

# Moving Greater University Circle

Phase 2:

## Transportation and Mobility Study







Moving Greater University Circle is a collective effort of stakeholders. The City of Cleveland Planning Commission is the project sponsor. The Northeast Ohio Areawide Coordinating Agency (NOACA) is the manager of the Transportation for Livable Communities Initiative (TLCI) and is the second public agency partner for the study. University Circle, Inc. is the project manager and study cosponsor. The Project Team thanks each of these stakeholders plus all members of the Core Advisory Committee, the Project Steering Committee, and the many members of the public who provided insight and feedback throughout the project.

### Core Advisory Committee

- Case Western Reserve University
- Cleveland City Planning Commission
- Cleveland Division of Traffic Engineering
- Cleveland Clinic Foundation
- Cleveland Museum of Natural History
- Cleveland VA Medical Center
- Greater Cleveland Regional Transit Authority
- Northeast Ohio Areawide Coordinating Agency
- University Circle Inc.
- University Hospitals Health System

### Steering Committee

All above, plus:

- Cleveland Museum of Art
- Cleveland Sight Center
- Judson Services
- Maximum Accessible Housing of Ohio
- Musical Arts Association
- Museum of Contemporary Art
- Ronald McDonald House
- University Circle Police Department
- University Circle United Methodist Church
- Western Reserve Historical Society

### Consultant Project Team

- Nelson\Nygaard Consulting Associates, Inc.
- City Architecture











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Walking and biking in University Circle

University Circle is a city within a city. It is the second largest employment center in the region and boasts a diverse residential population and some of the most prominent health care, educational and cultural institutions in the state. Supporting these active and interesting land uses is a multi-modal transportation network where people walk, bike, drive, and utilize a variety of transit options.

The Greater University Circle area is also changing, with growing workforce, resident, and visitor populations traveling to, within, and through the area every day. The Moving Greater University Circle Transportation & Mobility Study is one component of the district's forward thinking approach harnessing the energy of this growth and positioning the transportation system to serve all users now and into the future. This report provides two sets of recommendations for improved access and mobility for the district, presented as a series of Strategy and Place profile sheets:

- **Strategies:** Best practices on how the individual components of the multimodal transportation network can support University Circle as a great place; and
- **Places:** Conceptual recommendations for 11 Study Area intersections identified through crash data and community input as difficult to traverse.

Working with the area stakeholders, components of the following four intersection recommendations have been prioritized for immediate implementation to reduce conflicts between drivers, walkers, cyclists, and transit riders (see Figures 1-4):

1. Martin Luther King Jr. Drive at Carnegie Avenue;
2. Euclid Avenue at Ford Drive/Mayfield Road;
3. Euclid Avenue at E. 115th Street; and
4. Euclid Heights Boulevard at Cedar Road.



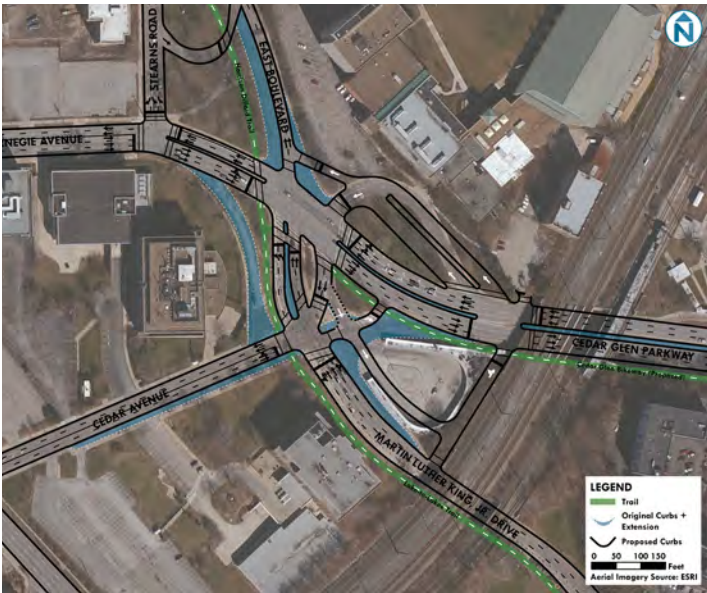


Figure 1: Martin Luther King Jr. Drive at Carnegie Avenue

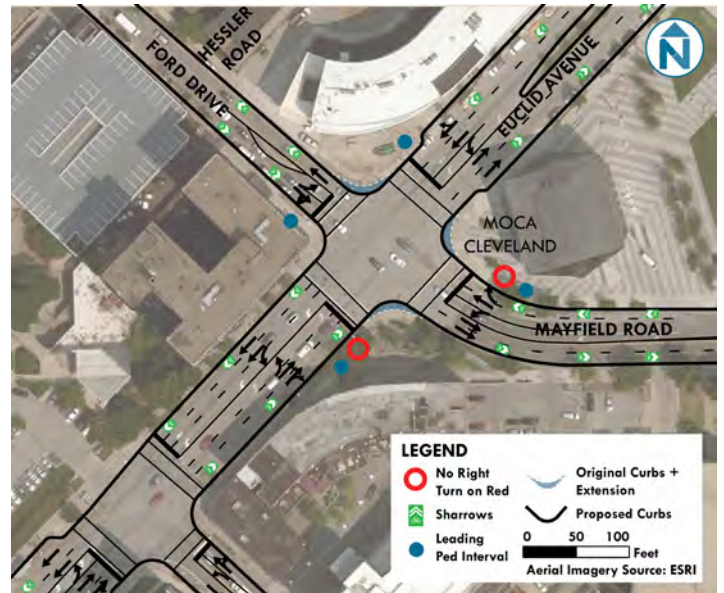


Figure 2: Euclid Avenue at Ford Drive/Mayfield Road



Figure 3: Euclid Avenue at East 115th Street

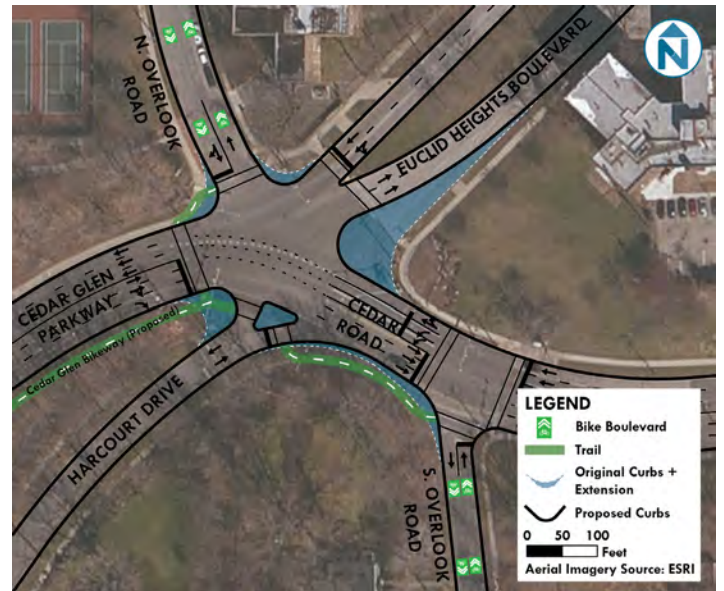


Figure 4: Euclid Heights Boulevard at Cedar Road

Recommendations at three additional sites received significant support and should be coordinated with concurrent activities or planning efforts:

- The combined intersections between Euclid and Chester Avenues, from Stokes Boulevard to Martin Luther King Jr. Drive;
- South Wade Park; and
- The Case Western Reserve University North Campus area (generally between East Boulevard and E. 115th Street).

The mobility focus area recommendations identified above are one component of the Moving Greater University Circle project, detailed on the next page.

Moving Greater University Circle is a three-part study and implementation plan that will help assess areas of need and opportunity in University Circle's transportation system. The study will identify short and long-term strategies for effective transportation management and will outline a clear path for impactful short and long-term steps to address our shared transportation issues. Moving Greater University Circle has three primary components:

1. The District Parking Study examined existing and projected supply and demand in the study area and was completed in December 2014. The resulting Parking Management Plan focused on opportunities for collaborative management of the district's parking facilities, including improved information systems, ease of access, and establishment of a "park once" scheme for the neighborhood. Transportation demand management (TDM) strategies were also highlighted as an important method for ensuring the most efficient use of existing supply.
2. This report documents the Transportation & Mobility Study, which examined the multi-modal transportation systems, patterns, choices, and challenges that confront people as they travel to, through and within the study area. Two rounds of public engagement were conducted in October 2014 and April 2015 and included surveys, focus groups, open houses, walking audits, and an online interactive mapping tool. Feedback from these sessions generated a focus on 11 "mobility focus areas" for improvements to key travel corridors and intersections utilizing 10 core mobility strategies.
3. The Transportation Management Implementation Plan will synthesize recommendations from the first two components and establish a series of short and long-term goals, metrics, action steps, and organizational responsibilities, based on stakeholder feedback and partner buy-in. Launched in June 2015, this phase of work includes a thorough scan of best practices from peer communities around the United States and examination of applications in the local context.





## STRATEGIES

The following Strategy sheets outline the principles through which University Circle can continue to develop its multimodal network, welcoming people and development while minimizing impacts to the district's transportation network. These Strategies include opportunities for all modes to contribute to the network. The Strategies recognize that transportation is intrinsically related to land use, so also address how streets and properties can be used for non-transportation purposes. The Strategies also incorporate the recommendations from the Phase 1 Parking and Demand Management component of the Moving Greater University Circle study.

Recommended Strategies include:

- Walking First
- Connectivity
- Bicycle Friendly
- Transit Accessible
- Safe & Reliable Auto Access
- Legible District
- Dynamic Streets
- Smart Parking
- Transportation Demand Management
- Real Estate Development

Each Strategy sheet includes:

- A Goal to guide the Moving Greater University Circle Study and a Rationale for how that Goal can be achieved through the Strategy
- An introduction to the Strategy;
- The issues identified by participants throughout the MGUC process which the Strategy addresses;
- Prior Plans and Policies identified for University Circle which the Strategy supports; and
- Sample Tools showing examples and best practices of how the Strategy can be implemented.

# Strategy Map



Walking First



Bicycle Friendly



Transit Accessible



Safe & Reliable Auto Access



Connectivity



Legible District



Dynamic Streets



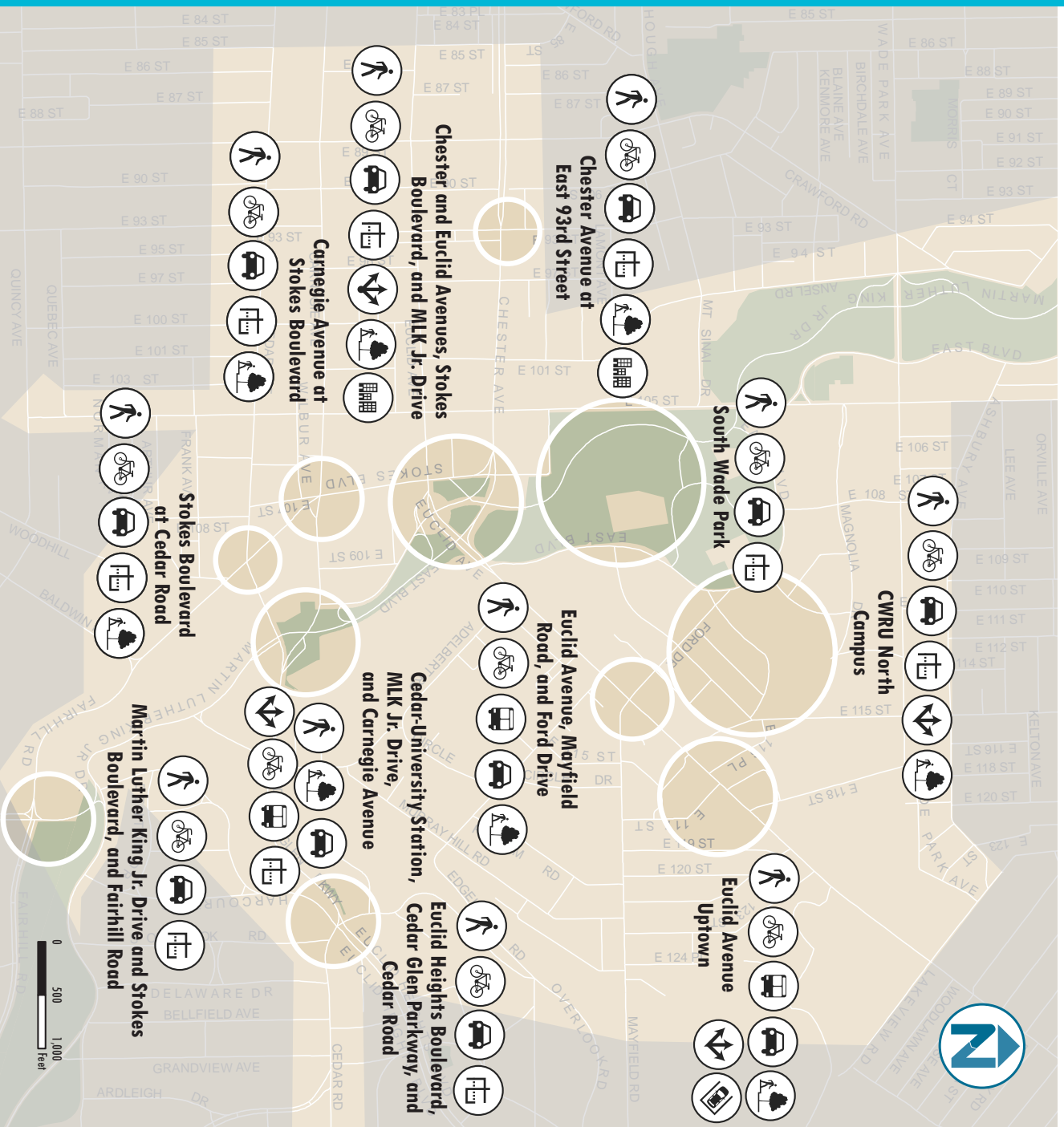
Smart Parking



Transportation Demand Management



Real Estate Development





### Goal

**Adopt a “walking first” policy and design a safe connected environment for every person.**

### Rationale

Walking First and Universal Design go hand in hand; removing the barriers to on-street travel by those with limited physical mobility creates “walkable” spaces for everyone.

### About

- **Safety for 8 to 80**

Residents and visitors strongly advocated for a transportation network in which everyone – from the very young to the very old – could safely move about and access the many destinations, services, and amenities of University Circle.

Everyone, regardless of age or physical ability, needs safe, connected, and easily navigable walking environments. Walking First is about making sure the on-street walking environment is supportive for everyone; whether they’re walking from home to the store, getting off their bike to lock up at a bicycle corral, parking their car and walking the last block to the office, or traveling by wheelchair to the train station.

- **Universal Design**

The core concept of Universal Design, where the design of a place is accessible by people of all ages and abilities, is the basis of the *Americans with Disabilities Act of 1990*. Moving beyond ADA, Universal Design is about creating a barrier free environment, and specifically in transportation, a barrier free walking environment.

### Related Issues



Walking  
First



Bicycle  
Friendly



Transit  
Accessible



Safe & Reliable  
Auto Access



Walking paths on Case Western University campus

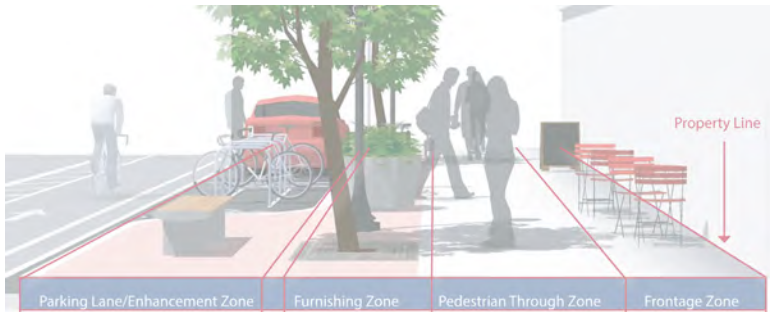
As more accessible housing and support facilities are developed in University Circle through the work of *Maximum Accessible Housing of Ohio* and others, the surrounding transportation network should support the mobility needs for people with the full range of physical abilities, including those with more limited visual or auditory abilities. As the *Cleveland Sight Center* emphasizes, vision loss does not mean an end to active lifestyles.

Components of an inclusive on-street environment include wide pedestrian through zones clear of obstructions, level crossings, curb ramps, pedestrian refuges, auditory pedestrian crossing signals, wayfinding signs visible to those in wheelchairs and legible to those with vision impairments, are a few ways to achieve an inclusive on-street environment serving everyone regardless of their physical ability.

# Prior Plans/Policies

- Cleveland Complete and Green Streets Ordinance & Typologies Plan (2013)
- Connections 2035 - Northeast Ohio's Long-Range Transportation Plan (2013)
- Facilitating Bicycle and Transit Travel in University Circle and Cleveland Heights (2013)
- Intesa Transportation Impact Study and Shared Parking Analysis (2012)
- Uptown District – Cleveland, OH: A Transportation and Neighborhood Redevelopment Plan (2010)
- Mayfield Road Streetscape Improvement Plan (2009)
- MLK/East 105th Traffic Circle & Roadway Reconfiguration (2007)
- East 120th Street Station Master Plan (2007)
- University Circle – Shaping the Future (January 2000)

# Tools



Elements of a Sidewalk Corridor  
Cleveland Complete and Green Streets Typologies Plan, 2013

## Walkway Zones

The zone system is used to organize pedestrian space and has been clearly outlined in the *Cleveland Complete and Green Streets Typologies Plan*. The sidewalk corridor comprises at least four zones between the curb or road edge and the property line:

- Frontage Zone
- Pedestrian Through Zone
- Furnishing Zone
- Edge Zone
- Parking Lane/Enhancement Zone (optional)



Zone

Dimensions

### Frontage

Space for sidewalk cafes, awnings, vendors, doorway openings. On streets with front lawns without fences, the frontage zone is effectively 0'.

1.5 - 4'

### Pedestrian Through

Space for pedestrian travel. Keep clear of obstructions and maintain a direct, straight path.

6 - 15'  
Match size to demand.

### Furnishings

Paved or planted area for pedestrian amenities, trees, or street infrastructure (fire hydrant, signs, utilities).

6 - 15'  
Match size to demand.

### Edge

Border between the throughway or furnishing and the roadway. Includes drainage.

0.5'  
1.5' if on-street parking is present.

### Parking Lane & Enhancement

This fifth zone is for on-street parking or bus stops. Curb extensions, bus bulbs and bicycle parking can be added to this zone.

5 - 8'



## Crosswalk Design

Stripe crosswalks at all legs of intersections and at midblock locations connecting destinations where safe to cross. Align crosswalks with the most direct pedestrian crossing.

- Crosswalks should be at least 10' wide at all locations and 20' wide in areas of high pedestrian activity.
- Set the vehicle stop bar at least 5' back from the crosswalk.
- Illuminate crosswalks with pedestrian-scale lighting.
- Crosswalks alone do not ensure pedestrian safety; on roads with high vehicle volumes or numerous travel lanes, pair crossings with pedestrian signals.
- When decorative materials such as brick are used to pattern the crossing, apply a high visibility stripe to each side to ensure motorists can see the crosswalk.
- Utilize styles, colors, and materials that are easily visible and durable through cold, wet winters.



Elements of a Crosswalk



Curb Ramp

## Curb Ramps

Curb ramps benefit all users, especially those in wheelchairs, people pushing strollers or luggage, and children on bicycles.

- Install two ramps per corner with a 2' wide truncated dome warning strip meeting ADA requirements.
- The grade from sidewalk to street level should not exceed 8.33 percent except in special cases, with a cross slope no greater than 2 percent.
- The ramp itself (not counting the flared sides) should be wider than 3'.
- If it is necessary to construct the entire corner as a ramp, install raised detectable objects at each edge to guide those with visual impairments.

## Curb Extensions

- Shortening pedestrian crossings, improving pedestrian visibility and calming traffic can be achieved with the addition of curb extensions.
- Curb extensions can be used at crossing adjacent to on-street parking, so pedestrians waiting to cross can be seen by drivers and are not obscured by parked cars.
- Extensions also shorten the overall length of the crossing.
- As a gateway, curb extensions can be used to slow vehicles as they approach intersections or indicate an entrance to a slower neighborhood.
- To mitigate overly wide corners curb extensions can reduce corner radii (see Corner Design).



Curb Extension

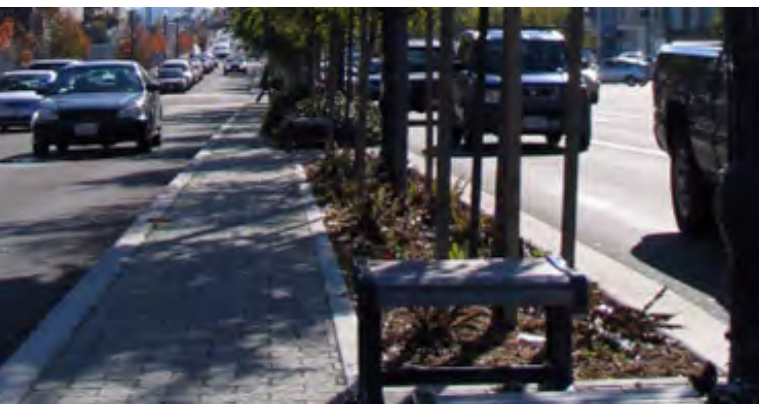


Medians provide pedestrian refuge mid-crossing

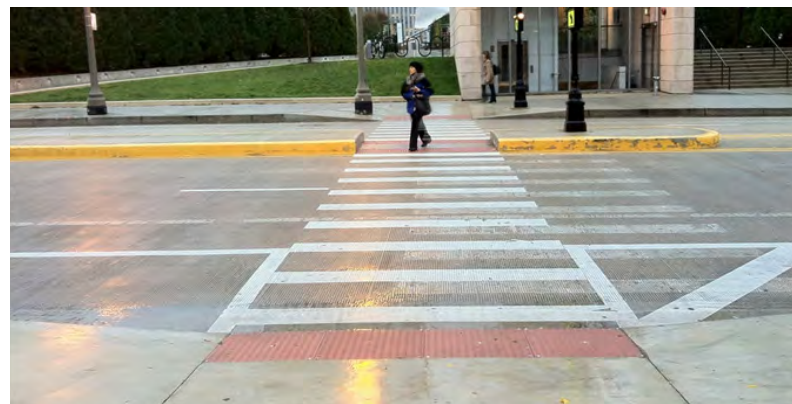
## Medians

Median islands shorten the pedestrian crossing and accommodate slower pedestrians. Median islands can take the form of medians running down the length of the road or as crossing islands and can be used at intersections or midblock.

- Install minimum 6' wide medians at crossings of four lanes or wider, ideally eight to 10 feet wide. The 6' minimum width accommodates people with a bicycle or stroller.
- Extend the median tip to the edge of the curb, with a cut through equal to the width of the crosswalk for level crossings.
- Include bollards or other features to protect people waiting.



Medians can become places with the addition of seating and landscaping



Crossings can be accommodated with median cut throughs



## Crossing Signals

Install pedestrian signals at all vehicle signals in tandem with crosswalks. Fixed-time signals, which automatically turn the pedestrian signal to WALK with the vehicle green cycle, are preferable to pedestrian push-button activation of crossing signals, as they consistently allow crossing opportunities.

- Length of WALK Phase - Configure signals for a walking speed of 3 feet per second on streets of 40 feet or less. Configure signals for a walking speed of 2.5 feet per second on streets wider than 40 feet.
- Leading Pedestrian Intervals, provide a minimum of 5 seconds at the beginning of each WALK phase where motorists cannot make any movements.
- Install pedestrian signals at all high traffic intersections.
- Make pedestrian signals automatic rather than push-button controlled.
- Install audible WALK signals to assist pedestrians with visual impairments.
- Limit all-pedestrian WALK phases to intersections with high pedestrian populations and pedestrian desire lines that follow a diagonal crossing.



Speed Hump

## Speed Humps

- Raised traffic calming devices that are 3 to 4 inches high, 12 to 15 feet wide to fully span travel lanes and 3 to 6 feet long.
- Speed humps may be referred to as speed bumps but they are frequently broader in width and cover a larger portion of the roadway than typical speed bumps.
- Speed humps are used to slow traffic to 10 to 15 miles per hour.

## Raised Crossing & Speed Tables

- Raised crossings and speed tables provide level crossings for individuals with mobility issues and encourage drivers to slow when approaching pedestrian crossings.
- Raised crossings, like speed humps, should not be implemented on streets with city buses, rather curb extensions and other lane narrowing traffic calming strategies should be employed to slow traffic.
- Raised crossings can provide level mid-block access pedestrians or to link trails and paths.
- Speed tables are used to slow traffic and span the entire intersection, slowing traffic both approaching and through the intersection (see "Appendix: Speed Tables Memorandum").



Raised crossing

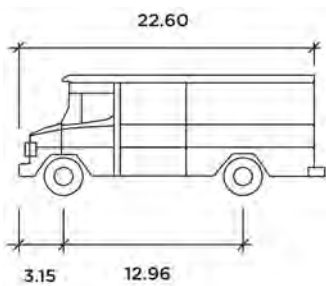
## Corner Design

Corner design is critical to safe streets, as it establishes driver turning speeds, pedestrian crossing distances, and sight lines. Turning radius is the path of a vehicle's wheels, and curb radius is the actual radius of the curb. Corner design is dictated by the design vehicle used to create an intersection. Use the smallest design vehicle that frequently turns at an intersection to keep intersections compact.

- Limit vehicle turning speeds to 15 mph by restricting turning, or effective, radius.
- On neighborhood and local streets use a curb radius of 10'.
- Adopt a design vehicle: the DL-23. The size of a delivery truck, the DL-23 is the most common larger vehicle that will turn onto University Circle streets.
- On larger streets like Cedar Glen Parkway, use the SU-30 design vehicle.

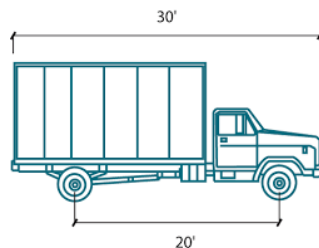
### Turn Lanes

- Dedicated right turn lanes are to be avoided because they widen the roadway and facilitate higher turning speeds. Before one is installed a traffic network analysis should be performed to determine if the turns may be accommodated elsewhere or spread through the network.

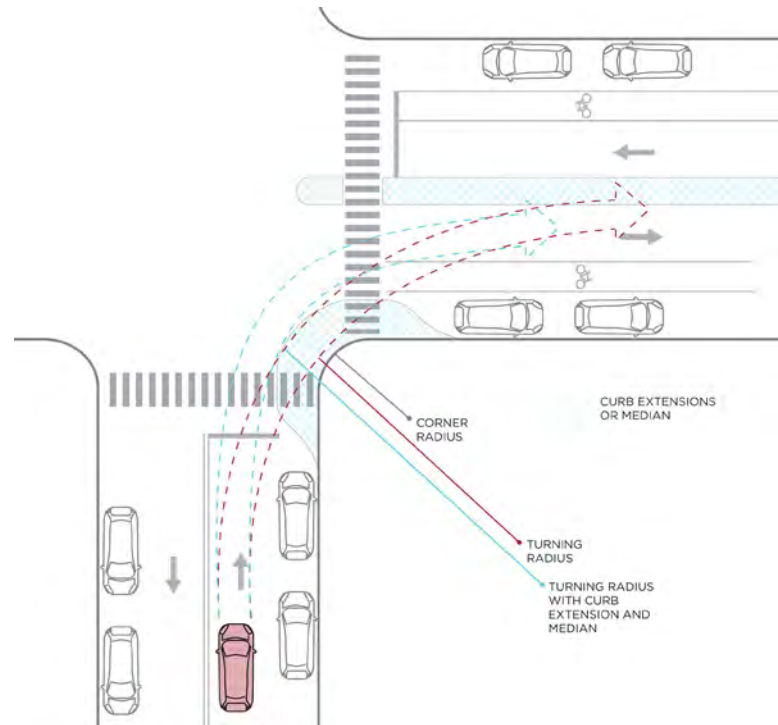


	feet
Width	: 7.12
Track	: 7.12
Lock to Lock time	: 6.0
Steering Angle	: 42.0

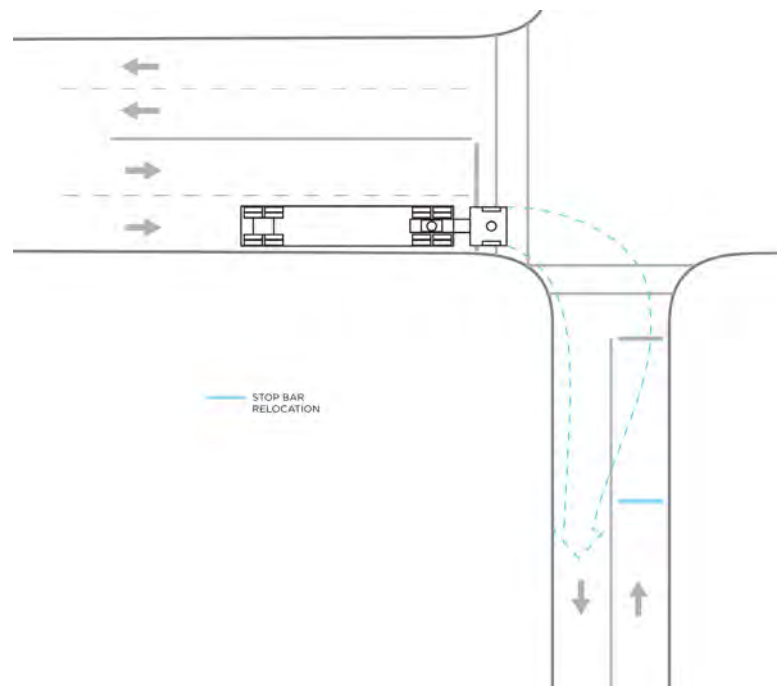
DL-23 Design Vehicle



SU-30 Design Vehicle



Reduced turning radius with curb extensions slows vehicles and provides greater pedestrian visibility at corners with on-street parking



Infrequent truck traffic can swing into opposing lanes to make turns, paired with a recessed stop line.



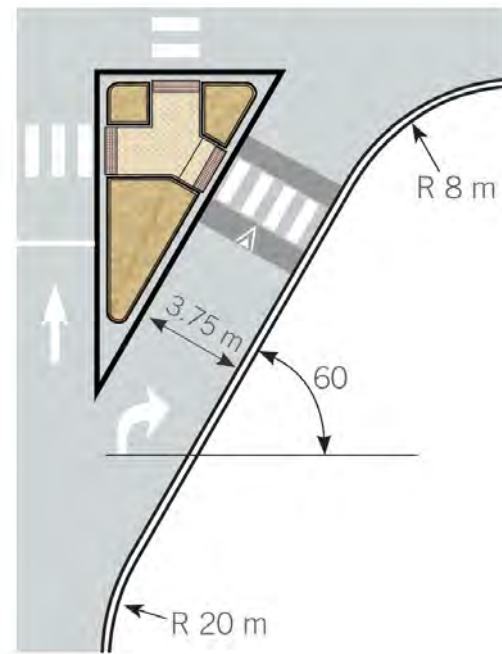
## Corner Design (continued)

### Slip Lanes

Slip lanes (pork chop islands) are mitigation measures for overly wide and angled intersections. While their use is not encouraged, a well-designed slip lane is preferable to an expanse of asphalt.

Design decisions for slip lanes are made as follows:

1. Minimize intersection size.
2. Analyze the traffic network to determine if the turn can be made elsewhere and/or if the turns can be redistributed throughout the network.
3. Turns for large vehicles can be restricted.
4. If a slip lane is used, stop control and a raised crosswalk is preferred.



Slip Lane Design



## Goal

**Increase access for all modes by connecting gaps in the transportation network through the provision of additional links.**

## Related Issues



Walking  
First



Bicycle  
Friendly



Transit  
Accessible



Safe &  
Reliable Auto  
Access

## Rationale

High connectivity creates a more accessible and resilient transportation network, because people can take more direct routes between destinations and have more route options. Well-connected street networks have benefits such as improved EMS response time, lower vehicle miles of travel, and less congestion.

## About

### Connected Transportation Networks

Connectivity refers to the density of connections in path or road networks and the directness of links. Well-connected street networks have short links, many intersections, and minimal dead-ends or cul-de-sacs. The example below takes a typical street network and shows how to improve its connectivity. First, pedestrian connections (in green) are added within the local areas off the main roads. Then full streets are added (blue), improving the connectivity index from 1.12 at the start to 1.4 – a walkable community.



Improving a street network's connectivity

# Prior Plans/Policies

- The Cleveland Opportunity Corridor Project (2014)
- Fairfax Strategic Investment Plan 2014 – 2019 (2014)
- Cleveland Complete and Green Streets – Typologies Plan (2013)
- Cleveland Bikeway Master Plan (2013)
- Uptown District – Cleveland, OH: A Transportation and Neighborhood Redevelopment Plan (2010)
- MLK / East 105th Traffic Circle and Roadway Reconfiguration (2007)
- E. 120th Street Station Master Plan (2007)
- Upper Chester Neighborhood Plan (2007)

# Tools



Pedestrian-only paths can connect neighborhood streets

## Improving Connections

- Increasing connectivity does not necessarily involve building roads. Use the space between buildings to make connections with high permeability for people on foot or on a bicycle, but low permeability for cars.
- Street ends can be extended with trails and paths that connect neighborhoods.



Wide alley in Cambridge, Massachusetts



Small streets can increase connectivity



## Shared Use Paths

- Shared use paths and trails are physically separated from travel lanes by an open space or barrier and usually designed for two-way travel of bicycles and pedestrians.
- The Harrison – Dillard Bikeway and Lake-to-Lakes Trail are the key multiuse trails in University Circle. Minimizing crossings with large arterials, improving signage or adding raised crossings described under the Walking First strategy can improve safe access along the entire trail.
- Pavement medallions can guide bicyclists where trails cross sidewalks or leading up to arterial and roadway crossings.



Harrison - Dillard Bikeway



Indianapolis Cultural Trail

## Standards

Adopting metrics that create connected networks can be woven into zoning and design standards. Some typical applications might include:

- Average intersection spacing: 200-400 feet
- Maximum intersection spacing: 600 feet
- Maximum spacing between pedestrian/bicycle connections/crossings: 350 feet
- Maximum block size: 5-12 acres





## Goal

**Encourage cycling by creating a bicycle friendly environment with clearly defined routes coordinated with regional cycling networks.**

## Rationale

Bicycling is one of the most environmentally friendly transportation options, producing zero emissions. For every 1% of auto travel replaced by bicycling, emissions decrease by 2-4%. Multimodal streets have also been linked to improvements in economy. A shopping corridor study found that people who bike spend more money per month shopping than those who drive, supporting increased retail sales.<sup>1</sup> Numerous studies have also linked regular cycling to mental and physical health benefits.<sup>2</sup>

## About

### • Last Mile Trips

Bicycles can help people travel the last mile from transit to their destination, if bicycle connections between transit hubs and major destinations are available. Bike share service provided at transit hubs and popular destinations can help connect that last mile.

### • Bike share

Bike share allows for individuals to access bicycles without the need to own a personal bike and has been shown to increase commuter bicycling rates. Bike share can provide access to bicycles for people of varied incomes if priced appropriately and cash payment alternatives are provided.

## Related Issues



Bicycle Friendly



Connectivity



Smart Parking



Real Estate Development



Bicycling in University Circle is common though few bicycle routes are marked

### • Latent Demand for Cycling

Bicycling provides a convenient means of travel for short trips of 1 to 3 miles in length. Half of the trips made in the United States total less than three miles, thus cycling can become the mode of choice for a large percent of transportation needs.

### • Cleveland Bikeway Implementation Plan<sup>3</sup>

The Cleveland Office of Sustainability's Bikeway Implementation Plan highlights streets in University Circle to receive bicycle infrastructure in the near future:

- Quincy Avenue (2014 - 2015)
- Wade Park Avenue (2014 - 2015)
- Hough Avenue (2016 - 2017)

# Prior Plans/Policies

- Facilitating Bicycle & Transit Travel in University Circle & Cleveland Heights (2013)
- Cleveland Bike Share Feasibility Study (2013)
- Cleveland Complete & Green Streets (2013)
- Cleveland Typologies Plan (2013)
- Connections 2035 (2013)
- Cleveland Bikeway Master Plan (2013)
- Uptown District: Transportation and Neighborhood Redevelopment Plan (2010)
- Mayfield Road Streetscape Improvement Plan (2009)
- MLK/East 105th Traffic Circle and Roadway Reconfiguration (2007)
- East 120th Street Station Master Plan (2007)
- University Circle – Shaping the Future (2000)

# Tools



Family-friendly bicycle boulevard

## Sharrows

Along Cornell Road, pavement markings indicate a shared lane environment for bicycles and automobiles. Sharrows are ideal on low volume streets when lane widths are less than 11 feet, to encourage motorists to yield to cyclists, or greater than 15 feet, to allow motorists to pass without encroaching<sup>4</sup>. Sharrows can also be implemented on higher volume streets where existing roadway dimensions do not allow for a dedicated bike lane. Sharrows should be centered in the travel lane and at least 4 feet from on-street parking lanes<sup>5</sup>.

## On-Street Bicycle Travel

### Bicycle Boulevards

Combined with traffic calming strategies like speed humps, speed tables, and curb extensions, bicycle boulevards prioritize bicycle traffic over motor vehicle traffic using signage and pavement markings. Bicycle boulevards are best for neighborhoods with low traffic volumes.



Sharrow placed in center of lane

## On-Street Bicycle Travel (continued)

### On-street lane

A dedicated bicycle facility delineated by striping, signage and pavement markings adjacent to the motor vehicle travel lane. Similar to Euclid Avenue west of Stokes Boulevard, lanes should be a minimum of 6 feet wide.



On-street bicycle lane



Edgehill Road in Cleveland Heights  
Photo Credit: [Green City Blue Lake](#)

### On-street lane with buffer

Along Edgehill Road in Cleveland Heights a conventional on-street bicycle lane has a designated buffer space that separates the bicycle lane from motor vehicle travel lanes. This buffer provides greater shy distance from traffic and when placed adjacent to on-street parking can encourage bicyclists to travel outside the door zone. Lanes should be a minimum of 6 feet wide with a 3 to 4 foot buffer.

### Cycle tracks

Cycle tracks are one-way or two-way bicycle facilities separated from motor vehicle travel lanes by bollards, parking, curbs and/or medians. One-way cycle tracks are 5 to 7 feet or wider on high volume corridors and 12 feet or wider for two-way cycle tracks.



Curb separated, two-way protected bike lane with green markings at driveway entrances



Motorists stop in advance of the bicycle box

### Bicycle Box

At intersections, provide cyclists space to manoeuvre and prepare for turns by placing painted bicycle boxes between the stop bar and crosswalk.



## Bicycle Parking

- Like the highly visible bike racks outside of Happy Dog on Euclid Avenue, bicycle parking encourages more bicycle trips.
- Cleveland's Zoning Code requires a ratio of 1:20 bike parking per vehicle spaces and specifies its placement near building entrances.
- For residential uses, provide bike parking inside the building for long-term storage and overnight security. This is required for new development. The City of Cleveland's Ordinance Chapter 344.08 includes this as a requirement in the Midtown Overlay District, which should be similarly adopted for the University Circle service area.
- For commuter uses, provide bike parking either inside the building (for all-day storage) or visible, covered parking (for shorter-term storage). Providing lockers and access to showers also increases bicycle usage to/from key work places.
- Adding covers to existing and new parking can also further protect bicycles from snow and rain by adding covers.
- In Cleveland, the Bike Box program is recycling shipping containers into covered bicycle parking for curbside parking spaces.



Bike Box provides low cost sheltered bicycle parking by reusing shipping containers



Covered Bicycle Parking with bicycle repair station and inner tube vending machine



Bicycle pump next to campus bicycle parking at Washington University (St. Louis, MO)

## Bicycle Services

- Additional bicycling amenities can be incorporated along with bicycle parking. For example, Washington University (St. Louis, MO) provides bicycle pumps next to their bicycle racks.
- Bicycle repair stations can be integrated with bicycle parking at sheltered locations including vending machines for bicycle inner tubes and shared tools.
- Provide commuter bike stations to accommodate commuter demand to/from smaller work places. Modeled after the Cleveland Bike Rack at East 4th Street, these bike stations should provide secure bicycle parking, individual shower/changing facilities, lockers, bicycle rentals and minor bicycle repairs.

## Bike Share

- Bike share launched in the district in October 2014 with a Zagster station at the heart of University Circle on Cornell Road, southeast of Euclid Avenue.
- Recommended density of bike share stations range from 10-15 stations per square mile<sup>6</sup> to 25 per square mile.<sup>7</sup>
- Bike share can support transit and “park once” opportunities by expanding the reach of people throughout the district without the need to transfer transit services or repark to visit multiple destinations.<sup>8</sup>
- To help those without access to credit cards offer the opportunity to purchase a bike share memberships using cash through a Transportation Management Association (TMA) or another agency. For example, Arlington County (VA), in partnership with the regional TMA, has begun accepting cash payments for memberships to the popular Capital Bikeshare system at their commuter pass stores.



Zagster Bikeshare is available in a variety of Cleveland neighborhoods, including downtown, Ohio City, and University Circle.  
Photo Credit: Bob Perkoski



Zagster Bike Share hub in University Circle  
Photo Credit: Green City Blue Lake

## Endnotes

1. People for Bikes. 2015. “Health Benefits of Bicycling.” <http://www.peopleforbikes.org/statistics/category/health-statistics>
2. City of Cleveland. 2014. “Cleveland Bikeway Implementation Plan”. <http://www.clevelandgis.org/bikeways/>
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## Goal

**Create an environment (physical and operational) where transit accommodates a significant portion of all trips.**

## Rationale

Transit encourages circulation within University Circle, allows people living in University Circle to reach jobs outside the district, and for residents of all neighborhoods to access employers in University Circle. Transit also connects other parts of the region to University Circle's health care, educational and cultural institutions, retail, and entertainment without requiring space for moving and parking cars.

## About

### HealthLine

Cleveland's HealthLine on Euclid Avenue is commonly cited by other cities across the nation as the best practice for bus rapid transit (BRT). The line connects University Circle's major institutions with downtown Cleveland and has driven increasing investment in the district. With nearly \$6 billion in development along the corridor since 2005, the BRT line accomplished what more expensive light rail systems have achieved at a fraction of the cost and on a shorter timeline.<sup>1</sup> The investment in transit on Euclid transformed \$200 million in public investment into several billion dollars of economic growth for University Circle and the City of Cleveland.<sup>2</sup> This investment in transit generated a 30-fold economic investment in the city by private enterprises.<sup>3</sup>

### Red Line Improvements

RTA is in the process of relocating the East 120th Street station to the bustling and densely populated Little Italy

## Related Issues



Transit  
Accessible



Walking  
First



Smart  
Parking



Real Estate  
Development



Cleveland's successful HealthLine

neighborhood, providing greater access to the heart of retail and commercial activity in Uptown and Little Italy.<sup>3</sup> Additional investment has been made to simplify bus and rail connections at the University-Cedar Station. The project relocates bus bays closer to the rail station, renovates the station and brings the station and bus terminal into full compliance with ADA guidelines to ease access for those with limited mobility.<sup>4</sup>

### Economic Benefits

Transit users can generate more business than local drivers. A shopper survey along Columbus Avenue in San Francisco's Cole Valley found that transit users and walkers spend \$36 on average for each visit to the corridor compared to the drivers, who spend \$52. But those who take transit and walk visit local business more than twice as often, generating upwards of \$72 in retail purchases over the same period of time. With more frequent visits, transit riders and walkers spent \$252 to \$360 per month along the corridor, compared to \$208 per month for the average driver.<sup>5</sup>



# Prior Plans/Policies

- Facilitating Bicycle & Transit Travel in University Circle & Cleveland Heights (2013)
- Cleveland Complete & Green Streets (2013)
- Uptown District: A Transportation and Neighborhood Redevelopment Plan (2010)
- Mayfield Road Streetscape Improvement Plan (2009)
- MLK/East 105th Traffic Circle and Roadway Reconfiguration (2007)
- Connecting Cleveland 2020 Citywide Plan (2007)
- East 120th Street Station Master Plan (2007)
- Transit 2025: Long Range Plan of the Greater Cleveland Regional Transit Authority (2004)
- University Circle – Shaping the Future (2000)

# Tools



Far-side bus bulb

## Bus Bulbs

- Optimal placement of stops is at far-side bus bulbs, allowing the bus to clear signals before stopping for passengers.
- Bus bulbs allow for greater passenger waiting space and can ensure clear walkway zones for pedestrians traveling along the street.

## Stop Amenities

Bus stops should include all the components that encourage people to be confident the bus will arrive, including:

- Shelter for waiting passengers
- Benches for those with limited mobility to rest.
- Lighting should illuminate the sidewalk, placing lighting at 10-15 feet above the sidewalk. Use LED if possible as it casts off a more inviting light.
- Waste management/trash cans.
- Transit information, route maps, schedules, and walking maps to nearby destinations.
- Countdown clocks for real-time arrival information at BRT and rail lines.
- Bike racks



Sheltered bus station on Euclid Avenue

## Getting to Transit by Foot or Bike

- The tools outlined for crossings and safe sidewalk design under Walking First can improve access to transit for all ages and abilities by improving walking access to transit.
- Crossings near transit stops and hubs should at a minimum include sufficient width to accommodate curb ramps and pedestrian signals at signalized intersections.
- Improve or add wayfinding (see [Legible District](#))



Walking First design enhances transit access



Bike share can extend the reach of transit

- Ensure connectivity for bicyclists to accommodate the first or last mile trip to rapid transit and expand the reach of transit through key bicycle facilities to major destinations.
- Provide secure covered bicycle parking adjacent to major transit hubs.
- Add bike share at major terminals, transit hubs and major destinations in University Circle.

## Additional Tools

- Three key factors from University Circle's previous "Missing Links" study to support transit are:
  1. Availability and accuracy of information (real time and static)
  2. Provision of on-board amenities for longer trips (wifi, comfortable seats, etc.) and
  3. Demand for direct (one seat) service to University Circle from suburban/exurban hubs.

## Endnotes

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2. [http://www.cleveland.com/metro/index.ssf/2013/09/clevelands\\_healthline\\_gives\\_mo.html](http://www.cleveland.com/metro/index.ssf/2013/09/clevelands_healthline_gives_mo.html)
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## Goal

**Balance safe and reliable vehicular flow with needs for greater multimodal access.**

## Rationale

The majority of travel through University Circle is by private automobile. Providing a reasonable and reliable travel time and safe roadway network is critical to maintaining and improving University Circle's function as a multimodal district. Many of the multimodal recommendations in this report stand to improve safety for drivers by clarifying movements and addressing frequent points of conflict.

## About

- **Traffic Controls**

Traffic signals organize multimodal movements at intersections. Reducing complexity and establishing regular patterns of vehicle, bicycle, pedestrian and transit movements makes it easier for drivers to navigate University Circle.

Simplifying traffic signals through coordinated signal networks, shortening cycles, and providing predictable movements for all roadway users can reduce conflicts and delay at intersections.

- **Visibility**

Increasing visibility of people walking or bicycling can make it easier to drive and reduce crashes. Leading Pedestrian Intervals (LPIs) can also make it easier for drivers to see crossing pedestrians, reducing conflicts between drivers and pedestrians at intersections, and improving auto access.

Incorporate vehicle wayfinding to provide visible and easy to follow paths to key destinations and parking facilities (see Legible District strategy). Utilize styles, colors, and materials that are easily visible and durable through cold, wet winters.

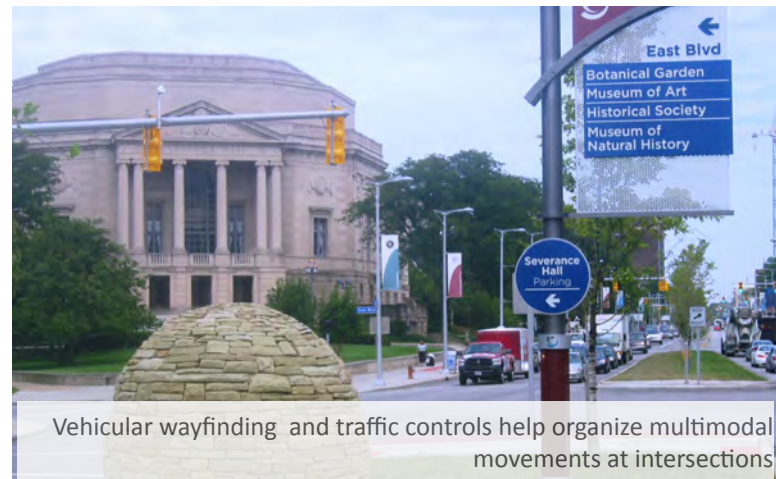
## Related Issues



Safe & Reliable  
Auto Access



Connectivity



Vehicular wayfinding and traffic controls help organize multimodal movements at intersections

- **Reliability**

Safe vehicle operations translate into reliable auto trips. Intersections that limit unique turning movements reduce the potential conflicts between vehicles; intersections that provide enough space without excess width, provide efficient vehicle flow without encouraging speeds dangerous to other drivers or modes.

## Prior Plans/Policies

- Cleveland Opportunity Corridor Project: Final Environmental Impact Statement (2014)
- Uptown District: A Transportation and Neighborhood Redevelopment Plan (2010)
- Cedar-Fairmount Transportation & Streetscape Plan (2009)
- Mayfield Road Streetscape Improvement Plan (2009)
- MLK / East 105th Traffic Circle and Roadway Reconfiguration: Technical Memorandum (2007)



## Traffic Signals

- Reduce delay for drivers after optimizing the signal timings for safe pedestrian crossings and shortening signals to 60-90 seconds to increase signal turnover.
- Use fixed signals for the pedestrian phase rather than actuated push buttons to provide a predictable signal environment for drivers and pedestrians.
- Use coordinated signals to ensure a consistent and safe traffic speed for all users.



Wayfinding is also useful for directing pedestrians and cyclists



Curb extensions help drivers see pedestrians around parked cars

## Visibility

- Install curb extensions at crossing next to on-street parking so drivers can see people waiting to cross.
- Install lighting at a height of 10 – 15 feet so the roadway, bicyclists, and people walking are visible to those driving after dark.
- Install Leading Pedestrian Intervals (LPIs) at key intersections to minimize conflicts between pedestrians and drivers at busy intersection to give slower walkers time to cross.

## Curb Alignment

- Align the curb. Using curb extensions make the curb line predictable for drivers so they can respond appropriately to changes in roadway widths and lane offsets.
- Use roadway markings to define through travel patterns for drivers and bicycle lanes from one side of the intersection to the other, especially where curb lines shift or roadways narrow.



Aligning the curb at this Y-interchange simplifies intersection movements for drivers



## Goal

**Integrate the online social space of University Circle with the real world destination.**

## Rationale

Linking the visual message of University Circle’s online presence and on-the-ground information supports a connected district. Opportunities to provide navigation information at key junctures in trips can smooth the transitions between multiple modes, highlight nearby activities and destinations, and reinforce the district’s “park once” strategy. Strengthening the links between physical maps and digital tools creates low-cost opportunities to share real-time information about activities and businesses in the district.

## Related Issues



Connectivity



Real Estate  
Development



Smart  
Parking



University Circle wayfinding signage

## About

### • Sense of Place

As part of this study’s outreach, online tools were used to work with the community and understand how they perceive, access, and experience University Circle. This process is a small part of digital placemaking, using technology to create a sense of place guided by the local community.<sup>1</sup> Digital placemaking extends beyond community engagement to online perceptions about a place. Distinguishing the University Circle District as a unique place is a key mission of University Circle. University Circle can create greater connectivity between diverse neighborhoods by using digital spaces, like [UniversityCircle.org](http://UniversityCircle.org) and local media, to articulate the uniqueness of the entire district.

### • Orientation

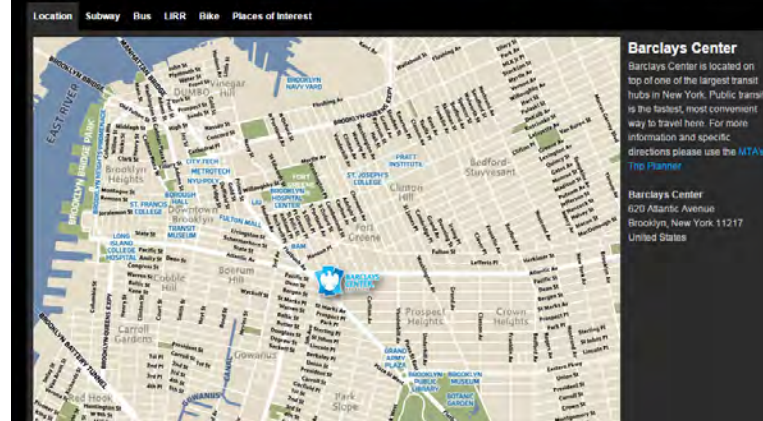
Orienting oneself to the surrounding environment can help encourage walking and visiting nearby destinations. Signage, maps and graphic design can help people navigate their surroundings at a glance; this process is called wayfinding. Effective vehicular wayfinding can reinforce “park once” behavior, navigate more safely and reduce overall vehicle trips (see “Safe and Reliable Auto Access”). In Vancouver, British Columbia, 82% of people said that after consulting wayfinding maps they are much more likely to walk than drive and repark.<sup>2</sup> University Circle currently has wayfinding maps and signage throughout the district but they vary in their look, feel and usability. Slight changes can unify and enhance these tools to increase their effectiveness in guiding travelers in the district to their destinations and encourage proximate opportunity by communicating activities along the way.



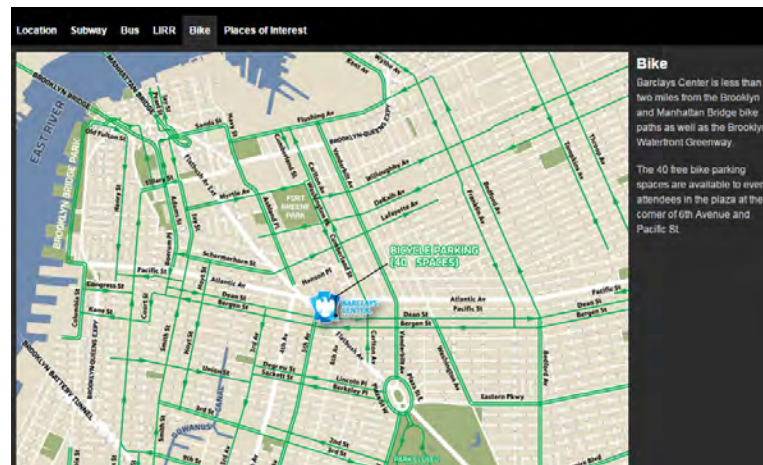
## Integrating Digital Placemaking

- University Circle, Inc. maintains an extensive online presence through the UniversityCircle.org website and social media, providing information on events, institutions, and activities throughout the district. This should be expanded to include a “one-stop” on-line transportation/travel information clearinghouse, as well as via smartphone application.
- Working with local stakeholders, promote online resources through new employee orientation materials, resident welcome packets, and at local businesses.
- Encourage people to explore the district by foot. Use route suggestions tailored to transit, biking, and walking with emphasis on the proximity to popular destinations.
- Use language that reinforces the transit accessible nature of the district and link to trip planners from RTA or popular mapping services, “Public transit is the fastest, most convenient way to travel here. For more information and specific directions please use the [RTA’s Trip Planner].”<sup>3</sup>
- Highlight parking facilities that cater to Park Once alternatives, like visitor parking or daily pass facilities to cater to tourists and day-trippers through University Circle’s current parking map.

## Public Transportation



[Barclays Center's Interactive Getting Here](#) portal encourages travel by transit and the proximity of popular destinations



Emphasize bicycle connections and bicycle parking capacity through the Getting Here portal [Barclays Center Interactive Map](#)



Wayfinding is placed right next to the bus stop

## Wayfinding 2.0

- Let people know where they are right when they've stepped off the bus, out of their car, or parked their bicycle, and how to make the last bit of their trip on foot.
- Place wayfinding signs and maps at intersections, bus stops, bicycle parking, and key decision points. Expand this program of physical kiosks at additional key locations throughout University Circle.

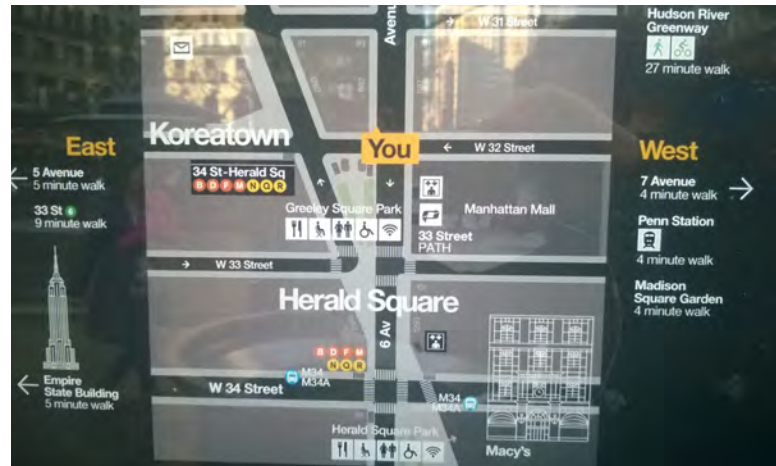


## Wayfinding 2.0 (continued)

- Provide estimates of how long to reach destinations by foot, with signs from transit hubs to major institutions every 1/4 mile.
- Use QR codes on wayfinding signage to provide digital directions for routes directly linking to walking route directions on visitor's mobile phones.
- Rotate current maps to create "heads up" wayfinding, the map rotation is oriented to the way people are standing while viewing the map. In Vancouver, 87% of people found the format easy to use.<sup>4</sup>
- Integrate photos or building outlines of iconic places viewable on the horizon on wayfinding maps. Visitors can use this visual language to orient themselves when they take their eyes off the map and begin their walk.
- Take the opportunity to promote special events on wayfinding maps and information posts. Use language such as, "Find out what's going on in University Circle today @inthecircle on Twitter or [UniversityCircle.org](http://UniversityCircle.org)"
- Create a cohesive sense of place. Use a common wayfinding base map throughout the district and use iconic banners to highlight unique neighborhoods, particularly at gateways or transition points between neighborhoods in the district.
- Visitors will become comfortable using a consistent map and be able to identify neighborhoods.



Walk [Your City] signs in Rochester, NY provide walking directions through QR Codes for mobile routing



Heads up wayfinding map with iconic buildings and nearby destinations with estimated walking times



Integrate iconography to communicate neighborhood identity within the University Circle District

## Endnotes

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2. White, R. (2014). "Moving Forward: Opportunities for Vancouver's Digital Wayfinding Map." <http://sustain.ubc.ca/>
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## Goal

**Reassess road space allocation to reveal opportunities to increase and enhance open space, landscaping, tree canopy, stormwater management, sidewalks, bicycle lanes, and transit access.**

## Rationale

Right-of-way is a valuable space that has traditionally been given over primarily to vehicles. Offering more transportation choice and varied public space through reallocations of public right-of-ways provides greater uses for uses University Circle in the district.

## About

### • Perceived Roadway Capacity

Volumes of traffic often feel higher than they actually are. This is due to issues such as speed (higher speeds feel like higher volumes), platooning due to long signal spacing, or signal timings that add to motorist delay. As a general rule, signalized roadways can carry between 800 and 1,000 vehicles per hour. Roads throughout University Circle have more than enough capacity to handle the number of cars using them. For example, the capacity of Stokes Boulevard exceeds peak hour use.

### • Integrate with Walking First Design

Rather than maintain surfaces that contribute to storm runoff, like asphalt or concrete, many of tools like curb extensions, medians, shared use paths and bus bulbs discussed previously can be opportunities to create green streetscapes.

## Related Issues



Connectivity



Safe & Reliable  
Auto Access



Real Estate  
Development



Euclid Avenue and Mayfield Road Plaza

### • Safety Benefits

The [Federal Highway Administration](#) analyzed the improved safety resulting from street reallocations of four to three lane conversions, in several cities in California and Washington. The analysis showed a 19% decrease in total crashes.<sup>1</sup>

### • Economic Benefits

On [York Boulevard in Los Angeles](#), a 4-lane road was transformed into a boulevard with bicycle lanes, curbside parking, and travel lanes in both directions with a center turning lane. Where street space was reallocated, sales taxes increased for businesses by 27% and produced twice as much sales tax revenue than businesses where street reallocation did not occur. Over 80% of surveyed customers view the new bike lanes as beneficial.<sup>2</sup>



## Prior Plans/Policies

- Cleveland Complete and Green Streets – Typologies Plan (2013)
- Project Clean Lake: Green Infrastructure Plan (2012)
- Mayfield Road Streetscape Improvement Plan – Reconnecting Communities through a Vibrant Main Street (2009)
- MLK/East 105th Traffic Circle and Roadway Reconfiguration (2007)
- Connecting Cleveland 2020 Citywide Plan (2007)
- East 120th Street Station Master Plan (2007)

## Tools



4 to 3 lane Road Diet with bicycle lanes and bioswales at curbside

### Space for Alternatives to Driving

- 4 to 3 lane conversions or road diets can be used to make space for bicyclists where travel lanes are underutilized by motor vehicles.
- The buffered bike lane on East 72nd Street where the road diet provided a connection for bicyclists from Erie's lakefront to the St. Clair neighborhood is a successful road diet by reallocating underused travel lanes to create space for safer bicycling.
- Underutilized roadway capacity can also provide space for transit lanes and still maintain enough capacity for automobiles on arterial corridors. The Euclid Avenue bus lanes for the HealthLine were implemented along segments with lower traffic, less than 15,000 average daily vehicles.

### Plazas

- Build upon the plaza successes at Euclid Avenue & Mayfield Road by adding plazas where there are slip lanes or overly large curb radii.
- Plazas transform underutilized areas of roadways into active public spaces and energize surrounding businesses by attracting foot traffic.
- Retail sales have shown marked increases along streets with plazas installed. A single plaza in Brooklyn generated a 172% increase in retail sales in the neighborhood compared to 18% across the borough. Other plazas in the city have shown increases of 14% in sales at fronting businesses and have shown to increase pedestrian traffic by 75%.<sup>3</sup>



Euclid Avenue & Mayfield Road Plaza

## Parklets

- Parklets are valuable public spaces that are smaller than plazas, but can transform one or two parking spots and create space for seating, dining, and relaxation.
- The most successful parklets are adjacent to frequent community destinations and include both seating and landscape elements.
- Parklets can be combined with bicycle parking, sidewalk cafés, and curb extensions with sufficient clearance from crossings (8 to 10 feet).
- They can be permanent or semi-permanent installations. Seasonal programs have been instituted in Philadelphia and Chicago for semi-permanent parklet installations.



Seasonal Parklet on Philadelphia's 43rd Street  
[Philadelphia Mayor's Office of Transportation and Utilities](#)



Columbus Day Parade on Mayfield Road  
Photo Credit: [Lisa DeJong](#)



Summer Streets - Ciclovía Event

## Temporary Street Closures

- Temporary street closures can accommodate large cultural or community events during off peak hours or on weekends.
- Mayfield Road in Little Italy is a key Festival Street, closing to accommodate large parades and events for the surrounding community.
- Temporary Street closures like open streets or Ciclovía events, are typically weekend street closures that encourage bicycling, walking and recreational uses along large boulevards or parkways.
- These open street events encourage physical activity and can be a great opportunity to promote healthy lifestyles and active transportation.
- Temporary street closure events in the University Circle area have included Walk+Roll along Martin Luther King Jr. Drive, Hessler Street Fair, and Parade the Circle and Criterium bike races around Wade Oval.



## Bioswales

- Bioswales are planted depressions used to promote the absorption of stormwater runoff. The depressed areas of bioswales pool water to manage stormwater runoff at its source.
- Bioswales can take the place of traditional landscaping and if native winter hardy plants are used can decrease maintenance costs.
- Bioswales can be incorporated into curb extensions where drainage is a concern.



Bioswales within curb extensions create sustainable streets



Replace traditional landscaping with rain gardens at plazas

## Rain Gardens

- Like bioswales, rain gardens absorb water in planted depressions; however they are much larger in size and have sloping features to allow more rainwater to drain.
- Sandy Boulevard, in Portland, Oregon, is lined by five distinct rain garden plazas creating a distinct streetscape for the business district and vibrant public spaces.

## Permeable Pavement

- Porous pavement and asphalt are similar to traditional pavement, however, the material filters water through small pores in the asphalt to a gravel bed underneath before reaching groundwater.
- Permeable pavement provides the smooth service that allows those with mobility issues to access shared use paths.



Permeable Pavers on Hessler Court



## Endnotes

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2. McCormick, C. (2012) "York Boulevard: The Economics of a Road Diet." [http://la.streetsblog.org/wp-content/pdf/york\\_blvd\\_final\\_report\\_compress.pdf](http://la.streetsblog.org/wp-content/pdf/york_blvd_final_report_compress.pdf)
3. New York City DOT (2012). "Measuring the Street." <http://www.nyc.gov/html/dot/downloads/pdf/2012-10-measuring-the-street.pdf>
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## Goal

**Focus on transformational opportunities to achieve balance between parking supply and demand.**

## Rationale

Support more growth throughout University Circle with less parking. Optimizing the utility of existing parking resources and increasing use of driving alternatives will reduce how much total parking is required to realize University Circle's vision for robust growth and vitality. Completing a virtuous circle, reducing parking infrastructure will leave more real estate and investment dollars available for higher and better uses.

## About

With significant parking capacity and multimodal options available throughout the area, parking supply need not be a barrier to the economic success and growth of the University Circle area (see ["MGUC Phase 1 - District Parking Study"](#)). Strategic parking management can address locational and temporal supply constraints, and better distribute demand among all available resources.

### Optimize Existing Capacity

- Make existing capacity more apparent
- Maintain availability at all times/locations
- Expand resource sharing
- Get more local trips out of each parking action

### Support/Promote Park Once

- Make it easier to get around all of University Circle without driving/re-parking.

### Reduce Demand (see Transportation Demand Management Strategy)

- Tap into growing demand for non-driving mobility
- Non-driving mobility is cheaper to accommodate, honors health mission of largest area institutions.

## Related Issues



Connectivity



Smart Parking



Safe & Reliable Auto Access



Visible, covered bike parking at main entrances encourages bicycling.

## Prior Plans/Policies

- Moving Greater University Circle: Phase I (2014)
- CWRU Campus Parking Plan (2014)
- Connections 2035 - Northeast Ohio's Long-Range Transportation Plan (2013)
- Intesa Transportation Impact Study and Shared Parking Analysis – Cleveland, OH (2012)
- East 120th Street Station Master Plan (2007)

## Price for Consistent Availability

- Charge based on on-street parking demand. If spaces are always full, they are under-priced.
- Build in responsiveness. Demand is dynamic, prices must be changeable to be effective.
- Break out of the 9-5. Curbside demand is gravitating toward evenings, with ample morning availability. Shift pricing schedules to protect evening availability, provide morning perk, and emphasize that pricing is about management, not revenue.
- Re-examine time limits. Effective pricing should reduce/eliminate their necessity.



Maintain a small portion of available parking at the curb



Reduce frustration with parking meters by using low cost Pay-by-Phone technology

## Improve Parking Experience

- Use technology to make parking easier to find, pay for, and think less about.
- Make paying for parking consistent and easy.
- Introduce a single Pay-by-Phone option to provide an alternative, cashless payment option that works for all options.
- Use Pay-by-Phone to provide remote expired-time alerts and options to pay for more time without returning to the space.
- Work with the City of Cleveland to develop a pilot Parking Benefits District (PBD) to return parking revenue to local improvements within Uptown, Little Italy, and/or all of University Circle.

## Improve Curbside Performance

- Expand and meter short-term parking within the Euclid and Mayfield commercial corridors.
- Ensure signage promote opportunities, not just restrictions.
- Use signage to promote off-street alternatives to on-street options for those seeking lower cost/more time.
- Showcase higher-capacity curbside uses. Find strategic locations for innovative uses that reflect the vision for the area — parklets, bike parking, bike sharing, and public valet stations.



Strategic transformation of parking to parklets can catalyze local businesses



## Expand Park Once Success

Most cultural institutions accommodate Park Once use of their on-site facilities, freeing their visitors to explore all of University Circle independent of their cars. Several additional public facilities offer the same. The benefits of this can be expanded by:

- Promoting the walkable proximity of the growing variety of area destinations.
- Ensuring that the Circle Link functions as, and is perceived to be, a visitor-focused shuttle between these destinations.
- Embracing bike mobility, including bike share and pedicabs, as an additional visitor-friendly option for connecting to University Circle destinations.
- Making better use of drop-off bays to make remote parking options more viable for large groups, families, the elderly, and visitors with mobility challenges.
- Expanding and coordinating Public Valet to develop a multi-station system that can straddle cultural and commercial centers of University Circle.
- Cross-Promoting area destinations, e.g. \$1 off parking with a receipt from a local restaurant; or free drink or appetizer with a paid admission to a cultural institution.



Little Italy's successful Public Valet



CircleLine Shuttle

## Promote Driving Alternatives

- Promote transit alternatives whenever providing How to Get Here information
- Offer incentives, like reduced admission fees, free drink/appetizer, or gift shop/cafe discounts with proof of payment
- Highlight the new and newly-renovated Red Line stations serving University Circle
- Promote bike share as a new resource for moving between destinations.
- Pursue opportunities to embrace and promote multimodal accessibility at key points of entry into the district.



## Goal

**Improve non-driving mobility among residents and commuters**

## Rationale

Local vehicle-ownership and drive-alone-commute rates will continue to largely determine how much auto infrastructure University Circle needs to grow. Developing a consolidated, universally-accessible Transportation Demand Management (TDM) program will be essential to achieving more growth with less parking.

## About

### **Raise Employer Programs to District-Level**

Make driving alternatives more market-competitive, and available to more area employees, through coordinated and sustained TDM programs.

### **Improve Public and Employee Health**

There is a unique opportunity in University Circle to link district-wide TDM efforts to reduce vehicle emissions and promote active transportation to the core mission of several, large area employers.

## Related Issues



Connectivity



Real Estate  
Development



Smart  
Parking



University Circle Bus Stop

## Prior Plans/Policies

- Moving Greater University Circle: Phase I (2014)
- CWRU Campus Parking Plan (2014)
- MGUC Parking and TDM Report, Districtwide Best Practices (2015)

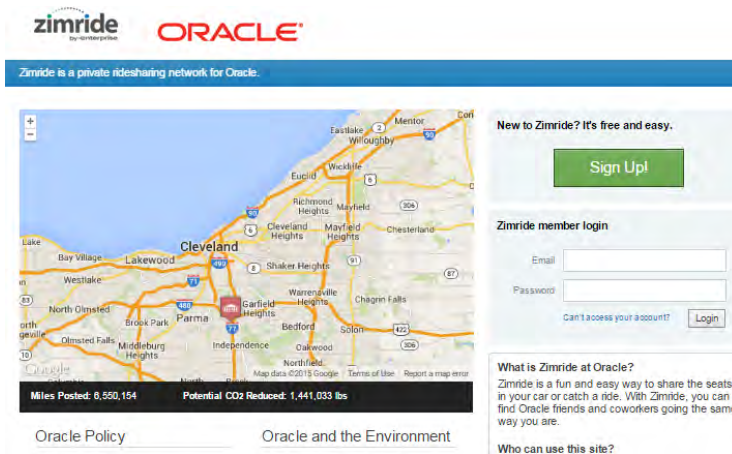


## Parking Cash-Out & Daily Parking

- Pay commuters not to drive. Convert parking-cost subsidies to cash incentives to not drive. Often referred to as a Cash-out program, this has proven successful in reducing parking demand among CMNH employees.
- Charge drivers each time they park. Attaching a cost to each driving commute will make pay-as-you-go options like transit more market-competitive.



Daily parking charges can be applied to student and employee ID cards



Oracle's Employee Ridesharing Portal through [Zimride](#)

## Carpooling 2.0

- Ridesharing can be a more flexible alternative to carpooling by allowing for ridesharing amongst a wider pool of riders and drivers, commonly within institutions or organizations.
- Assist ongoing efforts to establish a closed-network rideshare matching service, which employee surveys indicate would attract more commuters to ridesharing.
- Pursue supportive strategies for increasing rideshare commuting, including ride-matching, discounted rideshare parking, and preferential rideshare parking.

## Car-Sharing 2.0

- Expand access to car-share vehicles to accelerate growth of carless households.
- Explore opportunities for new car-sharing models to reduce area fleet needs.
- Ensure synergies between traditional and fleet-based programs to maximize vehicle numbers and distribution across University Circle.



The City of Chicago in partnership with Zipcar developed a [FlexFleet](#) for city services



## Deep Transit Discounts

- Promote and expand the existing RTA Student U-Pass Program.
- Work with RTA on options for developing a commuter-focused universal pass program.
- Work with area employers to promote the wider adoption of direct-subsidy benefits, perhaps similar to the current University Hospitals benefit.



Encourage employees and students to use public transit



CircleLink Shuttle

## Commuter Shuttles

- Improve shuttle connections to nearby Cleveland Heights and Shaker Square and direct transit service to more distant ODOT and RTA park & ride lots.
- Create park and ride opportunities through expanded transit to suburban campuses of existing University Circle employers.
- Explore vanpool programs in coordination with area transit agencies and local employers.

## Parking Perks for Alt. Mode Users

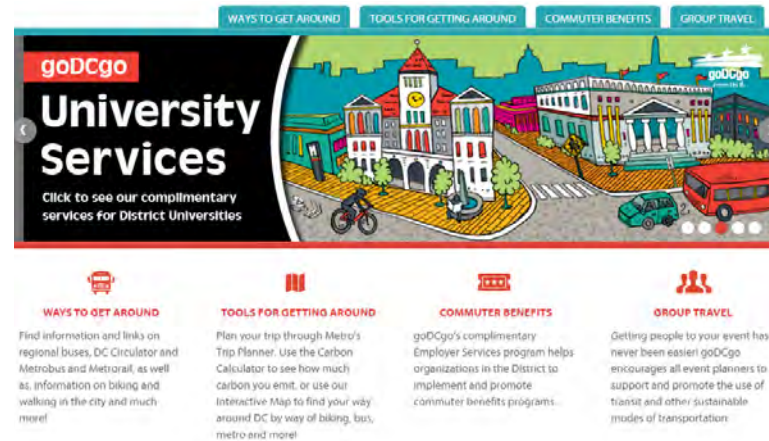
- Allow commuters who forego a standard parking permit occasional access to prime, visitor parking facilities.
- Reserve the best spaces in any facility for carpool and vanpool participants.
- Place bike parking in prominent, convenient locations.
- Promote and expand “guaranteed-ride-home” programs, which provide an occasional subsidized ride to commuters who use alternative modes.
- Encourage local employers to provide shower and locker facilities for bicycle commuters.



Parking access gate in University Circle

## Universal TDM Access

- Take advantage of all the best practices currently offered by individual employers to create a suite of benefits to be offered to all.
- Improve the suite of options provided, the effectiveness of their marketing and promotion, and their reach across all employers in the district.
- This will provide better access to non-driving commute benefits and incentives for small-business employees.
- A one-stop information center (either on-line or via phone) would provide all University Circle stakeholders with consistent information to make informed choices about their travel options.
- Market the complete suite of travel options and incentive programs described above, so everyone knows what is available when making their travel decisions.



[goDCgo](#) markets district-wide alternatives

## Goal

**Leverage new development opportunities, and use mobility goals to shape future real estate development.**

## Rationale

New development can help catalyze economic activity within University Circle. By applying the best mobility standards to new development, University Circle can become a leader in accessible and sustainable urban growth. Likewise, forward-thinking mobility strategies can help the district grow more sustainably with increased density and a healthy mixture of land uses.

## About

- **Land Use and Zoning**

Mixed land use districts like University Circle require less parking since access between, work, school and recreation can be met by alternative modes to driving or by Park Once strategies.

Current zoning and parking guidance is provided by the City of Cleveland. Cleveland has recognized the multimodal nature of mixed-use districts by adopting parking guidance and access management guidance specific to these areas. Many efforts throughout the area, including the Connecting Cleveland Citywide Plan, UCI's Shaping the Future vision plan, and the Vibrant NEO regional plan, offer guidance on creating a range of land use types that encouraging multimodal access and maximize the efficiency of the networks supporting new development.

The following New Development Tools outline current guidance and highlight opportunities to grow multimodal access in University Circle.

## Related Issues



Connectivity



Smart  
Parking



Safe & Reliable  
Auto Access



Real Estate  
Development



Mixed-Use Districts encourage Park Once and multimodal transportation

## Prior Plans/Policies

- City of Cleveland Code of Ordinances, Part IIIB, Title VI
- Shaping the Future of University Circle, 2000



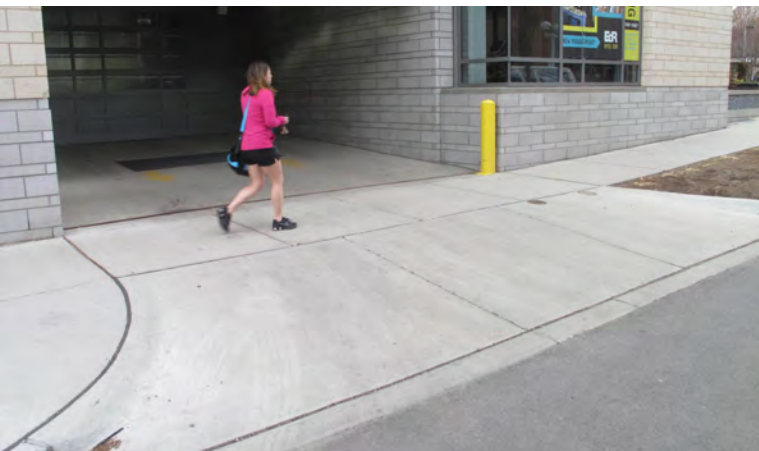
## Parking Minimums & Maximums

### Current Guidance

- Cleveland Zoning Code requires a minimum amount of accessory off-street parking spaces (Chapter 349.01).
- Mixed-Use District Zoning Code amendments set parking minimums to 50% of original requirements and parking maximums of 100% to 120% of the original code minimums for retail spaces and shared parking arrangements. The Midtown Overlay District (Chapter 344.08) is an example of this approach, which could be extended to University Circle.
- Accessory off-street parking minimum requirements do not apply to the Central Business District (Chapter 349.11).

### Opportunities

- Encourage the adoption of parking maximums for all new development.
- Explore the opportunity to eliminate minimum off-street accessory parking requirements like the CBD designation.
- Where parking is constructed above the maximum standard, all parking should be “unbundled” — identification of space use or ownership is a separate and optional cost item for all building occupants.
- Require all new developments to provide a Transportation Demand Management Plan that balances parking demand with other access options.



Ramp driveways up to sidewalk level and use sidewalk pavement materials across the driveway

## Access Management

Access management focuses on controlling the location, spacing, and design of entrances. The presence of driveways on streets creates conflict points between through-moving vehicles and those attempting to turn into and out of adjacent driveways. Access management can also preserve more on-street spaces and minimize vehicle conflicts with people walking or cycling, and transit movements.

### Current Guidance

- Vehicle access from side streets are to be located at the rear of the building or in areas least disruptive to pedestrian or vehicular traffic.
- If no other alternatives exist, only one entry to/from Euclid Avenue is permitted.

### Opportunities

- Encourage access points and driveways to be designed with the sidewalk dominant over the driveway.

## Active Uses

All parking structures should contain or be wrapped by active, sidewalk-oriented, commercial or residential land uses at the sidewalk level.

### Current Guidance

- Currently the City of Cleveland does not provide guidance on active ground floor uses for parking structures.

### Opportunities

- Local stakeholders and developers have taken the lead to develop active uses around parking.
- Uptown developments have also successfully employed this design.



Wrap parking with active uses



Indoor bicycle parking

## Bicycle Parking

### Current Guidance

- One bicycle parking space for every 20 automobile spaces (Chapter 349.15).
- All new car parking should include bicycle parking, up to a maximum of 24 bicycle spaces required (Chapter 349.15).
- For commercial uses, bicycle parking must have the same protection from weather as car parking and include secure racks or lockers (Chapter 349.15).

### Opportunities

Develop clear guidance for bicycle parking that focuses on cyclists' needs rather than auto parking:

- Siting near building entrances
- Design for indoor and outdoor parking
- Quantity, creating a tiered approach to bicycle parking requirements based on development size.

## Disallow Surface Lot Development

Prohibit the development of surface lots within the district.

### Current Guidance

- The City Planning Commission prohibits the development or expansion of surface lots in the “Designated Downtown Area Districts” (Chapter 349.14)
- Surface parking lots in residential districts are allowed if they benefit the community (Chapter 349.13).

### Opportunities

- Continue to discourage surface lot development and if necessary wrap the parking with attractive landscaping and fencing or with active uses, e.g. The Warehouse District’s “Small Box” shipping container retail shops.



## PLACES

The following Place sheets apply the concepts described in the Strategy sheets to identify transformative improvements for 11 key mobility locations throughout University Circle. The locations were identified through crash data and community input as difficult to traverse. Each Place identified represents a location within the Study Area where identifiable mobility enhancements can be predicted to have significant impact.

The Place Sheets are intended to provide an easily referenced set of recommendations specific to each focus area for mobility improvements that can be implemented over time, starting with the 4 high-priority locations on page 1.

Place recommendations are provided for:

- Chester Avenue and East 93rd Street
- South Wade Park
- Chester and Euclid Avenues, Stokes Boulevard, and Martin Luther King Jr. Drive
- Carnegie Avenue and Stokes Boulevard
- Stokes Boulevard and Cedar Road
- Cedar-University Station, Martin Luther King Jr. Drive, and Carnegie Avenue
- Euclid Heights Boulevard, Cedar Glen Parkway, and Cedar Road
- Martin Luther King Jr. Drive, Stokes Boulevard, and Fairhill Road
- Euclid Avenue, Mayfield Road, and Ford Drive
- CWRU North Campus
- Euclid Avenue Uptown

Each Place sheet includes:

- The Issues identified by the community that occur at that location, including identification of crash patterns;
- Primary Opportunities from the physical configuration or other planning efforts underway in the District;
- Recommendations based on the project's Principles and Strategies;
- Aerials showing existing and proposed conditions;
- Order of magnitude cost estimates for capital investments (not including design/engineering). Further estimating is required to identify final project costs.
- Where applicable, summaries of analysis of vehicle operations, including:
  - Existing and projected vehicle Level of Service, based on changes to intersection operations plus anticipated growth from development; and
  - The number of vehicle lanes needed to accommodate the peak period vehicle volume.
  - Full results of the traffic analysis, including anticipated development projects, are presented in the appendix.
- Community feedback on the recommendations, collected through Open Houses, Focus Groups, and an on-line survey tool, and any changes incorporated based on this feedback.





## Issues & Community Views



**Walking First**



**Safe & Reliable  
Auto Access**



**Bicycle Friendly**



**Connectivity**



**Dynamic Streets**



**Real Estate Development**

## Recommendations



### **Walking First & Dynamic Streets**


- Establish safer, more visible Chester Ave. crossings for pedestrians by reducing travel lanes, installing a median, and providing ADA curb ramps.
- Add bioswales to medians for drainage



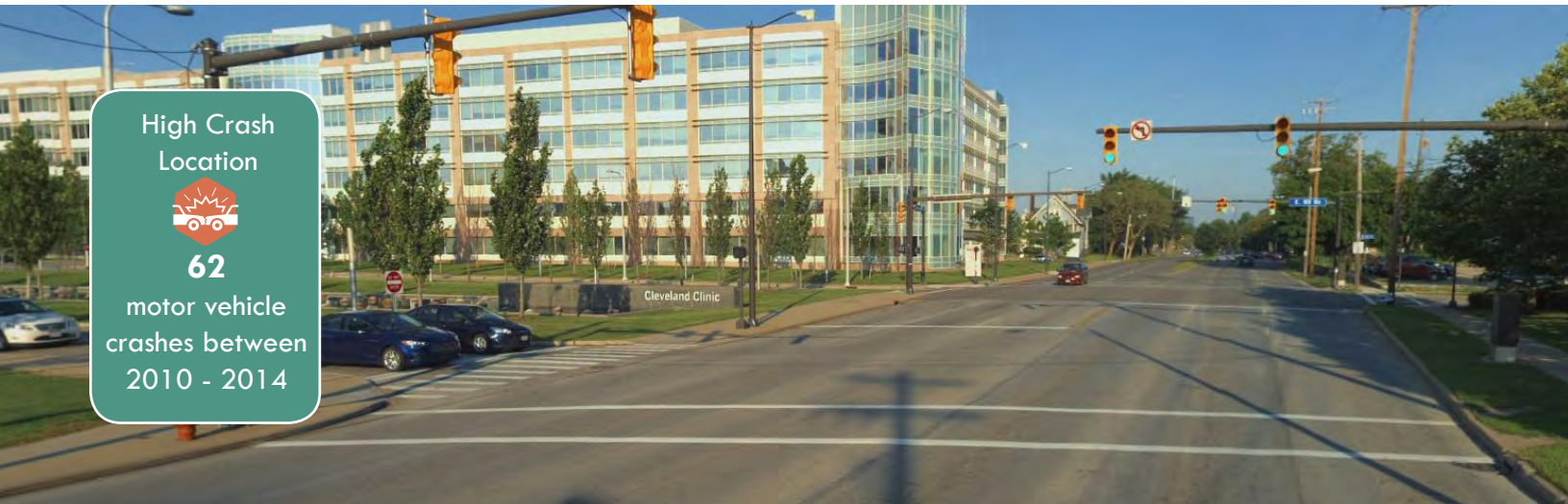
### **Bicycle Friendly**

- Ensure north/south bicycle connections to Upper Chester development. This intersection had one bike crash in 2011.
- Expand east/west bicycle connections between the CCF and Health Education campuses and points north and east.

High Crash Location



**62**  
motor vehicle  
crashes between  
2010 - 2014



# Proposed Intersection Improvements

- **Put Chester Avenue on a road diet**

Chester Avenue currently has six through lanes, three in each direction. Reducing this to four lanes and a turn lane/median can actually improve traffic flow by giving turning vehicles a place to wait and reducing weaving. The proposed road diet could stretch as far east as Stokes, but that there will need to be planning coordination alongside the Opportunity Corridor Project.

- **Provide median pedestrian refuges**

Extend the medians past the crosswalk and create a protected area for pedestrians to wait while crossing Chester Avenue. This allows pedestrians with limited mobility to safely rest or wait before completing the crossing. Medians can also contain bioswales to promote drainage.

- **Provide bicycle connection to Upper Chester**

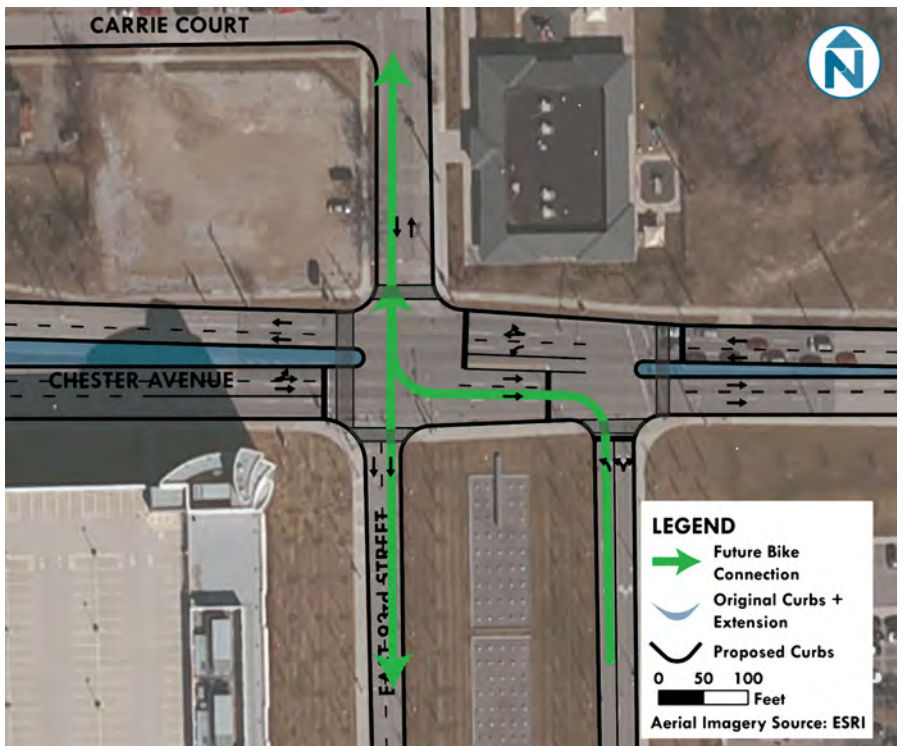
Ensure north/south bicycle connections to Upper Chester, to points north, east and west supported in the Upper Chester Neighborhood Plan.

**Capital Cost Estimate**

\$\$



Existing



Proposed



# Proposed Intersection Improvements



Median Pedestrian Refuge (New York, NY)

## Intersection Vehicular Operations<sup>1</sup>

Existing LOS		Projected LOS	
AM	PM	AM	PM
C	B	C	C

## Community Feedback on Proposals

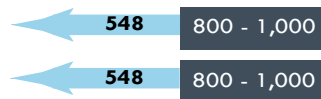
- Strong support for the median island as a traffic calming method and aid to pedestrian at intersections along Chester.
- Support for general pedestrian and bicycle improvements in the area was strong as a reaction to the current conditions and with an eye on future development slated for the area.
- Bike lanes were not supported by the majority of respondents and were removed from the primary recommendations, though they could be further explored in the future.
- Demand for increased shuttle service to this area, which will be explored in a second study by project partners.

### Existing Peak Utilization

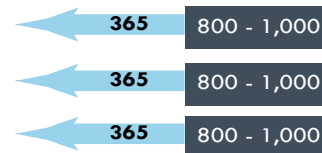
Westbound Chester

**1,095**  
vehicles/hour

### After Conversion to 2 Lanes



### Utilization on Existing 3 Lanes

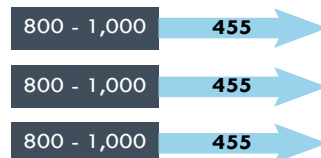


### Existing Peak Utilization

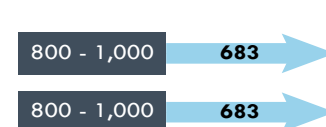
Eastbound Chester

**1,366**  
vehicles/hour

### Utilization on Existing 3 Lanes



### After Conversion to 2 Lanes



Signalized roadway capacity per lane per hour: 800 - 1,000

■ Capacity  
■ Existing Utilization

<sup>1</sup> Signalized roadway capacity assumptions from FHWA. (1998). HOV Systems Manual (No. 414). Washington D.C.: Transportation Research Board. Retrieved from [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_414.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_414.pdf)





### Issues & Community Views



#### **Walking First**

"Hazardous pedestrian crossing because of turners."



#### **Bicycle Friendly**

"East Blvd. is hazardous...cars travel far too quickly, parking on both sides greatly increases the risk of being 'doored'."



#### **Safe and Reliable Auto Access**

"The design of East Boulevard lends itself to cars traveling above the speed limit."

### Opportunities

#### • **Cultural and recreational amenities**

Wade Park's cultural institutions are assets for University Circle and the region. Improving access by all transportation modes allows more people to take advantage of these destinations.

#### • **Coordination with upcoming projects**

3rd Precinct Redevelopment, CWRU Master Plan & Connector Project.

### Recommendations



#### **Walking First & Dynamic Streets**

- Create a new east-west pedestrian and bicycle connection, between E. 105th Street and East Boulevard, south of the Cleveland Museum of Art.
- Install both horizontal (curb extensions) and vertical (speed tables) traffic calming measures at crossings.



#### **Bicycle Friendly**

- Improve access to and around Wade Park with new bicycle connections.



# Proposed Intersection Improvements

- **Install bike facility on East Boulevard**

Bike lanes or an off-road multi-use path between Euclid Avenue and Bellflower Road will improve connections between the CWRU North and South campuses and new development to the west, as well as to the wider region (specific location and type of treatment will require additional planning).

- **Create a new east-west connection**

Bold new pedestrian and bicycle connections between East Boulevard, Martin Luther King, Jr. Drive, and East 105th Street will improve links within Wade Park, between the CWRU campuses, and between the Hough, Upper Chester, and University Circle neighborhoods.

- **Add speed tables and curb extensions**

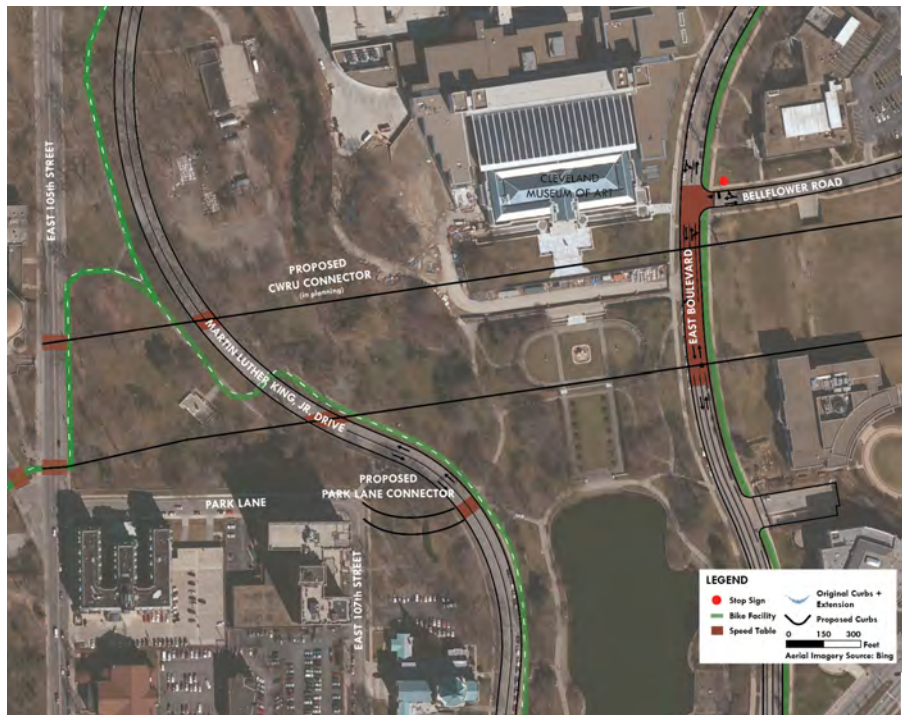
Add speed tables and/or curb extensions along East Boulevard near Bellflower Road and where the proposed CWRU Connector will intersect with East 105th Street and Martin Luther King Jr. Drive. These will alert drivers to the presence of pedestrians and create safer crossings at each location.

## Capital Cost Estimate

\$



Existing



Proposed

The proposed CWRU and Park Lane connectors are currently in planning and will further develop these recommendations.





Dedicated bike trails can provide both a recreational path for casual cyclists and a safer route for commuters



Traffic calming, such as speed humps, tables and other devices, can slow down traffic and improve safety conditions for pedestrians

## Community Feedback on Proposals

- There was strong support for the proposed stop signs at Bellflower Road and East Boulevard especially from those concerned about bicyclist and pedestrian visibility around the area.
- Many commenters mentioned the confusion and potential danger in crossing East Boulevard and supported the proposals for focused changes to the intersection.
- Enhanced crossings of MLK were broadly supported, especially by stakeholders from Judson Manor and Cleveland Sight Center.





### Issues & Community Views



#### Walking First

“Crossing Chester at E 107th is hazardous to pedestrians.”  
“Shouldn’t be so difficult to walk from UH/CWRU to Cleveland Clinic.”



#### Bicycle Friendly

“Cars don’t know how to treat bikes and yell at you to get on the sidewalk or drive too close and honk.”



#### Safe and Reliable Auto Access

“Confusing as to which lane goes where. Lanes turn into turn-only lanes which make drivers merge over suddenly.”

### Opportunities

#### • Excess Street Space

This is a large, complicated set of intersections with several confusing or underused street segments. Recapturing them can create more space for pedestrians, bicyclists, and open space while simplifying vehicle movement, while providing a safer place for all travelers.

#### • Coordination with Upcoming Projects

3rd Precinct Redevelopment, CWRU Master Plan, One University Circle

### Recommendations



#### Walking First & Real Estate Development

- Expand pedestrian refuges
- Add marked crosswalks, ramps at all corners
- More space at Chester and Stokes offers development opportunities




#### Bicycle Friendly & Safe, Reliable Auto Access



- Reduce conflicts between drivers, pedestrians, and bicyclists especially at intersections with high crash volumes like this focus area.



High Crash Location



**267**  
motor vehicle  
crashes between  
2010 - 2014

Chester Avenue at East 107th Street

# Proposed Intersection Improvements

- **Close the slip lane at Chester and Stokes**  
Remove the double right turn slip lanes from eastbound Chester Avenue to southbound Stokes Boulevard to reduce the pedestrian crossing distance and discourage speeding.
- **Create pedestrian refuges**  
Extend the median on both sides of Chester and 107th to create pedestrian refuges.
- **Liberty Boulevard North road diet**  
Reduce Liberty Boulevard between the eastbound and westbound sections of Chester Avenue to one lane which will increase safety and reduce dangerous merging without disrupting traffic flow.
- **Remove Liberty Boulevard South**  
Remove Liberty Boulevard between Chester Avenue eastbound and Stokes Boulevard, which is redundant and cuts across open space. This would also add space for temporary programming or long term redevelopment.
- **Close the slip lane at Euclid and Chester**  
Remove the right turn slip lane from southbound Euclid to northbound Chester to discourage speeding and reduce pedestrian crossing distance.



Existing



Proposed

**Capital Cost Estimate**

\$\$\$





City Architecture rendering of Chester Avenue and Stokes Boulevard

## Intersection Vehicular Operations

Intersection	Existing LOS		Projected LOS	
	AM	PM	AM	PM
<b>Chester at 107th/ Stokes</b>	A	B	A	B
<b>Stokes at Euclid</b>	D	D	E	E

## Community Feedback on Proposals

- Strong support for removing Liberty Boulevard with many people seeing it as an unnecessary complication to the intersection. Also strong concern due to concerns that lane closures would complicate the high-volume morning commute.
- Significant feedback on the curb extensions with many stakeholders weighing in both for and against the proposal.
- Better bike infrastructure throughout the area was requested by commenters including stronger messaging to drivers than “Share the Road.”

### Existing Peak Utilization

Southbound Liberty

**507**

vehicles/hour

Signalized roadway capacity per lane per hour: 800 - 1,000

### Utilization on Existing 2 Lanes



### After Conversion to 1 Lanes



■ Capacity  
■ Existing Utilization





## Issues & Community Views



### Walking First

“Eliminating the cut-thru triangle [could] make this area safer for pedestrians and cyclists.”



### Safe & Reliable Auto Access



### Bicycle Friendly



### Connectivity

## Opportunities

### • The Triangle

The irregular left turn configuration is confusing, encourages uncontrolled left turns and queuing into traffic lanes. Closing it can improve safety for drivers, while creating new opportunities for development or open space.

### • More sidewalk space

This is a large intersection with wide curves that encourages speeding. Curb extensions can calm traffic and improve safety for everyone who travels here without reducing traffic flow.

### • Coordination with upcoming projects

CWRU Master Plan, Cleveland Clinic parking garage, and Stokes Corridor development.

## Recommendations



### Walking First

- New crosswalks on the south side of Carnegie Avenue and Stokes Boulevard
- Curb extensions on Stokes Boulevard at 107th Street
- New median on Carnegie Avenue, west of Stokes Blvd.



### Dynamic Streets

- Close the triangle and remove the southbound slip lane on Stokes Boulevard.
- Create opportunities for public space and placemaking
- Use bioswales if possible
- Remove one lane of vehicle traffic on southbound Stokes Blvd.



High Crash  
Location



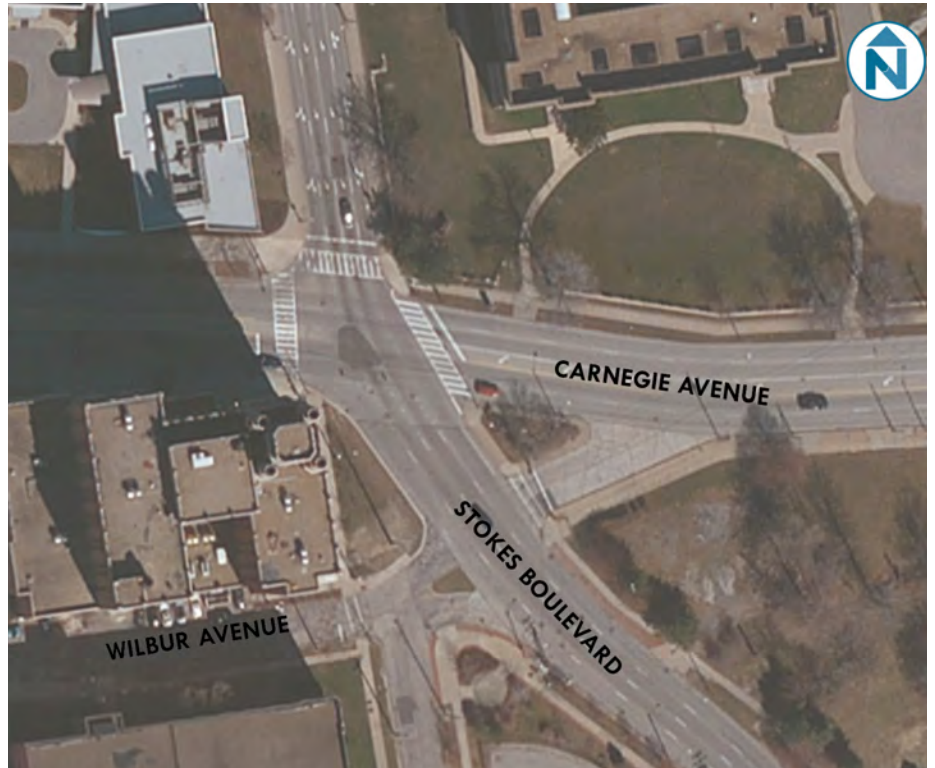
88

motor vehicle  
crashes between  
2010 - 2014

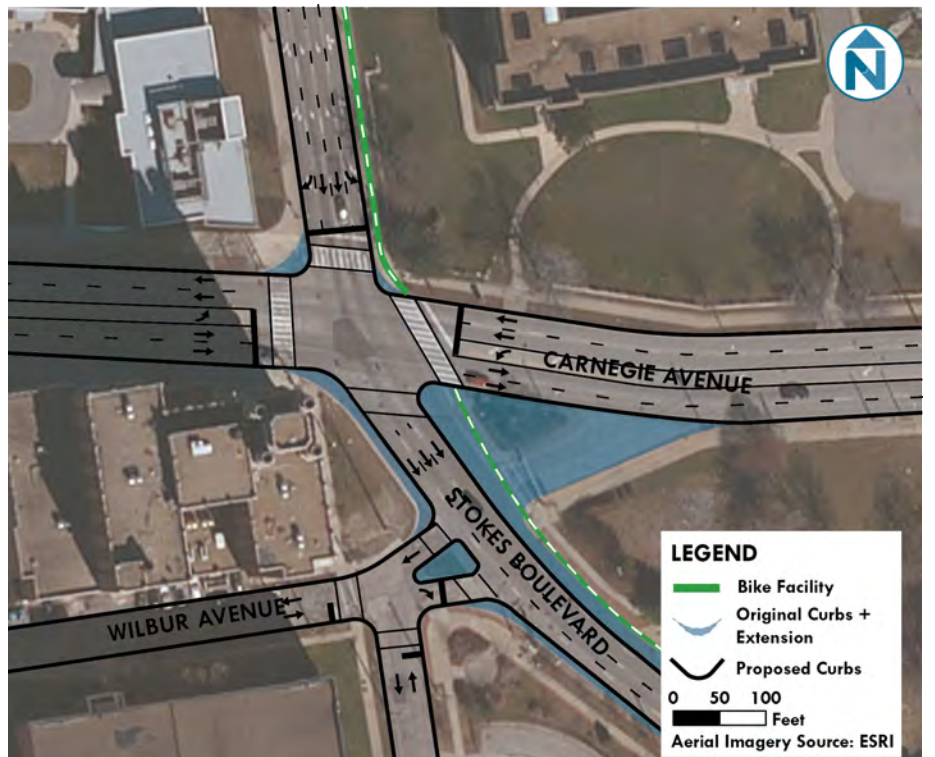
# Proposed Intersection Improvements

- **Close the slip lane**  
Close the left turn slip lane from westbound Carnegie Avenue to Stokes Boulevard. Left turns can be accommodated at the full intersection. Closing this lane can improve safety and create an opportunity for development.
- **Add curb extensions**  
Expanding the sidewalk space at the corner and providing a median and pedestrian refuge on Carnegie Avenue will reduce the crossing distance for pedestrians, calm traffic, and increase opportunities for landscaping and bioswales.
- **Make Wilbur Avenue right-in, right-out**  
A right-in, right-out intersection will reduce conflicts between turning vehicles and improve the safety of pedestrians crossing the street.
- **Reduce the number of lanes on Stokes Boulevard**  
Traffic volumes here only justify two lanes. Even providing three lanes makes it possible to repurpose the excess space for other uses.
- **Create a multimodal Stokes Corridor** with wider sidewalks and a bikeway connection, enabling Stokes to become a major link for all modes.

**Capital Cost estimate**  
\$\$



Existing



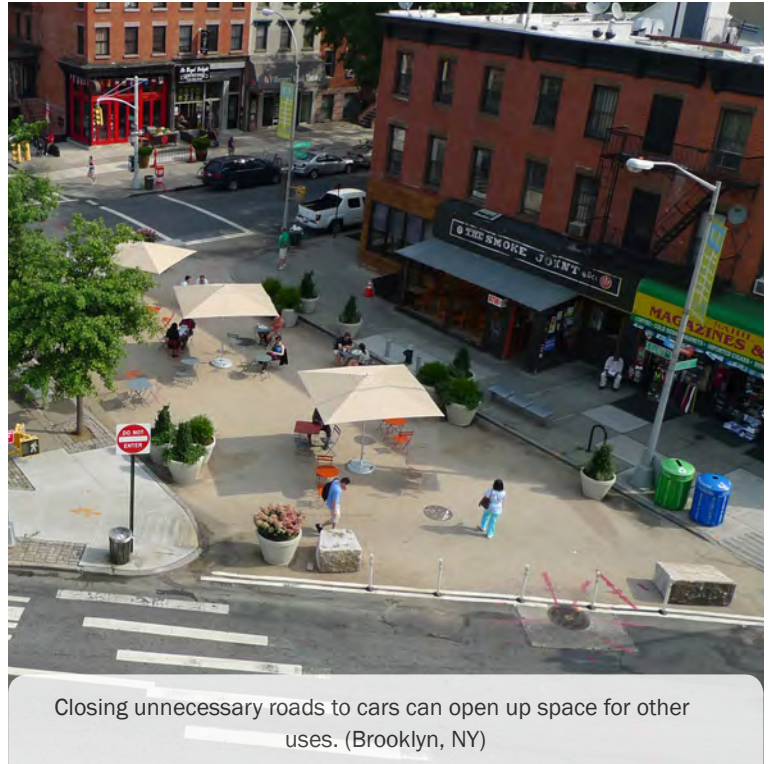
Proposed



# Proposed Intersection Improvements

## Intersection Vehicular Operations

Existing LOS		Projected LOS	
AM	PM	AM	PM
C	B	C	C



### Existing Peak Utilization

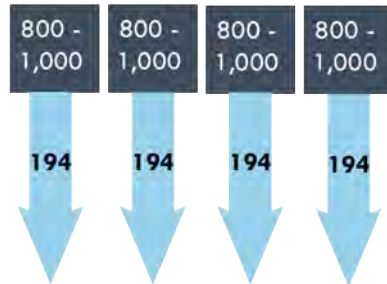
Southbound Stokes

**776**

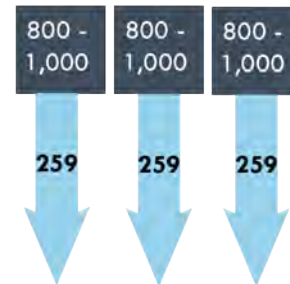
vehicles/hour

Signalized roadway capacity per lane per hour: 800 - 1,000

### Utilization on Existing 4 Lanes



### After Conversion to 3 Lanes



■ Capacity  
■ Existing Utilization

## Community Feedback on Proposals

- Strong support for closing the slip lane and the curb extension from Stokes Boulevard onto Carnegie Avenue, which was largely seen as unnecessary and needlessly complicating the intersection.
- Strong support from cyclists for extended off-road connection.
- Mixed support for the proposed Stokes Boulevard at Wilbur Avenue intersection, especially the fear that the right-turn lane on Wilbur Avenue onto Stokes Boulevard would cause congestion and potentially block southbound traffic. Opposition voiced as well, with concerns over capacity and access when the new CCF garage opens.





## Issues & Community Views



### Walking First

"Many bike riders use the sidewalk between the rail overpass and Cedar Ave."



### Real Estate Development



### Bicycle Friendly

"Horrible biking connection."



### Safe & Reliable Auto Access

"Confusing as to which lane goes where. Lanes turn into turn-only lanes which make drivers merge over suddenly."

## Opportunities

### • Excess street space

This is a large intersection with wide curves that encourage speeding, while there are more lanes than traffic volumes require. Repurposing street space for pedestrians and bicyclists can calm traffic and improve safety for everyone who travels here without reducing traffic flow.

### • Coordination with upcoming projects

Development potential on Stokes Corridor surface lots

## Recommendations

### Walking First & Bicycle Friendly

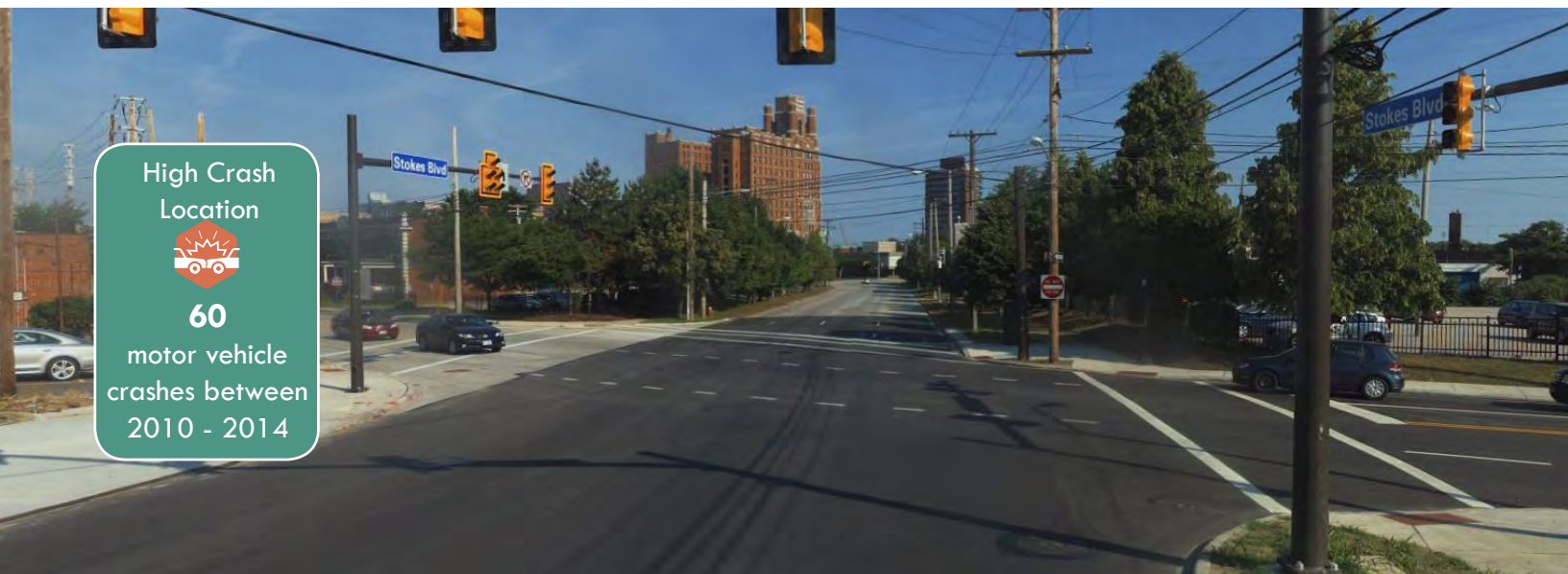


- Crosswalks on all four legs of the intersection
- Bicycle path along the east side of Stokes
- Remove one lane of Stokes to allow for extension of off-street bicycle path on the east side of the street


### Dynamic Streets



- Repurpose extra street space for landscaping and bioswales



High Crash  
Location



60  
motor vehicle  
crashes between  
2010 - 2014

# Proposed Intersection Improvements

- **Curb extensions**

Extend the sidewalk at the southwest side of Stokes Boulevard and Cedar Road to reduce crossing distances and discourage speeding.

- **Road diet for Stokes Boulevard**

Reduce Stokes Boulevard from four lanes to three lanes. Use the reclaimed space for wider pedestrian sidewalks, and soften the edges of the road using bioswale tree pits integrated with the curb extensions.

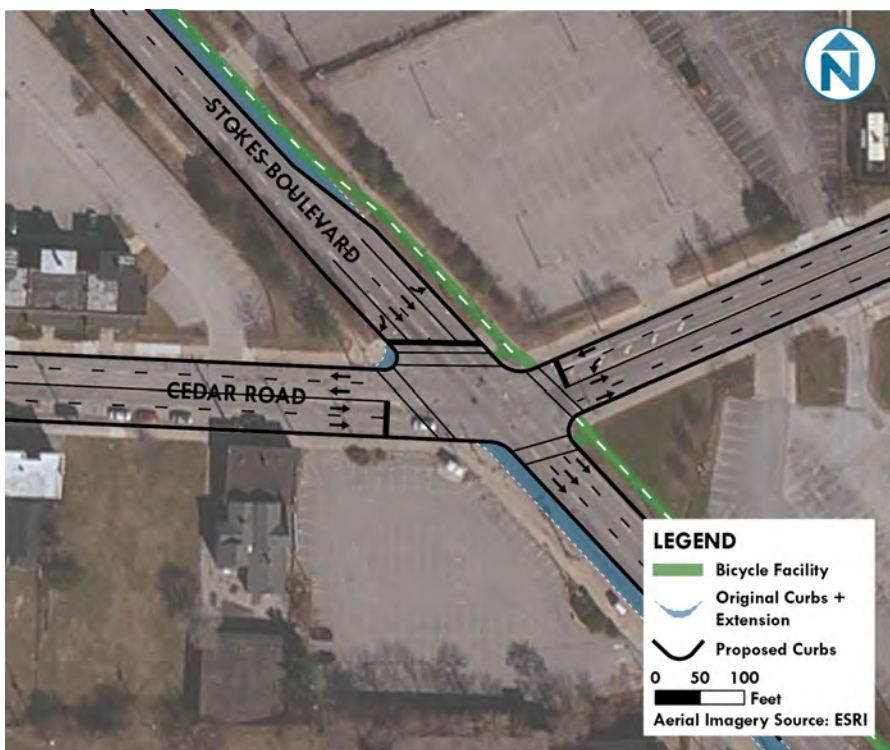
- Extend Lake-to-Lakes Trail along Stokes Boulevard, creating a new off-road connection on the “desire line” from the Stokes/Fairhill/MLK intersection to destinations like the Cleveland Clinic, John Hay High School and connections along Euclid Avenue.

- Encourage pedestrian-oriented mixed-use development on surface lots in this area by enhancing bicycle and pedestrian connectivity.

**Capital Cost Estimate**  
\$\$



Existing



Proposed



# Proposed Intersection Improvements



Bioswale tree pits add greenery, drainage and soften the edges of this street (Seattle, WA)



Adding crosswalks to all legs of an intersection increases pedestrian safety and utility



Road diets can simplify traffic flow through complicated intersections

## Community Feedback on Proposals

- Some commenters thought that the proposed curb alignment seemed unnecessary.
- Commenters strongly supported the bikeway through the area.
- Support for maintained lane capacity at the intersection and for lane reductions south of the intersection on the uphill section of Stokes.





## Issues & Community Views



### Walking First

"It is nearly impossible to cross this mess safely."

"This is a horrible road for walking and biking. The sidewalk is not ADA compliant and the road's design speed is excessive. It is a candidate for a road diet."



### Transit Accessible

Heavy transfer activity between local and regional bus and rail service.



### Safe & Reliable Auto Access

## Opportunities

### • Excess street space

This is a large intersection with wide curves that encourages speeding. Repurposing street space for pedestrians and bicyclists can calm traffic and improve safety for everyone who travels here without reducing traffic flow.

### • Major pedestrian generators

A large number of pedestrians are drawn to the rail/bus station and the nearby schools. This intersection is a great opportunity to create a safer and more pleasant walking experience.

### • Coordination with upcoming projects

CWRU Master Plan, Cleveland School of the Arts

## Recommendations



### Walking First & Dynamic Streets

- Wide, high-visibility crosswalks
- Shortened pedestrian crossing distances
- Set back stop bars on Cedar Glen and for buses leaving the RTA station



### Bicycle Friendly

### & Transit Accessible

- Extend the Harrison Dillard Trail by closing De Forest Road
- Enhance bike/ped access to a major transit hub



# Proposed Intersection Improvements

- **Let People Cross the Street**

Provide a safe east-west crossing of MLK for pedestrians on the north side of the intersection by extending curbs, installing a crosswalk and signals, and reassigning Cedar westbound lane movements (see “Appendix: Cedar-University Memorandum”).

- **Separate through traffic from turning traffic**

Use medians to channelize traffic making turns, reducing the crossing distance for pedestrians, discouraging speeding, and reducing dangerous weaving motions.

- **Close De Forest Road**

Removing this redundant street segment eliminates conflicts between turning drivers, cyclists, and pedestrians at the street’s intersections with Carnegie and Cedar avenues.

- **Enhance bike access**

Align the Harrison Dillard and Lake-to-Lakes Trails with a north-south crossing of Carnegie aligned with MLK.

- **Create a bus lane between Carnegie Avenue and the bus loop**

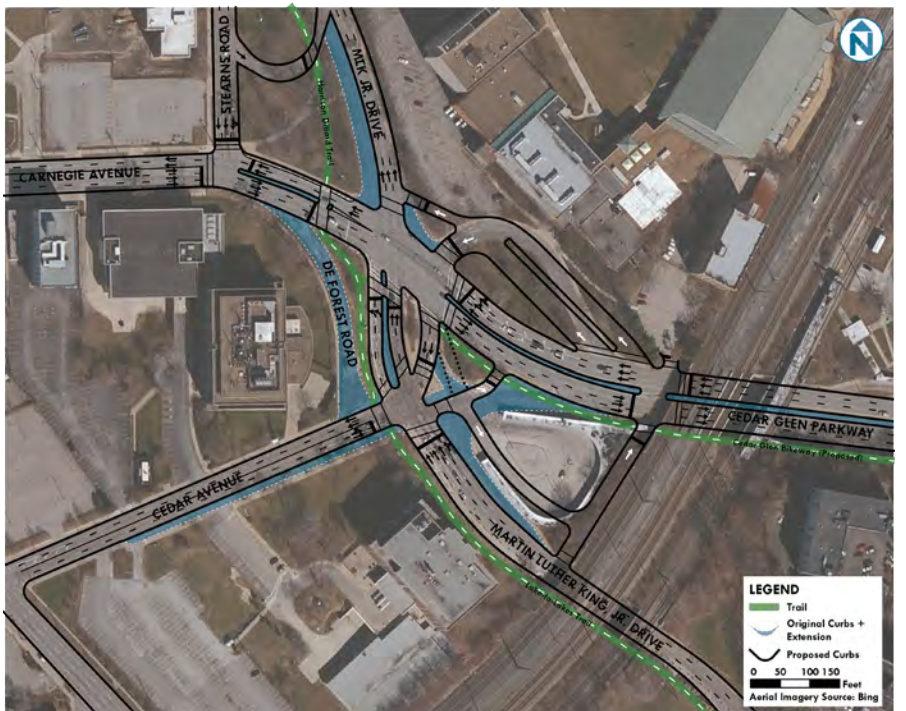
Providing direct bus access here maintains all bus access with the closing of De Forest Road.

## Capital Cost Estimate

\$\$\$\$



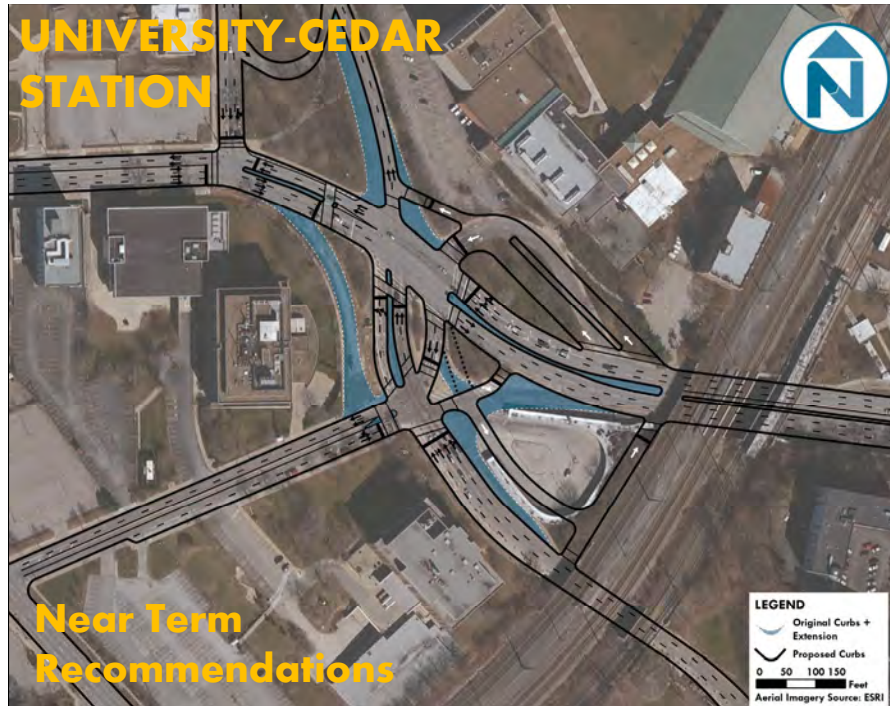
Existing



Proposed



# Proposed Intersection Improvements



## Intersection Vehicular Operations

Existing LOS		Projected LOS	
AM	PM	AM	PM
E	D	F	E

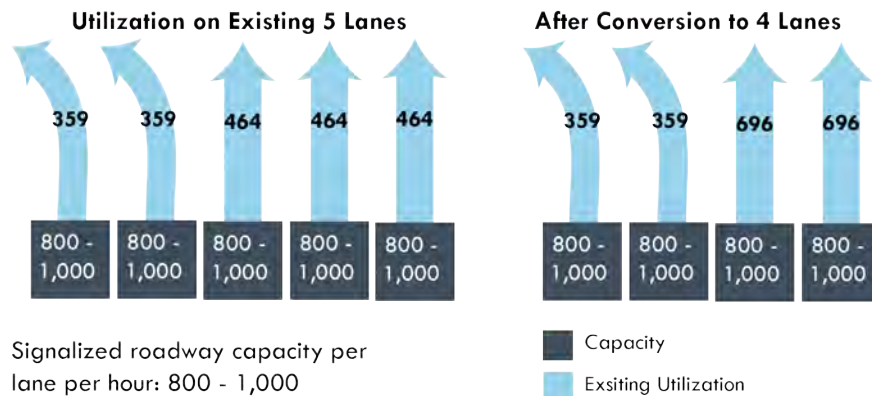
## Community Feedback on Proposals

- Commenters agreed that this intersection was exceedingly complicated and confusing.
- The improvements to the pedestrian environment, including the curb extensions on Martin Luther King Jr. Drive had support and were ranked as the highest priority recommendation for immediate implementation. Many of these recommendations can be accomplished without any negative impacts to vehicular LOS.
- Some commenters felt that the adding the median on Martin Luther King Jr. Drive would exacerbate existing traffic trouble through the intersection rather than creating any benefit.

### Existing Peak Utilization

Northbound Through  
Martin Luther King Jr Drive  
**1,392**  
vehicles/hour

Northbound Left  
Martin Luther King Jr Drive  
**718**  
vehicles/hour





## Issues & Community Views



### Walking First

"Narrow sidewalk, not comfortable."



### Bicycle Friendly

"I feel like I'm going to get hit here. It sucks."



### Safe & Reliable Auto Access

"Confusing intersection that leads to drivers cutting others off because they don't know what lane they should be in."

## Opportunities

- **Multimodal access**

This is a large intersection with wide curves that encourage speeding. Repurposing street space for pedestrians and bicyclists can calm traffic and improve safety for everyone who travels here without reducing traffic flow.

- **Coordination with Upcoming Projects**  
CWRU Master Plan

## Recommendations



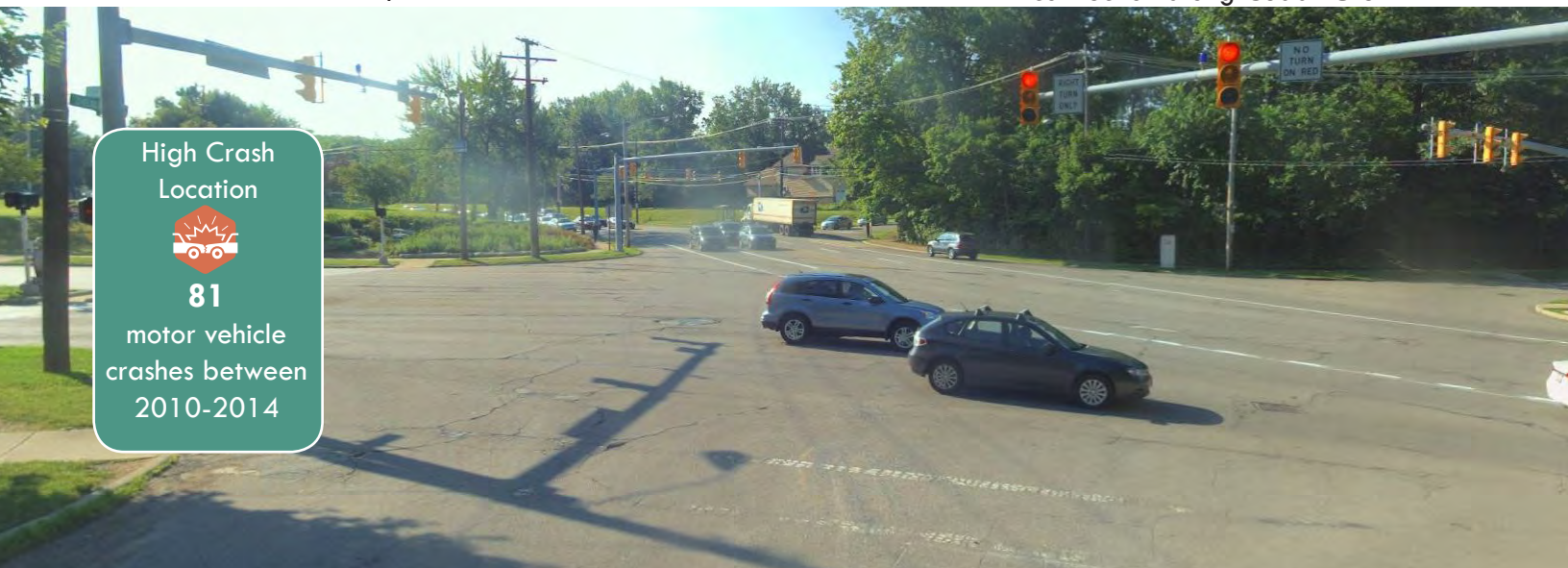
### Walking First

- New crosswalks on Harcourt Drive and Cedar Road
- Enhanced ADA ramps at all crossings
- Extend median and curbs to slow vehicles and shorten crossing distances for pedestrians.



### Dynamic Streets

- Recapture extra street space as medians for green space and landscaping
- Install an off-road bicycle facility to provide for a safe bicycle connection along Cedar Glen.



Euclid Heights Boulevard, Cedar Glen Parkway, and Cedar Road

# Proposed Intersection Improvements

- **Extend the Euclid Heights Boulevard curb**

A wider curb will help drivers identify the receiving lane past the intersection and create a shorter and safer crossing for pedestrians.

- **Restripe Euclid Heights Boulevard**

Reducing the width of lanes here will calm traffic, delineate lanes, and discourage dangerous, high-speed turns from Cedar Glen Parkway.

- **Install curb extensions**

Extend the curb at Cedar Road and Overlook Road, Cedar Road and Harcourt Drive, and Overlook Road. This will reduce the crossing distance for pedestrians and discourage drivers from speeding while making right turns.

- **Create an off-road bicycle facility on Cedar Road and Cedar Glen Parkway.**

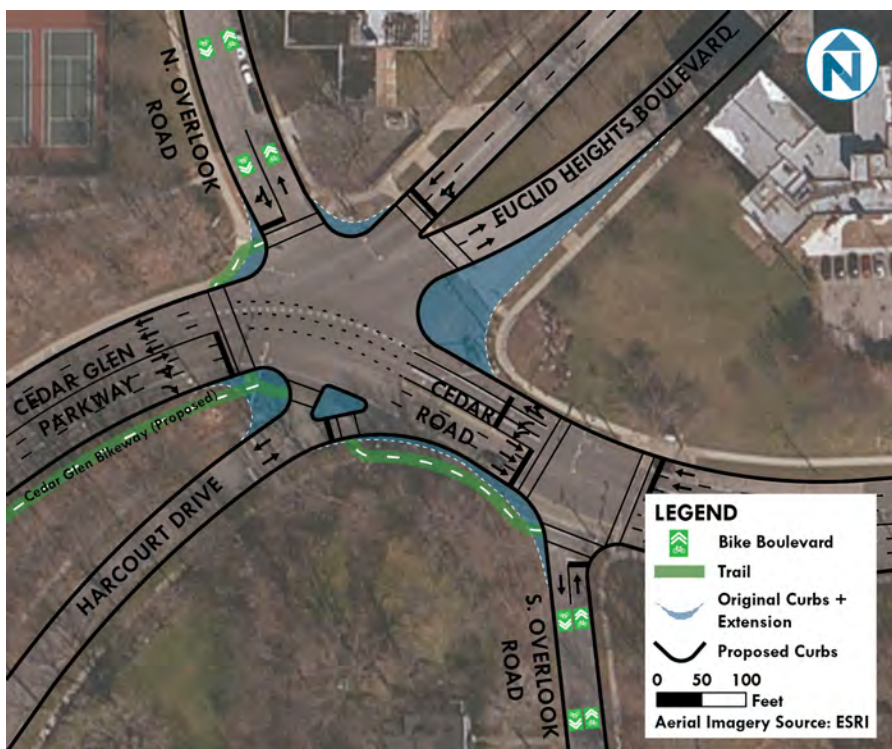
Adding this link will support the proposed Cedar Road Bicycle Boulevard while shifting bicycles from a confusing intersection and improve operations for all modes. This will also support the bicycle access proposed in the Circle Heights TLCI study.

### Capital Cost Estimate

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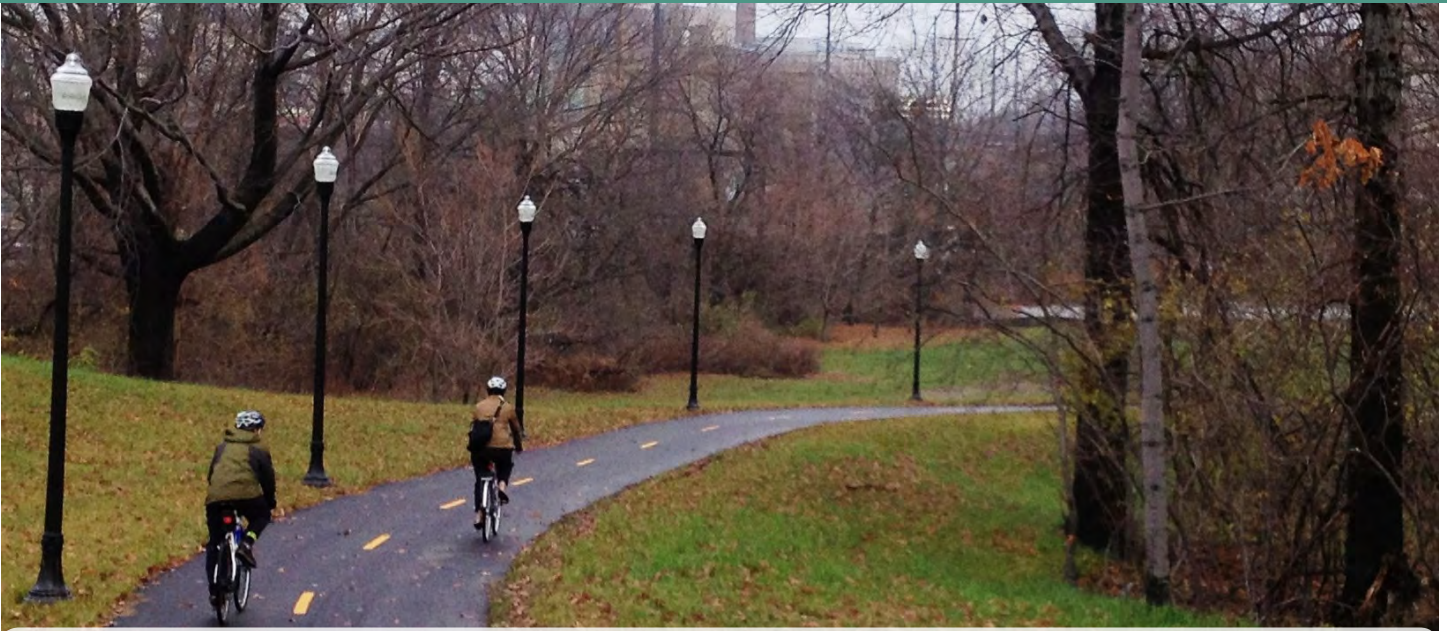
Existing



Proposed



# Proposed Intersection Improvements



Off-street paths provide dedicated space for cyclists and pedestrians (Lake-to-Lakes Trail).



Refuge islands give crossing pedestrians a safe space to wait without having to make it across the entire intersection at once.

## Community Feedback on Proposals

- Many commenters mentioned the confusion of driving through the intersection and being uncertain about which lane to connect with once through. Guidance markers through the intersection were suggested to help with this confusion.
- The curb extensions for pedestrians were seen as big positives for the intersection.
- There were many responses regarding bicycle routing through the intersection. Some thought that encouraging bikes in the intersection would add further congestion, while others saw the new facility as a solution to a significant gap in the network.
- Further pedestrian improvements such as pedestrian leading intervals and more signage for drivers were suggested as additions that could be helpful.





## Issues & Community Views



### Walking First

"Vehicular speed and movement (often "yielding" instead of stopping) make crossing at all four corners scary."



### Connectivity

"The pedestrian island is poorly aligned and fails to take into account that bikes will be passing through it."



### Safe & Reliable Auto Access

"I've been involved in too many close calls here."

## Opportunities

### • Excess street space

This is a large intersection with wide curves that encourage speeding, while there are more lanes than traffic volumes require. Repurposing street space for pedestrians and bicyclists can calm traffic and improve safety for everyone who travels here without reducing traffic flow.

### • Coordination with upcoming projects

Future CMSD Development, NEORS D stormwater demonstration project

## Recommendations



### Walking First & Dynamic Streets

- New crosswalk on north side of intersection
- New pedestrian refuges
- Reduce slip lane capacity to slow vehicular movement and increase crossing safety for pedestrians.



### Bicycle Friendly

- Improve the Lake-to-Lakes Trail crossing at Martin Luther King, Jr. Drive.

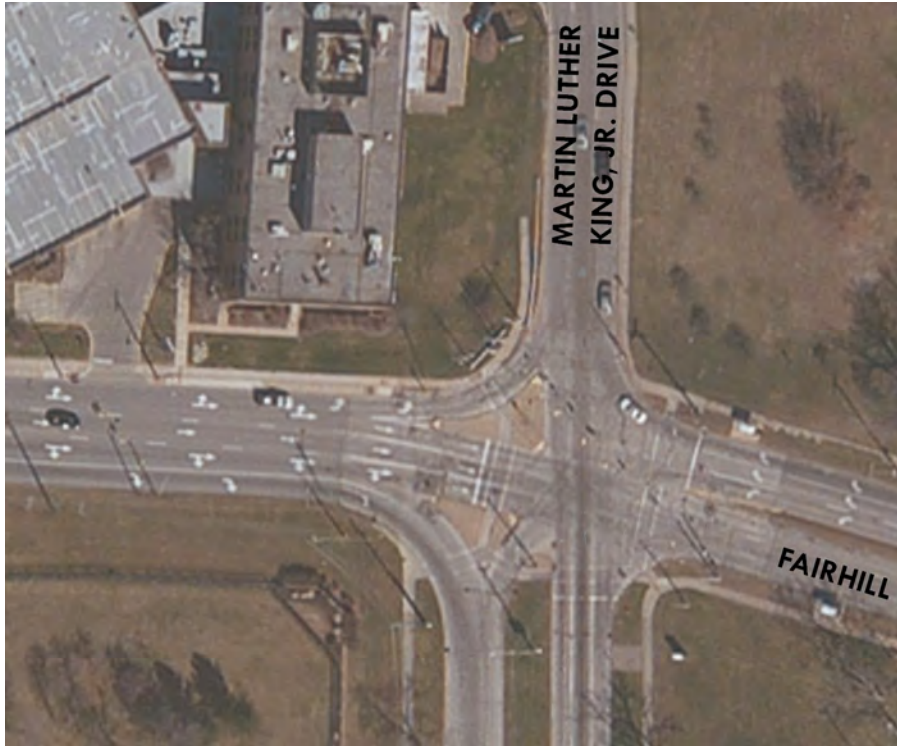


Stokes Boulevard/Fairhill Road looking east towards Martin Luther King, Jr. Boulevard

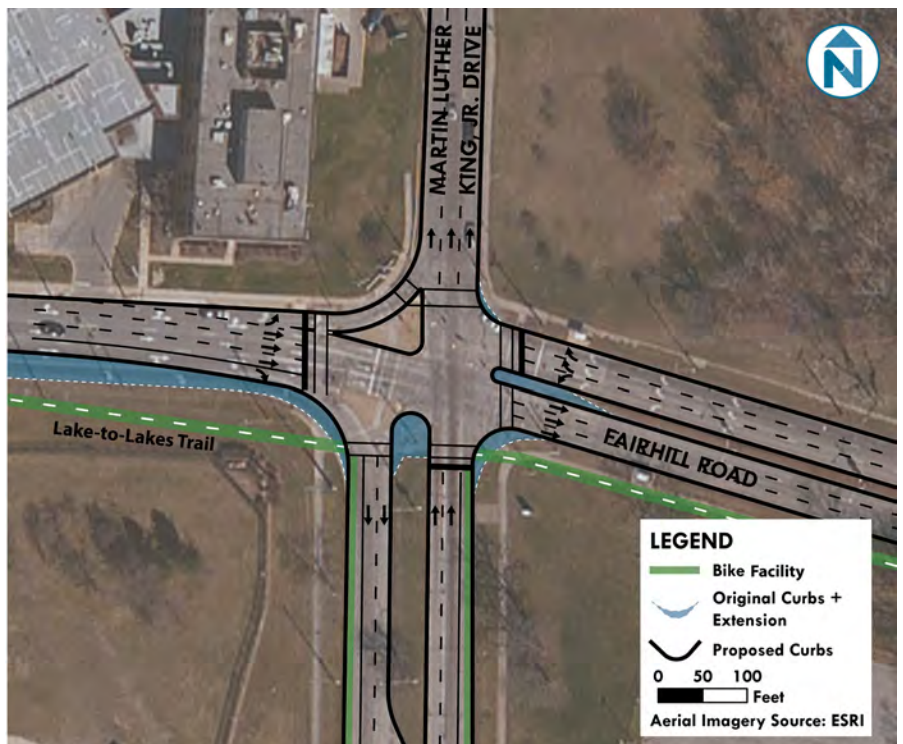
# Proposed Intersection Improvements

- **Narrow the Stokes eastbound right turn slip lane**  
Narrow the slip lane from 2 to 1 lane to slow turning movements and reduce conflicts with crossing cyclists and pedestrians. This accommodates vehicle turns while improving safety for all crossers.
- **Provide pedestrian refuges**  
This gives pedestrians a place to wait while crossing the street and discourages drivers from speeding while making left turns.
- **Curb extensions and bioswales**  
This reduces the crossing distance for pedestrians and encourages drivers to slow down while making right turns. Build upon the momentum of the nearby NEORSD green infrastructure projects by softening the edges of the road using bioswale tree pits integrated with the curb extensions.
- **Bike lanes**  
Add bike lanes on Martin Luther King Jr Drive in the available right of way.

**Capital Cost Estimate**  
\$\$



Existing



Proposed



# Proposed Intersection Improvements



Bicycle trails like the Lake-to-Lakes Trail (above) can be built with permeable materials and bioswales



Pedestrian refuge with permeable paving and landscaping

## Intersection Vehicular Operations

Existing LOS		Projected LOS	
AM	PM	AM	PM
B	E	C	E

## Community Feedback on Proposals

- The curb extensions were supported by commenters and seen as aiding pedestrians and cars by straightening out the intersection while providing guidance as travelers went through.
- Some commenters felt that the two right turn lanes from Stokes Boulevard eastbound to Martin Luther King Jr. Drive was better suited for a yield sign rather than the existing stop arrow.





## Issues & Community Views



### Walking First

"Drivers don't pay attention or try to turn ahead of pedestrians crossing street in crosswalks."

"The pedestrian signal button on the north side of the crosswalk is in an awkward location for people in wheelchairs."



### Bicycle Friendly

"There are no bike markings or signage, indicating that all vehicles must share the road."



### Dynamic Streets

"The pavers have settled and this creates a bumpy and uneven surface."

## Opportunities

### • Uptown developments

The Uptown development has brought new housing and retail options to the area, generating significant street activity. Emphasizing that this is a location for all, regardless of travel mode, will reinforce the location as a place and not just an intersection.

### • Coordination with Upcoming Projects

CWRU Master Plan, Intesa, Little Italy-University Circle Red Line Station

## Recommendations



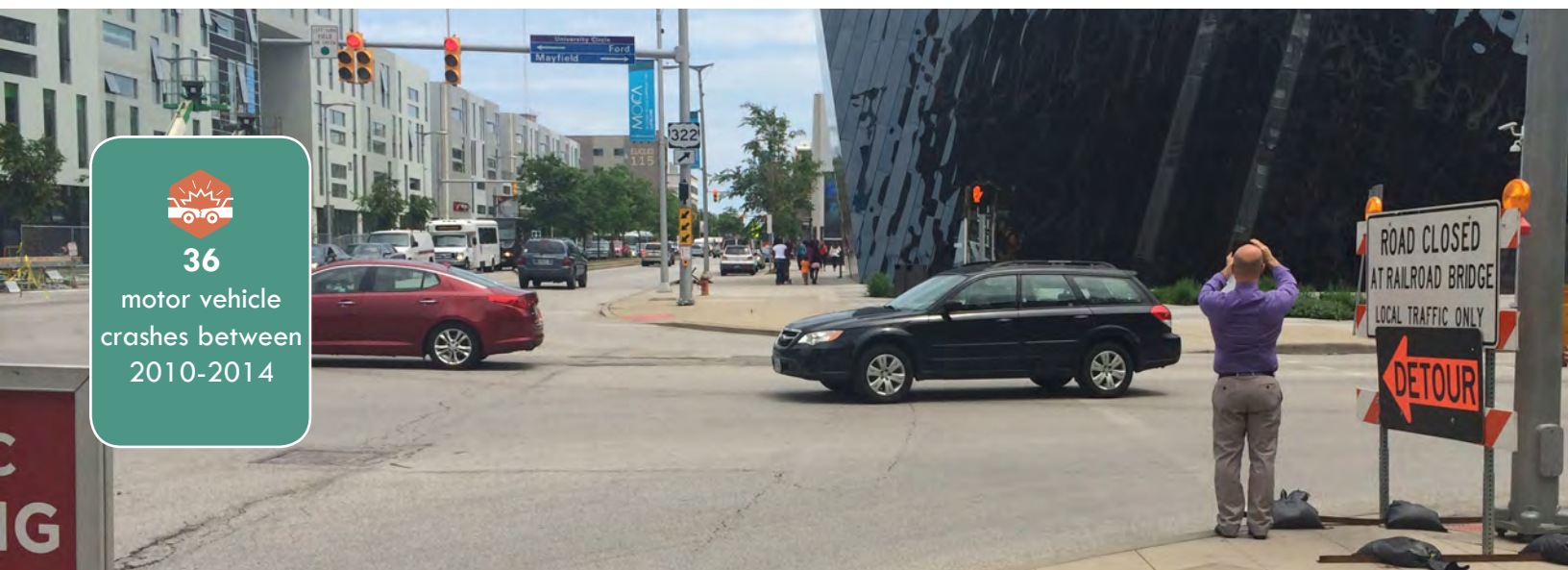
### Walking First & Dynamic Streets


- Level sidewalks
- Improve sidewalk drainage with bioswales
- Add Lead Pedestrian Intervals
- Implement No Right Turn on Red
- Enhance crosswalks throughout the intersection



### Bicycle Friendly

- Provide sharrows and signage on Euclid Avenue and Ford Drive to remind all road users to share the road with bicyclists.



  
**36**  
motor vehicle  
crashes between  
2010-2014

# Proposed Intersection Improvements

- **Add curb extensions**

Curb extensions will reduce the crossing distance for pedestrians, encourage drivers to slow down, and provide additional space for landscaping or street furniture.

- **Add Lead Pedestrian Intervals**

Without sufficient time to cross, community members stated they had many near misses at this intersection. Lead Pedestrian Intervals (LPIs) give pedestrians crossing the street a head start over drivers going the same direction, increasing their visibility in the crosswalk before drivers enter the intersection.

- **Implement No Turn on Red**

This reduces conflicts between drivers turning right and pedestrians in the crosswalk, increasing safety.

- **Install sharrows on Euclid Avenue and Ford Drive**

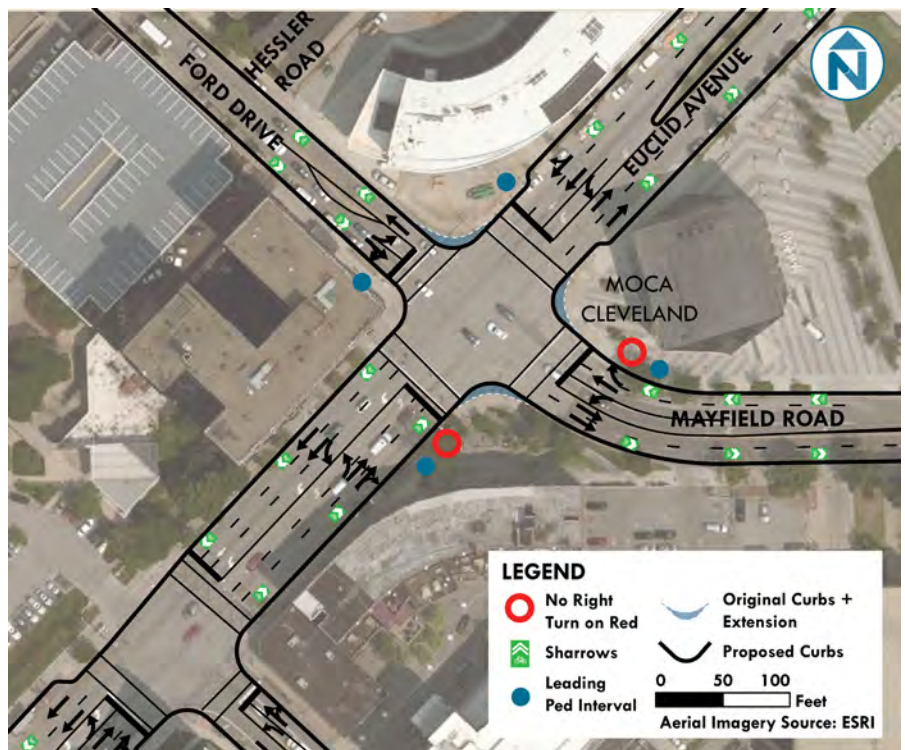
Bicycle sharrow lane markings placed in the middle of the lane encourage safe bicycling away from parked car doors and increase the visibility and awareness of cyclists sharing the road with other vehicles. Use green paint to box sharrows for greater visibility. Add signage to these routes to further alert drivers to the presence and rights of cyclists.

**Capital Cost Estimate**

\$\$



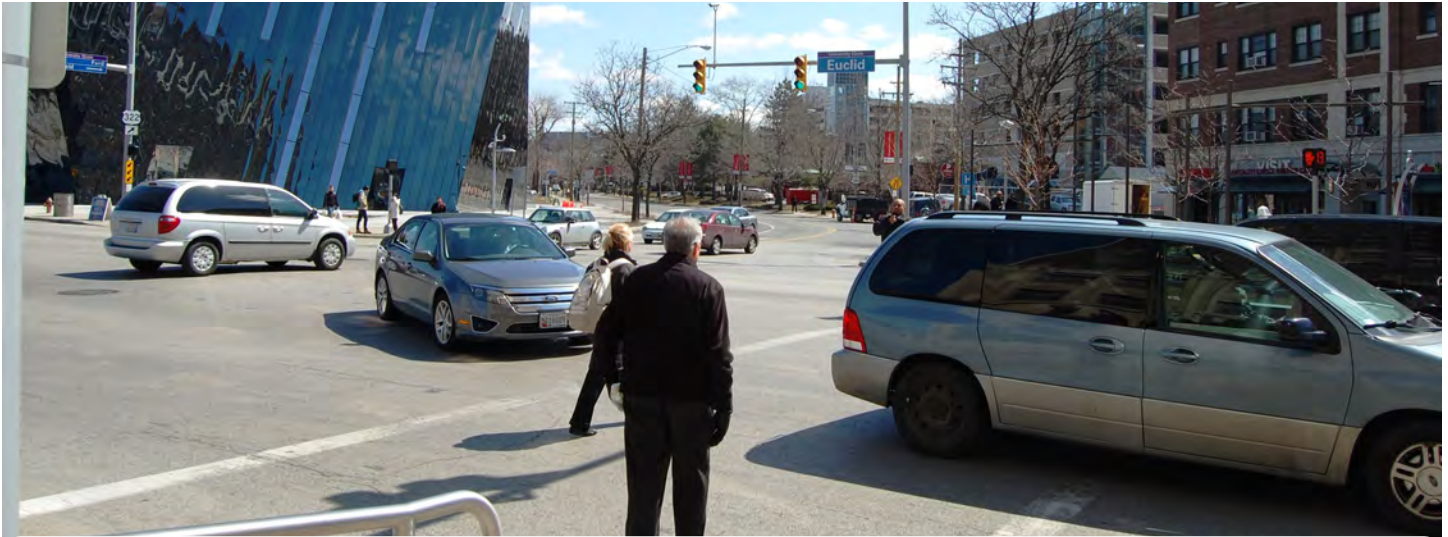
Existing



Proposed



# Proposed Intersection Improvements



Pedestrians and turning vehicles in conflict at an intersection without a Leading Pedestrian Interval (LPI) (Euclid Avenue at Mayfield Road)

## Intersection Vehicular Operations

Existing LOS		Projected LOS	
AM	PM	AM	PM
D	C	E	C

## Community Feedback on Proposals

- There were many strong opinions about implementing No Right on Red at Mayfield Road and Euclid Avenue. Many see it as a potential cause of significant traffic delays while others see it as much-needed protection for the high number of pedestrians moving through the area.
- Support for pedestrian improvements in general were strong, with many commenters explicitly supporting the proposed Leading Pedestrian Intervals and curb extensions as part of the answer to long standing conflicts at this intersection.



## Issues & Community Views



### Walking First

“No crosswalks or signage to indicate crossing at East Blvd. Also, a blind spot for pedestrians and cars. A real gamble to cross here”

“A few re-worked corners and sidewalks would greatly enhance the experience for the many who are challenged by a mere 4 inch curb”



### Dynamic Streets

“The pothole patches have potholes.”

## Opportunities

### • Placemaking

The CWRU campus and student presence here create an opportunity to use the street network as a branding or identifying tool for the area.

### • Uptown development

New housing and retail options along Euclid Avenue reinforce the pedestrian- and bicycle-oriented character of North Campus by giving residents, students, faculty, and staff more amenities within walking and bicycling distance.

### • Coordination with upcoming projects

CWRU Master Plan, Bellflower Walk

## Recommendations



### Walking First

- Build on success of Hessler Road and Juniper Road as high-quality walking environments
- Create a “slow zone” on North Campus
- Add crosswalk ramps and markings at all intersections



### Dynamic Streets, Safe & Reliable Auto Access



- Repave the street surface and restripe for clarity of lane use/direction.





# Proposed Intersection Improvements

- **Add crosswalks**

Re-stripe all crosswalks in North Campus to increase visibility and pedestrian safety, and add crosswalk ramps at all intersections. Add crosswalk markings and signage at Ford Drive and Hessler Road and at East 115th Street and Cotman Vistas. Consider higher visibility “ladder” or “continental” style markings or other bolder alternatives.

- **Create a “slow zone”**

Turn the streets on and around North Campus into a “slow zone” to calm traffic and increase pedestrian and bicyclist safety.

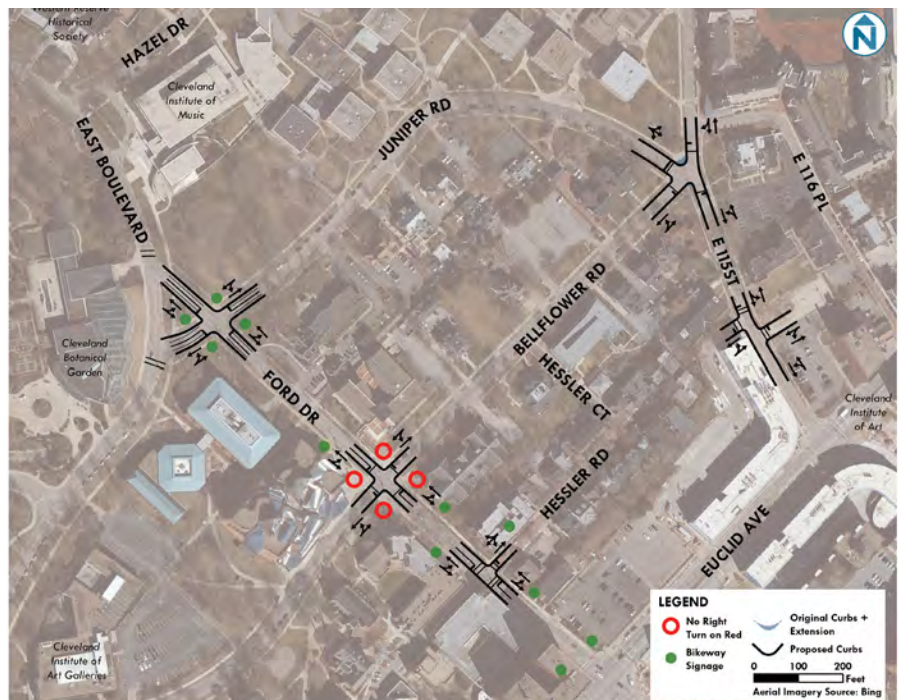
- Add 25 mph signage to reinforce the speed limit
- Provide No Right Turn on Red signs at Bellflower Road and Ford Drive
- Remove pedestrian-actuated signals at Bellflower and Ford and provide a walk signal in every cycle.
- Add speed tables at the intersection of East 115th Street, Juniper Road, and Bellflower Road and the intersection of Bellflower Court and Ford Drive to calm traffic.
- Add sharrows on Ford Drive to connect the bikeway network from Euclid Avenue to East Blvd.

- **Eliminate conflicts**

Change Juniper Road from Bellflower Court to East 115th Street to one-way eastbound.



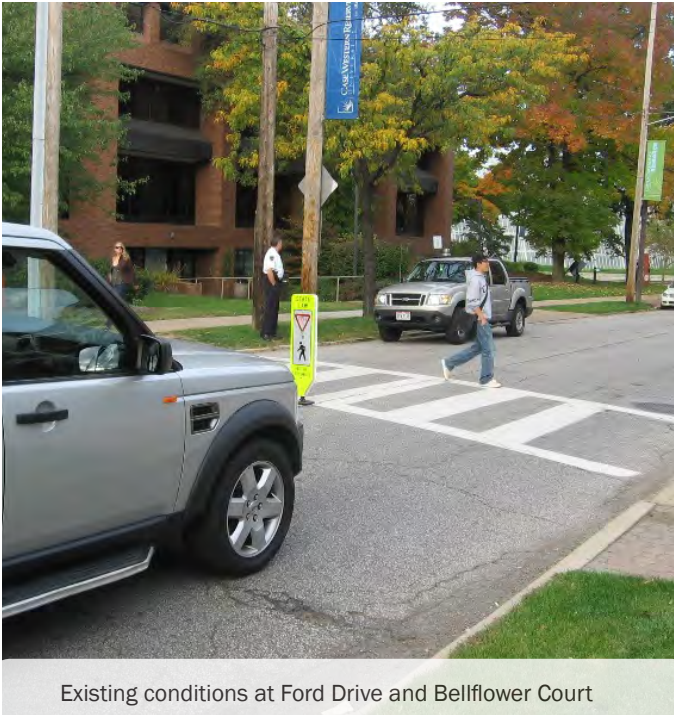
Existing



Proposed

**Capital Cost Estimate**  
**\$\$\$**

# Proposed Intersection Improvements



Existing conditions at Ford Drive and Bellflower Court



Speed humps and tables can slow down traffic and improve safety conditions for pedestrians

## Community Feedback on Proposals

- Many people lamented the complicated nature of CWRU North Campus intersections in general putting pedestrians and motorists at risk.
- Commenters supported the speed table at 115th Street, Bellflower Road, and Juniper Road citing the confusing nature of the intersection and safety concerns.
- There was skepticism as to whether converting Juniper Road to a one-way will help or hurt the street activity in the already confusing area. CWRU will further evaluate alternatives as part of their Master Plan.
- There was support and disagreement about implementing “No Right on Red” between those who saw it as an aid to pedestrians and those who saw it as a would-be cause of increased congestion in the already backed-up area.
- Significant comments about the sheer number of pedestrians traveling through the area.





## Issues & Community Views



### Walking First

"Bikes use the already narrow sidewalk."

"The sidewalks on this stretch of Euclid...slope sharply into the buildings, making wheelchair movement difficult."



### Bicycle Friendly

"No bike racks!!! This one's an easy fix."



### Dynamic Streets

"[The ramps at Euclid and 115th] have gaping ruts, jagged crevices that flood during the rains."

## Opportunities

### • Transit access

This corridor is home to two HealthLine bus rapid transit stops and is a short walk from the new Little Italy - University Circle Red Line station. Improving pedestrian and bicyclist safety can increase transit access and support its use.

### • Uptown development

New housing and retail along the Euclid corridor encourages street life and puts more amenities within easy walking or bicycling distance.

### • Coordination with Upcoming Projects

CWRU Master Plan, Intesa, CIA Campus Consolidation

## Recommendations



### Walking First & Dynamic Streets

- Repair sidewalks and crosswalk ramps to prevent puddling.
- Prohibit right turns on red at East 115th Street.



### Bicycle Friendly

- Provide sharrows and signage on Euclid Avenue to remind all road users to share the road with bicyclists.




**17**  
motor vehicle  
crashes between  
2010-2014

# Proposed Intersection Improvements

- **Implement No Turn on Red**

This reduces conflicts between drivers turning right and pedestrians in the crosswalk, increasing safety.

- **Improve signal timing for pedestrians**

Remove the pedestrian-actuated signals at Euclid and East 115th and add a leading pedestrian interval (LPI). This gives pedestrians crossing the street a head start over drivers going the same direction, allowing them to clear the crosswalk before drivers start turning.

- **Install sharrow on Euclid Avenue**

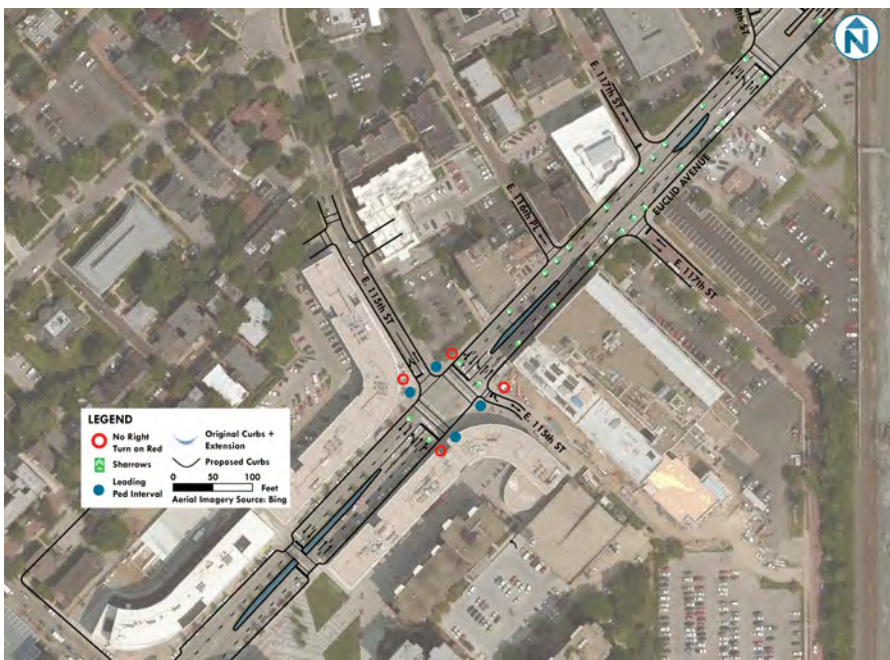
Bicycle sharrow lane markings placed in the middle of the lane encourage safe bicycling away from parked car doors. Use green paint to box sharrow for greater visibility. Add signage to these routes to further alert drivers to the presence and rights of cyclists.

## Capital Cost Estimate

\$



Existing



Proposed



# Proposed Intersection Improvements



Current conditions at a Euclid Avenue pedestrian crossing



Bike sharrows guide bicyclists through the area and alert drivers to their presence

## Intersection Vehicular Operations

Existing LOS		Projected LOS	
AM	PM	AM	PM
B	C	C	C

## Community Feedback on Proposals

- While some commenters felt implementing No Right on Red would cause traffic delays, the majority of comments related to its implementation was strongly supportive.
- Encouraging biking along Euclid Avenue by placing sharrows was a cause for concern among some commenters who thought that the large HealthLine buses and wide streets were better oriented for cars. One alternative suggestion was to take the space intended for the proposed median and use it to fit protected bike lanes along the corridor.
- Many commenters saw pedestrians, especially students, as a strong presence throughout the area and supported measures to heighten their visibility including adding “Yield to Pedestrians” signage throughout the area.