

Appendix B: Survey Questions and Results



1 Introduction Help us improve biking & transit

INTRODUCTION

**Circle-Heights Bicycle Network Plan & Missing Links Transportation Study**Project Funding
Provided By:

Two studies are underway to develop and enhance bicycle and transit accommodations in the greater University Circle area and Cleveland Heights to encourage people to bike or take transit rather than drive: The Circle-Heights Bicycle Network Plan and The Missing Links Transportation study. This survey will identify and prioritize a number of issues, facilities and features that are associated with these two projects. Completing this survey will help shape the future of alternate mode travel in Cleveland Heights and University Circle. Thank you for your participation!

[Begin](#)**2 PRIORITIES****3 SURVEY****4 MAP****5 ABOUT YOU****2 Travel Priorities** Tell us what is most important

INTRODUCTION

PRIORITIES

Higher
Priority

Drag your highest priorities above this line.

Transit Options

Walking Options

Travel Time

Safety

Biking Options

Cost

Environmental Impact

A set of objectives will help us to understand and prioritize the planning, development, and operation of the transportation system.

Drag your highest priorities above the line, in order of preference. Click on items to learn more about them.

3 SURVEY**4 MAP****5 ABOUT YOU**

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INTRODUCTION

PRIORITIES

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ABOUT YOU

A: **Bicycling** B: Bicycle Routes C: Transit D: Walking

Please tell us about your experience biking within and between Cleveland Heights and University Circle:

Frequency

Proximity

Route

On Road Bicycling

Bicycling on Trails

Destination

Bicycle Sharing

Other

Bicycling Frequency

When did you last **bicycle** to or within University Circle and/or Cleveland-Heights?

☐ today

☐ in the last week

☐ in the last month

☐ more than a month ago

☐ never

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ABOUT YOU

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Bicycling on Trails

Destination

Bicycle Sharing

Other

Proximity

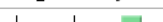
I live close enough to **bicycle** to school/work.

I disagree  I agree

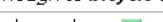
I live close enough to **bicycle** to shopping/dining.

I disagree  I agree

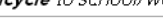
I live close enough to **bicycle** to entertainment/recreation.

I disagree  I agree

I live close enough to **bicycle** to other destinations.

I disagree  I agree

I regularly **bicycle** to school/work.

I disagree  I agree

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5 ABOUT YOU

A: **Bicycling**

B: Bicycle Routes

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D: Walking

Please tell us about your experience biking within and between Cleveland Heights and University Circle:

Frequency

Proximity

Route

On Road Bicycling

Bicycling on Trails

Destination

Bicycle Sharing

Other

Route

The terrain is comfortable for **bicycling** to my destination.

I disagree  I agree

The route I take to my destination is **direct**.

I disagree  I agree

I feel **safe bicycling** to my destination.

I disagree  I agree

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5 ABOUT YOU

A: **Bicycling**

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C: Transit

D: Walking

Please tell us about your experience biking within and between Cleveland Heights and University Circle:

Frequency

Proximity

Route

On Road Bicycling

Bicycling on Trails

Destination

Bicycle Sharing

Other

On Road Bicycling

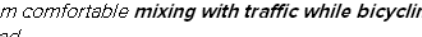
I am comfortable bicycling in a **bike lane**.

I disagree  I agree

I am comfortable bicycling in a **shared use lane** (with "sharrows").

I disagree  I agree

I am comfortable **mixing with traffic while bicycling** on the road.

I disagree  I agree

I would like to see more **on-road bicycle facilities**.

I disagree  I agree

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Survey Tell us what you think

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Please tell us about your experience biking within and between Cleveland Heights and University Circle:

Frequency

Proximity

Route

On Road Bicycling

Bicycling on Trails

Destination

Bicycle Sharing

Other

Bicycling on Trails

*I am comfortable bicycling on an **off-road trail**.*

I disagree



I agree

*I would like to see more **off-road trails**.*

I disagree



I agree

[illegible]

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INTRODUCTIONPRIORITIES

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MAPABOUT YOU

A: BicyclingB: Bicycle RoutesC: TransitD: Walking

Please tell us about your experience biking within and between Cleveland Heights and University Circle:

FrequencyProximityRouteOn Road BicyclingBicycling on TrailsDestinationBicycle SharingOther

Bicycle Sharing

Bike share programs provide short and long term bike rentals with secure parking/rental station areas at a variety of locations and destinations.

*I would use a **bike share** program if one existed.*

I disagree  I agree

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MAPABOUT YOU

A: BicyclingB: Bicycle RoutesC: TransitD: Walking

Please tell us about your experience biking within and between Cleveland Heights and University Circle:

FrequencyProximityRouteOn Road BicyclingBicycling on TrailsDestinationBicycle SharingOther

Other

I would bike more if :

Send Comment

Other comments :

Send Comment

B.5

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5 ABOUT YOU

A: Bicycling

B: Bicycle Routes

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Higher Priority
↑

Drag your top priorities above this line

Lee Rd.

Kenilworth Rd.

Edgehill Rd.-Overlook Rd.

Euclid Ave.

MLK Dr.-Stokes Blvd.-Fairhill Rd.

North Park Blvd.

Mayfield Rd.

Euclid Heights Blvd.

East Blvd-E.105th St

Superior Rd.

Adelbert Rd.-Circle Dr.-Cornell

Cedar Rd.

Prioritize these bicycle corridors (listed) in the order that you would like to use them, if they had appropriate bicycle facilities. Highest priority on top.

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5 ABOUT YOU

A: Bicycling

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D: Walking

Please tell us about your experience using transit (bus/rail) within and between Cleveland Heights and University Circle:

Frequency

Proximity

Routes

At Transit Stop

Service

Convenience

Cost

Amenities

Other

Transit Frequency

When did you last take **transit** to or within University Circle and/or Cleveland-Heights?

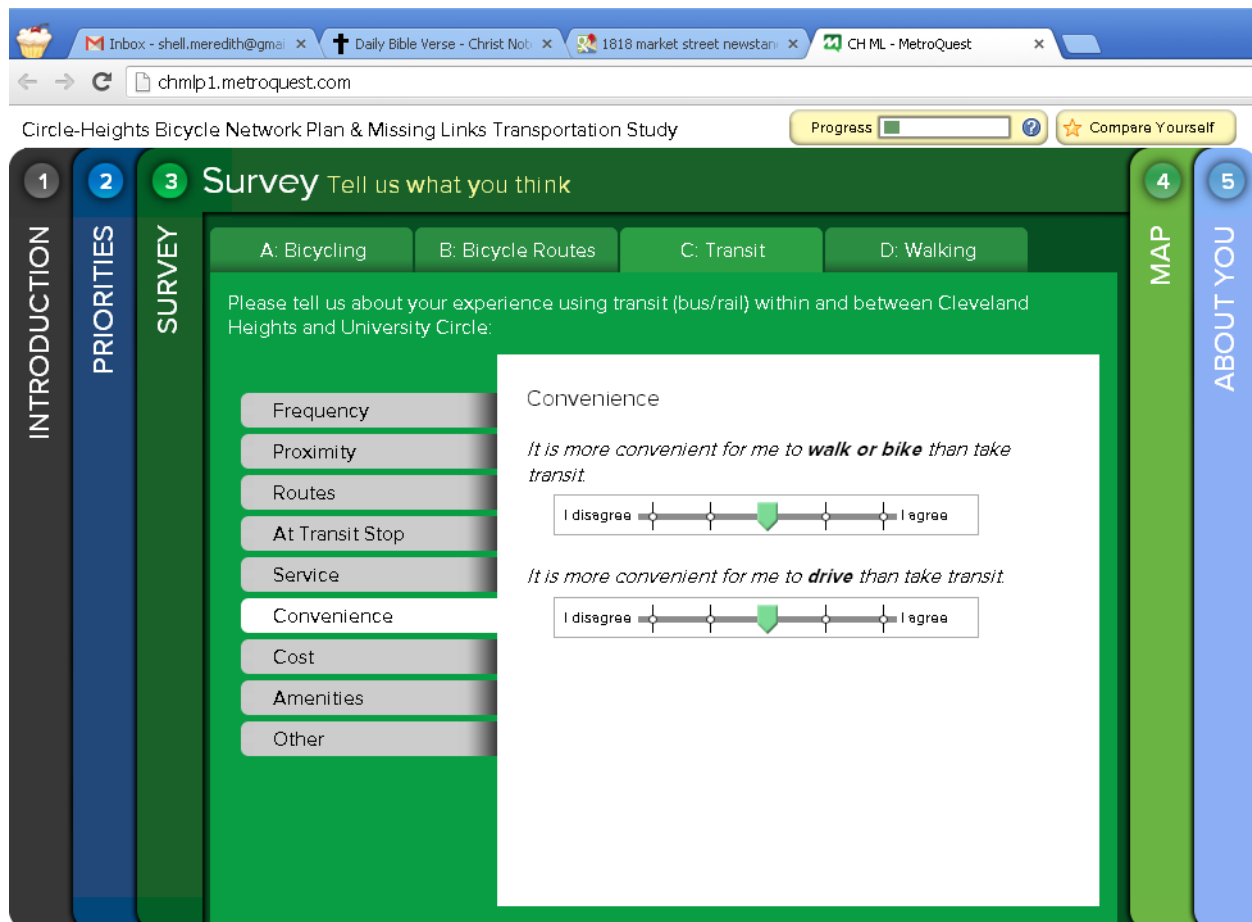
☐ today

☐ in the last week

☐ in the last month

☐ more than a month ago

☐ never



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5 ABOUT YOU

A: Bicycling

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Please tell us about your experience using transit (bus/rail) within and between Cleveland Heights and University Circle:

Frequency

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Routes

At Transit Stop

Service

Convenience

Cost

Amenities

Other

Cost

The **transit fare** is reasonable.

I disagree  I agree

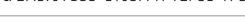
I would ride transit more often if **fares were reduced**.

I disagree  I agree

I would ride transit more often if it was **free/no cost to me**.

I disagree  I agree

I would ride transit less often if fares were **increased**.

I disagree  I agree

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Frequency

Proximity

Routes

At Transit Stop

Service

Convenience

Cost

Amenities

Other

Amenities

Which amenities are important to you? Check all that apply.

☐ Bike rack at transit stop

☐ Bike rack on transit

☐ Enclosed shelter at transit stop

☐ Enhanced lighting at transit stop

☐ Route information at transit stop

☐ Real time arrival information

☐ Seating/benches at transit stop

Other :

Send Comment

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C: Transit

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Tell us what you think

Please tell us about your experience using transit (bus/rail) within and between Cleveland Heights and University Circle:

Frequency

Proximity

Routes

At Transit Stop

Service

Convenience

Cost

Amenities

Other

Other

I would take transit more if :

Send Comment

Other comments :

Send Comment

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C: Transit

D: Walking

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ABOUT YOU

Tell us what you think

Please tell us about your experience walking within and between Cleveland Heights and University Circle:

Frequency

Proximity

Route

Other

Walking Frequency

When did you last **walk** to or within University Circle and/or Cleveland-Heights?

☐ today

☐ in the last week

☐ in the last month

☐ more than a month ago

☐ never

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Please tell us about your experience walking within and between Cleveland Heights and University Circle:

Frequency

Proximity

Route

Other

Proximity

*I live close enough to **walk** to school/work.*

I disagree

I agree

*I live close enough to **walk** to shopping/dining.*

I disagree

I agree

*I live close enough to **walk** to entertainment/recreation.*

I disagree

I agree

*I live close enough to **walk** to other destinations.*

I disagree

I agree

*I regularly **walk** to school/work.*

I disagree

I agree

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Survey Tell us what you think

A: Bicycling B: Bicycle Routes C: Transit D: Walking

Please tell us about your experience walking within and between Cleveland Heights and University Circle:

Frequency

Proximity

Route

Other

Route

Terrain is too challenging to **walk** to school/work.

I disagree ————— I agree

I feel safe **walking** to school/work.

I disagree ————— I agree

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Survey Tell us what you think

A: Bicycling B: Bicycle Routes C: Transit D: Walking

Please tell us about your experience walking within and between Cleveland Heights and University Circle:

Frequency

Proximity

Route

Other

Other

I would walk more if :

Send Comment

Other comments :

Send Comment

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Spatial Feedback what else would you like to tell us?

➔ Drag markers to identify frequent destinations. Use hand to drag map to appropriate locations in the study area. Other/Issues box can be used to specify additional destinations or issues of concern.

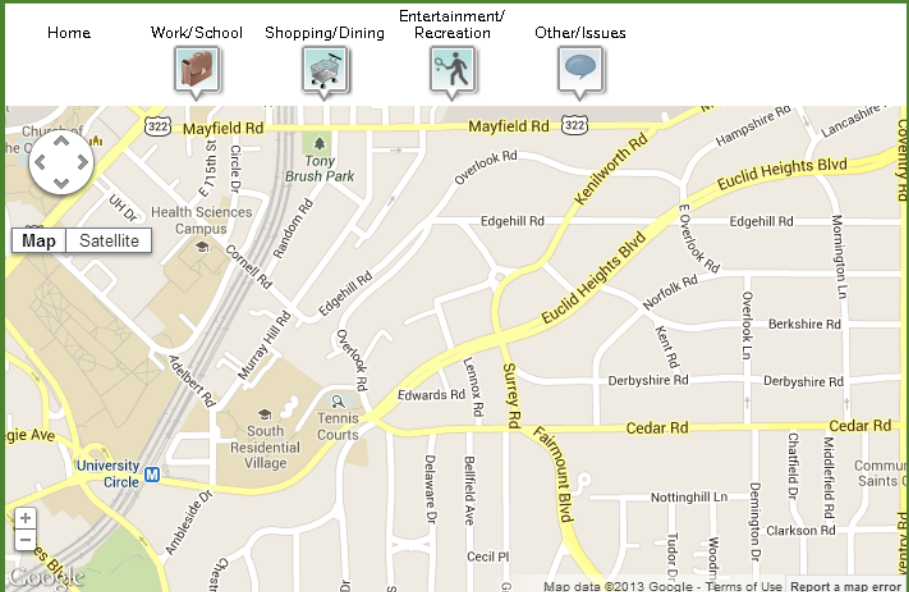
Home

Work/School

Shopping/Dining

Entertainment/Recreation

Other/Issues



Map data ©2013 Google - [Terms of Use](#) [Report a map error](#)

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ABOUT YOU

About You Please tell us about yourself



Thank you for participating in the University Circle-Cleveland Heights survey.

We look forward to using your input to make this area more bikable, walkable, and transit-friendly!

Input Form

Gender Age Zip Code

Please check all that apply:

I am a resident of:

- ☐ University Circle
☐ Cleveland Heights

I go to work / school in:

- ☐ University Circle
☐ Cleveland Heights

I have access to:

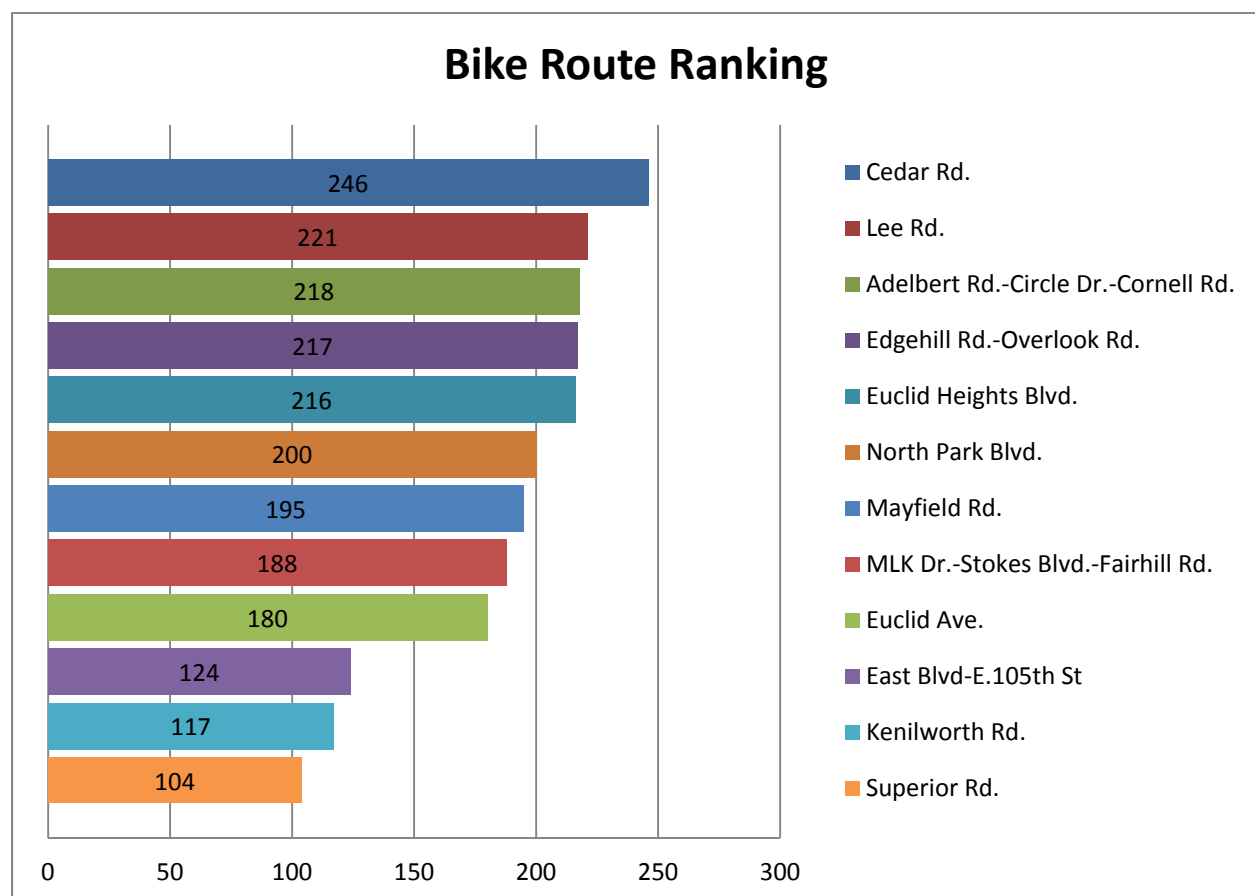
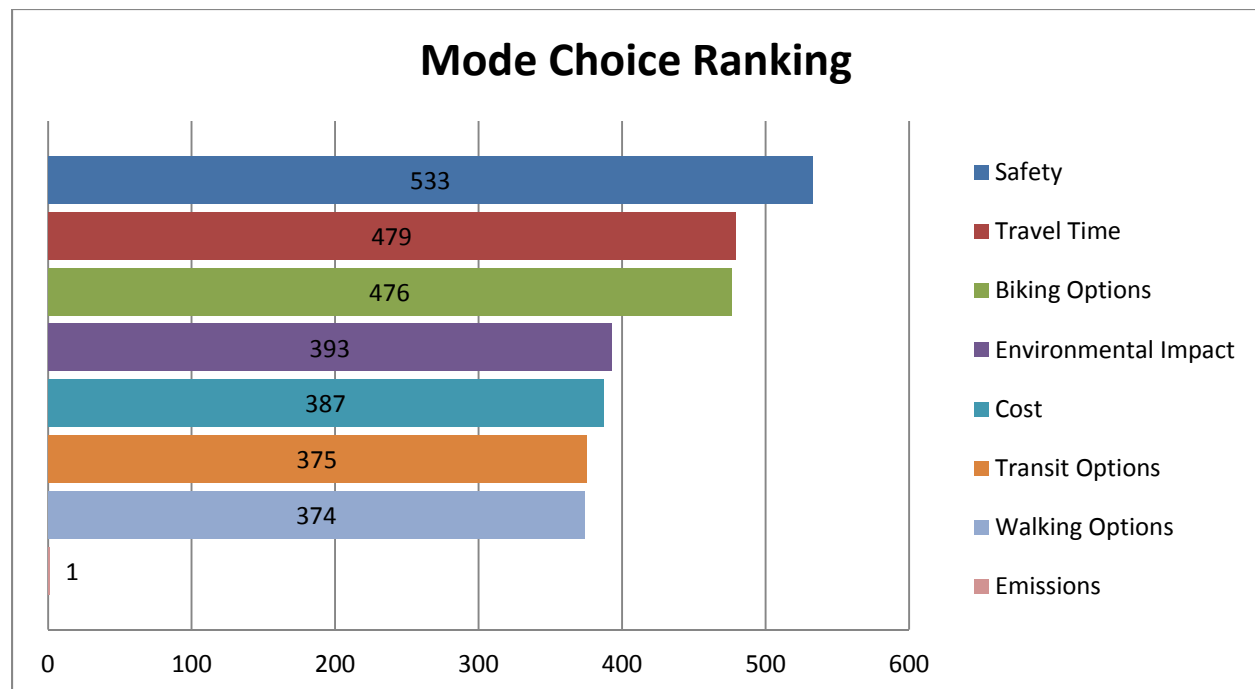
- ☐ Car
☐ Bicycle
☐ Transit

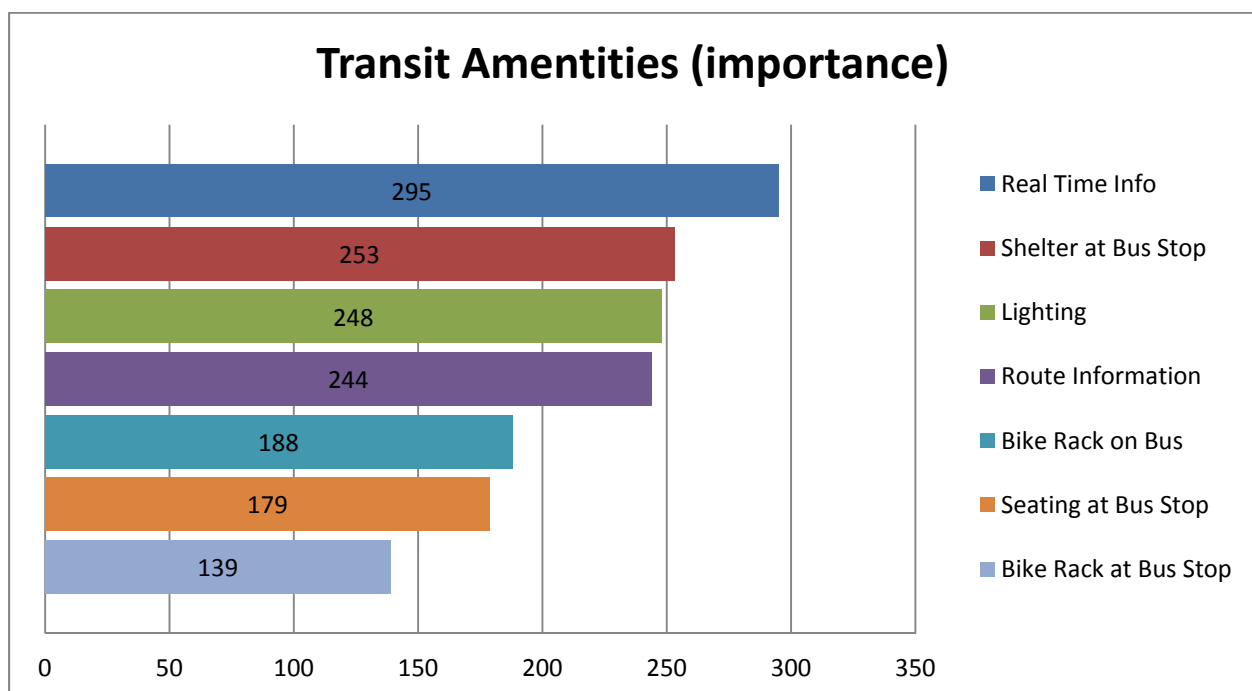
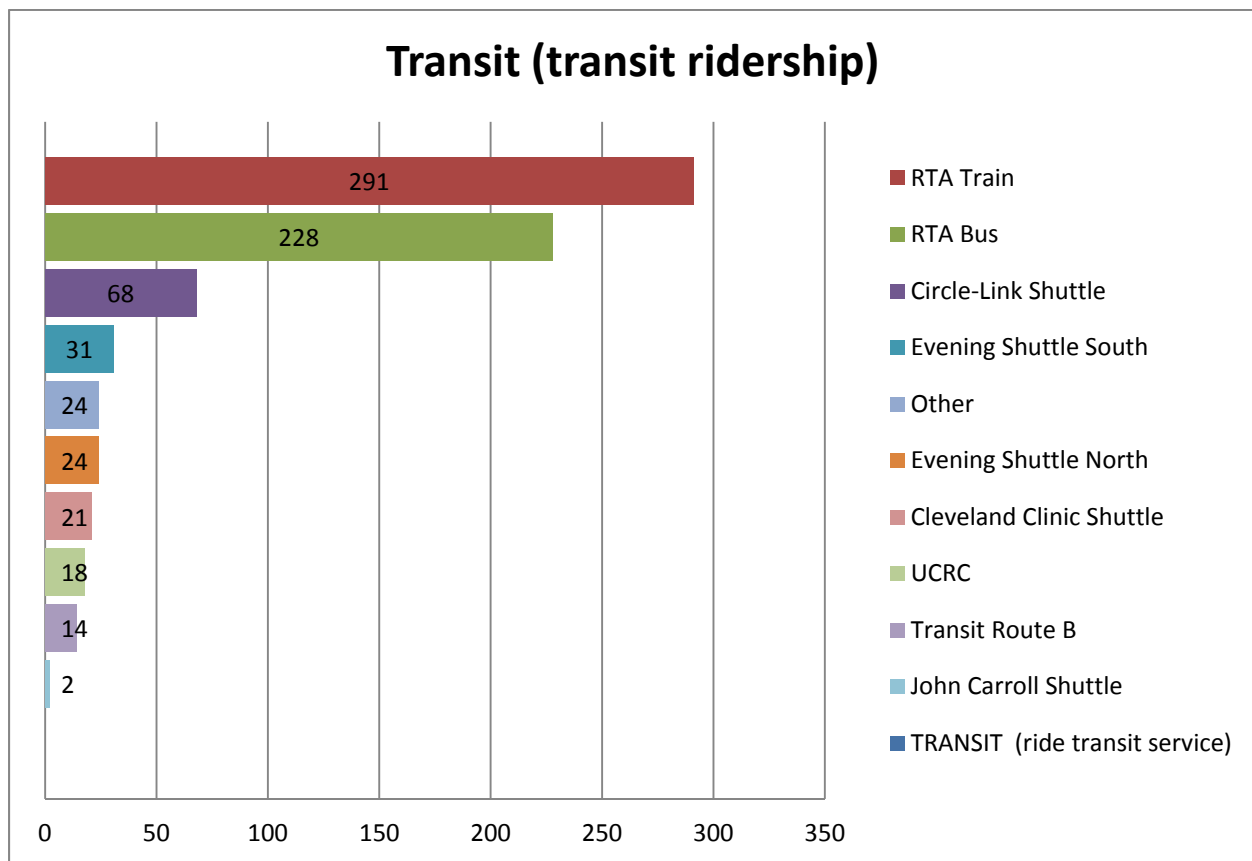
Baker

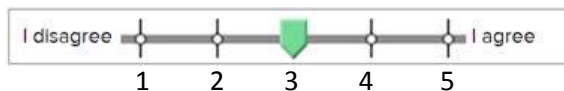
**PARSONS
BRINCKERHOFF**

city
architecture

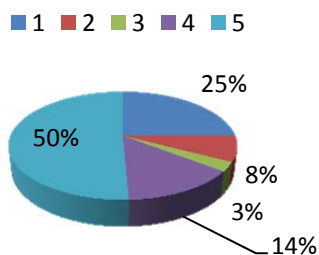
Powered by
MetroQuest



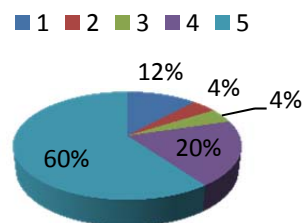




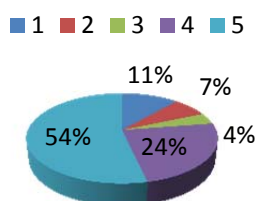
I live close enough to bicycle to school/work.



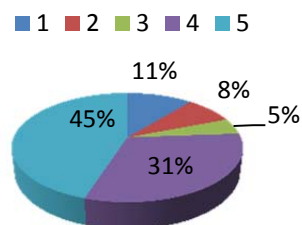
I live close enough to bicycle to shopping/dining.



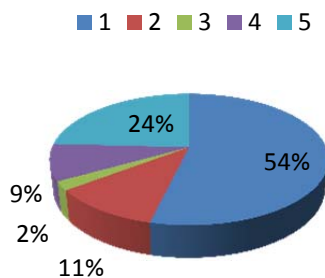
I live close enough to bicycle to entertainment/recreation.



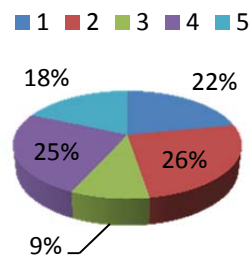
I live close enough to bicycle to other destinations.



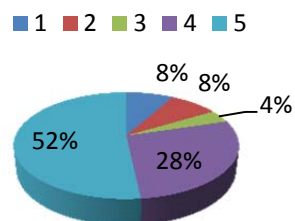
I regularly bicycle to school/work.



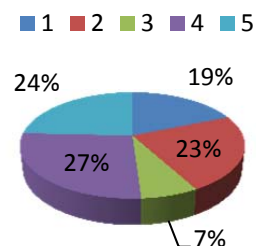
The terrain is comfortable for bicycling to my destination.

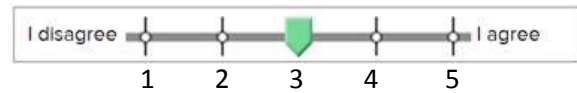


I am comfortable bicycling in a bike lane.

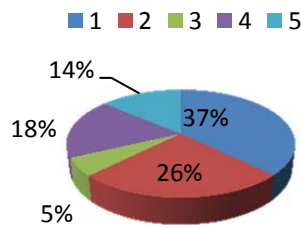


I am comfortable bicycling in a shared use lane (with "sharrows").

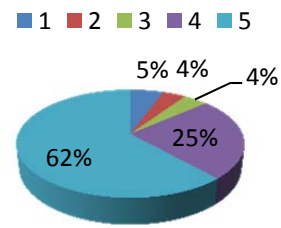




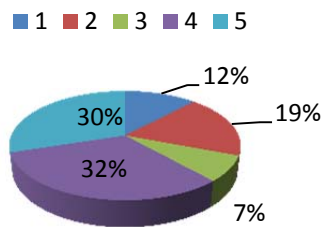
I am comfortable mixing with traffic while bicycling on the road.



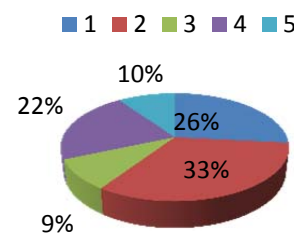
I would like to see more on-road bicycle facilities



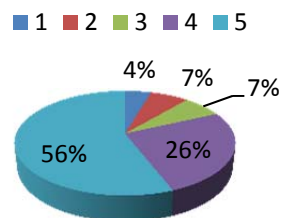
The route I take to my destination is direct.



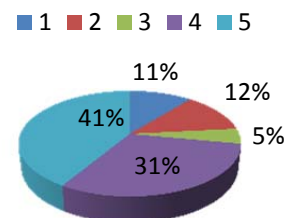
I feel safe bicycling to my destination



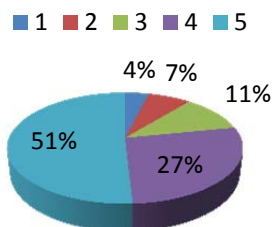
I am comfortable bicycling on an off-road trail.



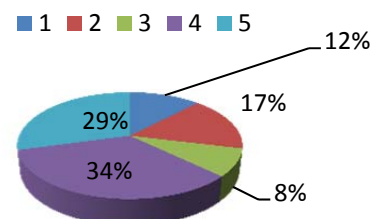
I have access to bike parking at my destination.

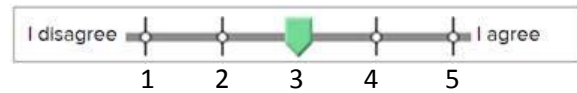


I would like to see more off-road trails.

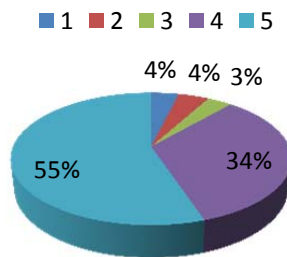


Covered bike parking is important to me.

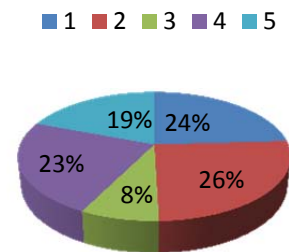




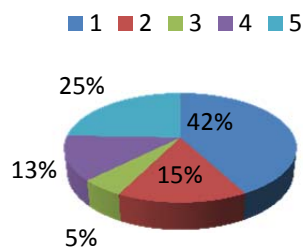
Bike parking is important to me.



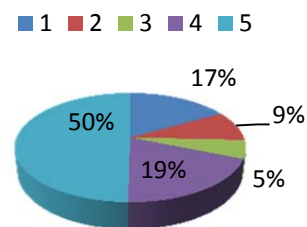
A shower is important to me.



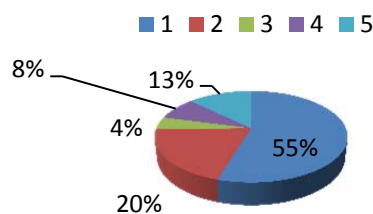
I have access to covered bike parking at my destination.



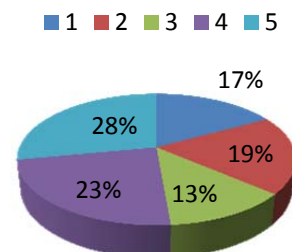
I live close enough to take transit to school/work.



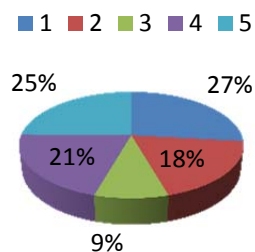
I have access to a shower at my destination.



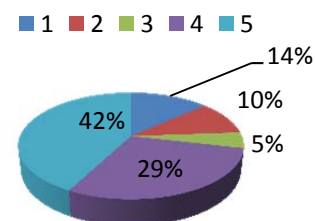
I feel safe walking to school/work.

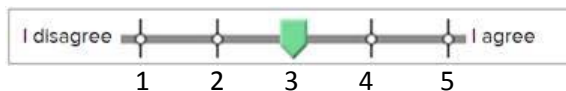


I would use a bike share program if one existed.

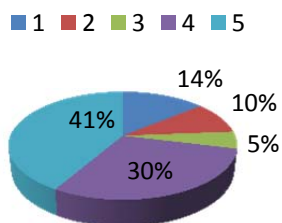


I live close enough to take transit to shopping/dining.

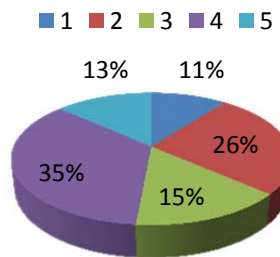




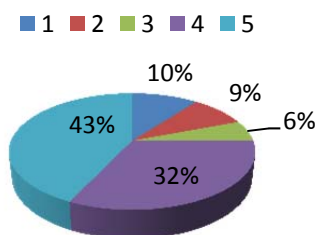
I live close enough to take transit to entertainment/recreation.



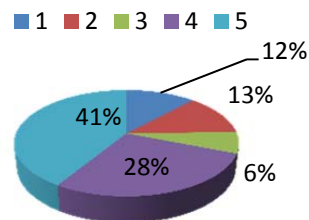
Transit arrives on schedule.



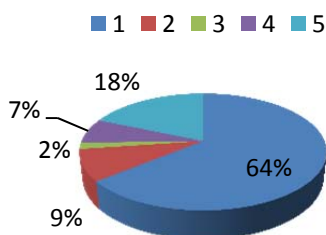
I live close enough to take transit to other destinations.



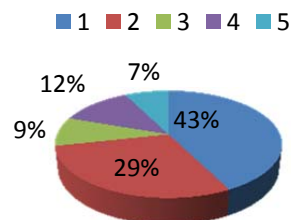
My walk to the transit stop is not too long.



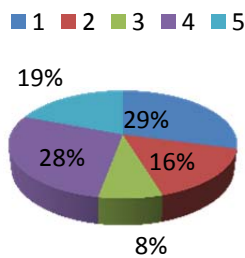
I regularly take transit to school/work.



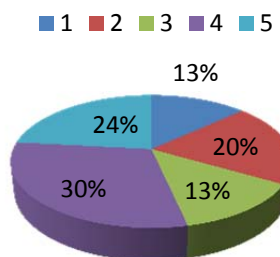
Useful transit system route maps and info are available at my stop.

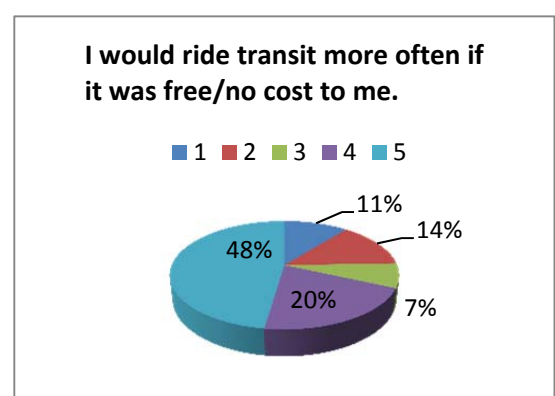
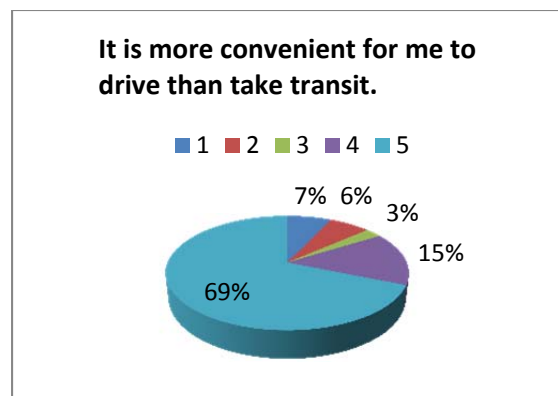
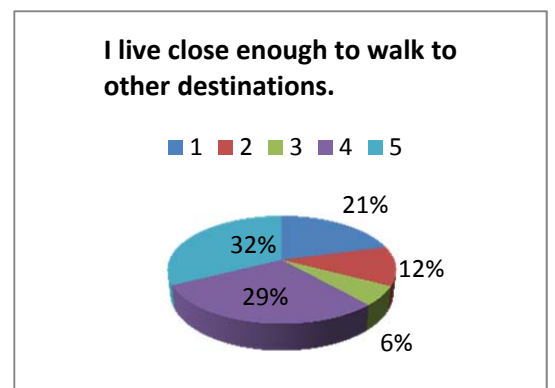
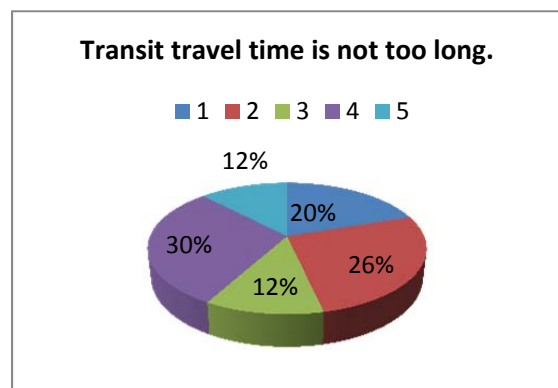
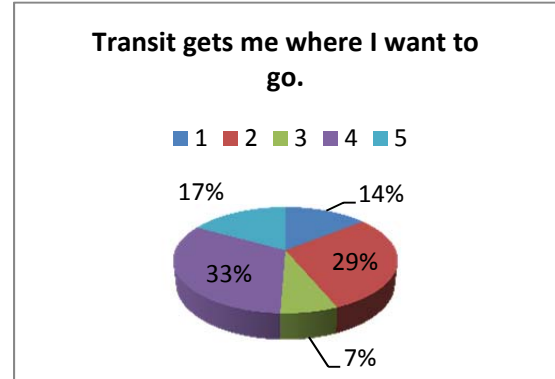
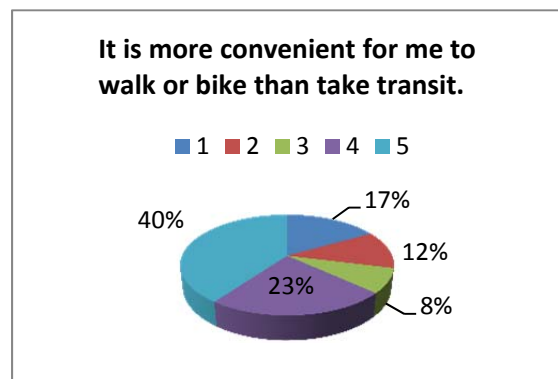
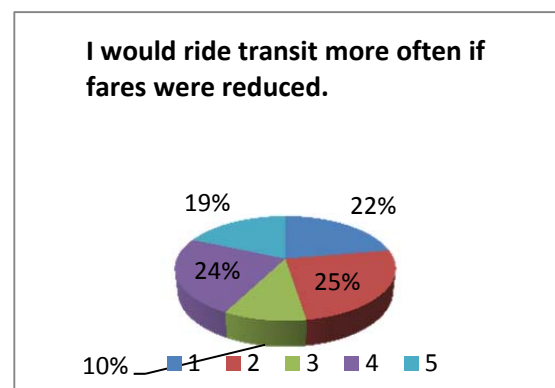
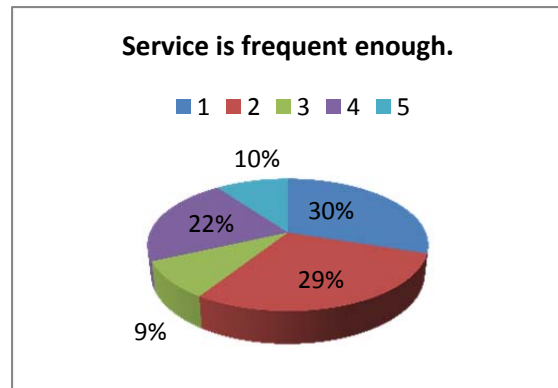
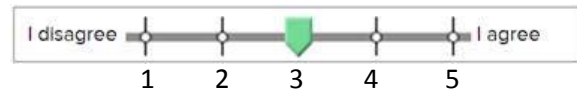


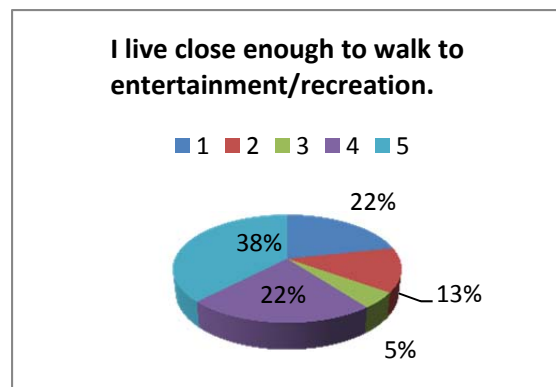
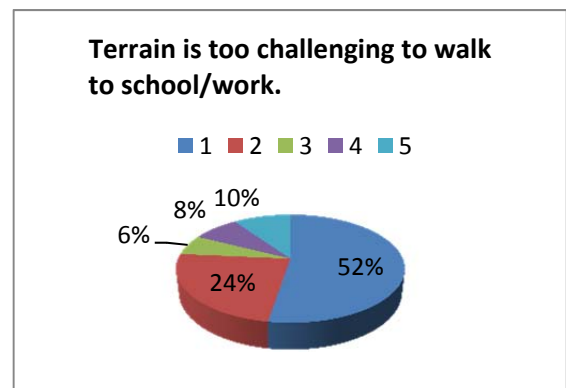
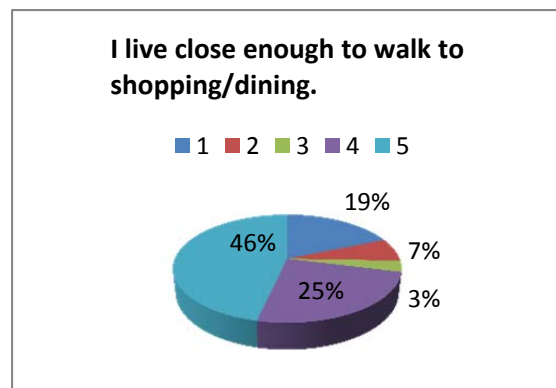
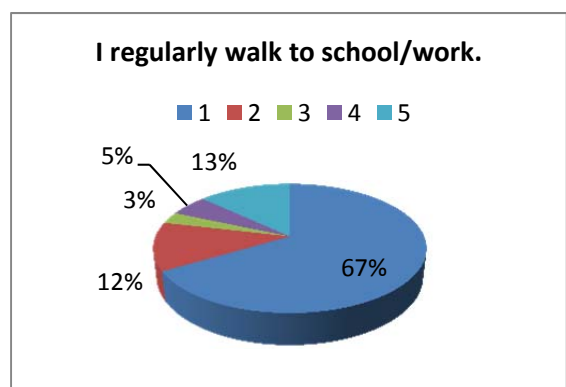
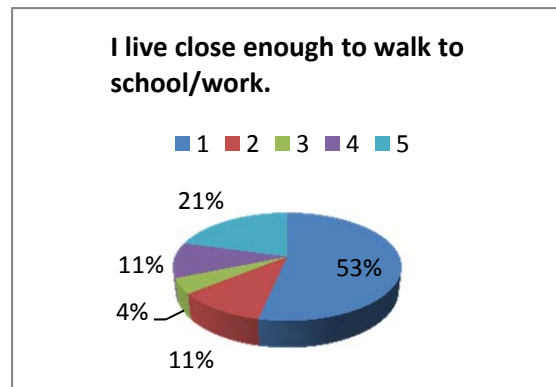
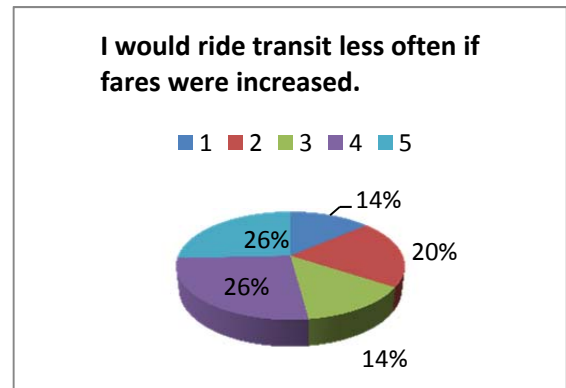
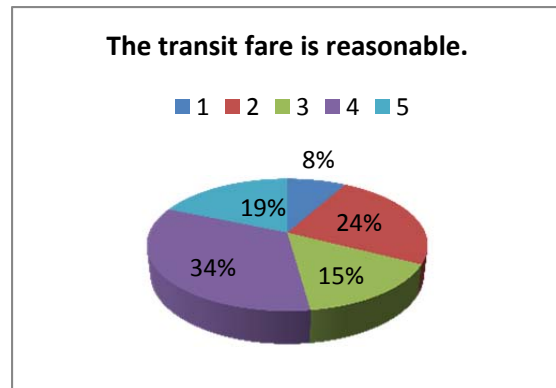
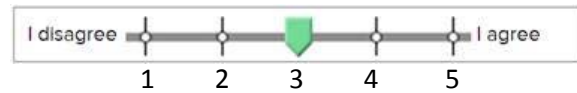
There is adequate shelter at my stop.



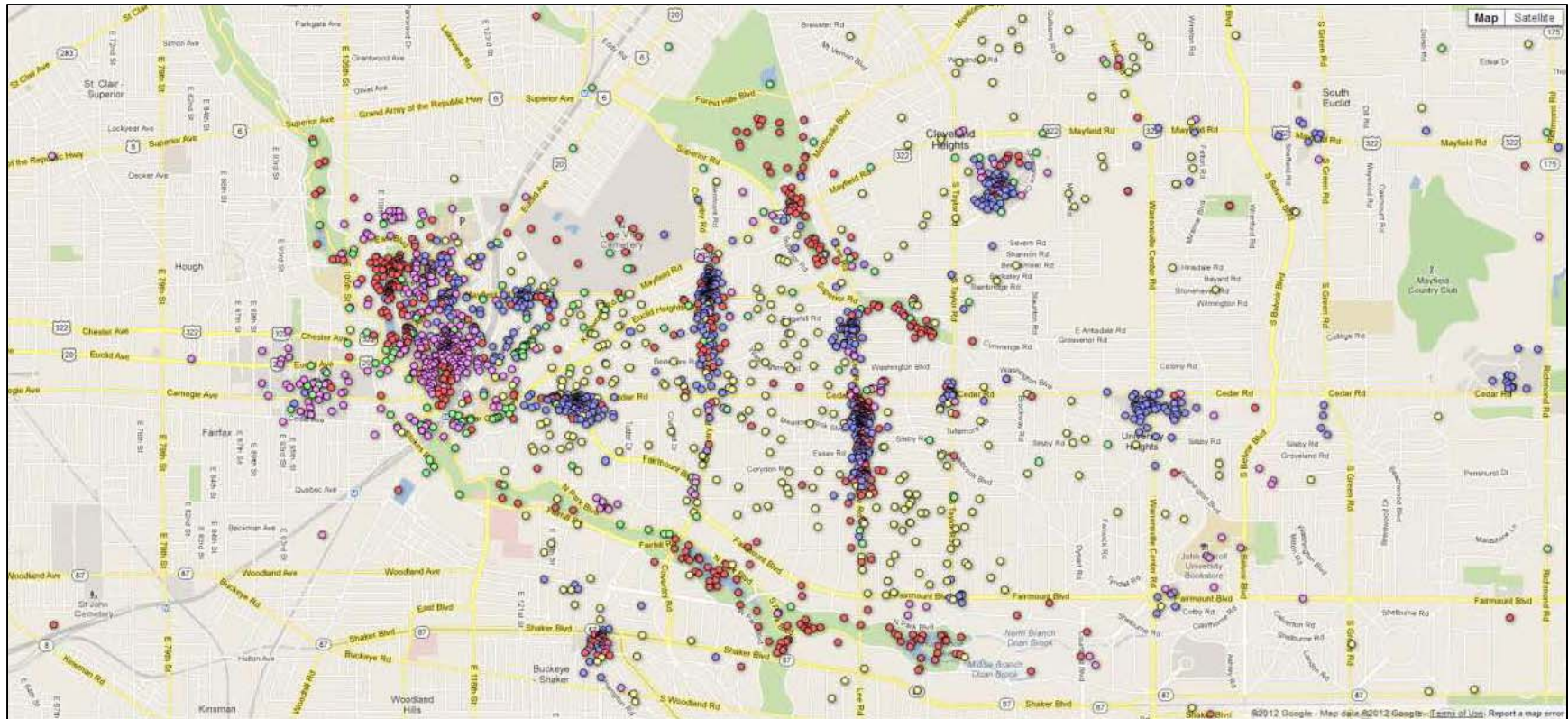
I feel safe waiting at my stop.







Circle-Heights/Missing Links Survey Results
Origin-Destination Data Points



- Home
- Work / School
- Shopping / Dining
- Entertainment / Recreation
- Other

Survey Comments Received

No. of
Respondents

General Comments	
Improve transit	5
There should be routine maintenance of our current facilities before we build more	3
Roads generally not safe	2
We need more laws and law-abiding citizens to make facilities work safely	1
Other	5

Amentities Comments	
Need more ways to make stops and stations safe.	14
Improvement needs to be made for the fare machines at stops/stations.	9
The stops and stations need to be clean.	8
Need clearly identified bus stops and/or route info at stops	6
Need real time information available to riders.	4
Need better bike facilities on transit	4
I do not ride transit.	3
Heated stops and shelters.	3
There should be more stations with parking on the East Side.	2
Need more direct routes to my destination.	2
Fares should be reduced.	2
Landscaping and aesthetics should be put near stops and stations.	1
Other	16

Cycle Frequency Comments	
Would ride more if the roads were maintained - potholes, street cleaning, striping	65
Need more bike lanes or other on-pavement bike facilities & signage	60
Would cycle more if drivers were aware and/or educated	31
It needs to be safer - at night, lighting, biking through dangerous areas	31
Need more bike trails or other off-pavement bike facilities	22
More, secure or covered bike parking	21
Weather presents a barrier to ride more frequently	18
The hill presents a challenge to bike	18
Traffic makes it a concern to bike	17
Do not have a place to shower at destination	16
Need better connections to destinations - fix gaps in existing networks	13
I live too far from work to commute via bike	11
Do not have an appropriate bike to bike to destinations	9
bike sharing would be great!	5
The intersections need to be improved for cyclists - better timed lights, signals for	1
Other	68

Survey Comments Received

No. of
Respondents

Cycle Other Comments	
Pavement condition makes it unsafe to bike	4
Driver awareness, neglect of laws, and general problems create a problem for me to bike	4
Safety concerns are a problem for me (not WRT cycling, but area)	3
Need more bicycle facilities on the streets	2
More secure and available bike parking	1
More off-road bicycle facilities	1
Other	14

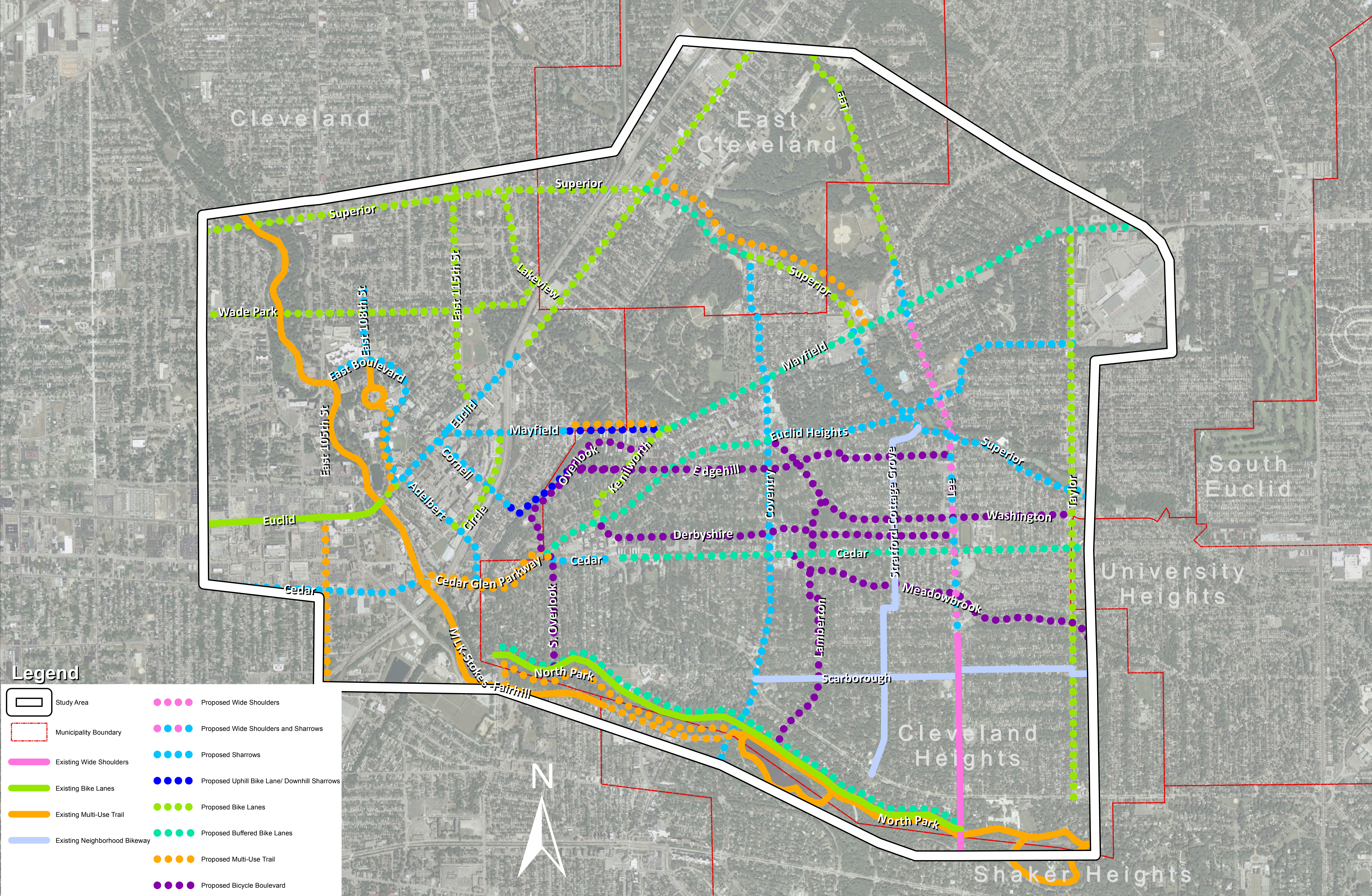
Cycle Frequency Comments	
Services need to run later to fit my schedule	41
Route were more convenient/went where I wanted to go (less/no transfers)	36
Fare needs to be reduced in order for me to consider riding more frequently	33
Would ride more if the services were more frequent	22
Transit needs to be safer	21
It didn't take so long to arrive at destination	21
Transit is not convenient to my location	19
Transit should run on schedule, not late or early	13
More route information readily available	8
Easier and safer to manage taking a bike or leaving a bike at the stop	7
Real time information needed	7
Transit stations and inside were cleaner	6
Transit schedules were coordinated to make transfers easy	4
If the stops were safer, would consider	3
Park and Ride should be more of an option	3
Need more frequent stops along routes	2
If I didn't need my car for work	1
Other	41

Walk Frequency Comments	
My destinations are too far to walk	46
If the area were safer, I would walk more	35
Sidewalks need to be clean and not hazardous	11
Weather was nicer to accommodate walking	10
If I had no other option, I would walk.	9
Need better lighting in order to walk	9
Need more non-sidewalk trails, stairs, or shortcuts	7
Need barrier between sidewalk and traffic to feel safe	6
Need more countdown pedestrain timers, or protected (and enforced) zones at intersections	5
Need more crosswalks in order to walk	4
I cannot walk because I need to pick up children	2
Would want to shower at destination	2
Need more sidewalks!	2
Other	49

Appendix C: Bicycle Facility Recommendations

- **11x17 map**





Appendix D: Transit Technologies



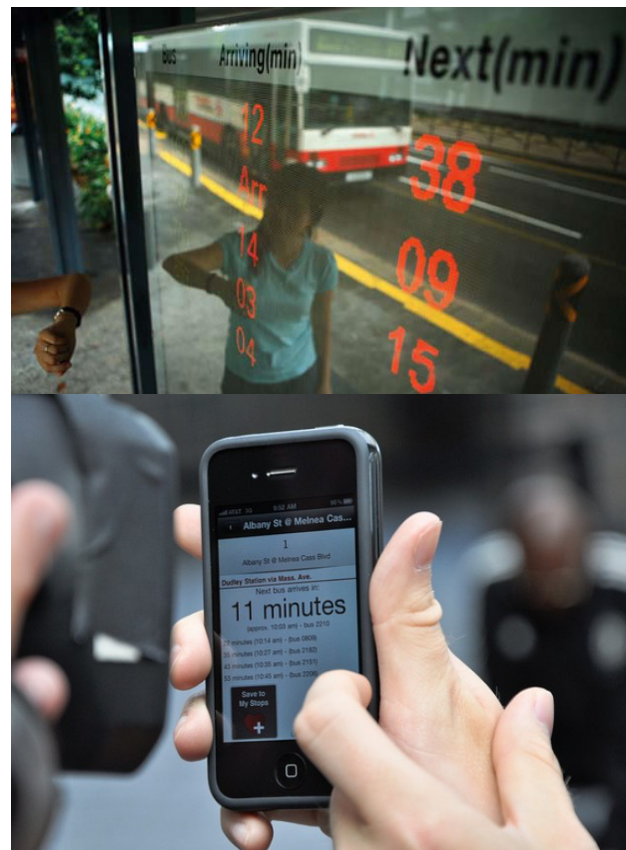
A variety of relatively recent transit innovations may have potential for application to the transit needs of Cleveland Heights and University Circle, and to the improvement of connections between the two. They include technological improvements that increase the knowledge of users about transit services, service innovations that depart from normal transit operations, infrastructure improvements that benefit existing transit users and attract new users, and marketing improvements that increase the public's awareness of and willingness to use transit services.

Some of the improvements that might have applicability to the University Circle-Cleveland Heights project include the following:

Technological Improvements

Real Time Bus Arrival Information: Various branded systems provide passengers with real time (as opposed to schedule time) bus arrival information on the location of buses. These systems can transmit the information to passengers via displays at the bus stop, shelter, or transit center, or can be accessed using text messaging, the internet, and various smart phone applications.

RTA currently provides *scheduled* bus and rail arrival time information at Red Line rail stations and at some Health Line stations. However, as buses and trains routinely fall behind schedule, *real* time arrival information is more advantageous and beneficial to passengers, and more likely to promote transit use, since real time information gives passengers more confidence in the use of the system. RTA is currently working with a private vendor to provide real time information that would be available through displays at selected key stops and via cell/smart phones.



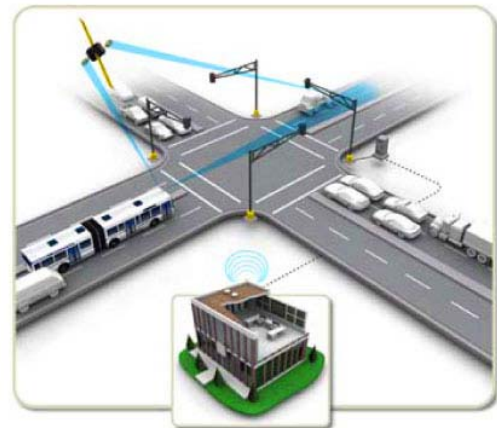
Real Time Bus Arrival Information

Cleveland Heights and University Circle could work with RTA to increase the number of locations where real time information displays are provided, and could provide funding to allow for installation of the real time information displays. These displays would improve the information available to transit users, and the image of transit service in the corridor, resulting in greater transit use.

Traffic Signal Priority Systems: Signal priority systems slightly increase the speed of transit service by reducing the “red” time and increasing the “green” time experienced by buses at key intersections. The bus approaching the intersection alerts the signal system of its approach, either through an

interconnected, centralized system, or locally at the traffic signal box. When the traffic signal box receives the alert from the bus, the signal system holds the green light longer if the bus is approaching a green light, or shortens the red light time if the bus is approaching a red light. This increases the bus travel speed and reduces bus travel time, which reduces the travel time for passengers and encourages transit use.

RTA uses transit signal priority on the Euclid Avenue Health Line Corridor in the University Circle-Cleveland Heights study area. RTA has designated Cedar Road between the University Circle (Cedar Glen) Rapid Station and Beachwood (including the segment through Cleveland Heights) as a potential priority transit corridor. At some point, RTA will analyze Cedar Road for its potential as a corridor for high capacity transit service, using either some form of Bus Rapid Transit (BRT) or rail transit. Signal priority most likely would be implemented in the Cedar corridor as part of any high capacity transit service in the corridor. Should it be interested in doing so, the City of Cleveland Heights could consider implementing signal priority



Opticom Signal Priority System for Buses

systems on its signal system in advance of RTA's analysis of Cedar Road. Potential corridors where bus service could benefit from signal priority service include Cedar Road, Mayfield Road and Lee Road. Improvements on Cedar and Mayfield Roads also would benefit travelers to, and within, University Circle. Signal priority in these corridors would require coordination between the City of Cleveland Heights, University Circle Incorporated, the City of Cleveland, NOACA, ODOT, and other adjacent cities along the Mayfield, Cedar and Lee corridors.

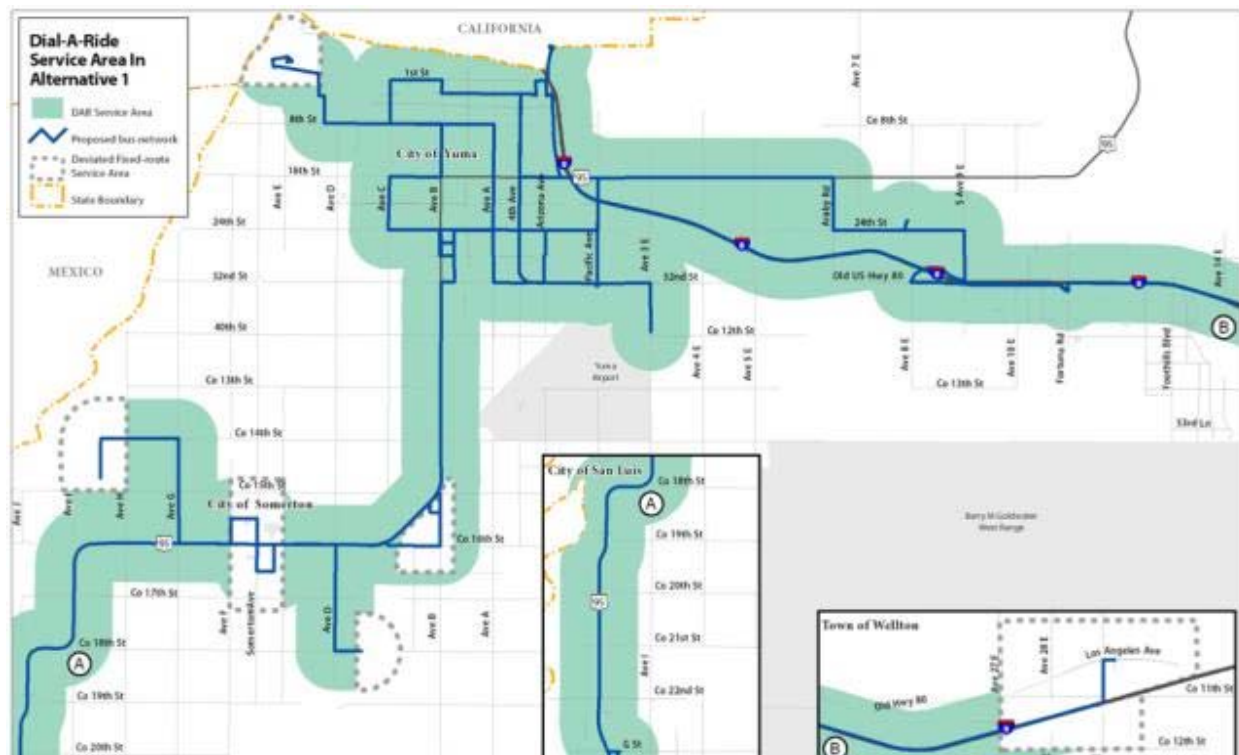
Service Improvements

Circulator Service: A circulator is a route that typically operates in an open loop (in one or two directions), connecting a series of locations within a defined area. The current circulator route operated by University Circle and the former Heights circulator route operated by Greater Cleveland RTA are examples of circulator routes operated within the University Circle-Cleveland Heights service area.

RTA's Heights Circulator, along with RTA's other circulator services, was discontinued due to low ridership. However, the implementation of innovations discussed in this section, including stop improvements at key locations, flex route or point deviation services at key destinations, "NextBus" or similar technical improvements to provide passengers with real-time bus arrival information, and enhanced marketing, together with increased service frequencies, could make a new circulator route an option for meeting some of the transit needs of the University Circle-Cleveland Heights area.

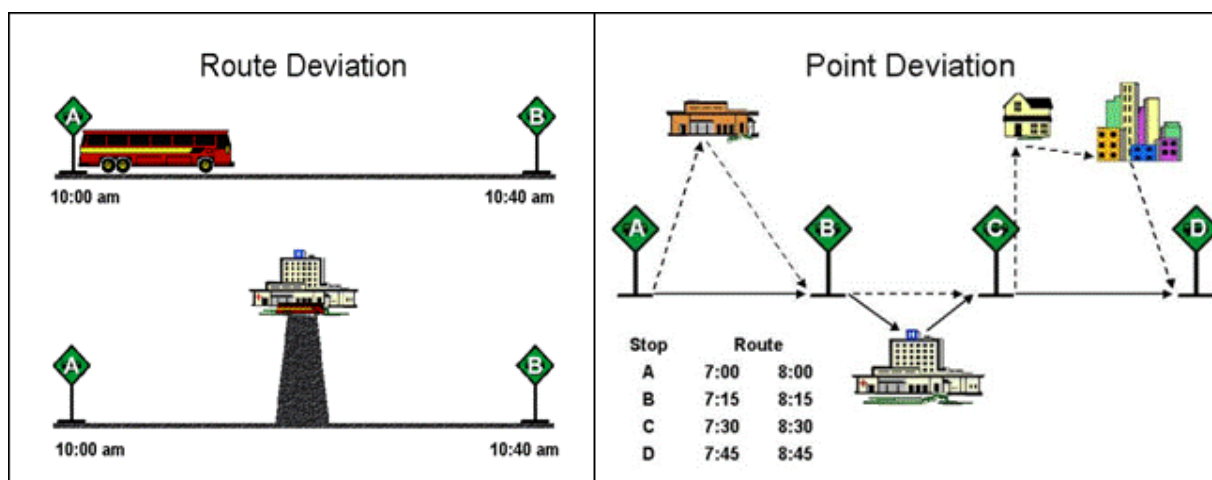
Dial-a-Ride or Flex Route: *Dial-a-ride service* generally refers to a door-to-door, on-demand service that customers can summon either in advance or in real time by calling or communicating with the transit agency via phone, internet or text. Transit agencies have provided cell phones to drivers, who receive phone messages on the phone and plan their trips during layovers, or (more commonly) use their

paratransit dispatch systems to dispatch buses to pick up passengers. Dial-a-ride services provide the ultimate in convenience for transit service, essentially like a shared taxi ride, and usually commands a premium fare (often several times the normal transit fare). It is an ideal transit service for lower density, suburban or semi-rural areas, or for smaller suburban and urban areas where the range of the service can be limited to trips of 20-30 minutes or less.



Dial-a-Ride Service, Yuma County, Arizona. Areas within the green highlighted area can be served on a request-stop basis.

Flex Route services come in two varieties: *route deviation* or *point deviation*. Route deviation services differ from dial-a-ride services in that the route operates on a fixed route, but deviates from its regular route by request from a passenger who calls or otherwise communicates with the transit service, or who requests the deviation while riding the bus. *Point deviation* service differs from route deviation services in that point deviation routes vary only at certain, pre-determined points along the route upon request from a passenger. Typical examples of this might be a request for a bus to deviate into a shopping center or subdivision along its route. Route or point deviation service along the route may be an option to improve service on the existing University Circle route, or to other circulator routes that might be devised to serve the University Circle-Cleveland Heights area.



This is an illustration of route and point deviation service from the National Transit Database. In route deviation, the bus can make stops off the main route alignment upon request. In point deviation, the bus may leave the route only at a few pre-determined, specified points.

Infrastructure Improvements

Bus Stop Improvements: Physical improvements to bus stops can include a broad range of installations, all meant to improve the waiting experience of the transit user and/or to beautify the bus stop and its surroundings. Some typical physical improvements made at bus stops include:



Bus stop improvements can include (clockwise from above left), a bus stop pad and trash receptacle, a bench, an architecturally-designed shelter and garbage can, an architecturally-designed shelter with enhanced landscaping.

- Bus stop waiting pads- concrete pads connected to the sidewalk, installed in tree lawn or landscape string in areas where the sidewalk does not extend all the way to the street. The pad is usually large enough for several waiting bus passengers, standing or in wheelchairs, to wait on a hard surface.
- Trash receptacles- installed to allow bus patrons and other pedestrians to conveniently dispose of trash. Trash receptacles helps prevent excess litter from piling up at the bus stop. The trash receptacle also can be a streetscape element that helps to beautify the area around the bus stop, and can incorporate public art elements. Providing trash receptacles at bus stops generates a significant ongoing cost for frequent emptying and maintenance of the receptacle.
- Enhanced bus stop signage, which can range from addition of bus schedule information to the incorporation of the bus stop marker into lighted, electrified kiosks providing system maps, real time bus arrival time information, and other information. Enhanced bus stop signage can generate a cost for maintenance for regular replacement of bus schedules and maps as bus service changes.
- Bench- an uncovered seating area for one or more passengers, usually installed on a bus pad.
- Shelter- a covered waiting area installed on a bus pad, ranging from a small covering with no seating to a large covering with multiple benches and significant standing room within. Shelters sometimes are equipped with heating, lighting, paper schedules and system maps. Real time bus arrival information also is sometimes provided.
- Enhanced lighting- lighting to supplement street lighting and other ambient light, to enhance safety and comfort at the bus stop.
- Bike rack- a rack for storing bicycles, to supplement the bike racks on the buses, providing another option for transit users who access the bus by bike.
- Enhanced landscaping and public art- landscaping and art emplacement to beautify the environment around the bus stop, to enhance the transit experience and provide a community amenity.

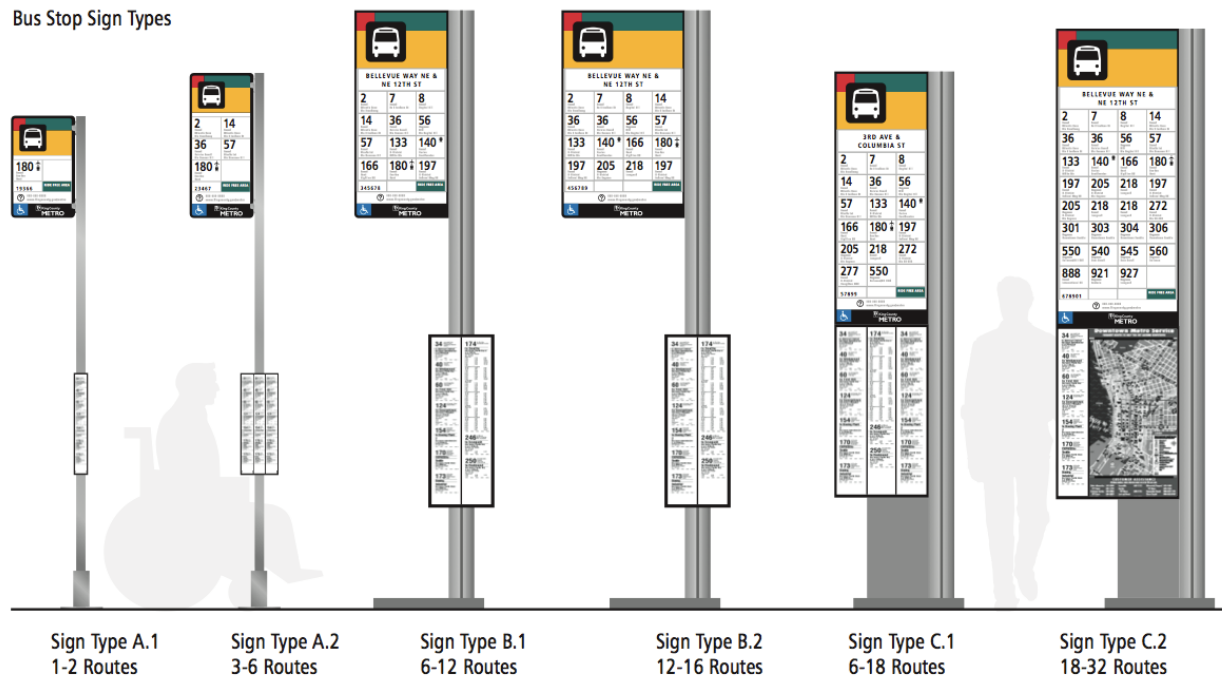


Bike racks are another amenity that can be placed at bus stops. All of RTA's buses have bike racks, but those racks are increasingly full, requiring bicycle users to leave their bikes at the stop (RTA TWE).



In climates with snow, ice and mud, improvements as simple as a pad to give passengers a place to board and alight the bus between the curb and the sidewalk can be a major improvement (The RIDE, Ann Arbor).

Bus Stop Sign Types



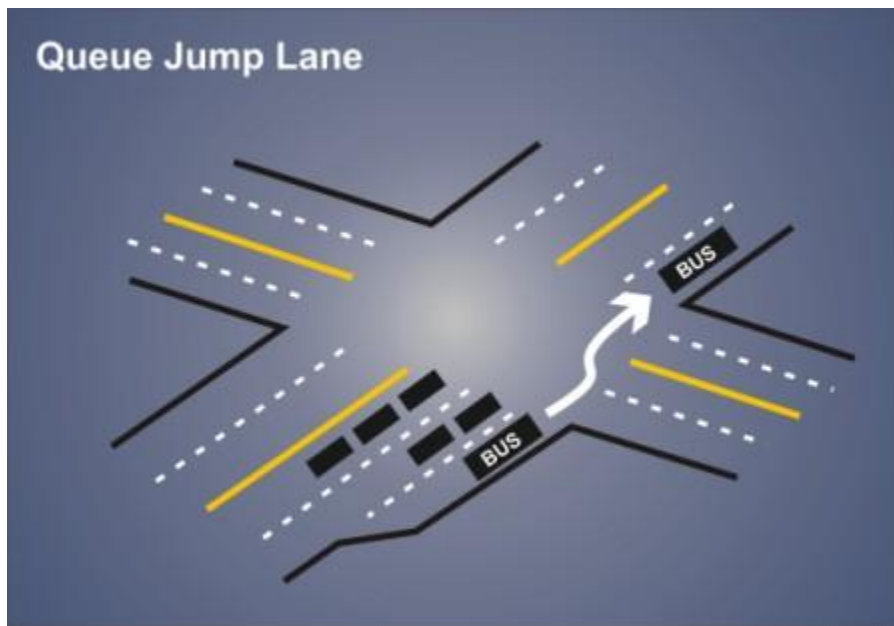
Bus stops can provide more than just the identity of the buses that stop there. This range of signs from Seattle, Washington provides everything from basic schedule information for basic bus stops, to neighborhood way-finding information at major transit

Transit Centers: facilities where two or more bus routes meet to allow passengers to transfer between routes. They are sometimes called *transfer centers*. Transit center provide amenities for bus passengers intended to make waiting for the bus at that location safer and more enjoyable. Transit centers usually include an off-street passenger waiting area, often with and enclosed and/or climate controlled area, with seating. Upgraded security, ranging from security cameras and a security call-box, to an on-site security guard, is often also



Transit centers provide an attractive and convenient location for multiple buses to layover and pick up/drop off passengers (Southgate Transit Center).

provided. Some transit centers provide rest rooms and water fountains for passenger use. All provide an off-street location to board the bus and upgraded lighting at the waiting area. Passenger information is usually provided, such as schedules, system maps, and electronic schedules or real time bus arrival information. In some cases, personnel are present to provide passenger information and ticket sales. Operating amenities usually include off-street bus bays to allow buses to park and layover off street. Driver amenities often include a driver rest area and rest rooms. The Southgate Transit Center is an



Queue jump facilities, which can be as simple as allowing buses using the right turn lane to make a through movement at an intersection, speed up bus progression, which results in higher bus travel speed and higher transit use

example of the type of transit center that could have applicability in the Cleveland Heights area, although on-street and lower profile facilities have been implemented in other locations.

Queue Jump Facilities: intersection treatments that allow buses to bypass stopped traffic at the intersection. Queue jump lanes are often used in conjunction with traffic signal priority treatments. Queue jump facilities allow buses to progress faster than the surrounding traffic, which promotes transit use.

Marketing Improvements

Branding of University Circle-Cleveland Heights Services: Branding consists of the development of a marketing visual language including logos, color schemes, distinctive buses and facilities, and other elements used to set the branded bus service apart from other bus routes or services in the bus system. This branding scheme is carried through from the look of the buses (which may be a distinctive design or vehicle) through the shelters, bus stop signs, advertising materials, schedules and other promotional materials. Branding has been found to promote transit use, particularly among non-traditional or choice transit riders. RTA's Health Line Corridor is an example of a branded service.

Targeted Marketing of Service Areas: Any service, whether branded or within a larger family of bus services, can be marketed locally through target marketing. Targeted marketing focuses on a specific area served by a specific service or small number of services, and uses mailings, push-pull telephone surveys, leaflets, posters and paid advertising in locally-oriented newspapers, periodicals, and websites, to market those services to those who live in the area that they serve. Targeted marketing can be especially effective when used to coincide with the introduction of new or major improvements of transit facilities.

Cooperative Marketing with Area Businesses and Institutions: This is a form of targeted marketing of service areas that involves local businesses and institutions in cross promotion of their services with transit services. For example, transit riders could receive coupons for goods or services offered by a local

business or institution. Conversely, users of a business or institution could receive free or discounted transit service. Advertising could reference the transit agency and the business(es) or institution(s)



The Circulator in Washington, DC is an example of a successful branded service. The Circulator's branding scheme, intended to distinguish the service from Washington's Metro local bus service, uses a wrap on distinctive coaches, special signage and information on bus stops signs. The branding scheme extends to the services' advertising, schedules and other materials.

tie-in to transit service, and transit agencies sometimes hold community events to coincide with Earth Day, Try Transit Week, or other events. Transit agencies or providers can set up displays, offer tours of the buses (or hold the rally at the bus garage to offer tours of the facilities) and offer information and promotional items to promote the use of transit service generally, or of specific transit services, in the community.

together as part of a joint promotion. This strategy has worked well to introduce transit users to local businesses as well as using the popularity of local businesses to introduce new users to transit service.

Events Marketing: Marketing at community events, or creating community events specifically for the purpose of marketing the transit service, has been a strategy used in

some areas to promote transit use. Earth Day rallies, community festivals, and school events have a natural



Events to increase local knowledge of transit often can be tied to environmental education, as in this event for CTA in Chicago.

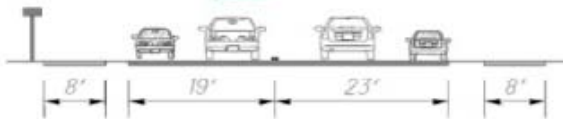
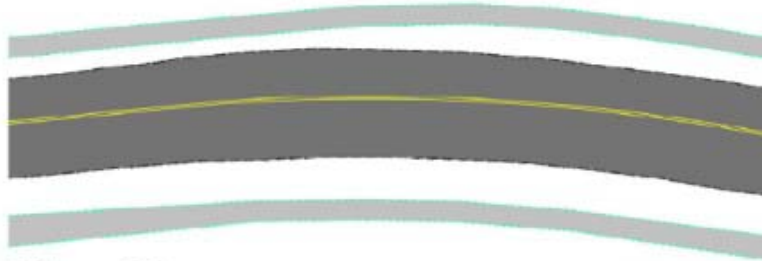
Appendix E: Example Corridor Alternatives



East Blvd.

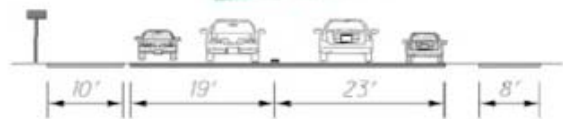
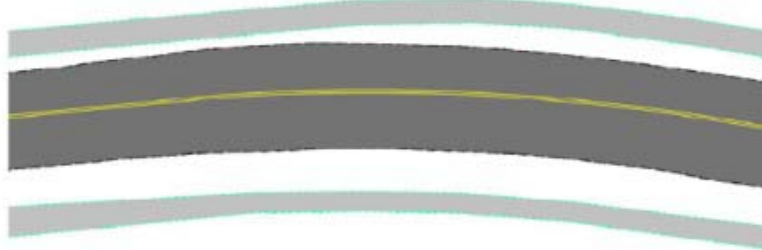


Alt 1



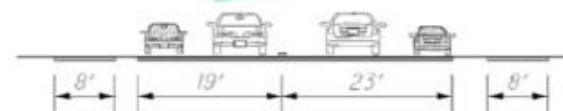
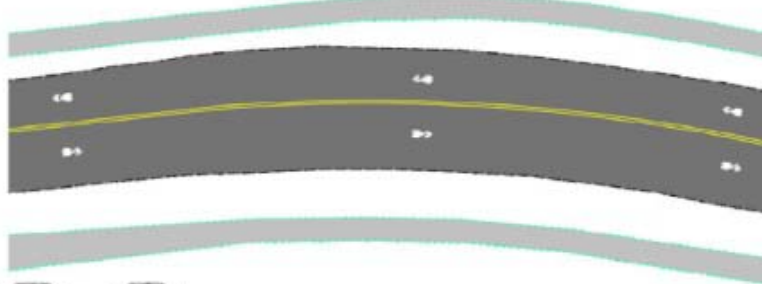
Add Signage on Existing Path

Alt 2



Widen to 10' Path, Add Signage

Alt 3

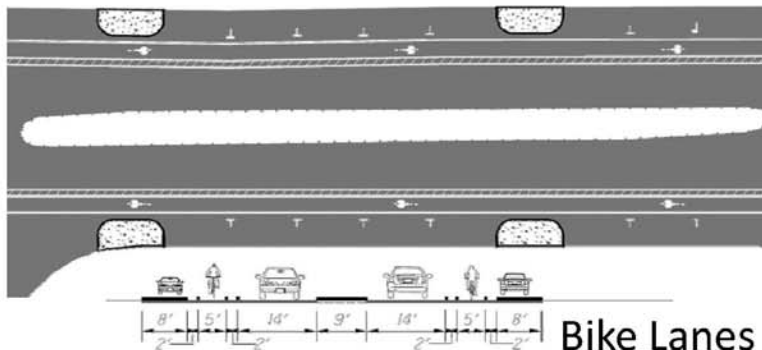


Add Sharrows In Travel Lane

Superior (Coventry to Mayfield)

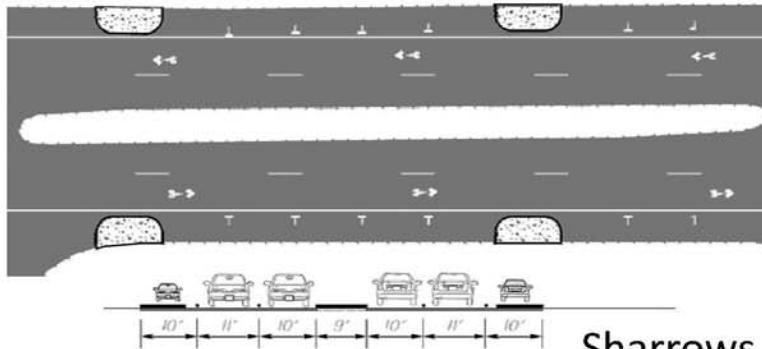


Alt 1



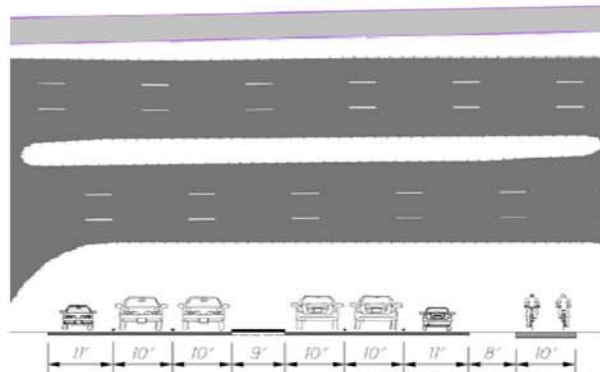
Bike Lanes and Parking

Alt 2



Sharrows and Parking

Alt 3

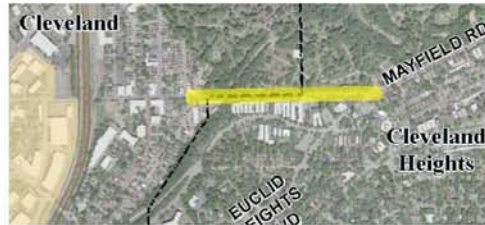


Widen West Sidewalk to Trail

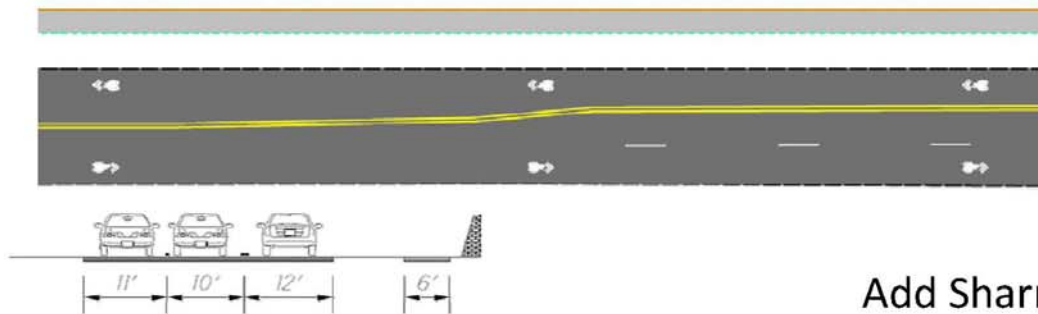


Mayfield Road

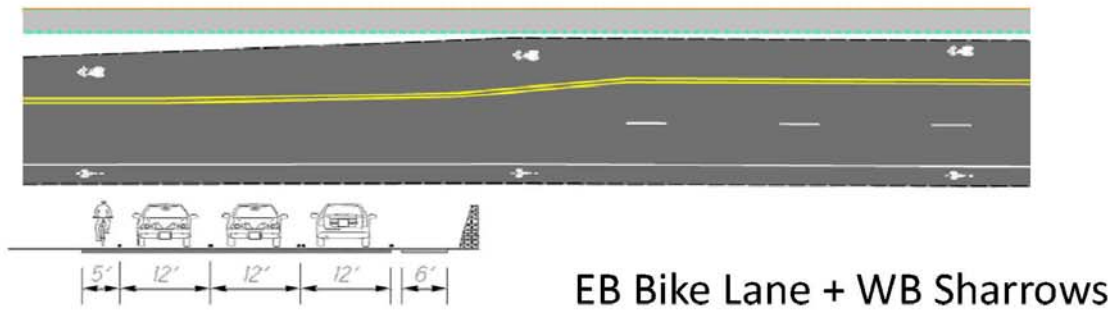
(Murray Hill to Kenilworth)



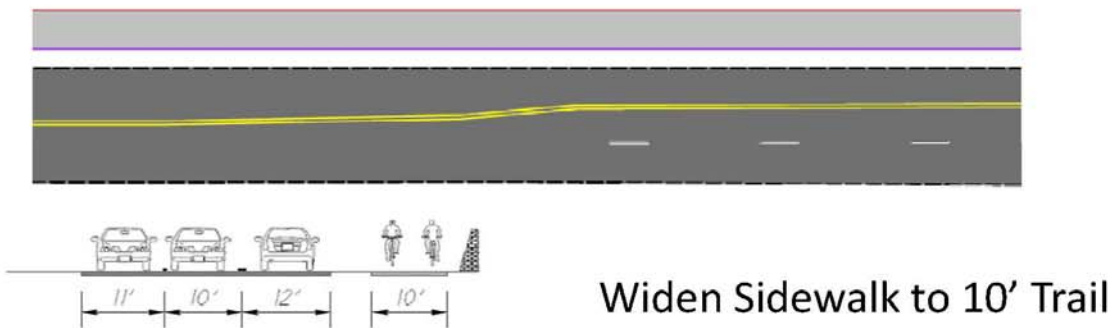
Alt 1



Alt 2



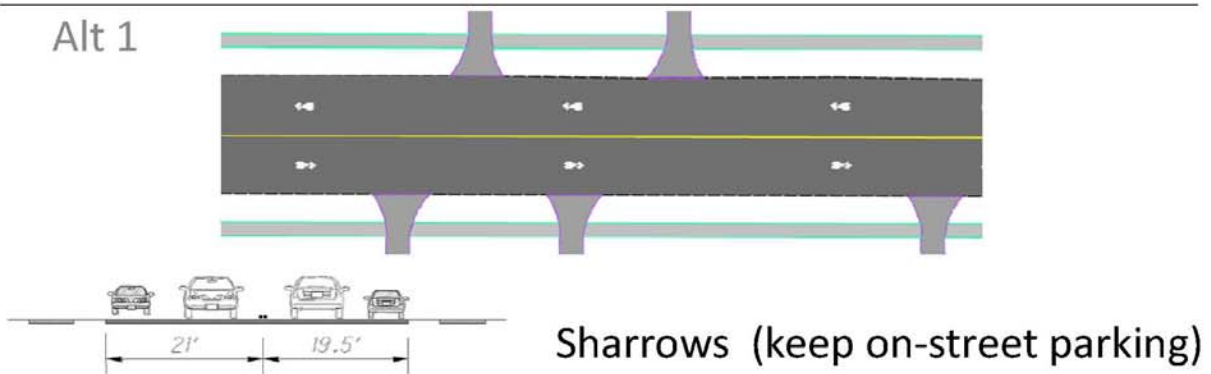
Alt 3



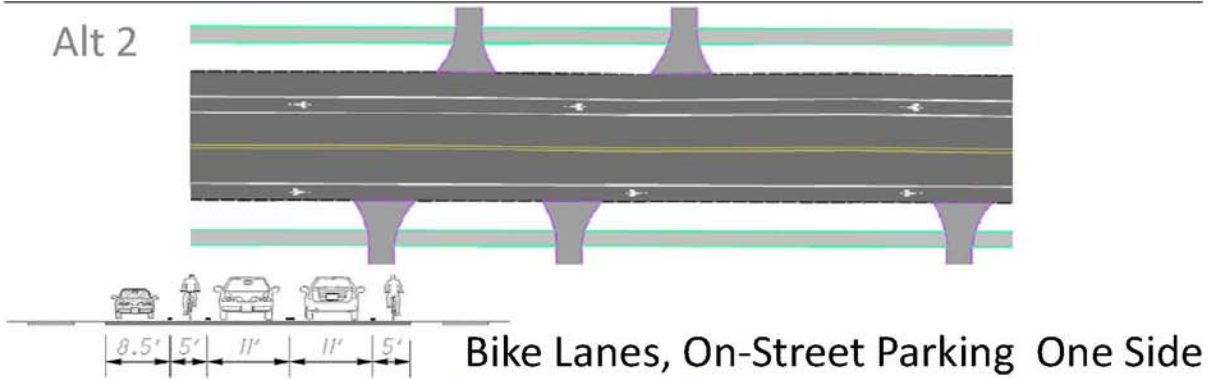
Wade Park



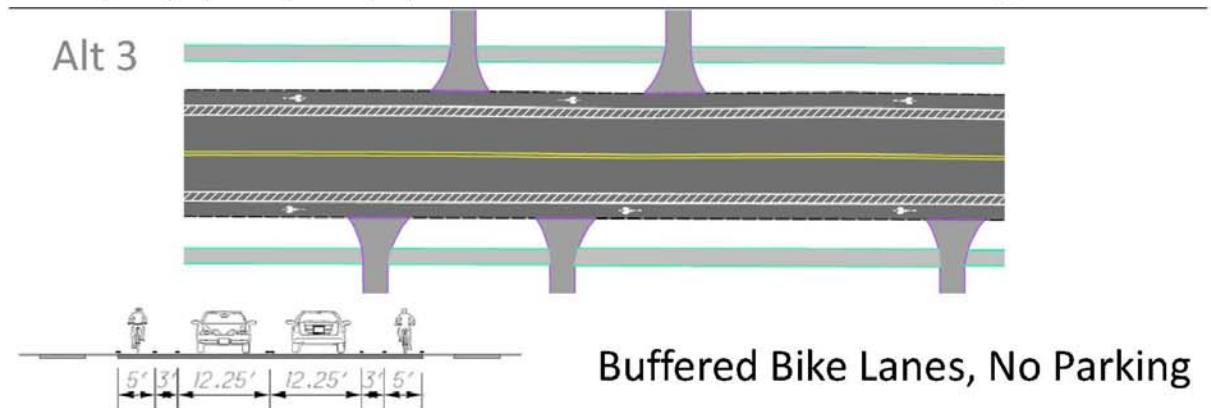
Alt 1



Alt 2



Alt 3



Cedar Hill

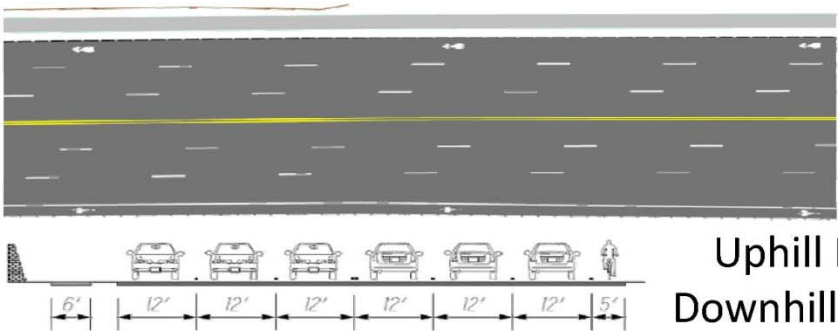


Alt 1



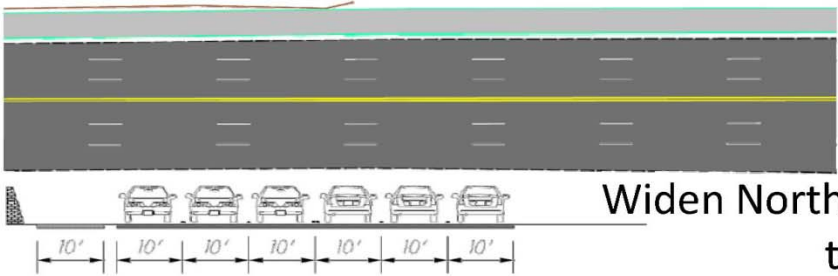
South Side Bike Trail

Alt 2



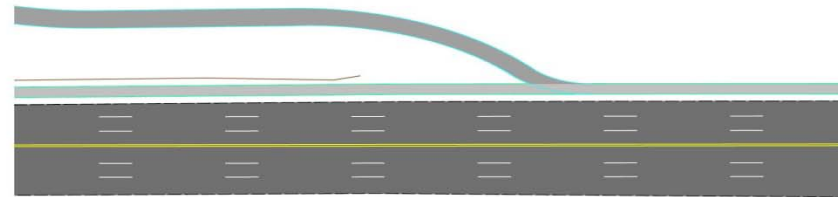
Uphill Bike Lane,
Downhill Sharrows

Alt 3



Widen North Sidewalk
to 10' Trail

Alt 4



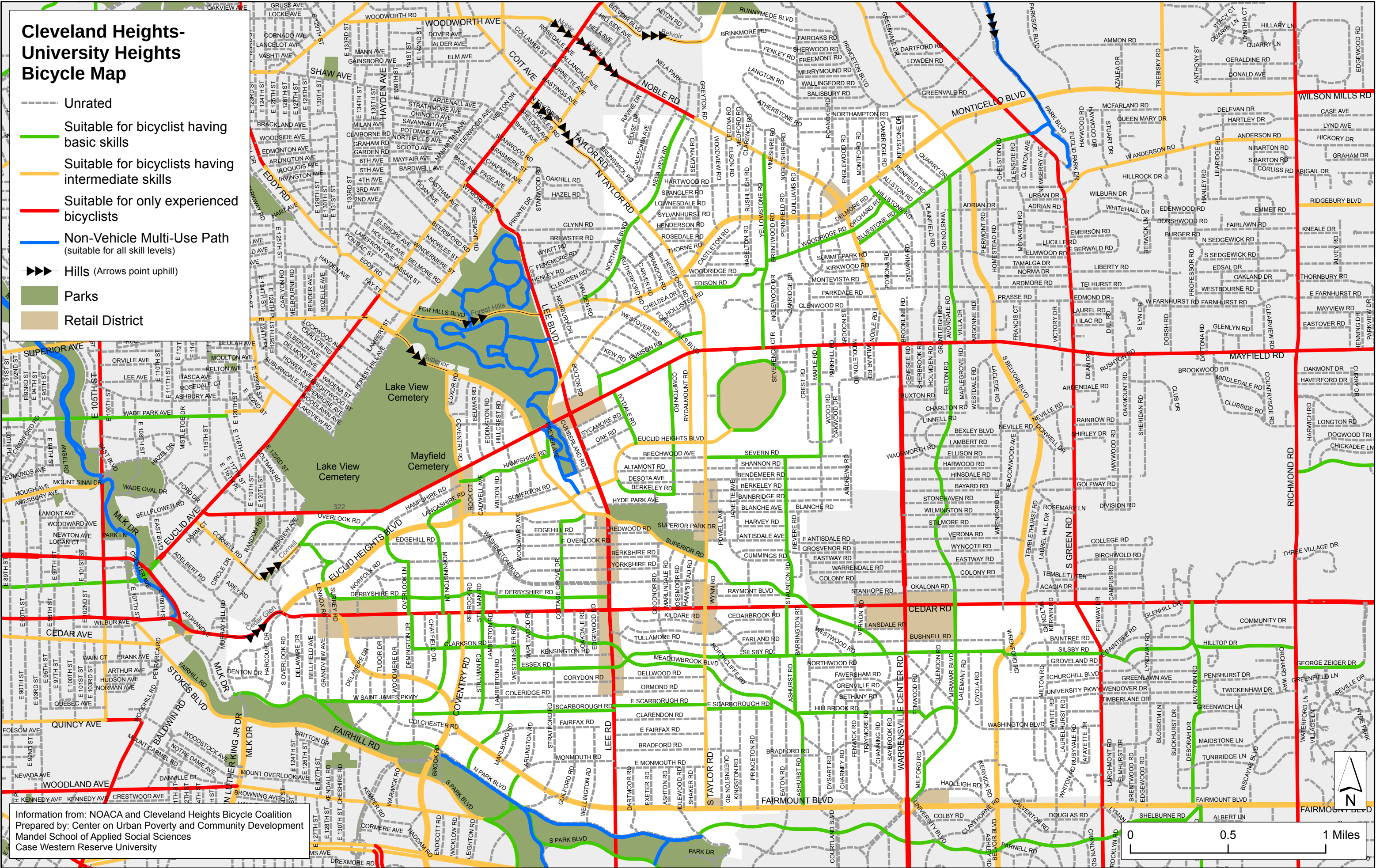
Elevated Off Road Trail

Appendix F: Cleveland Heights Bike Map



Cleveland Heights- University Heights Bicycle Map

- Unrated
- Suitable for bicyclist having basic skills
- Suitable for bicyclists having intermediate skills
- Suitable for only experienced bicyclists
- Non-Vehicle Multi-Use Path (suitable for all skill levels)
- Hills (Arrows point uphill)
- Parks
- Retail District



Information from: NOACA and Cleveland Heights Bicycle Coalition
Prepared by: Center on Urban Poverty and Community Development
Mandel School of Applied Social Sciences
Case Western Reserve University

0 0.5 1 Miles

How to use this Map

Think like a cyclist, not a motorist. Look for bike routes that take you to your destination. When planning to use your bike for transportation, do not assume that you will use the same route for your bike trips that you would use for your car trips. Bike routes are less direct and more scenic. This map assists you to find the routes through Cleveland Heights and University Heights that fit your skills. It also helps to remember some important safety concerns:

- Same Road, Same Rules: according to the Ohio Revised Code, bicycles are considered vehicles and for the most part must adhere to the same laws as motor vehicles (see "Helpful Links").
- When riding in a narrow lane, stay far enough away from the right edge to discourage vehicles from passing dangerously close in the same lane.
- When riding past parked cars, stay wide of the door zone to prevent being hit by a car door.
- Be aware of challenging road surfaces, especially water, potholes and sand, that are hazardous when turning.
- Be predictable, do not weave in/out and in general try not to surprise drivers. Always signal.
- Use a light when driving at night. It is required by community ordinance.

Benefits of Cycling

Cycling as a Health Benefit

- Cycling is one of the easiest ways to enjoy exercise as part of everyday life - short bike commutes to school, the grocery store, restaurants or the theater.
- Regular cycling enhances aerobic endurance without spending time and money at the gym.
- Biking involves the entire body and can help to control weight and build a healthy heart.
- Start slowly, this is not a race.
- You will arrive at your destination, mentally refreshed and physically strong.

Cycling as Community and Environmental Benefit

- Bicycle travel decreases air and noise pollution.
- Communities with more cyclists have less congested roads, ultimately saving tax dollars and preserving the environment
- Cleveland Heights and University Heights boast many beautiful roads that are perfect for short bike trips.
- Even in cold weather, dress warm and enjoy being outside, seeing your neighbors and getting exercise.

Further Information

Helpful Links

<http://bikesintheheights.org/>
<http://www.noaca.org/>
<http://www.sustainableheightsnetwork.net/>
<http://bicyclesafe.com/>
[http://www.bikexpert.com/streetsmarts/For a digest of the bicycle laws, see <http://www.ohiobike.org/bicycle-law-digest.html>](http://www.bikexpert.com/streetsmarts/For%20a%20digest%20of%20the%20bicycle%20laws,%20see%20http://www.ohiobike.org/bicycle-law-digest.html)

Bicycle Shops

Cain Park Bike Shop
 1904 Lee Road
 (216) 320-0209
cainparkbicycle.com

Cycle Sport and Fitness
 2184 South Taylor Road
 216-321-4977
cyclesportandfitness.com

No warranty is made or intended as to the safety or fitness of the roads, streets or bike ways for bicycle travel. These are merely suggestions and require the exercise of caution by an individual. Ohio counties, cities, elected officials, employees and Cleveland Heights Bicycle coalition officials disclaim responsibility and shall not be liable in any manner for loss, damage or injury occasioned by bicyclists who travel along the roads, streets and bike ways on this map.

**Think like a cyclist
not like a motorist!**



**Bicycle map
Your Cleveland Heights-
University Heights**

Safety tips at a glance



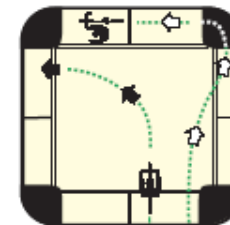
**OBEY TRAFFIC
SIGNS AND
SIGNALS**



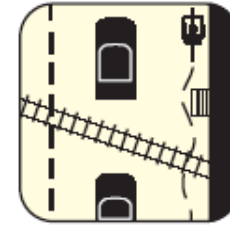
**DON'T PASS
ON THE RIGHT**



**FOLLOW LANE
MARKINGS**



**CHOOSE THE
BEST WAY TO
TURN LEFT**



**AVOID ROAD
HAZARDS**



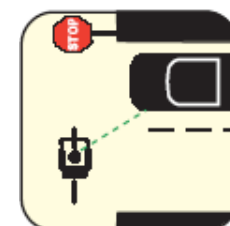
**DRESS
APPROPRIATELY**



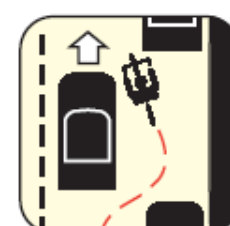
**KEEP BOTH
HANDS READY
TO BREAK**



**RIDE IN MIDDLE
OF LANE IN
SLOW TRAFFIC**



**MAKE EYE
CONTACT WITH
DRIVERS**



**DON'T
WEAVE BETWEEN
PARKED CARS**



**KEEP BIKE IN
GOOD REPAIR**



**NEVER RIDE WITH
HEADPHONES &
ALWAYS WEAR HELMET**

About This Map

The core of this map information came from the Northeast Ohio Areawide coordinating Agency (NOACA) Cuyahoga County Bicycle Transportation Map. NOACA generously gave the Cleveland Heights Bicycle Coalition the map file and a subcommittee of the CHBC added more detail to the map to create a Cleveland Heights-University Heights Bicycle Transportation Map.

The CHBC wishes to thank NOACA for their leadership in bicycle transportation planning and for the use of the map file. Thank you also to April Hirsch for preparing the map and to Sustainable Heights Network for their support, encouragement and the financial contribution to have this map printed. Furthermore, the No Impact Week 2011 was the catalyst for the creation of the map.

The Cleveland Heights Bicycle Coalition, October 2011
 216-BIKE-FIX (245-3349) or
info@bikesintheheights.org



Appendix G: Traffic Analysis

- **Mayfield / Kenilworth**
- **Edgehill / Overlook**



MISSING LINKS TRAFFIC ANALYSIS

The fundamental purpose of the two Circle-Heights studies is to facilitate alternate mode travel within and between Cleveland Heights and University Circle, with the ultimate goal of getting travelers out of their cars and onto their bicycles or using transit. Examination of the study area with this purpose in mind led to a concentrated focus at two intersection locations that present barriers to that purpose: the Edgehill Road/Overlook Road intersection and the Mayfield Road/Kenilworth Road intersection. These two intersections are located on two of the primary commuter routes between Cleveland Heights and University Circle and both are currently configured in a very auto-dominant manner. The Edgehill Road/Overlook Road and the Mayfield Road/Kenilworth Road intersections were analyzed to determine potential modifications and enhancements to facilitate alternate mode travel. Traffic analysis was completed and intersection geometrics were evaluated.

Existing Conditions

The Edgehill/Overlook intersection is located within a residential area on the western edge of Cleveland Heights at its Cleveland border. The intersection is near the top of the hill that climbs from Murray Hill into Cleveland Heights. Edgehill and Overlook are two-lane roads. Edgehill/Overlook is a three-way stop-controlled intersection; the southbound approach to the intersection is not required to stop. There is no apparent sight distance or other functional or geometric constraint to justify this atypical intersection control. Each approach consists of a single lane, except the westbound approach of Edgehill Road, which has a channelized right turn lane in addition to the shared through-left lane. All of the approach roadways at the Edgehill/Overlook intersection have a speed limit of 25 mph.

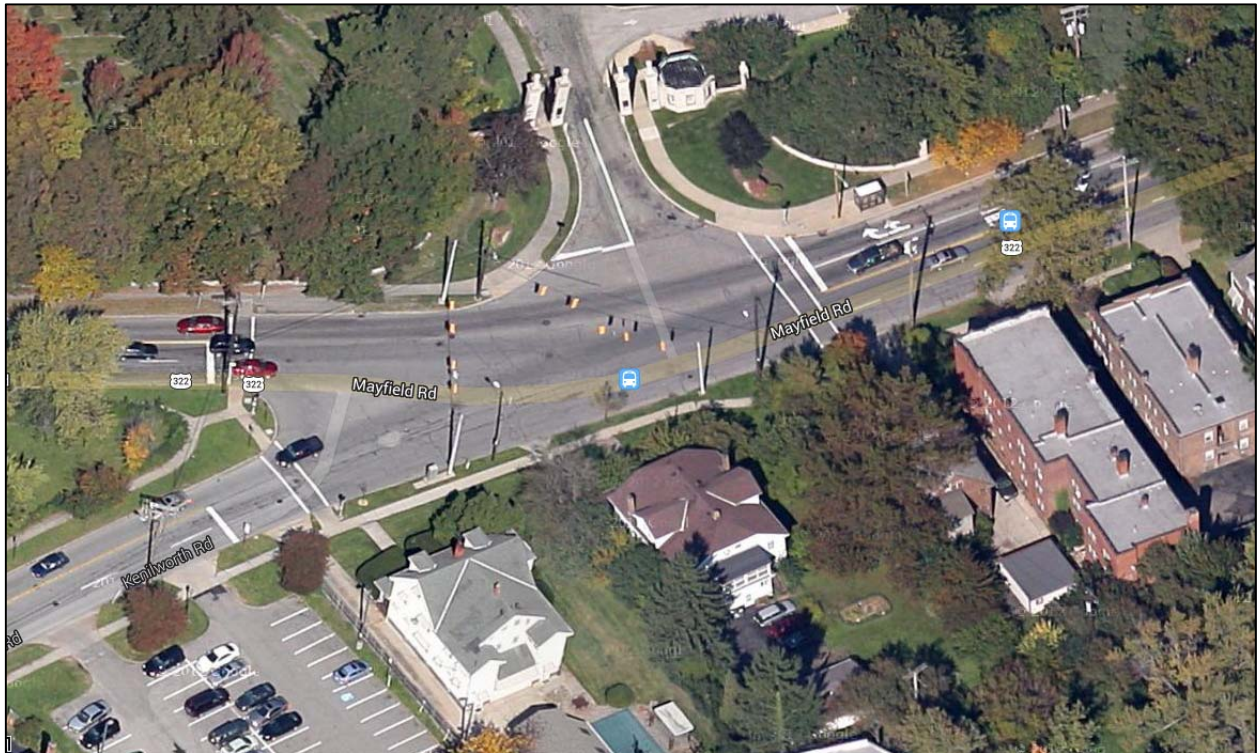


Edgehill/Overlook Intersection

The Mayfield/Kenilworth is a signalized intersection located along a regional connector (Mayfield Road, US 322) that links University Circle with Cleveland Heights and the eastern suburbs beyond. Kenilworth is an arterial that serves the residential areas between Cleveland Heights' Coventry and Cedar-Fairmount Districts. Mayfield/Kenilworth is a wide, signalized intersection.

Mayfield Road is a two-lane road as it travels through Little Italy. The eastbound approach widens to two eastbound lanes approximately 800 ft west of the intersection and there is one westbound lane. Mayfield Road is a four-lane road to the east of the intersection. On-street parking is permitted on the south side of the road, with peak hour restrictions. Kenilworth Road is a three-lane road with two lanes to the northeast and one lane to the southwest. The Mayfield/Kenilworth intersection is fairly large to incorporate the access to Lakeview Cemetery within the signalized intersection. Although Mayfield Road turns at the intersection, it is treated as the through movement.

The Kenilworth approach consists of two lanes which are destined for eastbound Mayfield. The Mayfield eastbound approach also consists of two shared lanes (a shared through-right lane and a shared through-left lane) at the Mayfield/Kenilworth intersection. The westbound Mayfield approach consists of a single lane to Kenilworth and a shared lane to Mayfield and the Lakeview Cemetery. The Lakeview Cemetery approach is a single lane approach with full movement. The Mayfield and Kenilworth roadway segments to the west and south of the intersection, are posted with a 25 mph speed limit. Mayfield to the east of the project intersection is a 35 mph roadway.



Mayfield/Kenilworth Intersection

Data Collection

Peak period turning movement counts were collected at both project intersections for use in the study. The intersection of Edgehill/Overlook was counted on Wednesday, March 7, 2012, during the following periods: 7:00 AM – 10:00 AM, 11:00 AM – 2:00 PM, and 3:00 PM – 6:00 PM. The intersection of Mayfield/Kenilworth was counted on Tuesday, March 20, 2012, during the following periods: 7:00 AM – 10:00 AM, 11:00 AM – 2:00 PM, and 3:00 PM – 6:00 PM. The AM Peak Hour for both intersections was determined to be 8:00 AM – 9:00 AM and the PM Peak Hour was determined to be 5:00 PM – 6:00 PM. The resulting peak hour traffic volumes are shown in Figure G-1.

NOACA was contacted regarding expected growth in the project area. The travel demand model reported no additional background growth in the area for the design year of 2032. As such, the existing volumes were utilized as the design year volumes for the purpose of this study.

Traffic Analysis

The traffic analysis assessed intersection performance during the AM and PM peak hours for the existing and proposed conditions. Traffic operations are assessed based on Level of Service (LOS), a grading scale that indicates the level of delay associated with intersection performance. LOS A represents free-flow conditions, LOS E indicates intersection operations at capacity, and LOS F is over-capacity. LOS D is the design standard for urban areas such as Lorain Avenue. The specific delay thresholds for both signalized and unsignalized intersections are provided by the Transportation Research Board in the Highway Capacity Manual and are given in the table below. Additionally a v/c ratio (volume/capacity) that is less than 1.0 indicates that the lane is operating below capacity. A v/c ratio of 1.0 indicates that the lane is operating at capacity and a v/c greater than one indicates over-capacity conditions.

Levels of Service (*Highway Capacity Manual, 2010*)

LEVEL OF SERVICE (LOS)		
LOS	Signalized Intersection	Unsignalized Intersection
	Average Delay (sec/veh)	Average Delay (sec/veh)
A	$x < 10$	$x < 10$
B	$10 < x < 20$	$10 < x < 15$
C	$20 < x < 35$	$15 < x < 25$
D	$35 < x < 55$	$25 < x < 35$
E	$55 < x < 80$	$35 < x < 50$
F	$80 < x$	$50 < x$

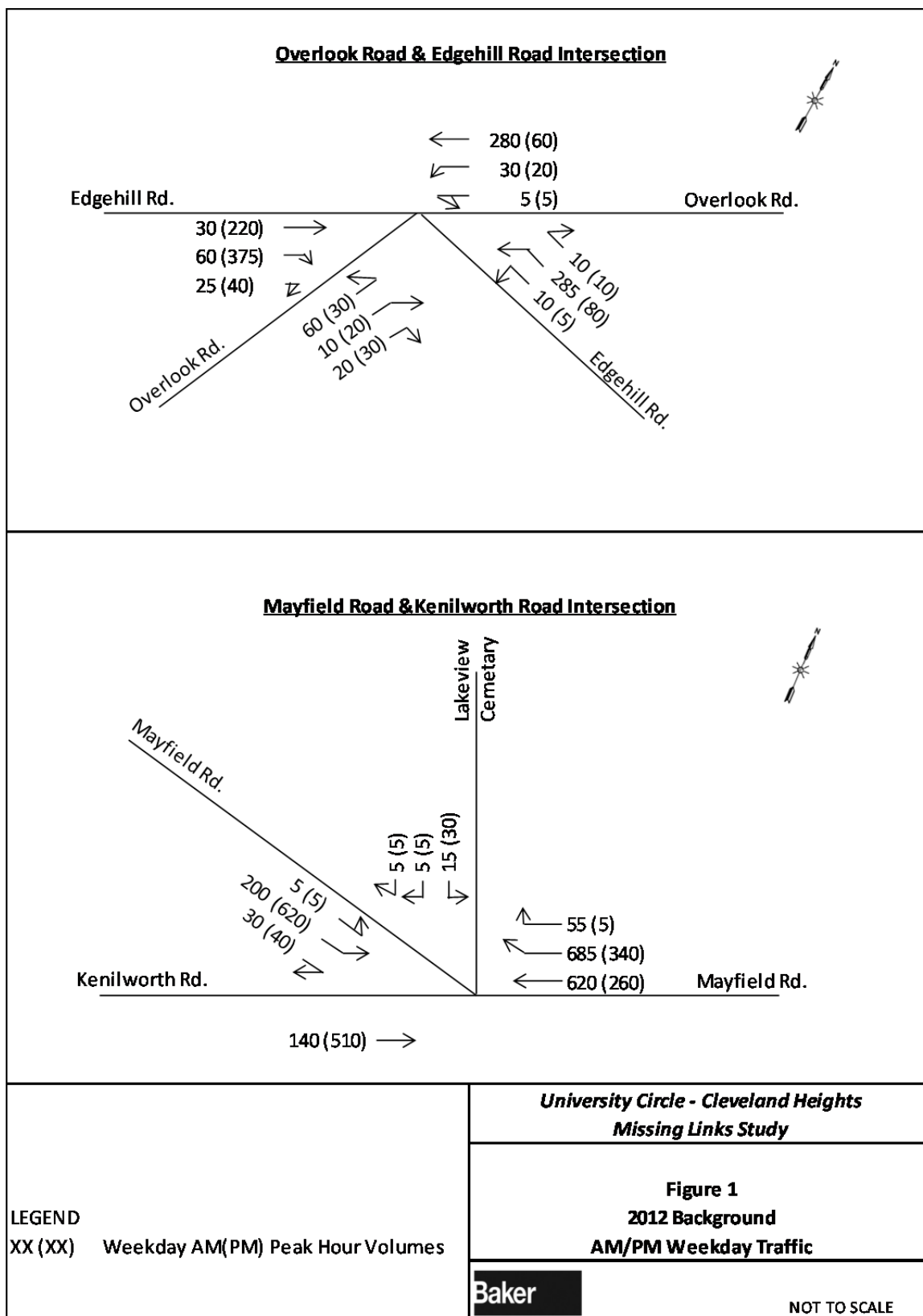


Figure G- 1: 2012 Peak Hour Traffic Volumes

Existing Conditions

Edgehill/Overlook

Highway Capacity Manual software, HCS+, was used to analyze the Overlook/Edgehill intersection. However, the existing geometry and control of the intersection does not comply with HCS methodology. HCS methodology does not allow analysis of a 4-leg intersection with three stop-controlled legs. A two-way stop controlled analysis was performed as well as an all-way stop-controlled analysis. The two-way results were used for all approaches except "Overlook Road (From the South)". All-way analysis results were reported for that approach. Additionally, the analysis does not take into consideration the unique geometry of the intersection relative to the approach angles and wide intersection pavement. The results of the capacity analysis are shown in Table 1. The Edgehill approach operates at a LOS F with significant delay (106.9 sec.).

Table 1: Edgehill/Overlook Existing Conditions Capacity Analysis Results

	2012 EXISTING (Stop-Controlled)			
	AM PEAK HOUR		PM PEAK HOUR	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)
Overlook Road (From the South)	A*	10.0*	B*	10.4*
Overlook Road (From the North)	A	-	A	-
Edgehill Road (From the East)	D	31.5	B	12.0
Edgehill Road (From the Southwest)	C	23.4	F	106.9

Mayfield/Kenilworth

Existing timing and phasing information for the Mayfield/Kenilworth intersection was obtained from the City of Cleveland. Synchro traffic analysis software was used to analyze the signalized intersection of Mayfield/Kenilworth based on the existing traffic information. The resulting HCM results, exported from Synchro, are reported in Table 2.

The capacity analyses results for the existing configuration of the Mayfield/Kenilworth intersection show that it operates efficiently for motorized vehicles. However, it is a large intersection and it may be possible to reconfigure it in a manner that would better serve bicycles and pedestrians while still effectively accommodating vehicles.

Table 2: Mayfield/Kenilworth Existing Capacity Analysis Results

		2012 EXISTING (Signalized)					
		AM PEAK HOUR			PM PEAK HOUR		
		LOS	Delay	v/c	LOS	Delay	v/c
Mayfield Road (Southeastbound)	Approach	C	23.3	0.29	C	20.4	0.55
Mayfield Road (Westbound)	to Kenilworth to Mayfield/Cemetery Approach	B	18.6	0.7	C	20.7	0.44
		A	2.7	0.49	A	2.0	0.26
		A	10.0	-	A	10.0	-
Lakeview Cemetery (Southbound)	Approach	D	39.9	0.41	D	37.9	0.42
Kenilworth Road (Eastbound)	to Mayfield (WB)						
	to Mayfield (EB) Approach	A	9.7	0.11	C	21.5	0.55
	OVERALL	B	12.3	0.59	B	17.7	0.54

Alternatives Evaluation

Edgehill/Overlook

The intersection of Edgehill/Overlook under the existing configuration is wide intersection which provides a challenge to pedestrians and bicyclists. Additionally, the unconventional control of the intersection with a single free approach and three stop-controlled approaches may be causing uncertainty for motorists. The proposed concept for Edgehill/Overlook consists of converting some of the excess pavement to other uses. Traffic control is changed to a four-way stop condition. Converting the intersection to an all-way stop significantly improves its performance. More importantly, conversion to an all-way stop creates a standard traffic control condition where all vehicles approaching the intersection are required to stop. The proposed reconfiguration concept is shown in Figure 2. Table 3 displays the resulting capacity analysis results. Existing condition analysis results are also shown in the table for comparison.

Table 2: Edgehill/Overlook Capacity Analysis Results

	EXISTING (Stop-Controlled)				PROPOSED (ALL Stop-Controlled)			
	AM PEAK HOUR		PM PEAK HOUR		AM PEAK HOUR		PM PEAK HOUR	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)
Overlook Road (From the South)	A*	10.0*	B*	10.4*	A	10.0	B	10.4
Overlook Road (From the North)	A	-	A	-	B	12.1	A	10.0
Edgehill Road (From the East)	D	31.5	B	12.0	B	13.4	A	9.7
Edgehill Road (From the Southwest)	C	23.4	F	106.9	B	10.3	E	38.3



Figure 3. Edgehill/Overlook Proposed Reconfiguration

Mayfield/Kenilworth

Traffic analyses were completed for some potential concepts that would modify the Mayfield/Kenilworth intersection's geometry. Considerations included pedestrian treatments, configuration of both Mayfield and Kenilworth, and modifications to on-street parking. The results of the analysis led to the refinement of two potential concepts, illustrated below. Both concepts incorporate the following features:

- Reconfiguration of curb lines to calm traffic and reduce paved area to only what is needed to safely accommodate motorized vehicles
- Enhanced pedestrian amenities, including crosswalk treatments and countdown pedestrian signal heads
- Provision of uphill bike lanes west leg of Mayfield
- Expanded bus stop and shelter area
- Addition of green space for stormwater retention and bio-swale to naturally treat stormwater runoff

Based on evaluation of the two concepts by the Working Group, Steering Committee, and with input from the public, Concept B is preferred. It more effectively defines the intersection and accommodates non-motorized travel modes. Figures 3, 4, and 5 display the concepts evaluated and the final rendering. The resulting traffic analysis results are depicted in Table 3.



Figure 4: Mayfield/Kenilworth Intersection Reconfiguration - CONCEPT A



Figure 5. Mayfield/Kenilworth Intersection Reconfiguration - CONCEPT B

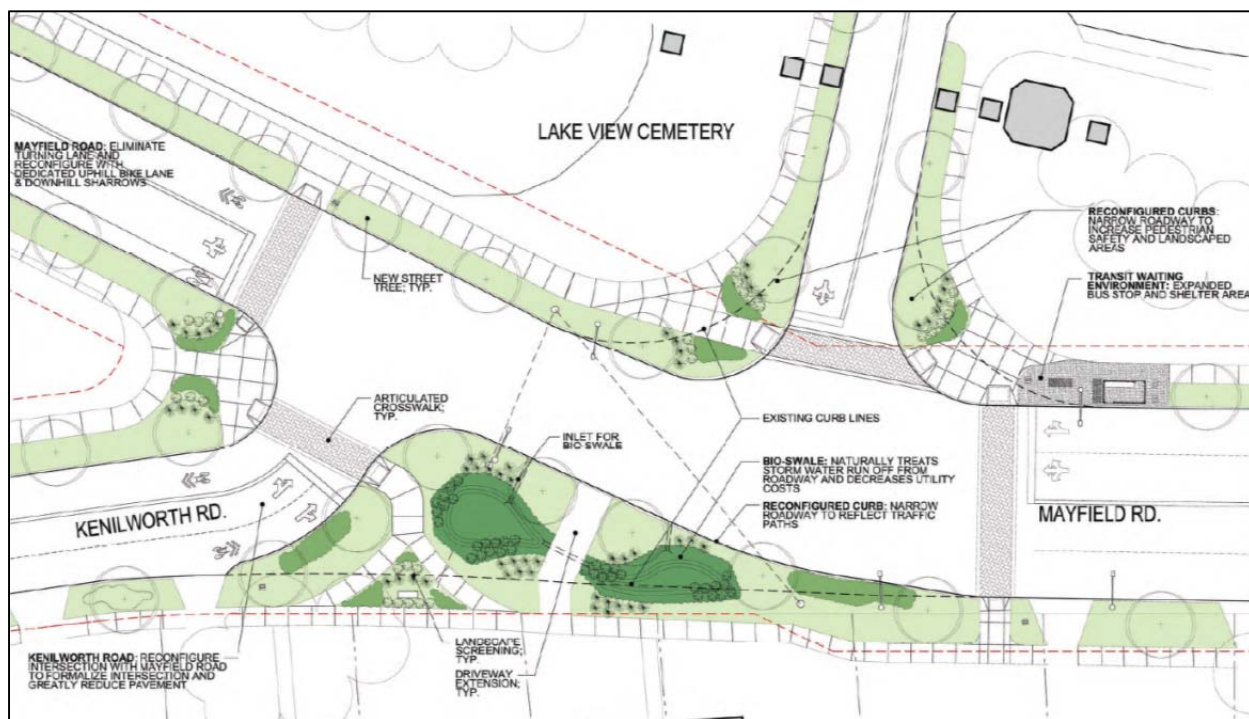


Figure 6. Preferred Mayfield/Kenilworth Intersection Reconfiguration

Table 3. Mayfield /Kenilworth Alternatives Capacity Analysis Results

CONCEPT A								CONCEPT B					
		AM PEAK HOUR			PM PEAK HOUR			AM PEAK HOUR			PM PEAK HOUR		
		LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c	LOS	Delay	v/c
Mayfield Road (Southeastbound)	to Mayfield - Concept	C	27.2	0.48	D	44.9	0.94	D	42.8	0.61	F	375.1	1.74
	to Kenilworth - Concept	C	21.0	0.02	B	14.5	0.04	C	31.2	0.02	C	25.1	0.06
	Approach	C	26.4		D	43.1		D	41.3		F	354.3	
Mayfield Road (Westbound)	to Kenilworth	B	18.6	0.7	C	21.0	0.42	E	78.2	1.04	C	34.0	0.63
	to Mayfield/Cemetery	A	2.7	0.49	A	1.9	0.24	B	16.5	0.68	B	12.5	0.37
	Approach	A	10.0		B	10.1		D	44.6		C	21.7	
Lakeview Cemetery (Southbound)	Approach	D	39.9	0.41	D	38.2	0.44	D	47.6	0.34	D	38.5	0.44
Kenilworth Road (Eastbound)	to Mayfield (WB)							C	31.2	0.02	C	21.1	0.01
	to Mayfield (EB)							D	40.2	0.5	F	298.4	1.57
	Approach	B	10.6	0.2	E	71.6	1.03	D	39.9		F	295.6	
	OVERALL	B	12.8	0.59	D	40.8	0.94	D	43.8	0.74	F	223.4	1.23