



Traffic Commission

6801 Delmar Boulevard, University City, Missouri 63130, Phone: (314) 505-8560, Fax: (314) 862-0694

A G E N D A

TRAFFIC COMMISSION MEETING

Heman Park Community Center
975 Pennsylvania Avenue, University City MO 63130

June 13, 2018 at 6:30 p.m.

1. Call to Order

2. Roll Call

3. Approval of Agenda

4. Approval of Minutes

A. April 11 2018 meeting minutes

5. Agenda items

- A. Traffic Commission Elections (Chair, Vice Chair, Secretary)
- B. Introduction of two new members
- C. 560 Trinity – One way path
- D. 6901 Scientology Building
- E. Esther Miller School Gannon Parking Permit System
- F. Honorary Street Name Change

6. Council Liaison Report

7. Miscellaneous Business

- A. Olive/170 Traffic Study Scoping meeting
- B. Delmar/170 GRG Trail update

8. Adjournment.

Prior to the meeting, we recommend that you visit the site(s). Please call (314) 505-8571 or email etate@ucitymo.org to confirm your attendance.

STAFF REPORT

MEETING DATE: June 13, 2018
APPLICANT: Washington University
Location: 560 Trinity Avenue
Request: Review for comments for Site Plan Review
Attachments: Traffic Assessment, City Traffic Engineer Comments,

Existing Conditions:

560 Trinity Avenue



Request: Traffic commission review comments and recommendations for the proposed one-way northbound access path onto Delmar Boulevard

Details:

- The proposed plan is for a one-way path that connects Washington Avenue to Delmar Boulevard. This path is proposed to be a shared use path between pedestrians and service vehicles.
- A traffic rated truck mountable curb is proposed on the Delmar side of the path in lieu of a curb cut which will only allow forward traffic from Washington. Operable bollards are also proposed to prevent unauthorized vehicles.

Conclusion/Recommendation

Staff has reviewed the Traffic Assessment provided by CBB and have the following concerns and comments; 1. We recommend that trash service be reduced to once a week for safety and disruption to traffic. 2. Staff has concerns of the shared use especially when the collection of trash is happening and pedestrians are using the path either walking or biking, this puts the trash trucks and the pedestrians on the path at the same time. 3. Staff believes this additional exit onto Delmar will cause problems with vehicles exiting the round-a-bout. It is recommended that the Traffic Commission consider the quoted information from the City's traffic engineer and recommend to the developer they present a different alternative than the pedestrian/utility path from Washington Avenue to Delmar Boulevard

Quoted Traffic Engineer

"The access drive onto Delmar is proposed at an existing signalized intersection but will remain unsignalized. This is an uncommon intersection configuration which would violate driver expectation for both the exiting service vehicle and other vehicles using the intersection.

In addition, the driveway's proximity to the Trinity Avenue roundabout would be a safety concern as drivers exiting the roundabout would need to give immediate attention to the crosswalk as they leave the roundabout and then the status of the Sgt. Mike King Drive traffic signal as well as the unconventional corridor driveway just 100 feet beyond the crosswalk.

While these are issues primarily for mainline drivers and the service vehicle will be making the decision to enter the roadway, there are foreseen challenges with this as well. Sight distance to the west may be an issue, which is critical to the driver's ability to assess traffic conditions and the nearby roundabout. Also, the exiting service vehicle is entering eastbound traffic flow, which itself is exiting the roundabout only 135 feet upstream, forcing the service vehicle driver to predict the flow of vehicles in a roundabout

Given its location, pedestrians leaving the corridor may be likely to cross Delmar Boulevard at the Sgt. Mike King Drive intersection versus the existing crosswalks located 100 and 335 feet to the west and east, respectively. This is a valid concern since the corridor outlets at this intersection, and the location of the trolley stop directly on the other side of Delmar Boulevard may further encourage this behavior.

There is no estimation of the number of instrument deliveries

It is still noteworthy that additional traffic may use the corridor it is extremely likely that vehicles using the access onto Delmar Boulevard will encounter pedestrians. This will occur both along the corridor and at the Delmar Boulevard access.

These factors place the responsibility to remain safe in the presence of any vehicular traffic on the pedestrian in an area where pedestrians are generally considered 'safe' from interacting with vehicles. Additionally, at the intersection where the sidewalk crosses the driveway at Delmar Boulevard there is potentially limited sight distance to the west. While a slow-moving vehicle and a walking pedestrian should not have any difficulty recognizing and reacting to one another at such distances, faster moving interactions, like those with cyclists, may be more

difficult to navigate, especially if a cyclist must avoid both the vehicle and other pedestrians.”

Other commission's comments

- Concerns with the amount of traffic versus pedestrian use; Wash U to enforce times of day for service use and trash pickup is approximately 6 times per month as a deterrence of other traffic to use this drive



Department of Public Works and Parks

6801 Delmar Boulevard, University City, Missouri 63130, Phone: (314) 505-8560, Fax: (314) 862-0694

TRAFFIC REQUEST FORM

LOCATION OF REQUEST:

560 Music Center located at 560 Trinity Avenue, University City, MO, 63130

STATE THE NATURE OF YOUR REQUEST:

The request includes provisions for one-way (northbound) access onto Delmar Boulevard for limited use service vehicles thru the construction of a new traffic rated pedestrian walkway connecting Washington Avenue to Delmar Boulevard. Appropriate directional signage would be installed at the intersection. A traffic rated truck mountable curb is proposed in lieu of a new curb cut at Delmar Boulevard. Operable bollards will be installed in the walkway to prevent unauthorized through traffic to From Washington to Delmar Boulevard.

WHAT ACTION ARE YOU REQUESTING THAT THE CITY TAKE CONCERNING YOUR REQUEST?

Due to construction of the 560 Parking Garage, the renovation of the 6820 Delmar building, and the desire to preserve aesthetically pleasing street facades, the 560 Music Center dumpsters and electrical equipment require placement on the east side of the 560 Music Center (the dumpsters and electrical equipment were previously on the surface parking lot). Auto-turn studies of trash trucks revealed it was not feasible to turn around and exit to the south and backing a trash truck back to Washington is a safety hazard to pedestrians and cyclists. Therefore, Washington University requests approval of a traffic rated mountable curb at the north end of the traffic rated pedestrian walkway that will allow only authorized service vehicles to drive forward only and exit at Delmar Boulevard.

WHAT IMPACT WOULD THE ACTION HAVE ON ANY ADJACENT RESIDENTS OR STREETS? A Traffic Assessment has been prepared by CBB and is included in the application. Based upon the analysis, there is minimal to no impact expected along Delmar Boulevard.

NOTE: The Public Works Department staff will review this request and, if warranted, this matter will appear as an agenda item for a traffic commission meeting. If a meeting is held, you will be encouraged to attend so that you may state your concerns.

NAME: David Baca c/o Washington University in St. Louis

ADDRESS: One Brookings Drive, Campus Box 1036, St. Louis, MO 63130

PHONE (WORK): 314.935.5341

Email: david.baca@wustl.edu

Date: 05.22.2018



Department of Public Works and Parks

6801 Delmar Boulevard, University City, Missouri 63130, Phone: (314) 505-8560, Fax: (314) 862-0694

Please return the completed form to the Public Works and Parks Department, 3rd floor of the City Hall, attention Errol Tate, Public Works-Parks Liaison of the Traffic Commission, via email at etate@ucitymo.org.

Or, by mail/fax: Traffic Commission
 C/O Public Works Department
 6801 Delmar Blvd. 3rd Floor
 University City, MO 63130
 (314) 505-8560
 (314) 862-0694 (fax)

STAFF REPORT

MEETING DATE: June 13, 2018
APPLICANT: Church of Scientology
Location: 6901 Delmar Blvd
Request: Review for comments for Site Plan Review
Attachments: Traffic Assessment, Traffic Request Form

Existing Conditions:

6901 Delmar (Scientology)



Request: The applicant is requesting concurrence from the Traffic Commission, in the form of a recommendation of approval to the Planning Commission that the transportation and parking related elements of this plan have been addressed and will have no significant or negative impact on the surrounding neighbors and streets.

Details:

- The Church of Scientology of Missouri is proposing to add a 29,317 square foot addition their existing property.
- The use of the property will not change in any way. The addition simply adds square footage and thus, commensurately increases volume.
- The addition will provide parking on grade and in a subterranean garage for 99 spaces, which is significantly more than required by code.

- The Church will be installing bicycle racks to encourage environmentally friendly transportation within University City.
- A new curb cut will be placed somewhat to center on the Delmar Boulevard street frontage, slightly east of its current location.

Conclusion/Recommendation

Staff has reviewed the traffic study provided by Lochmueller Group for the new development and have the following concerns and comments; 1. We are concerned with the east and west bound turn lanes being close to each other. 2. To Lochmueller, was there a trip generation ran for the condition of a large event at one of the adjacent venues such as COCA or Washington University Music Building and one of Scientology busy evenings? 3. Keep one lane in either direction until past the new entrance of the building. Considering the minimal traffic impact staff is recommending that the Traffic Commission approve the traffic study completed by Lochmueller and its moving forward to Plan Commission.

Staff understands this is not a normal case where the project comes to the Traffic Commission, the requester wanted to make sure the projects traffic impact would not be a problem for the development.

Attachments:

Traffic Study
(Seperate
Document)



Department of Public Works and Parks

6801 Delmar Boulevard, University City, Missouri 63130, Phone: (314) 505-8560, Fax: (314) 862-0694

TRAFFIC REQUEST FORM

LOCATION OF REQUEST:

Church of Scientology of Missouri
6901 Delmar Boulevard, University City, MO 63130

STATE THE NATURE OF YOUR REQUEST:

The Church of Scientology of Missouri is proposing to add a 29,317 square foot addition their existing property. The use of the property will not change in any way. The addition simply adds square footage and thus, commensurately increases volume. The addition will provide parking on grade and in a subterranean garage for 99 spaces, which is significantly more than required by code. The Church will be installing bicycle racks to encourage environmentally friendly transportation within University City. A new curb cut will be placed somewhat to center on the Delmar Boulevard street frontage, slightly east of it's current location. The impact on traffic is negligible.

WHAT ACTION ARE YOU REQUESTING THAT THE CITY TAKE CONCERNING YOUR REQUEST?

The applicant is requesting concurrence from the Transportation Commission, in the form of a recommendation of approval to the Planning Commission, that the transportation and parking related elements of this plan have been addressed and will have no significant or negative impact on the surrounding neighbors and streets.

WHAT IMPACT WOULD THE ACTION HAVE ON ANY ADJACENT RESIDENTS OR STREETS?

The development will have a almost no impact on adjacent residents and street. The design of the curb cut allows for proper ingress and egress onto Delmar. It will improve traffic flow and reduce the potential for crashes on the segment of Delmar Boulevard between Big Bend Boulevard and Trinity Avenue by striping an eastbound left turn bay into the site where one does not exist today. It promotes environmentally and traffic-friendly strategies of fewer vehicles on the roadway by providing a substantial number of bicycle racks on site for use by the congregation and employees.

NOTE: The Public Works Department staff will review this request and, if warranted, this matter will appear as an agenda item for a traffic commission meeting. If a meeting is held, you will be encouraged to attend so that you may state your concerns.

NAME: Church of Scientology of Missouri - Matt Hanses, Executive Director
ADDRESS: 6901 Delmar Boulevard, University City, MO 63130
PHONE (HOME): _____ **PHONE (WORK):** 314.650.3675
Email: matt@scientologymissouri.org
Date: 05.23.18

Please return the completed form to the Public Works and Parks Department, 3rd floor of the City Hall, attention Errol Tate, Public Works Liaison of the Traffic Commission, via email at etate@ucitymo.org.

Or, by mail/fax: Traffic Commission
C/O Public Works Department
6801 Delmar Blvd. 3rd Floor
University City, MO 63130
(314) 505-8560
(314) 862-0694 (fax)

STAFF REPORT

MEETING DATE: June 13, 2018
APPLICANT: Dr. Hortense Lewis – Principal
Location: Esther Miller Bais Yaakov Orthodox Jewish Girls High School
Request: Inclusion in the Gannon Residential Parking Permit System
Attachments: Traffic Request Form

Existing Conditions:

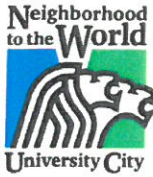
North and South Rd



Request:
Inclusion in the current residential parking permit system on the 7600 Block of Gannon Avenue

Conclusion/Recommendation:
This is an item that was brought to the commission at the October 2017 meeting and at that time it was suggested that Dr. Lewis get feedback from the neighborhood on the school inclusion in the parking permit system. During that meeting it was brought to the attention on why the permit system was put in place, this area of North and South is a high traffic/parking area because of the business district and the two schools in the area. Late in 2017 the city met with Dr. Lewis and suggested that she gets out and talk with the neighborhood and get their approval and once that was done she could come back to the commission for the adoption. Dr. Lewis has done her foot work and has gotten the approval from the neighborhood. Staff

recommends that the Traffic Commission makes the recommendation to amend the ordinance of the Gannon Residential Parking Permit System to include the Esther Miller School.



Department of Public Works and Parks

6801 Delmar Boulevard, University City, Missouri 63130, Phone: (314) 505-8560, Fax: (314) 862-0694

TRAFFIC REQUEST FORM

LOCATION OF REQUEST:

700 North and South

STATE THE NATURE OF YOUR REQUEST:

We are requesting inclusion of the current residential parking permit.

WHAT ACTION ARE YOU REQUESTING THAT THE CITY TAKE CONCERNING YOUR REQUEST?

We are requesting addition to the current list of residents eligible to park at 700 North and South through 7600 Gannett.

WHAT IMPACT WOULD THE ACTION HAVE ON ANY ADJACENT RESIDENTS OR STREETS? None

NOTE: The Public Works Department staff will review this request and, if warranted, this matter will appear as an agenda item for a traffic commission meeting. If a meeting is held, you will be encouraged to attend so that you may state your concerns.

NAME: Dr. Hortense Lewis General Education Principal
ADDRESS: 700 North and South 63130
PHONE (HOME): (314) 974-9584 PHONE (WORK): (314) 883-9320
Email: npursuitofexcellence7@gmail.com
Date: 4-26-18

Please return the completed form to the Public Works and Parks Department, 3rd floor of City Hall, attention Errol Tate, Public Works Liaison of the Traffic Commission, via email at etate@ucitymo.org.

Or, by mail/fax: Traffic Commission
C/O Public Works Department
6801 Delmar Blvd. 3rd Floor
University City, MO 63130
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(314) 862-0694 (fax)

STAFF REPORT

MEETING DATE: June 13, 2018
APPLICANT: Mildred Pettitford – 12179 Red Lion Drive, Florissant MO
Location: Paramount Drive 82nd Blvd to “The City of Life Christian Church”
Request: Honorary Street Name
Attachments: Traffic Request Form

Existing Conditions:

Paramount Avenue



Request:

The request for an honorary street name in addition to Paramount Drive to name it Rev. Joe L Middleton Ln.

Conclusion/Recommendation:

In regards to the request to permanently change the name of a city street in recognition of a community member staff has researched another alternative other than completely changing a street name this decision came about from research and discussions with the traffic commission and the current requestors. Staff has instead recommended the adoption of a new ordinance that would allow co-naming the requested street(s) this method would be labeled as an “Honorary Street Name”, the existing street name will remain and the honorary signs will accompany the original street name. With consultation with the City’s emergency staff, City staff recommends the traffic commission object to street name changes and recommend the requestor(s) to explore other options of recognition.

STAFF REPORT

MEETING DATE: June 13, 2018
APPLICANT: Great Rivers Greenway
Location: Delmar and I-170
Request: Centennial Greenway Expansion
Attachments: Concept Drawings A, B, and C

Existing Conditions:

Delmar and I-170



At the July 2017 Traffic Commission Meeting Great Rivers Greenway presented to the commission 3 concepts for the reconfiguration of the Delmar/170 Greenway Trail. The commission made comments on the three concepts and once all surveys were done and comments made by all parties out of the three concepts B and C were the most liked and involved less traffic signal modifications.

The commission recommended that the traffic study information be presented to the commission once completed for information. The traffic study completed showed that no critical issues were identified as part of this existing and proposed conditions analysis for Concepts B and C.

The reason for the reconfiguration and updates will be to allow pedestrians to move through the intersection much safer as it is a mixed use intersection.

Attachments:

GRG Letter to the City
Three concepts presented
Traffic Study
Community Survey



LIVE LIFE OUTSIDE

June 4, 2018

Mr. Errol Tate
City of University City
6801 Delmar Blvd
University City, MO 63130

Re: Centennial Greenway – Delmar Blvd / McKnight Rd & I-170 Intersection Improvements Project – Traffic Commission

Dear Mr. Tate,

This letter summarizes the result of the final design recently completed to address safety concerns at the Centennial Greenway – Delmar Blvd. and I-170/McKnight Rd intersection.

The greenway/trail crosses Delmar Blvd and McKnight Road, where it becomes a wide sidewalk and then crosses the northbound I-170 on-ramp. There are currently 11 conflict points in the short section of trail at this intersection which presents a safety concern for bicyclists and pedestrians.

ALTA Planning + Design completed the design of the improvements due to their vast national experience working on greenways and street crossings and the implementation of protected intersections which have been constructed in several US cities.

On July 12, 2017, the project team presented three (3) concepts to the University City Traffic Commission for input. All permitting agencies received a copy of the same concepts and all were favorable as long as traffic operations were not negatively impacted. Option A, B and C were presented to the Traffic Commission meeting. Option A had the same current layout but with added landscaping and pavement markings. Option B realigned the greenway crossings to the opposite side of McKnight, avoiding the northbound I-170 on-ramp crossing and incorporated additional pavement markings for better visibility at the intersection. Option C realigned the greenway as well, and added more landscape elements to the Option B layout. Both options B and C require minor traffic signal modifications within the project area.

After all permitting agencies and public provided input, Option B was selected. This option was the most favorable to all. The reconfiguration of the trail crossings involved modifying the existing signals, new sidewalk improvements, new pavement markings and other corrective measures to improve the overall safety and reduce the number of conflict points between trail users and motorized traffic. Over the past year, coordination with MoDOT, St. Louis County Department of Transportation and University City as well as public engagement and discussions with adjacent property owners have taken place.



Great Rivers Greenway

LIVE LIFE OUTSIDE

Attached for your reference you will find:

1. Three (3) concepts initially presented
2. Preferred concept selected
3. Traffic Study Memorandum
4. Public Engagement results from online survey

Please let me know if you have any questions or require further information. You can contact me at agutierrez@grgstl.org or 314.932.4907.

Sincerely,

Angelica Gutierrez
Project Manager
Great Rivers Greenway

NOTE:
Simulations have determined the proposed road diet will not impact vehicular level of service.



"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 05/08/2017	
ROUTE Delmar	STATE MO
DISTRICT	SHEET NO.
COUNTY ST. LOUIS COUNTY	
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION
-/-	



alta PARTNER & DESIGNER
142 W. Menroe Ave.
Kirkwood, MO 63122
p.314.403.7460

EFK Moen, LLC
Civil Engineering Design
208 S. Chouteau, MO 63074
p. 636.244.3767

TITLE
Concept A

SHEET ID

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

NOTE:
Simulations have determined the proposed road diet will not impact vehicular level of service.

ROAD DIET/PED CONNECTION

Remove 3rd Lane, Traffic Calming, Reduce Crossing Distance, Planting, Increase Bike/Ped Realm

ACCESS MANAGEMENT/PARKING

Add Parking, Traffic Calming, Reduce Crossing Distance, Increase Bike/Ped Realm

TRAIL SIGNAGE

Signage Mounted to Both Sides of Existing Pole, GRG Vehicular Trailblazer Gx-2

TRAIL SIGNAGE

Signage Mounted to Both Sides of Existing Pole, GRG Vehicular Trailblazer Gx-2

TRAIL SIGNAGE

GRG Vehicular Trailblazer Gx-2 & GRG Trailblazer Guide Gx-9

PAINTED CROSSING with REFUGE

Traffic Calming, Safety, Reduce Crossing Distance, Heighten Greenway Identity

PROTECTED MIXING ZONE

Trail Calming, Identify Bike/Ped Mixing, Heighten Intersection Awareness

TRAIL SIGNAGE

GRG Vehicular Trailblazer Gx-2

ROADWAY NARROWING

Raised Medians, Flex Posts & Striping, Traffic Calming, Safety, Reduce Crossing Distance, Increase Bike/Ped Realm

TRAIL SIGNAGE

GRG Vehicular Trailblazer Gx-1 & GRG Trailblazer Guide Gx-9

CHANNELLIZED TURN LANE

Striping, Traffic Calming, Safety, Reduce Crossing Distance

SHIFT TURN LANE WEST

Increase Bike/Ped Realm

ROAD DIET

Traffic Calming, Reduce Crossing Distance, Increase Bike/Ped Realm

BUFFERED GREENWAY

Flex Posts, Striping & Curb Separation, Grade Separated from Existing Walk, Safety, Heighten Greenway Identity

DECORATIVE PLANTING

Eliminate I-170 On-ramp Bike/Ped Crossing, Screen Infrastructure, Enhance Aesthetic Character

CHANNELLIZED TURN LANE

Striping, Traffic Calming, Reduce Crossing Distance

PAINTED CROSSING with REFUGE

Traffic Calming, Safety, Reduce Crossing Distance, Heighten Greenway Identity

TRAIL SIGNAGE

GRG Vehicular Trailblazer Gx-2

SHIFT LANES WEST

Increase Bike/Ped Realm



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DATE PREPARED 05/08/2017	
ROUTE Delmar	STATE MO
DISTRICT	SHEET NO.
COUNTY ST. LOUIS COUNTY	
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION
-/-/-	



alta PARTNER & DESIGNER
142 W. Menroe Ave.
Kirkwood, MO 63122
p:314.403.7460

EFK Moen, LLC
Civil Engineering Design
208 St. Charles, MO 63074
p:636.244.3767

TITLE Concept B
SHEET ID

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

NOTE:
Simulations have determined the proposed road diet will not impact vehicular level of service.

ROAD DIET/PED CONNECTION
Remove 3rd Lane, Traffic Calming, Reduce Crossing Distance, Planting, Increase Bike/Ped Realm, Reduce Impervious Area, Reduce Heat Island, Enhance Aesthetic Character

ACCESS MANAGEMENT/ PARKING
Add Parking, Traffic Calming, Reduce Crossing Distance, Planting, Increase Bike/Ped Realm, Reduce Impervious Area, Reduce Heat Island, Enhance Aesthetic Character

ROAD DIET
Traffic Calming, Reduce Crossing Distance, Planting, Increase Bike/Ped Realm, Stormwater Mitigation: Bioretention, Reduce Impervious Area, Reduce Heat Island, Enhance Aesthetic Character

PAINTED CROSSING with REFUGE
Traffic Calming, Safety, Reduce Crossing Distance, Heighten Greenway Identity

TRAIL SIGNAGE
GRG Vehicular Trailblazer Gx-1 & GRG Trailblazer Guide Gx-7

PLAZA
Seating, Trail Calming, Identify Bike/Ped Mixing, Heighten Intersection Awareness, Pervious Pavement, Enhance Aesthetic Character Existing Walk

TRAIL AMENITY
Drinking Fountain with Dog Bowl

PAINTED CROSSING with REFUGE
Traffic Calming, Safety, Reduce Crossing Distance, Heighten Greenway Identity

PLAZA
Trail Calming, Identify Bike/Ped Mixing, Heighten Intersection Awareness, Pervious Pavement, Enhance Aesthetic Character

TRAIL SIGNAGE
Signage Mounted to Both Sides of Existing Pole, GRG Vehicular Trailblazer Gx-2

ROADWAY NARROWING
Traffic Calming, Reduce Crossing Distance, Planting, Increase Bike/Ped Realm, Stormwater Mitigation: Bioretention, Reduce Impervious Area, Reduce Heat Island, Enhance Aesthetic Character

TRAIL SIGNAGE
GRG Vehicular Trailblazer Gx-1 & GRG Trailblazer Guide Gx-9

DECORATIVE PLANTING
Screen Infrastructure, Enhance Aesthetic Character

TRAIL AMENITY
Bicycle Fix-It Station

PLAZA
Seating, Trail Calming, Identify Bike/Ped Mixing, Pervious Pavement, Heighten Intersection Awareness, Enhance Aesthetic Character

SIGNAGE SHADE STRUCTURE
Traffic Calming Vehicle & Trail Users, Shade Sculpture, Visibility from Other Side of I-170, Brand Identify, Enhance Aesthetic Character

CHANNELLIZED TURN LANE
Traffic Calming, Reduce Crossing Distance, Enhance Aesthetic Character

SHIFT LANES WEST
Increase Bike/Ped Realm, Align Through Lane with McKnight Northbound

DECORATIVE PLANTING
Eliminate I-170 On-ramp Bike/Ped Crossing, Screen Infrastructure, Enhance Aesthetic Character

CHANNELLIZED TURN LANE
Traffic Calming, Reduce Crossing Distance, Enhance Aesthetic Character

ROAD DIET
Traffic Calming, Reduce Crossing Distance, Increase Bike/Ped Realm

BUFFERED GREENWAY
Grade Separated from Existing Walk, Safety, Heighten Greenway Identity, Reduce Impervious Area, Reduce Heat Island, Planting, Stormwater Mitigation: Bioretention, Enhance Aesthetic Character

"THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT."

DATE PREPARED 05/08/2017	
ROUTE Delmar	STATE MO
DISTRICT	SHEET NO.
COUNTY ST. LOUIS COUNTY	
JOB NO.	
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BRIDGE NO.	

DATE	DESCRIPTION
-/-/-	

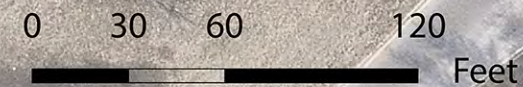


alta PARTNER & DESIGNER
142 W. Menno Ave.
Kirkwood, MO 63122
p:314.403.7460

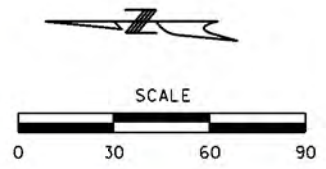
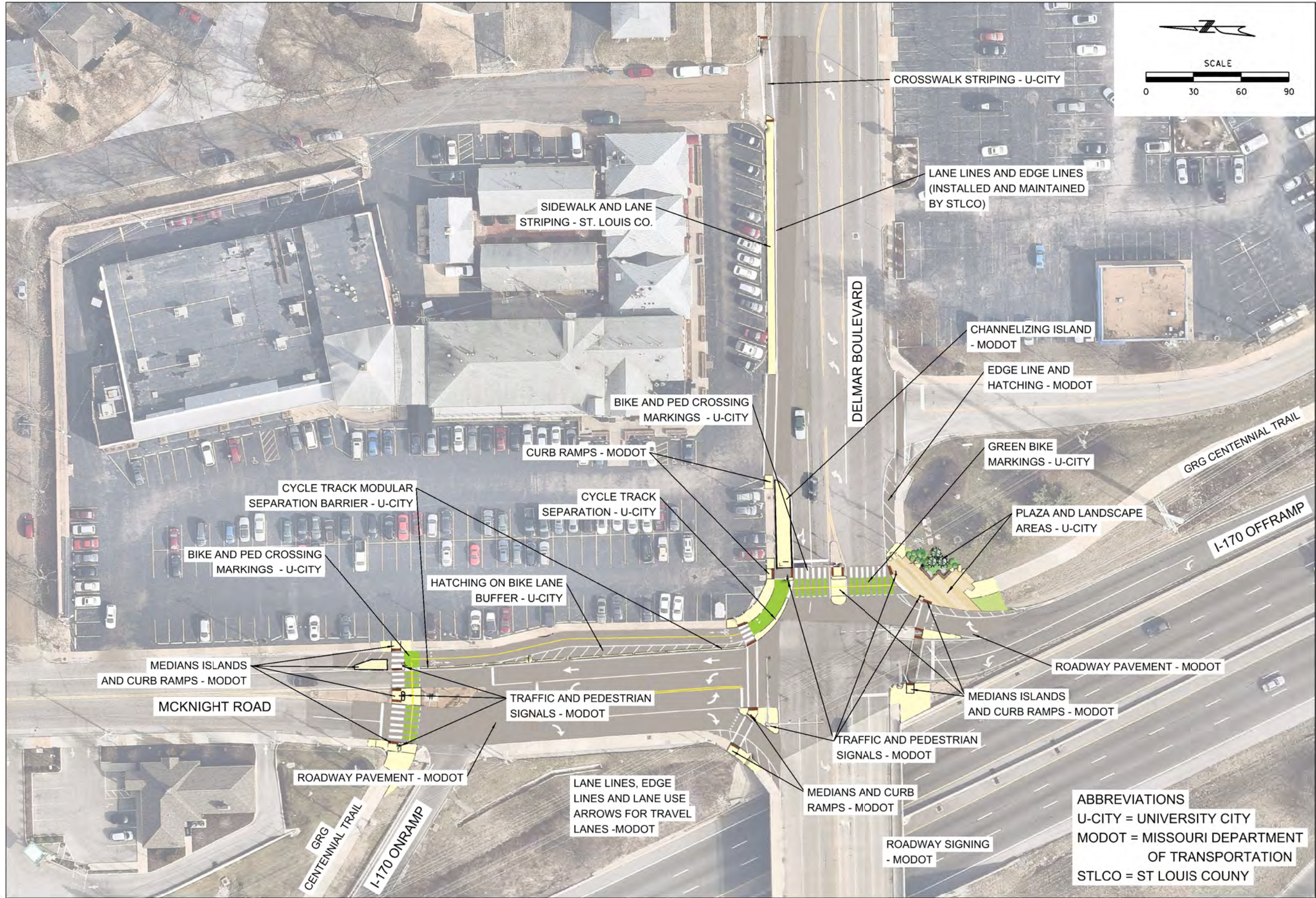
Efk Moen, LLC
Civil Engineering Design
208 St. Charles, MO 63074
p: 636.244.3767

TITLE
Concept C

SHEET ID



IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



DATE PREPARED	
03/06/2018	
ROUTE	STATE
Delmar	MO
DISTRICT	SHEET NO.
SL	1
COUNTY	
ST. LOUIS COUNTY	
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION



142 W. Monroe Ave.
Kirkwood, MO 63122
P: 314.403.7460

EFK Moen, LLC
Civil Engineering Design
2008 W. Delmar Blvd., Suite 208
St. Charles, MO 63030
P: 636.344.3127

TITLE
INTERSTATE 170
AT DELMAR BLVD
CENTENNIAL TRAIL
LICENSE AGREEMENT



ABBREVIATIONS
U-CITY = UNIVERSITY CITY
MODOT = MISSOURI DEPARTMENT
OF TRANSPORTATION
STLCO = ST LOUIS COUNTY

SHEET ID
EXHIBIT A
MAINTENANCE
RESPONSIBILITIES



142 W. Monroe Avenue
Kirkwood, MO 63122
(314) 403-7460

MEMORANDUM

To: Angelica Gutierrez
Project Manager

From: Paul Wojciechowski, AICP, PE
Principal – Alta Planning+Design

Date: July 27, 2017

Re: **St. Louis, MO – Centennial Greenway at Delmar**

This memorandum summarizes the results of the traffic analysis for the feasibility study for improvements to the Centennial Greenway crossing of Delmar. Improvements considered for the crossing include a road diet or similarly termed a travel lane conversion on Delmar at the Centennial Greenway crossing, as well as the addition of a pedestrian signal on McKnight at the I-170 Entrance Ramp from McKnight Road. As part of this first step, Alta has performed an existing conditions operational analysis to identify any areas of concern for considering a travel lane conversion on Delmar, and the addition of the pedestrian phase for crossing McKnight. This memorandum outlines that no critical issues were identified as part of this existing and proposed conditions analysis for Concepts B and C.

Traffic Analysis

Analysis

Capacity analyses were performed for the existing AM and PM peak hour periods along Delmar using Synchro software, version 9 to determine the Levels of Service (LOS) and delay for each of the study intersections. LOS analysis is a means of determining the ability of an intersection to accommodate vehicular traffic volume demand. The analysis uses Highway Capacity Manual (HCM) 2010 methodology, and accounts for roadway characteristics such as intersection geometry, traffic control devices, and traffic (vehicle, pedestrian, and bicycle) volumes.

LOS is defined by letter characters that range from A to F, with 'A' representing the best traffic operating conditions that have little or no delay to vehicles utilizing the intersection and F characterizing poor conditions that have significant delay. LOS A through D are typically considered acceptable operations, while LOS E is representative of conditions where improvements could be needed if traffic volumes are expected to significantly increase in the future. LOS F is considered failing operations indicating the demand exceeds the capacity of the intersection as it is currently designed, and significant delays can be expected. Under these circumstances, improvements are needed, in the form of traffic control modification, geometric changes, or a combination of both, for the purpose of reducing vehicle delay. The delay limits for each LOS category, based on the HCM, are shown in **Table 1** below.

Centennial Greenway at Delmar Intersection Improvement Study
Existing and Proposed Concept Traffic Analysis

Table 1: Level of Service Delay Limits

Level of Service (LOS)	Signalized Intersection Delay per Vehicle (sec/veh)	Unsignalized Intersection Delay per Vehicle (sec/veh)
A	≤10.0	≤10.0
B	10.1 - 20.0	10.1 - 15.0
C	20.1 - 35.0	15.1 - 25.0
D	35.1 - 55.0	25.1 - 35.0
E	55.1 - 80.0	35.1 - 50.0
F	> 80.0	> 50.0

The existing conditions Synchro model incorporated all available traffic data including turning movement counts for all road users, heavy vehicle percentages, signal timing, and lane configuration data. SimTraffic runs were also performed for each peak in order to provide queuing and travel time data for the corridor. Field data, and queue observations for each intersection were compared to the SimTraffic output to ensure the models were accurately reflecting existing field conditions. The resulting overall intersection LOS for the signalized intersections, as well as the 95th percentile queue lengths reported from SimTraffic are summarized in **Table 2**.

It should be noted that queues previously reported from Synchro were not accounting for queue spillback on southbound McKnight Road from Delmar Boulevard through the I-170 northbound on-ramp intersection. Detailed LOS and queue length summaries can be seen in the attached reports.

Furthermore, after reviewing of the existing signal timing splits for the Delmar Boulevard intersections, it was apparent that modifications could be made to improve traffic flow through the intersections by redistributing the cycle length to the different approaches. As a result, an additional existing conditions model was created with optimized signal timing to favor the southbound left turns from McKnight Road to Delmar Boulevard, and optimized network offsets to ensure that southbound McKnight Road vehicles could navigate through both closely spaced intersections efficiently. This additional analysis ensures that the impacts of the proposed conditions can be accurately measured when comparing scenarios. The results of the optimized existing conditions are summarized in **Table 3**.

Table 2: Centennial Greenway at Delmar Crossing Synchro Existing Conditions LOS Results

Location		Analysis Type	Approach LOS			SimTraffic Queue Length (ft)		
			AM	PM	Saturday	AM	PM	Saturday
McKnight Rd/NB I-170 Off-Ramp at Delmar Blvd			D	C	C			
I-170 Off-Ramp	NB	Signalized	D	D	C	125	250	400
McKnight Rd	SB		F	D	C	*125	*125	*125
Delmar Blvd	EB		B	C	A	200	225	150
	WB		B	C	B	75	75	75
McKnight Rd at NB I-170 On-Ramp			A	A	A			
McKnight Rd	NB	Signalized	A	A	A	125	150	100
	SB		A	A	A	1325	150	125
NB I-170 On-Ramp	EB		--	--	--	--	--	--
	WB		--	--	--	--	--	--
SB I-170 On-Ramp, Off-Ramp at Delmar Blvd			C	C	B			
SB I-170 Off-Ramp	NB	Signalized	--	--	--	--	--	--
	SB		D	D	D	450	325	250
Delmar Blvd	EB		B	B	B	200	150	100
	WB		A	A	A	175	125	175

* Indicates queue exceeds link distance, actual queue may be longer

Table 3: Centennial Greenway at Delmar Crossing Synchro Existing Conditions LOS Results (Optimized Splits and Offsets)

Location		Analysis Type	Approach LOS			SimTraffic Queue Length (ft)		
			AM	PM	Saturday	AM	PM	Saturday
McKnight Rd/NB I-170 Off-Ramp at Delmar Blvd			B	B	B			
I-170 Off-Ramp	NB	Signalized	D	D	C	125	375	175
McKnight Rd	SB		B	B	D	*125	*125	125
Delmar Blvd	EB		A	A	A	175	150	75
	WB		C	C	B	75	75	75
McKnight Rd at NB I-170 On-Ramp			B	A	A			
McKnight Rd	NB	Signalized	A	A	A	125	175	75
	SB		B	B	A	325	125	50
NB I-170 On-Ramp	EB		--	--	--	--	--	--
	WB		--	--	--	--	--	--
SB I-170 On-Ramp, Off-Ramp at Delmar Blvd			C	C	B			
SB I-170 Off-Ramp	NB	Signalized	--	--	--	--	--	--
	SB		D	D	D	425	275	200
Delmar Blvd	EB		C	B	B	250	175	100
	WB		A	A	A	225	200	225

* Indicates queue exceeds link distance, actual queue may be longer

Centennial Greenway at Delmar Intersection Improvement Study

Existing and Proposed Concept Traffic Analysis

As indicated in Table 2, all of the signalized intersections currently operate at an acceptable LOS C or better during all peaks under existing conditions. Individual approaches are currently operating at LOS D or better, except for McKnight at Delmar, which is currently operating at LOS F using the signal timing data provided. Extensive queuing for the southbound approach on McKnight Road was field verified.

After optimizing the signal splits and network offsets, all approaches to all signalized intersections can be expected to operate at acceptable operations during the AM, PM and Saturday peak hours. Optimizing the signal splits and network offsets had the most significant impact on the AM peak operations, specifically on southbound McKnight Road at the northbound I-170 on-ramp intersection and the Delmar Boulevard intersection. By reallocating the cycle length time to the different approaches in the AM peak, the overall intersection operations improved (LOS D to LOS B), and the 95th percentile queue spillback on southbound McKnight Road decreased by 1,000 feet.

For the proposed conditions, one of the two southbound McKnight Road travel lanes will be removed in order to reduce the crossing distance for the Centennial Greenway trail crossing. A road diet will also be implemented on Delmar Boulevard, and one of the westbound lanes approaching McKnight Road will be removed. These lane configuration modifications were reflected in the proposed conditions models for the AM, PM and Saturday peak periods. The proposed conditions results, summarized in **Table 4** also reflect optimized signal timing splits and optimized network offsets, and can be compared to Table 3 to determine the impacts of the proposed concepts on the roadway network.

Table 4: Centennial Greenway at Delmar Crossing Synchro Concept B/C Conditions LOS Results

Location		Analysis Type	Approach LOS			SimTraffic Queue Length (ft)		
			AM	PM	Saturday	AM	PM	Saturday
McKnight Rd/NB I-170 Off-Ramp at Delmar Blvd			B	C	C			
I-170 Off-Ramp	NB	Signalized	D	D	C	125	325	325
McKnight Rd	SB		C	D	D	*125	*125	125
Delmar Blvd	EB		A	A	A	175	150	100
	WB		C	C	B	75	75	75
McKnight Rd at NB I-170 On-Ramp			B	A	A			
McKnight Rd	NB	Signalized	A	A	A	150	200	125
	SB		B	B	B	475	250	150
NB I-170 On-Ramp	EB		--	--	--	--	--	--
	WB		--	--	--	--	--	--
SB I-170 On-Ramp, Off-Ramp at Delmar Blvd			C	C	B			
SB I-170 Off-Ramp	NB	Signalized	--	--	--	--	--	--
	SB		D	D	D	325	250	225
Delmar Blvd	EB		C	B	B	225	175	100
	WB		A	A	A	200	200	225

* Indicates queue exceeds link distance, actual queue may be longer

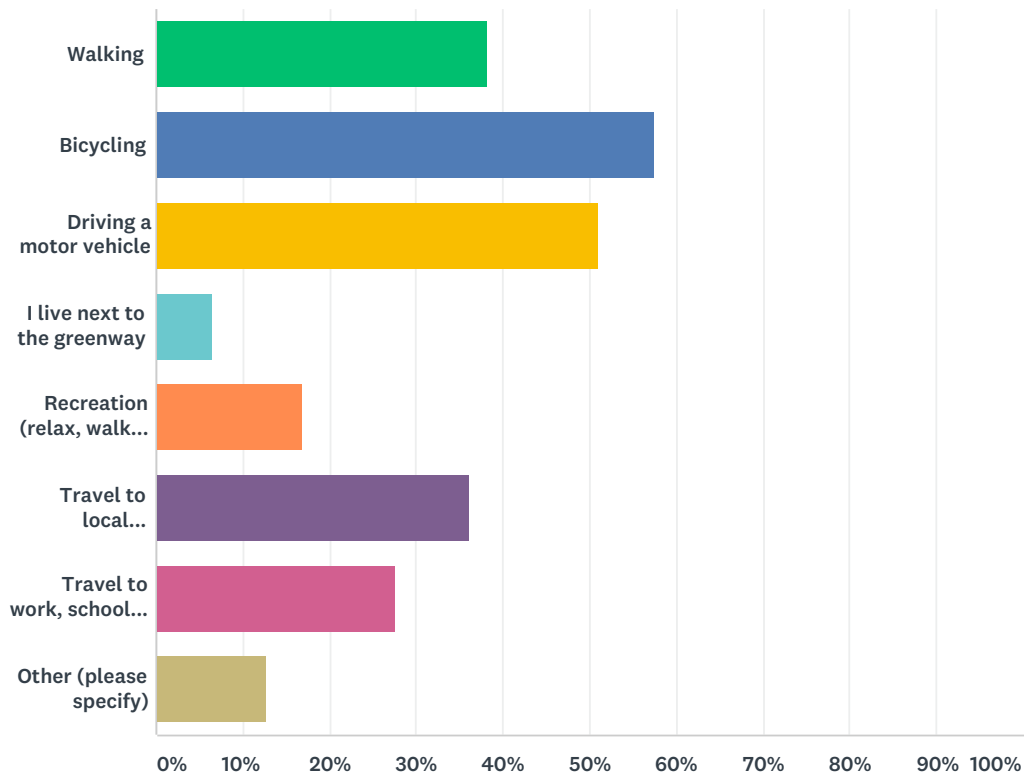
With the proposed road diets along McKnight Road and Delmar Boulevard, in addition to the proposed concepts B and C showing a bicycle and pedestrian crossing of McKnight Road at the I-170 On-ramp with an exclusive crossing phase, the intersections are still expected to operate at an acceptable LOS D or better.

Conclusions

Adjusting the intersection cycle length to include an exclusive pedestrian phase at the McKnight Road and Northbound I-170 on-ramp intersection, and the reduction of one travel lane on the westbound approach to the Delmar at NB I-170 Exit Ramp is not expected to cause any significant impacts to the operation of the intersection or surrounding intersections. By optimizing the cycle length and signal splits, the LOS and queue concern on southbound McKnight Road at Delmar Boulevard can be resolved. The proposed conditions for Concepts B and C can be expected to maintain acceptable operations at the study intersections.

Q1 How do you currently use the intersection of the Centennial Greenway and Delmar Boulevard (near I-170)? Check all that apply.

Answered: 47 Skipped: 2



ANSWER CHOICES	RESPONSES	
Walking	38.30%	18
Bicycling	57.45%	27
Driving a motor vehicle	51.06%	24
I live next to the greenway	6.38%	3
Recreation (relax, walk a pet, etc.)	17.02%	8
Travel to local destinations (shops, restaurants, etc.)	36.17%	17
Travel to work, school, or home	27.66%	13
Other (please specify)	12.77%	6
Total Respondents: 47		

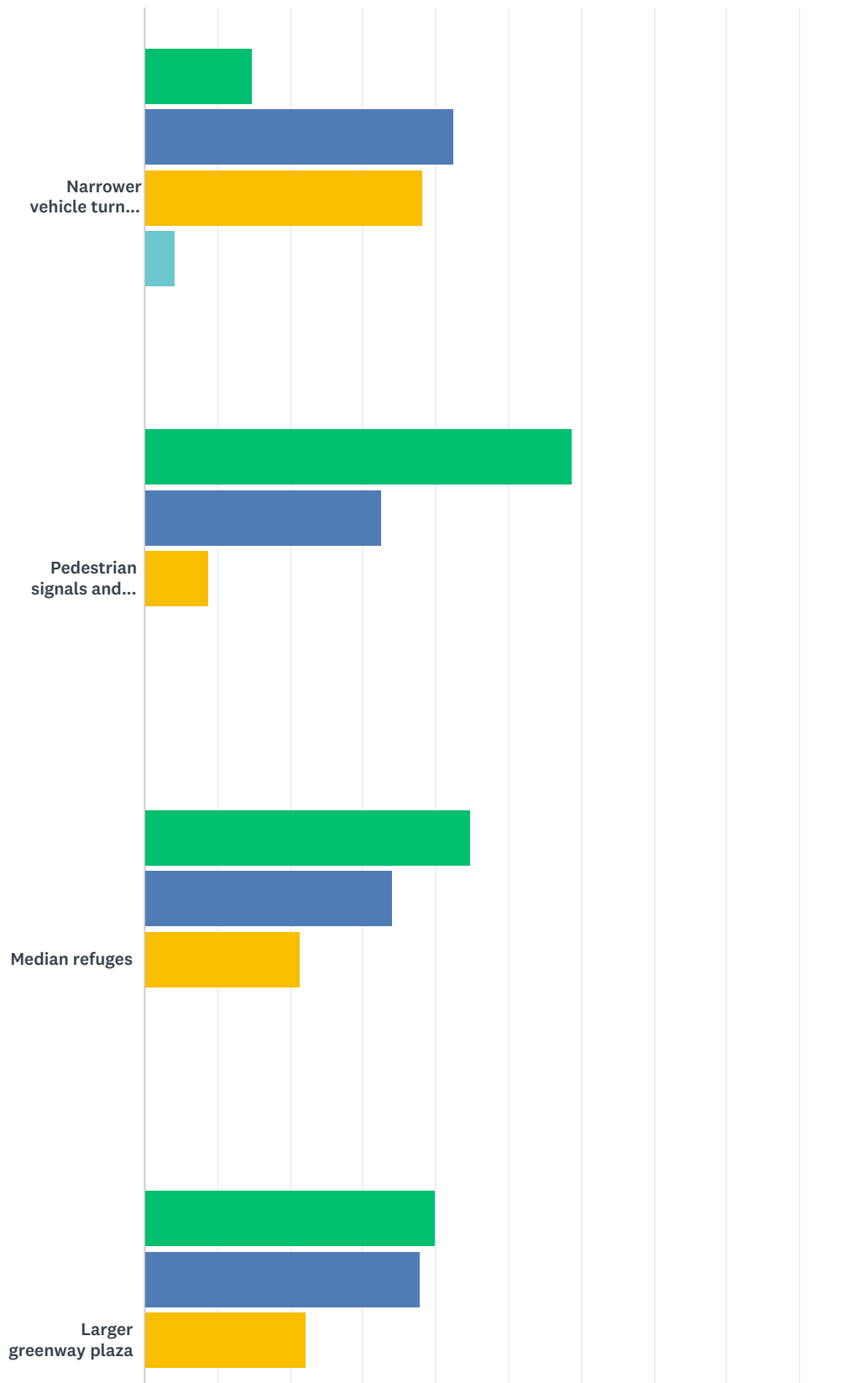
#	OTHER (PLEASE SPECIFY)	DATE
1	Running	11/15/2017 10:18 AM
2	Running	11/7/2017 3:16 PM
3	The Clayton High School Cross Country team runs the greenway from Shaw Park on a regular basis	11/6/2017 2:36 PM
4	None of the above	11/6/2017 12:39 PM

Centennial Greenway - Delmar Intersection Proposed Changes

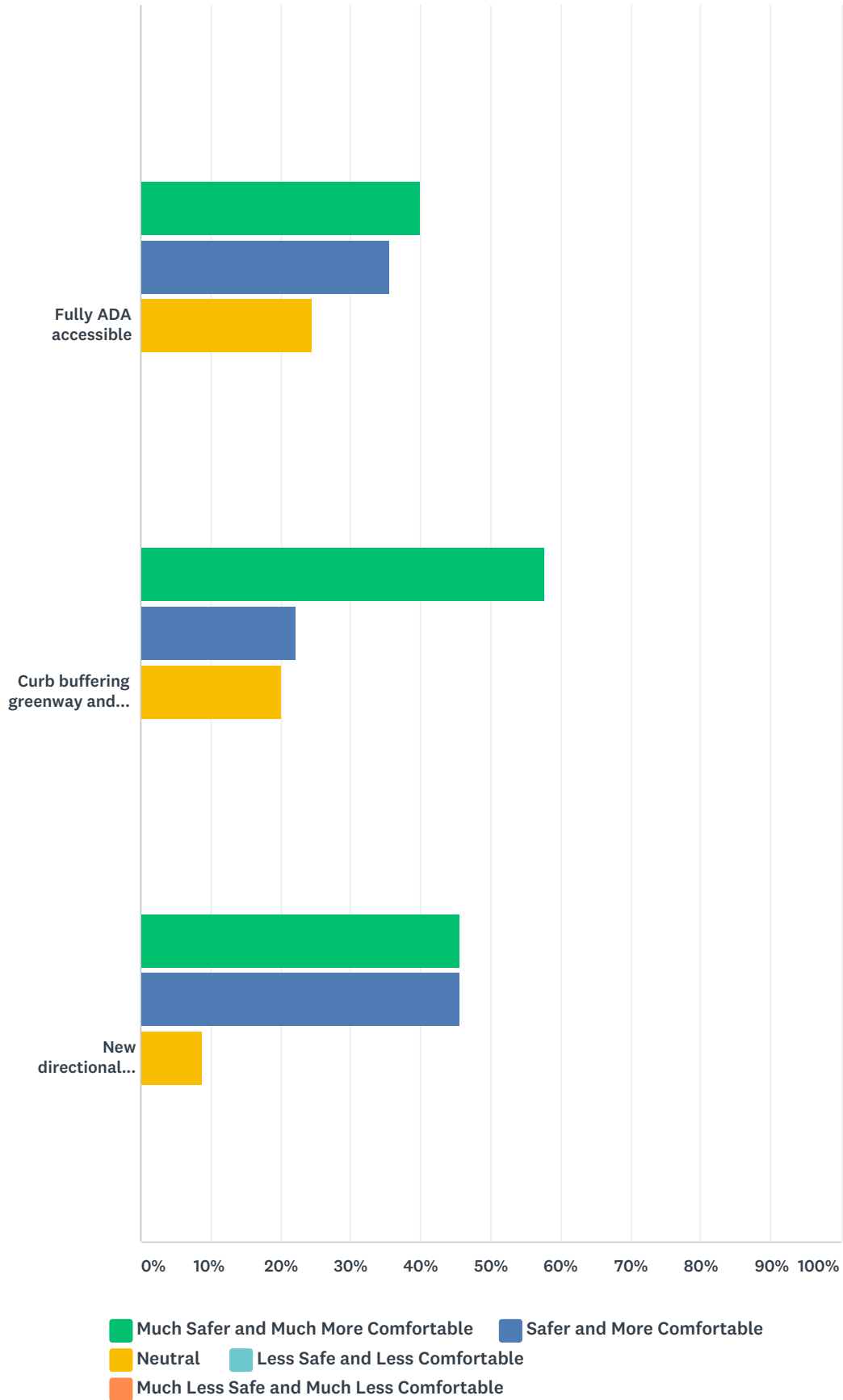
5	running	11/3/2017 6:11 PM
6	running	11/2/2017 5:03 PM

Q2 Please rate the impact of these potential improvements as they relate to your perception of safety and comfort while using this intersection.

Answered: 47 Skipped: 2



Centennial Greenway - Delmar Intersection Proposed Changes



MUCH SAFER AND MUCH MORE COMFORTABLE	SAFER AND MORE COMFORTABLE	NEUTRAL	LESS SAFE AND LESS COMFORTABLE	MUCH LESS SAFE AND MUCH LESS COMFORTABLE	TOTAL
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Centennial Greenway - Delmar Intersection Proposed Changes

Narrower vehicle turn lanes	14.89% 7	42.55% 20	38.30% 18	4.26% 2	0.00% 0	47
Pedestrian signals and painted crosswalks	58.70% 27	32.61% 15	8.70% 4	0.00% 0	0.00% 0	46
Median refuges	44.68% 21	34.04% 16	21.28% 10	0.00% 0	0.00% 0	47
Larger greenway plaza	40.00% 18	37.78% 17	22.22% 10	0.00% 0	0.00% 0	45
Fully ADA accessible	40.00% 18	35.56% 16	24.44% 11	0.00% 0	0.00% 0	45
Curb buffering greenway and roadway	57.78% 26	22.22% 10	20.00% 9	0.00% 0	0.00% 0	45
New directional signage on greenway	45.65% 21	45.65% 21	8.70% 4	0.00% 0	0.00% 0	46

Q3 Anything else you'd like to tell us about the Centennial Greenway/Delmar Boulevard intersection?

Answered: 31 Skipped: 18

#	RESPONSES	DATE
1	No right on red for cars. Accessible buttons	11/15/2017 10:31 AM
2	no right on red at both the north and south points would be super.	11/15/2017 10:31 AM
3	Suggest a plaza and garden in the SW corner of the shopping center parking lot	11/15/2017 10:29 AM
4	Narrow driveway entrances to strip mall to enhance bike/ped safety. Landscape entire spur to car fumes	11/15/2017 10:26 AM
5	Get rid of the traffic light across McKnight 1)walkers do not need it or there's so little traffic that one can get to the median in 10 seconds at most 2) light stays red and excessively long time with no one crossing.	11/15/2017 10:24 AM
6	The lighting suggest sounds good.	11/15/2017 10:18 AM
7	Inclusion of Schnuck's road in plans to make area safer would be best	11/15/2017 10:16 AM
8	Right turn traffic from Northbound I-170 exit ramp potentially could hit ped/bikers as they look west and turn east. More signage aimed at drivers turning east might help. Over all these changes will greatly improve a terrible intersection.	11/15/2017 10:15 AM
9	I really appreciate not having to cross in front of the highway entrance onto NB 1-70. Also a fan of adding the sidewalk along the northside of Delmar	11/15/2017 10:10 AM
10	I think the curbs need a reflective surface/paint to ensure better visibility.	11/15/2017 8:14 AM
11	Difficult to cross Delmar now by foot for access to Schnucks, etc. (& not much better by car)	11/13/2017 11:25 AM
12	You should also think about (1) how traffic turning in & out of shopping center (House of India/Jilly's/ect) & Schnucks impact plans, (2) how pedestrian traffic crossing I-170 along Delmar are impacted by these changes, & (3) how westbound traffic on Delmar will know which lanes to be in to go straight, turn on SB I-170 or turn on NB McKnight (it seems dangerous to depend on only lines painted on the ground to do this).	11/7/2017 2:24 PM
13	As long as none of the signals are the ambiguous 'other than stop' signals used further south on the Centennial Greenway, this will have to be an improvement. Using those ambiguous signals would be <u>bad</u> .	11/6/2017 8:51 PM
14	Presently that intersection is a mess for crossing Delmar and McKnight while using the path. It's unfathomable to me how it was even conceived. ANYTHING that you do will make it better.	11/6/2017 8:42 PM
15	Can't really address #2 on the survey, as I do not ride my bike there, but looking at the before and after....obviously..."after" is a much better idea.	11/6/2017 12:39 PM
16	I like that there is no longer a potential bottleneck at the NE corner of Delmar and McKnight. I always worried that if there were a lot of greenway traffic, there could easily not be enough room for everyone to wait before crossing the second part of the intersection.	11/5/2017 7:16 PM
17	I think people need to be patient when driving or walking. Will there be improvement in getting on the highway there. Is there a law that state if person is in a Cross walk a vehicle has to stop.	11/5/2017 5:52 PM
18	It will still be a big crossing, though, but huge improvement!	11/3/2017 6:11 PM
19	Great idea, and greatly needed. Currently, the intersection is horrible. Many pedestrians and cyclists disobey the traffic lights, partly because too many are encountered to traverse Delmar (north to south, or vice versa).	11/3/2017 9:45 AM
20	My wife & I (in our 60's) have ridden bikes on this greenway many times. Many times we turned around at Delmar to avoid crossing it. When we did choose to cross we always used your proposed route, not the current route. Crossing that NB 170 ramp is the worst part of that intersection.	11/2/2017 6:22 PM

Centennial Greenway - Delmar Intersection Proposed Changes

21	I run there several times a week, the drivers do not know they have to stop and wait for me! I don't think you can fix that	11/2/2017 5:03 PM
22	The survey seems very incomplete in its scope as well as the information provided and detail of the drawings. Generally the revised route makes some sense, however the traffic implications are a concern, particularly removing a dedicated right turn lane for access to 170 from Delmar during peak hours. Additionally, it would be helpful to know exactly how many users there are of this portion of the greenway as well as details on how green the improvements will be for the proposed changes. As I live and travel in this area daily, I rarely see users biking and walking. I would also like to know how the proposed changes will impact the ability of traffic turning left out of the Schnucks Access Road.	11/2/2017 3:08 PM
23	Great work!	11/2/2017 9:52 AM
24	I've almost been hit on a bike there a few times. It has traffic coming at you from several directions. Right-turn-on-red drivers create hazards there. I now avoid it altogether.	11/2/2017 9:07 AM
25	Can any shade trees be added to the stretch from Delmar to olive? Fairly exposed and hot in the summer. Thanks for all you do!!	11/2/2017 6:32 AM
26	Concerns for right hooks by vehicles turning onto Delmar. They are not usually paying attention to peds/bikes. Most dangerous for bikes as they are travelling faster. Need signals that can be easily accessed by bikes. Many of the bike signals on GRG Greenways are in awkward locations and difficult to access (e.g., RdP). Make clearer separation/diversion of Nbound lanes to 170 ramp. Most vehicles will be entering highway and not proceeding north. Bikes could easily navigate without light if clear that NB left lane will enter highway.	11/1/2017 7:57 PM
27	Although curbs will make people feel safer the research has proven that when streets and sidewalks/Greenways have no buffer speed is decreased and attention increased.	11/1/2017 5:45 PM
28	Have flashing pedestrian in crosswalk signs like they have on the east coast.	11/1/2017 4:16 PM
29	Please keep the sidewalk on McKnight on the left as it would make walking harder if you are walking on the westbound side of Delmar and going to your house which is on the south bound side of McKnight. I feel removing it would not be Beneficial but the opposite, and harmful.	11/1/2017 2:30 PM
30	I find it safest and easiest to leave the Greenway and just take the lane in the road. I never have problems. BMUFL signage would be nice.	11/1/2017 2:02 PM
31	A big problem with car/bicycle/pedestrian safety is related to the operation of traffic signals. From my experience most walk lights in the metro area also allow cars to make a right turn. This is a major problem because of two factors. First, drivers making right turns are often focused on traffic coming from the left and therefore do not always see a bike or pedestrian in the crosswalk. Second, people in the crosswalk have their back to traffic approaching to make a right turn and therefore can't see an approaching car. This is worse for children because they are taught that it is "safe" to cross when the walk light is on. Also given the proximity to multiple streets (I-170, Delmar, McKnight, access to Schnucks and numerous driveways) there are many distractions for drivers beyond looking out for pedestrians. I suggest that ALL vehicle traffic be stopped at the intersection when the walk lights are on.	11/1/2017 12:18 PM