

Project Description

Hudson County is preparing to resurface Willow Avenue (a County road) between 11th Street and 13th Street. Whenever a road is resurfaced in Hoboken, it is designed in accordance with the City's and County's Complete Streets Policies to make safe and inviting roadways for all types of users. Willow Avenue north of 14th Street is a major, high-volume corridor for entering and exiting Hoboken, and no design changes are currently being considered north of 13th Street.

Pedestrian safety is of paramount importance along this corridor featuring high volumes of two of the city's most vulnerable demographics -- children and seniors. The excess roadway capacity presents a unique opportunity to upgrade this segment of Willow Avenue. The proposed design features new high-visibility crosswalks, "low-cost" curb extensions that reduce pedestrian crossing distances, back-in angle parking for safer parking and unloading, and bicycle lanes to help calm traffic and reduce speeding. Reduced crossing distances provide extra time for green lights, and computer models show no negative impact on traffic flow. Additional drop-off areas are options for addressing the dangerous double parking that occurs in the area.

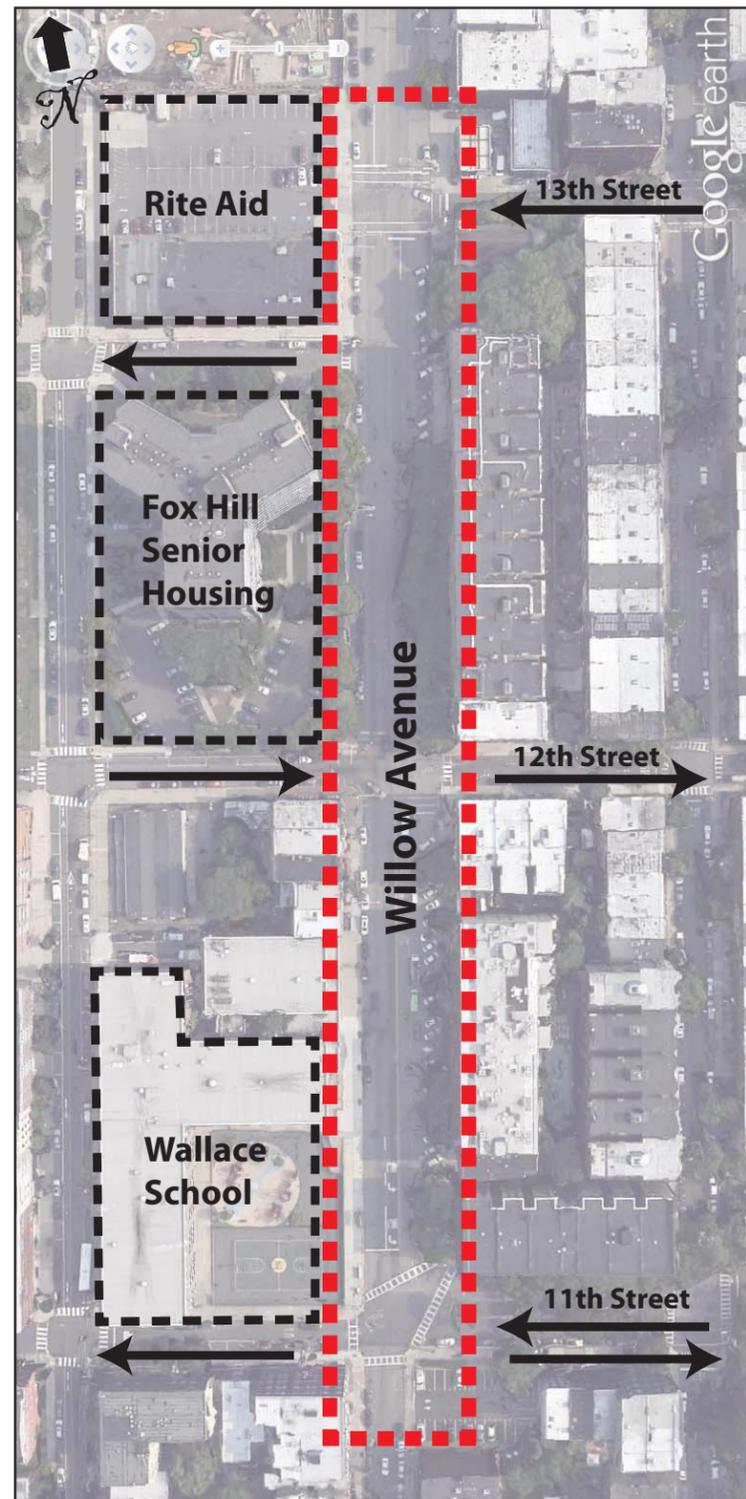
The City is seeking the community's input on the resurfacing project as well as the long-term vision for the project area.

Context



Source: City of Hoboken, Hudson County

Project Area



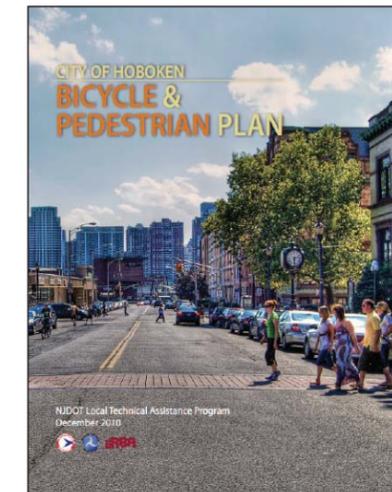
Complete Streets Policy



Key Recommendations

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Hoboken that all public street projects, both new construction and reconstruction (excluding maintenance) undertaken by the City of Hoboken *shall be designed and constructed as "Complete Streets" whenever feasible to do so in order to safely accommodate travel by pedestrians, bicyclists, public transit, and motorized vehicles and their passengers, with special priority given to pedestrian safety...*

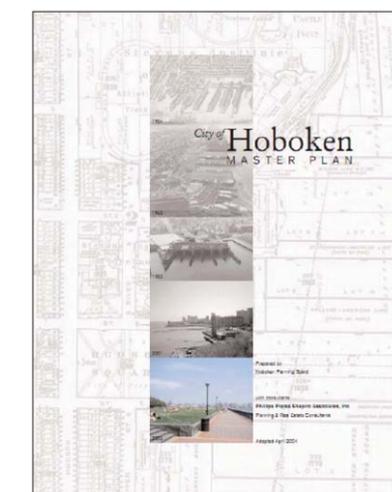
Bicycle & Pedestrian Master Plan



Key Recommendations

- Provide high-visibility crosswalks and school crossing/warning signs within school zones and along designated schools routes.
- Enhance gateways into Hoboken
- Provide appropriate street furniture to promote street life
- Implement the City of Hoboken's Bicycle Network
- Create secure and safe bicycle parking at key bicycling and walking destinations including schools, shopping districts, recreational facilities, public buildings, etc throughout the city

Hoboken Master Plan



Key Recommendations

- Make Hoboken a better place for pedestrians, bicyclists, and transit riders, while improving conditions for those who drive
- Enhance walkability throughout the city
- Protect pedestrians in the crosswalk
- Employ traffic calming
- Maximize park and recreation opportunities for residents
- Promote bicycling as a mode of transportation



Upper Willow Avenue Complete Streets Redesign

May 2013

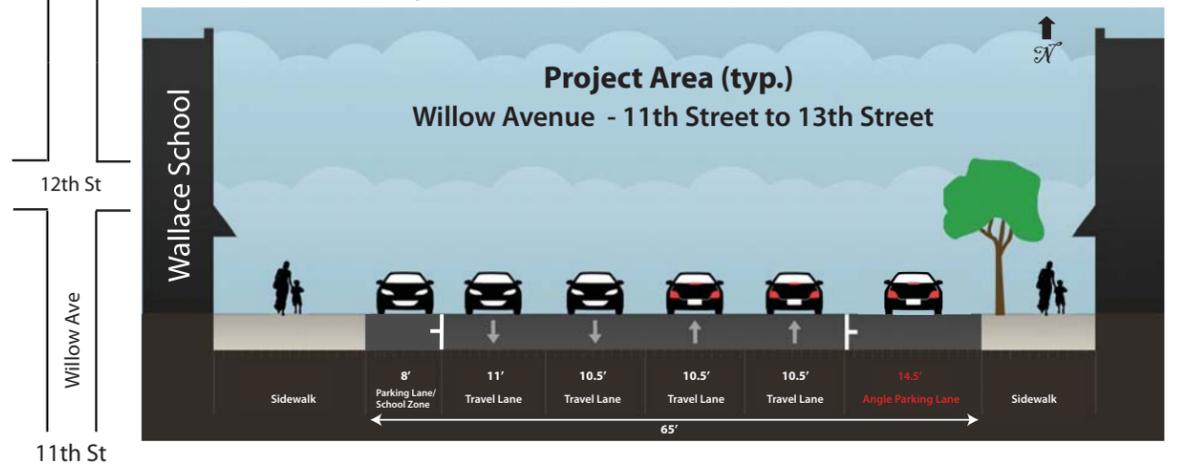
Project Background

Typical Sections - Existing Conditions

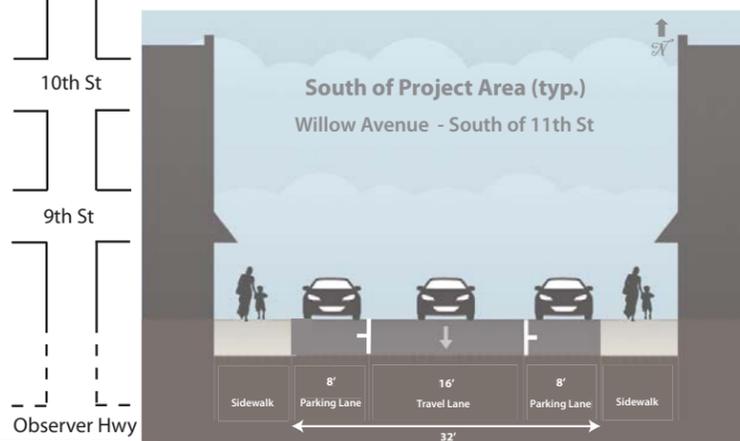
North of 13th St (outside of Project Area)



13th St. to 11th St. (Project Area)

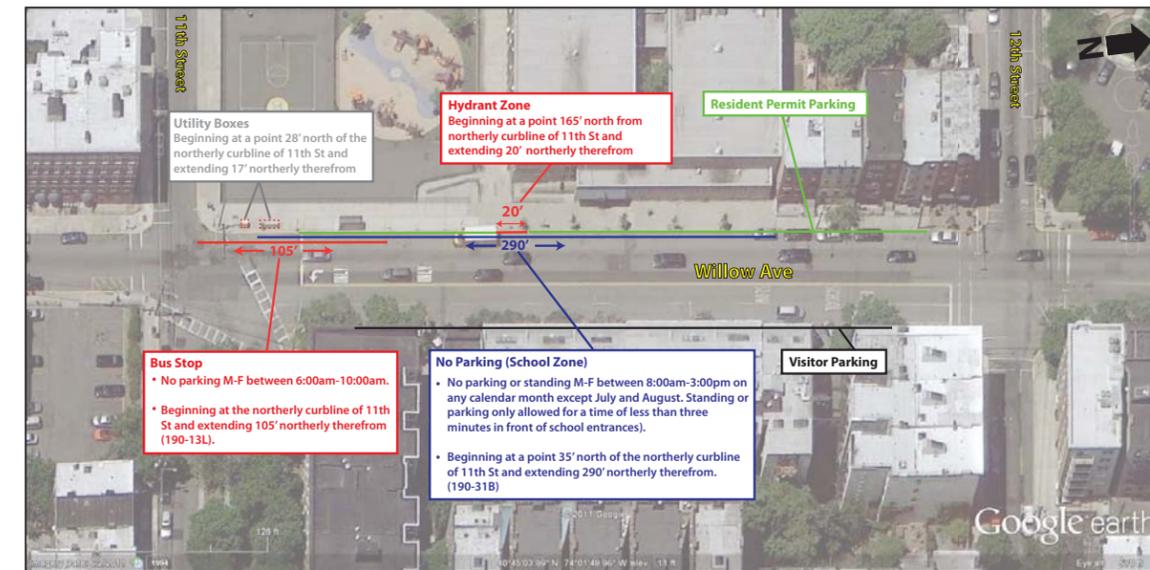
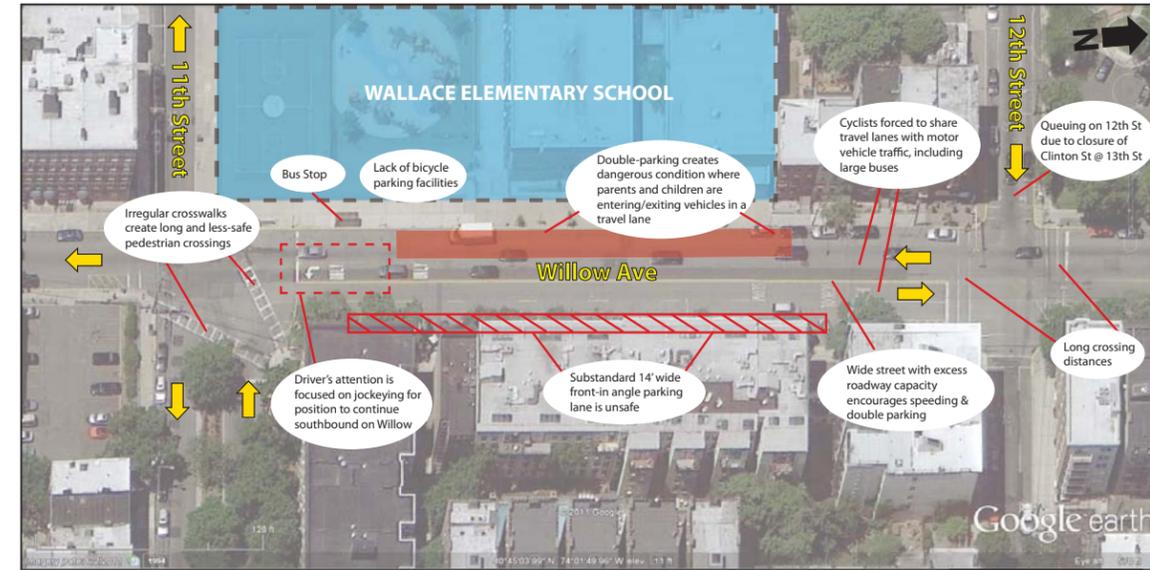


South of 11th St (outside of project Area)



The typical section of the roadway within the project area represents a transitional zone from a regional street with higher traffic patterns and volumes north of 13th St. (top cross-section) to a typical 1-lane 1-way Hoboken residential street south of 11th St. (bottom cross-section).

Existing Conditions near Wallace School



Road width encourages speeding and double parking.



Angled parking width is substandard, which creates a dangerous condition.



Long and irregular crosswalks leave pedestrians exposed.



Double parking creates hazardous conditions including dangerous mid-block crossings, passenger loading in a travel lane, and excessive lane shifting by passing vehicles.



What are Complete Streets?

Complete Streets (sometimes called Livable Streets) are roadways designed and operated to enable safe, attractive and comfortable access and travel for roadway users of all ages and abilities, including pedestrians, bicyclists, motorists and public transport riders.

Complete Streets make it easy to cross the street, walk to shops, and bicycle to work. They allow buses to run on time & make it safe for people to walk to & from train stations.

A complete street may include: sidewalks, special bus lanes, comfortable & accessible public transportation stops, frequent & safe crossing opportunities, median islands, accessible pedestrian signals, curb extensions, narrower travel lanes, roundabouts, bike lanes, and more.

The New Jersey Department of Transportation (NJDOT) adopted a Complete Streets policy in 2009. Hoboken followed the State's lead, and adopted its Complete Streets policy in November 2010. Hudson County recently passed its own Complete Streets policy in 2013. Willow Avenue presents a unique opportunity to improve safety and access for all users while also improving traffic.

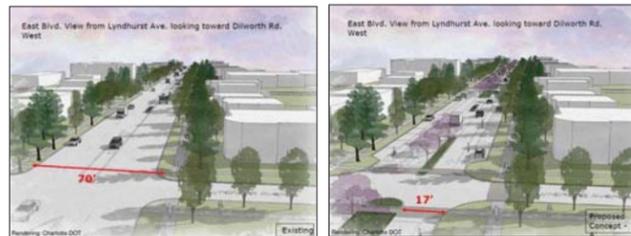
Benefits of Complete Streets:

- improved mobility and access
- reduced speeding
- reduced collisions and injuries
- reduced conflict points
- improved sight distance
- improved livability and quality of life
- fostering a sense of place
- community asset
- cost effective
- improved public health

Complete Streets Examples



Main St, Pottstown, PA - Before Main St, Pottstown, PA - After



East Blvd, Charlotte, NC - Before East Blvd, Charlotte, NC - After

Design Toolbox

"Low-Cost" Curb Extension

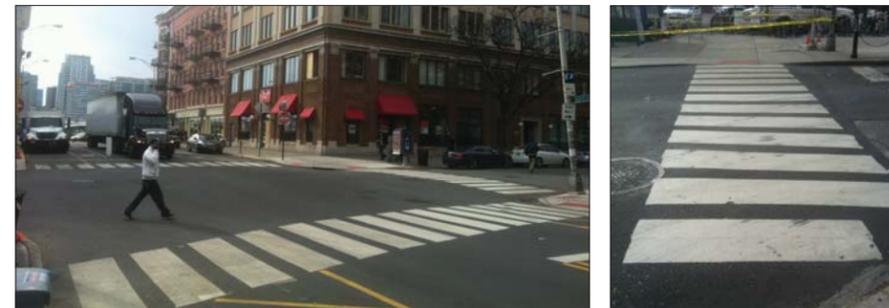


"Low-Cost" curb extensions are painted sidewalk extensions at corners protected by vertical delineators (aka stanchions or flexible bollards).

Benefits include:

- Increased space available for pedestrians waiting to cross the intersection
- Reduced crossing distances for pedestrians.
- Reduced vehicle speeds by narrowing the curb-to-curb right-of-way at crosswalks
- Reduced illegal parking near crosswalks, thereby improving crosswalk visibility
- Significantly reduced cost compared to conventional concrete curb extensions

High-Visibility Crosswalks



High visibility crosswalks are pavement markings that clearly delineate pedestrian crossing areas for all roadway users. **Benefits include:**

- Visible to approaching drivers sooner than other crosswalk types
- More visible to drivers at night
- Encourage pedestrians to walk at preferred, safe crossing locations
- Wider than typical crosswalks. Upgraded City of Hoboken standards require 10' crosswalk width.

Lane Narrowing (including Bike Lanes)



Narrowed travel lanes increase the "perceived risk" for drivers, often resulting in reduced vehicular speeds. **Benefits include:**

- Traffic calming, by narrowing the width of travel lanes
- Reduced vehicular speeding, by changing the driver's perception of the roadway
- Improved safety for pedestrians and drivers in addition to cyclists
- Improved cyclist comfort, confidence and safety

Back-In Angle Parking



Back-in angled parking is a type of angled parking where motorists reverse into the parking space. **Benefits Include:**

- Improved line of sight between drivers, cyclists and pedestrians as vehicles exit a parking space and enter moving traffic.
- Safer for children and passengers as car door opens in the direction that ushers passengers towards the sidewalk instead of travel lanes. Trunk space loading now takes place on the sidewalk instead of in a travel lane.
- Safer for cyclists: easier for exiting drivers to see bicyclists passing by



Safety & Collisions

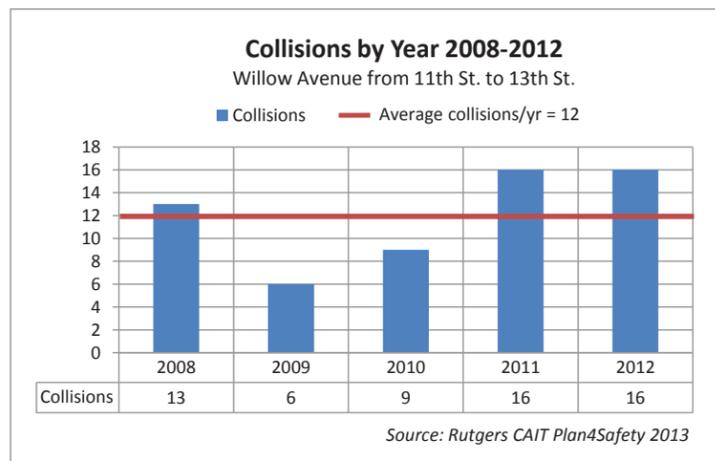
Sixty-four collisions have occurred in the project area since the beginning of 2008 (~5 years), which average to 12 collisions per year. The majority of collisions were vehicular, and 5 of the 64 involving a pedestrian or cyclist. Washington St is the only north/south street in Hoboken with a higher collision frequency than Willow Ave.

Collisions by Type and Location (2008-2013*)

(Willow Avenue from 11th St. to 13th St.)

Location	Vehicular		Pedestrian/Bike		Total
	At Int.	Near Int.	At Int.	Near Int.	
Willow & 11th Street	7	13	1	0	21
Willow & 12th Street	4	13	1	0	18
Willow & 13th Street	4	18	2	1	25
Total	15	44	4	1	64

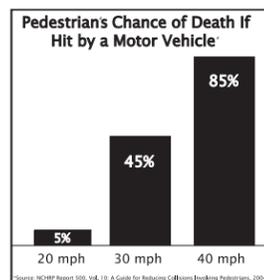
*2013 Data through March Source: Rutgers CAIT Plan4Safety Datasets May 2013



Speeding

Wide empty streets, such as Willow Ave between 11th St and 13th St, encourage speeding. Pedestrians struck by a vehicle traveling 30 miles per hour have a 45% chance of dying. Speed data for the project area show that:

- 15% of traffic on Willow Ave between 11th St and 13th St is driving above the 25mph speed limit.
- 12% of vehicles are driving 30 miles per hour or greater.

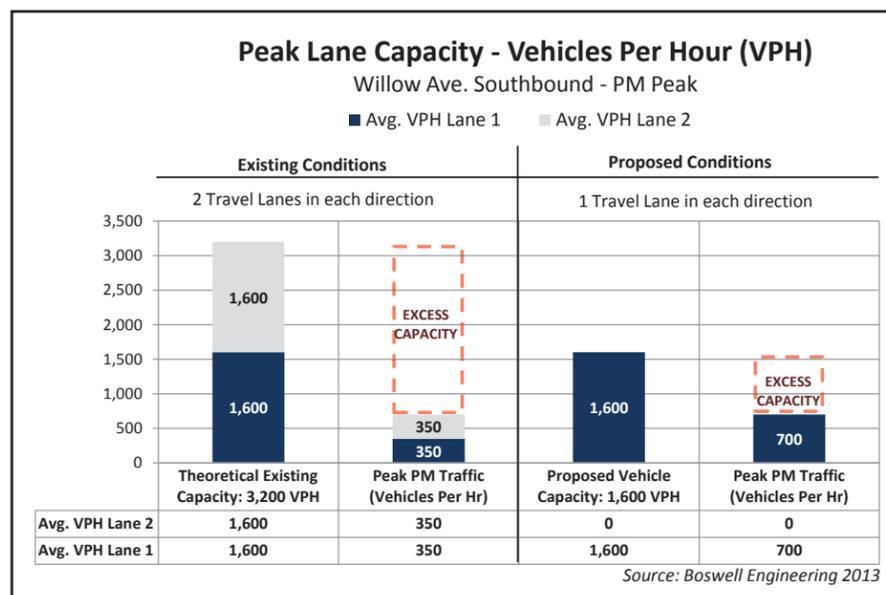


Not So Fast!



Vehicle Capacity

Traffic counts were conducted for the area. Willow Avenue between 13th and 11th street has excess vehicle capacity. A single lane of traffic has a theoretical capacity of about 1,900 vehicles per hour (vph). During the traffic analysis, the capacity was adjusted down to be conservative to about 1,600 vehicles per hour (vph). For example, the average volume counted in the southbound direction during the weekday evening peak period (the highest volume in any direction) is less than 700vph. Even if the counts were twice as high, there is enough capacity to accommodate that peak PM southbound traffic in one lane.



School Loading

There is a lot of pick up/drop off activity near Wallace School, located between 11th and 12th St. Unlike most other Hoboken schools that are adjacent to narrow one-way streets, Wallace School fronts a wide four lane roadway. This roadway configuration encourages extensive and extended double parking, which creates unsafe conditions such as dangerous mid-block crossings, unpredictable pedestrian movement and irregular driving patterns. The unsafe conditions created by double parking are not as rampant near schools located on typical one-lane one-way Hoboken Streets.

Student loading conditions in the area can be improved by adding a daytime school zone on 11th St., as well as potentially moving the NJ Transit bus stop to the far side (south side) of 11th St. Please see Slide 6 for additional details.

Level of Service (LOS)

Level of Service (LOS) is a performance metric universally accepted by traffic engineers to describe the conditions drivers will face at an intersection. The calculation results in the delay, in seconds, that the driver will experience based on the conditions studied and is converted into a letter grade (from "A" to "F"), as described below. A grade of "C" or better during peak hour conditions is typically considered acceptable.

Level of Service Grades (Signalized Intersection):

LOS	Driver Delay (waiting)
A (Good)	≤ 10 seconds
B (Fair)	10-20 seconds
C (Acceptable)	20-35 seconds
D (Poor)	35-55 seconds
E (Very Poor)	55-80 seconds
F (Failing)	≥ 80 seconds

The below table summarizes the LOS traffic analysis conducted for both the existing condition and the proposed condition of one travel lane in each direction. **The average intersection LOS on Willow Avenue in the project area is "B" for both existing and proposed conditions.**

Intersection Levels of Service (LOS) Analysis

Willow Avenue	Existing		Proposed		Change	
	LOS	Delay	LOS	Delay	LOS	Delay
12th St (AM)						
Northbound	A	9.2	A	9.5	N/A	0.3
Southbound	B	11.5	B	11.4	N/A	-0.1
Eastbound	C	28.2	C	28.2	N/A	0
Intersection (Overall)	B	16.7	B	16.6	N/A	-0.1
12th St (PM)						
Northbound	A	9.2	A	9.4	N/A	0.2
Southbound	B	11.4	B	11.4	N/A	0
Eastbound	C	28.4	C	28.4	N/A	0
Intersection (Overall)	B	16.9	B	16.9	N/A	0
11th St (AM)						
Southbound	A	7.3	A	9.0	N/A	1.7
Westbound	C	30.2	C	30.2	N/A	0
Intersection (Overall)	B	12.2	B	13.6	N/A	1.4
11th St (PM)						
Southbound	A	9.1	B	12.0	A to B	2.9
Westbound	C	31	C	31.0	N/A	0
Intersection (Overall)	B	13.5	B	15.9	N/A	2.4

Source: Boswell Engineering 2012.

*All delay times in seconds

Eastbound 12th St and Westbound 11th street experience an LOS of C for both existing and proposed conditions. A potential solution to improve conditions on 12th St. are discussed on Slide 6.





Alternative 1: Existing Conditions

- No resurfacing or restriping
- 4 travel lanes (excess roadway capacity)
- Substandard angled parking width on east side
- Long and irregular pedestrian crossings
- Maintains existing on-street parking
- One lane becomes left turn lane at 11th Street



Alternative 2: Complete Street w/Conventional Bike Lanes

- Resurfacing and restriping
- Convert excess roadway capacity from 4 travel lanes to 2 travel lanes
- Low-cost curb extensions reduce crosswalk distances and improves pedestrian safety
- Upgrade substandard angled parking width and change to safer back-in angled parking with deeper width on east side
- Maintains existing on-street parking
- Space for cyclists created with clearly delineated bicycle lanes
- Striped median (low-cost) or curbed landscaped median (per funding availability)
- Street trees added (per additional funding availability)



Alternate 3: Complete Street w/Median Bike Lanes

- Resurfacing and restriping
- Convert excess road capacity from 4 travel lanes to 2 travel lanes
- Low-cost curb extensions (reduces crosswalk distances and improves pedestrian safety)
- Upgrade substandard angled parking width and change to safer back-in angled parking with deeper width on east side
- Maintains existing on-street parking
- Striped median (low-cost) or curbed landscaped median (per funding availability)
- Street trees added (per funding availability)
- Space for cyclists created with clearly delineated bicycle lanes that match up with 11th St
- Further study needed to determine feasibility of median-side bike lanes due to irregular 13th St intersection

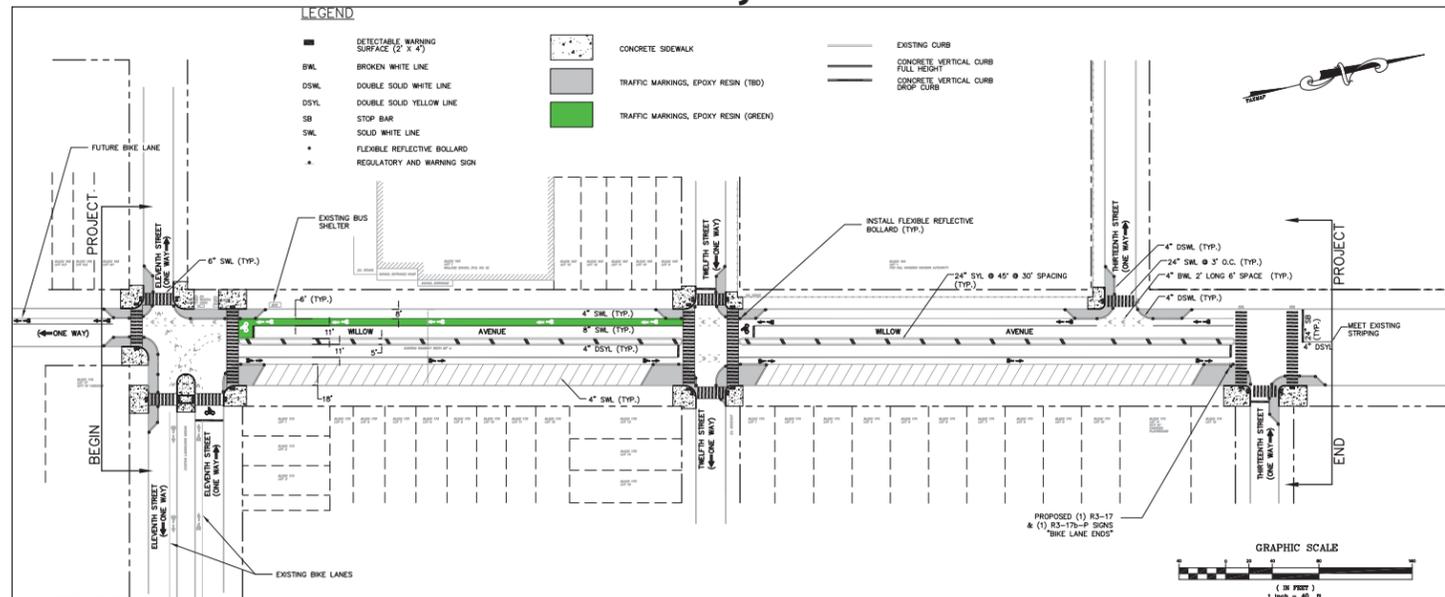


Alternate 4: Complete Street w/Shared Lanes

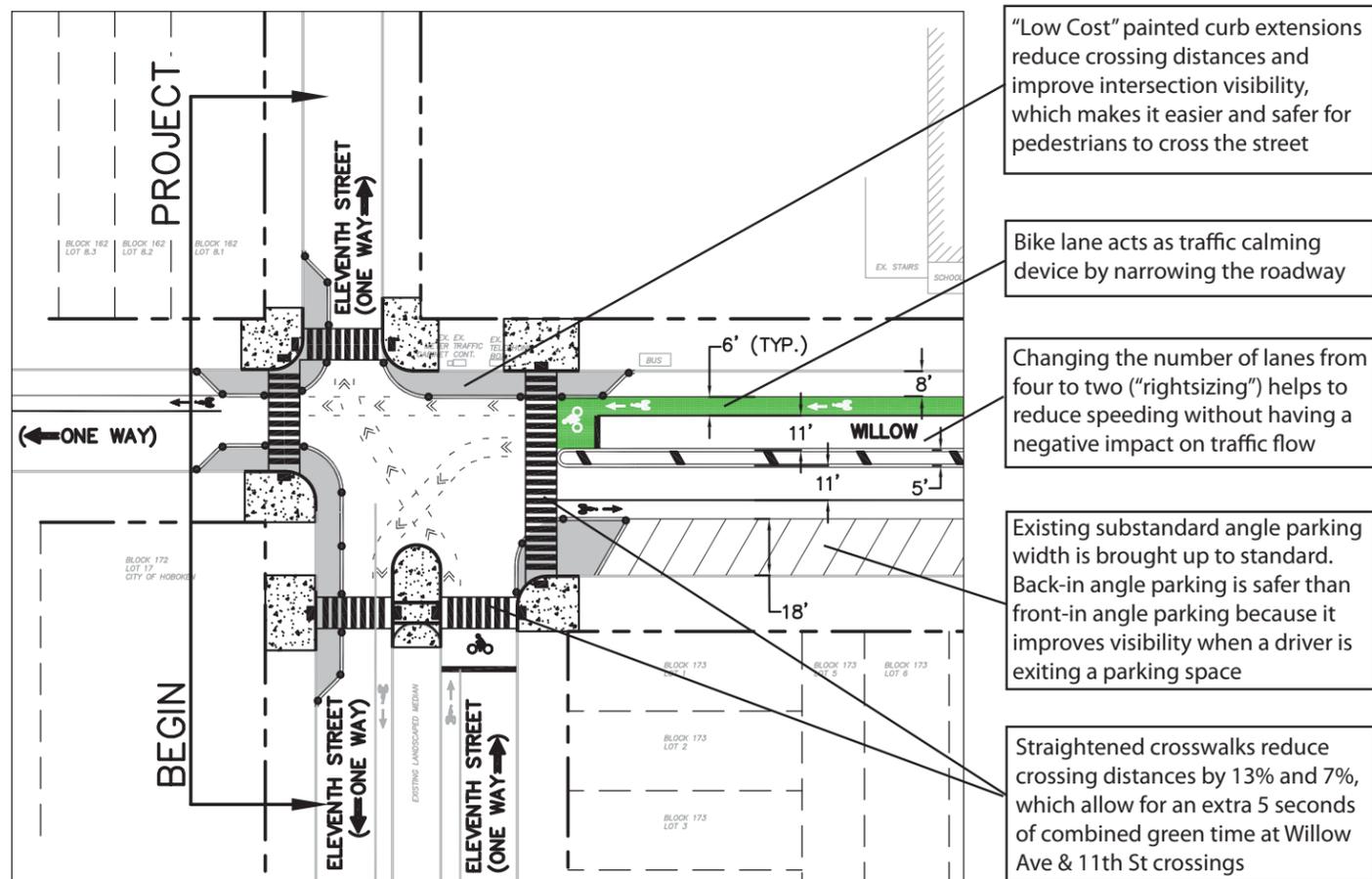
- Resurfacing and restriping
- Convert excess roadway capacity from 4 travel lanes to 2 travel lanes
- Low-cost curb extensions (reduces crosswalk distances and improves pedestrian safety)
- Upgrade substandard angled parking width and change to safer back-in angled parking
- Maintains existing on-street parking
- Shared bicycle/travel lanes (Sharrows) with buffer zones
- Landscaped median with trees (per funding availability)
- Street trees added (per funding availability)
- Left turn lane at 11th Street



Illustration of Alternative 2 for Entire Project Area



Below are various standard design elements included in Alternatives 2, 3, and 4. All resurfacing options will upgrade sub-standard angled parking and install pedestrian crosswalks and low cost curb extensions per current Hoboken standards..

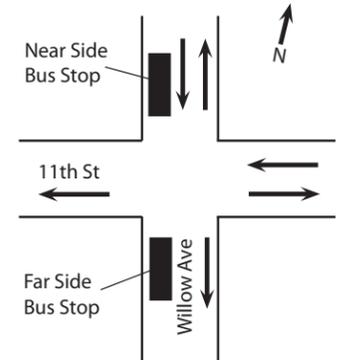


Additional School Zone and Circulation Improvements

The following design concepts do not depend on which typical section is adopted by the community. Please provide us with your comments and feedback for each.

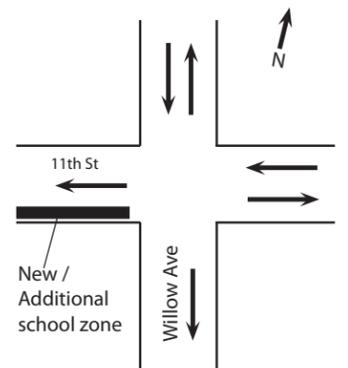
1) NJT 126 Bus Stop: Move to Far-side Corner of 11th St

- A "far-side bus stop" is a curbside passenger loading area located immediately past an intersection instead of immediately before an intersection (near side).
- Far-side bus stops are safer for bus passengers since they are more likely to cross behind the bus than in front.
- Buses clear the intersection before pulling into the stop, which improves traffic flow.
- Most bus stops in Hoboken are located at the far-side of the intersection
- Existing near-side bus stop overlaps with school zone.
- A far-side bus stop located on the SW corner of Willow Ave at 11th St would restrict on-street parking for 5 permit parking spaces during bus operation hours (6am-10pm).
- Change to bus stop locations must be approved by City Council.
- Further study is needed to determine feasibility.



2) Add New School Zone on 11th St

- Additional school zone on the south side of 11th St. may help alleviate double parking in front of Wallace School on Willow Avenue
- New school zone would restrict on-street parking on the south side of 11th St between Willow Ave and Clinton St during school hours (~7:00am to 4:00pm)
- Changes in on-street parking regulations must be approved by City Council
- Further study is needed to determine feasibility



3) Add left turn lane to 12th St at Willow Ave

- Left turn lane would increase queuing capacity for vehicles turning left from 12th St onto Willow Ave
- May improve Level of Service on 12th St at Willow Ave during peak periods
- Approximately 2-3 permit parking spaces would be permanently removed on the north side of 12th St between Clinton St and Willow Ave
- Must be approved by City Council
- Further study is needed to determine feasibility

