

PRIORITIZING PEOPLE ON BRADY

BRADY STREET PEDESTRIANIZATION STUDY

JUNE 23, 2023



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BRADY STREET TODAY

Brady Street, located in the Lower East Side neighborhood of Milwaukee, is home to some of the city's finest restaurants, shops, taverns, salons, cafes, and so much more! The street's historic Polish and Italian roots can be seen to this day.

By the 60's and 70's, hippie counterculture took over Brady Street, giving it the colorful, eclectic appearance it bears today. The Brady Street Festival started around this time with 20,000 attendees in 1974. Today, the Brady Street Festival is one of several exciting annual events such as the Spring Art Walk, the Pet Parade, Halloween, Festivus, and more every year! [BradyStreet.org/our-history]

Today, this thriving cultural environment is at odds with a dangerous traffic network and reckless driving. Several preventable injuries and fatalities along Brady Street have crystallized the need to improve safety for those who live, work, and play on Brady.

People

The neighborhood around Brady Street consists of a diverse population, old and new, that gives the area its distinct culture. Brady Street is a place for all ages, abilities, and backgrounds. The businesses on Brady share global flavors, style, entertainment, services, and connection with others. Brady Street is one of the few places in Milwaukee where buskers can be found invigorating the street. The neighborhood's diversity means it is active at all times of day and serves, residents, workers, and visitors alike.



^ Inclusive Storefront Signage



^ Street Festival Activities; Brady St BID



^ People Socializing on Brady St; Brady St BID

^ Northeast Corner of Brady St and Arlington Pl; TKWA



Streets

Brady Street is an east-west two-lane principal arterial street. Paid meter parking is permitted along most of the curb.

The MCTS Green Line bus route connects Bayshore Mall from Cambridge Avenue on the east and heads west to Water Street to downtown and the airport. There are four pairs of Green Line bus stops on or directly abutting Brady Street at Humboldt Avenue, Arlington Place, and Cambridge Avenue. The MCTS Route 14 also crosses Brady Street along N. Humboldt Avenue. Further west, the MCTS Route 15 crosses Brady Street along Van Buren Street.

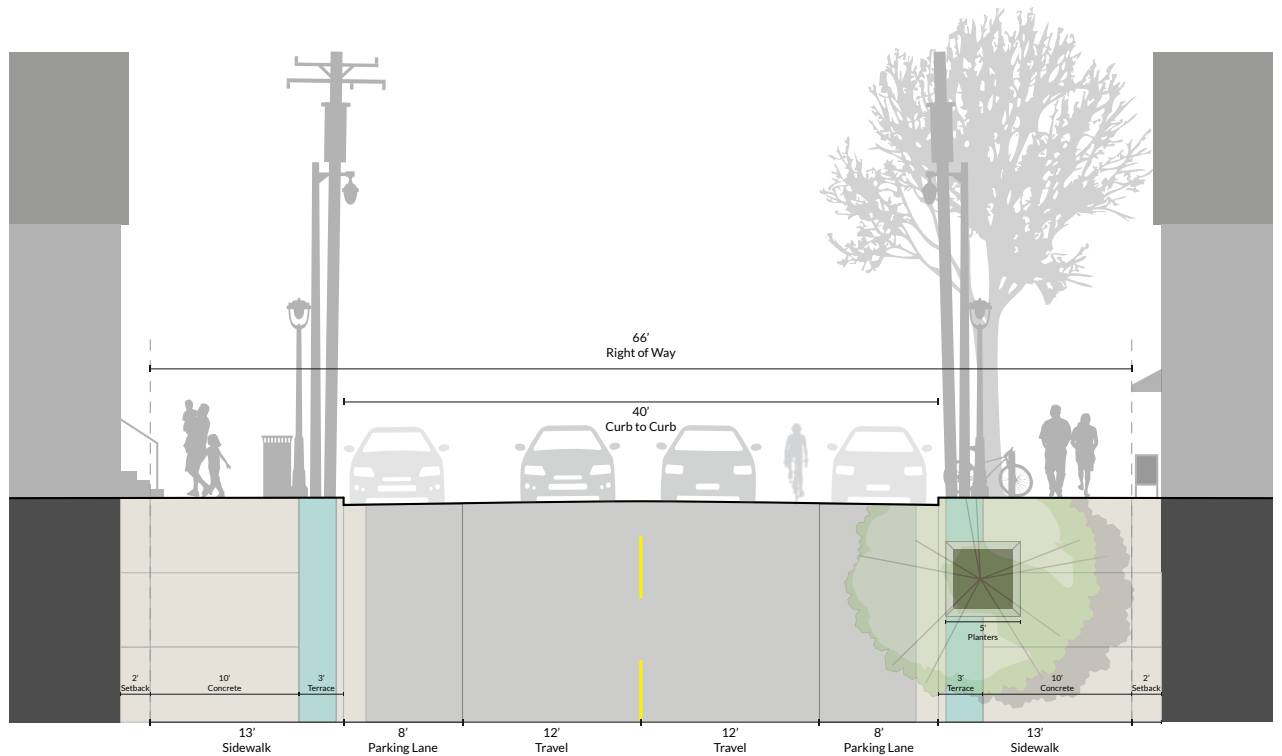
Brady Street is signed as a “Bike Route” and bicycles travel integrated with vehicle traffic. Brady Street connects to the Oak Leaf Trail on its eastern terminus at Prospect Avenue.

Brady Street connects west to Water Street where Swing Park, the Holton Street Pedestrian Bridge, The Beerline Trail, and The Milwaukee Riverwalk all connect.

Design

The roadway measures 40-foot curb to curb within a 66-foot Right-of-Way. Sidewalks are around 13 feet on either side of the street where parking exists, and buildings are typically set back 0-2 feet. At curb extensions, the sidewalk measures around 20 feet.

The streetscape is filled with an array of landscaping, street furniture, parklets, trash receptacles, minor encroachments, utility poles, street lights, bicycle parking, bike share stations, micromobility, and traffic and commercial signage.



Existing Cross Section - Brady Street Looking East

Brady Beach; TMJ4



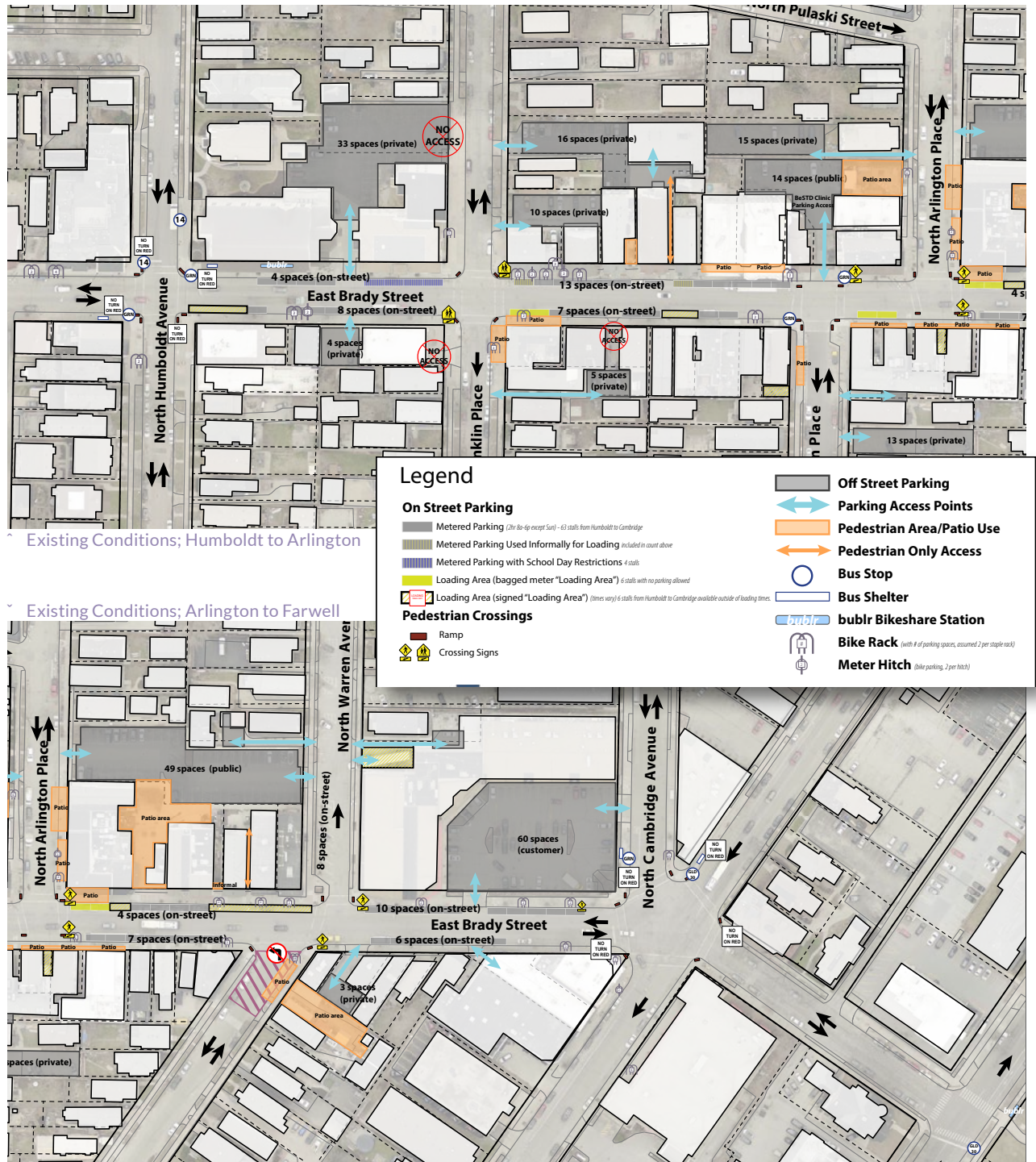
Storefronts on Brady St; TKWA
Traffic and Parking on Brady St



Traffic and Parking

Some complex roadway configurations interact with the four-block study area. The only connecting street that is two-way at right angles in all four directions is at Brady Street and Humboldt Avenue. The intersection with Franklin Place is two-way on the north but one-way southbound. The intersection with Arlington Place is two-ways in both directions, but offset. The south connection was recently converted to two-way from one-way southbound. The intersection with Warren Avenue is one-way northbound but two-way on the south at an angle parallel with Farwell Avenue and Prospect Avenue. The intersection with Cambridge Avenue is shared with Farwell Avenue. Farwell Avenue is one-way southbound from the north and to the south and Brady Street is angled perpendicular with Farwell Avenue east of the intersection but not west of the intersection. The intersections of Brady Street with Humboldt Avenue and Farwell Avenue are signaled.

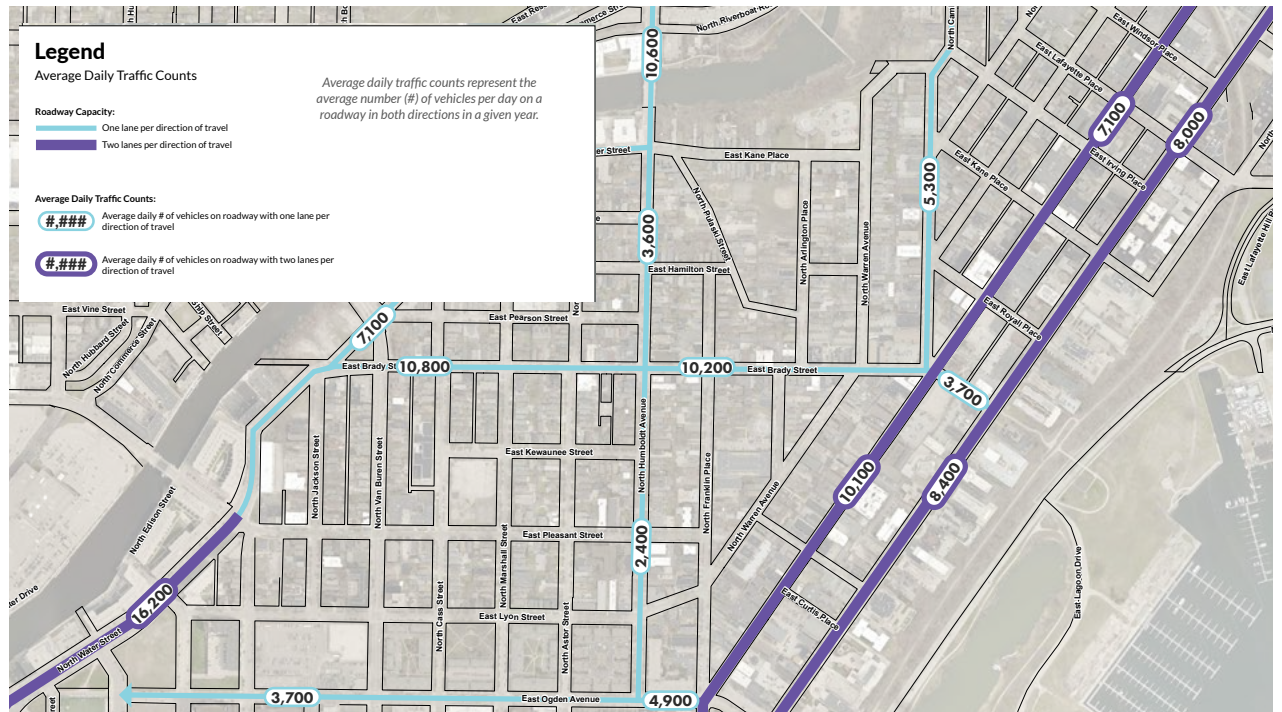
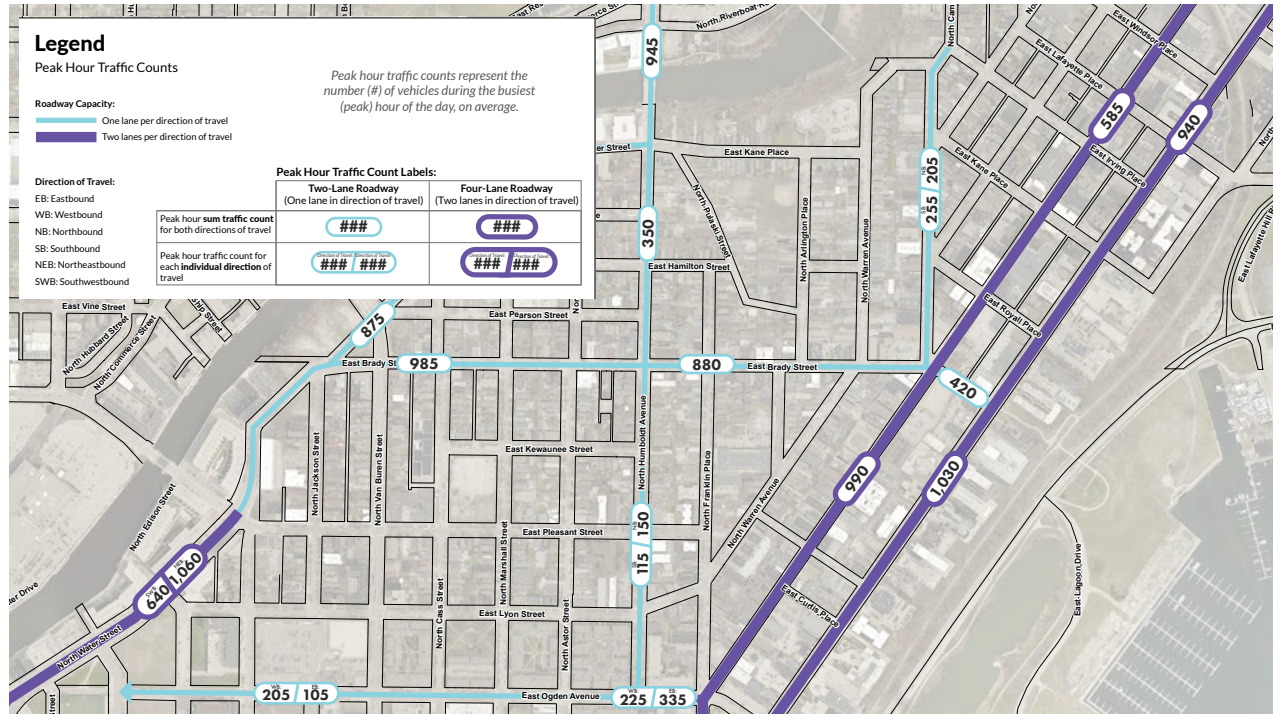
There exist 269 parking spaces within the four-block study area. 47 spaces are on-street public metered parking on Brady Street, 63 spaces are public parking lots, 60 spaces are customer only parking lots, and 99 spaces are private surface parking. An additional 10 on-street parking spaces become available at night when not restricted for other purposes such as loading or school use. The equivalent of 11 on-street parking spaces are permanently signed for loading at all times of day and not available for parking. Additional on-street public parking is available on all side streets connecting to Brady Street.



Traffic Volumes

The Annual Average Daily Traffic (AADT) volumes measure the total number of vehicles on a roadway per day. The Brady Street AADT can be compared to the AADTs of other similar streets to determine which roads may have excess capacity. In addition to the understanding the total daily volume, it's important to evaluate the peak hour directional volumes. Traffic volumes are not steady throughout the day so evaluating the highest volume time period provides a better measurement of excess capacity.

According to WisDOT historic volume data, the east end of Brady Street between Farwell Avenue and Humboldt Avenue carried 10,200 vehicles per day and 880 vehicles during the peak hour, or busiest time period in 2018. Other similar facilities with one lane in each direction carry much lower volumes over the entire day and during the peak hour, meaning they have excess capacity to accommodate additional traffic. These alternate routes include Ogden Avenue, Water Street, Humboldt Avenue, Farwell Avenue, and Prospect Avenue. North Avenue to the north of Brady Street is also an east-west corridor that could be used as an alternate route, although it does not have much excess capacity to absorb additional traffic.



Safety

The most recent available five-year crash history from January 1, 2017 to December 31, 2021 was reviewed. It should be noted that property damage crashes with less than \$1,000 of damage do not need to be reported in Wisconsin. The crash analysis review included all crashes on the Brady Street study area from Humboldt Avenue to Farwell Avenue, as well as the study intersection approaches.

There were 125 crashes within the project corridor during the study period. Of the 125 crashes, 59 occurred at one of the study intersections and 66 occurred outside of intersections. (See Table - right)

Segment crash rates are calculated in units of 100 Million Vehicle Miles Traveled (HMVMT) to account for the length of the study corridor. Intersection crash rates are calculated in units of crashes per million entering vehicles (MEV) to account for traffic volumes. Safety improvements should be considered when there is a specific crash pattern, the segment crash rate exceeds the statewide average, or the intersection crash rate is high. The segment crash rate is 2,654 crashes per HMVMT, which exceeds the statewide average urban corridor crash rate of 335.49 by over 7 times. The KAB (Type K, A, and B crashes) crash rate of 212 crashes per HMVMT also exceeds the statewide average urban corridor KAB crash rate of 39.27 by over 5 times. It should be noted that many of the urban corridors within the City of Milwaukee have segment crash rates that exceed the statewide average. However, the KAB crash rate for this corridor is also high, and the frequency of crashes involving vulnerable users such as pedestrians and bicyclists is also a concern.

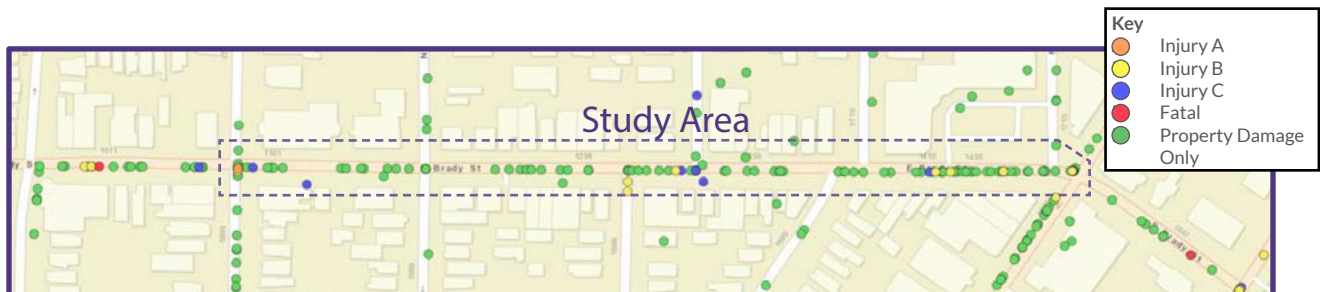
E Brady Street Segment	Location	Crash Severity					Total KAB Crashes	Total Crashes	Total Crash Rate (2015-2019)	KAB Crash Rate (2015-2019)
		Property Damage Only	Inj C	Inj B	Inj A	Fatal (K)				
N Humboldt Ave to N Farwell Ave	N Humboldt Ave	14	2	2	1	0	3	19	0.91 ⁽¹⁾	0.14 ⁽¹⁾
	N Franklin Pl	4	0	0	0	0	0	4	0.23 ⁽¹⁾	0.00
	N Arlington Pl	7	2	3	0	0	3	12	0.70 ⁽¹⁾	0.17 ⁽¹⁾
	N Warren Ave	3	0	0	0	0	0	3	0.17 ⁽¹⁾	0.00
	N Farwell Ave (STH 32)/ N Cambridge Ave	18	2	1	0	0	1	21	0.86 ⁽¹⁾	0.04 ⁽¹⁾
	Total Intersection Crashes	46	6	6	1	0	7	59	--	--
	Non-Intersection Crashes	61	2	3	0	0	3	66	--	--
Total Crashes		107	8	9	1⁽³⁾	0⁽³⁾	10	125	2,654⁽²⁾	212⁽²⁾

Crash Severity by Location (2017-2021): The table above summarizes the crashes along the entire corridor by location and severity and provides the total and KAB intersection and segment crash rates. The KAB crash rates summarize the number of high-injury-severity crashes that resulted in a fatality (Type K crash), incapacitating injury (Type A crash) and non-incapacitating injury (Type B crashes). Type C crashes involve minor injuries and Property Damage Only crashes do not involve any injuries.

1) Intersection Crash Rate based on Million Entering Vehicles (MEV)

2) Total Segment Crash Rate based on Hundred Million Vehicle Miles Traveled (HMVMT)

3) Data ends in 2021. There was an additional fatal pedestrian collision in the study area in 2022 and a severe injury in the study area in 2023. Just outside the study area, two additional fatal pedestrian collisions occurred at the intersections of E. Brady Street and N. Farwell Avenue and E. Brady Street and N. Prospect Avenue. See following page for details.



Crash Locations (2017-2021) Source: Tops Lab WisTransPortal; accessed June 1, 2023

Safety (continued)

Final crash data for 2022 and year-to-date crash data for 2023 has not been made available yet, so the data was not included in the study period. However, preliminary 2022 data reports 1 fatality, 1 Type A crash, 2 Type B crashes, as well as multiple Type C and PDO (Property Damage Only) crashes, and multiple pedestrian crashes, including a fatality. Year-to-date 2023 data includes multiple crashes involving pedestrians and severe injuries. While rear-end crashes are relatively common on urban corridors, the high volume of sideswipe crashes, angle crashes, and bike/ped crashes support the theory that the street is congested and complex and that reckless driving is a significant issue and the preliminary 2022 and 2023 data indicate that safety issues are continuing and intensifying.

The large number of crashes and injury crashes occurring within the relatively short corridor warrants discussion on potential countermeasures at and between intersections. Potential countermeasures for the study area are discussed below:

Potential Safety Countermeasures:

Removing on-street parking could reduce the congestion and complexity of operations on the corridor. Vehicles would not have to navigate around vehicle attempting to park, and there would be increased spaces for drivers and bicyclists. Additionally, removing on-street parking could improve visibility of pedestrians on the sidewalks, as well as of vehicles on the side-streets attempting to cross or turn onto Brady Street.

Improved high-visibility crosswalk pavement markings and signing can increase awareness and visibility of pedestrians at intersections or at mid-block crossings.

Limiting vehicle access on Brady Street to deliveries and loading, transit, and other special uses would significantly reduce the volume of vehicles on Brady Street. This would reduce congestion and the potential for crashes, and improve safety for bicyclists and pedestrians.

Adding pedestrian bump-outs at intersections and crosswalks can improve pedestrian visibility and shorten the crossing distance. It can also reduce the potential for vehicles to pass each other, which can result in sideswipe and angle crashes.

E Brady Street Segment	Location	Type of Crash								Total
		Head-On	Rear-End	Right-Angle	Left-Turn	Sideswipe	Single Vehicle	Pedestrian	Bicycle	
N Humboldt Ave to N Farwell Ave	N Humboldt Ave	2	6	6	0	0	1	1	3	19
	N Franklin Pl	0	0	2	1	1	0	0	0	4
	N Arlington Pl	0	0	4	2	1	0	4	1	12
	N Warren Ave	0	1	0	0	1	1	0	0	3
	N Farwell Ave (STH 32)/ N Cambridge Ave	3	4	5	1	6	0	2	0	21
	Total Intersection Crashes	5	11	17	4	9	2	7	4	59
	Non-Intersection Crashes	1	18	8	2	21	13	1	2	66
Total Crashes		6	29	25	6	30	15	8	6	125

Crash Patterns (2017-2021): The table above summarizes the collision patterns that occurred at the major intersections and along the corridor. The most common collision pattern through the study area was sideswipe crashes, with 30 occurring during the study period. Sideswipe crashes could involve vehicles trying to pass another vehicle waiting to make a turn, or colliding with vehicles attempting park. Rear-end crashes and right-angle crashes were the 2nd and 3rd most common type, with 29 and 25 crashes, respectively. A right-angle crash involves a vehicle from a side-street and a Brady St vehicle colliding. There were 15 crashes involving only 1 vehicle, such as hitting a fixed object and there were 14 crashes involving a pedestrian or bicyclist. While the bike/ped crashes are not the most common crash trend, they are the most concerning, as those can result in the most severe injuries.

Opportunities

Along Brady Street between Humboldt Avenue and Cambridge Avenue, there are several opportunities to create a pedestrian-first environment. This study investigates various alternatives to the current street design to improve safety, increase beautification, enhance commercial activity, and promote social and cultural connections.

The current design of Brady Street presents several issues: reckless driving, crashes, a dangerous environment for cyclists, missing crosswalks, impeded transit and emergency services by traffic and loading vehicles, overwhelming amounts of signage, driver confusion, errant navigation of one-way streets and restricted turns, and traffic noise.

This study seeks to turn these issues into opportunities through the street redesign into a vibrant, safe, and welcoming environment for all. Improving the issues stated above presents opportunities for improved neighborhood vitality, social connection, commercial vitality, beautification, visual impact, active transportation, traffic, driving experience, and operations and maintenance.

ISSUES



OPPORTUNITIES

CREATING A PEDESTRIAN-FIRST ENVIRONMENT

Prioritizing People on Brady explores options for “pedestrianization” on a portion Brady Street. While pedestrianization implies closing streets to all modes of transportation besides pedestrians, this study considers each mode of transportation individually to develop alternatives which create a space that is “pedestrian-first,” but introduces other modes in compatible ways that prioritize the safety and comfort of pedestrians to the maximum extent feasible. General traffic, transit, emergency vehicles, loading vehicles, bicycles, and micromobility are all considered and granted varying levels of access within each alternative.

Keys to Success

Successful pedestrian-first streets exist across the country, but many have historically been re-opened to personal vehicles for one reason or another. Those which have stood the test of time do so because they remain active, are well-programmed, meet the needs of users, connect popular destinations, and are well managed.

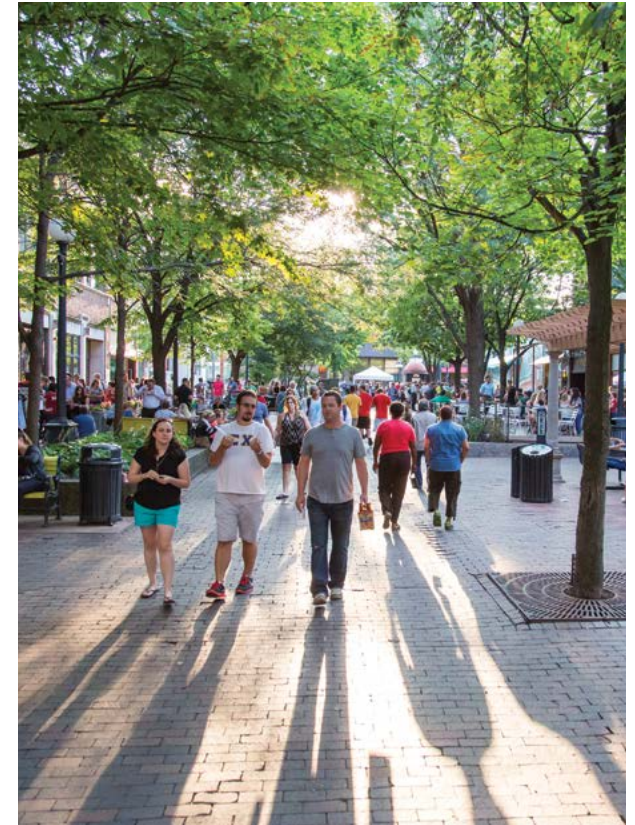
An additional key to success is ensuring access to the pedestrianized street. Successful pedestrian-first streets include nearby public parking facilities, rideshare drop-off zones, and transit access.

Who is it for?

The concept is designed to provide benefits to all users of the street, but successful pedestrianized streets tend to emphasize access to populations most likely to choose to walk, take transit, bike, and get around without a car. This includes everybody; because everyone is a pedestrian at some point, but frequently includes college students, teens, tourists, older adults, active adults, nearby residents, cyclists, transit and micromobility users, low income individuals, and more.

Pedestrian streets tend to support commercial uses. Active retail frontages, entertainment venues, tourist attractions, cultural amenities, and public places are all uses which can promote the consistent activation of a pedestrian-first space. With attractive, active uses, a pedestrian street can support the number of people on the street needed to ensure the sufficient use of the space. These pedestrian volumes are necessary to ensure that businesses have enough customers to stay open, to make people feel safe while on the street, and to promote the cultural and social vibrancy needed to steward the space itself.

Since the COVID-19 pandemic, businesses have increasingly made use of their outdoor space for customers. While this was first done out of necessity to ensure the safety of patrons shopping and dining out, it has since sparked a vibrant trend of activating the street and making the best use of limited space. The most characteristic transformation of the street to vibrant commercial uses has tended to come in the form of transitioning public on-street parking for private car storage to an outdoor cafe seating area. For many restaurants, the prospect of trading one or two parking spaces for dozens of seats in a restaurant became a prudent business decision.



^ Iowa City Ped Mall; Corridor Business Journal

^ Argyle Street, Chicago; Streetsblog Chicago



What does it connect?

To attract pedestrians to a street, it is better to connect multiple major destinations rather than relying solely on people visiting a pedestrian street as their primary destination. For example, a pedestrian street which connects a popular park on one end and a college campus on the other will benefit from the pedestrian traffic between these destinations. The more major destinations to which a pedestrian area connects, the more people will end up using the area and discover destinations within the area. Further, if these major destinations generate foot traffic at different times of day, for diverse groups, and for a variety of users, then a critical mass of people is possible which can create a vibrant multi-use district.

Brady Street connects and provides access to several major destinations for diverse groups at different times of day. Along Brady Street, there are connections to UWM, MSOE, the Lakefront, the Beerline Trail and Oak Leaf Trail, the Riverwalk, East Town, shuttles to sporting events and more. Beyond this, Brady Street itself acts as a major destination offering retail, services, and entertainment of all kinds. Events on Brady Street draw thousands of people, and the street has a strong reputation for its cultural vibrancy and offerings.

How does it work?

There are various models for pedestrianized and “pedestrian-first” streets. Most allow for, at a minimum, emergency vehicles, waste disposal, and loading. Others also introduce transit and bike access and/or limited personal vehicle access via permitting. Entry to these areas is often signed and/or includes



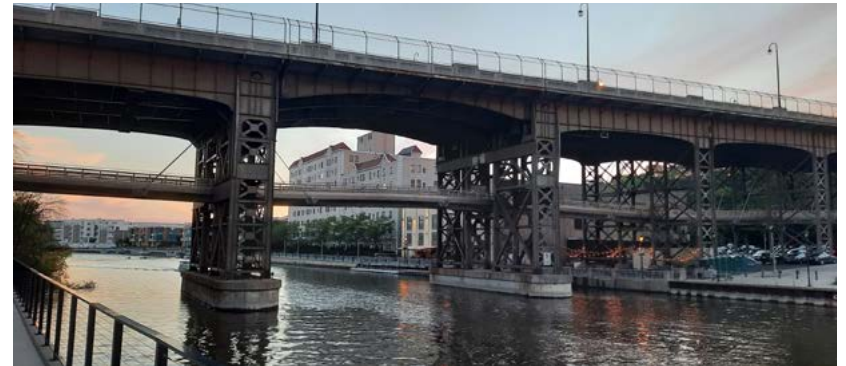
^ Brady St Bridge connection to the Lakefront; Bloom Companies LLC



^ Shuttle Bus on Brady Street Connecting the Street to Major Events; Wurstbar Milwaukee



^ Brady St Branded Signage

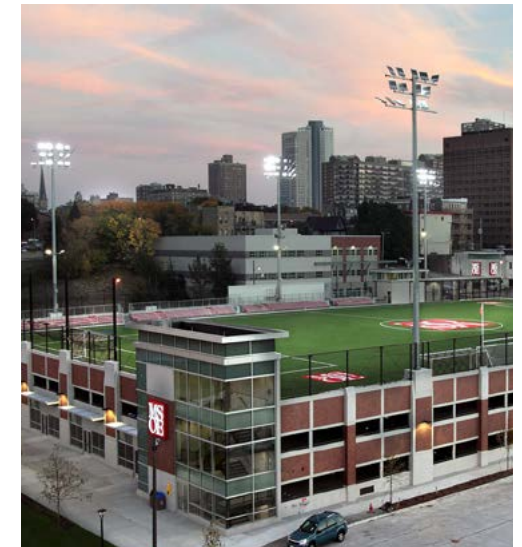


^ Holton St Pedestrian “Marsupial” Bridge Connecting Brady St Across the Milwaukee River to the Riverwalk and Beerline Trail

^ Southwest Corner of Brady St and Arlington Pl; TKWA



^ MSOE Campus Viets Field; MSOE



barriers. Access control can include a variety of hands-on or hands-off approaches. The more complicated access control is, the more likely it is to require staffing, enforcement, and public education. For example, if a pedestrian street is closed at certain times of day or during certain times of year, people are often needed to place barriers, post signage, or guard entries to ensure only permitted vehicles are allowed. Further, a pedestrian-first street which allows some motor vehicles but not others must somehow distinguish between the two and limit access. The more complex the distinction between allowed and restricted vehicles, the more effort is needed to manage access.

The alternatives in this study have been designed to minimize the need for complex access control management and enforcement so that it is clear to users who should and should not be allowed. Therefore, temporary and seasonal closures are not explicitly considered on Brady Street. Further, access for general motor vehicle traffic between alternatives is either full access or restricted with minor allowances for essential vehicles and transit.

How does it look?

Pedestrian-first environments include an array of streetscaping, pavement design, landscaping, and other aesthetic features that distinguish them from a typical street. Oftentimes specialty pavement, street furniture, trees, lighting, lawn games, bollards, and more are included in pedestrian-first environments to clearly communicate to motorists that it is a different kind of space.



~ Raised Intersection - State Street Tosa Village; GAI Consultants



~ Shared Street - Argyle Street, Halifax; Fathom Studio



~ East 4th Street - Cleveland, OH; East4thstreet.com

Case Study: State St.

Madison, WI

State Street is a well-known destination to Wisconsinites. Famous for its pedestrian mall linking the State Capitol to the University of Wisconsin-Madison, the automobile-free zone stretches nearly three quarters of a mile and is home to numerous restaurants, bars, retail shops and other attractions.

The street's transformation began in the early 1970's as a response to the proliferation of suburban shopping malls. Downtown Madison, like nearly all of its peers across the country, struggled to compete with the new retail paradigm. City officials adopted a pilot program in the early 1971 that would close a portion of the street to vehicular traffic. The pilot's success paved the way for full pedestrianization, with full street re-construction commencing in 1974.

Four lanes of vehicular traffic were reconfigured to prioritize pedestrians, cyclists and transit users. The street's 66ft right-of-way includes a 24ft vehicular roadway flanked by 19ft sidewalks, highly amenitized with street furniture, sidewalk cafes, public art, trees and lighting.

Sidewalks are for pedestrian traffic only and the roadway allows for bicycles and pedestrians. Vehicular access is restricted within the roadway to metro buses and limited, authorized motor vehicles (emergency, governmental, utility, delivery, licensed taxi cabs for request service).

The street's maintenance is an ongoing collaboration between the City and Madison's Central Business Improvement District. The BID contracts with the City for garbage and snow removal.

Land use along State Street is comprised mainly of ground-floor retail, dining, drinking, and entertainment establishments. Upper floors generally consist of employment, residential and additional retail spaces.



State Street in Madison, WI
Signage on State Street for transit and bikes



Access control signage on State Street



Streetscaping and signage on State Street



Case Study: Church St.

Burlington, VT

Church Street Marketplace in Burlington, Vermont is located in the heart of downtown and is a major destination for both visitors and locals. It attracts an estimated two million visitors per year because of its vibrant shops, galleries, restaurants and pedestrian centered environment. Church Street is a 4 block long pedestrian mall closed to traffic, even bikes, with the exception of delivery and emergency vehicles.

In 1962 Church Street, then filled with car traffic, closed two blocks to cars for a street festival for proof of concept of a fully pedestrian street. It gained the support it needed for a public vote. The first two blocks were constructed between 1980-81. In 1995 the 3rd block was closed to traffic and added to the pedestrian mall. In 2005 the 4th block was closed to traffic and resurfaced to reach the 4-block pedestrian zone we see today.

The street has a 60ft right-of-way and is curb-less. Brick pavers in varying designs cover the length of the street. The two central intersections ramp down to street level to allow buses to pass through. The 18' wide sidewalks, delineated with pavers, stay clear for pedestrian circulation. The 24' wide center portion is both for the movement of people and to host events, amenities, markets, street performers and festivals.

Most visitors access the location on foot or bicycle. For visitors traveling by car there two municipal parking garages and side-street parking. The city offers free parking for employees of businesses on Church Street in the downtown garage located a few blocks away. This guarantees employees a space while freeing up parking spaces in the Marketplace Garage, with direct access to Church Street for visitors.

When the pedestrianization process took place, the original asphalt was replaced with brick pavers to delineate it from the space occupied by cars. These pavers are more costly to maintain than typical asphalt and can provide additional obstacles of repair and stormwater management. The Department of Public Works is responsible for some of the maintenance; however, the design creates challenges which require more work and additional revenue.



Church Street; Carolina Planning Journal
Church Street; NothingFamiliar.com



Church Street; NothingFamiliar.com



Church Street; NorthStarLeasing.com

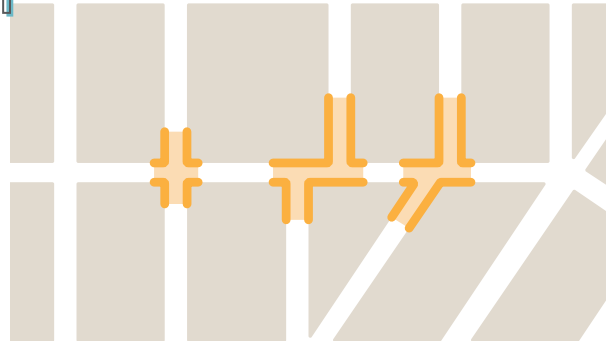


PRIORITIZING PEOPLE ON BRADY

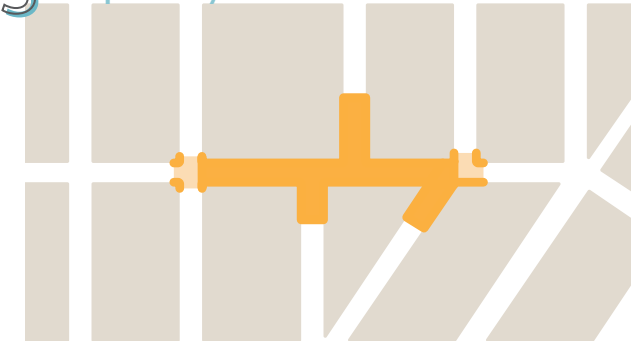
This study includes four alternatives for creating a pedestrian-first environment. The alternatives range from treatments that maintain access for all modes of transportation including personal vehicles to treatments that limit access to transit, loading, and emergency vehicles only to pedestrianize the space.

The project limits are four blocks of Brady Street between Humboldt Avenue to the west and Cambridge and Farwell Avenues to the east. Alternatives include options to treat the entire four block stretch and options to treat the middle two blocks from Franklin Place to Warren Avenue. In some alternatives, treatments extend north and south from Brady Street partially onto adjoining streets.

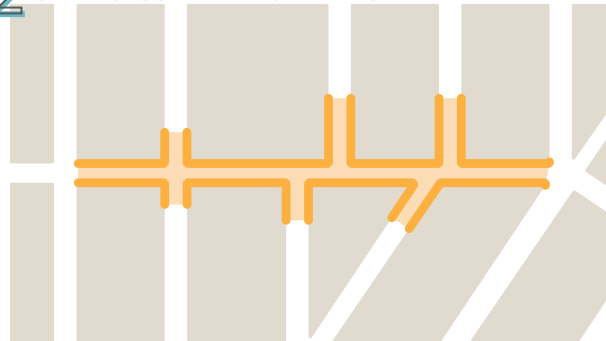
1 Slow & Safe: Enhanced Intersections



3 People Only: Enhanced Corridor



2 Slow & Safe: Enhanced Corridor



4 People Only: Hilltop to Lakefront

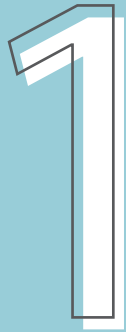


^ Slow & Safe Alternatives

- Full Access for All Users
- Speed Table and Crossing Enhancements
- Traffic Calming and Speed Reduction

^ People Only Alternatives

- Limited Access
- Expanded Pedestrian Space
- Traffic Rerouting



Slow & Safe: Enhanced Intersections

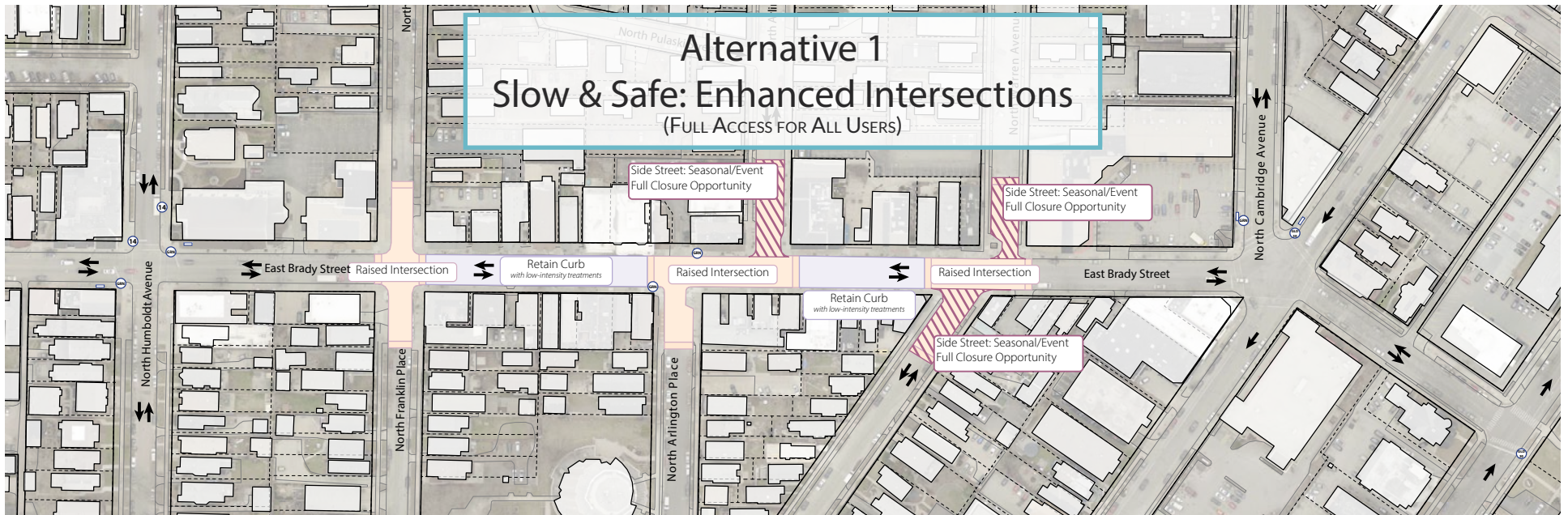
(Full Access for All Users)

Speed tables at three intersections with Brady Street, Franklin Place, Arlington Place, and Warren Avenue would serve to reduce speeding and reckless driving within the “core” of the Brady Street commercial district. Each intersection would elevate motorists to the level of pedestrians, creating a noticeable change and signaling to motorists they have entered a different type of space.

The speed tables are designed to extend north and south partially along side streets. Each of these extensions serves the dual purpose of placemaking in addition to speed reduction. The extensions of the speed tables create plaza-like spaces along each side street that can be closed for events.

Traffic, transit, and access would not change in this alternative. Full access for all vehicles is permitted. Minimal on-street parking spaces would be removed at intersections.





BENEFITS

Safety

Intersections act as “speed tables,” forcing speed reduction and encouraging motorists to yield to pedestrians.

Neighborhood Vitality

Raised tables create an improved space for seasonal closures and encourages walkability. Curbless intersections improve accessibility.

Commercial Vitality

Businesses retain current visibility to traffic. Speed reduction decreases noise to enhance customer experience.

Visual Impact

Crossings are highly visible, distinguished, and pedestrians have an elevated vantage point to see oncoming vehicles.

Bike/Transit

Reduced traffic speeds increases comfort for bikes. Aesthetically improved transit experience.

Traffic

No change to traffic. No interventions are needed to redirect vehicles. No motorist education and wayfinding are required.

Parking

Minimal on-street parking spaces would be removed at intersections.

Operations & Maintenance

Minimal ongoing maintenance costs compared to existing conditions.

Slow & Safe: Enhanced Intersections

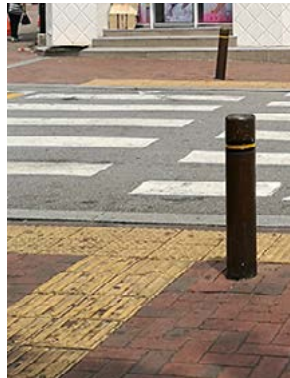
(Full Access for All Users)

Raised intersections will help reduce speeds and reckless driving if Brady Street is maintained as a thru street. While the corridor should avoid an overwhelming amount of signage, strategic use of signage to inform motorists of safety interventions and the proper speed to travel may improve implementation. Bollards and painted arrows can alert motorists that they are driving through a pedestrian-first environment and should use caution.

Speed Table Signage; Daily Journal



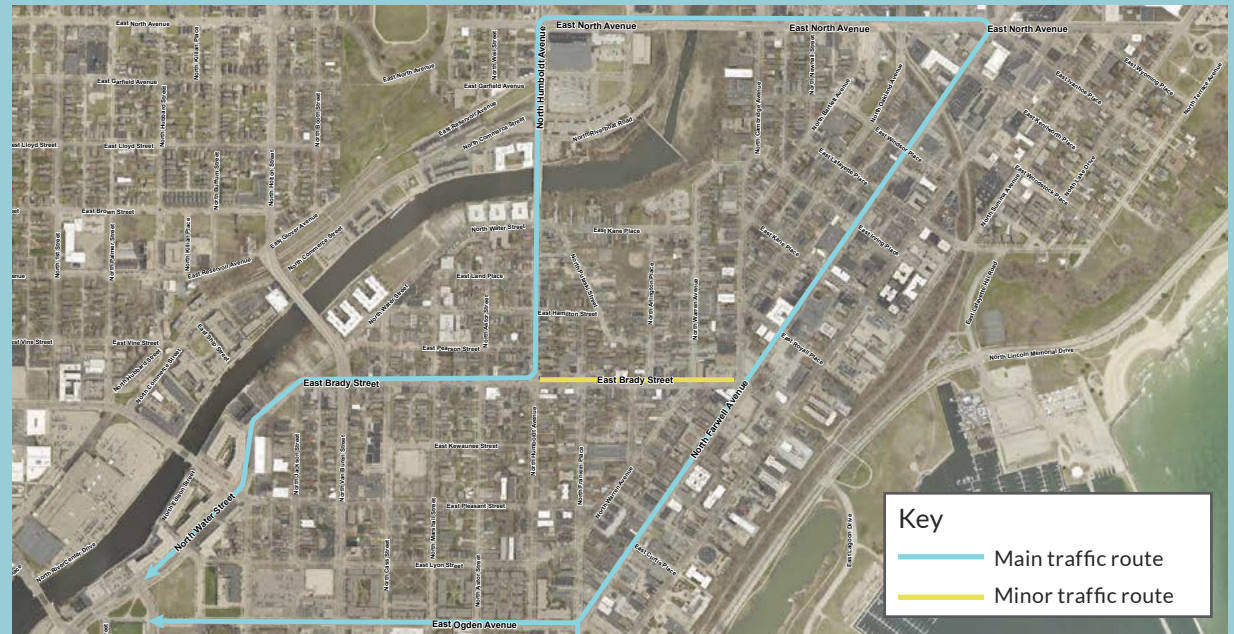
Bollards; Far East BRT



Raised Crossing; NYC Street Design Manual



Traffic



Given that this alternative maintains full access for all users, traffic impacts are expected to be minimal.

Minor Vehicle Diversion: The treatments that are intended to increase the “pedestrian-first” nature of the street, such as the raised crosswalks, may impact motorist behavior and reducing speeds. These treatments may make the street a less desirable route for commuters, encouraging diversion to alternate routes. A slight reduction in traffic volumes may result.

Improved pedestrian awareness and visibility: Raised intersections may provide better visibility of pedestrians and create more awareness for motorists that pedestrians may be present.

Speed Reduction: Speeds may decrease due to the raised intersections. However, inappropriately placed speed tables may increase speeds as motorists are regularly

accelerating and decelerating, racing to the next table. Signage and pavements markings should accompany any raised intersections to reduce potential for rapid acceleration departing a raised intersection.

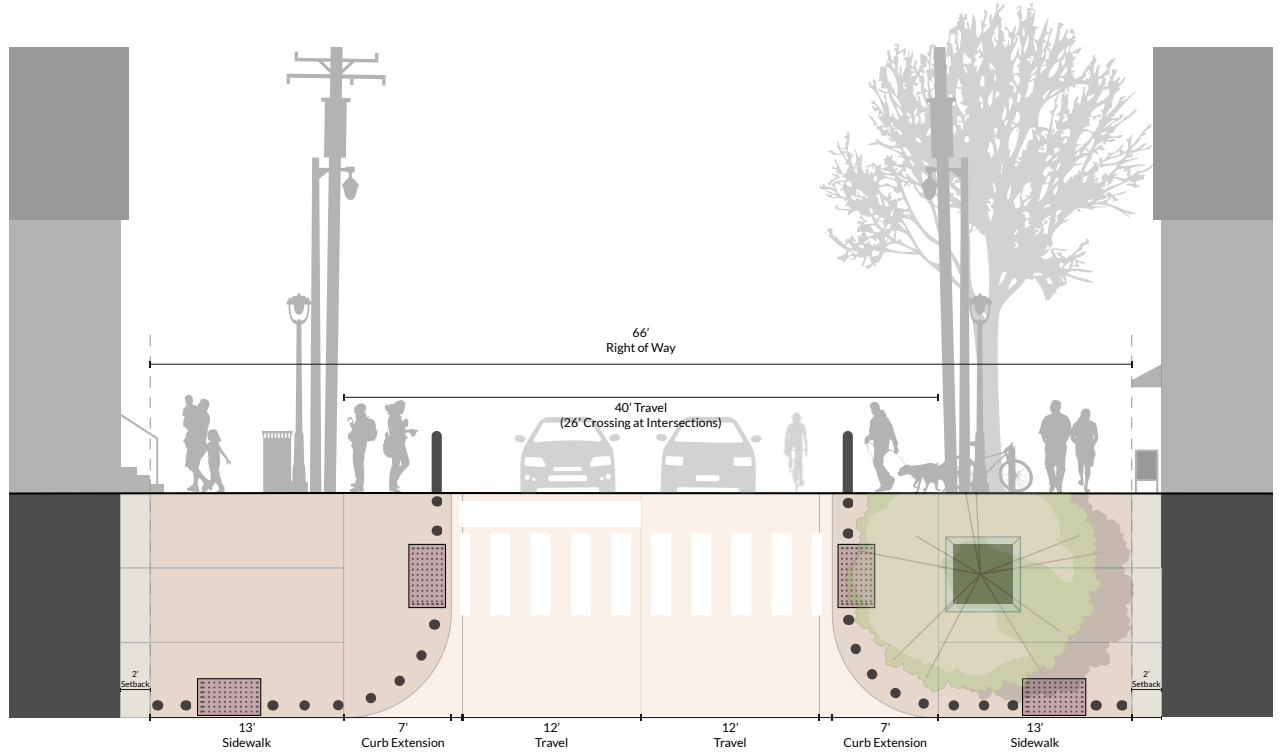
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Slow & Safe: Enhanced Intersections (Full Access for All Users)

~ Raised Intersection Diagram; NACTO

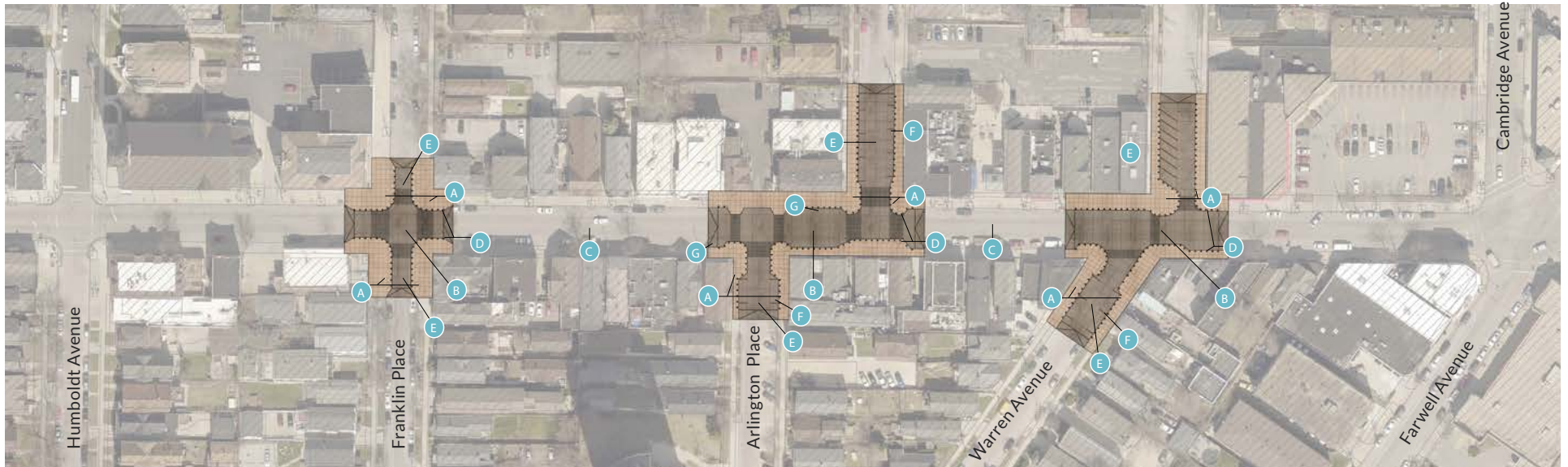


~ Eugene, Oregon Raised Intersection; NACTO



Slow & Safe: Enhanced Intersections

(Full Access for All Users)



Alternative 1 Conceptual Streetscape Design

Details: (bulleted details not identified on map)

Access: Full Access

- Humboldt to Farwell: all users, general traffic allowed.

Roadway/Sidewalk Design

- A. Sidewalk reconstruction with complementary paving design with roadway paving design.
- B. Raised intersections at Brady Street and Franklin Pl, Arlington Pl, and Warren Ave. Raised intersections are flush with the sidewalk and ensure that drivers traverse the crossing slowly. Crosswalks do not need to be marked unless they are not at grade with the sidewalk. ADA-compliant ramps and detector strips are always required. Decorative pavement (pavers, concrete block, concrete scoring, etc.) is shown for both roadway and pedestrian spaces.

- C. Standard curb with low-intensity treatments between raised intersections.
- D. Bollards (typical) along sidewalk edges on raised intersections. Bollards along corners keep motorists from crossing into the pedestrian space and protect pedestrians from errant vehicles.
- Curb extensions are shown at all existing pedestrian crossings. Curb extensions increase the overall visibility of pedestrians by aligning them with the parking lane and reducing the crossing distance for pedestrian.

Social Activity

- Additional sidewalk seating, dining, and landscaping is focused at intersections, especially where new curb extensions are proposed.

- E. The extensions of the speed tables along each side street create plaza-like spaces that can be closed for events.

Parking

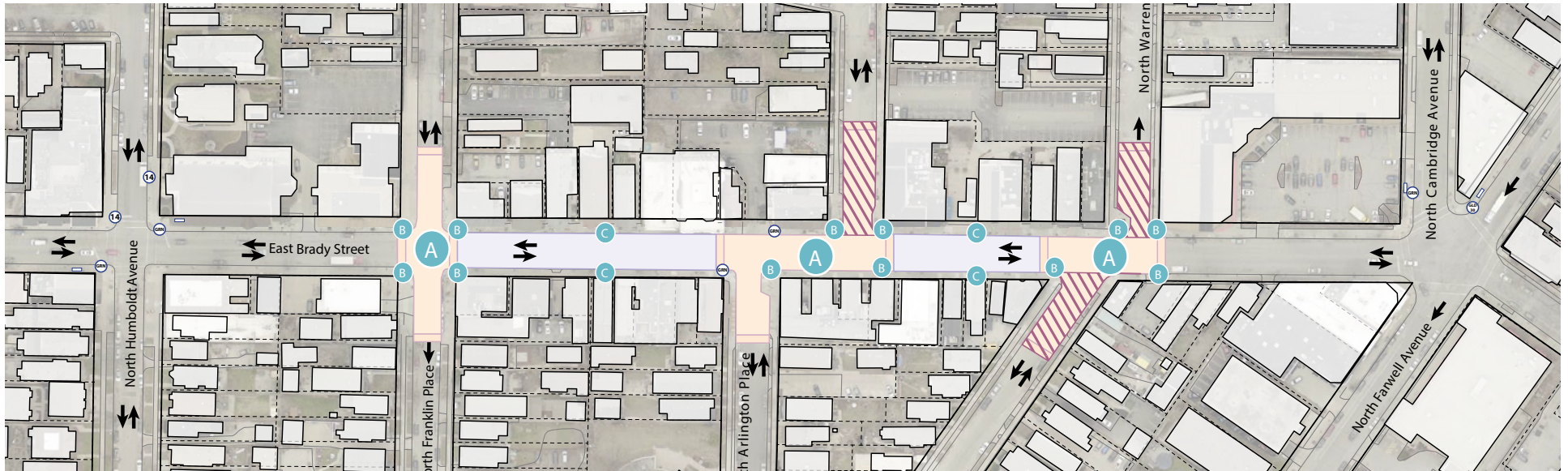
- F. Retain parallel parking. Loss of 6 existing on-street parking stalls.

Bike & Transit

- G. Bus stop areas where current bus stops exist. Existing bus stop locations at Arlington Place may need to shift in order to accommodate new curb extensions. Configuration of stops as in-line versus pull-over should be explored.
- Existing shared bike/travel lanes configuration remains.

1 INTERIM DESIGN OPTIONS

Slow & Safe: Enhanced Intersections (Full Access for All Users)

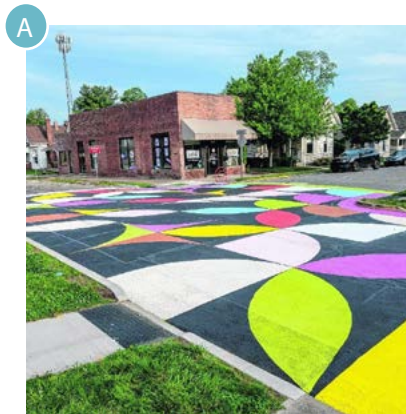


@SharedSpacesSF via Twitter

Interim Design

Prior to final design and construction, short-term improvements can provide some of the project benefits.

Alt 1 focuses on enhancing safety and appeal at intersections. A combination of painted and surface level improvements are possible. Painting intersections provides some of the visual impact of speed tables, but less speed reduction. Painted or pin-on curb extensions can reduce unprotected crossing distances for pedestrians before permanent curb extensions are installed. Other improvements like furnishing and plantings can further improve the streetscape, but a limited amount is possible without increases to the available pedestrian space.



A. Painted Intersections



B. Interim Curb Extensions

- i. Paint-and-Post
- ii. Pin-on concrete



C. Strategic Streetscaping

- i. Outdoor furniture
- ii. Movable Planters/Pots

2

Slow & Safe: Enhanced Corridor

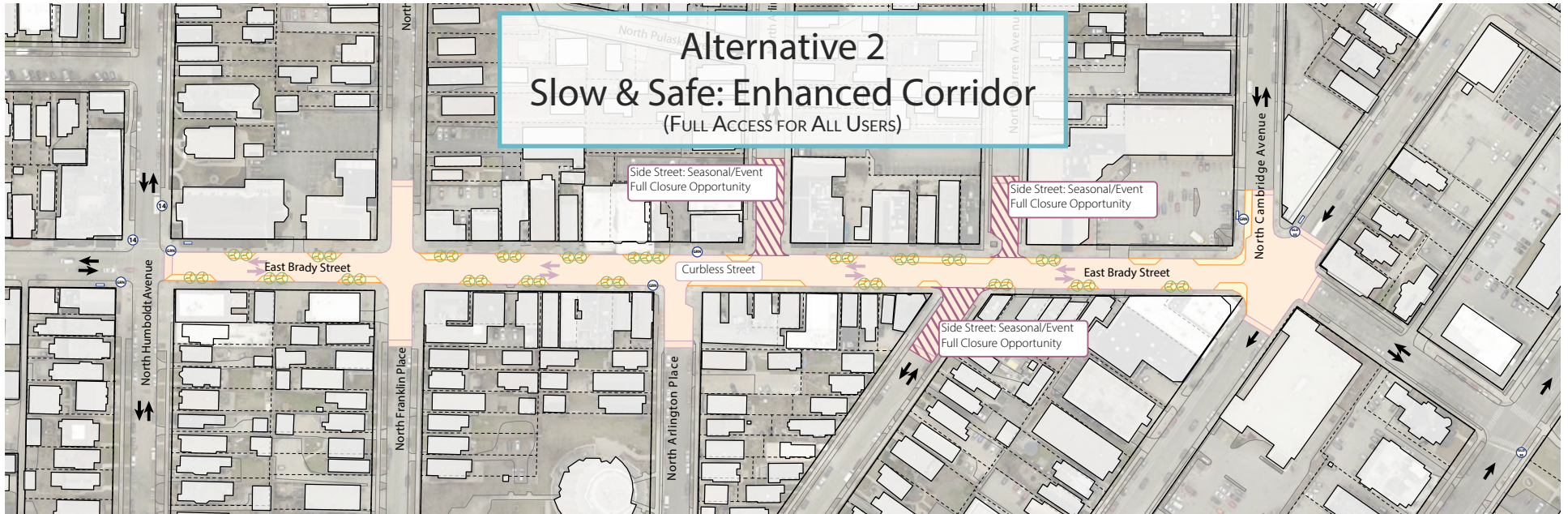
(Full Access for All Users)

Transforming the entire stretch of Brady Street between Humboldt Avenue and Farwell Avenue creates a four-block curbsless (or low curb) environment. Entry into the space from all directions includes a “speed table” element that transitions the roadway into a shared street. Redesigned parking and curb extensions would serve to constrain the roadway, further reducing travel speeds and reckless driving and expanding the amount of space entirely dedicated to pedestrians.

The curbsless street is designed to extend north and south partially along side streets. Each of these extensions serves the dual purpose of placemaking in addition to speed reduction. The extensions create plaza-like spaces along each side street that can be closed for events.

Traffic, transit, and access would not change in this alternative. Full access for all vehicles is permitted. Up to 50% of on-street parking spaces would be removed along corridor.





BENEFITS

Safety

Removing select on-street parking may reduce the number of sideswipe crashes that are prevalent along this corridor.

Neighborhood Vitality

The design further enhances Brady Street's cultural identity. The entire street is improved for events and temporary closures. Combined with traffic calming measures, restricting select private access drives may deter car-driven drug activity.

Commercial Vitality

Increased space is created for business activities on sidewalks (formal and incidental). Businesses

retain current visibility to traffic. Increased appeal of entire corridor with full redesign.

Visual Impact

New streetscaping for entire street increases district appeal. Design creates opportunities for a variety of high-quality aesthetic enhancements.

Traffic

No change to traffic. No interventions are needed to redirect vehicles. No driver education and wayfinding are required.

Bike/Transit

Reduced traffic speeds increases comfort for bikes. Aesthetically improved transit experience.

Traffic

No change to traffic. All traffic calming comes from street design. No need for wayfinding.

Parking

Increases safety and experience of parking with re-allocation of select on-street spaces with pedestrian bump outs.

Slow & Safe: Enhanced Corridor

(Full Access for All Users)

An enhanced corridor which becomes more like a shared street than a main traffic route during times with high pedestrian volumes can provide a safe, low speed environment with the right driver education. A curbless (or low-curb) environment with enhanced paving will help to communicate the street is pedestrian-first, and signage can be used at transition points when entering the corridor. Speed table elements act as a physical signal to motorists to slow down.

Shared Street Signage; Denver's Perfect 10



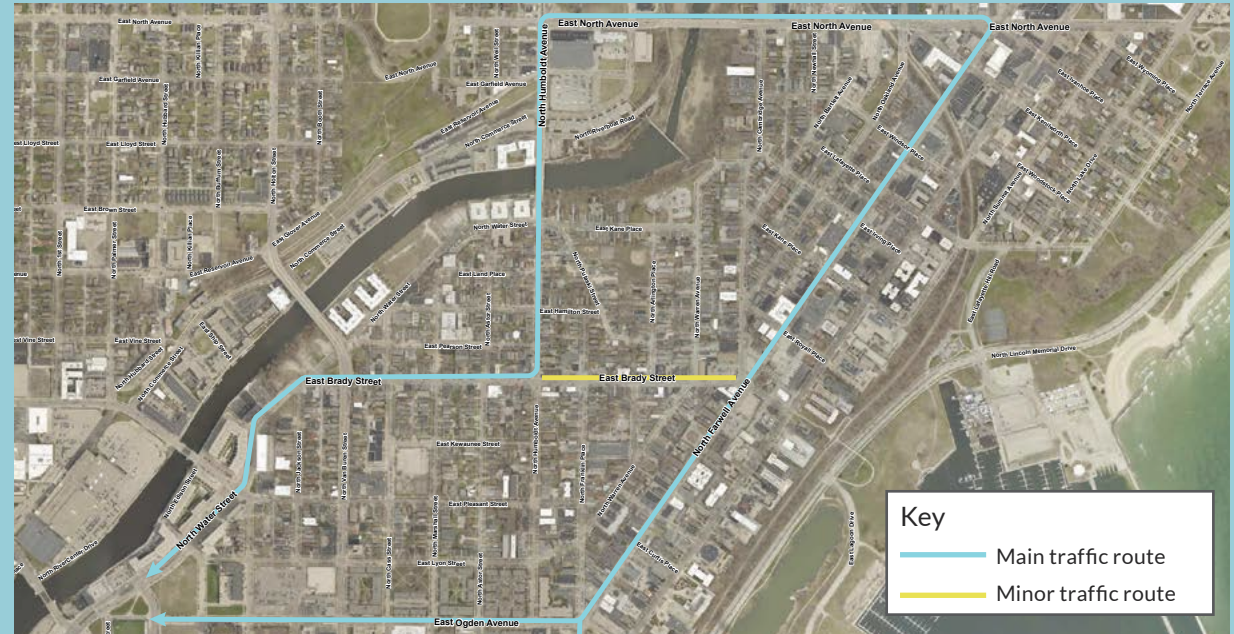
Shared Street Signage; Active Transportation Alliance



Shared Street; Streetsblog Chicago



Traffic



Given that this alternative maintains full access for all users, traffic impacts are expected to be minimal.

Minor Vehicle Diversion: The curbless environment can make the street less desirable for commuter traffic, as it's clearly a pedestrian-first environment, impacting motorist behavior and reducing speeds. These treatments may make the street a less desirable route for commuters, encouraging diversion to alternate routes. A slight reduction in traffic volumes may result.

Improved pedestrian awareness and visibility: The curbless environment may make motorists more aware of pedestrians. Removal and replacement of select on-street parking with sidewalk extensions/seating areas may also provide better visibility of pedestrians and create more awareness for motorists that pedestrians may be present.

Safety: Removing select on-street parking may reduce the number of sideswipe crashes that are prevalent along this corridor.

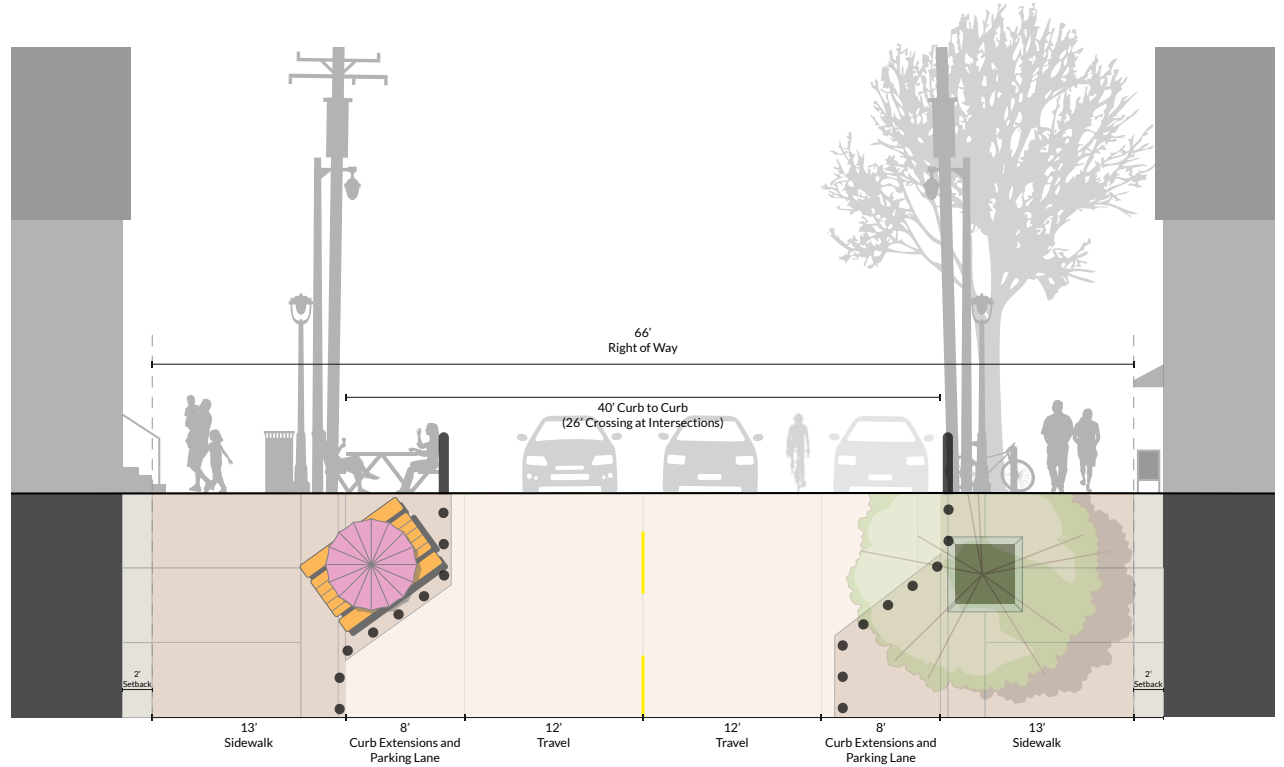
2

Slow & Safe: Enhanced Corridor (Full Access for All Users)

State Street Tosa Village - Full access with curbless design



Argyle Street Halifax- Full access with curbless design



2

Slow & Safe: Enhanced Corridor (Full Access for All Users)



Alternative 2 Conceptual Streetscape Design

Details: (bulleted details not identified on map)

Access: Full Access

- Humboldt to Farwell: all users, general traffic allowed
- A. School drop-off zone to remain.
- All existing off-street parking access to remain except old fire station.

Roadway/Sidewalk Design

- B. Sidewalk reconstruction with complementary paving design with roadway paving design
- C. Bollards (typical) along sidewalk edges keep motorists from crossing into the pedestrian space and protect pedestrians from errant vehicles.
- Entire corridor from Humboldt to Farwell is reconstructed with a curbsless (tabletop or reduced curb) configuration with decorative pavement (pavers, concrete block, concrete

scoring, etc.) for both roadway and pedestrian spaces.

- Crosswalks do not need to be marked unless they are not at grade with the sidewalk. ADA-compliant ramps and detector strips are always required.
- Curb extensions are shown throughout the corridor to decrease overall roadway width and commit more visual area to pedestrian space for seating, landscaping, amenities. Narrower roadway at Franklin Pl southbound to begin one way.

Social Activity

- D. Additional sidewalk seating, dining, landscaping (4" curb planters) is included at curb extensions.
- E. The extensions of the curbsless environment along each side street create plaza-like spaces that can be closed for events.

Parking

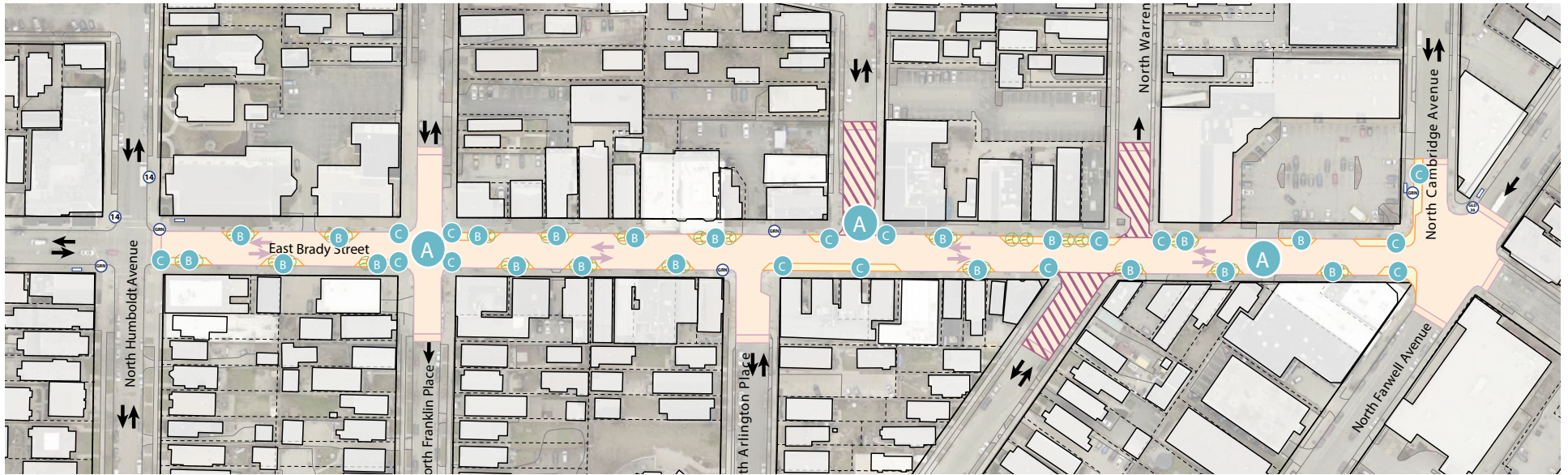
- F. On-street parking (or seasonal parklets) is retained at all side streets, new striping added on tabletop design.
- Re-allocation of 10 to 20 existing on-street parking stalls to pedestrian bump-out/seating/landscaping areas.

Bike & Transit

- G. Existing bus stop locations to remain. Existing bus stop locations at Arlington Place may need to shift in order to accommodate new curb extensions. Configuration of stops as in-line versus pull-over should be explored.
- Existing shared bike/travel lanes configuration remains.

2 INTERIM DESIGN OPTIONS

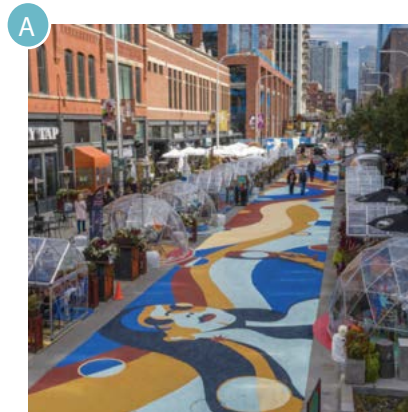
Slow & Safe: Enhanced Corridor (Full Access for All Users)



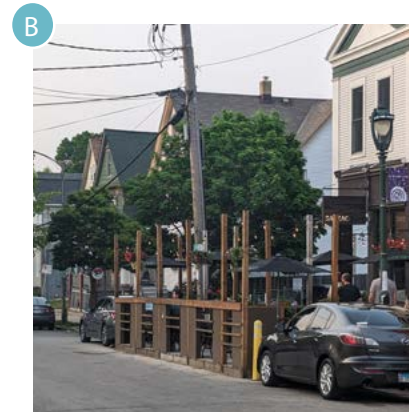
Interim Design

Prior to final design and construction, short-term improvements can provide some of the project benefits.

Alt 2 focuses on enhancing safety and appeal by creating a shared street, constraining the roadway and expanding available pedestrian space in a curbside (or low-curb) environment. A combination of painted and surface level improvements are possible. Parklets occupying parking spaces slated to be removed can be deployed up and down the corridor to begin reclaiming pedestrian space and calming traffic. Paint can be used strategically to delineate pedestrian space and create visual impact to communicate the pedestrian-first nature of the environment.



A. Painted Street



B. Parklets



C. Interim Curb Extensions
i. Paint-and-Post
ii. Pin-on concrete

3

People Only: Enhanced Corridor

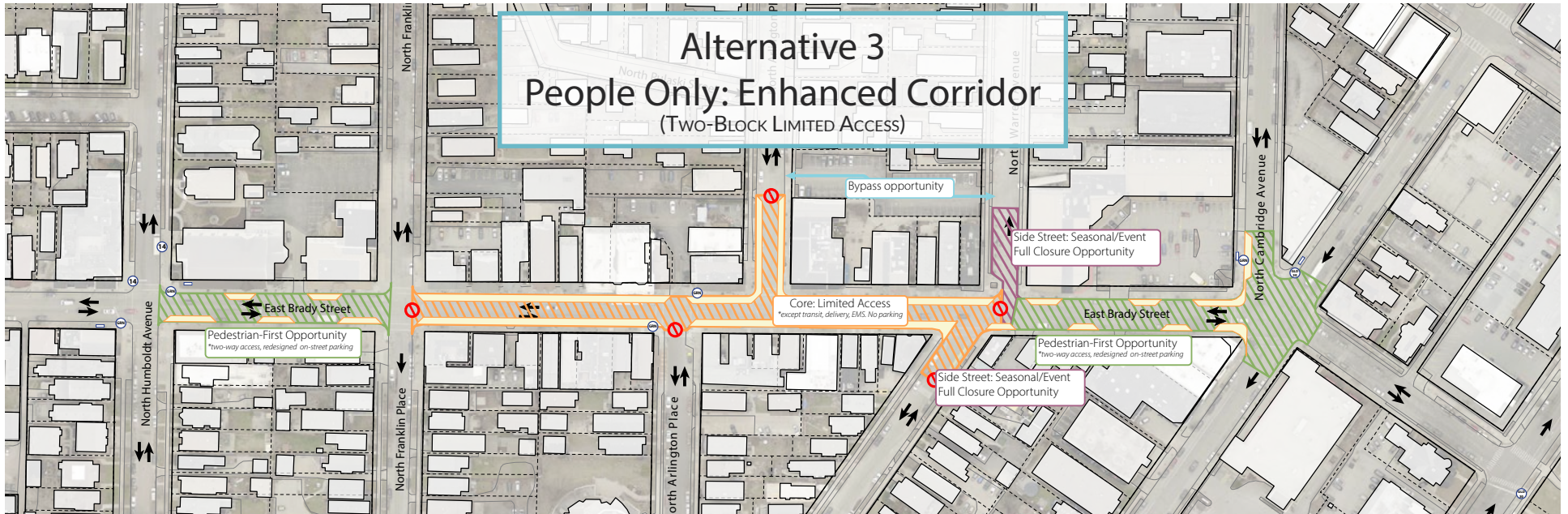
(Two-Block Limited Access)

Limiting access along a two-block stretch of Brady Street from Franklin Place to Warren Avenue would transform the “core” of the commercial district into a holistic public place. The roadway is narrowed to the minimal space needed to provide access to transit and essential vehicles accessing properties on Brady Street nearly doubling the amount of space available to pedestrians within the “core” and nearly eliminating all potential conflicts with pedestrians and personal vehicles.

The two blocks of Brady Street east and west of the “core” would maintain access to thru traffic but include redesigned parking to expand the available pedestrian space and enhance the corridor.

Transit, loading, and emergency vehicle access would not change in this alternative.





BENEFITS

Safety

Limited access eliminates pedestrian/personal vehicle conflicts within the core.

Neighborhood Vitality

Limited access creates a new type of social space for new types of activities fostering social connection. The two block span minimizes walk times for people using cars with limited mobility. Increased space for public art and cultural signifiers will help express local diversity. Additionally, combined with traffic calming measures, restricting select private access drives may deter car-driven drug activity.

Commercial Vitality

The redesigned parking on the streets with vehicle access increases the space for businesses

2023 Brady Street Pedestrianization Study

along the entire corridor while the narrower roadway in the core provides additional space. Businesses would retain visibility to most traffic with the core never further than one block from thru traffic. A mix of experiences along the corridor can help to support a variety of businesses along the corridor.

Visual Impact

The corridor creates opportunity for a larger area of aesthetic enhancements both public and private with most enhancement in the core.

Bike/Transit

The elimination of thru traffic improves bike comfort, transit speeds, and the quality of experience for both.

Traffic

A significant traffic calming effect results from the elimination of thru traffic and constrained roadway design. The area maintains access to neighborhood streets. The design creates an opportunity for an enhanced wayfinding approach.

Parking

The design increases the safety and experience of parking at the bookends of the alternative and reallocates all "core area" parking to pedestrian space.

Operations & Maintenance

Minimal operation needed to maintain and enforce limited access depending on design.

People Only: Enhanced Corridor

(Two-Block Limited Access)

An enhanced corridor which limits access to pedestrians, cyclists, transit, and essential vehicles can provide a low to no-conflict environment. Entry points to the corridor must allow transit and essential vehicles while clearly communicating to motorists that general traffic is not allowed. Further, signage on main traffic routes can be used to alert drivers to prevent spillover traffic onto minor streets. Certain accommodations for properties within the limited access area to retain access will be necessary.

Active Transportation Alliance



TKWA



Traffic



This alternate is expected to have significant traffic impacts, including on local streets.

Vehicle Diversion: With the two-block limited access for transit, deliveries, maintenance and emergency vehicles, and permitted users such as school students or local business owners, most vehicles will be required to divert to other routes.

Local Streets: With the restrictions beginning at Franklin Place and Warren Avenue, it is likely that motorists on Brady Street who are not familiar with the restrictions will turn onto those side streets when arriving at the closure. This may impact the local streets adjacent to the project area. After the new restrictions have been in place for a period of time, and motorist behaviors and travel patterns adjust, the impacts to the local streets is expected to

diminish, but cut-through traffic may always be a concern.

Circulation: Allowing cross-street traffic at Franklin Place and Warren Avenue will maintain circulation and allow locals to navigate their neighborhood easily.

Compliance, Enforcement and Education: Compliance could be low initially, with users “Cutting Through” on Brady Street, ignoring the access restrictions. Motorist education and marketing campaigns will assist in long-term compliance with access restrictions.

Transit Opportunities: With the reduced congestion and complexity, the street could become a more attractive route option for transit.

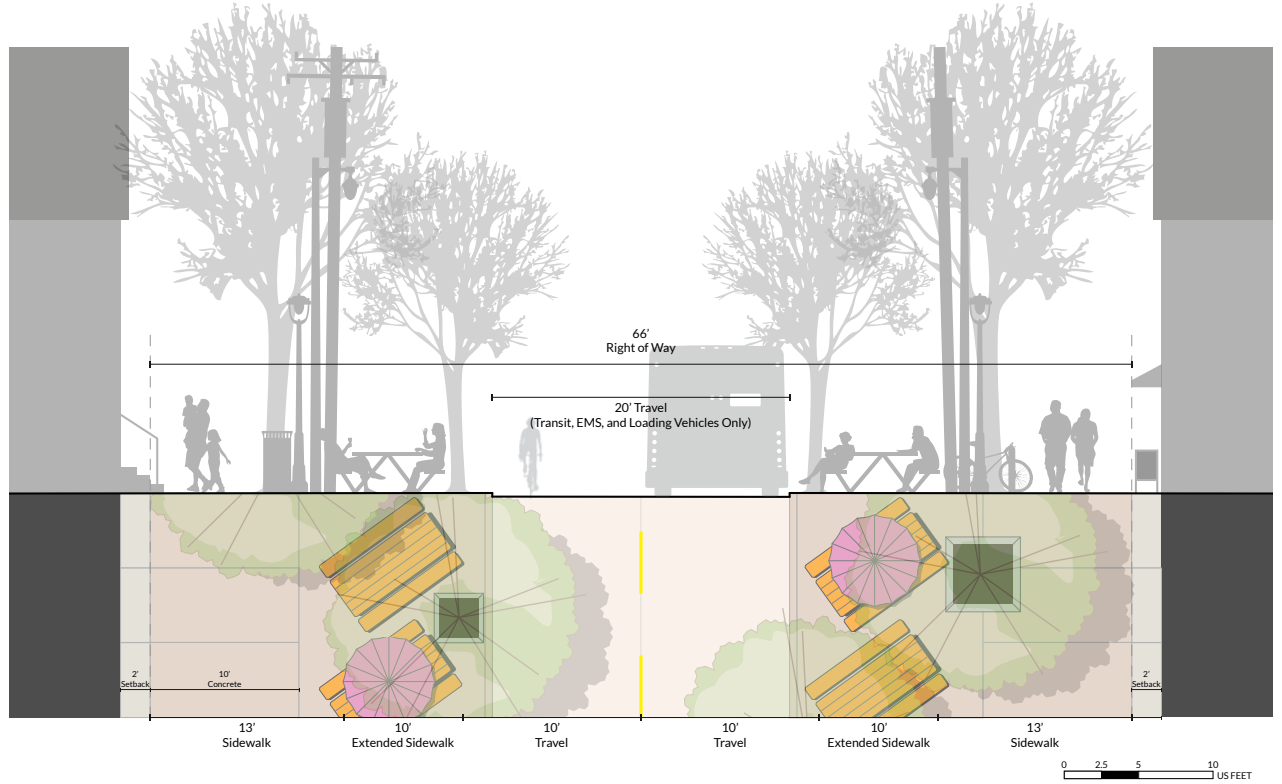
3

People Only: Enhanced Corridor (Two-Block Limited Access)

16th Street Mall - Limited access to transit, service, EMS



16th Street Mall - Limited access to transit, service, EMS



3

People Only: Enhanced Corridor (Two-Block Limited Access)



Alternative 3 Conceptual Streetscape Design

Details: *(bulleted details not identified on map)*

Access: 2-Block, Limited Access

- Franklin to Warren: Limited access only for transit, emergency vehicles, loading, and select business access.
- A. Physical barricades are located at Warren, Franklin and all side streets.

Roadway/Sidewalk Design

- B. Franklin to Warren is reconstructed with decorative pavement (pavers, concrete block, concrete scoring, etc.) for both roadway and pedestrian space.
- C. Curb extensions are shown on either side of the 2-block limited access to decrease overall roadway width and commit more visual area to pedestrian space for seating, landscaping, amenities.

Social Activity

- D. Additional sidewalk seating, dining, landscaping, programming is possible within the 2-block limited access “core area”.
- E. The extensions of the reconstructed, decorative pavement environment along each side street create plaza-like spaces that can be closed for events.

Parking

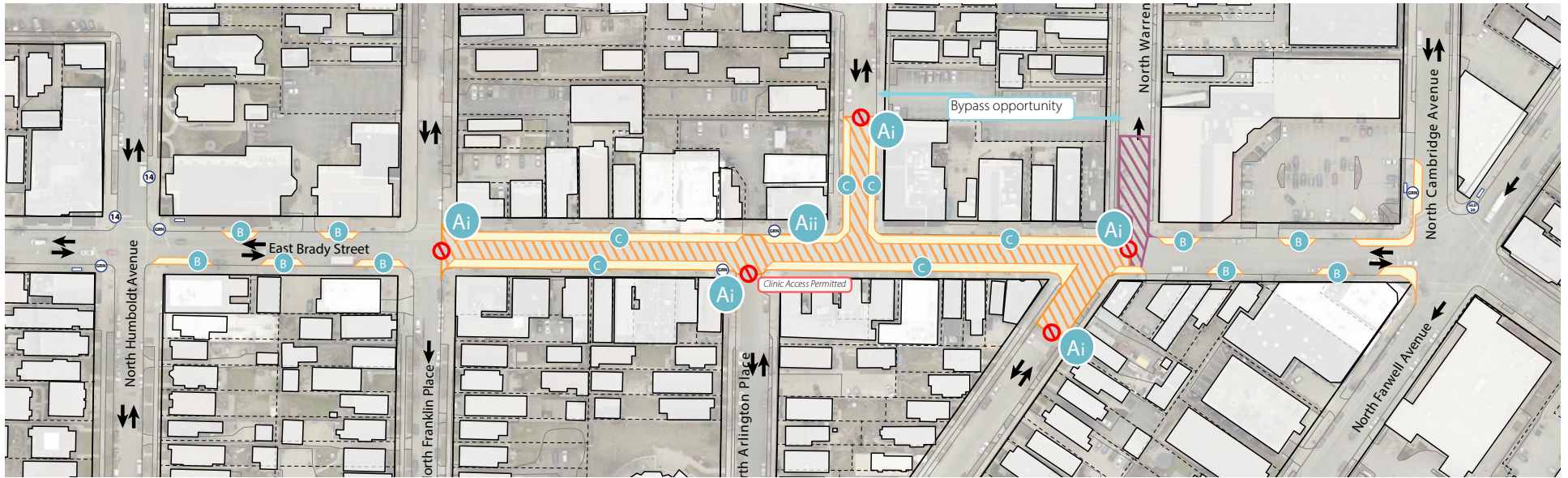
- Reallocation of around 30 existing on-street parking stalls to pedestrian bump-out/seating/landscaping areas.
- F. On-street parking is retained at all side streets except Arlington (north of Brady).

Bike & Transit

- G. Existing bus stop locations at Arlington Place are retained and function as in-line stations (bus no longer needs to pull over for stop).
- Bike and other micro-mobility should be accommodated within “core area” with clear pavement markings/design.

3 INTERIM DESIGN OPTIONS

People Only: Enhanced Corridor (Two-Block Limited Access)



Interim Design

Prior to final design and construction, short-term improvements can provide some of the project benefits.

Alt 3 limits traffic in the core to essential vehicles and transit only. Before sidewalks are extended and curbs are redesigned, the street may be closed to general traffic and used as a pedestrianized space. Signage and/or barriers limiting thru traffic at each access control point could be installed. Additional signage at major streets (Humboldt and Farwell) should be installed to warn motorists the area is for local traffic only to prevent errant driving. Within the pedestrianized area, streetscaping features may be added throughout, leaving a 20-foot roadway clear for permitted vehicles.

A Active Transportation Alliance



- A. Signage and Barriers
- i. Access control
 - ii. Educational/Wayfinding
 - iii. Transit
 - iv. Branding/Marketing

B



- B. Parklets outside of core area

C @Congress for New Urbanism



- C. Streetscaping
- i. Street furniture
 - ii. Movable planters/pots
 - iii. Lawn games
 - iv. Lighting

4

People Only: Hilltop to Lakefront

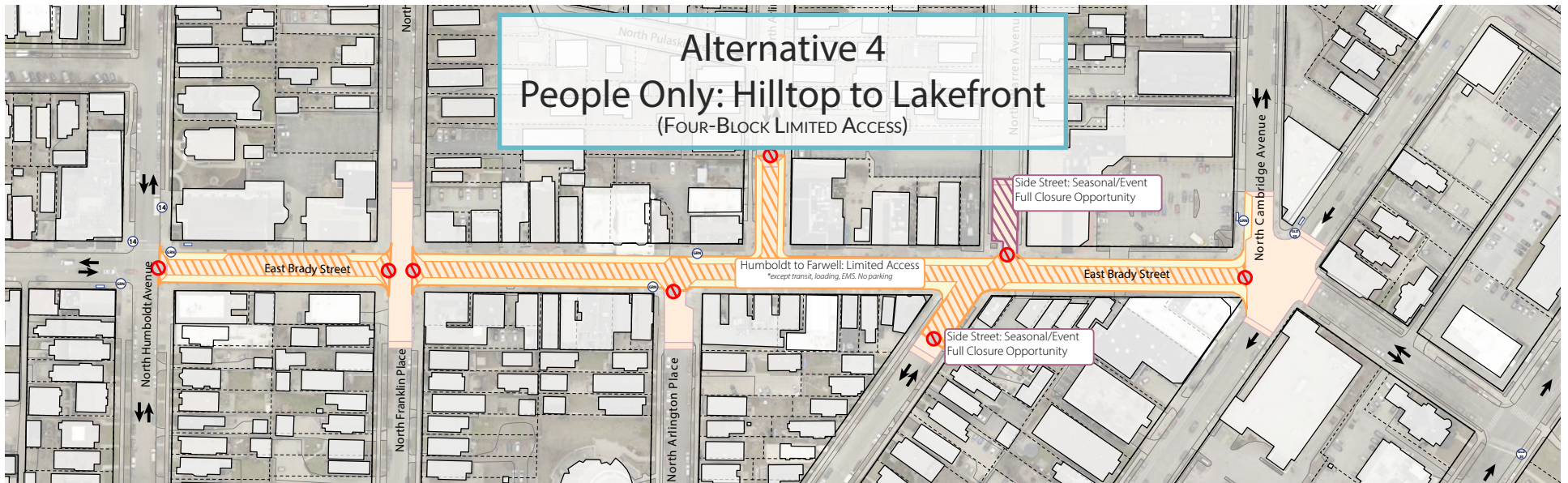
(Four-Block Limited Access)

Limiting access along a four-block stretch of Brady Street from Humboldt Avenue to Cambridge Avenue would transform this stretch of the commercial district into a holistic public place. The roadway is narrowed to the minimal space needed to provide access to transit and essential vehicles accessing properties on Brady Street nearly doubling the amount of space available to pedestrians and nearly eliminating all potential conflicts with pedestrians and personal vehicles.

The intersecting streets of Humboldt Avenue, Franklin Place, and Cambridge Avenue would remain open to cross traffic to provide access for people to be dropped off within walking distance of the core.

Transit, loading, and emergency vehicle access would not change in this alternative.





BENEFITS

Safety

Eliminates vehicle/pedestrian conflicts everywhere except intersections. At intersections, conflicts are reduced by half. The elimination of turning movements at cross streets further reduces conflicts such as right-turn collisions.

Neighborhood Vitality

Creates a large social space that is unique in Milwaukee. The impact is large enough to draw significant excitement across the city/region. Provides substantial space for public art and cultural signifiers to express local diversity. Provides a new type of nearly 100% safe space for all ages and abilities. Additionally, combined with traffic calming measures, restricting select private access drives may deter car-driven drug activity.

Commercial Vitality

Maximum increased space for businesses along entire corridor, equally distributed. Businesses maintain some visibility to traffic at some cross streets and retain the ability to have customers dropped off at entry points. Reduces vehicle noise from traffic to the maximum extent.

Visual Impact

Opportunity for the largest area of aesthetic enhancements along entire corridor.

Bike/Transit

The elimination of thru traffic presents the maximum improvement in bike comfort along Brady Street with easily traversed intersections for all ages and abilities. The design maximizes the speed efficiency for transit

Traffic

Design has the maximum traffic calming effect with minimum spillover traffic onto neighborhood streets. The design presents an opportunity for an enhanced wayfinding approach.

Parking

Design maintains access to parking on neighborhood streets with minimal confusion or dead-ends.

Operations & Maintenance

Minimal effort to maintain and enhance. Potential substantial reduction in costs due to eliminated pavement wear and tear from traffic.

People Only: Hilltop to Lakefront

(Four-Block Limited Access)

An enhanced corridor which limits access to pedestrians, cyclists, transit, and essential vehicles can provide a low to no-conflict environment. Entry points to the corridor must allow transit and essential vehicles while clearly communicating to motorists that general traffic is not allowed. Spillover onto minor streets should be minimal because access restrictions are on main traffic routes. Certain accommodations for properties within the limited access area to retain access will be necessary.

16th Street Mall, Denver, CO; Google



State St, Madison, WI



Traffic



This alternate is expected to have significant traffic impacts, but impacts to local side streets are minimal.

Vehicle Diversion: With the four-block limited access for transit, deliveries, maintenance and emergency vehicles, and permitted users such as school students or local business owners, most vehicles will be required to divert to other routes.

Local Streets: Diverts traffic onto arterials, such as Humboldt, Prospect, and Farwell, as those will be the boundaries of the closure, and motorists will turn on those streets if they were attempting to use Brady Street. Impacts on local residential streets are expected to be minimal.

Circulation: Allowing cross-street traffic at Franklin Place will maintain circulation and allow locals to navigate their neighborhood

easily. Cross-traffic on the north leg of Arlington Place and on Warren Avenue will not be permitted, as the spaces will be pedestrian-only plazas.

Compliance, Enforcement and Education: Compliance could be low initially, with users “Cutting Through” on Brady Street, ignoring the access restrictions. Motorist education and marketing campaigns will assist in long-term compliance with access restrictions.

Transit Opportunities: With the reduced congestion and complexity, the street could become a more attractive route option for transit.

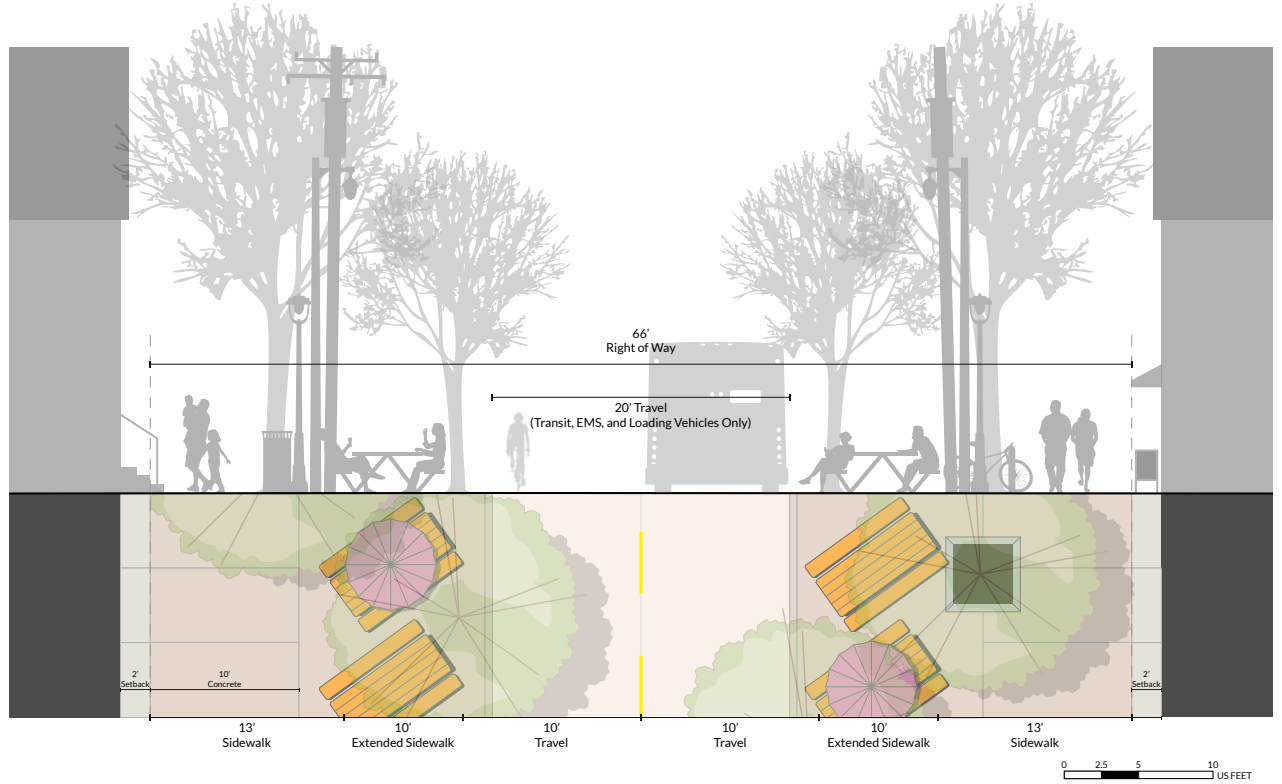
4

People Only: Hilltop to Lakefront (Four-Block Limited Access)

Church Street Burlington, VT; NorthStarLeasing



State Street; Enderle Travelblog



4

People Only: Hilltop to Lakefront (Four-Block Limited Access)



^ Alternative 4 Conceptual Streetscape Design

Details: *(bulleted details not identified on map)*

Access: 4-Block, Limited Access

- Humboldt to Cambridge: Limited access only for transit, emergency vehicles, loading, and select business access.
- A. Physical barricades are located at Humboldt and Cambridge and all side streets.

Roadway/Sidewalk Design

- B. Entire corridor is reconstructed as a raised, curbsless environment with decorative pavement (pavers, concrete block, concrete scoring, etc.) for both roadway and pedestrian space.
- C. Farwell intersection also shows a reconstructed, raised table top intersection configuration to emphasize the arrival to Brady Street and also calm traffic.

Social Activity

- Entire corridor acts as a “people only” street and maximizes area for sidewalk seating, dining, landscaping, and additional programming.
- D. Permanent plaza spaces are also created at Arlington (north of Brady) and Warren (south of Brady).

Parking

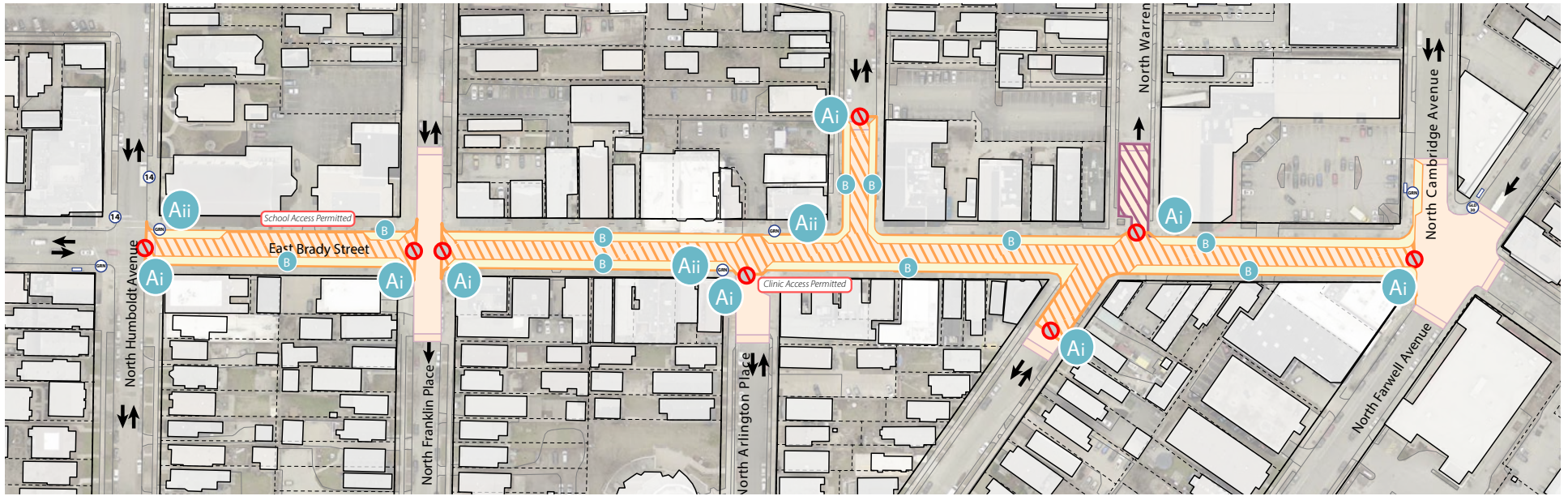
- Reallocation of all existing on-street parking stalls to pedestrian space.
- E. On-street parking is retained at Franklin, Arlington (south of Brady), and Warren (north of Brady but reconfigured as head-in with access from the north parking lot).

Bike & Transit

- F. Existing bus stop locations at Arlington Place are retained and function as in-line stations (bus no longer needs to pull over for stop).
- Bike and other micro-mobility should be accommodated within “core area” with clear pavement markings/design.

4 INTERIM DESIGN OPTIONS

Slow & Safe: Hilltop to Lakefront (Four-Block Limited Access)



Interim Design

Prior to final design and construction, short-term improvements can provide some of the project benefits.

Alt 4 limits traffic along four blocks to essential vehicles and transit only. Before a curbside design is implemented, the street may be closed to general traffic and used as a pedestrianized space. Signage and/or barriers limiting thru traffic at each access control point could be installed. Additional signage directing motorists to parking areas may be appropriate. Within the pedestrianized area, streetscaping features may be added throughout, leaving a 20-foot roadway clear for permitted vehicles.



- A. Signage and Barriers
- i. Access control
 - ii. Educational/Wayfinding
 - iii. Transit



- B. Streetscaping
- i. Street furniture
 - ii. Movable planters/pots
 - iii. Lawn games
 - iv. Lighting

TKWA

NEXT STEPS

This vision document outlines four, high-level concepts for creating a pedestrian-first environment on a four-block stretch of E. Brady Street. A few key steps lie between the visioning and implementation of the final design.

Short-Term:

Right away, this document acts as a tool for the Business Improvement District (BID) to engage with stakeholders to make decisions toward refining the final design. Local residents, businesses, organizations, and officials must come together to discuss their priorities, preferences, and trade-offs to be made between the various benefits presented in each alternative concept. The BID may also pilot the concept before construction occurs. Any implementation will require coordination with City, MCTS, emergency services, and the community.

Long-Term:

Developing a final design will require coordination with the City of Milwaukee, MCTS, local residents and businesses, and potentially a third-party design team. The final design may look like one of the alternatives in this document, or it may piece together aspects of multiple alternatives. Once the project is ready for construction, additional coordination will be necessary to ensure a smooth roll-out and ongoing success. Monitoring and analysis of impacts to traffic, safety, and parking will be important to evaluate the implementation of the design. The project could also benefit from a robust branding and marketing strategy to promote the new investments.

Coordination

Transit

- A. Short Term: Meet with MCTS to determine preferred bus operations and station design preferences.

Traffic

- B. Short Term: Work with City of Milwaukee Public Works to determine the feasibility of traffic impacts at a high level for each alternative.
- C. Long Term: Work with City of Milwaukee Public Works to determine traffic rerouting, roadway design, and signage needs for preferred alternative.
- D. Long Term: Coordinate with WisDOT to determine any traffic impacts on State Hwy 32 (Farwell and Prospect Avenues).

Funding and Construction

- E. Short Term: Work with the City of Milwaukee Department of City Development to determine the availability and applicability of different funding sources to pay for project costs, including TIF.
- F. Long Term: Work with private developers and landowners as redevelopment occurs within the project area (such as the new Hotel at Brady/Farwell) to ensure new development understands the new streetscape design/operations.
- G. Long Term: Coordinate construction around important Brady Street events to minimize disruption.

Bike/Ped

- H. Meet with the Bike/Ped Advisory Committee to determine preferred design approaches for bicycle navigation through the corridor.

Engagement & Marketing

Neighborhood Residents

- I. Hold community meetings to gauge local residents' preferences for final design. Ensure a diverse, representative audience for stakeholder engagement to ensure the final design works for all ages, abilities, and backgrounds.

Local Businesses

- J. Meet with all local businesses to anticipate impacts from, and accommodations needed, to proceed with the final design.

Marketing

- K. Determine a brand and marketing approach for the new corridor design.
- L. Consider holding a community vote to determine the new name for the pedestrian space to generate excitement and spread the word about the project.

Events

- M. Take advantage of a large event(s) on Brady Street to showcase the improvements to the corridor.

Monitoring & Analysis

Traffic

- N. Consider conducting an analysis of speed and/or volumes before and after implementation of the interim and final designs once selected to determine impacts on safety and spillover traffic.

Goals

- O. Determine any metrics and goals for the project to inform decision making.

NEXT STEPS (CONTINUED)

Selecting an Alternative:

Working towards a final design will involve coordination with several groups and many phases of iteration. The four alternatives in this document provide a range of possibilities, but details between each design may be further developed. The design of pavement, curbs, transit facilities, parking, public spaces, access control, and more may evolve over time. It will be important to ground such design development decisions in the project goals. This vision document suggests the following project goals:

- A. Safety
- B. Neighborhood Vitality
- C. Commercial Vitality
- D. Visual Impact
- E. Bike/Transit Benefit
- F. Traffic & Parking
- G. Operations & Maintenance

All of these goals are relevant to the project and were considered in the development of alternatives. Whether these goals evolve or stay the same, basing conversations regarding design development in the goals will help to steer decision making with a clear vision.

Interim Design & Piloting

Alternative 1

- P. Develop an implementation plan to install curb extensions (bump-outs) and paint as desired at intersections identified in the concept.

Alternative 2

- Q. Develop an implementation plan to place parklets in parking spaces to be removed and curb extensions (painted or pin-on) at intersections identified in the concept.

Alternative 3

- R. Develop an implementation plan to sign and/or barricade E. Brady Street between N. Franklin Place and N. Warren Ave, place movable furniture and landscaping within the expanded pedestrian spaces, place curb extensions (painted or pin-on) at intersections, and place parklets in parking spaces to be removed west of N. Franklin Place and east of N. Warren Ave.

Alternative 4

- S. Develop an implementation plan to sign and/or barricade E. Brady Street between N. Humboldt Avenue and N. Cambridge Avenue, and place movable furniture and landscaping within the expanded pedestrian spaces.

Evaluation

- T. If an interim design is selected, identify the limitations of the design as interim solutions may not be reflective of final design. The performance of a phased facility may be different than performance under a full-build scenario, and issues and concerns that arise under a phased or trial scenario may not occur under the full implementation.

Selection & Final Design

Selection

- U. Evaluate alternative concepts with City staff based on project goals to select a final concept to move forward to final design.
- V. Consider engaging a design consultant to facilitate and refine an alternative.

Final Design

- W. Holistically approach the final design with consideration of all forms of mobility from walking (including use of mobility aids), cycling, driving, transit, micromobility, and shuttle.
- X. Perform a cost analysis to determine the budget and schedule for improvements. Prioritize the implementation based on achieving project goals.

IMPLEMENTATION

Access Control Restrictions

Alternatives 3 and 4 show “People Only” solutions to close Brady Street for a limited stretch to general traffic. However, maintaining access for transit, emergency services, and certain authorized vehicles is important to the operation of the corridor. While transit could be rerouted, there is no alternate route for the Green Line that provides adequate service to the commercial corridor and neighborhood. Emergency service access is essential to respond to fire and medical emergencies, and several properties along Brady Street are only accessible from Brady Street itself and must be accommodated such as medical services, a school, and others. Each type of authorized vehicle must be able to access Brady Street several times daily on demand without the need for human interface with physical barriers. Below is a summary of design solutions which can provide access control restrictions along Brady Street along with an assessment of their benefits and limitations. More information about Anti-Vehicle Barriers (AVB) can be found on the American Public Transportation Association website: APTA.com

Restricting Motor Vehicles

Motor vehicles must be restricted to maintain the “People Only” environments shown in Alternatives 3 and 4. Cars, trucks, motorcycles, and other forms of traffic should be unauthorized in these alternatives. However, physically restricting these vehicles while maintaining access for buses, bikes, emergency services, and authorized vehicles presents some challenges. For example, a physical barrier which prevents cars from entering a

Retractable Anti-Vehicle Barriers

Some designs for Anti-Vehicle Barriers (AVB) may be retractable, movable, or convertible to allow for access control restrictions for certain vehicles, for certain times of day, or for certain locations. Retractable designs offer additional security and flexibility but also present additional cost and complexity. They also pose substantial risk of service interruption for public transit and emergency service if not properly maintained.

On-Demand Functionality: Different versions of on-demand activation may be used to activate a retractable AVB. RFID (Radio Frequency Identification) devices may be used to activate a device remotely, like a garage door opener. This eliminates the need for a physical interface to control access at each entry point, but presents challenges in the distribution of access of RFID devices to all authorized vehicles and requires management of the software and database of devices which are granted access. Keypad devices may also be used to allow vehicle operators to dial a pass code at an entrance to gain access. Keypads eliminate the need to distribute remote access devices but may be subject to damage or misuse due to the need for a physical location. A combination of RFID devices for frequent authorized users and a keypad for one-time authorizations may be most effective. Access control restriction designs which are only manually operable are not recommended because of the negative impact it would have on buses. Any selection of on-demand retractable access control restriction devices will require further study to eliminate the risk of preventing access to buses, emergency services, or loading vehicles.

Retractable Bollards



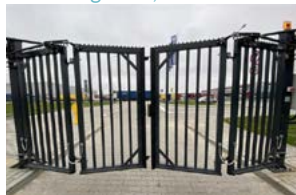
Foldable Bollards; TrafficGuard, Inc.



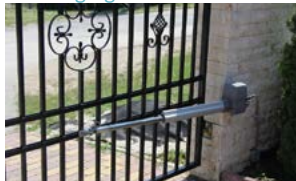
Sliding Gate



Folding Gate; Faldivia



Swinging Gate



Scissor Gate; Kunkelworks



Bollards: Retractable bollards can move up and down from an underground casing to allow vehicles to pass. These designs are pedestrian-friendly and fit well into pedestrianized environments; however, the mechanical components may present operation and maintenance complexities when dealing with wear and tear, frequent use, and winter weather conditions. NACTO recommends retractable bollards for emergency vehicle access, but not necessarily for transit access. These elements may also be easily passed by motorcycles and bicycles depending on their design. Retractable bollard designs can also be made to fold rather than rise straight from the ground, requiring less underground casing.

Gates: Swinging, sliding, folding, or scissor gates provide a movable wall element that prevents passage to all users including pedestrians and bicyclists. These features may occupy a substantial amount of space and should be arranged within a streetscape accordingly. Because gates are entirely above ground, they present less difficulty with operations and maintenance.

Arms: Drop-arm barriers such as those found at parking lots/garages, railroad crossings or bridges,

space will also prevent a bus from entering a space; a physical barrier which prevents motorcycles from entering a space will also prevent a bike from entering.

Retractable vs Permanent

The discussion of whether retractable or permanent anti-vehicle barriers (AVB) should be used to control access to a pedestrianized Brady Street will continue beyond this study. As designs evolve, key elements must be considered when assessing the benefits and limitations of using AVBs to implement and manage the final design. Complexity, safety, reliability, cost, flexibility, aesthetics, and more will all form these discussions.

Retractable solutions offer the greatest compromise between competing goals but pose significant complexity in achieving them. A retractable design will guarantee that only authorized users gain access to the pedestrianized street. A retractable design can also be applied to many different temporal solutions. At certain times of day, certain days of the week, or at certain times of the year, the retractable barriers can be lowered to allow for general traffic. Different solutions can be piloted, or the access control can change as Brady Street evolves over time. However, frequent changes to the access to Brady Street may also frustrate visitors and lead to confusion over when it can and cannot be accessed. Changes to these times may be interpreted as changes to the success of the corridor and its pedestrianization. Additionally, when retractable solutions malfunction, they will need to be left open until fixed. Contingency plans for these circumstances will be important. It is essential that a retractable solution be designed so as not to get stuck closed, preventing transit and emergency service access. According to the American Public Transportation Association (APTA),



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^ Drop-arm Barrier; Shutterstock

fold up or down to control access. Pedestrians can easily walk around a lowered arm, and bicyclists and motorcycles may be able to get around them easily depending on design. Arms rely on compliance by motorists to prevent misuse and communicate danger to the motorist in most circumstances. Drop-arms may be confusing without proper education, causing motorists to wait for them or figure out how to open them.

Wedges and Traffic Spikes: Wedge barriers are designed for high-security applications to incapacitate a vehicle and prevent ramming through barriers. Traffic spikes restrict travel in one direction, incapacitating vehicles moving against the spikes which are oriented against the opposite direction. Neither of these access control restriction designs are recommended for Brady Street.

Permanent Anti-Vehicle Barriers

Permanent designs for access control restrictions can be physical, or they can be passive. However, because they are not movable, they must be designed in such a way that they clearly communicate to different roadway users whether they are allowed to navigate a restricted space. Permanent designs offer a greater margin of error for security and may require additional education and enforcement to be successful, but they require little to no operation and mechanical maintenance. The American Public Transportation Association (APTA) recommends slowing down vehicles approaching restricted areas, using obstructions or redesign of access routes as cost effective protective measures to prevent unauthorized access.

^ Pedestrian Street Signage; Madison, WI



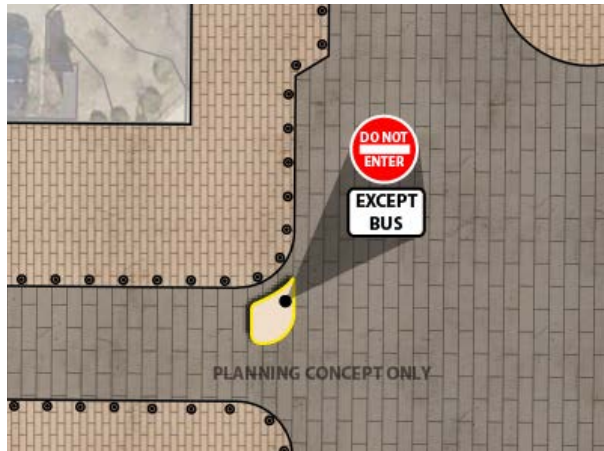
^ Pedestrian Street Signage; Denver, CO; Google



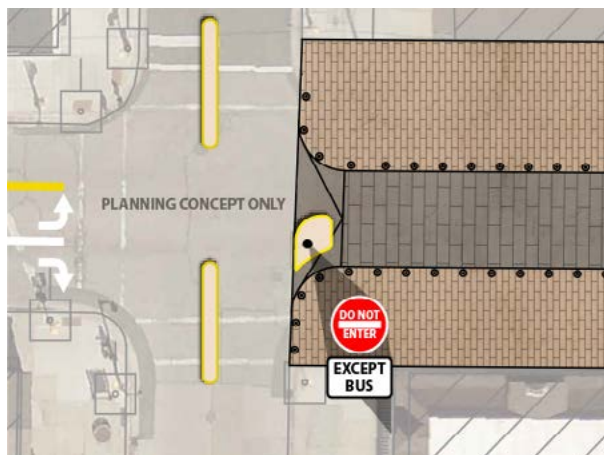
Signage: Education and enforcement can be accomplished with both temporary and permanent signage communicating the access control restrictions to roadway users. The more complex the access control restriction is, the less effective signage is expected to be, as roadway users may struggle to comprehend how the rules apply to them. Educational signage can help communicate the rules of the space to roadway users and can have added benefits of communicating etiquette. Enforcement signage, on the other hand, communicates consequences to motorists for errant navigation such as fines and penalties. Signs that communicate access based on times of day may be harder for roadway users to understand than signs communicating access based on the type of roadway user.

AVBs may be significantly damaged after absorbing vehicle impact and may not be fully operational after impact and may fail if kept in service (2012, *Anti-Vehicle Barriers for Public Transit*)

Permanent solutions offer the least complexity, but they rely on compliance and education to work effectively. Like all road safety, driver education is essential to ensuring safety for all users. Enforcement may also be necessary to promote compliance. However, most pedestrianized streets rely on permanent solutions rather than retractable access control restrictions. While many pedestrianized streets have failed to remain pedestrianized, compliance, enforcement, and safety are not the typical reasons cited for these failures. Further, retractable access control restrictions are often employed on private property such as parking lots, residences, shopping centers, rental car lots, and entertainment venues. Permanent solutions may help to communicate better that Brady Street is a public environment which is welcoming to all people and prevent the space from being treated as private by adjacent property owners.



↑ Raised Island Diverters



↑ Raised Island Diverters



↑ Decorative Barriers

Curb Orientation: Access control can be accomplished with curb design to direct roadway users away from the pedestrianized environment. Curbs can be used to create a “path of least resistance” that relies on typical driver behavior to prevent errant navigation into the site. One method for curb-orientation is to close the right-hand lane entering a pedestrianized street so that vehicles entering the street must drive against opposing traffic. The feeling that motorists are going the “wrong way” will prevent most from attempting to enter the space. Authorized roadway users will know how to enter the space, and accidental navigation into the space is prevented. Authorized roadway users must allow any exiting vehicles to pass before entering the space. Another method such as diverters placed in the center of the roadway can be used to divert traffic away from a pedestrianized street while still making it possible for authorized vehicles to drive around or mount the diverter.

Roadway Paint: Lanes approaching the pedestrianized street can be painted with words and arrows to communicate to motorists the correct place to drive. Painting a lane as “TURN ONLY” will communicate to drivers that they must turn even if there is an open pedestrianized street in front of them.

Physical Barriers: Any use of physical barriers that are placed permanently can be oriented to make it possible to access the pedestrianized street but still allow authorized vehicles around. Jersey barriers, bollards, concrete planters, are all examples.

Aesthetic: Use of high-quality paving materials in the design of the pedestrian street can help passively communicate to motorists that they should not enter the space; however, aesthetic interventions alone should not be used to restrict access because these design choices can also be used in pedestrian-first environments where mixed traffic is allowed. Other elements like gateways, landscaping, furnishings, and more can communicate the space should not be freely entered.

