

# Details of Performance Measures

- All Performance Measure definitions, methods, and assessment are included in the following slides



# Pedestrian Access and Mobility

- 1a. Functionality of Streetside for Pedestrian Activity
- 1b. Separation from Vehicular Traffic
- 1c. Pedestrian-Oriented Facilities or Improvements
- 1d. Walkable Network/Neighborhood Connections
- 1e. Pedestrian Crossings
- 1f. Vehicle/Pedestrian Conflicts at Driveways
- 1g. Universal Design
- 1h. Walkable Destinations
- 1i. Ease of Transition to Walking

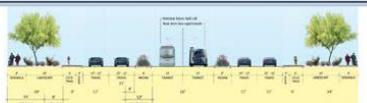
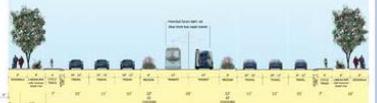
# 1a. Functionality of Streetside for Pedestrian Activity

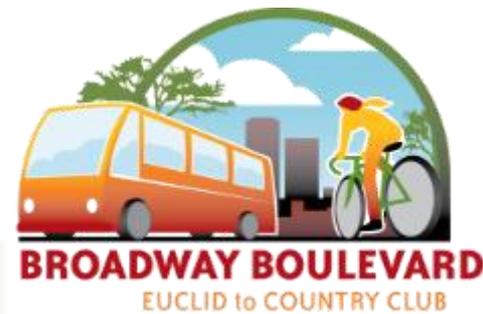
Degree to which there is enough width to support desired pedestrian activity, landscaping, street furnishings and other improvements.

- Sidewalk width and the width of the buffer area between the sidewalk and the roadway are key factors for the comfort and functionality of a street for pedestrians.
- The ITE Walkable Urban Thoroughfares Manual provides guidance for design of major urban streets like Broadway. The transportation characteristics of Broadway (i.e.; speed and number of lanes) make it a Boulevard Street type as defined by the manual (25-35 mph with 4-6 lanes, for various context types, see document for definitions). The current and potential character of the context along Broadway are defined as C-4 General Urban areas and C-3 Suburban areas in the manual. The combination of street type and context type lead to the guidance for sidewalk width:
  - C-4 with predominantly commercial ground floor – 1.5 ft. edge, 7 ft. furnishings (including landscape), 8 ft. throughway, 2.5 ft. frontage
  - C-4 with predominantly residential ground floor – 1.5 ft. edge, 8 ft. furnishings (including landscape), 8 ft. throughway, 0 to 1.5 ft. frontage
  - C-3 with predominantly commercial ground floor – 1.5 ft. edge, 7 ft. furnishings (including landscape), 6 ft. throughway, 1.5 ft. frontage
  - C-3 with predominantly residential ground floor – 1.5 ft. edge, 8 ft. furnishings (including landscape), 6 ft. throughway, 0 to 1.5 ft. frontage
- Result of guidance in relation to Broadway is for a 9.5 ft.-wide landscape area and 8 ft. sidewalk. Assume that additional sidewalk width if needed would be part of private development; the assessment compares the range of possible pedestrian improvements to this guidance.

# 1a. Functionality of Streetside for Pedestrian Activity

STREET ELEMENTS OR DETAILS		1a. Functionality of Streetside for Pedestrian Activity
Existing Conditions		-- to -- --
8' Sidewalk with shade tree (16' landscape)		++
8' Sidewalk with shade tree (8' landscape)		o
6'-8' Sidewalk with shade structure (7' landscape)		- to o
6' Sidewalk with 5' landscape		-
6' Sidewalk with 3' buffer		--
6' Sidewalk		-- --
26' Center-Running Transit		
11'-12' Side- or Center-Running Transit		
5'-7' Bike Lane		
7'-9' Buffered Bike Lane		

STREET CROSS SECTION ALTERNATIVES		1a. Functionality of Streetside for Pedestrian Activity
Existing Conditions		-- to -- --
Option 4A (98' r.o.w.)		o
Option 4B (114' r.o.w.)		++
Option 4+T A (124' r.o.w.)		o
Option 4+T B (152' r.o.w.)		++
Option 6A (120' r.o.w.)		o
Option 6B (152' r.o.w.)		++
Option 6+T A (146' r.o.w.)		-
Option 6+TB (154' r.o.w.)		++
Option 4+T SATA (existing r.o.w.)		-- to -- --



**Table 4.1 Context Zone Characteristics**

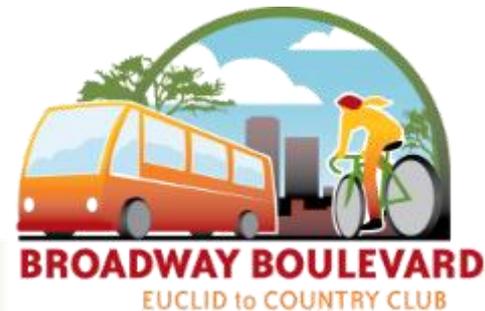
<b>Context Zone</b>	<b>Distinguishing Characteristics</b>	<b>General Character</b>	<b>Building Placement</b>	<b>Frontage Types</b>	<b>Typical Building Height</b>	<b>Type of Public Open Space</b>	<b>Transit (Where Provided)</b>
C-1 Natural	Natural landscape	Natural features	Not applicable	Not applicable	Not applicable	Natural open space	None
C-2 Rural	Agricultural with scattered development	Agricultural activity and natural features	Large setbacks	Not applicable	Not applicable	Agricultural and natural	Rural
C-3 Suburban	Primarily single family residential with walkable development pattern and pedestrian facilities, dominant landscape character. Includes scattered commercial uses that support the residential uses, and connected in walkable fashion.	Detached buildings with landscaped yards, normally adjacent to C-4 zone. Commercial uses may consist of neighborhood or community shopping centers, service or office uses with side or rear parking.	Varying front and side yard setbacks	Residential uses include lawns, porches, fences and naturalistic tree planting. Commercial uses front onto thoroughfare.	1 to 2 story with some 3 story	Parks, greenbelts	Local, express bus
C-4 General Urban	Mix of housing types including attached units, with a range of commercial and civic activity at the neighborhood and community scale	Predominantly detached buildings, balance between landscape and buildings, presence of pedestrians	Shallow to medium front and side yard setback	Porches, fences	2 to 3 story with some variation and few taller workplace buildings	Parks, greenbelts	Local, limited stop bus rapid transit, express bus; fixed guideway
C-5 Urban Center	Attached housing types such as townhouses and apartments mixed with retail, workplace and civic activities at the community or sub-regional scale.	Predominantly attached buildings, landscaping within the public right of way, substantial pedestrian activity	Small or no setbacks, buildings oriented to street with placement and character defining a street wall	Stoops, dooryards, storefronts and arcaded walkways	3 to 5 story with some variation	Parks, plazas and squares, boulevard median landscaping	Local bus; limited stop rapid transit or bus rapid transit; fixed-guideway transit

**Source:** ITE; Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, RP-036A; 2010.

# 1b. Separation from Vehicular Traffic

Width and design character of area between outside edge of vehicle lane and sidewalk.

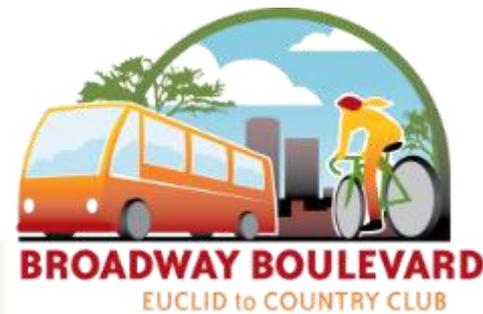
- Guidance/factors include ITE Manual guidance for buffer width; Multi-modal level of service considerations for presence and frequency of street trees and other landscaping within buffer which varies depending on design of street elements; and speed and volume of traffic (assumed to be relatively constant).



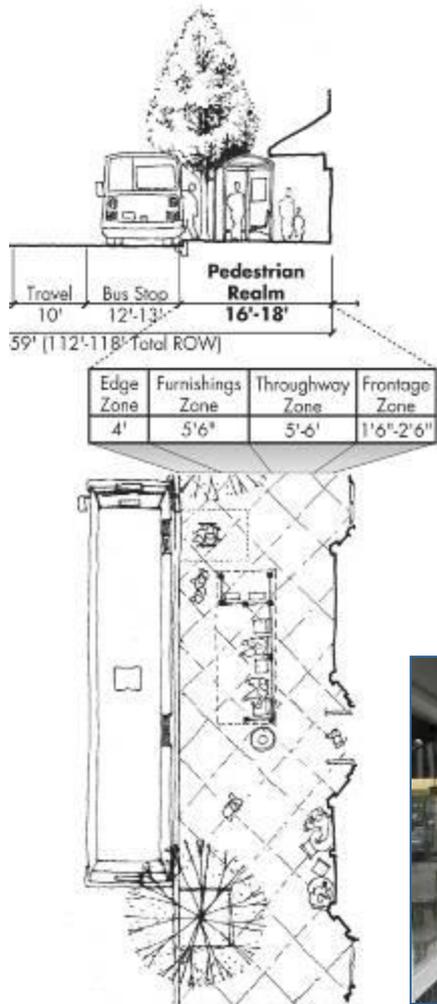
STREET ELEMENTS OR DETAILS		1b. Separation from Vehicular Traffic
Existing Conditions		--- to ---
8' Sidewalk with shade tree (16' landscape)		+++
8' Sidewalk with shade tree (8' landscape)		++
6'-8' Sidewalk with shade structure (7' landscape)		o
6' Sidewalk with 5' landscape		---
6' Sidewalk with 3' buffer		---
6' Sidewalk		---
26' Center-Running Transit		
11'-12' Side- or Center-Running Transit		
5'-6' Bike Lane		- to +
7'-9' Buffered Bike Lane		+ to ++
7'-9' Cycle Track		+ to ++

STREET CROSS SECTION ALTERNATIVES		1b. Separation from Vehicular Traffic
Existing Conditions		--- to ---
Option 4A (98' r.o.w.)		+
Option 4B (114' r.o.w.)		++++
Option 4+T A (124' r.o.w.)		+++
Option 4+T B (152' r.o.w.)		++++
Option 6A (120' r.o.w.)		++
Option 6B (152' r.o.w.)		++++
Option 6+T A (146' r.o.w.)		+
Option 6+TB (154' r.o.w.)		+++
Option 4+T SATA (existing r.o.w.)		---

# 1b. Separation from Vehicular Traffic



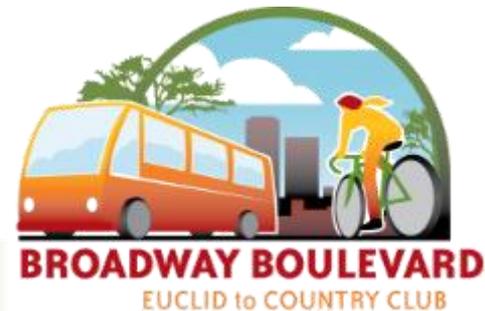
# Functionality of Streetside for Pedestrian Activity



# 1c. Pedestrian-oriented Facilities or Improvements

Extent of shade, lighting, seating, drinking fountains and other features to serve pedestrian needs and provide for visual interest.

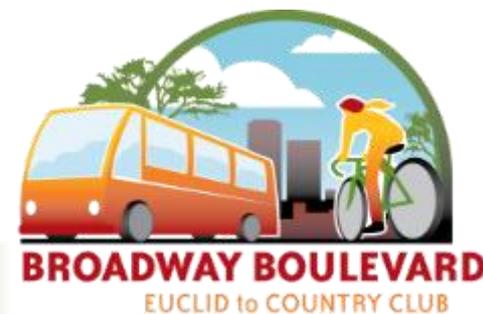
- Factors include percentage of shade, lighting levels and consistency, number and frequency of other pedestrian supportive design features (i.e.; seating, drinking fountains).



STREET ELEMENTS OR DETAILS	PEDEST
	1c. Pedestrian-Oriented Facilities or Improvements
Existing Conditions	---
8' Sidewalk with shade tree (16' landscape)	++ 
8' Sidewalk with shade tree (8' landscape)	+ 
6'-8' Sidewalk with shade structure (7' landscape)	o 
6' Sidewalk with 5' landscape	-- 
6' Sidewalk with 3' buffer	--- 
6' Sidewalk	--- 
26' Center-Running Transit	
11'-12' Side- or Center-Running Transit	
5'-6' Bike Lane	
7'-9' Buffered Bike Lane	
7'-9' Cycle Track	

STREET CROSS SECTION ALTERNATIVES	PEDEST
	1c. Pedestrian-Oriented Facilities or Improvements
Existing Conditions	---
Option 4A (98' r.o.w.)	o 
Option 4B (114' r.o.w.)	++ 
Option 4+T A (124' r.o.w.)	o 
Option 4+T B (152' r.o.w.)	++ 
Option 6A (120' r.o.w.)	o 
Option 6B (152' r.o.w.)	++ 
Option 6+T A (146' r.o.w.)	- 
Option 6+TB (154' r.o.w.)	+ 
Option 4+T SATA (existing r.o.w.)	--- 

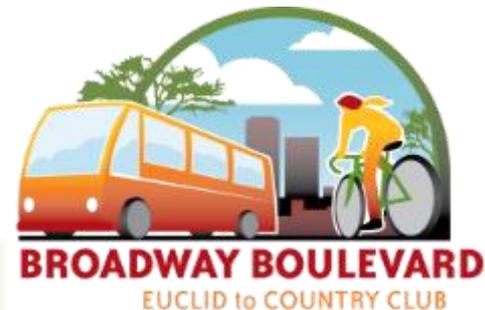
# 1c. Pedestrian-oriented Facilities or Improvements



# 1d. Walkable Network/Neighborhood Connections

Ability for pedestrians to access neighborhoods and pedestrian network.

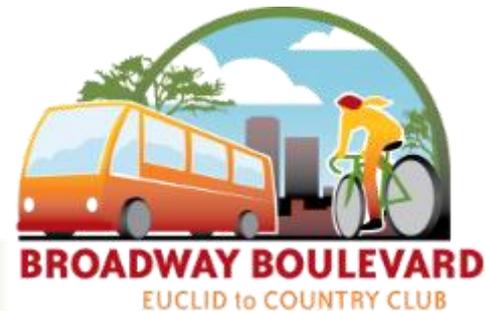
- Factors include number, length between, and quality of connections from Broadway to surrounding pedestrian network
- This measure cannot currently be assessed, because connections from Broadway and the pedestrian network are not included in the current level of design
- **Not measurable at current level of design**



# 1e. Pedestrian Crossings

Ease of crossing Broadway and side streets intersecting with Broadway on foot.

- Assume that the number of crossings is equal (except that existing conditions would have fewer than any future option). Therefore the current assessment is about the quality and distance of the crossing.
- As design is developed further and intersection designs are developed the ease of crossing side streets can be assessed.



LANE CONFIGURATION ALTERNATIVES

SS AND MC

1e. Pedestrian Crossings

Existing Conditions

---  
to  
---

4 lane without landscaping (62'-92')

---  
to  
o

4 lane with landscaping (84'-138')

o  
to  
++

4 lane + transit without landscaping (84'-116')

---  
to  
---

4 lane + transit with landsc. and ctr. median (106'-162')

-  
to  
+

4 lane + center-running transit with landscaping and two center medians (118'-160')

-  
to  
o

6 lane without landscaping (82'-116')

---  
to  
---

6 lane with landscaping (104'-162')

---  
to  
o

6 lane + transit with landsc. and ctr. median (126'-186')

---  
to  
o

6 lane + transit with landscaping and 2 center medians (138'-184')

---  
to  
---

STREET CROSS SECTION ALTERNATIVES

PROCESS AND

1e. Pedestrian Crossings

Existing Conditions

---  
to  
---

Option 4A (98' r.o.w.)



-

Option 4B (114' r.o.w.)



++

Option 4+T A (124' r.o.w.)



+

Option 4+T B (152' r.o.w.)



o

Option 6A (120' r.o.w.)



+

Option 6B (152' r.o.w.)



+

Option 6+T A (146' r.o.w.)



---

Option 6+TB (154' r.o.w.)



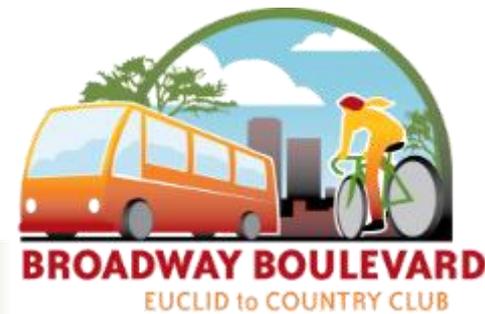
---

Option 4+T SATA (existing r.o.w.)



-

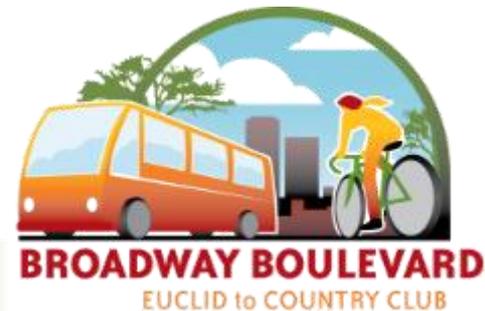
# 1e. Pedestrian Crossings



# 1f. Vehicle / Pedestrian Conflicts at Driveways

Degree to which conflicts between pedestrians and vehicles exist at driveways for site access; strongly related to Performance Measure 2b.

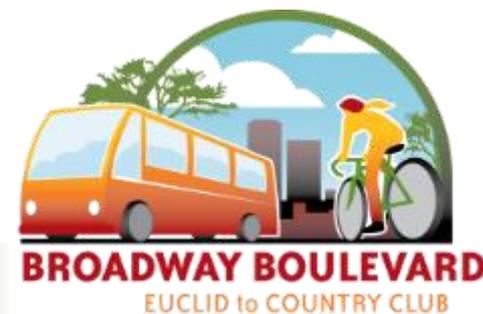
- Factors include level pedestrian crossing of driveway; vehicle speed; frequency of driveways; and visibility of the pedestrian on the sidewalk (measured by distance from right travel lane to sidewalk).



STREET ELEMENTS OR DETAILS	MOBILITY
Existing Conditions	1f. Vehicle / Pedestrian Conflicts at Driveways -- to --
8' Sidewalk with shade tree (16' landscape) 	++
8' Sidewalk with shade tree (8' landscape) 	+
6'-8' Sidewalk with shade structure (7' landscape) 	o
6' Sidewalk with 5' landscape 	-
6' Sidewalk with 3' buffer 	--
6' Sidewalk 	--
26' Center-Running Transit 	o
11'-12' Side- or Center-Running Transit 	o
5'-6' Bike Lane 	- to o
7'-9' Buffered Bike Lane 	o to +
7'-9' Cycle Track 	+ to ++

STREET CROSS SECTION ALTERNATIVES	D MOBILITY
Existing Conditions	1f. Vehicle / Pedestrian Conflicts at Driveways -- to --
Option 4A (98' r.o.w.) 	+
Option 4B (114' r.o.w.) 	++
Option 4+T A (124' r.o.w.) 	++
Option 4+T B (152' r.o.w.) 	+++
Option 6A (120' r.o.w.) 	++
Option 6B (152' r.o.w.) 	+++
Option 6+T A (146' r.o.w.) 	+
Option 6+TB (154' r.o.w.) 	++
Option 4+T SATA (existing r.o.w.) 	--

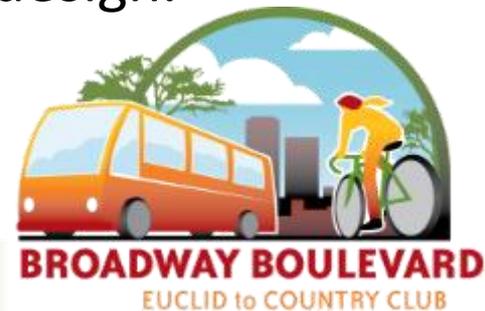
# 1f. Vehicle / Pedestrian Conflicts at Driveways



# 1g. Universal Design

Provision of access and mobility for people of all ages and abilities using design elements that go beyond base requirements of disabled access per the Americans with Disabilities Act (ADA) federal design requirements.

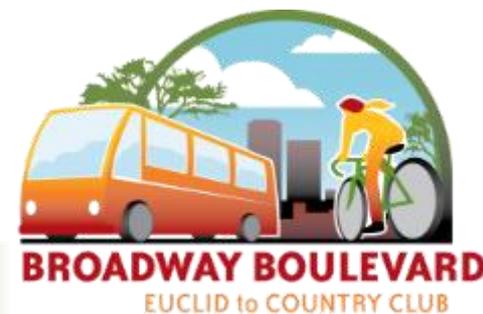
- Many factors that are not defined at current level of design will come into play in this assessment, such as:
  - Intersection and signal design
  - Type and design of pedestrian facilities
  - Design of transit facilities
  - Wayfinding signs
- At current level of design, sidewalk width more than ADA minimum is an indicator of potential for universal design.



# 1g. Universal Design

STREET ELEMENTS OR DETAILS		1g. Universal Design
Existing Conditions		--- to o
8' Sidewalk with shade tree (16' landscape)		++
8' Sidewalk with shade tree (8' landscape)		++
6'-8' Sidewalk with shade structure (7' landscape)		+ to ++
6' Sidewalk with 5' landscape		+
6' Sidewalk with 3' buffer		o
6' Sidewalk		o
26' Center-Running Transit		
11'-12' Side- or Center-Running Transit		
5'-7' Bike Lane		
7'-9' Buffered Bike Lane		

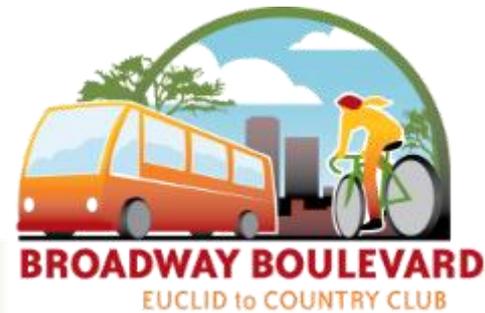
STREET CROSS SECTION ALTERNATIVES		1g. Universal Design
Existing Conditions		--- to o
Option 4A (98' r.o.w.)		++
Option 4B (114' r.o.w.)		++
Option 4+T A (124' r.o.w.)		++
Option 4+T B (152' r.o.w.)		++
Option 6A (120' r.o.w.)		++
Option 6B (152' r.o.w.)		++
Option 6+T A (146' r.o.w.)		+
Option 6+TB (154' r.o.w.)		++
Option 4+T SATA (existing r.o.w.)		o



# Universal Design



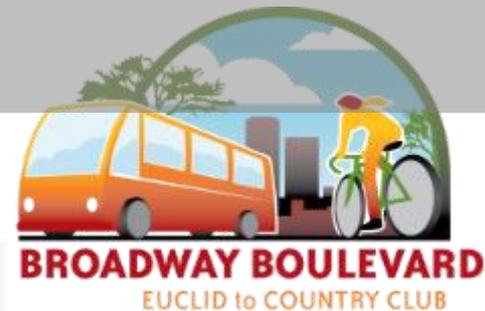
(top) [WWW.PEDBIKEIMAGES.ORG/](http://WWW.PEDBIKEIMAGES.ORG/) DAN BURDEN  
(middle) [WWW.PEDBIKEIMAGES.ORG/](http://WWW.PEDBIKEIMAGES.ORG/) JAN MOGER  
(bottom) COMPLETE STREETS



# 1h. Walkable Destinations

Presence and access to jobs, homes, shopping, etc.; and presence of sufficient density of other uses and access from other uses to support market for employment, shopping, etc.

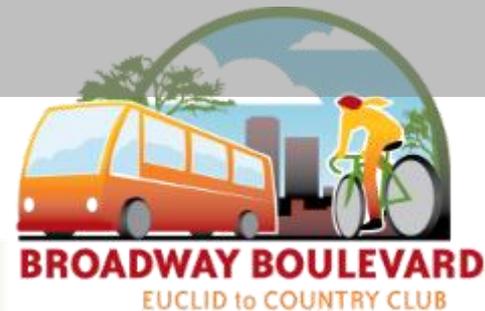
- Many factors that are not defined at current level of design will come into play in this assessment, such as:
  - 1d. Walkable Network/Neighborhood Connections: This measures the performance of alternative designs' ability to create the necessary infrastructure to encourage walking to destinations. This infrastructure will then support the market potential for businesses that people would want to walk to on Broadway.
  - Economic Vitality performance measures related to potential for jobs, commercial uses, and homes along Broadway.
- Measured by determining density of households and jobs within walkable distance of uses along Broadway.
- **Not measurable at current level of design**



# 1i. Ease of Transition to Walking

Measure of the ability of users of other transportation modes to become pedestrians along Broadway.

- Many factors that are not defined at current level of design are needed to assess this measure, including:
  - Proximity and number of parking lots
  - Proximity and number of bicycle parking/lockers
  - Number of bus stops/transit stations
  - Number and type of comfort and safety features (lighting, seats, shade)
  - Number of attractions/commercial uses
- Measure by determining the number and distance related to above factors.
- **Not measurable at current level of design**



# Bicycle Access and Mobility

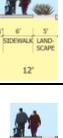
- 2a. Separation of Bikes and Arterial Traffic
- 2b. Crossing Conflicts Between Bicycles and Vehicles (was Bike Conflicts with Crossing Vehicles)
- 2c. Pavement Condition
- 2d. Bike Facility Improvements
- 2e. Bicycle Network Connections
- 2f. Bicycle Corridor Travel Time
- 2g. Bike Crossings

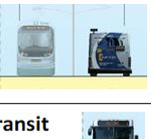
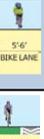
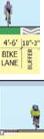
# 2a. Separation of Bikes and Arterial Traffic

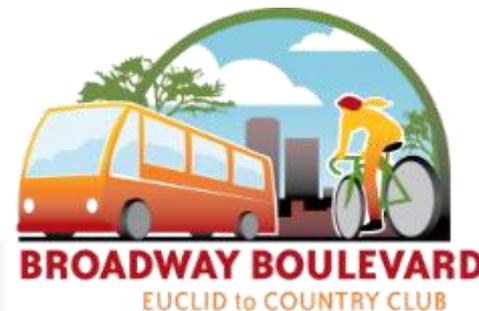
Degree to which the street design elements allow separation of cyclists from vehicular traffic.

- Greater separation is a factor related to bicyclist safety and comfort, and therefore likely bicycle use of Broadway.
- The main factor in this performance measure is the width of the bicycle lane.
- The following guidance is based on traffic speeds of 35 mph or less:
  - 5 ft. width negative (–)
  - 6 ft. width neutral (ITE Manual recommendation)
  - 7 ft. width positive (+)
  - 7 to 9 ft. width buffered bike lane positive (+ to ++)
  - 7 to 8 ft. width beveled curb cycle track positive (++)
  - 9 ft. width full curb cycle track positive (+++)

# 2a. Separation of Bikes and Arterial Traffic

STREET ELEMENTS OR DETAILS		2a. Separation of Bikes and Arterial Traffic
Existing Conditions		-
8' Sidewalk with shade tree (16' landscape)		
8' Sidewalk with shade tree (8' landscape)		
6'-8' Sidewalk with shade structure (7' landscape)		
6' Sidewalk with 5' landscape		
6' Sidewalk with 3' buffer		
6' Sidewalk		
26' Center-Running Transit		
11'-12' Side- or Center-Running Transit		
5'-7' Bike Lane		○ to +
7'-9' Buffered Bike Lane		+ to ++

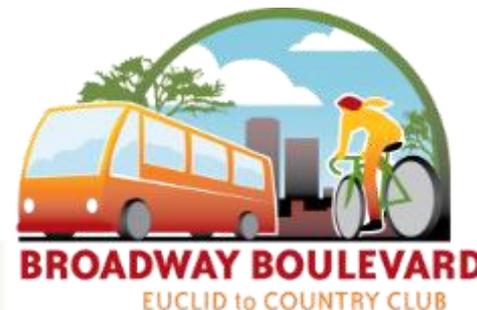
STREET ELEMENTS OR DETAILS		2a. Separation of Bikes and Arterial Traffic
Existing Conditions		-
8' Sidewalk with shade tree (16' landscape)		
8' Sidewalk with shade tree (8' landscape)		
6'-8' Sidewalk with shade structure (7' landscape)		
6' Sidewalk with 5' landscape		
6' Sidewalk with 3' buffer		
6' Sidewalk		
26' Center-Running Transit		
11'-12' Side- or Center-Running Transit		
5'-6' Bike Lane		- to +
7'-9' Buffered Bike Lane		+ to ++
7'-9' Cycle Track		+ to +++



# 2a. Separation of Bikes and Arterial Traffic

STREET CROSS SECTION ALTERNATIVES	
Existing Conditions	2a. Separation of Bikes and Arterial Traffic -
Option 4A (67' r.o.w.)	O to +
Option 4B (100' r.o.w.)	O to +
Option 4C (112' r.o.w.)	O to +
Option 4+T A (118' r.o.w.)	O to +
Option 4+T B (152' r.o.w.)	+
Option 6A (114' r.o.w.)	O to +
Option 6B (152' r.o.w.)	O to +
Option 6+T A (146' r.o.w.)	O to +
Option 6+TB (174' r.o.w.)	O to +
Option 4+T SATA (existing r.o.w.)	O to +

STREET CROSS SECTION ALTERNATIVES	
Existing Conditions	2a. Separation of Bikes and Arterial Traffic -
Option 4A (98' r.o.w.)	O
Option 4B (114' r.o.w.)	+
Option 4+T A (124' r.o.w.)	++
Option 4+T B (152' r.o.w.)	+++
Option 6A (120' r.o.w.)	++
Option 6B (152' r.o.w.)	+++
Option 6+T A (146' r.o.w.)	++
Option 6+TB (154' r.o.w.)	+
Option 4+T SATA (existing r.o.w.)	-



## 2b. Crossing Conflicts Between Bicycles and Vehicles (was Bike Conflicts with Crossing Vehicles)

The frequency of points where vehicles cross the bike lane and the ability of the street design to mitigate those potential conflicts.

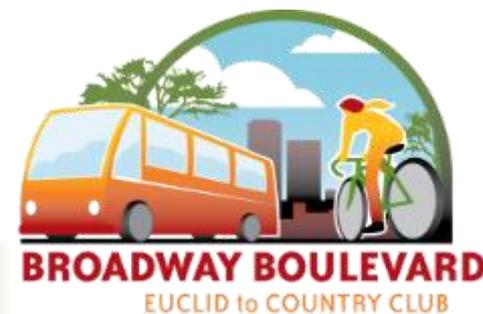
Potential conflicts and level of comfort for bicyclists making turns at intersections with crossing streets.

- Assume all future options have
  - a base assessment that ranges from one negative to one positive (- to +) for vehicles crossing bike lane to get to curb cuts, because there is uncertainty regarding how quickly an access management policy can reduce the number of site access curb cuts/driveways along Broadway.
  - Have the potential for dedicated right turn lanes, green pavement treatments and other markings to be provided at intersections to enhance safety,
  - Vehicle speeds are assumed to be equal in all cross sections.
- Options that require buses to cross over to bus pull outs are neutral.
- Options with dedicated transit lanes in the middle get a single + for that, still would have local buses pulling into bus pull outs.
- The assessment of potential conflicts and comfort for bicyclists making turns at intersections cannot be assessed at this level of design, because intersections are not yet designed; this will be done in the next phase of alternatives design and assessment.

# 2b. Bike Conflicts with Crossing Vehicles

STREET ELEMENTS OR DETAILS	BICYCL
Existing Conditions	- to ---
8' Sidewalk with shade tree (16' landscape)	
8' Sidewalk with shade tree (8' landscape)	
6'-8' Sidewalk with shade structure (7' landscape)	
6' Sidewalk with 5' landscape	
6' Sidewalk with 3' buffer	
6' Sidewalk	
26' Center-Running Transit	+
11'-12' Side- or Center-Running Transit	o to ++
5'-7' Bike Lane	
7'-9' Buffered Bike Lane	

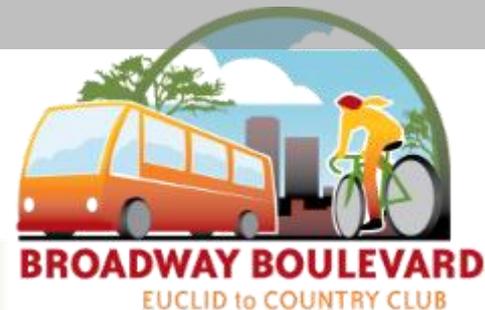
STREET CROSS SECTION ALTERNATIVES	BICYCL
Existing Conditions	--- to -
Option 4A (98' r.o.w.)	- to o
Option 4B (114' r.o.w.)	- to o
Option 4+T A (124' r.o.w.)	- to +
Option 4+T B (152' r.o.w.)	- to +
Option 6A (120' r.o.w.)	- to o
Option 6B (152' r.o.w.)	- to o
Option 6+T A (146' r.o.w.)	- to +
Option 6+TB (154' r.o.w.)	- to +
Option 4+T SATA (existing r.o.w.)	- to +



# 2c. Pavement Condition

The smoothness of the street's pavement initially and over time.

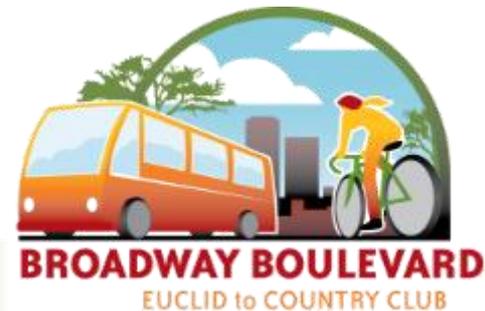
- Smooth pavement is a priority for bicyclist comfort.
- Factors in addition to pavement type include:
  - gutter design
  - type of plants that are in the landscape.
- Pavement type is not dependent on cross section design and therefore cannot be measured at the current level of design.
- **Not measurable at current level of design**



# 2d. Bike Facility Improvements

Extent of bike racks, shade, drinking fountains, green pavement (bike boxes, etc.) and other features to serve bicyclists' needs.

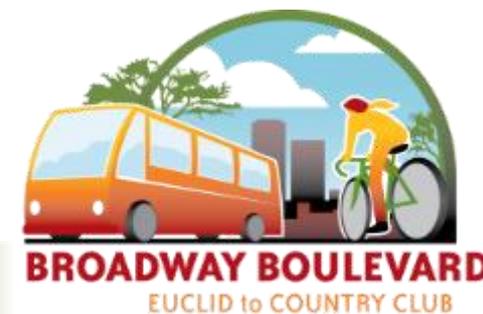
- Factors include percentage of shade; use of bike boxes and other features; number and frequency of bike racks; drinking fountains; and other bicycle-supportive design features.
- All design concepts will utilize bike boxes and green and other special paving markings as allowed by code.
- At current level of design ranking is most affected by presence of trees or shade structures and the width of the sidewalk and buffer area to accommodate bicycle supportive facilities.



# 2d. Bicycle Facility Improvements

STREET ELEMENTS OR DETAILS	CESS AND
	2d. Bike Facility Improvements
Existing Conditions	---
8' Sidewalk with shade tree (16' landscape)	++
8' Sidewalk with shade tree (8' landscape)	+
6'-8' Sidewalk with shade structure (7' landscape)	o
6' Sidewalk with 5' landscape	o
6' Sidewalk with 3' buffer	--
6' Sidewalk	---
26' Center-Running Transit	
11'-12' Side- or Center-Running Transit	
5'-7' Bike Lane	
7'-9' Buffered Bike Lane	

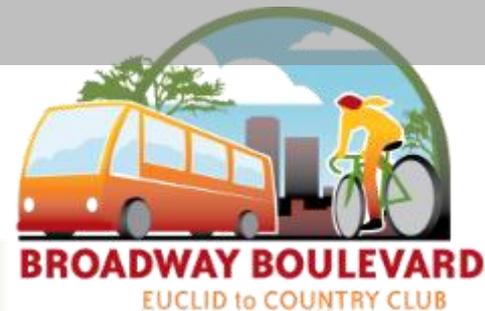
STREET CROSS SECTION ALTERNATIVES	CESS AND
	2d. Bike Facility Improvements
Existing Conditions	-- to -
Option 4A (98' r.o.w.)	+
Option 4B (114' r.o.w.)	++
Option 4+T A (124' r.o.w.)	+
Option 4+T B (152' r.o.w.)	++
Option 6A (120' r.o.w.)	+
Option 6B (152' r.o.w.)	++
Option 6+T A (146' r.o.w.)	o
Option 6+TB (154' r.o.w.)	+
Option 4+T SATA (existing r.o.w.)	---



# 2e. Bike Network Connections

Convenience and safety of access to surrounding bike network.

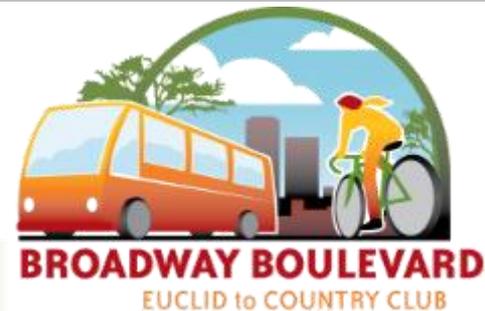
- Factors include: Number, length between, and quality of connections from Broadway to surrounding bicycle network
- Quality of movement along Broadway to connections is assessed in 2a. Separation of Bikes and Arterial Traffic, 2b. Bike Conflicts with Crossing Traffic
- Need to know relationship of bicycle crossings to adjacent bicycle network, see Bike Crossings (this cannot be assessed at current level of design)
- **Not measurable at current level of design**



# 2f. Bicycle Corridor Travel Time

The time it takes for average and advanced bicyclists to travel the length of Broadway.

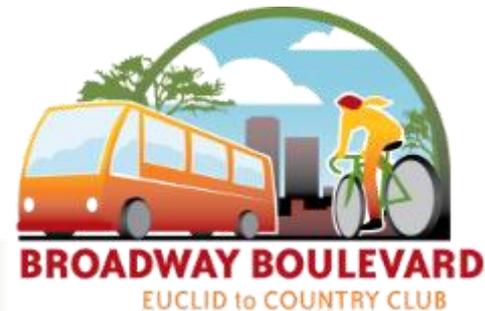
- Need further design details, including – signal and intersection design, alignment, access management design, transit stop locations, etc. in order to assess using VISSIM transportation simulation model. Quality of movement along Broadway to connections is assessed in 2a. Separation of Bikes and Arterial Traffic, 2b. Bike Conflicts with Crossing Traffic,
- **Not measurable at current level of design**



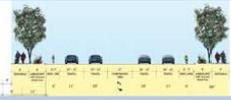
# 2g. Bike Crossing

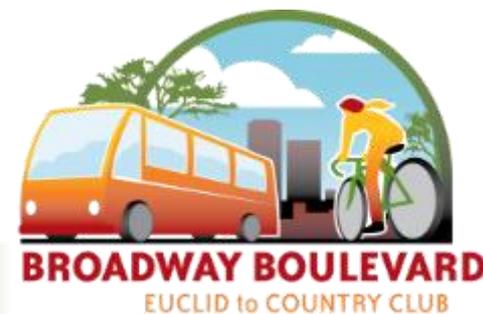
Convenience and quality of bicycle crossings of Broadway and side streets intersecting with Broadway.

- Assume some basic improvements at crossings and more crossings for all concept options, so this gives:
  - Four lane options 1 plus;
  - Six lane options 1 plus (regardless of median width as street crossings will likely be at least 18 ft. wide given turn lane and 7 ft. refuge island width); and
  - Eight lane options a neutral, except for 6+T B given its large width.
- As design is developed further and intersection designs are developed the ease of crossing side streets can be assessed.



# 2g. Bike Crossings

STREET CROSS SECTION ALTERNATIVES		2g. Bike Crossings
Existing Conditions		-- to ++
Option 4A (98' r.o.w.)		+ to ++
Option 4B (114' r.o.w.)		+
Option 4+T A (124' r.o.w.)		+
Option 4+T B (152' r.o.w.)		+
Option 6A (120' r.o.w.)		+
Option 6B (152' r.o.w.)		+
Option 6+T A (146' r.o.w.)		o
Option 6+TB (154' r.o.w.)		o
Option 4+T SATA (existing r.o.w.)		+



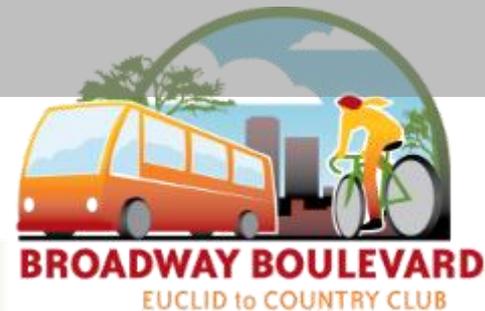
# Transit Access and Mobility

- 3a. Distance to Transit Stops
- 3b. Transit Stop Facilities
- 3c. Transit Corridor Travel Time
- 3d. Schedule Adherence
- 3e. Frequency and Hours of Service
- 3f. Accommodation of Future High Capacity Transit
- 3g. Riders per Vehicle

# 3a. Distance to Transit

Number and location of transit stops and the number of households, jobs, and services within walking distance has an relationship to transit ridership

- Factors include: Number of households, jobs, and square feet of commercial use within walking distance of transit stops; and 1d. Walkable Network/Neighborhood Connections, 1h. Walkable Destinations, and several non-transportation performance measures.
- Cannot be assessed at current level of design as transportation factors require alignment and crossing design, and non-transportation factors are related to future land use.
- **Not measurable at current level of design**



# 3b. Transit Stop Facilities

Design qualities of transit stops for comfort and safety of riders and to support improved aesthetics and community character.

- Factors include: Percentage of shade; lighting levels and consistency; and number and frequency of other design features (e.g.; drinking fountains, off-bus ticket machines, next bus information signs, wayfinding information, etc.).
- Four lanes get ○ when have pull outs (except those with wider pedestrian areas get +) because of lower construction cost may be more budget to improve transit stops; SATA also gets a + because of transit platforms for streetcar.
- Six lanes get neutral with pull outs as this is now the regional standard.
- BRT in middle of roadway gets ++ because it is assumed that this investment in roadway infrastructure for BRT would mean commitment to high-level of improvements on the platforms.

STREET ELEMENTS OR DETAILS		3b. Transit Stop Facilities
Existing Conditions		- to ---
8' Sidewalk with shade tree (16' landscape)		+ to ++
8' Sidewalk with shade tree (8' landscape)		o to +
6'-8' Sidewalk with shade structure (7' landscape)		- to o
6' Sidewalk with 5' landscape		---
6' Sidewalk with 3' buffer		---
6' Sidewalk		---
26' Center-Running Transit		
11'-12' Side- or Center-Running Transit		
5'-7' Bike Lane		
7'-9' Buffered Bike Lane		

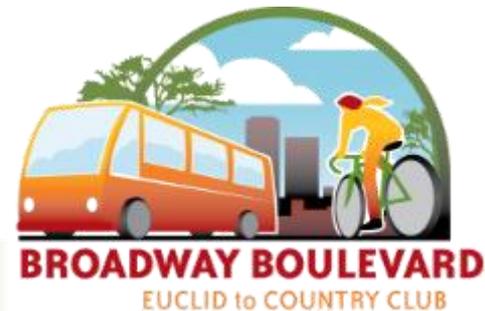
LANE CONFIGURATION ALTERNATIVES		3b. Transit Stop Facilities
Existing Conditions		---
4 lane without landscaping (62'-98')		to -
4 lane with landscaping (84'-138')		to -
4 lanes with landscaping + dedicated transit (106'-162')		to ++
6 lane with landscaping (104'-162')		to ++
6 lanes with landscaping + dedicated transit (126'-186')		o to ++

STREET CROSS SECTION ALTERNATIVES		3b. Transit Stop Facilities
Existing Conditions		---
Option 4A (98' r.o.w.)		+
Option 4B (114' r.o.w.)		++
Option 4+T A (124' r.o.w.)		++
Option 4+T B (152' r.o.w.)		++
Option 6A (120' r.o.w.)		+
Option 6B (152' r.o.w.)		+
Option 6+T A (146' r.o.w.)		o to +
Option 6+TB (154' r.o.w.)		++
Option 4+T SATA (existing r.o.w.)		+

# 3d. Schedule Adherence

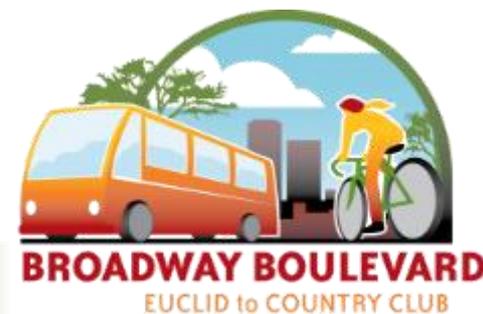
The extent that transit is able to stay on schedule.

- Dependability of travel time along the corridor can be measured to a degree with VISSIM.
- This measure is a rough combining of 3b and 3c with a slightly more weight to 3c.
- Dependent on factors that are not controllable as part of this project, including Sun Trans scheduling and transit driver behavior.



# 3d. Schedule Adherence

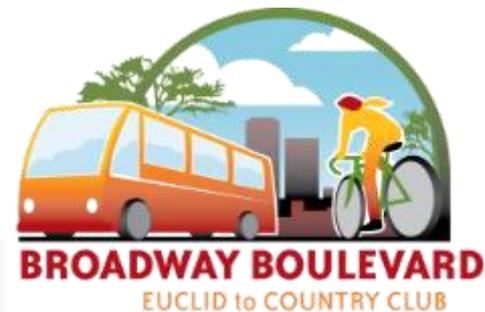
STREET CROSS SECTION ALTERNATIVES		MOBILITY
		3d. Schedule Adherence
Existing Conditions		-- to o
Option 4A (98' r.o.w.)		--
Option 4B (114' r.o.w.)		-
Option 4+T A (124' r.o.w.)		+
Option 4+T B (152' r.o.w.)		+
Option 6A (120' r.o.w.)		o
Option 6B (152' r.o.w.)		o
Option 6+T A (146' r.o.w.)		+
Option 6+TB (154' r.o.w.)		++
Option 4+T SATA (existing r.o.w.)		-



# 3e. Frequency and Hours of Service

The frequency at which transit service stops along Broadway and for what period of week and weekend days.

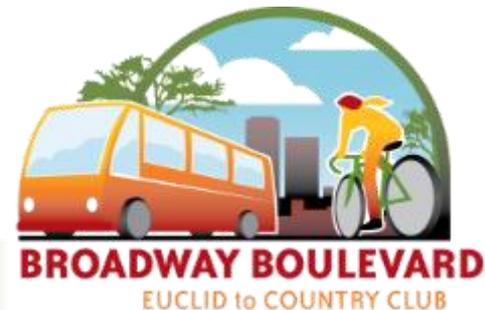
- Potential that service efficiencies related to other transit performance measures could allow for increase of service for minimal additional cost.
- This is mainly an independent decision that Sun Trans would make that cannot be influenced to much a degree by this project.
- **Not measurable at current level of design.**



# 3g. Riders per Vehicle

Average number of daily riders per transit vehicle or per peak hour transit vehicle.

- VISSIM modeling and transit service assumptions
- Other transit performance measures effect transit ridership and efficiency of service
- Affected by Sun Trans service planning which is not controlled by this project
- **Not measurable at current level of design**



# Vehicular Access and Mobility

- 4a. Movement of Through Traffic During Peak Traffic Periods
- 4b. Intersection Delay – Overall Intersection Performance
- 4c. Intersection Delay – Worst Movement
- 4d. Accident Potential
- 4e. Lane Continuity
- 4f. Access Management Management for Adjacent Properties

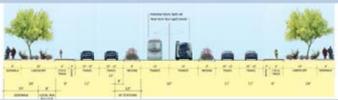
# 4a. Movement of Through Traffic During Peak Traffic Periods

Effectiveness of moving through vehicular traffic, which affects a variety of other transportation, environment, and economic factors.

- Existing section with current volumes - impacts of buses stopping in through lanes and high number of ped HAWK signals (that are not synchronized with other signals), through traffic flow is less than desirable; increased traffic demand for either growth scenario without adding intersection capacity will result in long travel times and excessive delay.
- 4 lane options w/o exclusive transit lanes – do not provide sufficient through capacity at the signalized intersections for either growth scenario. These options assume that additional turning lanes are provided at the key intersections (Euclid, Campbell, Country Club) and bus pullouts and coordinated pedestrian HAWK signals are provided.
- 4-lane options with exclusive transit lanes – through traffic operations will be improved assuming that a sufficient modal shift from car to transit (BRT) occurs to reduce vehicular demand.
- 6 lane options w/o exclusive transit lanes – fair to good through traffic operations depending upon growth scenario; assumed bus pull outs and coordinated pedestrian HAWK signals.
- 6 lane options with exclusive transit lanes – good to very good through traffic operations depending upon growth scenario and assuming that a sufficient modal shift from car to transit (BRT) occurs to reduce vehicular demand.
- The SATA concept is rated lower than the 4 lane mixed flow options because the streetcar shared lanes are estimated to reduce performance for those lanes.
- Design details that will be developed later in the project (i.e.; intersection and signal design, access management, etc.) will allow assessment using VISSIM which will allow for quantitative measurement of:
  - Average corridor travel time
  - Average speed
  - Average 95 percentile queue length
  - Average delay Average corridor travel time
  - Volume to Capacity Ratio (V/C)
  - Travel time reliability
- Initial assessment based on assessment of current PAG projections and 30% reduced traffic growth option, with qualitative comparisons based on professional experience and judgment

# 4a. Movement of Through Traffic

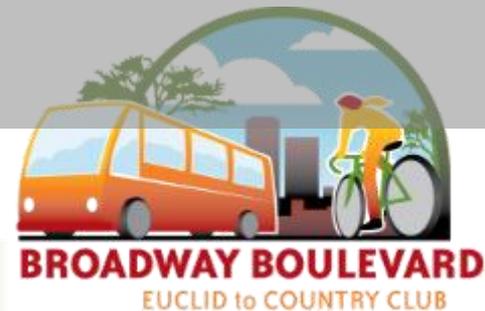
LANE CONFIGURATION ALTERNATIVES	VEHICULAR
	4a. Movement of Through Traffic During Peak Traffic Periods
Existing Conditions	<p>— now</p> <p>Future (PAG)      Future (PAG Low)</p>
4 lane without landscaping (62'-96')	<p>Future (PAG)      Future (PAG Low)</p>
4 lane with landscaping (84'-138')	<p>Future (PAG)      Future (PAG Low)</p>
4 lanes with landscaping + dedicated transit (106'-162')	<p>— to —      — to ○ Future (PAG)      Future (PAG Low)</p>
6 lane with landscaping (104'-162')	<p>○      + Future (PAG)      Future (PAG Low)</p>
6 lanes with landscaping + dedicated transit (126'-186')	<p>+      ++ Future (PAG)      Future (PAG Low)</p>

STREET CROSS SECTION ALTERNATIVES	VEHICULAR
	4a. Movement of Through Traffic During Peak Traffic Periods
Existing Conditions	<p>— now</p> <p>Future (PAG)      Future (PAG Low)</p>
Option 4A (98' r.o.w.)	 <p>Future (PAG)      Future (PAG Low)</p>
Option 4B (114' r.o.w.)	 <p>Future (PAG)      Future (PAG Low)</p>
Option 4+T A (124' r.o.w.)	 <p>— to —      — to ○ Future (PAG)      Future (PAG Low)</p>
Option 4+T B (152' r.o.w.)	 <p>— to —      — to ○ Future (PAG)      Future (PAG Low)</p>
Option 6A (120' r.o.w.)	 <p>○      + Future (PAG)      Future (PAG Low)</p>
Option 6B (152' r.o.w.)	 <p>○      + Future (PAG)      Future (PAG Low)</p>
Option 6+T A (146' r.o.w.)	 <p>+      ++ Future (PAG)      Future (PAG Low)</p>
Option 6+TB (154' r.o.w.)	 <p>+      ++ Future (PAG)      Future (PAG Low)</p>
Option 4+T SATA (existing r.o.w.)	 <p>Future (PAG)      Future (PAG Low)</p>

# 4b. Intersection Delay – Overall Intersection Performance

Overall delay for vehicular traffic on Broadway and cross streets at intersections.

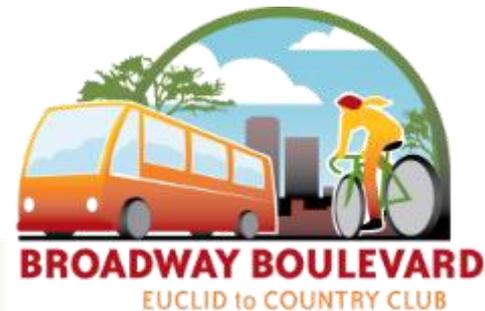
- Design details that will be developed later in the project will allow assessment using VISSIM:
- Number of through and turn lanes
- Length of turn lanes
- Signal design, including crossing time considerations for pedestrians and bicycles
- Transit priority treatments
- Other intersection design features
- **Not measurable at current level of design**



# 4c. Intersection Delay – Worst Movement

Worst delay for a single vehicular movement on Broadway or cross streets at intersections.

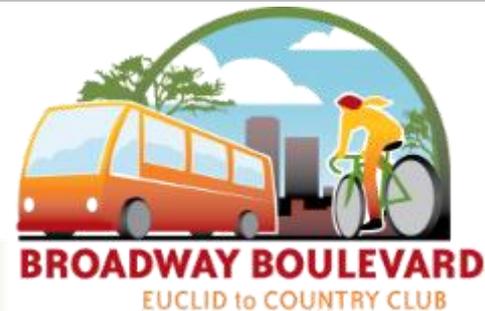
- Design details that will be developed later in the project will allow assessment using VISSIM, see 4b.
- **Not measurable at current level of design**



# 4d. Accident Potential

Degree to which street design could affect the potential for accidents.

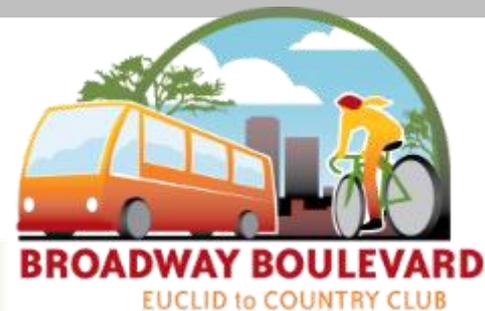
- Certain factors can contribute to higher accident rates and severity of accidents. These can include the following factors, which are not determined at current level of design:
- Number of access points to adjacent properties
- Number of side street access points
- Lane continuity (4e)
- Amount of bike lane cross over length.
- **Not measurable at current level of design**



## 4e. Lane Continuity

The degree to which the number of lanes in the roadway is consistent. The number of lanes can be increased and decreased along the length of a street to reflect different traffic needs at different locations, but merging reduces capacity more than just the lane reduction and can increase the potential for crashes where the merge occurs.

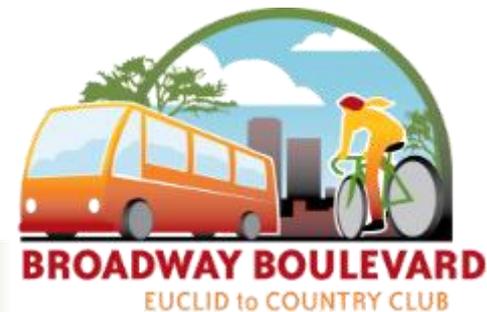
- Requires more detailed design in order to perform VISSIM analysis
- Comparisons can be made to similar lane reductions in Tucson to evaluate potential for crashes.
- **Not measurable at current level of design**



# 4f. Access Management for Adjacent Properties

The reduction of number and size of driveway and street access from Broadway.

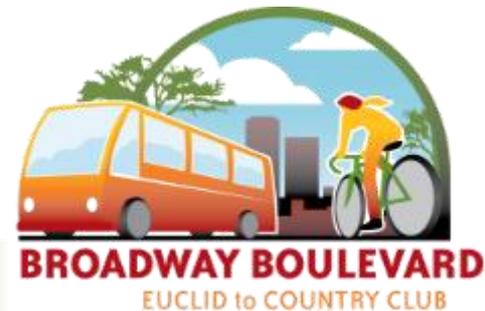
- Access management can improve traffic flow and traffic safety, reduce conflicts with pedestrians and bicycles, and generally reduce potential for accidents.
- Needs more detailed design.
- **Not measurable at current level of design**



# 5a. Person Trips for Multiple Measures

Multi-modal measures allowing evaluations on a per person basis.

- A range of transportation measures can be estimated by person-trips.
- Performance for different modes is measures using VISSIM analysis and converted to person trips for measures, including:
  - Corridor travel time
  - Average delay
  - Travel time reliability
  - Other measures as appropriate
- **Not measurable at current level of design**



# Sense of Place

6a. Historic Resources

6b. Significant Resources

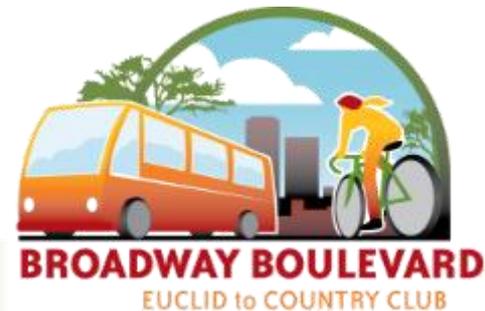
6c. Visual Quality

6d. Broadway as a Destination

6e. Gateway to Downtown

6f. Conduciveness to Business

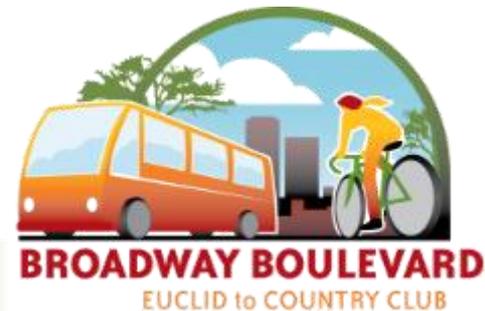
6g. Walkable Community



# 6a. Historic Resources

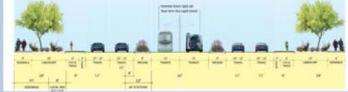
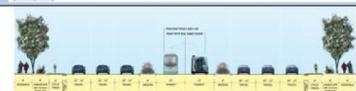
Number of historic structures lost due to direct impact and loss of usefulness resulting from parking, setback, site access and other conditions.

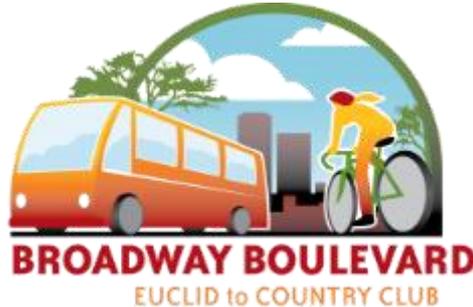
- Based on review of relationship to future ROW to existing ROW and distance between building facades.



# 6a. Historic Resources

LANE CONFIGURATION ALTERNATIVES	6a. Historic Resources
Existing Conditions	+++
4 lane without landscaping (62'-96')	++ to +++
4 lane with landscaping (84'-138')	-- to ++
4 lanes with landscaping + dedicated transit (106'-162')	--- to +
6 lane with landscaping (104'-162')	--- to +
6 lanes with landscaping + dedicated transit (126'-186')	--- to -

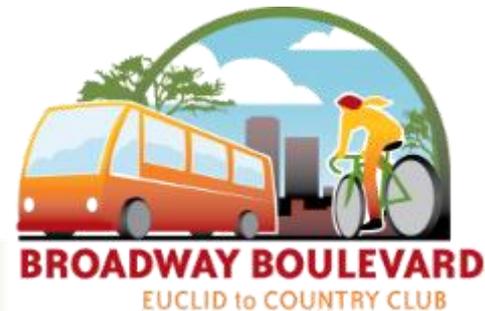
STREET CROSS SECTION ALTERNATIVES	6a. Historic Resources
Existing Conditions	+++
Option 4A (98' r.o.w.) 	++
Option 4B (114' r.o.w.) 	+
Option 4+T A (124' r.o.w.) 	o
Option 4+T B (152' r.o.w.) 	--
Option 6A (120' r.o.w.) 	o
Option 6B (152' r.o.w.) 	--
Option 6+T A (146' r.o.w.) 	--
Option 6+TB (154' r.o.w.) 	--
Option 4+T SATA (existing r.o.w.) 	+++



# 6b. Significant Resources

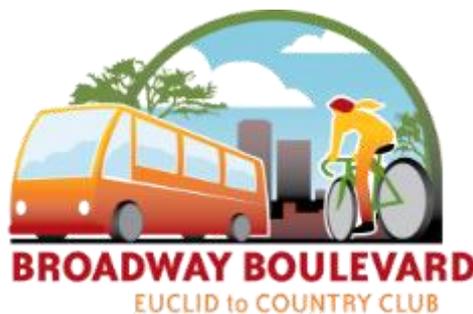
Number of significant structures lost due to direct impact and loss of usefulness resulting from parking, setback, site access and other conditions.

- Based on review of relationship to future ROW to existing ROW and distance between building facades.



# 6b. Significant Resources

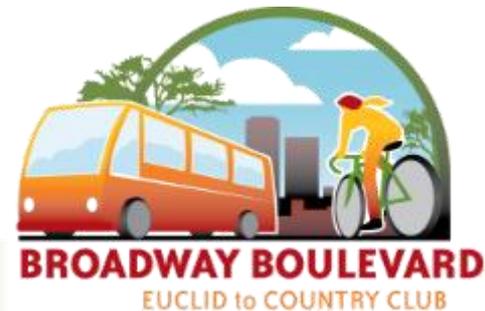
LANE CONFIGURATION ALTERNATIVES	SE	STREET CROSS SECTION ALTERNATIVES	S
	6b. Significant Resources		6b. Significant Resources
Existing Conditions	+++	Existing Conditions	+++
4 lane without landscaping (62'-96')	++ to +++	Option 4A (98' r.o.w.) 	++
4 lane with landscaping (84'-138')	-- to ++	Option 4B (114' r.o.w.) 	+
4 lanes with landscaping + dedicated transit (106'-162')	-- to +	Option 4+T A (124' r.o.w.) 	o
6 lane with landscaping (104'-162')	-- to +	Option 4+T B (152' r.o.w.) 	--
6 lanes with landscaping + dedicated transit (126'-186')	-- to -	Option 6A (120' r.o.w.) 	o
	-- to +	Option 6B (152' r.o.w.) 	--
	-- to +	Option 6+T A (146' r.o.w.) 	--
	-- to -	Option 6+TB (154' r.o.w.) 	--
	-- to -	Option 4+T SATA (existing r.o.w.) 	+++



# 6c. Visual Quality

Ability of the street design to enhance the visual quality along it, including its relationship and impacts to the existing and future visual character of adjacent uses.

- Factors related to street design character:
  - Design of median and streetside landscaping
  - Number and location of placemaking features (including public art, wayfinding, lighting, furniture, etc.)
  - Width of roadside areas for streetscape elements and landscaping
- Factors related to character of adjacent uses:
  - Relationship to adjacent uses is difficult to predict at this point as don't know the future condition of context at current level of design



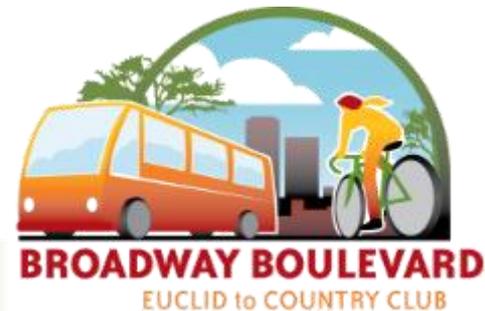
# 6c. Visual Quality

STREET CROSS SECTION ALTERNATIVES		SENSE O
		6c. Visual Quality
Existing Conditions		-- to --
Option 4A (98' r.o.w.)		+
Option 4B (114' r.o.w.)		++
Option 4+T A (124' r.o.w.)		++
Option 4+T B (152' r.o.w.)		+
Option 6A (120' r.o.w.)		++
Option 6B (152' r.o.w.)		+
Option 6+T A (146' r.o.w.)		o
Option 6+TB (154' r.o.w.)		o
Option 4+T SATA (existing r.o.w.)		-- to --

# 6d. Broadway as a Destination

Provision of civic space, visual quality, visibility of uses, and multi-modal access that supports Broadway and the uses along it as a destination within the community.

- Factors and/or related measures include:
  - 6c. Visual Quality
  - A balance of all access and mobility measures
  - 7a. Change in Economic Potential
  - 7i. Business Impacts
- **Not measurable at current level of design**



# 6f. Conduciveness to Business

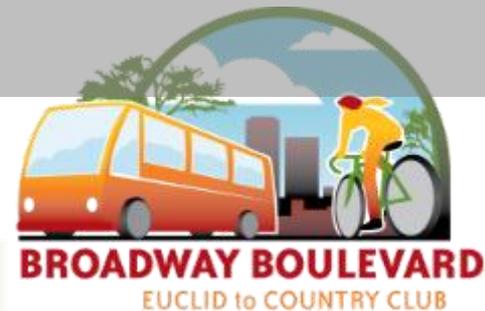
Attractiveness of buildings along Broadway and the general community character as it relates to businesses.

- Factors and/or related measures include:
  - 6c. Visual Quality is related
  - 6g. Walkable Community
  - 7a. Change in Economic Potential
  - Site access and parking
  - Site revitalization and reuse
  - Other factors to be determined
- **Not measurable at current level of design**

# 6g. Walkable Community

The degree to which street improvements put a mix of land uses within walking distance of a maximum number of residences and workers.

- Factors and related measures include:
  - 1. Pedestrian Access and Mobility
  - 7f. Land Use Mix
  - 8a. Change in Economic Potential
- Given the importance of future adjacent use to the assessment of this performance measure and the inability to adequately understand the potential for future use, this performance measure cannot be assessed at this time.
- **Not measurable at current level of design**



# Environment and Public Health

7a. Greenhouse Gases

7b. Other Tailpipe Emissions

7c. Heat Island

7d. Water Harvesting

7e. Health Benefits of Changes in Walking and Biking

7f. Land Use Mix

7g. Affordability

# 7a. Greenhouse Gases

Use of design features that can reduce emissions of CO<sub>2</sub>, a green house gas that contributes to global warming.

- Reduction of vehicle trips and vehicle miles travelled.
  - 1. Pedestrian Access and Mobility
  - 2. Bicycle Access and Mobility
  - 3. Transit Access and Mobility
  - 6g. Walkable Community
- Level of congestion.
  - Average vehicular speed
  - Average vehicular delay
  - 4b. Intersection Delay – Overall Intersection Performance
- Quality of vehicle fleet, fuel, etc. (cannot be directly influenced by the Broadway project)
- Many of these related performance measures cannot be assessed at the current level of design.
- **Not measurable at current level of design**

# 7b. Other Tailpipe Emissions

Use of design features that can reduce particulates and other tailpipe emissions, which can affect public health in areas adjacent to Broadway.

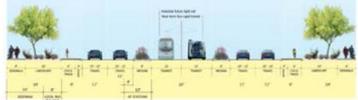
- Reduction of vehicle trips and vehicle miles travelled.
  - 1. Pedestrian Access and Mobility
  - 2. Bicycle Access and Mobility
  - 3. Transit Access and Mobility
  - 6g. Walkable Community
- Level of congestion.
  - Average vehicular speed
  - Average vehicular delay
  - 4b. Intersection Delay – Overall Intersection Performance
- Quality of vehicle fleet, fuel, etc. (cannot be directly influenced by the Broadway project)
- Many of these related performance measures cannot be assessed at the current level of design.
- **Not measurable at current level of design**

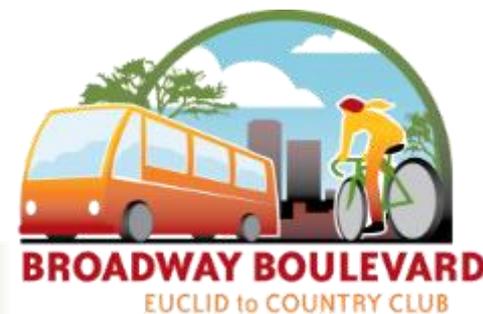
# 7c. Heat Island

Use of shade and other design features of the improvements to Broadway that can reduce the heat created by the sun shining on Broadway's road pavement and sidewalks.

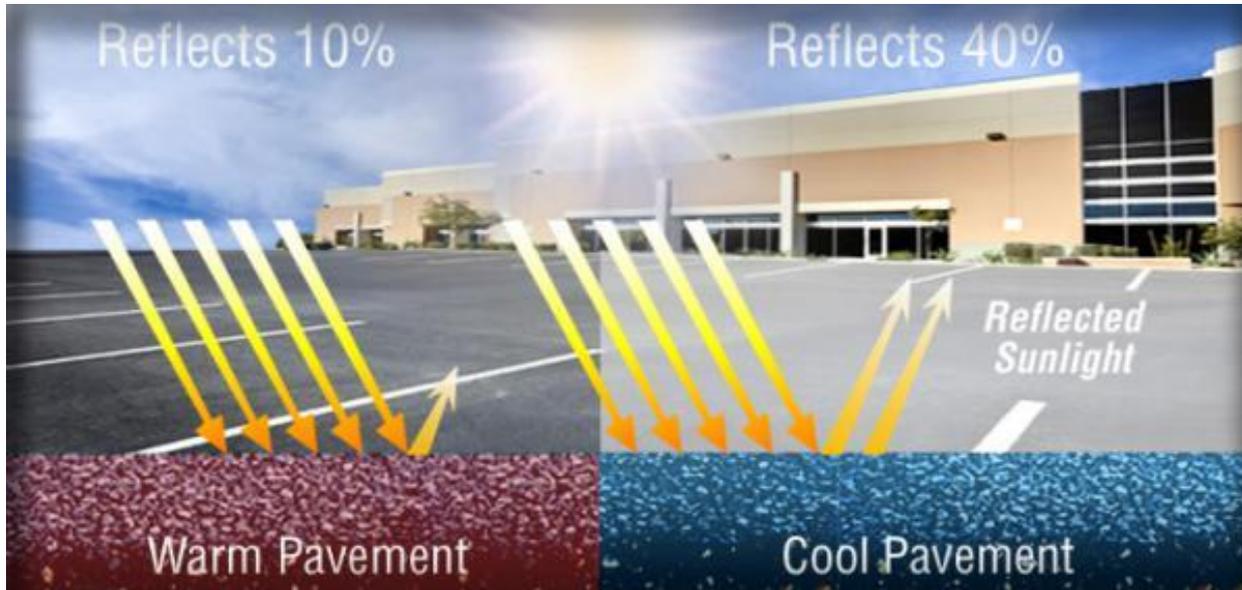
- The solar heat gains to pavement can increase the temperature of the street and surrounding area which can have detrimental environmental and public health effects.
- Factors include:
  - Change in amount of pavement
  - Amount of shaded pavement and other areas that can hold heat
  - Proportion of shaded pavement
  - For this assessment it is assumed that there will be an effort to select construction materials for street and sidewalk pavement, as well as gravel/crushed stone for landscaped areas that are “cooler” and would reduce the heat island effect compared to existing materials used along Broadway
- For initial assessment the following approach has been taken: Assume existing condition is the base “neutral” condition. Slight penalty for more R.O.W. paving with assumption that much of existing area outside of R.O.W. is hardscaped and that new paving could be high albedo (*albedo* is defined as the ability of a surface to reflect solar energy, high albedo does not necessarily correspond to high reflectance of visible light); increased positive assessment for trees and shade structures, and any proportional differences in shade.

# 7c. Heat Island Effect

STREET CROSS SECTION ALTERNATIVES		IRONM
		7c. Heat Island
Existing Conditions		o
Option 4A (98' r.o.w.)		+
Option 4B (114' r.o.w.)		++
Option 4+T A (124' r.o.w.)		+
Option 4+T B (152' r.o.w.)		+
Option 6A (120' r.o.w.)		+
Option 6B (152' r.o.w.)		++
Option 6+T A (146' r.o.w.)		o
Option 6+TB (154' r.o.w.)		o
Option 4+T SATA (existing r.o.w.)		o



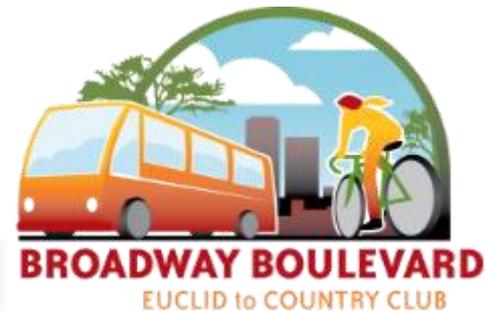
# Heat Island Effect



# 7d. Water Harvesting and Green Streets Stormwater Management

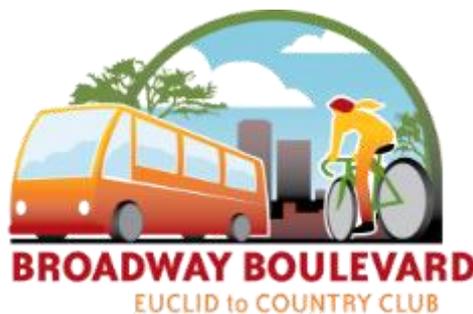
The degree to which the roadway is graded to drain stormwater into landscaped areas where its flow rate can be reduced, its water quality improved, and it can provide irrigation for the plants in the landscaped areas.

- TDOT has recently adopted an Active Practice Guidelines for Green Streets which sets guidance for the design of water harvesting and green stormwater management of streets in Tucson.
- For initial assessment the following approach has been taken: Ratio of landscaped to pavement width.



# 7d. Water Harvesting

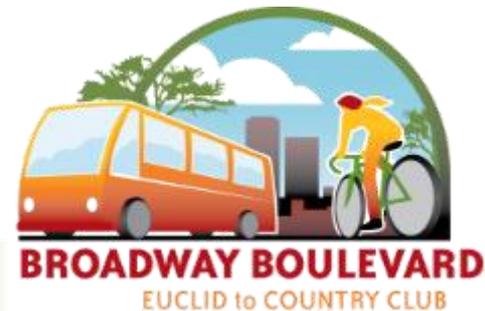
STREET CROSS SECTION ALTERNATIVES	ENTAL / PUE
	7d. Water Harvesting
Existing Conditions	---
Option 4A (98' r.o.w.)	--
Option 4B (114' r.o.w.)	+
Option 4+T A (124' r.o.w.)	-
Option 4+T B (152' r.o.w.)	+
Option 6A (120' r.o.w.)	-
Option 6B (152' r.o.w.)	++
Option 6+T A (146' r.o.w.)	o
Option 6+TB (154' r.o.w.)	-
Option 4+T SATA (existing r.o.w.)	---



# 7e. Health Benefits of Changes in Walking and Biking (renamed and defined Walkability/Bikeability)

The degree to which design elements of the Broadway improvements can support increases in the number and length of walking and biking trips, and walking and biking have a positive impact on public health.

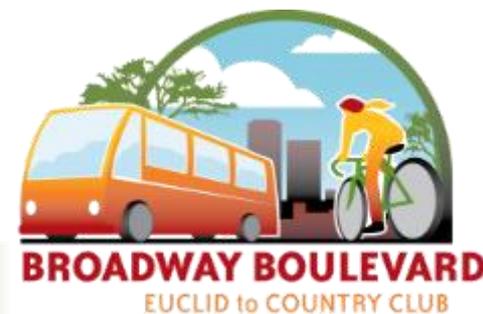
- For initial assessment the following approach has been taken: Combined consideration of 1. Pedestrian and 2. Bicycle Access and Mobility performance measures given that this infrastructure is necessary to support the choice of walking and biking regardless of future land use conditions. In future assessments of more developed designs, this performance measure will be combined with 6g. Walkable Community.



# 7e. Health Benefits of Changes in Walking and Biking

STREET ELEMENTS OR DETAILS	PUBLIC HEALTH BENEFITS
	7e. Health Benefits of Changes in Walking and Biking
Existing Conditions	--- to ---
8' Sidewalk with shade tree (16' landscape)	+++ 
8' Sidewalk with shade tree (8' landscape)	++ 
6'-8' Sidewalk with shade structure (7' landscape)	+ 
6' Sidewalk with 5' landscape	- 
6' Sidewalk with 3' buffer	--- 
6' Sidewalk	--- 
26' Center-Running Transit	
11'-12' Side- or Center-Running Transit	
5'-6' Bike Lane	o to +
7'-9' Buffered Bike Lane	o to ++
7'-9' Cycle Track	o to ++

STREET CROSS SECTION ALTERNATIVES	PUBLIC HEALTH BENEFITS
	7e. Health Benefits of Changes in Walking and Biking
Existing Conditions	--- to ---
Option 4A (98' r.o.w.)	++ 
Option 4B (114' r.o.w.)	++ 
Option 4+T A (124' r.o.w.)	+ 
Option 4+T B (152' r.o.w.)	++ 
Option 6A (120' r.o.w.)	+ 
Option 6B (152' r.o.w.)	++ 
Option 6+T A (146' r.o.w.)	o 
Option 6+TB (154' r.o.w.)	+ 
Option 4+T SATA (existing r.o.w.)	- 



# 7f. Land Use Mix

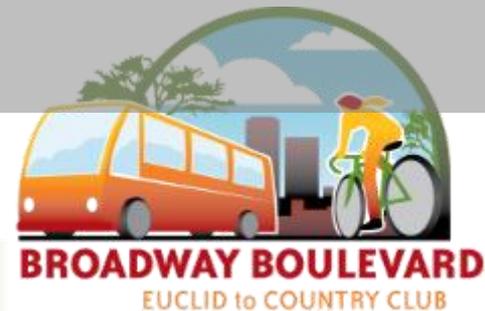
The degree to which improvements to Broadway enable properties along the street to accommodate mixed use development in the future.

- Mixing of uses can help support transit ridership, walking, and bicycling, as well as reductions in vehicle miles traveled.
- Factors that are under the control of this project include:
  - Number of parcels and size of parcels that can accommodate a mix of land uses in the future, once improvements (i.e.; widening) are made to Broadway (the current level of design does not allow for evaluation of the ability of properties that remain after widening to accommodate development).
- Factors that are not within the control of this project include:
  - Extent that existing or possible future zoning allows for viable mixed use development along Broadway
- Related performance measures include:
  - 8a. Change in Economic Potential
  - 8e. Business Impacts
- **Not measurable at current level of design**

# 7g. Affordability

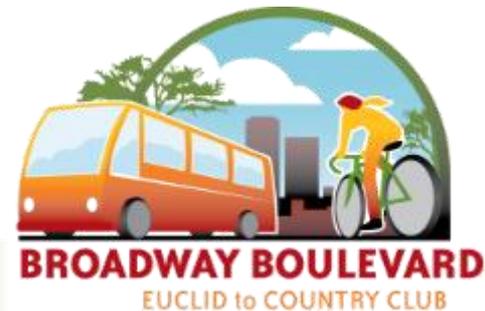
Impact of the design of Broadway on the combination of transportation and housing costs and access to jobs are major contributors to a household's ability to afford to live in a location.

- The design of improvements to Broadway could have some impact on transportation costs and access to jobs.
- Related performance measures include:
  - 1. Pedestrian, 2. Bicycle, and 3. Transit Access and Mobility
  - 6g. Walkable Community Design + Architecture
  - 8f. Job Impacts (the current level of design does not allow for the level of assessment of positive and negative impacts to businesses to be evaluated fully in relation to job impacts)
- Several of the related performance measures cannot be assessed at the current level of design.
- **Not measurable at current level of design**



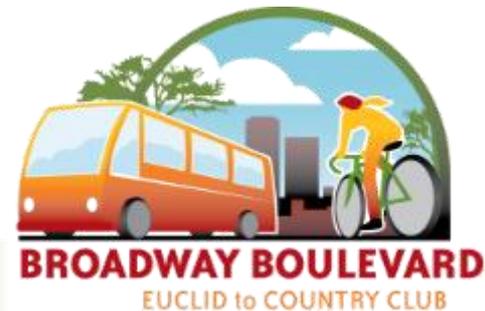
# Economic Vitality

- 8a. Change in Economic Potential
- 8b. Change in Business Revenue
- 8c. Change in Sales Tax Revenue
- 8d. Change in Property Tax Revenue
- 8e. Business Impacts
- 8f. Job Impacts



# Economic Vitality

- Impacts to parking, access, and ultimately buildings all affect viability of existing businesses and development
- Future development potential needs to be assessed
- Real estate and business market potential also needs to be assessed



Block-by-Block Widths of Existing Street, Right of Way, and Building Separation  
 Broadway Boulevard, Euclid to Contry Club Road  
 REVISED AUGUST 14, 2013

Block	Street to Street	Existing Street Width	Existing R/W Width	Building Separation	Option 4A (98' ROW)			Option 4B (114' ROW)			Option 4+T A (124' ROW)			Option 4+T B (152' ROW)			Option 6A (120' ROW)			Option 6B (152' ROW)			Option 6+T A (146' ROW)			Option 6+T B (154' ROW)			Option 4+T SATA (existing ROW)		
					Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.
<b>Base Concept Dimensions</b>					66	98	98	66	114	114	92	124	124	104	152	152	94	120	120	104	152	152	120	146	146	122	154	154			
West of Campbell	1000 E. Park to Fremont	60	70	94	(6)	(28)	(4)	(6)	(44)	(20)	(32)	(54)	(30)	(44)	(82)	(58)	(34)	(50)	(26)	(44)	(82)	(58)	(60)	(76)	(52)	(62)	(84)	(60)	0	0	24
	1100 E. Fremont to Santa Rita	60	70	100	(6)	(28)	2	(6)	(44)	(14)	(32)	(54)	(24)	(44)	(82)	(52)	(34)	(50)	(20)	(44)	(82)	(52)	(60)	(76)	(46)	(62)	(84)	(54)	0	0	30
	1200 E. Santa Rita to Mountain	60	82	± 137	(6)	(16)	39	(6)	(32)	23	(32)	(42)	13	(44)	(70)	(15)	(34)	(38)	17	(44)	(70)	(15)	(60)	(64)	(9)	(62)	(72)	(17)	0	0	55
	1300 E. Mountain to Highland	60	89	± 129	(6)	(9)	31	(6)	(25)	15	(32)	(35)	5	(44)	(63)	(23)	(34)	(31)	9	(44)	(63)	(23)	(60)	(57)	(17)	(62)	(65)	(25)	0	0	40
	1400 E. Highland to Vine	60	88	104 114	(6)	(10)	16	(6)	(26)	0	(32)	(36)	(10)	(44)	(64)	(38)	(34)	(32)	(6)	(44)	(64)	(38)	(60)	(58)	(32)	(62)	(66)	(40)	0	0	26
	1500 E. Vine to Cherry	60	64	100 ± 125	(6)	2	27	(6)	(14)	11	(32)	(24)	1	(44)	(52)	(27)	(34)	(20)	5	(44)	(52)	(27)	(60)	(46)	(21)	(62)	(54)	(29)	0	0	25
	1600 E. Cherry to Warren	64	78.5	104	(2)	(20)	6	(2)	(36)	(10)	(28)	(46)	(20)	(40)	(74)	(48)	(30)	(42)	(16)	(40)	(74)	(48)	(56)	(68)	(42)	(58)	(76)	(50)	0	0	26
1700 E. Warren to Martin	64	75	103.5 104	(2)	(23)	6	(2)	(39)	(10)	(28)	(49)	(20)	(40)	(77)	(48)	(30)	(45)	(16)	(40)	(77)	(48)	(56)	(71)	(42)	(58)	(79)	(50)	0	0	29	
* to Miles property line. 169' to bldg face																															
East of Campbell	2000 E. Norris - Olsen	64	80	95 129	(2)	(18)	31	(2)	(34)	15	(28)	(44)	5	(40)	(72)	(23)	(30)	(40)	9	(40)	(72)	(23)	(56)	(66)	(17)	(58)	(74)	(25)	0	0	49
	2100 E. Olsen - Plumer	64	94	144 162	(2)	(4)	64	(2)	(20)	48	(28)	(30)	38	(40)	(58)	10	(30)	(26)	42	(40)	(58)	10	(56)	(52)	16	(58)	(60)	8	0	0	68
	2200 E. Plumer - Wilson (Algmt)	64	95	162	(2)	(3)	64	(2)	(19)	48	(28)	(29)	38	(40)	(57)	10	(30)	(25)	42	(40)	(57)	10	(56)	(51)	16	(58)	(59)	8	0	0	67
	2300 E. Wilson (Algmt) - Norton (Algmt)	64	80	137	(2)	(18)	39	(2)	(34)	23	(28)	(44)	13	(40)	(72)	(15)	(30)	(40)	17	(40)	(72)	(15)	(56)	(66)	(9)	(58)	(74)	(17)	0	0	57
	2400 E. Norton (Algmt) - Tucson Blvd	64	80	124	(2)	(18)	26	(2)	(34)	10	(28)	(44)	0	(40)	(72)	(28)	(30)	(40)	4	(40)	(72)	(28)	(56)	(66)	(22)	(58)	(74)	(30)	0	0	44
	2500 E. Tucson Blvd - Forgeus (Algmt)	64	80	100 152	(2)	(18)	54	(2)	(34)	38	(28)	(44)	28	(40)	(72)	0	(30)	(40)	32	(40)	(72)	0	(56)	(66)	6	(58)	(74)	(2)	0	0	72
	2600 E. Forgeus (Algmt) - Sawtelle (Algmt)	64	100	152	(2)	2	54	(2)	(14)	38	(28)	(24)	28	(40)	(52)	0	(30)	(20)	32	(40)	(52)	0	(56)	(46)	6	(58)	(54)	(2)	0	0	52
	2700 E. Sawtelle (Algmt) - Treat	64	100	152	(2)	2	54	(2)	(14)	38	(28)	(24)	28	(40)	(52)	0	(30)	(20)	32	(40)	(52)	0	(56)	(46)	6	(58)	(54)	(2)	0	0	52
	2800 E. Treat - Stewart	64	125	145 205	(2)	27	107	(2)	11	91	(28)	1	81	(40)	(27)	53	(30)	5	85	(40)	(27)	53	(56)	(21)	59	(58)	(29)	51	0	0	80
	2900 E. Stewart-East	64	110	171	(2)	12	73	(2)	(4)	57	(28)	(14)	47	(40)	(42)	19	(30)	(10)	51	(40)	(42)	19	(56)	(36)	25	(58)	(44)	17	0	0	61

SEGMENTS AND OPTIONS POSSIBLY NOT LEADING TO PROPERTY ACQUISITION  
 SEGMENTS AND OPTIONS POSSIBLY NEEDING PROPERTY ACQUISITION  
 SEGMENTS AND OPTIONS MORE LIKELY TO NEED PROPERTY ACQUISITION

Block-by-Block Widths of Existing Street, Right of Way, and Building Separation  
 Broadway Boulevard, Euclid to Contry Club Road  
 REVISED UNEX 8, 2013

Block	Street to Street	Existing Street Width	Existing R/W Width	Building Separation	Option A (67' ROW)			Option B (100' ROW)			Option C (112' ROW)			Option 4+T A (118' ROW)			Option 4+T B (152' ROW)			Option 6A (114' ROW)			Option 6B (152' ROW)			Option 6+T A (146' ROW)			Option 6+T B (174' ROW)			Option 4+T SATA (existing ROW)		
					Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.
<b>Base Concept Dimensions</b>					45	67	67	68	100	100	64	112	112	86	118	118	104	152	152	86	114	114	104	152	152	120	146	146	126	174	174			
West of Campbell	1000 E. Park to Fremont	60	70	94	15	3	27	(8)	(30)	(6)	(4)	(42)	(18)	(26)	(48)	(24)	(44)	(82)	(58)	(26)	(44)	(20)	(44)	(82)	(58)	(60)	(76)	(52)	(66)	(104)	(80)	0	0	24
	1100 E. Fremont to Santa Rita	60	70	100	15	3	33	(8)	(30)	0	(4)	(42)	(12)	(26)	(48)	(18)	(44)	(82)	(52)	(26)	(44)	(14)	(44)	(82)	(52)	(60)	(76)	(46)	(66)	(104)	(74)	0	0	30
	1200 E. Santa Rita to Mountain	60	82	± 137	15	15	70	(8)	(18)	37	(4)	(30)	25	(26)	(36)	19	(44)	(70)	(15)	(26)	(32)	23	(44)	(70)	(15)	(60)	(64)	(9)	(66)	(92)	(37)	0	0	55
	1300 E. Mountain to Highland	60	89	± 129	15	22	62	(8)	(11)	29	(4)	(23)	17	(26)	(29)	11	(44)	(63)	(23)	(26)	(25)	15	(44)	(63)	(23)	(60)	(57)	(17)	(66)	(85)	(45)	0	0	40
	1400 E. Highland to Vine	60	88	104 114	15	21	47	(8)	(12)	14	(4)	(24)	2	(26)	(30)	(4)	(44)	(64)	(38)	(26)	(26)	0	(44)	(64)	(38)	(60)	(58)	(32)	(66)	(86)	(60)	0	0	26
	1500 E. Vine to Cherry	60	64	100 ± 125	15	33	58	(8)	0	25	(4)	(12)	13	(26)	(18)	7	(44)	(52)	(27)	(26)	(14)	11	(44)	(52)	(27)	(60)	(46)	(21)	(66)	(74)	(49)	0	0	25
	1600 E. Cherry to Warren	64	78.5	104	19	12	37	(4)	(22)	4	0	(34)	(8)	(22)	(40)	(14)	(40)	(74)	(48)	(22)	(36)	(10)	(40)	(74)	(48)	(56)	(68)	(42)	(62)	(96)	(70)	0	0	26
1700 E. Warren to Martin	64	75	103.5 104	19	8	37	(4)	(25)	4	0	(37)	(8)	(22)	(43)	(14)	(40)	(77)	(48)	(22)	(39)	(10)	(40)	(77)	(48)	(56)	(71)	(42)	(62)	(99)	(70)	0	0	29	
* to Miles property line. 169' to bldg face																																		
East of Campbell	2000 E. Norris - Olsen	64	80	95 129	19	13	62	(4)	(20)	29	0	(32)	17	(22)	(38)	11	(40)	(72)	(23)	(22)	(34)	15	(40)	(72)	(23)	(56)	(66)	(17)	(62)	(94)	(45)	0	0	49
	2100 E. Olsen - Plumer	64	94	144 162	19	27	95	(4)	(6)	62	0	(18)	50	(22)	(24)	44	(40)	(58)	10	(22)	(20)	48	(40)	(58)	10	(56)	(52)	16	(62)	(80)	(12)	0	0	68
	2200 E. Plumer - Wilson (Algmt)	64	95	162	19	28	95	(4)	(5)	62	0	(17)	50	(22)	(23)	44	(40)	(57)	10	(22)	(19)	48	(40)	(57)	10	(56)	(51)	16	(62)	(79)	(12)	0	0	67
	2300 E. Wilson (Algmt) - Norton (Algmt)	64	80	137	19	13	70	(4)	(20)	37	0	(32)	25	(22)	(38)	19	(40)	(72)	(15)	(22)	(34)	23	(40)	(72)	(15)	(56)	(66)	(9)	(62)	(94)	(37)	0	0	57
	2400 E. Norton (Algmt) - Tucson Blvd	64	80	124	19	13	57	(4)	(20)	24	0	(32)	12	(22)	(38)	6	(40)	(72)	(28)	(22)	(34)	10	(40)	(72)	(28)	(56)	(66)	(22)	(62)	(94)	(50)	0	0	44
	2500 E. Tucson Blvd - Forgeus (Algmt)	64	80	100 152	19	13	85	(4)	(20)	52	0	(32)	40	(22)	(38)	34	(40)	(72)	0	(22)	(34)	38	(40)	(72)	0	(56)	(66)	6	(62)	(94)	(22)	0	0	72
	2600 E. Forgeus (Algmt) - Sawtelle (Algmt)	64	100	152	19	33	85	(4)	0	52	0	(12)	40	(22)	(18)	34	(40)	(52)	0	(22)	(14)	38	(40)	(52)	0	(56)	(46)	6	(62)	(74)	(22)	0	0	52
	2700 E. Sawtelle (Algmt) - Treat	64	100	152	19	33	85	(4)	0	52	0	(12)	40	(22)	(18)	34	(40)	(52)	0	(22)	(14)	38	(40)	(52)	0	(56)	(46)	6	(62)	(74)	(22)	0	0	52
	2800 E. Treat - Stewart	64	125	145 205	19	58	138	(4)	25	105	0	13	93	(22)	7	87	(40)	(27)	53	(22)	11	91	(40)	(27)	53	(56)	(21)	59	(62)	(49)	31	0	0	80
	2900 E. Stewart-East	64	110	171	19	43	104	(4)	10	71	0	(2)	59	(22)	(8)	53	(40)	(42)	19	(22)	(4)	57	(40)	(42)	19	(56)	(36)	25	(62)	(64)	(3)	0	0	61

SEGMENTS AND OPTIONS POSSIBLY NOT LEADING TO PROPERTY ACQUISITION  
 SEGMENTS AND OPTIONS POSSIBLY NEEDING PROPERTY ACQUISITION  
 SEGMENTS AND OPTIONS MORE LIKELY TO NEED PROPERTY ACQUISITION

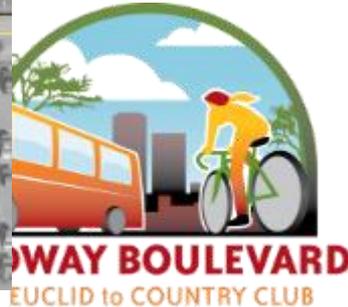
# Economic Vitality

Block-by-Block Widths of Existing Street, Right of Way, and Building Separation  
 Broadway Boulevard, Euclid to Contry Club Road  
 REVISED AUGUST 14, 2013

Block	Street to Street	Existing Street Width	Existing R/W Width	Building Separation	Option 4A (98' ROW)			Option 4B (114' ROW)			Option 4+T A (124' ROW)			Option 4+T B (152' ROW)		
					Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.
<b>Base Concept Dimensions</b>					<b>66</b>	<b>98</b>	<b>98</b>	<b>66</b>	<b>114</b>	<b>114</b>	<b>92</b>	<b>124</b>	<b>124</b>	<b>104</b>	<b>152</b>	<b>152</b>
1000 E. Park to Fremont		60	70	94	(6)	(28)	(4)	(6)	(44)	(20)	(32)	(54)	(30)	(44)	(82)	(58)
1100 E. Fremont to Santa Rita		60	70	100	(6)	(28)	2	(6)	(44)	(14)	(32)	(54)	(24)	(44)	(82)	(52)
1200 E. Santa Rita to Mountain		60	82 ±	137	(6)	(16)	39	(6)	(32)	23	(32)	(42)	13	(44)	(70)	(15)
1300 E. Mountain to Highland		60	89 ±	129	(6)	(7)	31	(6)	(25)	15	(32)	(55)	5	(44)	(65)	(25)
1400 E. Highland to Vine		60	88	104	(6)	(10)	16	(6)	(26)	0	(32)	(36)	(10)	(44)	(64)	(38)
1500 E. Vine to Cherry		60	64 100 ±	125	(6)	2	27	(6)	(14)	11	(32)	(24)	1	(44)	(52)	(27)
1600 E. Cherry to Warren		64	78.5	104	(2)	(20)	6	(2)	(36)	(10)	(28)	(46)	(20)	(40)	(74)	(48)
1700 E. Warren to Mar																



SEGMENTS A  
 SEGM  
 SEGMEN



# Economic Vitality

Block	Street to Street	Existing Street Width	Existing R/W Width	Building Separation	Option 4A (98' ROW)			Option 4B (114' ROW)			Option 4+T A (124' ROW)			Option 4+T B (152' ROW)				
					Street Width	R/W vs. Width	R/W vs. Bldg. Sep.	Street Width	R/W vs. Width	R/W vs. Bldg. Sep.	Street Width	R/W vs. Width	R/W vs. Bldg. Sep.	Street Width	R/W vs. Width	R/W vs. Bldg. Sep.		
<b>Base Concept Dimensions</b>					<b>66</b>	<b>98</b>	<b>98</b>	<b>66</b>	<b>114</b>	<b>114</b>	<b>92</b>	<b>124</b>	<b>124</b>	<b>104</b>	<b>152</b>	<b>152</b>		
2000 E. Norris - Olsen		64	80	95	129	(2)	(18)	31	(2)	(34)	15	(28)	(44)	5	(40)	(72)	(23)	
2100 E. Olsen - Plumer		64	94	144	162	(2)	(4)	64	(2)	(20)	48	(28)	(30)	38	(40)	(58)	10	
2200 E. Plumer - Wilson (Algmnt)		64	95	122	122	(2)	(9)	51	(2)	(19)	40	(28)	(29)	30	(40)	(57)	10	
2300 E. Wilson (Algmnt) - Norton (Algmnt)		64	80	137	137	(2)	(18)	39	(2)	(34)	23	(28)	(44)	13	(40)	(72)	(15)	
2400 E. Norton (Algmnt) - Tucson Blvd		64	80	124	124	(2)	(18)	26	(2)	(34)	10	(28)	(44)	0	(40)	(72)	(28)	
2500 E. Tucson Blvd - Forgeus (Algmnt)		64	80	100	152	(2)	(18)	54	(2)	(34)	38	(28)	(44)	28	(40)	(72)	0	
2600 E. Forgeus (Algmnt) - Sawtelle (Algmnt)		64	100	152	152	(2)	2	54	(2)	(14)	38	(28)	(24)	28	(40)	(52)	0	
2700 E. Sawtelle (Algmnt) - Treat		64	100	152	152	(2)	2	54	(2)	(14)	38	(28)	(24)	28	(40)	(52)	0	
2800 E. Treat - Tucson Blvd		64	100	152	152	(2)	2	54	(2)	(14)	38	(28)	(24)	28	(40)	(52)	0	
2900 E. St. Louis - Tucson Blvd		64	100	152	152	(2)	2	54	(2)	(14)	38	(28)	(24)	28	(40)	(52)	0	
East of Campbell																	53	
																		19

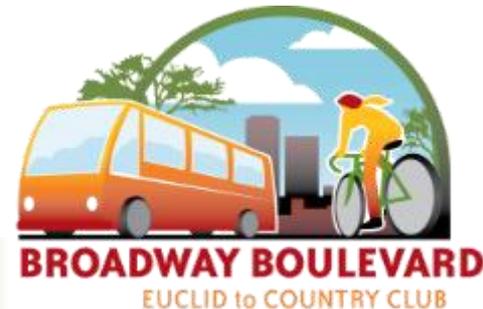


# Economic Vitality

Block-by-Block Widths of Existing Street, Right of Way, and Building Separation  
 Broadway Boulevard, Euclid to Contry Club Road  
 REVISED AUGUST 14, 2013

Block	Street to Street	Existing Street Width	Existing R/W Width	Building Separation	Option 4A (98' ROW)			Option 4B (114' ROW)			Option 4+T A (124' ROW)			Option 4+T B (152' ROW)			Option 6A (120' ROW)			Option 6B (152' ROW)			Option 6+T A (146' ROW)			Option 6+T B (154' ROW)			Option 4+T SATA (existing ROW)				
					Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.	Street Width	R/W Width	R/W vs. Bldg. Sep.		
<b>Base Concept Dimensions</b>					66	98	98	66	114	114	92	124	124	104	152	152	94	120	120	104	152	152	120	146	146	122	154	154					
West of Campbell	1000 E. Park to Fremont	60	70	94	(6)	(28)	(4)	(6)	(44)	(20)	(32)	(54)	(30)	(44)	(82)	(58)	(34)	(50)	(26)	(44)	(82)	(58)	(60)	(76)	(52)	(62)	(84)	(60)	0	0	24		
	1100 E. Fremont to Santa Rita	60	70	100	(6)	(28)	2	(6)	(44)	(14)	(32)	(54)	(24)	(44)	(82)	(52)	(34)	(50)	(20)	(44)	(82)	(52)	(60)	(76)	(46)	(62)	(84)	(54)	0	0	30		
	1200 E. Santa Rita to Mountain	60	82	±	137	(6)	(16)	39	(6)	(32)	23	(32)	(42)	13	(44)	(70)	(15)	(34)	(38)	17	(44)	(70)	(15)	(60)	(64)	(9)	(62)	(72)	(17)	0	0	55	
	1300 E. Mountain to Highland	60	89	±	129	(6)	(9)	31	(6)	(25)	15	(32)	(35)	5	(44)	(63)	(23)	(34)	(31)	9	(44)	(63)	(23)	(60)	(57)	(17)	(62)	(65)	(25)	0	0	40	
	1400 E. Highland to Vine	60	88	104	114	(6)	(10)	16	(6)	(26)	0	(32)	(36)	(10)	(44)	(64)	(38)	(34)	(32)	(6)	(44)	(64)	(38)	(60)	(58)	(32)	(62)	(66)	(40)	0	0	26	
	1500 E. Vine to Cherry	60	64	100	±	125	(6)	2	27	(6)	(14)	11	(32)	(24)	1	(44)	(52)	(27)	(34)	(20)	5	(44)	(52)	(27)	(60)	(46)	(21)	(62)	(54)	(29)	0	0	25
	1600 E. Cherry to Warren	64	78.5	±	104	(2)	(20)	6	(2)	(36)	(10)	(28)	(46)	(20)	(40)	(74)	(48)	(30)	(42)	(16)	(40)	(74)	(48)	(56)	(68)	(42)	(58)	(76)	(50)	0	0	26	
1700 E. Warren to Martin	64	75	103.5	104	(2)	(23)	6	(2)	(39)	(10)	(28)	(49)	(20)	(40)	(77)	(48)	(30)	(45)	(16)	(40)	(77)	(48)	(56)	(71)	(42)	(58)	(79)	(50)	0	0	29		
* to Miles property line. 169' to bldg face																																	
East of Campbell	2000 E. Norris - Olsen	64	80	95	129	(2)	(18)	31	(2)	(34)	15	(28)	(44)	5	(40)	(72)	(23)	(30)	(40)	9	(40)	(72)	(23)	(56)	(66)	(17)	(58)	(74)	(25)	0	0	49	
	2100 E. Olsen - Plumer	64	94	144	162	(2)	(4)	64	(2)	(20)	48	(28)	(30)	38	(40)	(58)	10	(30)	(26)	42	(40)	(58)	10	(56)	(52)	16	(58)	(60)	8	0	0	68	
	2200 E. Plumer - Wilson (Algmt)	64	95	±	162	(2)	(3)	64	(2)	(19)	48	(28)	(29)	38	(40)	(57)	10	(30)	(25)	42	(40)	(57)	10	(56)	(51)	16	(58)	(59)	8	0	0	67	
	2300 E. Wilson (Algmt) - Norton (Algmt)	64	80	±	137	(2)	(18)	39	(2)	(34)	23	(28)	(44)	13	(40)	(72)	(15)	(30)	(40)	17	(40)	(72)	(15)	(56)	(66)	(9)	(58)	(74)	(17)	0	0	57	
	2400 E. Norton (Algmt) - Tucson Blvd	64	80	±	124	(2)	(18)	26	(2)	(34)	10	(28)	(44)	0	(40)	(72)	(28)	(30)	(40)	4	(40)	(72)	(28)	(56)	(66)	(22)	(58)	(74)	(30)	0	0	44	
	2500 E. Tucson Blvd - Forgeus (Algmt)	64	80	±	152	(2)	(18)	54	(2)	(34)	38	(28)	(44)	28	(40)	(72)	0	(30)	(40)	32	(40)	(72)	0	(56)	(66)	6	(58)	(74)	(2)	0	0	72	
	2600 E. Forgeus (Algmt) - Sawtelle (Algmt)	64	100	±	152	(2)	2	54	(2)	(14)	38	(28)	(24)	28	(40)	(52)	0	(30)	(20)	32	(40)	(52)	0	(56)	(46)	6	(58)	(54)	(2)	0	0	52	
	2700 E. Sawtelle (Algmt) - Treat	64	100	±	152	(2)	2	54	(2)	(14)	38	(28)	(24)	28	(40)	(52)	0	(30)	(20)	32	(40)	(52)	0	(56)	(46)	6	(58)	(54)	(2)	0	0	52	
	2800 E. Treat - Stewart	64	125	±	205	(2)	27	107	(2)	11	91	(28)	1	81	(40)	(27)	53	(30)	5	85	(40)	(27)	53	(56)	(21)	59	(58)	(29)	51	0	0	80	
	2900 E. Stewart-East	64	110	±	171	(2)	12	73	(2)	(4)	57	(28)	(14)	47	(40)	(42)	19	(30)	(10)	51	(40)	(42)	19	(56)	(36)	25	(58)	(44)	17	0	0	61	

SEGMENTS AND OPTIONS POSSIBLY NOT LEADING TO PROPERTY ACQUISITION  
 SEGMENTS AND OPTIONS POSSIBLY NEEDING PROPERTY ACQUISITION  
 SEGMENTS AND OPTIONS MORE LIKELY TO NEED PROPERTY ACQUISITION



# Updated Performance Measures

- **8a. Change in Economic Potential:** Suitability of parcels along Broadway to provide for current commercial or residential use, repurposed, or adaptive reuse, or to provide future mix of commercial and residential uses, and open space.
  - Impacts of Broadway improvements to **on-site** parking, **vehicular** access, and buildings all affect viability of existing businesses and potential for future development.
  - While cross section width is an indicator of negative impact on existing businesses, in some cases reuse of remnant parcels may have more economic potential than existing development.
  - Not able to fully assess potential for future development and revitalization of existing buildings at current level of design and planning (need alignments and intersection designs to understand full right of way impacts).
  - Real estate and business market potential also needs to be assessed.
  - This assessment includes both short term and long term potential. They differ in that while short term potential is based on the survival of the current function of Broadway properties, long-term potential is based on the re-development potential of Broadway parcels after street improvements are made.

# Updated Performance Measures

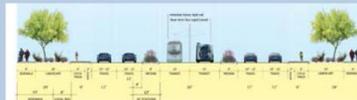
- Assessment Methodology at current level of design for Short Term Economic Vitality Potential (up to 5 years after construction of Broadway improvements): **The Project Team roughly estimated a percentage of street-fronting property where the Broadway improvements would result in removal of at least a part of a building. For these “impacted” properties, short-term economic vitality would be diminished.**
- 80’ R.O.W. – West of Campbell likely no buildings impacted and to the east about 5% would likely be impacted
- 90-100’ R.O.W. – West of Campbell likely 25% of buildings impacted and to the east about 10% would likely be impacted (○)
- 105-120’ R.O.W. – West of Campbell likely 50% of buildings impacted and to the east about 20% would likely be impacted (-)
- 125-135’ R.O.W. – West of Campbell likely 50% of buildings impacted and to the east about 35% would likely be impacted (--)
- 140-165’ R.O.W. – West of Campbell likely 50% of buildings impacted and to the east about 45% would likely be impacted (---)

# Updated Performance Measures

- Assessment Methodology at current level of design for Long Term Economic Vitality Potential (6 or more years after construction of Broadway Improvements): The Project Team roughly estimated a percentage of street-fronting property that would be of sufficient depth to be re-developed. These “developable” parcels have long-term economic development potential. This estimate is based on the following assumptions:
  - A parcel with 65-foot depth can be reused for development (a 75-foot depth has also been evaluated to illustrate the variation in impact that could result from a deeper lot). The majority of lots that would result in 65-foot deep remnant parcels have alley access. A 65-foot depth allows for development of building types with “tuck-under” parking accessed from the alley with a 40-foot deep building fronting onto Broadway. In addition, surface parking lots with buffering along the Broadway sidewalk could be developed in between freestanding buildings. Design studies have shown that 1 to 2 story buildings, with some 3 story portions if desired, can be developed in this configuration for commercial, residential, or mixed use developments. This type of development would need to occur through a PUD entitlement.
- 130’ R.O.W. – West and east of Campbell Avenue more than 95% (92%) of street fronting parcels could likely maintain their current use or be redeveloped (-- to ++)
- 150’ R.O.W. – West of Campbell about 90% (75%) and to the east about 92% (92%) of street fronting parcels could likely maintain their current use or be redeveloped (--- to ++)
- 160’ R.O.W. – West of Campbell about 75% (70%) and to the east about 92% (85%) of street fronting parcels could likely maintain their current use or be redeveloped (--- to ++)
- 170’ R.O.W. – West of Campbell about 70% (62%) and to the east about 85% (85%) of street fronting parcels could likely maintain their current use or be redeveloped (--- to +)

# 8a. Change in Economic Potential

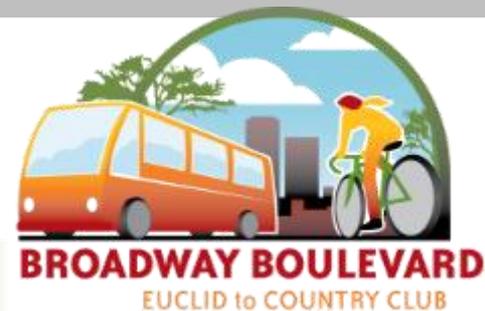
LANE CONFIGURATION ALTERNATIVES	ECONOMIC V
	8a. Change in Economic Potential
Existing Conditions	— now
4 lane without landscaping (62'-96')	Short term: — to ○ Future: ○ to + ○ to +
4 lane with landscaping (84'-138')	Short term: --- to ○ Future: ○ to ++ --- to ++
4 lanes with landscaping + dedicated transit (106'-162')	Short term: --- to --- Future: --- to ++ --- to ++
6 lane with landscaping (104'-162')	Short term: --- to --- Future: --- to ++ --- to ++
6 lanes with landscaping + dedicated transit (126'-186')	Short term: --- to --- Future: --- to ++ --- to +

STREET CROSS SECTION ALTERNATIVES	ECONOMIC
	8a. Change in Economic Potential
Existing Conditions	— now
Option 4A (98' r.o.w.) 	Short term: ○ Future: ○ to ++
Option 4B (114' r.o.w.) 	Short term: — to ○ Future: ○ to ++
Option 4+T A (124' r.o.w.) 	Short term: --- Future: --- to ++
Option 4+T B (152' r.o.w.) 	Short term: --- Future: --- to ++
Option 6A (120' r.o.w.) 	Short term: --- Future: --- to ++
Option 6B (152' r.o.w.) 	Short term: --- Future: --- to ++
Option 6+T A (146' r.o.w.) 	Short term: --- Future: --- to ++
Option 6+TB (154' r.o.w.) 	Short term: --- Future: --- to ++
Option 4+T SATA (existing r.o.w.) 	Short term: ○ Future: — to ○

# 8b. Change in Business Revenue

Comparison of estimate of business revenue today with future conditions considering both potential negative and positive impacts of the improvement project.

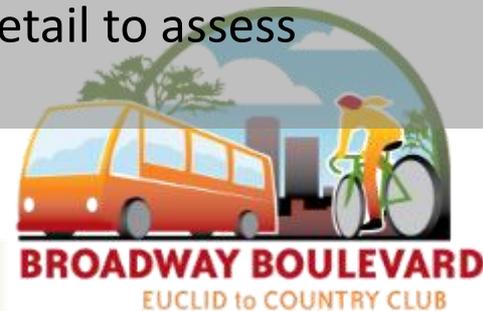
- Estimate potential loss of business activity from impacts of right of way widening on properties on parking, access, and buildings.
- Estimate potential increase in business activity from improved mobility and access along Broadway.
- Estimated potential increase in business activity from new businesses, revitalization, and reuse of properties.
- **Not able to assess at current level of planning**, because business revenues are not known, and potential impacts are not known at enough detail to assess which properties might be impacted.



# 8c. Change in Sales Tax Revenue

Comparison of existing sales tax generated by businesses along Broadway with estimate of future sales tax generation considering both potential negative and positive impacts of the improvement project.

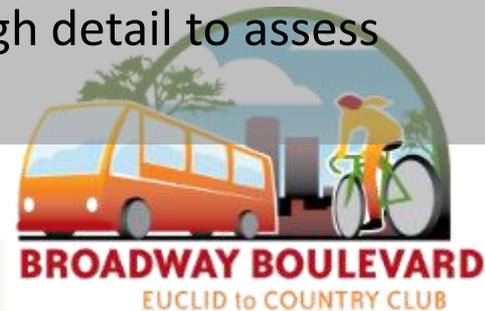
- Estimate potential loss of business activity from impacts of right of way widening on properties on parking, access, and buildings.
- Estimate potential increase in business activity from improved mobility and access along Broadway.
- Estimated potential increase in business activity from new businesses, revitalization, and reuse of properties.
- Estimate of potential change in use from sales tax generating to other commercial or residential activity.
- **Not able to assess at current level of planning**, because sales tax revenues are not known, and potential impacts are not known at enough detail to assess which properties might be impacted.



# 8d. Change in Property Tax Revenue

Comparison of existing property tax generated by properties along Broadway with estimate of future property tax generation considering both potential negative and positive impacts of the improvement project.

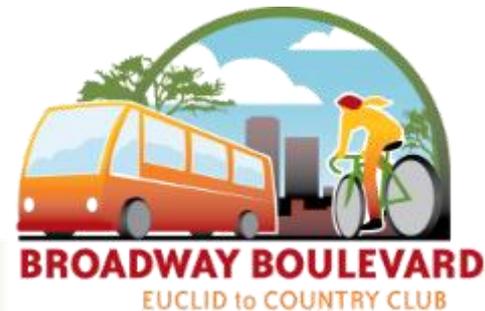
- Estimate of potential reduction in land area that is taxable, also potential for some increase in taxable property as City sells any remnants of properties that are already owned by the City.
- Estimate of potential land and building value increases do the increased vitality of Broadway, and reinvestment in existing and new buildings and other improvements.
- Not able to assess impacts from right of way as alignment and intersection design are not determined.
- **Not able to assess at current level of planning**, because property tax revenues are not known, and potential impacts are not known at enough detail to assess which properties might be impacted.



# 8e. Business Impacts

The number and size (based on annual revenue) of existing businesses with impacts from the Broadway improvements that would cause the business to relocate; compared with the number and size (based on annual revenue estimate) of future businesses that could occupy new development on remnant parcels.

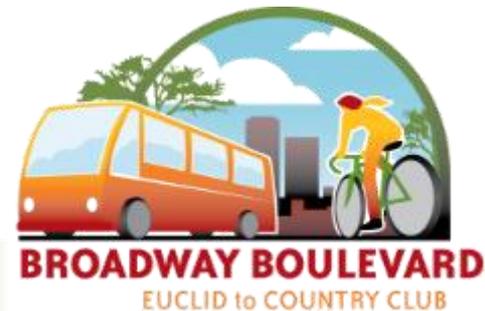
- **Not able to assess at current level of design** because potential impacts are not known at enough detail to assess which properties might be impacted.



# 8f. Job Impacts

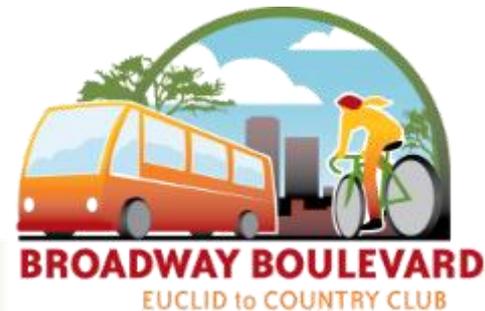
Estimated change in number and income of jobs before and after implementation of the Broadway Project.

- **Not able to assess at current level of planning**, because job generation rates are not known, and potential impacts are not known at enough detail to assess which properties might be impacted.



# Project Cost

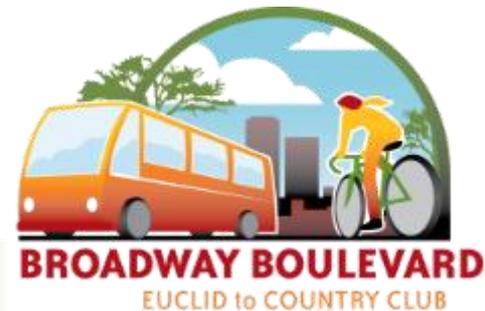
- 9a. Construction Cost
- 9b. Acquisition Cost
- 9c. Operations and Maintenance Cost
- 9d. Income for Reuse of Excess City-owned Property



# Project Cost

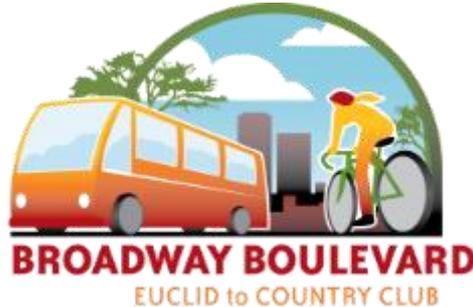
**9a. Construction Cost:** Total construction cost of planned improvements.

- Main design factors are:
  - Cross section width (including intersection design)
  - Use of local access lanes (increased drainage system and lighting costs)
  - Amount of landscaping
  - Number and complexity of signals
  - Extent and type of lighting, landscape, pedestrian, bicycle, and transit facilities



# 9a. Construction Cost

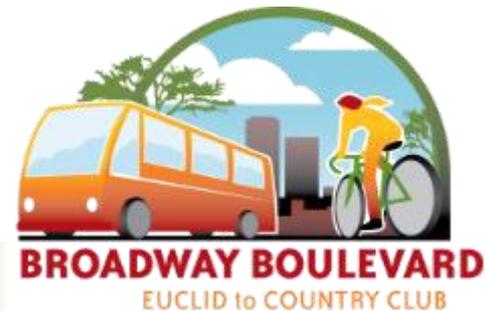
STREET CROSS-SECTION ALTERNATIVES		9a. Construction Cost
Existing Conditions		\$
Option 4A (98' r.o.w.)		\$\$
Option 4B (114' r.o.w.)		\$\$
Option 4+T A (124' r.o.w.)		\$\$\$
Option 4+T B (152' r.o.w.)		\$\$\$\$
Option 6A (120' r.o.w.)		\$\$\$
Option 6B (152' r.o.w.)		\$\$\$
Option 6+T A (146' r.o.w.)		\$\$\$\$
Option 6+TB (154' r.o.w.)		\$\$\$\$
Option 4+T SATA (existing r.o.w.)		\$\$\$



# Project Cost

**9b. Acquisition Cost:** Total cost of purchasing property, relocation costs, and other costs associated with acquisition of property.

- Main design factors are:
  - Cross section width
  - Intersection land area
  - Street alignment



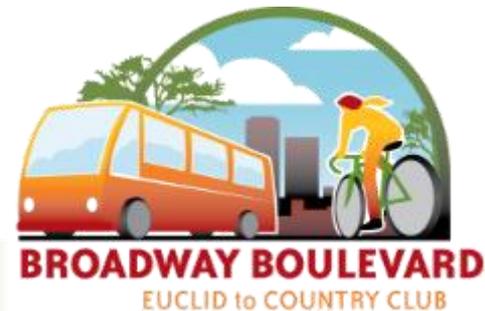
# 9b. Acquisition Cost

STREET CROSS-SECTION ALTERNATIVES		PROJECT
		9b. Acquisition Cost
Existing Conditions		\$
Option 4A (98' r.o.w.)		\$\$
Option 4B (114' r.o.w.)		\$\$\$
Option 4+T A (124' r.o.w.)		\$\$\$
Option 4+T B (152' r.o.w.)		\$\$\$\$
Option 6A (120' r.o.w.)		\$\$\$
Option 6B (152' r.o.w.)		\$\$\$\$
Option 6+T A (146' r.o.w.)		\$\$\$\$
Option 6+TB (154' r.o.w.)		\$\$\$\$
Option 4+T SATA (existing r.o.w.)		\$

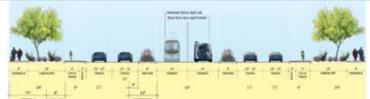
# Project Cost

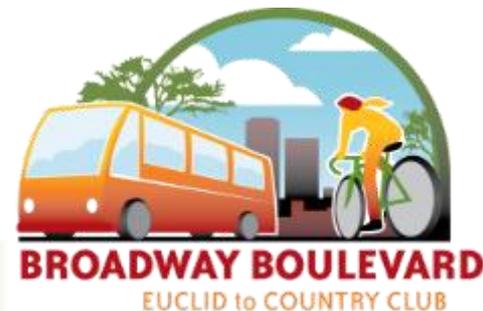
## 9c. Operations and Maintenance Cost: Total cost of operating and maintaining the improvements.

- Pavement and other roadway and sidewalk maintenance.
- Signal systems operations and maintenance.
- Drainage systems (including water harvesting and green streets) maintenance.
- Landscape maintenance and replacement.
- Maintenance and replacement of other pedestrian, bicycle, and vehicular improvements.
- Transit operations and maintenance are not included



# 9c. Operations and Maintenance Cost

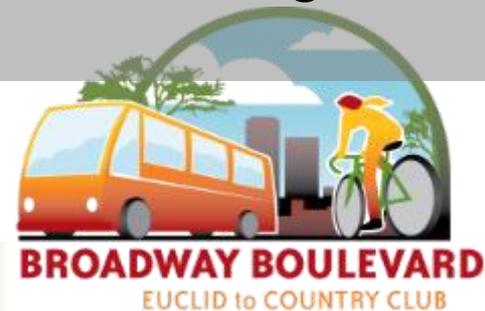
STREET CROSS-SECTION ALTERNATIVES		CT COST
Existing Conditions		\$
Option 4A (98' r.o.w.)		\$\$
Option 4B (114' r.o.w.)		\$\$\$
Option 4+T A (124' r.o.w.)		\$\$\$
Option 4+T B (152' r.o.w.)		\$\$\$\$
Option 6A (120' r.o.w.)		\$\$\$
Option 6B (152' r.o.w.)		\$\$\$\$
Option 6+T A (146' r.o.w.)		\$\$
Option 6+TB (154' r.o.w.)		\$\$\$\$
Option 4+T SATA (existing r.o.w.)		\$



# Project Cost

**9d. Income for Reuse of Excess City-owned Property:** Estimate of value of income from property that is acquired by the City to provide right of way for the Broadway improvements. In some cases this property will have buildings and/or land that can be sold or leased for other use. This measure estimates the value of that income.

- Factors that have an effect on the estimate of value for lease or land sale of remnant property, include:
  - Amount of remnant land
  - The market potential for and value of the uses that the property can accommodate
- **Not able to assess impacts from right of way** as alignment and intersection design are not determined.
- **Not able to assess potential for reuse of remnant parcels or revitalization of existing parcels** as alignment and intersection design are not determined.



# Certainty

- 10a. Ability to Provide for Changing Transportation Needs
- 10b. Risk of Relying on Future Development for Economic Vitality
- 10c. Ability of City to Operate and Maintain Improvements

# Certainty

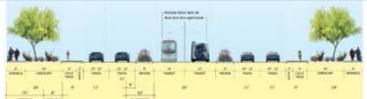
## **10a. Ability to Provide for Changing Transportation Needs:**

Performance Measure 3f. Accommodation of Future High Capacity Transit measures the ability of Broadway implementation concepts to provide space for potential future changes in the transit service provided along Broadway. Similarly, bicycle, pedestrian, and vehicular demands and needs could change over time. This performance measure allows for assessment of the ability of the Broadway design concepts to adapt to changing transportation demands over time with the goal of minimizing the need for additional right of way and other capital investment.

- Factors that affect the ability to meet changing transportation needs include:
  - Presence of transit lanes (or width to accommodate future lanes either within medians or through the conversion of a vehicular lane)
  - Width within the buffer and sidewalk areas to accommodate additional pedestrian, bicycle, and transit features.

# 10a. Ability to Provide for Changing Transportation Needs

LANE CONFIGURATION ALTERNATIVES	10a. Ability to Provide for Changing Transportation Needs
Existing Conditions	-- to -
4 lane without landscaping (62'-96')	-- to -
4 lane with landscaping (84'-138')	-- To +
4 lanes with landscaping + dedicated transit (106'-162')	++ to +++
6 lane with landscaping (104'-162')	-- to +
6 lanes with landscaping + dedicated transit (126'-186')	++ to +++

STREET CROSS-SECTION ALTERNATIVES	10a. Ability to Provide for Changing Transportation Needs
Existing Conditions	-- to -
Option 4A (98' r.o.w.) 	+
Option 4B (114' r.o.w.) 	++
Option 4+T A (124' r.o.w.) 	+
Option 4+T B (152' r.o.w.) 	++
Option 6A (120' r.o.w.) 	+
Option 6B (152' r.o.w.) 	++
Option 6+T A (146' r.o.w.) 	o
Option 6+TB (154' r.o.w.) 	+
Option 4+T SATA (existing r.o.w.) 	-

# Certainty

## **10b. Risk of Relying on Future Development for Economic Vitality:**

Assessment of risk of relying on future revitalization and new development to create positive change in 8. Economic Vitality.

- This is related to the rate at which the city can market and transfer remnant property to private interests that will entitle and develop the properties for new uses, and the timing and risk involved for private interests to develop the properties.
- While there is risk involved in the ability of remnant properties to be redeveloped, there is the potential that future development could provide both more viable and attractive space for new businesses and residents, as well as more commercial space and more homes compared to existing development on the properties that may be impacted by the future street design.
- Factors that affect the risk of future development that can be influenced by the future roadway design, include:
  - The amount of land area for future development
  - The size and configuration of future development sites
  - Access from Broadway to the future development sites
- **Not measurable at current level of design**

# Certainty

## **10c. Ability of City to Operate and Maintain**

**Improvements:** Assessment of relative cost and benefit and ability of city budget to support 9c. Operations and Maintenance Cost.

- Factors that affect the ability of the city to support the operations and maintenance of the future roadway are
  - Operations and maintenance costs
  - Ability of the city to fund the costs
- The current assessment is expressed as a range given the uncertainty of the city to maintain a consistent level of funding and the relative cost of operations and maintenance for the various lane configurations types and the street cross sections

# 10c. Ability of City to Operate and Maintain Improvements

LANE CONFIGURATION ALTERNATIVES	
	10c. Ability of City to Operate and Maintain Improvements
Existing Conditions	○ to ++
4 lane without landscaping (62'-96')	○ to ++
4 lane with landscaping (84'-138')	- to ○
4 lanes with landscaping + dedicated transit (106'-162')	-- to ○
6 lane with landscaping (104'-162')	-- to ○
6 lanes with landscaping + dedicated transit (126'-186')	-- to ○

STREET CROSS-SECTION ALTERNATIVES	
	10c. Ability of City to Operate and Maintain Improvements
Existing Conditions	○ to ++
Option 4A (98' r.o.w.)	○ to +
Option 4B (114' r.o.w.)	- to ○
Option 4+T A (124' r.o.w.)	- to ○
Option 4+T B (152' r.o.w.)	-- to ○
Option 6A (120' r.o.w.)	- to ○
Option 6B (152' r.o.w.)	-- to ○
Option 6+T A (146' r.o.w.)	○ to +
Option 6+TB (154' r.o.w.)	-- to ○
Option 4+T SATA (existing r.o.w.)	○ to ++

