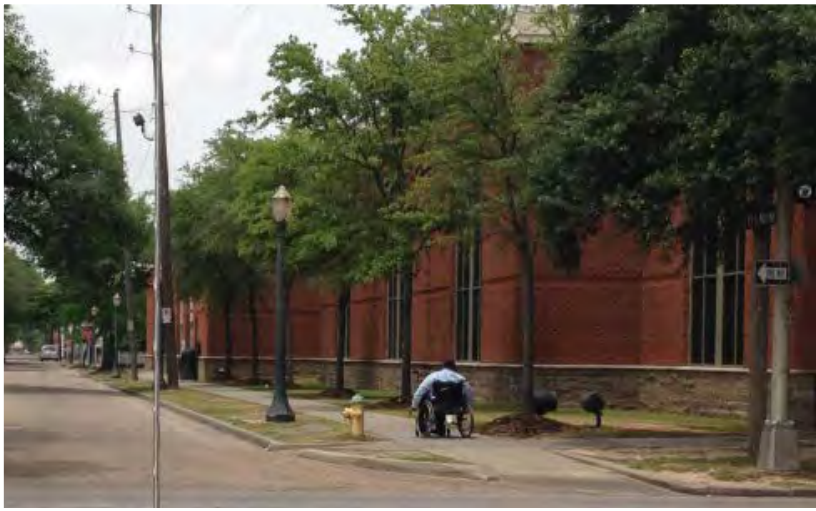
14 stakeholder meetings

120 participants

ADA Assessment

Considerations:

- Curb ramp design
- Push button signal locations
- Pedestrian signal locations
- Curb ramp landing areas
- Crosswalk design
- Sidewalk Condition



ADA Assessment – What We Saw

Sidewalks

- Trip Hazards
- Obstacles
- Deferred Maintenance
- Inadequate Width
- Obstructions

ADA Assessment – What We Saw

Ramps

- Trip Hazards
- Missing Tactile Warnings
- Steep Slopes
- Asymmetrical Facilities

ADA Assessment – What We Saw

<u>Push Buttons</u>

- Inaccessible
- Short Timing Interval
- Inoperable
- Lack of Defined Crosswalks

ADA Assessment Intersection Map

Good = 22

Fair = 61

Poor = 135

- Good: compliant
- Fair: minor compliance issues
- Poor: major compliance issues

ADA Assessment Sidewalk Map

Good = 24 miles

Fair = 16 miles

Poor = 13 miles

- Good: compliant
- Fair: minor compliance issues
- Poor: major compliance issues

ADA Costs, Prioritization, Products

- Estimated Costs
  - Intersections
    - Poor ~ $2.9M
    - Fair ~ $300K
  - Sidewalks
    - Poor ~ $5.8M
    - Fair ~ $2M
  - Total ~ $11M
- Potential Prioritization Factors
  - Capital project and new (re)development
  - Adjacent to public facilities
  - Adjacent to major destinations
  - Along primary corridors
  - Other?
- Products
  - Prioritized intersection and sidewalk GIS databases
  - Intersection cut sheets (~10)

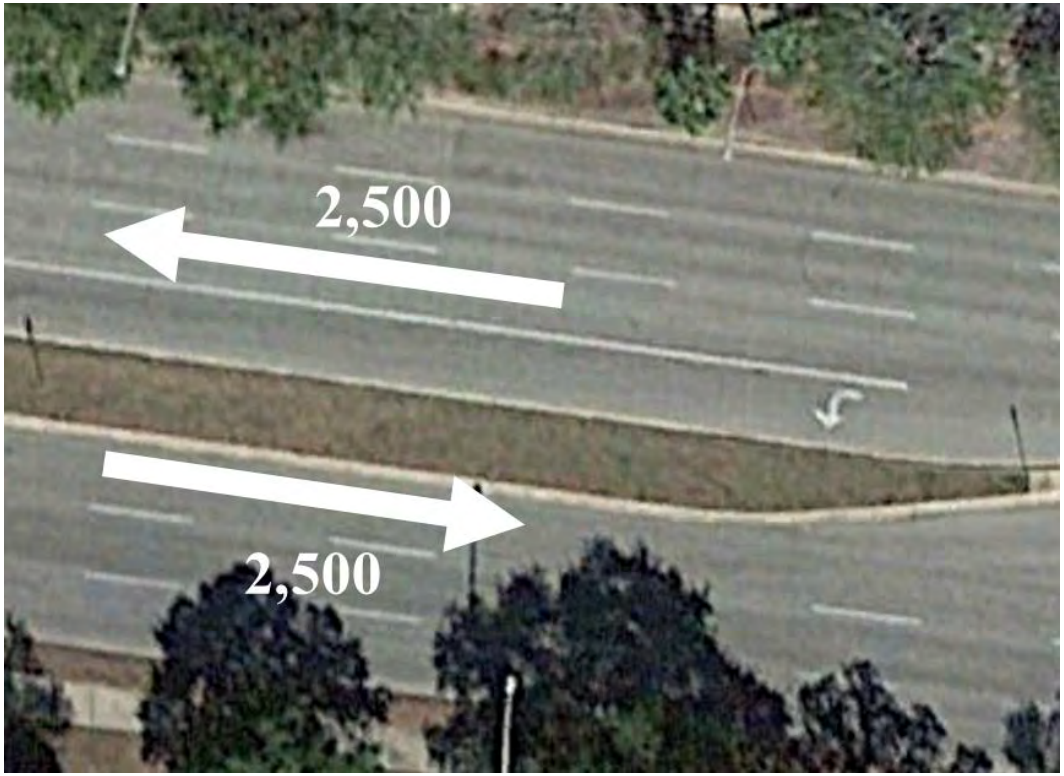
Great Street Approach

- People as priority
  - People who drive cars, walk, bike, ride transit, and live and work along/near the street
- Quality of design
- Quality of service for transportation
- Quality of life for residents and users

Make the trip as enjoyable as the destination

Average Daily Traffic (ADT)

- ADT is the total two-way traffic on a roadway over the course of one day.



Average Daily Traffic (ADT)

- What does 5,000 cars per day mean?

~ 2,500 cars in one direction per day

~ 500 cars during rush hour

~ 1 car every 12 seconds

Average Daily Traffic (ADT)

How many cars per day can the road handle?

A four-lane freeway can handle ~70,000 cars per day

Average Daily Traffic (ADT)

How many cars per day can the road handle?

A two-lane city street with traffic signals and left turn lanes can handle ~15,000 cars per day

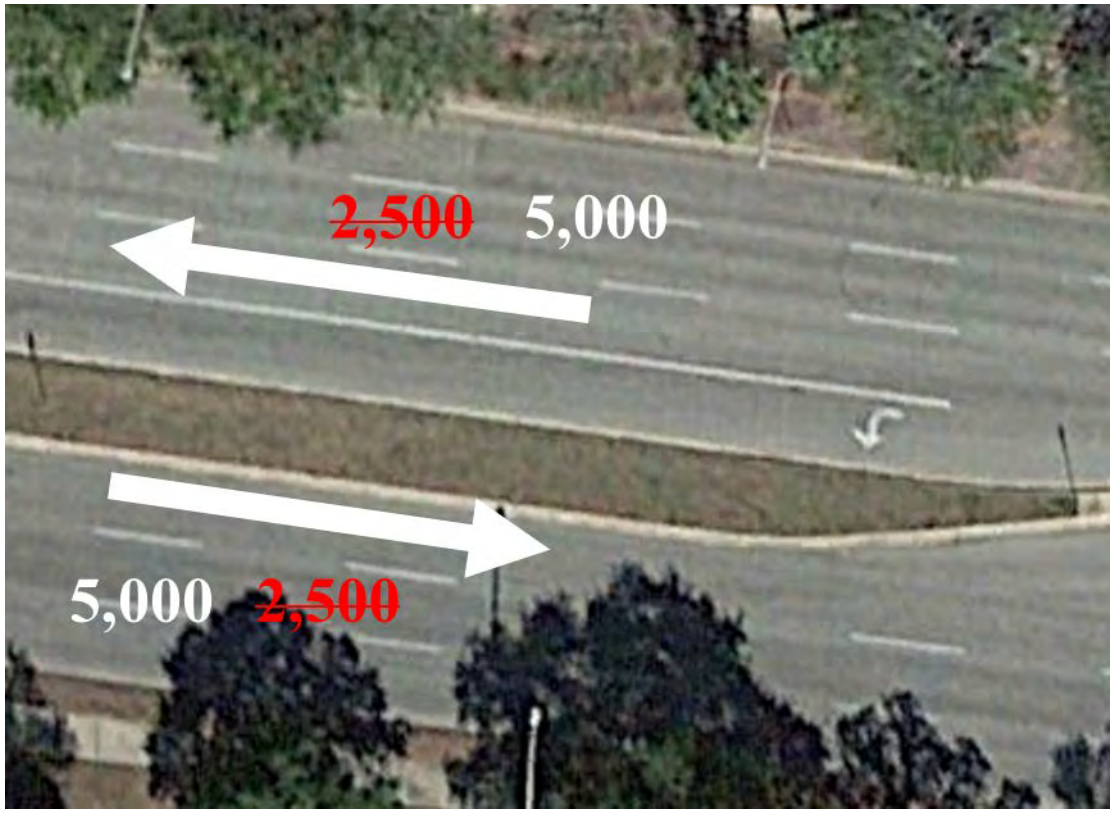
Average Daily Traffic (ADT)

How many cars per day can the road handle?

A two-lane city street with traffic signals and **no** left turn lanes can handle ~10,000 cars per day

Average Daily Traffic (ADT)

Based on these numbers, traffic could double and Canal Street would only need one lane in each direction



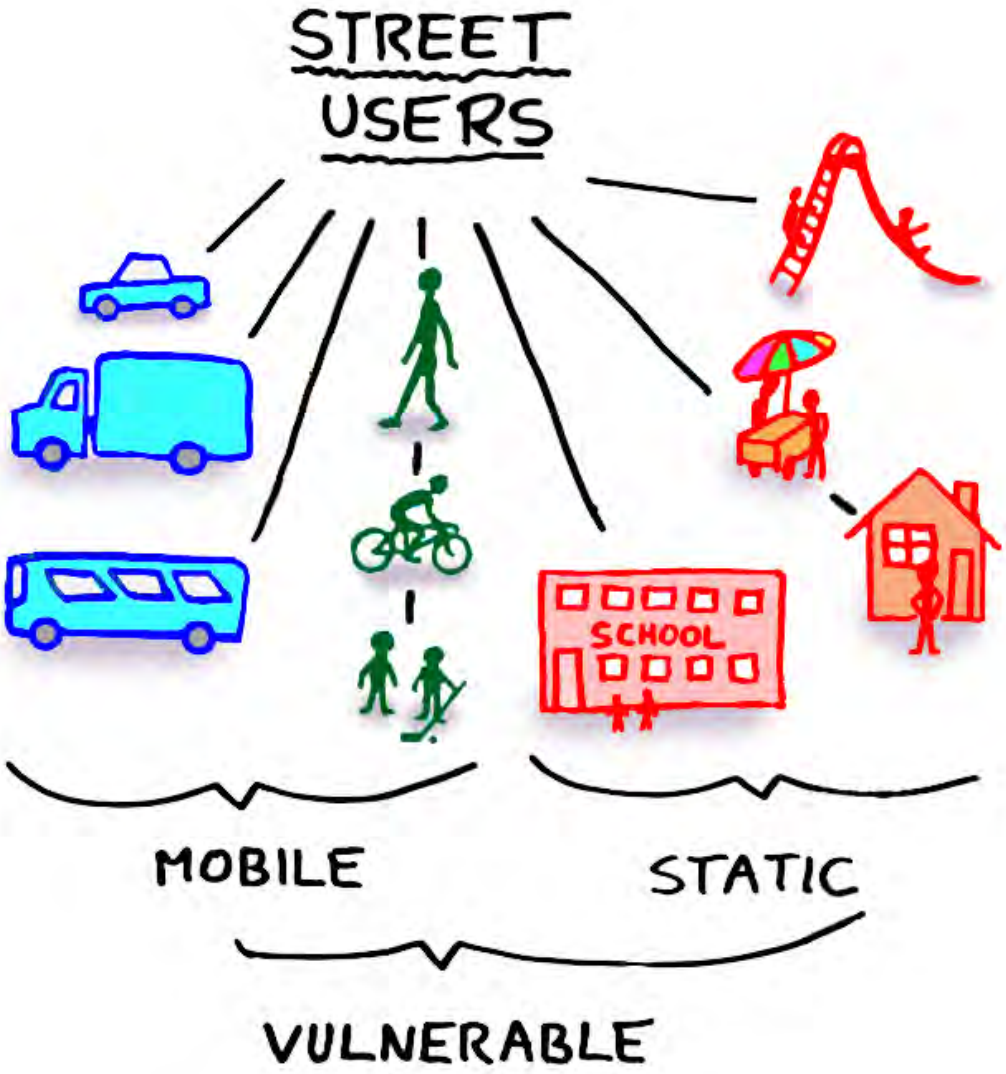
Average Daily Traffic (ADT)

Broad St – 12,000 to 17,000 cars per day

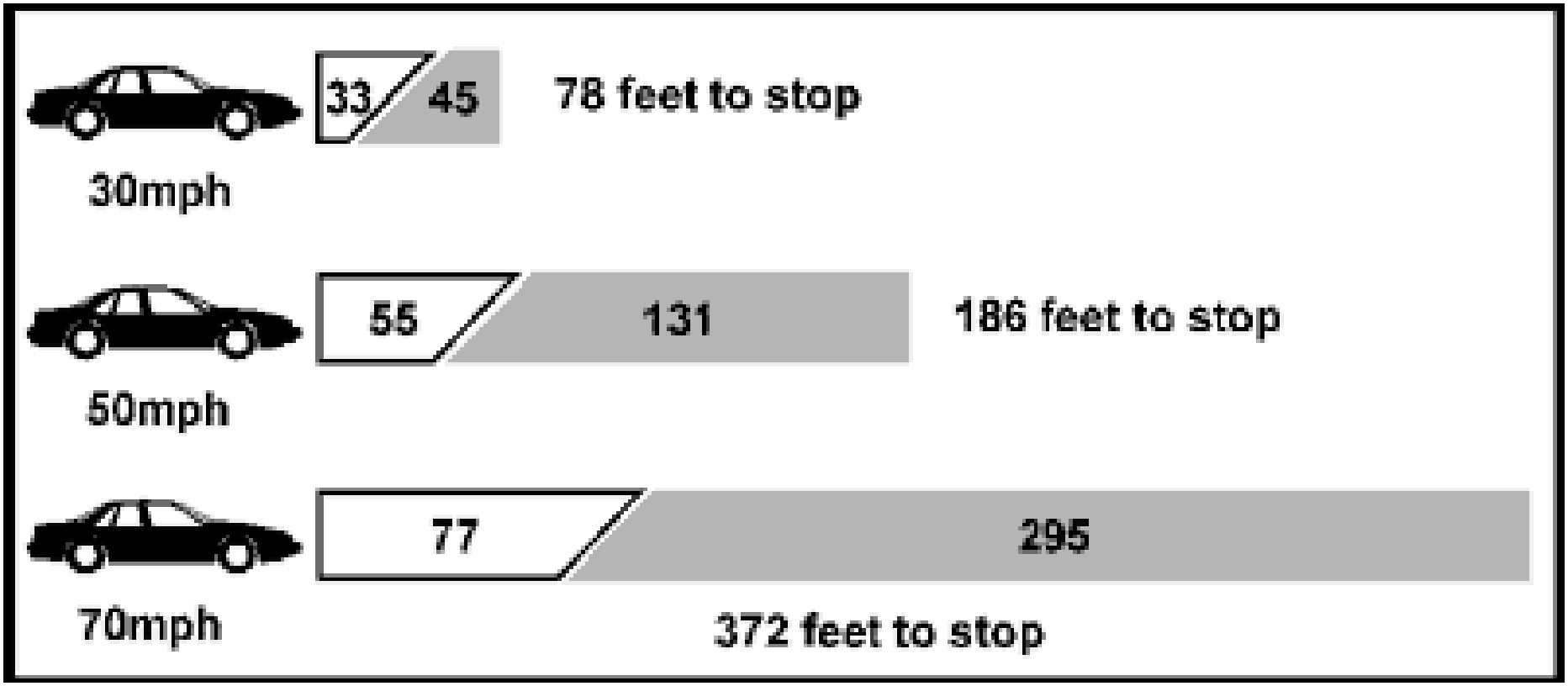
Beauregard St – 8,000 to 9,000 cars per day

Government St – 20,000 cars per day

Dauphin St – 3,500 cars per day

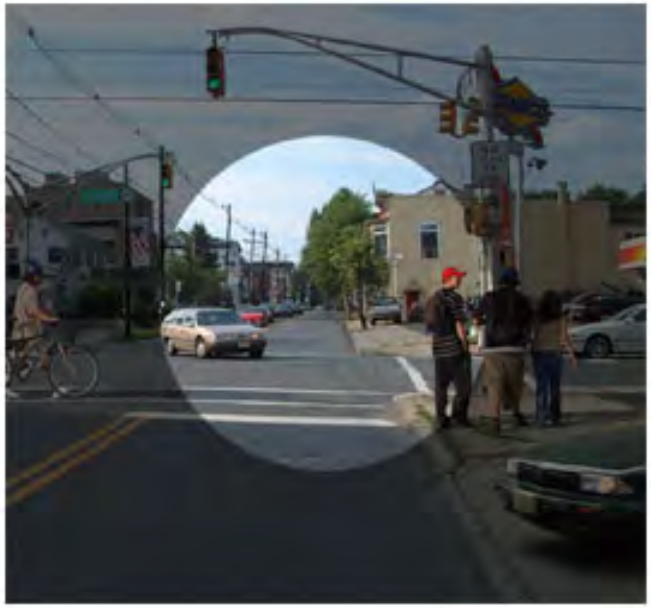

STREET USERS
SCHOOL
MOBILE
STATIC
VULNERABLE

Traffic Speed



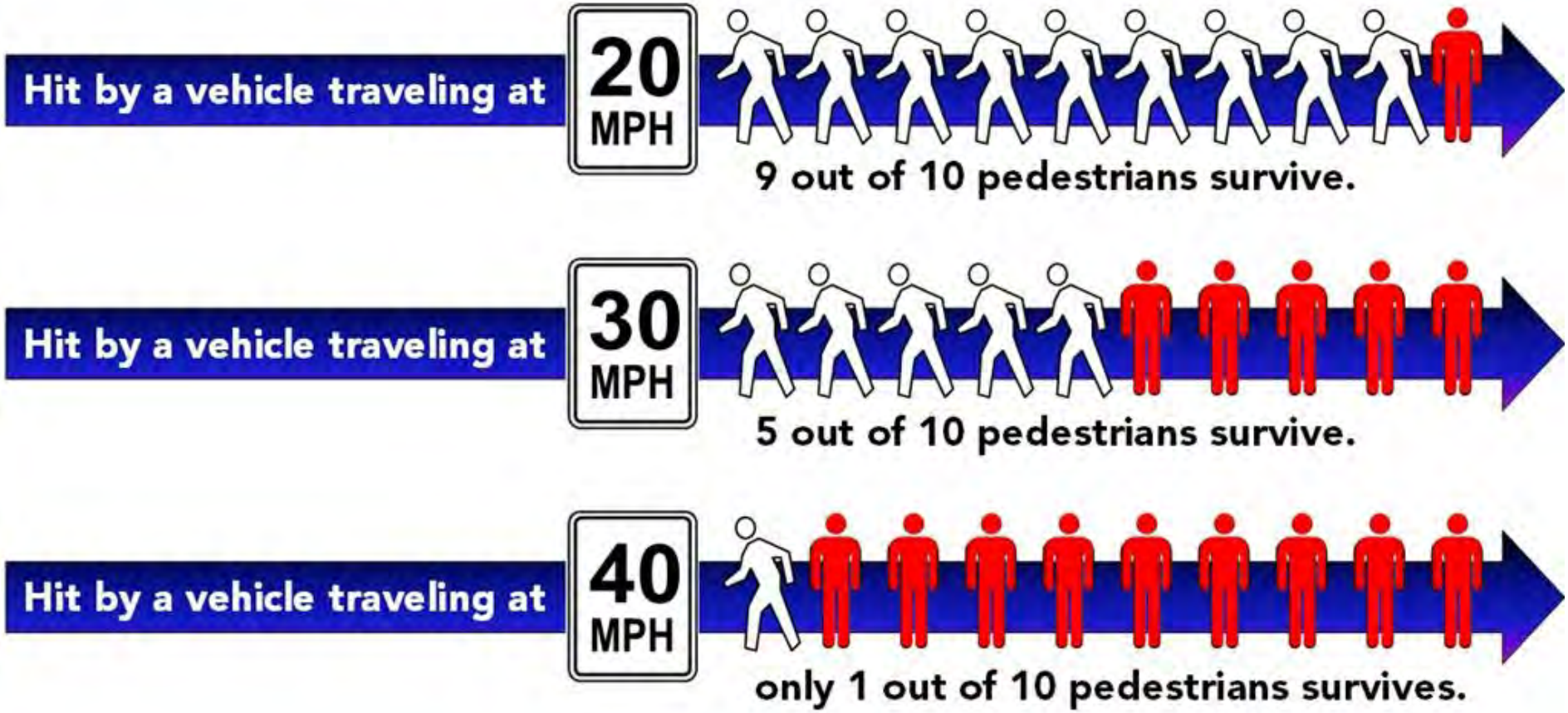
35 mph

30 mph



25 mph

20 mph


Hit by a vehicle traveling at
20 MPH
9 out of 10 pedestrians survive.
Hit by a vehicle traveling at
30 MPH
5 out of 10 pedestrians survive.
Hit by a vehicle traveling at
40 MPH
only 1 out of 10 pedestrians survives.

Arterial Speed Reduction

Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features

Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions

Before

After

Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions
Bulbouts
Parallel or Angled Parking

Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions
Bulbouts
Parallel or Angled Parking
Pedestrian Scale Lighting

Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
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Bulbouts
Parallel or Angled Parking
Pedestrian Scale Lighting
Bike lanes, Separated Bikes Lanes

Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions
Bulbouts
Parallel or Angled Parking
Pedestrian Scale Lighting
Bike lanes, Separated Bikes Lanes
Texture

Arterial Speed Reduction

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Roundabouts
Entrance Features
Lane Removals
Lane Width Reductions
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Parallel or Angled Parking
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Bike lanes, Separated Bikes Lanes
Texture
Lateral Shifts (shorten views)

Arterial Speed Reduction

Transition Zones
Roundabouts
Entrance Features
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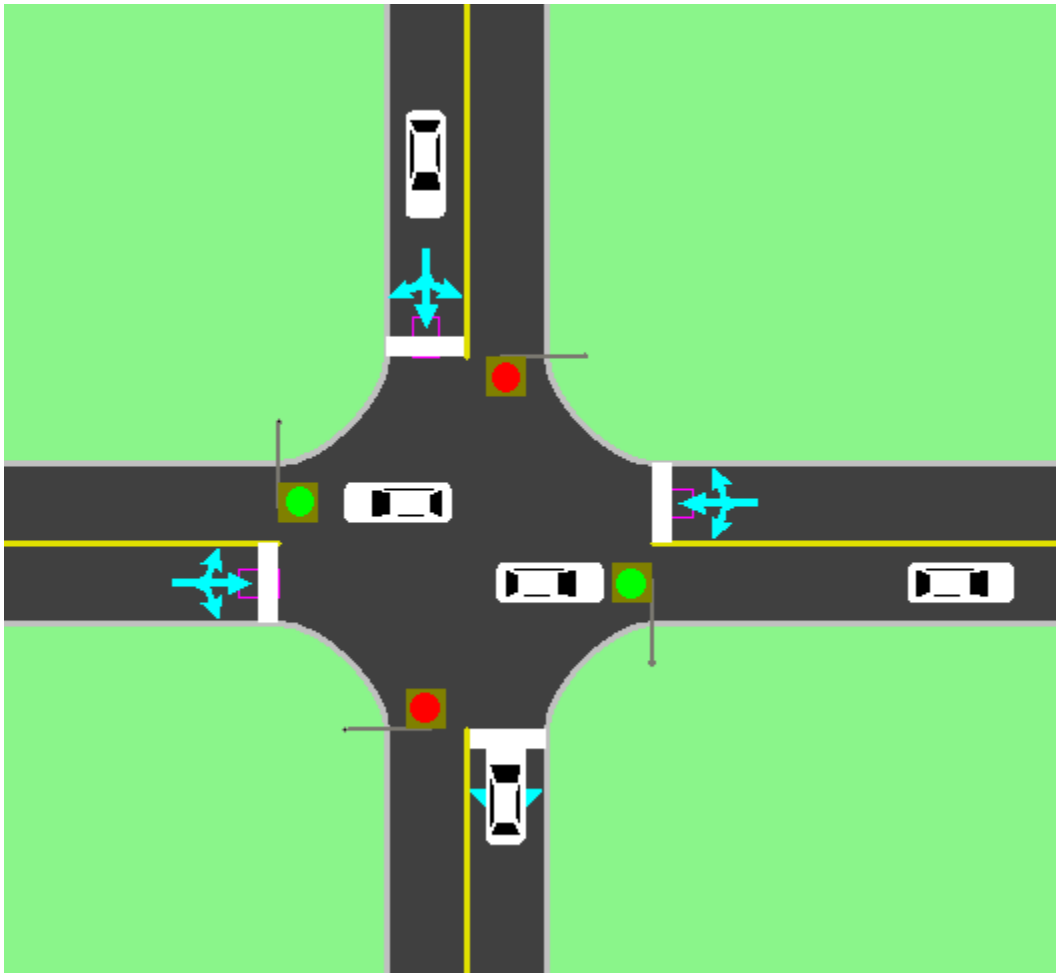
Parallel or Angled Parking
Pedestrian Scale Lighting
Bike lanes, Separated Bikes Lanes
Texture
Lateral Shifts (shorten views)
Continuous Medians
Short Medians
Flush Medians
Canopy Street Trees

Traffic signal timing

Two phases, one per direction

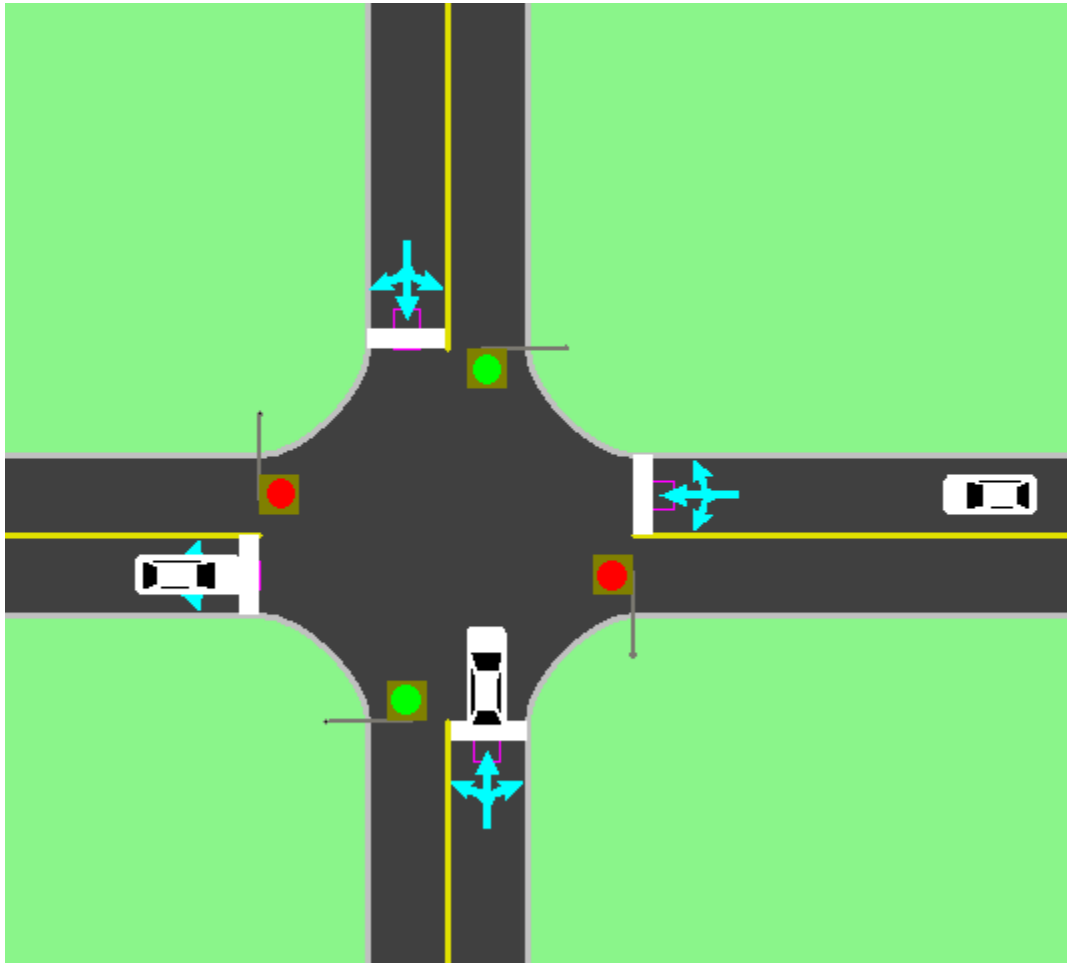
Phase 1: eastbound/ westbound



Traffic signal timing

Two phases, one per direction

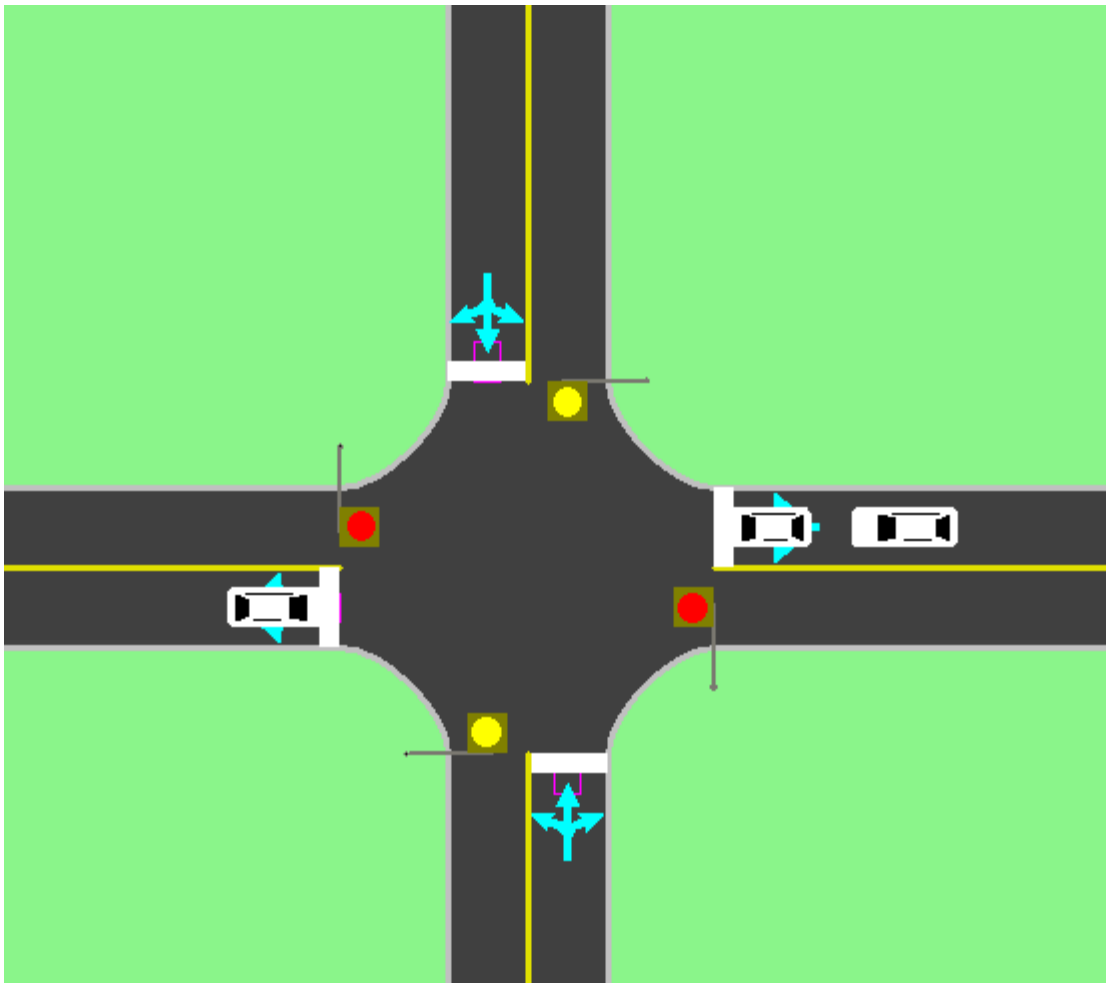
Phase 2: northbound/ southbound



Traffic signal timing

Two phases, one per direction

Phase 1 again: eastbound/ westbound



Traffic signal timing

Cycle length – the amount of time required to serve all phases of traffic

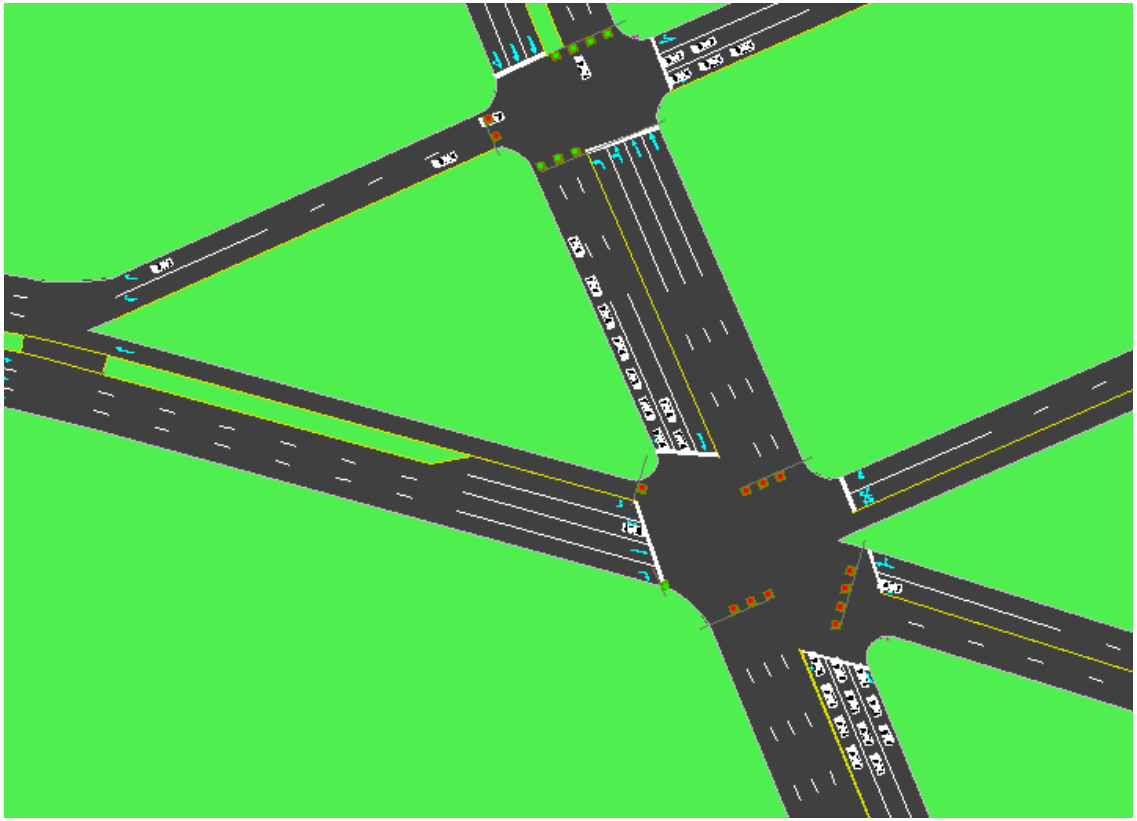
Phase 1 + Phase 2 = Cycle length

Anywhere from 50 seconds to 180 seconds

Traffic signal timing

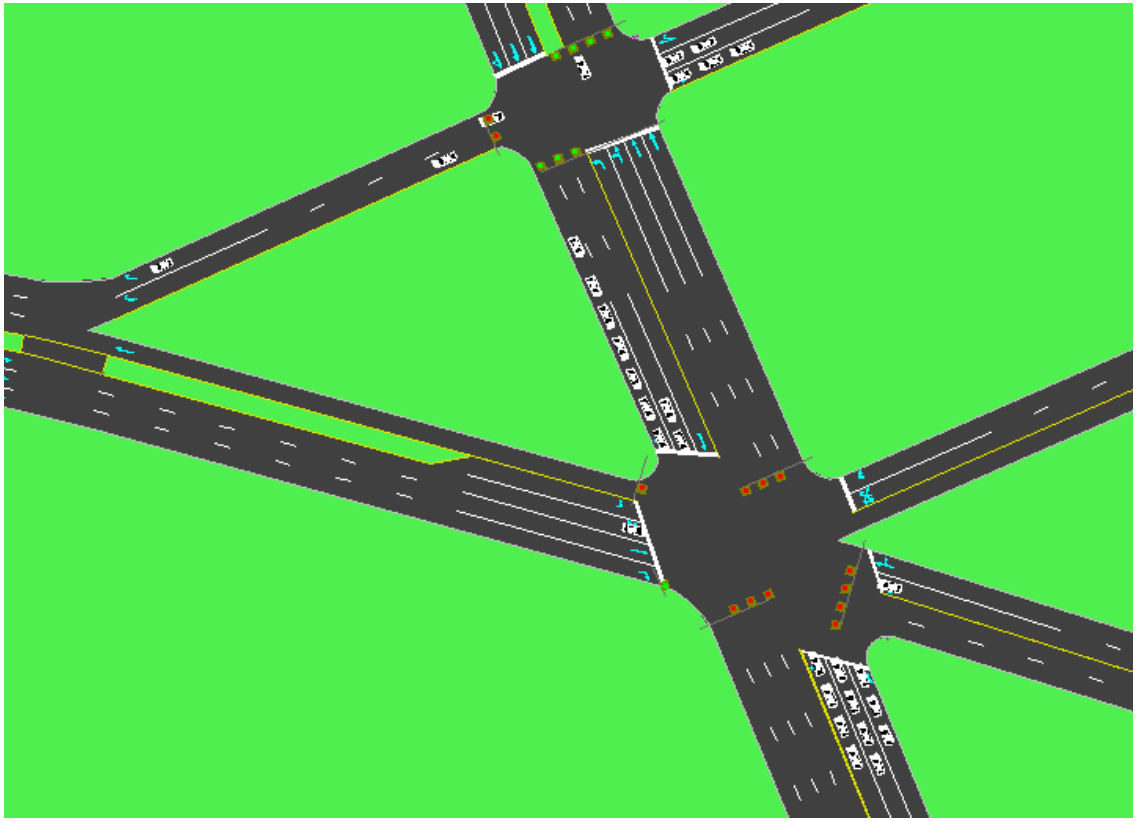
More complicated intersections require more phases

More phases means longer cycle length



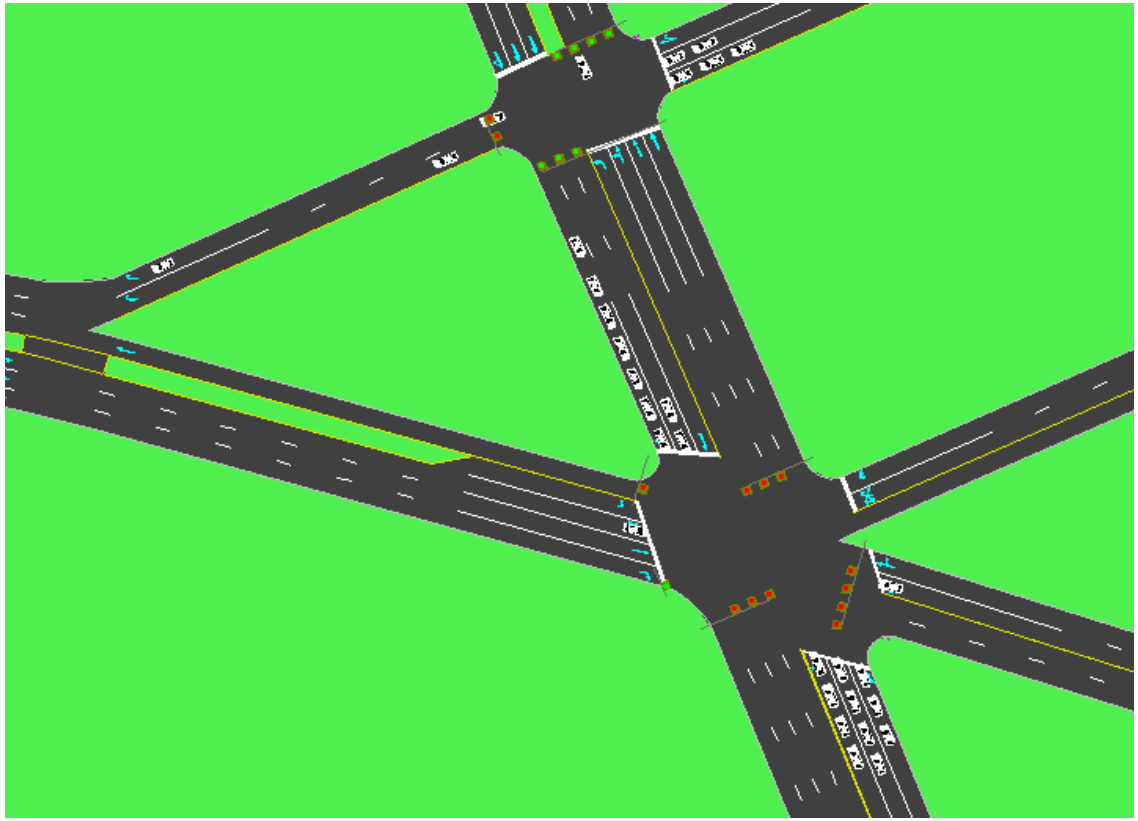
Traffic signal timing

Longer cycle length means more time before your phase comes up



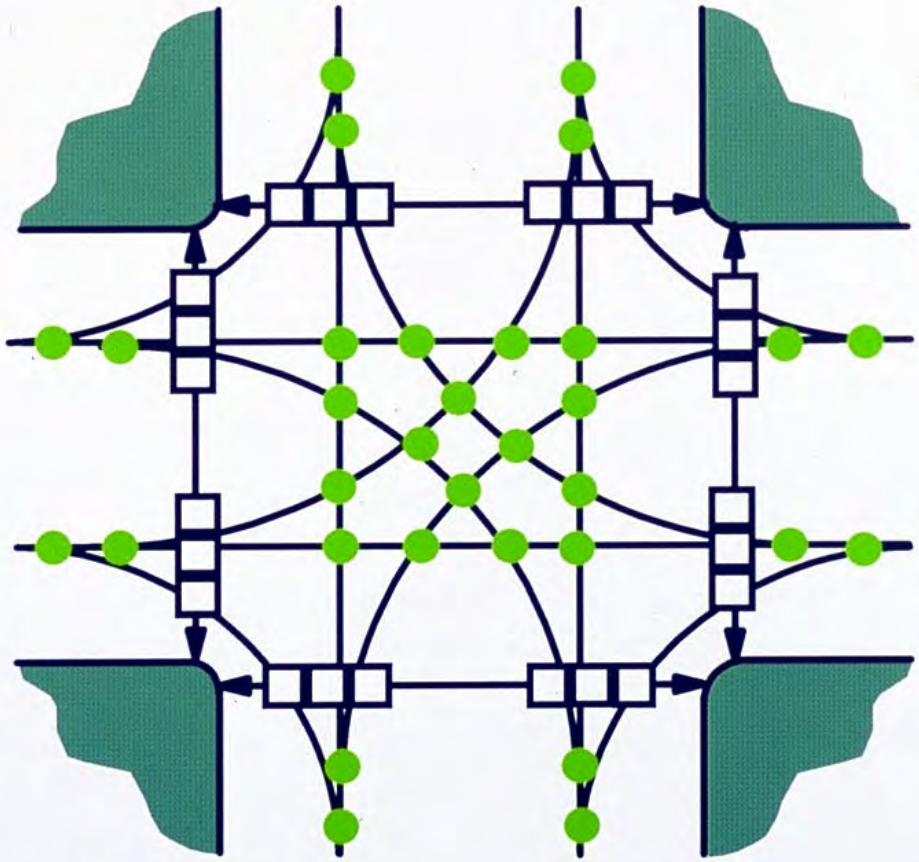
Traffic signal timing

More delay means more lanes needed to hold cars while they wait



Roundabouts

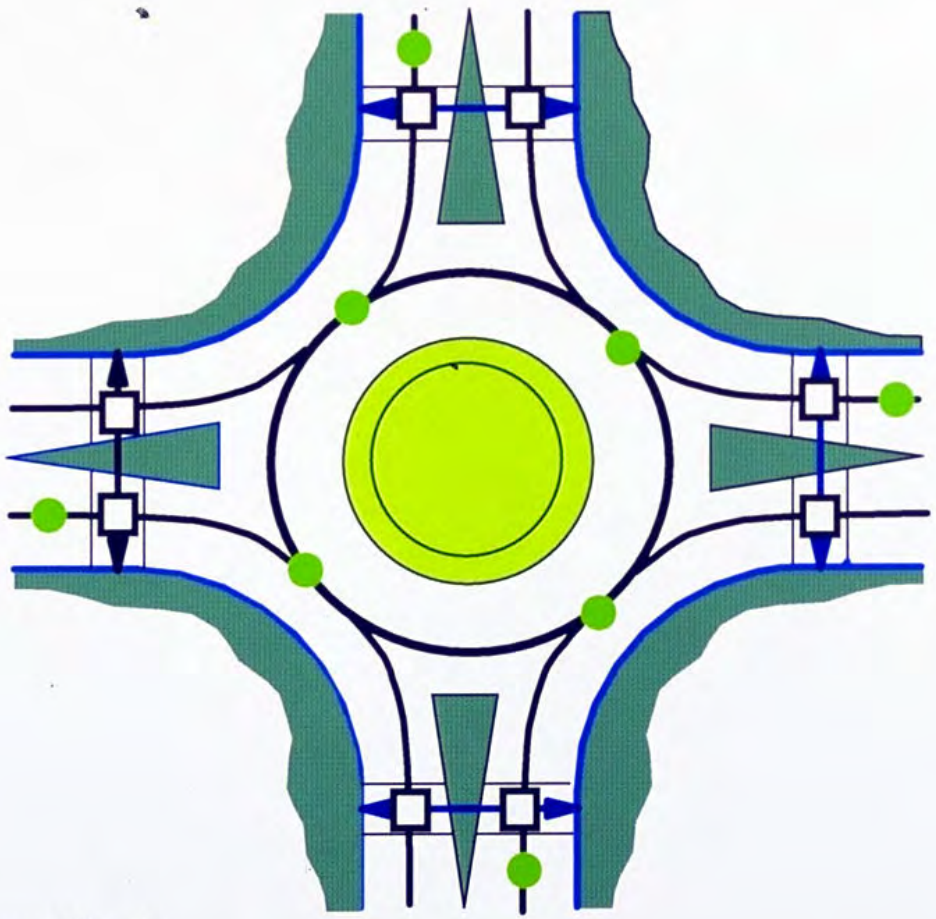
Conflicts At a Four-Way Interection



- 32 Vehicle to vehicle conflicts
- 24 Vehicle to pedestrian conflicts

Walkable Communities, Inc.
Burden and Wallwork, P. E.

Conflicts At Roundabouts



- ● 8 Vehicle to vehicle conflicts
- □ 8 Vehicle to pedestrian conflicts

Walkable Communities, Inc.
Burden and Wallwork, P. E.

Trends in Bicycle-Friendly Communities

- Providing 'Stress Free' Bikeways
  - High Quality Trails & Greenways
  - Separated & Buffered Bike Lanes
- 'Neighborways' – Bike Boulevards
- Encouraging a 'bike culture'

Cities are Innovating

- New York, NY
- Seattle, WA
- Portland, OR
- Boston, MA
- Chicago, IL
- Washington, DC
- Baltimore, MD
- Memphis, TN
- Nashville, TN
- Spartanburg, SC

Context Sensitive Toolbox

Paths

Buffered Bike Lanes

Separated Bike Lanes

Colored Bike Lane

Shared Use Markings

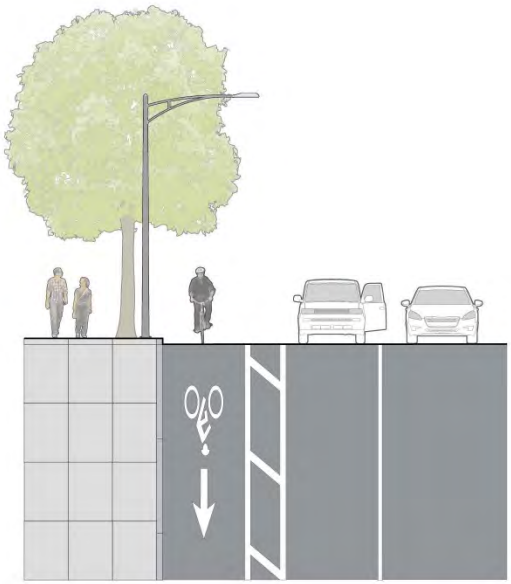
Neighborways

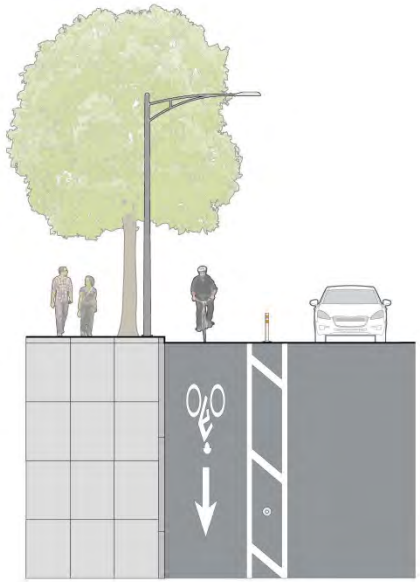
Spot Improvements

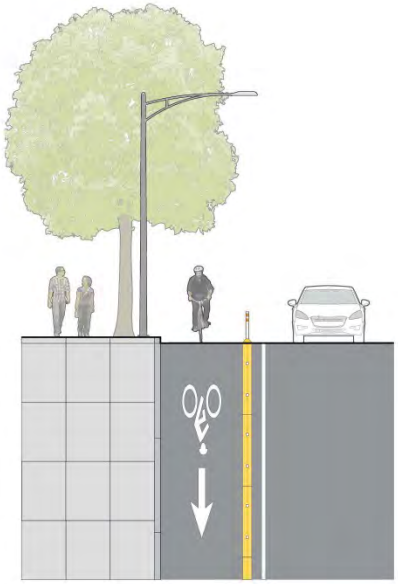

W Pender St


SPACE AVAILABLE
3,000 – 28,000 RSF
202.463.2100
FEDERAL ENERGY REGULATORY COMMISSION
888
CNN
810
UNION CENTER PLAZA
4707
metroaccess
PUBLIC PARKING

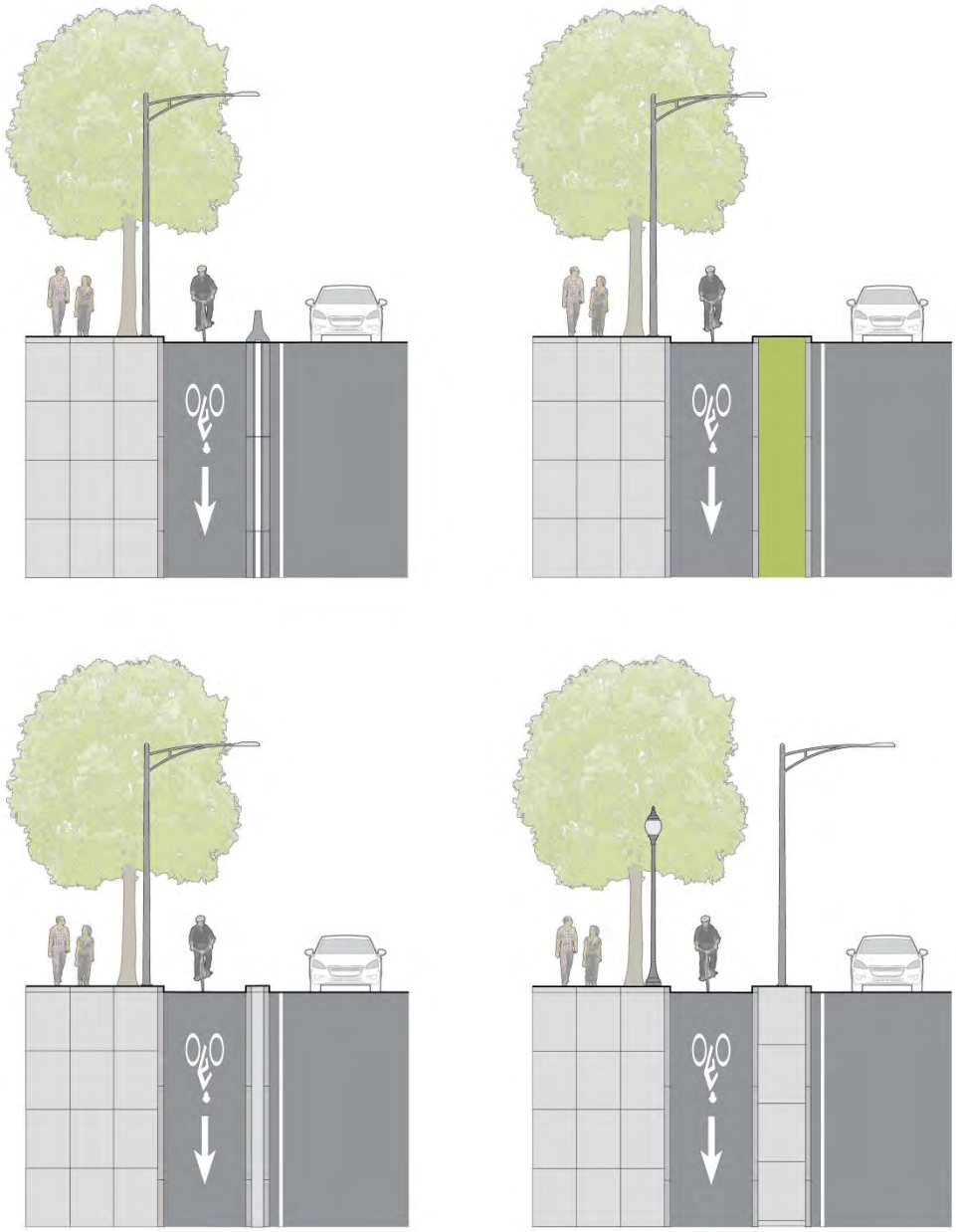
Street Buffer Examples

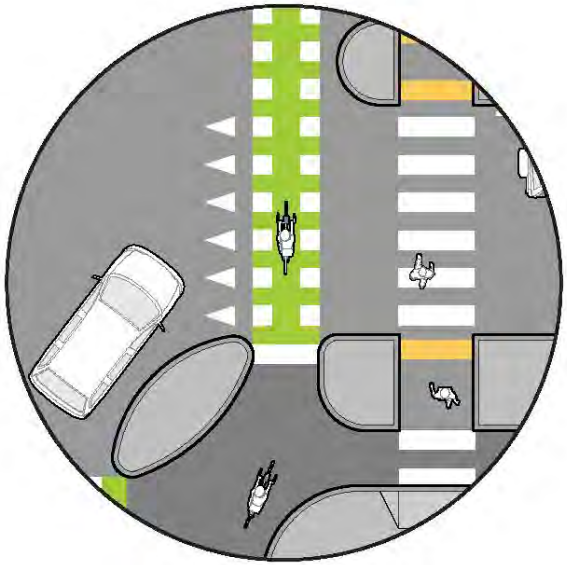




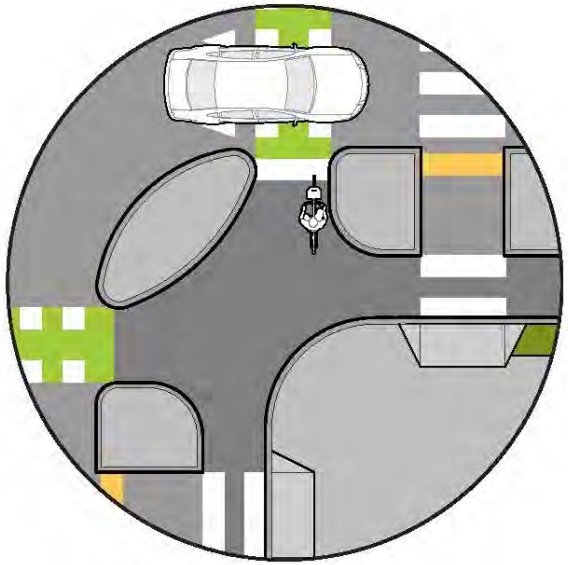


Street Buffer Examples (cont.)

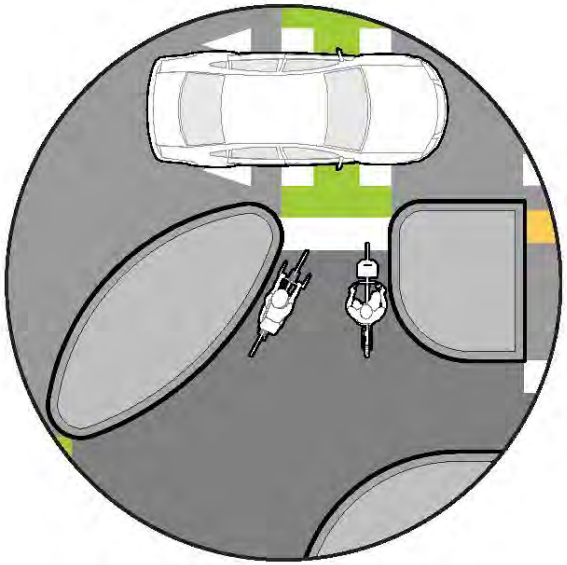




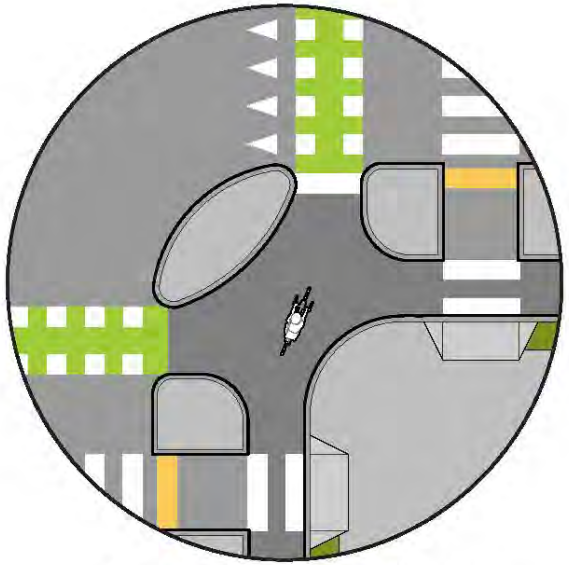
Bicycle crossing



Bicycle stop line

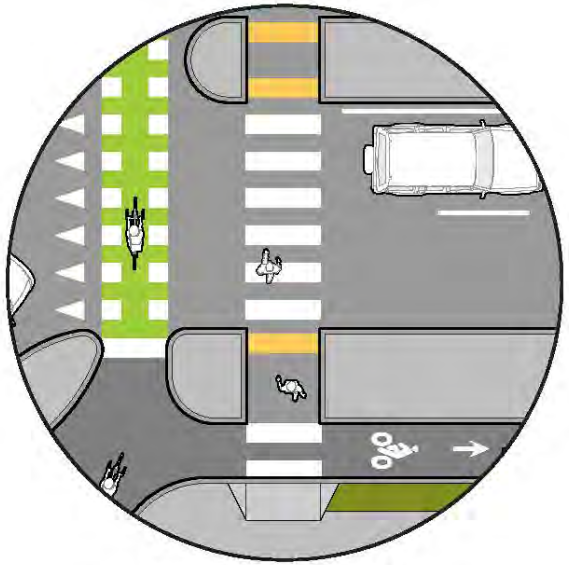


Bicycle queuing area

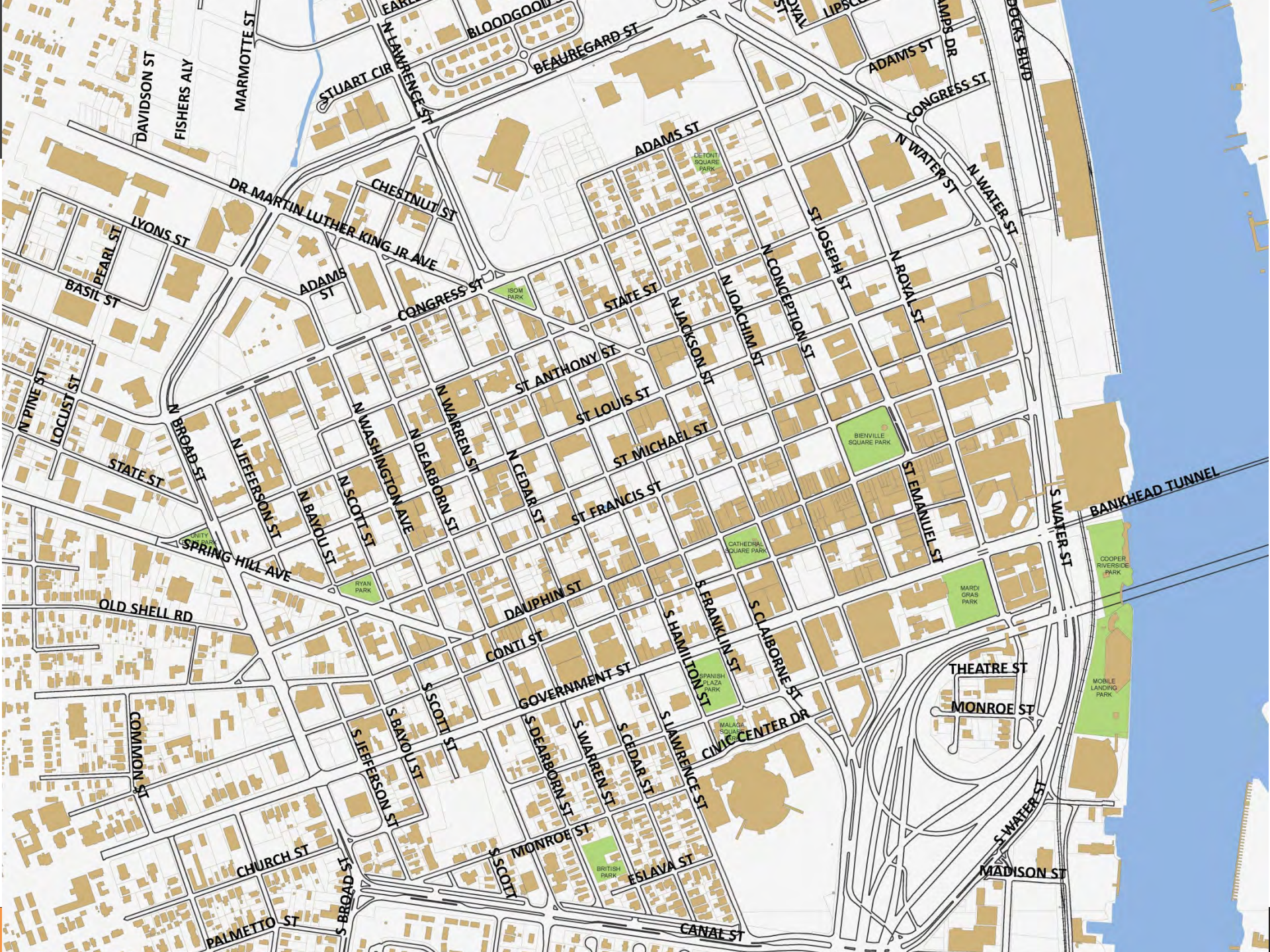


Corner deflection island

Pedestrian ramps



Pedestrian crossing


DAVIDSON ST
FISHERS ALY
MARMOTTE ST
STUART CIR
N LAWRENCE ST
BLOODGOOD
BEAUREGARD ST
ADAMS ST
CONGRESS ST
N WATER ST
DOCKS BLVD
DETONT SQUARE PARK
DR MARTIN LUTHER KING JR AVE
CHESTNUT ST
LYONS ST
PEARL ST
BASIL ST
ISOM PARK
STATE ST
N JACKSON ST
N JOACHIM ST
N CONCEPTION ST
ST JOSEPH ST
N ROYAL ST
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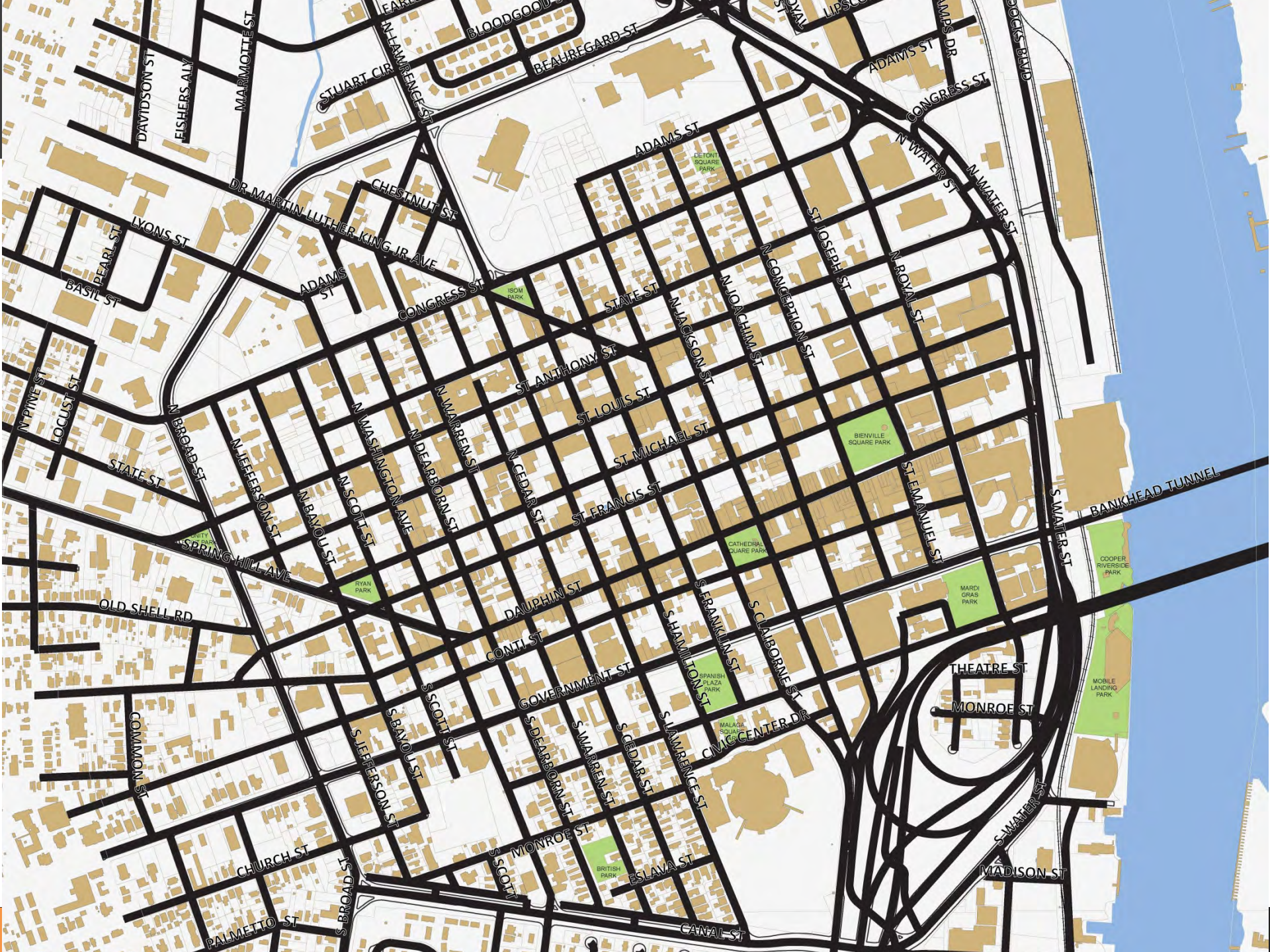
ST MICHAEL ST
ST FRANCIS ST
N PINE ST
LOCUST ST
N BROAD ST
N JEFFERSON ST
N BAYOU ST
N SCOTT ST
N WASHINGTON AVE
N DEARBORN ST
N WARREN ST
N CEDAR ST
BIENVILLE SQUARE PARK
ST EMANUEL ST
S WATER ST
BANKHEAD TUNNEL
UNITY PARK
SPRING HILL AVE
RYAN PARK
CATHEDRAL SQUARE PARK
MARDI GRAS PARK
COOPER RIVERSIDE PARK
OLD SHELL RD
DAUPHIN ST
CONTI ST
S HAMILTON ST
S FRANKLIN ST
S CLAIBORNE ST
SPANISH PLAZA PARK
GOVERNMENT ST
THEATRE ST
MONROE ST
MOBILE LANDING PARK
MALAGA SQUARE PARK
CIVIC CENTER DR
S SCOTT ST
S BAYOU ST
S JEFFERSON ST
S DEARBORN ST
S WARREN ST
S CEDAR ST
S LAWRENCE ST
COMMON ST
S WATER ST
MADISON ST
CHURCH ST
S MONROE ST
BRITISH PARK
ESLAVA ST
S BROAD ST
PALMETTO ST
CANAL ST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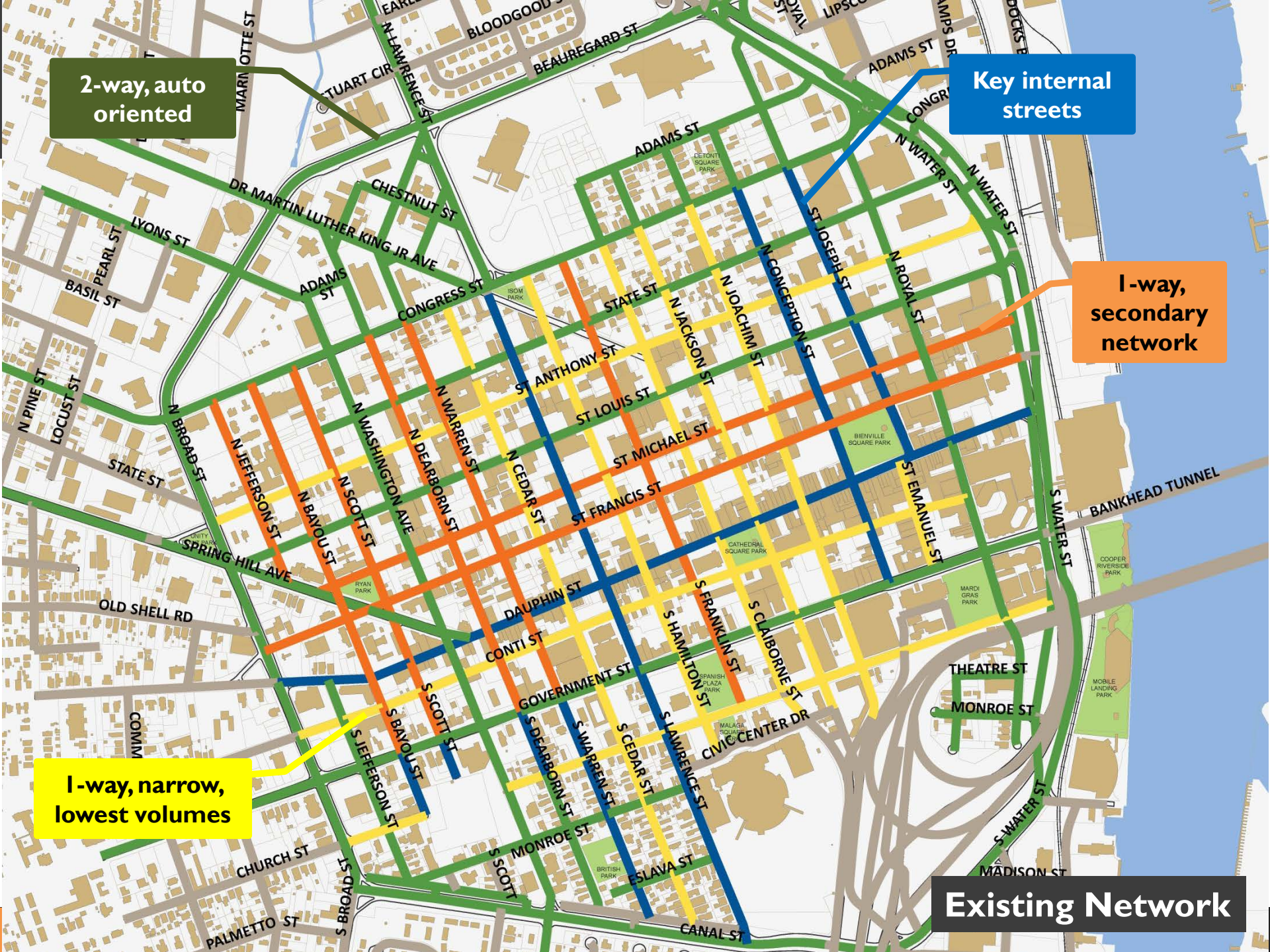
2-way, auto oriented
Key internal streets
1-way, secondary network
1-way, narrow, lowest volumes
Existing Network
BEAUREGARD ST
ADAMS ST
N WATER ST
DR MARTIN LUTHER KING JR AVE
CHESTNUT ST
LYONS ST
PEARL ST
BASIL ST
CONGRESS ST
STATE ST
N JOACHIM ST
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MALAGA SQUARE
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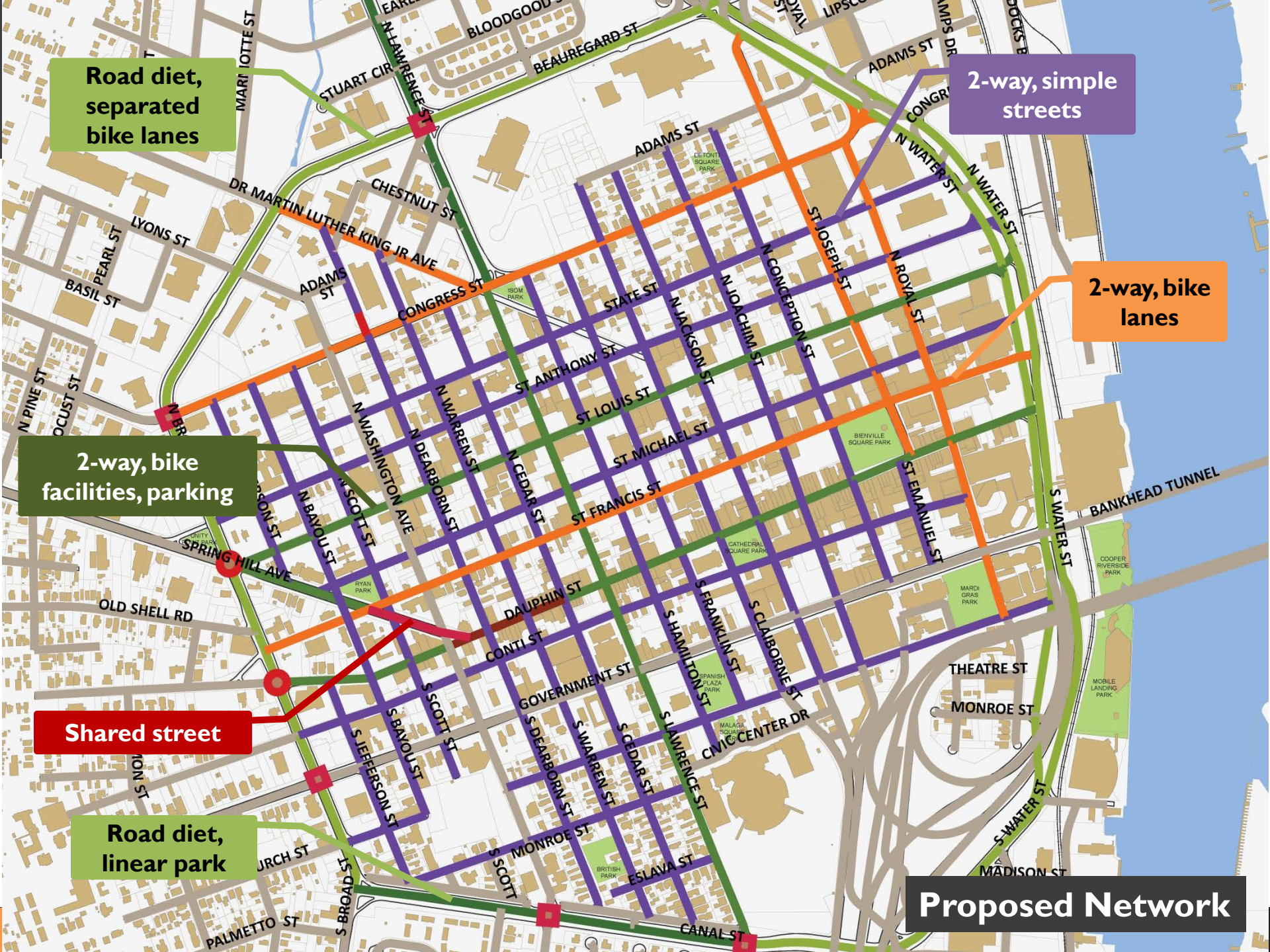
ISOM PARK
DETONTI SQUARE PARK


Road diet, separated bike lanes
2-way, simple streets
2-way, bike lanes
2-way, bike facilities, parking
Shared street
Road diet, linear park
Proposed Network
BEAUREGARD ST
ADAMS ST
STUART CIR
N LAWRENCE ST
DR MARTIN LUTHER KING JR AVE
CHESTNUT ST
LYONS ST
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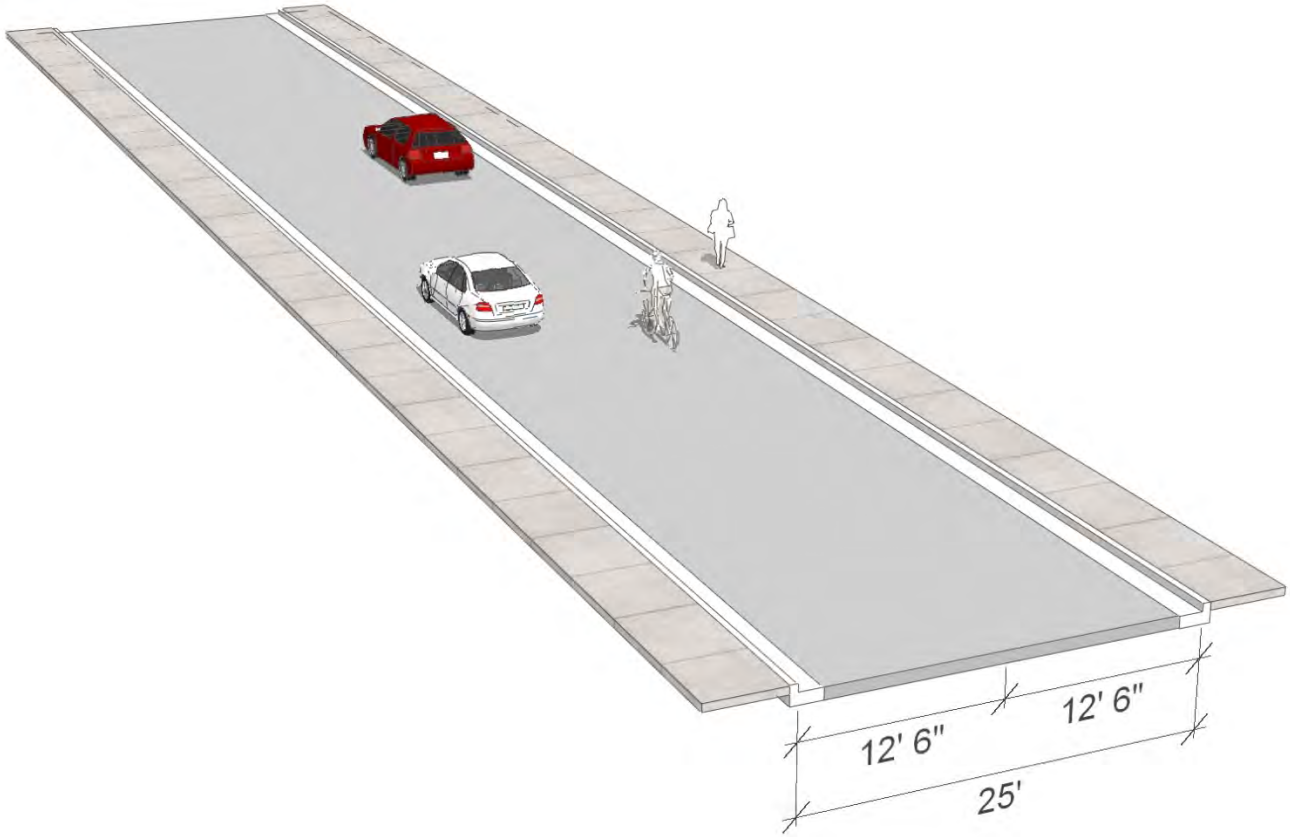
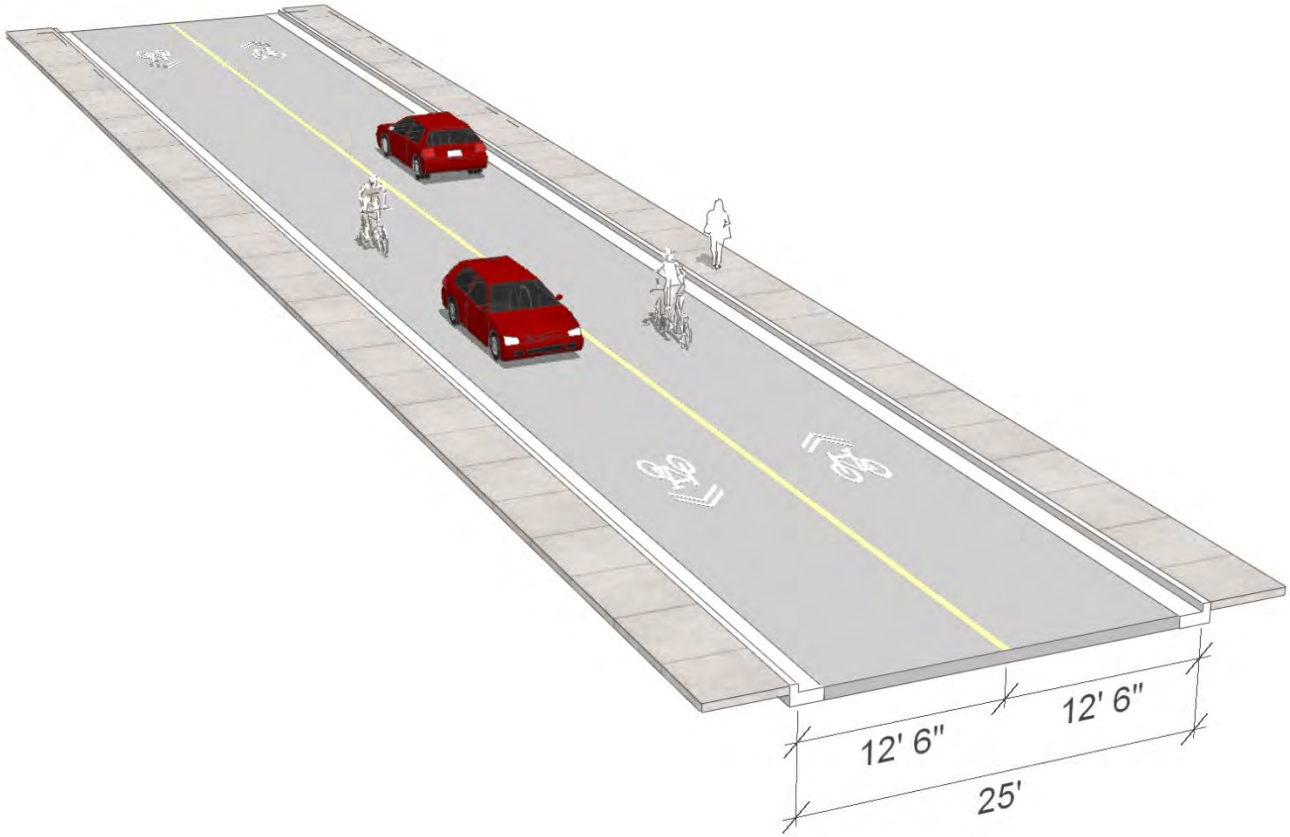
CATHEDRAL SQUARE PARK
RYAN PARK
MARDI GRAS PARK
COOPER RIVERSIDE PARK
MOBILE LANDING PARK
SPANISH PLAZA PARK
MALAGA SQUARE
BRITISH PARK

1-Way Typical Existing



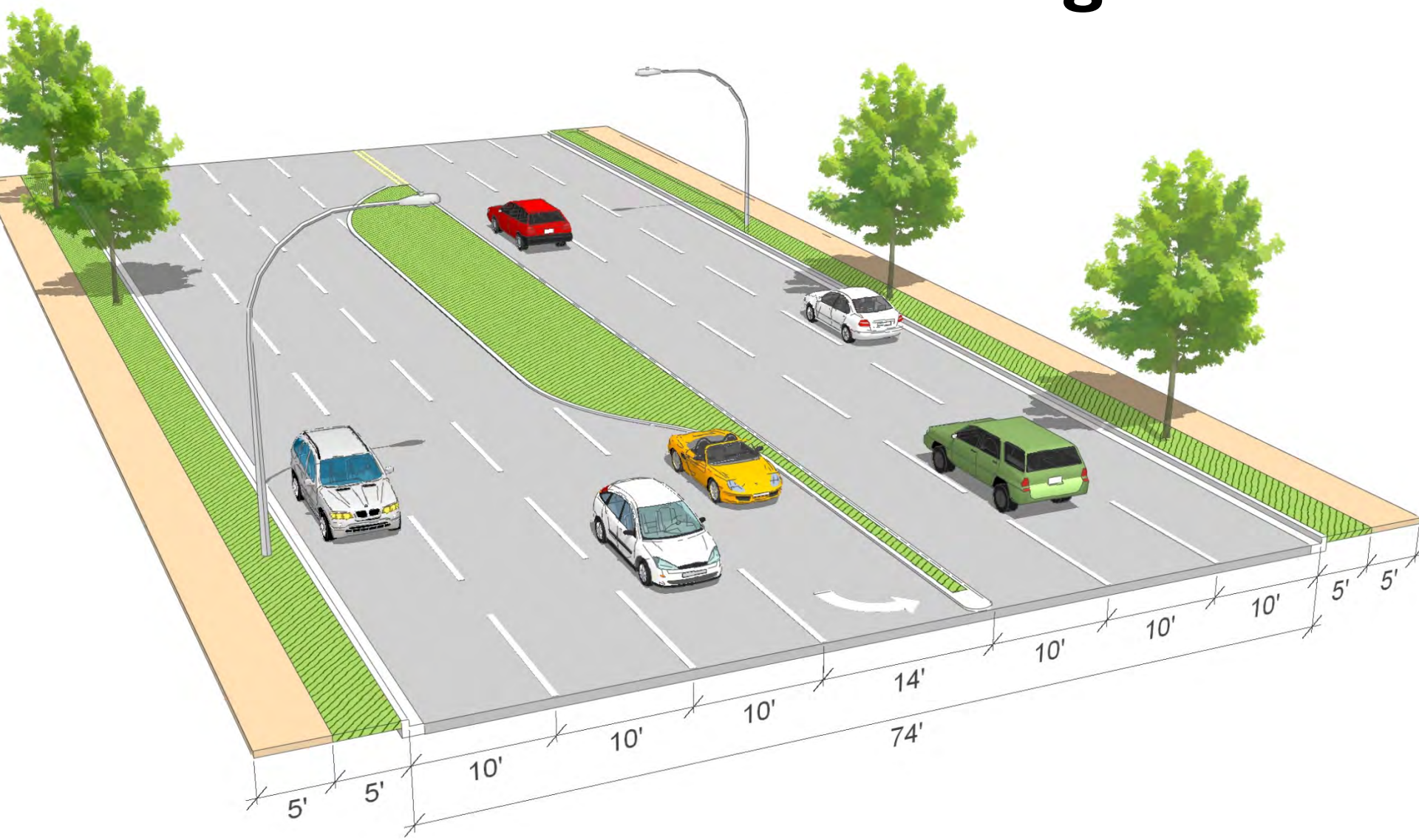
2-Way Restoration Typical



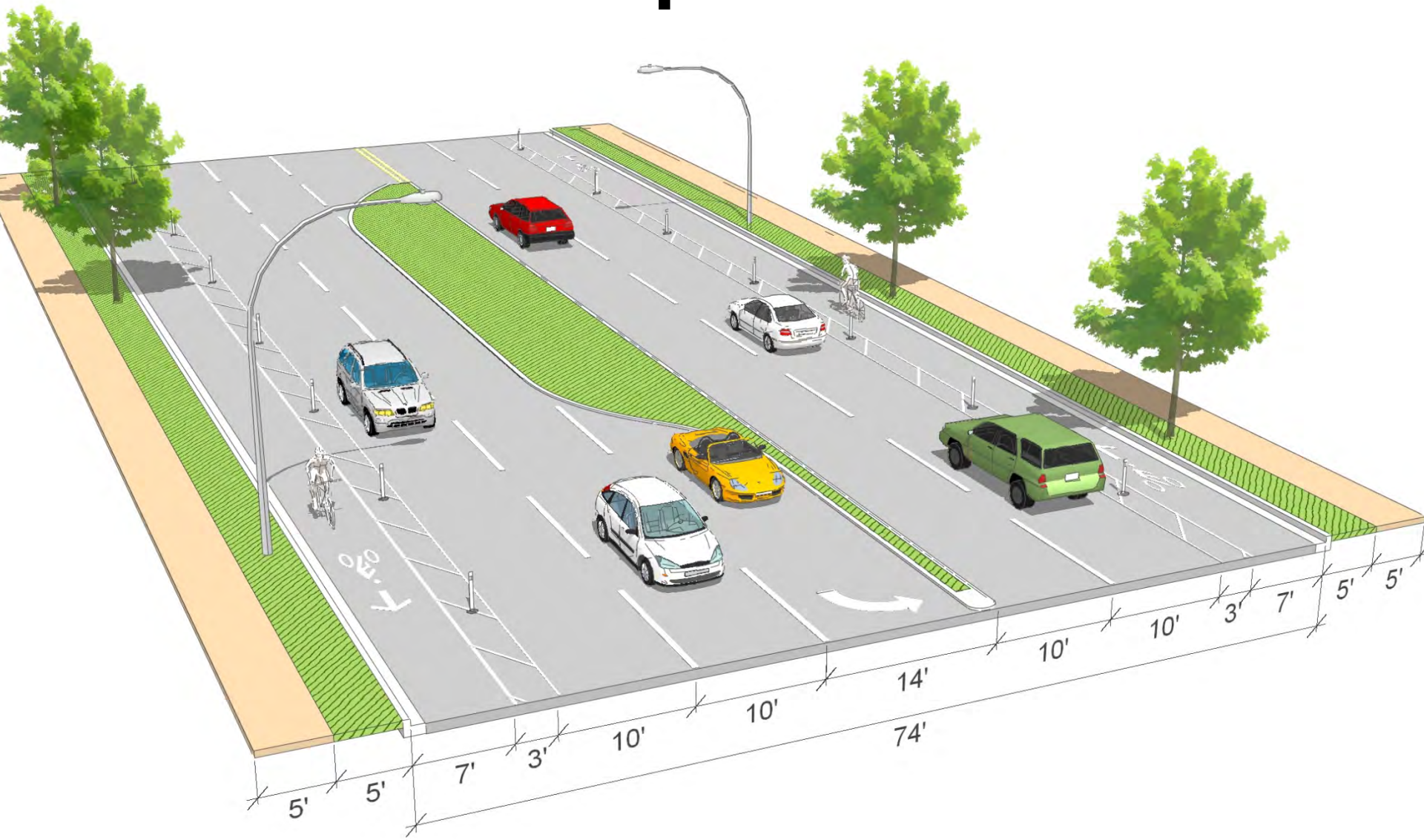
2-Way Restoration with Alternating Parking

Flush Street with Alternating Parking

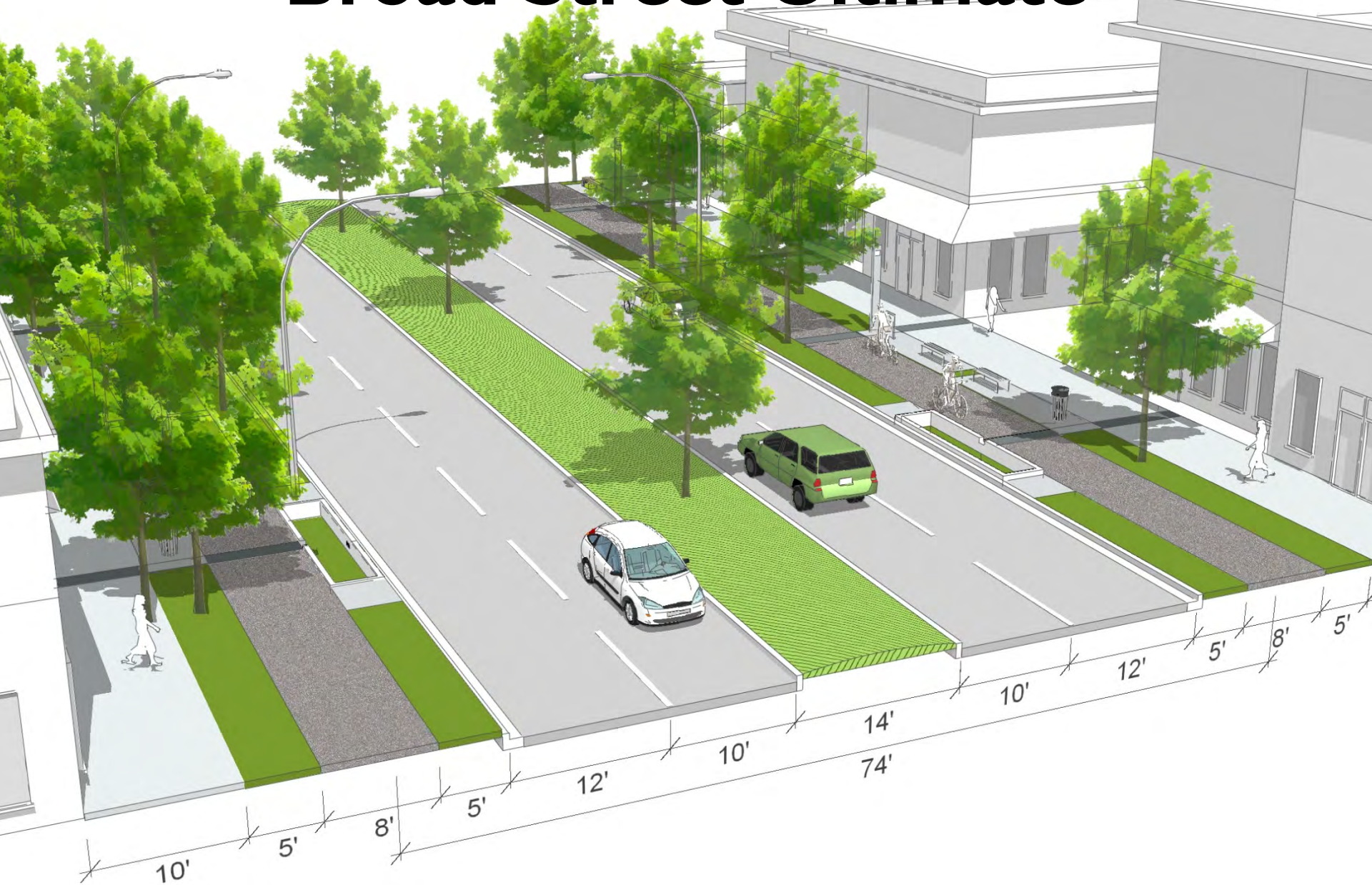
Broad Street Existing



Broad Street Separated Bike Lanes



Broad Street Ultimate

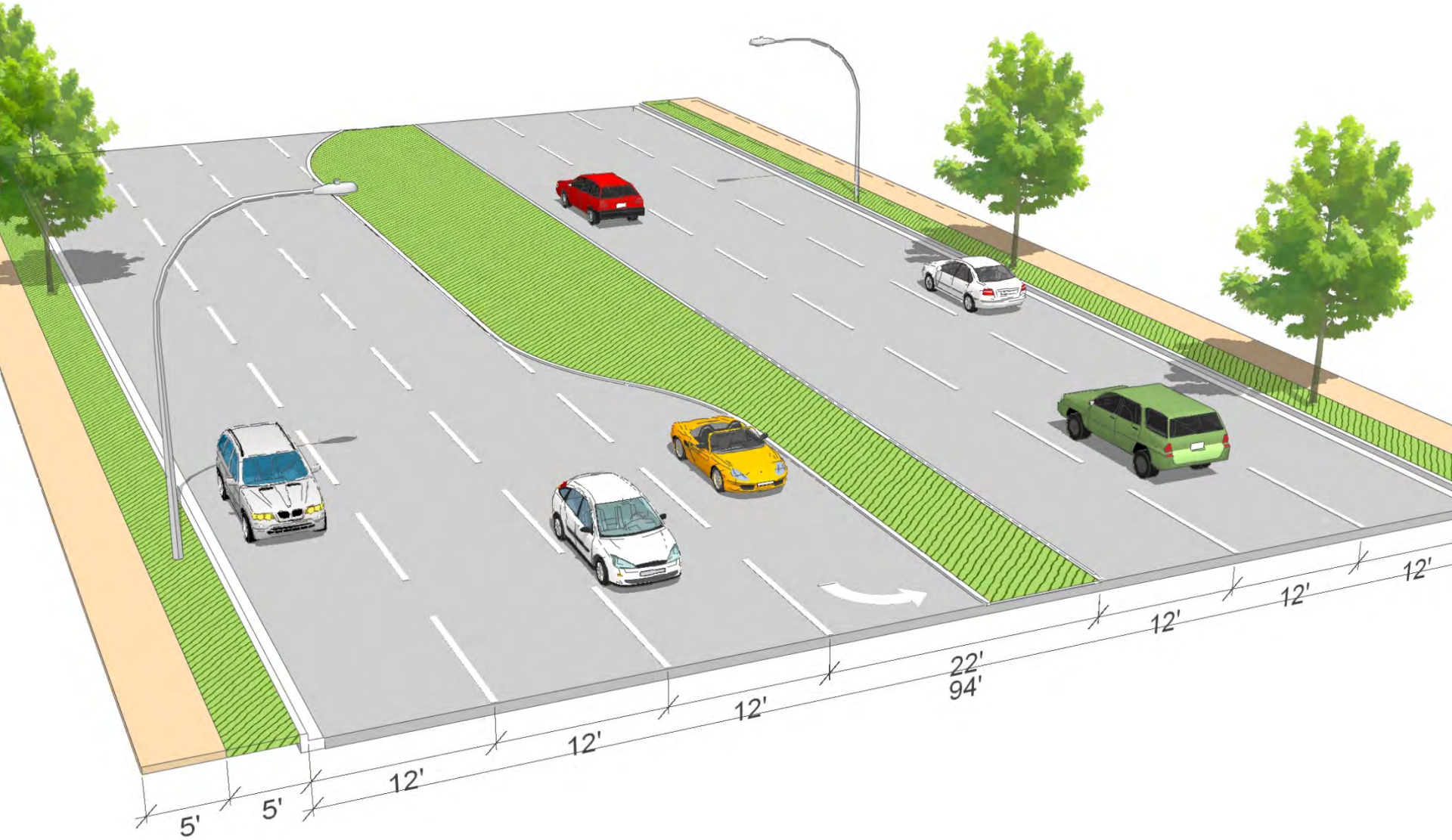



DOLLAR TREE
DOLLAR TREE


DOLLAR TREE
DOLLAR TREE


DOLLAR TREE
DOLLAR TREE

Canal Street Existing



Canal Street Proposed

Canal Street

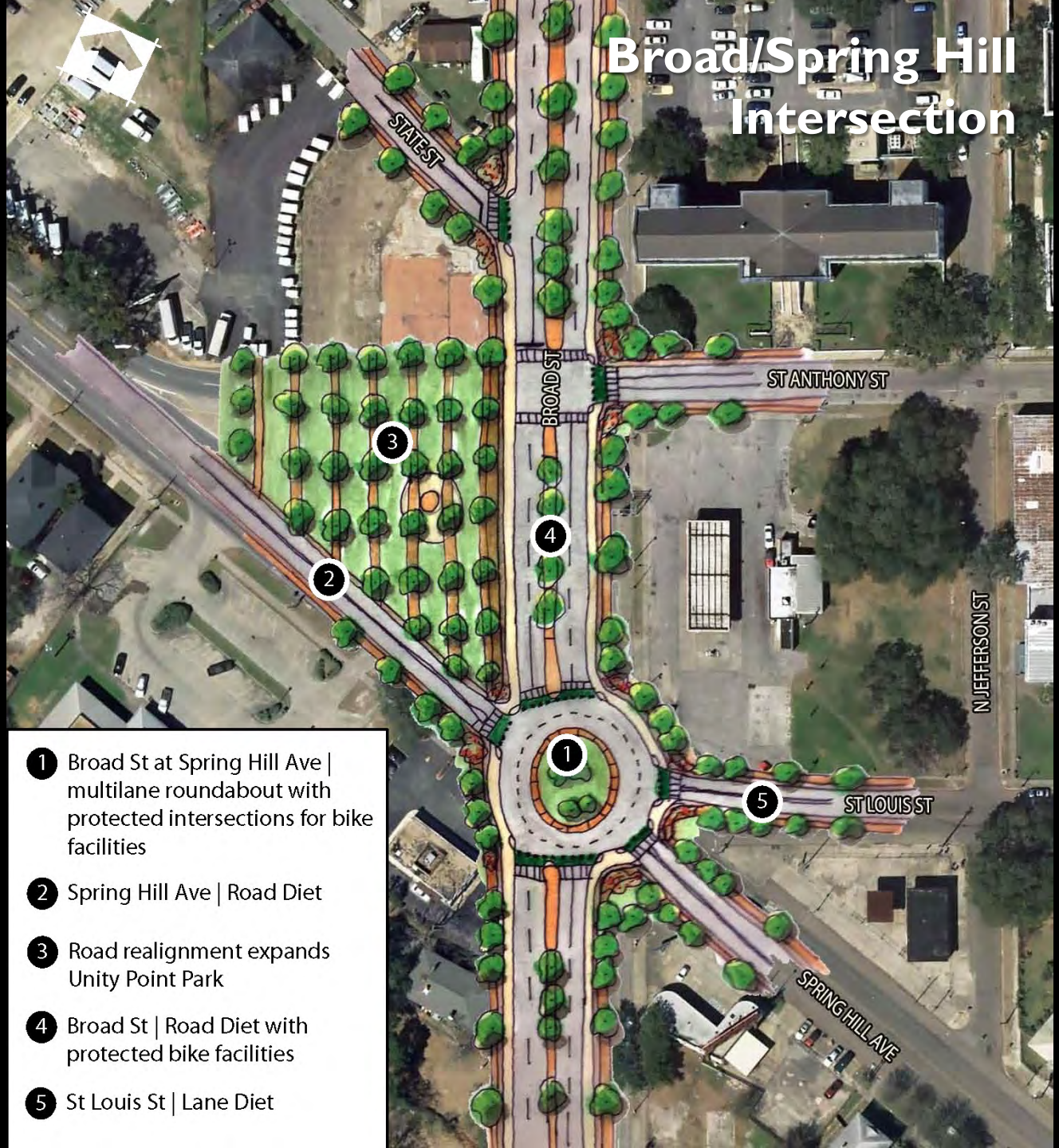
Canal Street

Broad/Canal Intersection


Broad/Canal Intersection
1 Broad St | Road Diet with Protected Bike Facilities
2 Broad St at Canal St | Protected Intersection for bike facilities
3 Canal St | Road Diet
4 Canal St | Linear Park and Shared Use Path
CHURCH ST
BROAD ST
S JEFFERSON ST
CANAL ST
CANAL STREET SERVICE RD
MONROE ST
1
2
3
4

Broad/Spring Hill Intersection

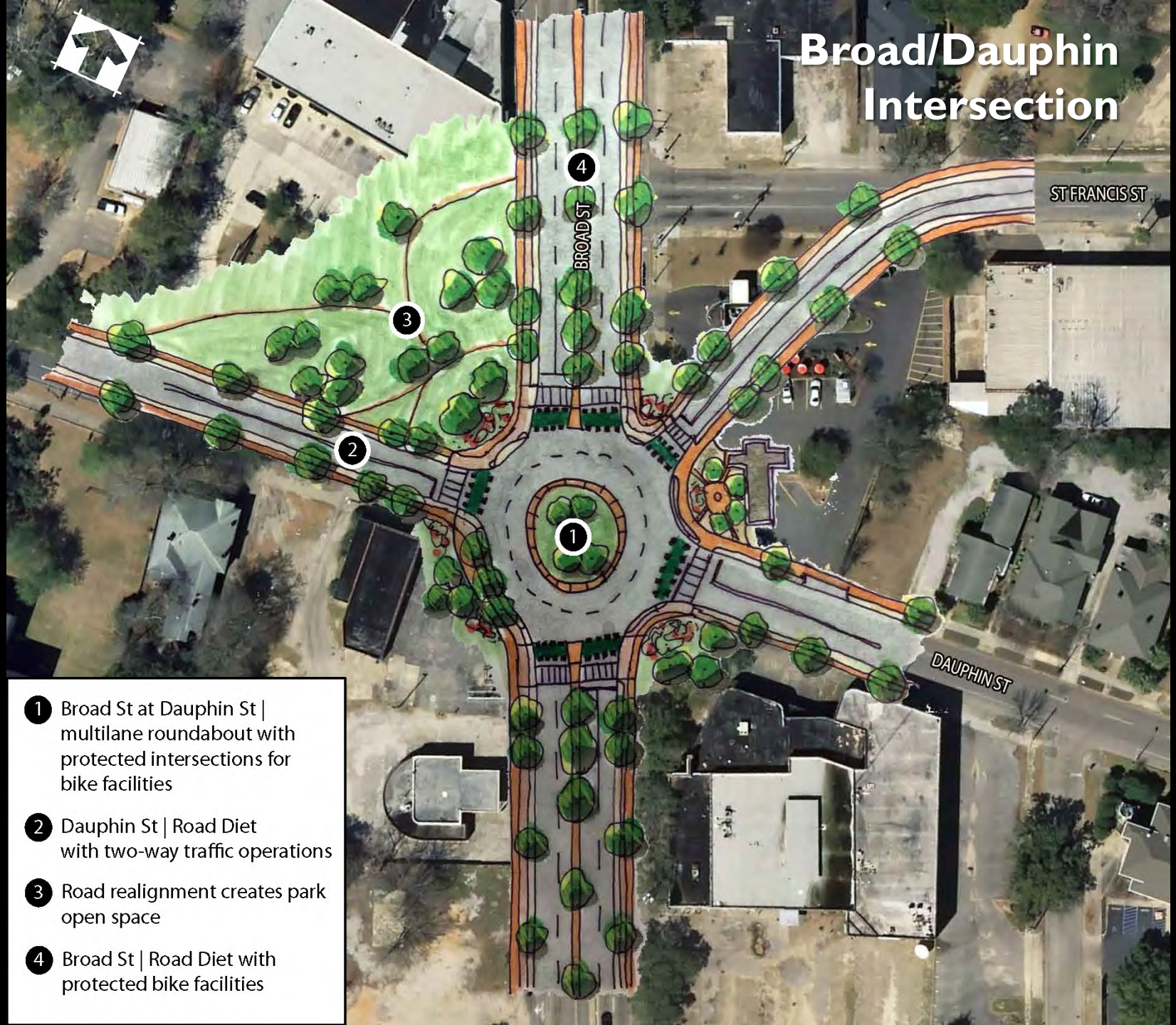
Broad/Spring Hill Intersection



1. Broad St at Spring Hill Ave | multilane roundabout with protected intersections for bike facilities
2. Spring Hill Ave | Road Diet
3. Road realignment expands Unity Point Park
4. Broad St | Road Diet with protected bike facilities
5. St Louis St | Lane Diet

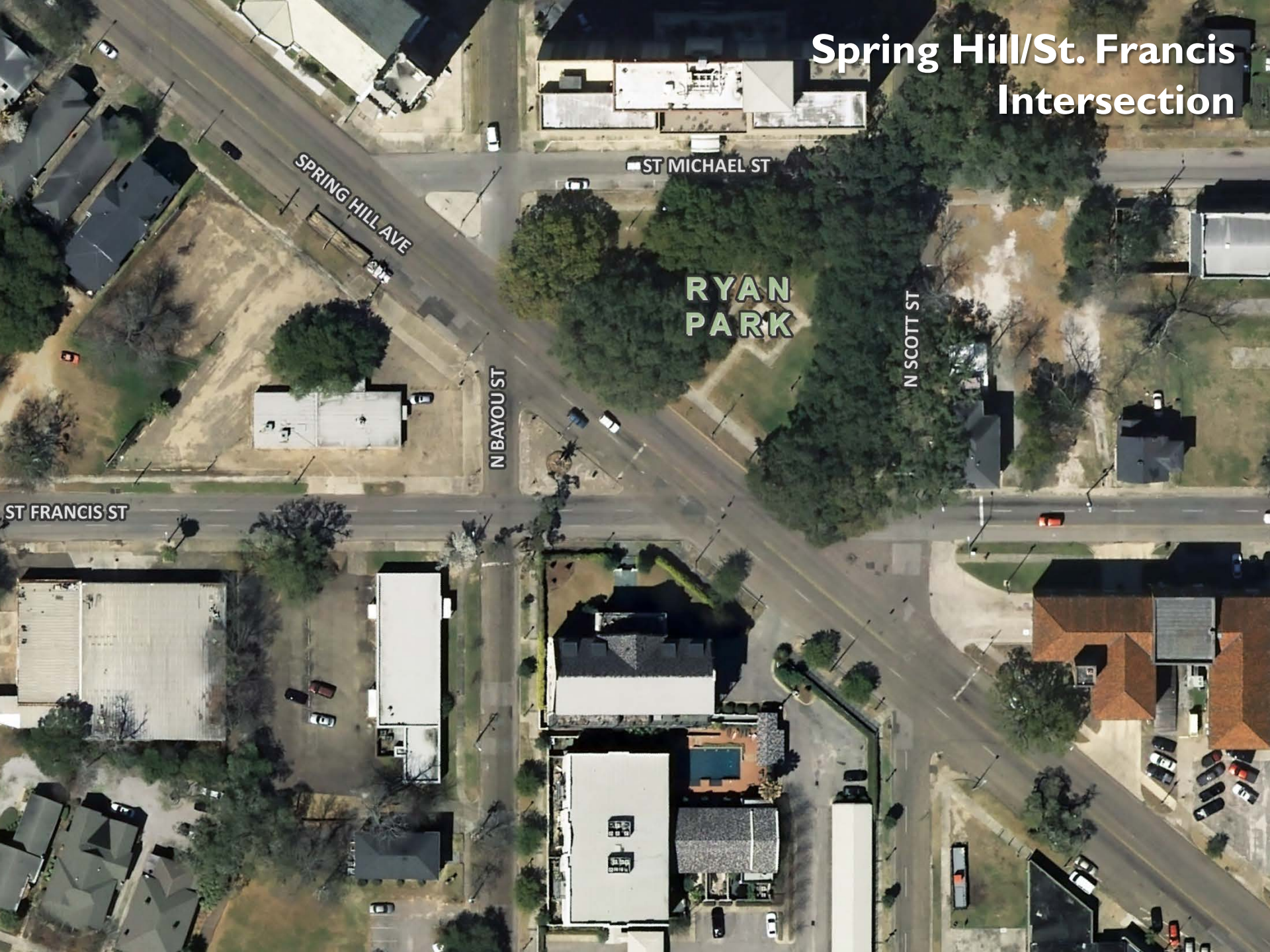
Broad/Dauphin Intersection

Broad/Dauphin Intersection

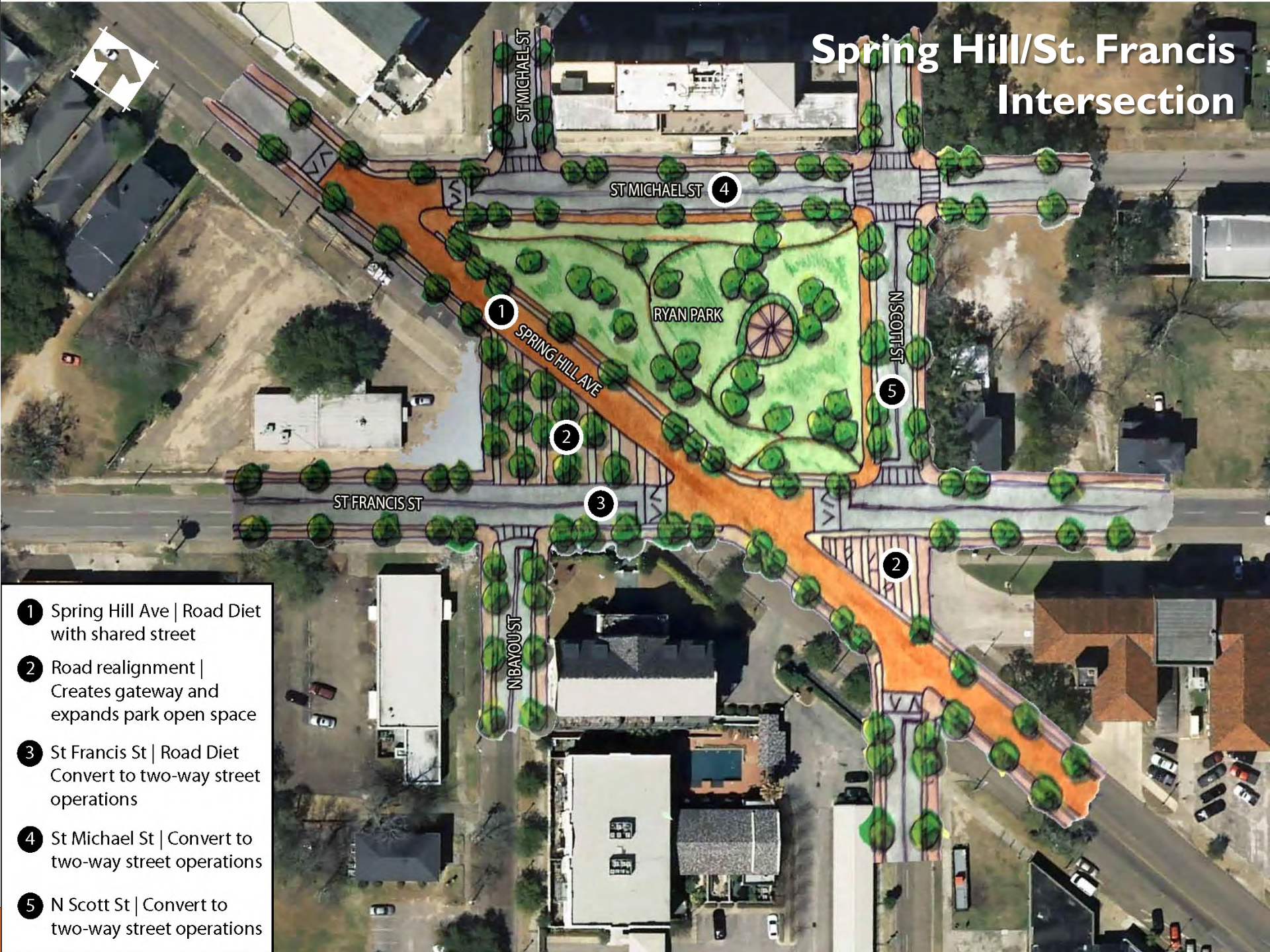


1. Broad St at Dauphin St | multilane roundabout with protected intersections for bike facilities
2. Dauphin St | Road Diet with two-way traffic operations
3. Road realignment creates park open space
4. Broad St | Road Diet with protected bike facilities

Spring Hill/St. Francis Intersection



Spring Hill/St. Francis Intersection



1. Spring Hill Ave | Road Diet with shared street
2. Road realignment | Creates gateway and expands park open space
3. St Francis St | Road Diet Convert to two-way street operations
4. St Michael St | Convert to two-way street operations
5. N Scott St | Convert to two-way street operations

Exhibition Road London

Asheville

Boston

Intersection Level of Service

Intersection	AM			PM		
	Existing	2035	2035 Build	Existing	2035	2035 Build
Beauregard/Lawrence	B	B	B	B	B	B
Beauregard/Martin Luther King	C	C	C	B	B	B
Broad/St. Anthony	F	F	**B**	B	B	B
Broad/St. Louis/Spring Hill	D	E	**A**	D	D	**A**
Broad/St. Francis	A	B	N/A	B	C	N/A
Broad/Dauphin	B	B	**A**	B	B	**A**
Broad/Government	C	C	**D**	C	D	D
Broad/Canal	B	B	**C**	C	C	C
Washington/Government	A	A	N/A	A	A	N/A
Washington/Canal	C	C	C	C	C	C

Signal Warrants

Intersection	Currently Signalized?	4-Hour Warrant Met?	8-Hour Warrant Met?
St Louis/Jackson	No	No	No
St Louis/Conception	Yes	**No**	**No**
Dauphin/Claiborne	Yes	**No**	**No**
Dauphin/Jackson	No	No	No
Dauphin/Joachim	Yes	**No**	**No**
Dauphin/Conception	Yes	**No**	**No**
Government/Jackson	Yes	Yes	Yes

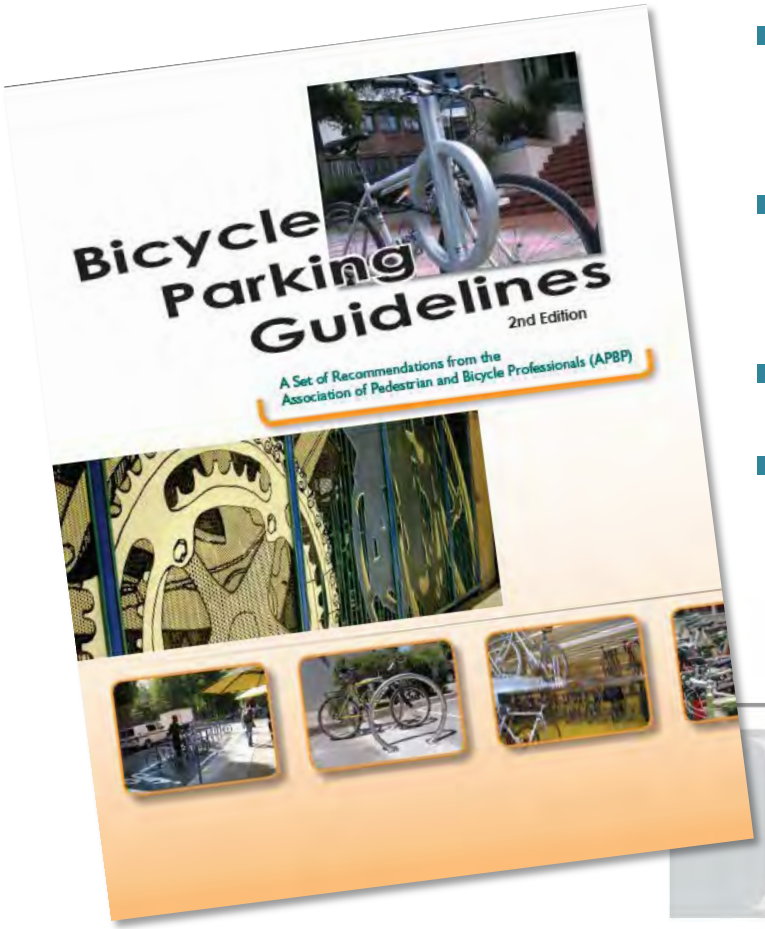
Bike Parking

- Bike parking is an essential element in a complete multimodal transportation system
  - More likely to bike if confident they can find parking at destination
  - Less fear of theft
  - Deter locking of bikes to benches, posts, railings, trees, etc.

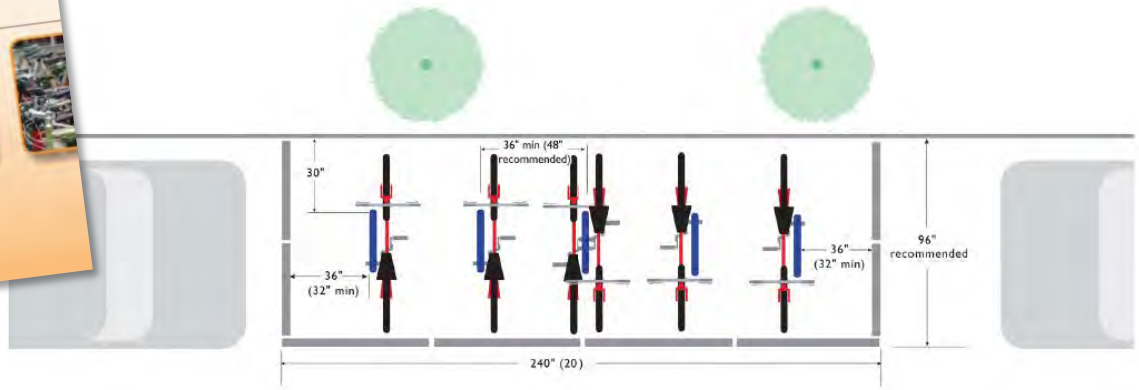
Types of Bike Parking

- Standard bicycle parking
- On-street corrals
- Covered parking
- Secure parking

Bike Parking Standards/Policies



- Bike parking should be easy to locate, simple to use
- Couple Downtown Alliance standards with national standards
- Consistency and Balance
- Build into ordinances/dev. regs



Final Steps

- ADA prioritization
- ADA intersection cut sheets
- Cost estimate refinement
- Report preparation
- Report adoption