



AUBURN  
UNIVERSITY

FALL 2015



# BIKE PLAN

## CITY OF AUBURN, AL

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# Acknowledgments

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Dr. Sweta Byahut, Sustainable Transportation Planning course instructor  
Brandy Ezelle, Auburn City Traffic Engineer  
& the entire Auburn Bicycle Committee

Thank you for making this collaboration a possibility.





# Outline

## Methodology

Stage 1: Case Studies

Stage 2: Existing Situation Analysis

Stage 3: Proposals, Plans, & Policies

Stage 4: Auburn Bike Plan

Updated Bike Plan: Overview

Design Specifications

Policy Recommendations

Conclusion

# METHODOLOGY

FROM THE CLASSROOM TO THE STREETS



# Case Studies

Before beginning development of an updated bike plan for Auburn, AL, the team first analyzed eight bike plans from communities across the United States to gain knowledge and understanding of how other communities have improved cycling.

The League of American Bicyclists Community Level Awards:

## Platinum

Boulder, CO  
Davis, CA

## Gold

Missoula, MT

## Silver

Charlottesville, VA  
Evanston, IL  
Logan, UT

## Bronze

Princeton University  
Tallahassee, FL



# Existing Situation Analysis

Step 2 – gather data on existing conditions in Auburn, AL. Five different targets for analysis were considered:

1. Bicycle Level of Service (BLOS) Analysis
  - Analyzed the BLOS of Auburn's existing bike network and major street segments using the Bicycle Compatibility Index (BCI)
2. GIS Maps, Analysis, and Connectivity
  - Created maps highlighting important land use information such as housing and schools, transit stops, the existing bicycle network, etc.
3. Photo Documentation and Site Analysis
  - Created photo documentation for all bicycle facilities in the city
4. Critique of Plans
  - Analyzed 1999 Auburn bike plan, Auburn Comp Plan 2020, and other relevant bike plans to determine strengths and weaknesses
5. Marketing and Education Strategy
  - Analyzed existing regulations, on-going programs, and education efforts in Auburn

# Bicycle Level of Service (BLOS)

Calculated Bicycle Level of Service using the Bicycle Compatibility Index (BCI).

Inputs and formula described in figure to the right.

For each roadway segment, the BCI yields a grade A – F, the BLOS, that describes how well that segment serves cyclists.

$BCI = 3.67 - 0.966BL - 0.410BLW - 0.498CLW + 0.002CLV + 0.0004OLV + 0.022SPD + 0.506PKG - 0.264AREA + AF$	
where:	
<b>BL</b> = presence of a bicycle lane or paved shoulder $\geq 0.9$ m no = 0 yes = 1	<b>PKG</b> = presence of a parking lane with more than 30 percent occupancy no = 0 yes = 1
<b>BLW</b> = bicycle lane (or paved shoulder) width m (to the nearest tenth)	<b>AREA</b> = type of roadside development residential = 1 other type = 0
<b>CLW</b> = curb lane width m (to the nearest tenth)	<b>AF</b> = $f_t + f_p + f_{rt}$
<b>CLV</b> = curb lane volume vph in one direction	where:
<b>OLV</b> = other lane(s) volume - same direction vph	$f_t$ = adjustment factor for truck volumes (see below)
<b>SPD</b> = 85th percentile speed of traffic km/h	$f_p$ = adjustment factor for parking turnover (see below)
	$f_{rt}$ = adjustment factor for right-turn volumes (see below)

Source: FWHA, 1998



# Existing Bicycle Level of Service (BLOS)

Data Source: City of Auburn GIS

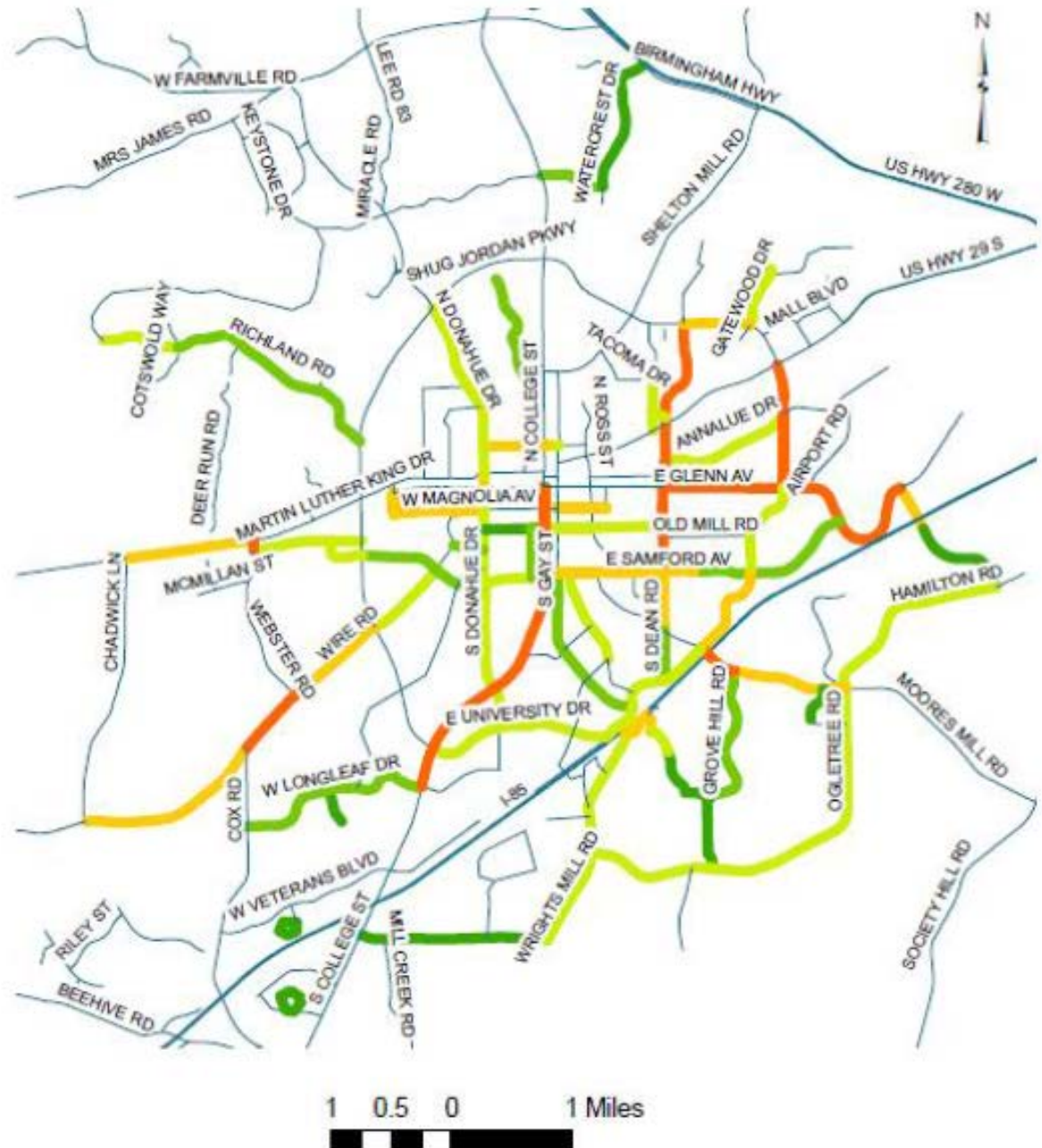
Date: 12/2/2015

## Major Roadways

— Road

## LOS

- █ A
- █ B
- █ C
- █ D
- █ E
- █ F



# UPDATED BIKE PLAN: OVERVIEW

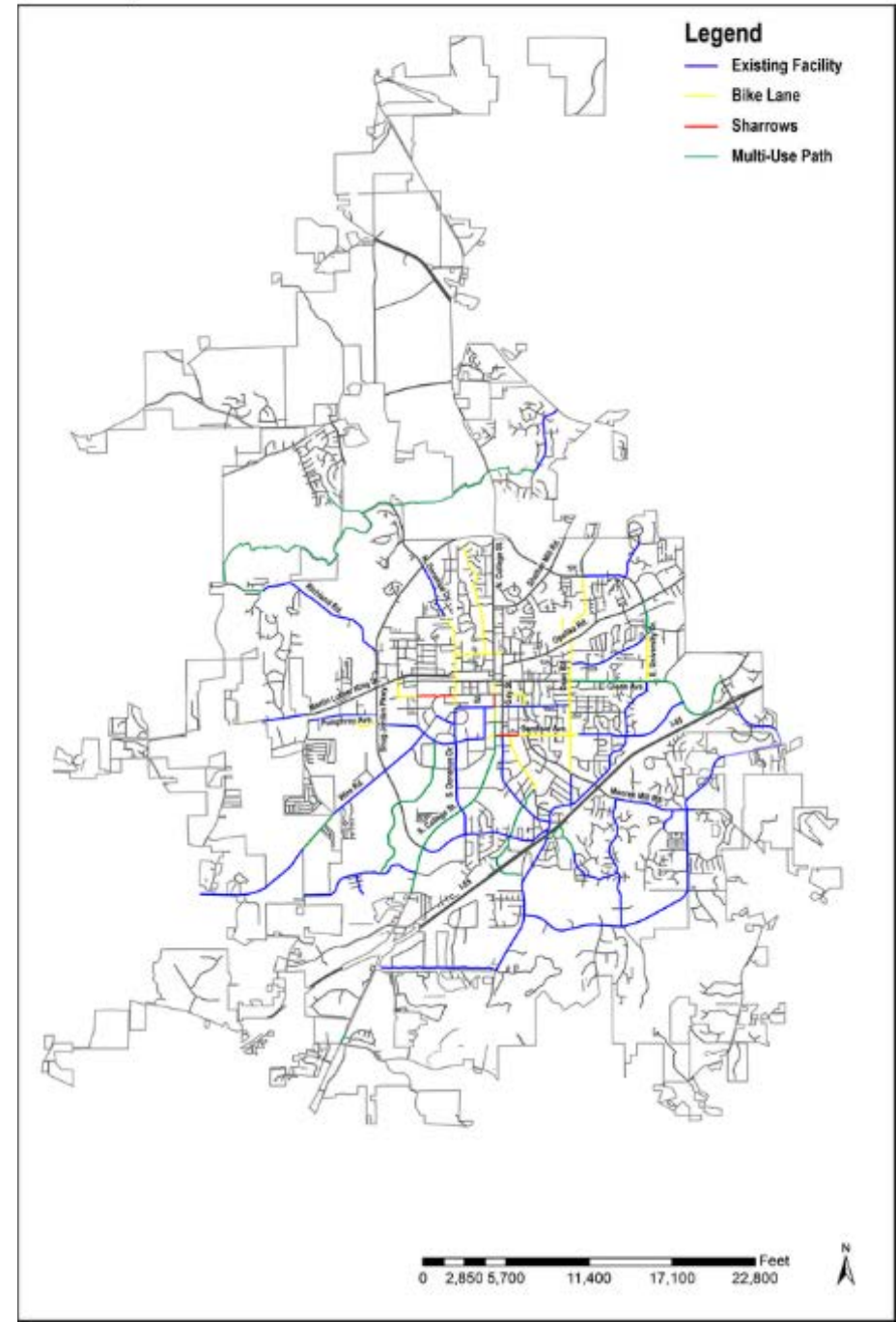
PROVIDING MORE ROUTES FOR FEWER WHEELS



# City of Auburn - New Bike Facilities

## Proposed Bicycle Improvement Plan

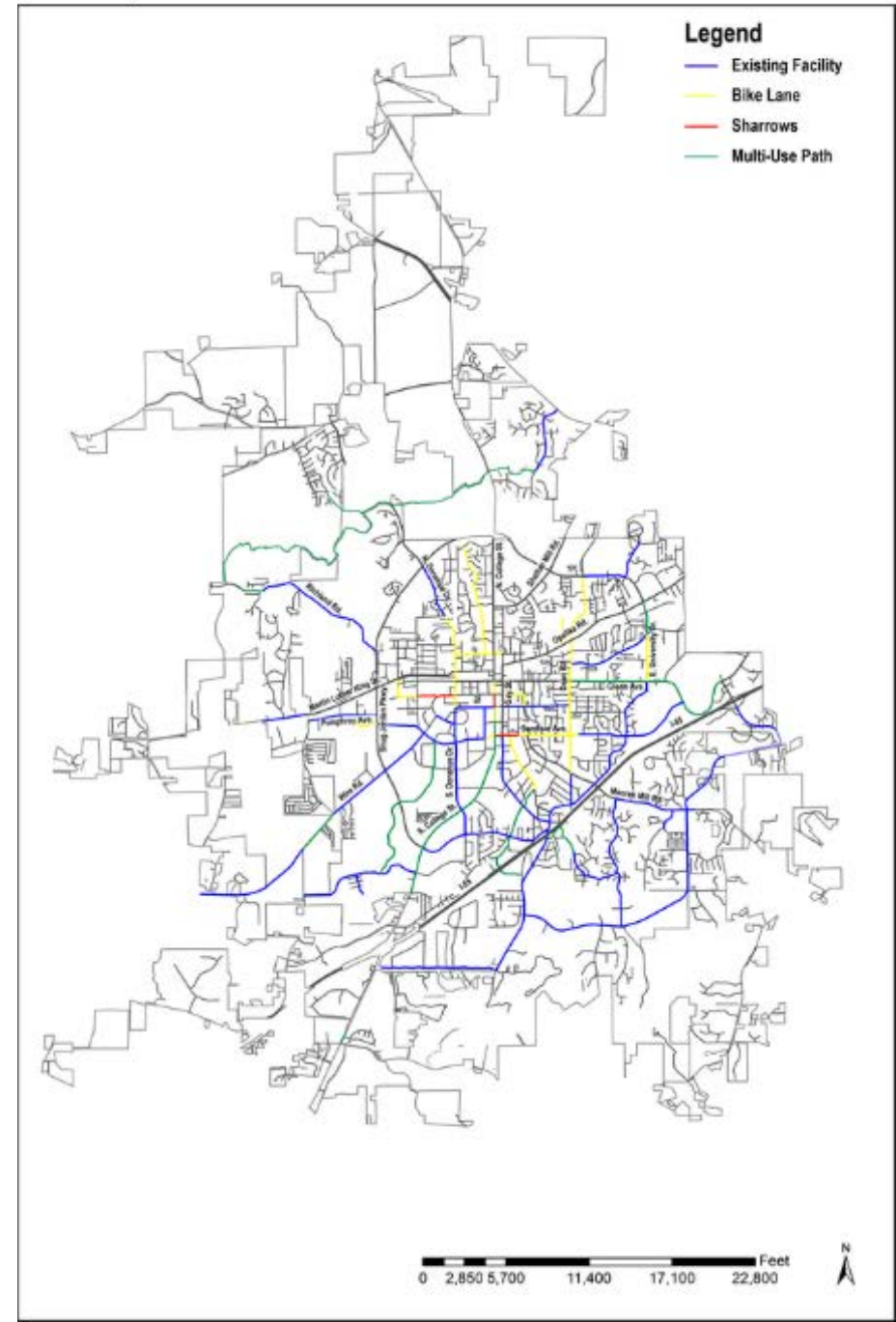
**The goal** of improving Auburn's bike network is to *encourage new cyclists* and *make cycling a viable alternative travel mode* by *increasing connectivity* of the biking network and *improving access* to key locations for a variety of users.



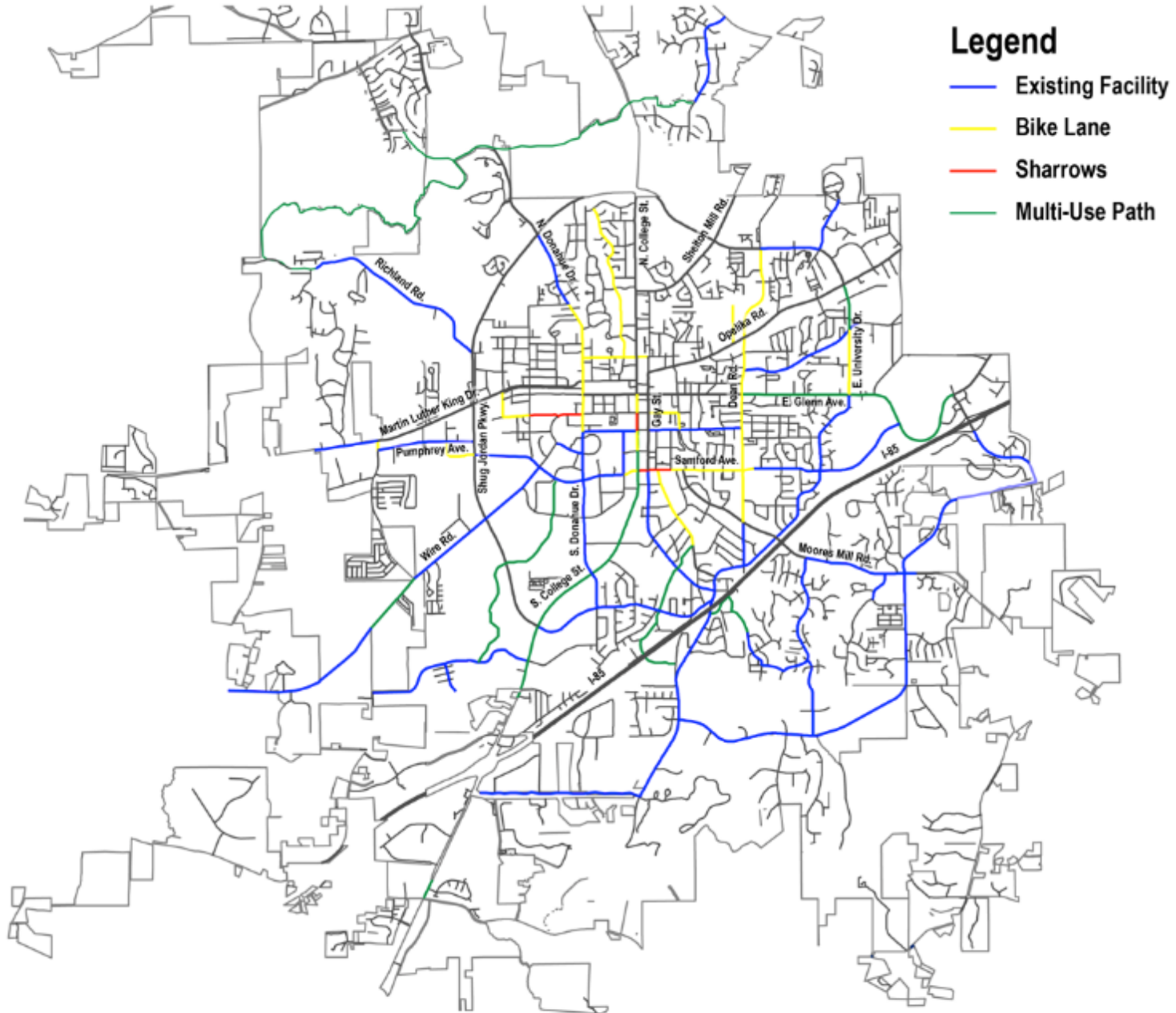
## Proposed Bicycle Improvement Plan

The design team identified the following **objectives** to meet this goal:

1. Improve network connectivity by filling in gaps in the current system to provide seamless cycling routes throughout the city.
2. Provide access to key locations including public schools, Auburn University, and commercial districts.
3. Plan for a variety of user types including new users, commuters, and recreational cyclists.







0 2,850 5,700 11,400 17,100 22,800 Feet

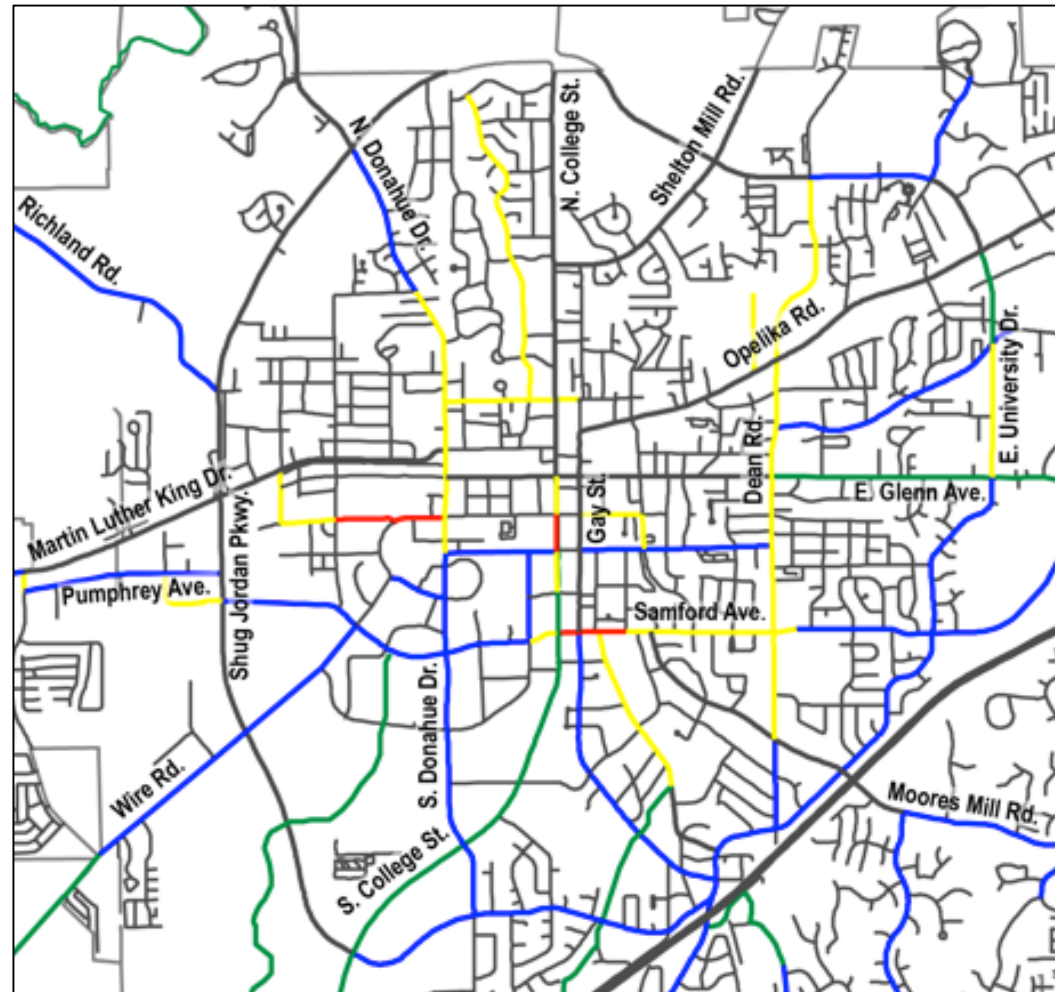


# Improving Connectivity

“1. **Improve network connectivity** by filling in gaps in the current system to provide seamless cycling routes throughout the city.”

Major connections include:

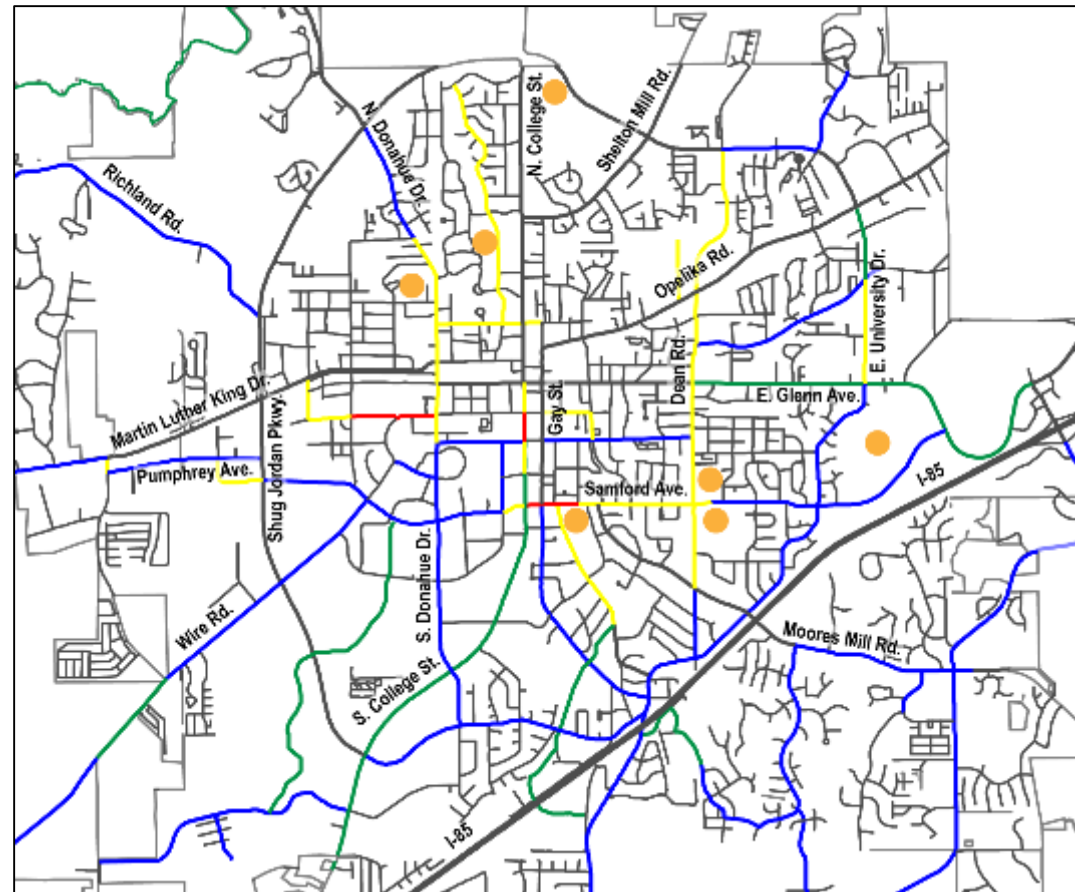
- Parkerson Mill Creek connecting Longleaf to campus
- A multi-use path south of Town Creek Park connections across the interstate
- A multi-use path on Glenn
- MLK Drive
- Pumphrey Avenue
- Donahue Drive
- Wire Road
- Samford Avenue
- Dean Road



# Providing Access to Schools

“2. **Provide access** to key locations including **public schools**, Auburn University, and commercial districts.”

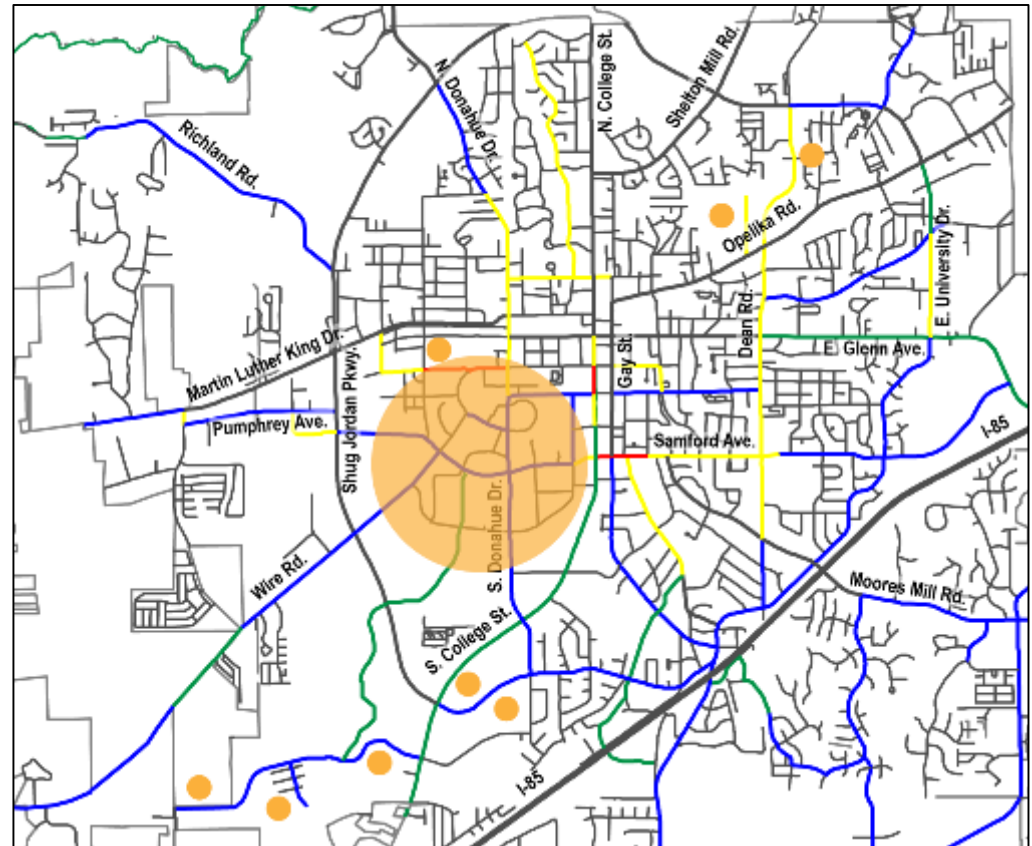
- Sanders Rd bike lane provides access to Pick Elementary & Cary Woods Elementary
- N. Donahue bike lane gap filled to provide access to JF Drake Middle School
- Samford Ave bike lane fills gap in front of Auburn Jr. High
- Dean Rd improvements include a bike lane giving access to Auburn High School
- E. Glenn Ave separated multi-use path from Dean Rd to Bent Creek Rd connects to existing bike lanes. This path also provides access to the future school site on Glenn Ave.



# Providing Access to Auburn University

“2. **Provide access** to key locations including public schools, **Auburn University**, and commercial districts.”

- Off-road multi-use path from W Longleaf Dr to W Samford Av uses mostly AU property to provide a unique, safe, and pleasant route to campus.
- S College St multi-use path separates cyclists from road users and provides a fast route into downtown and the University.
- Bike lanes near Aspen Heights and Creekside connect to Dean Rd.
- Bike lanes and Sharrows on the West end of Magnolia Ave connect to Logan Square and a number of other student housing complexes.

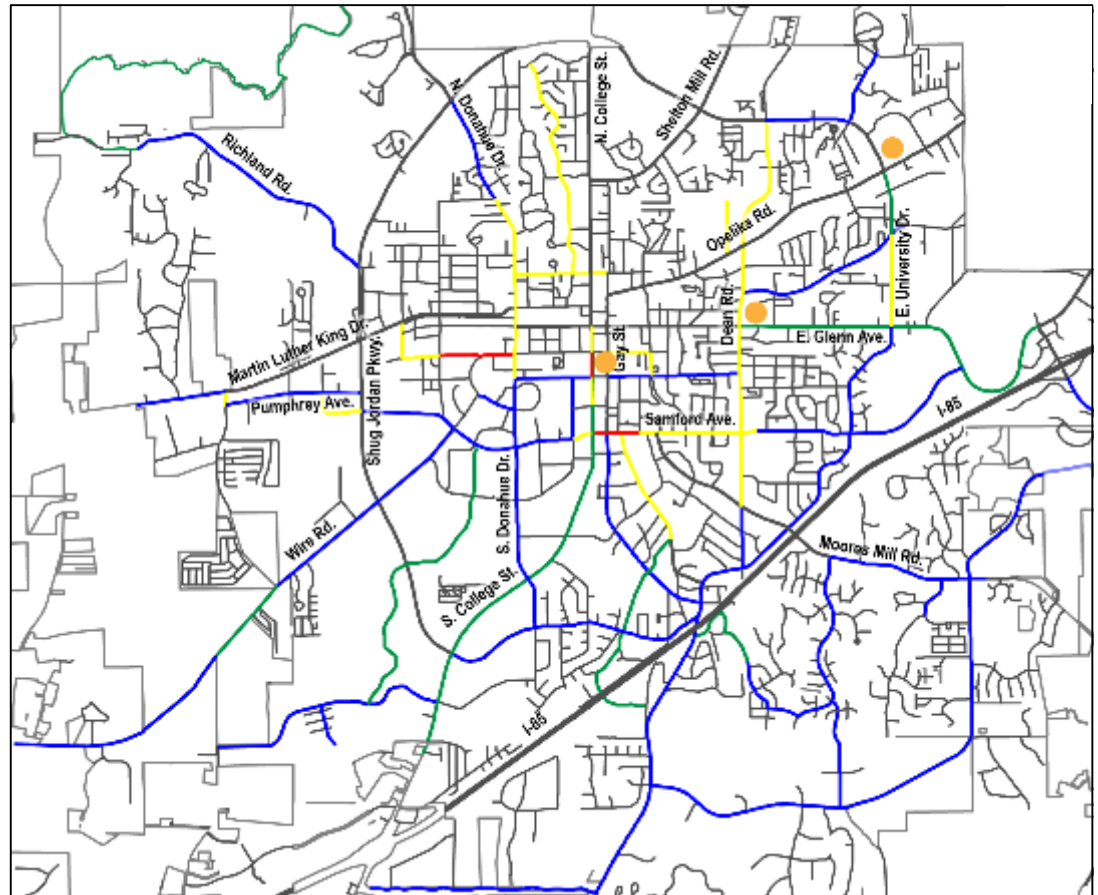




# Providing Access to Commercial Districts

“2. **Provide access** to key locations including public schools, Auburn University, and **commercial districts.**”

- Bike lane additions on Dean Rd allow residents to get to Kroger and the surrounding shopping district without driving.
- Proposals for E University Dr will connect the surrounding neighborhoods to the mall, restaurants, and other commercial areas.
- Proposals for College St and the East end of Magnolia Ave bring cyclists right to downtown.



# Planning for a Variety of Users

“3. **Plan for a variety of user types** including new users, commuters, and recreational cyclists.”

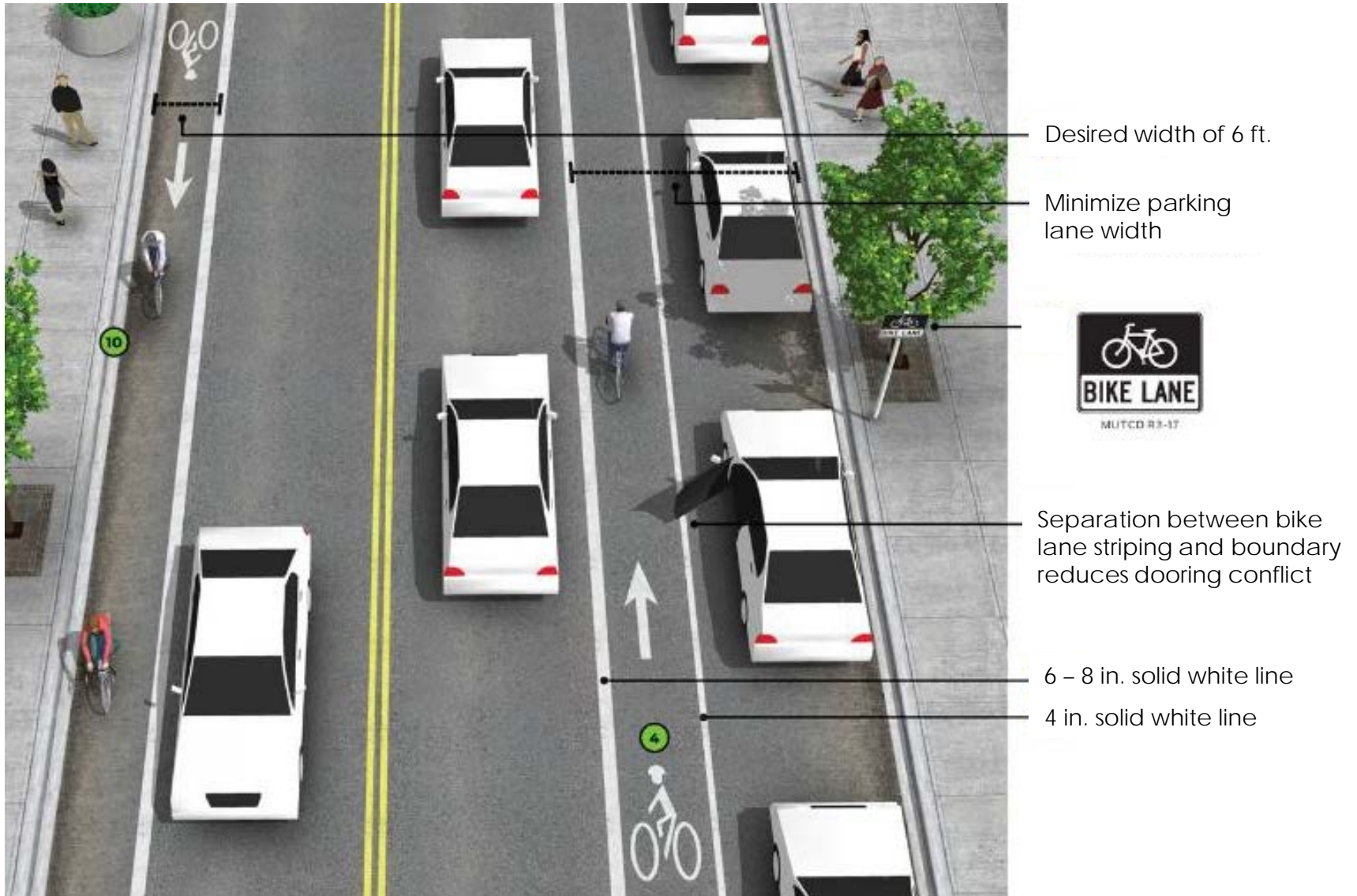
- **New users:** Utilizing multi-use paths on high-volume roadways and off-road paths that lead to high profile destinations (i.e., Auburn University) will encourage new users to try cycling. Filling in the gaps in the system with bike lanes and Sharrows will aid their transition into frequent users.
- **Commuters:** By focusing on connecting the bicycle network to important locations and filling in the gaps in the system, more bicycle commuting is encouraged.
- **Recreational cyclists:** Off-road paths like the Saugahatchee Creek trail and the Parkerson Mill Creek trail provide scenic cycling escapes while providing routes on major roads in and out of the city allow enthusiasts to travel further.

# DESIGN SPECIFICATIONS

WHERE THERE'S A WHEEL THERE'S WAY

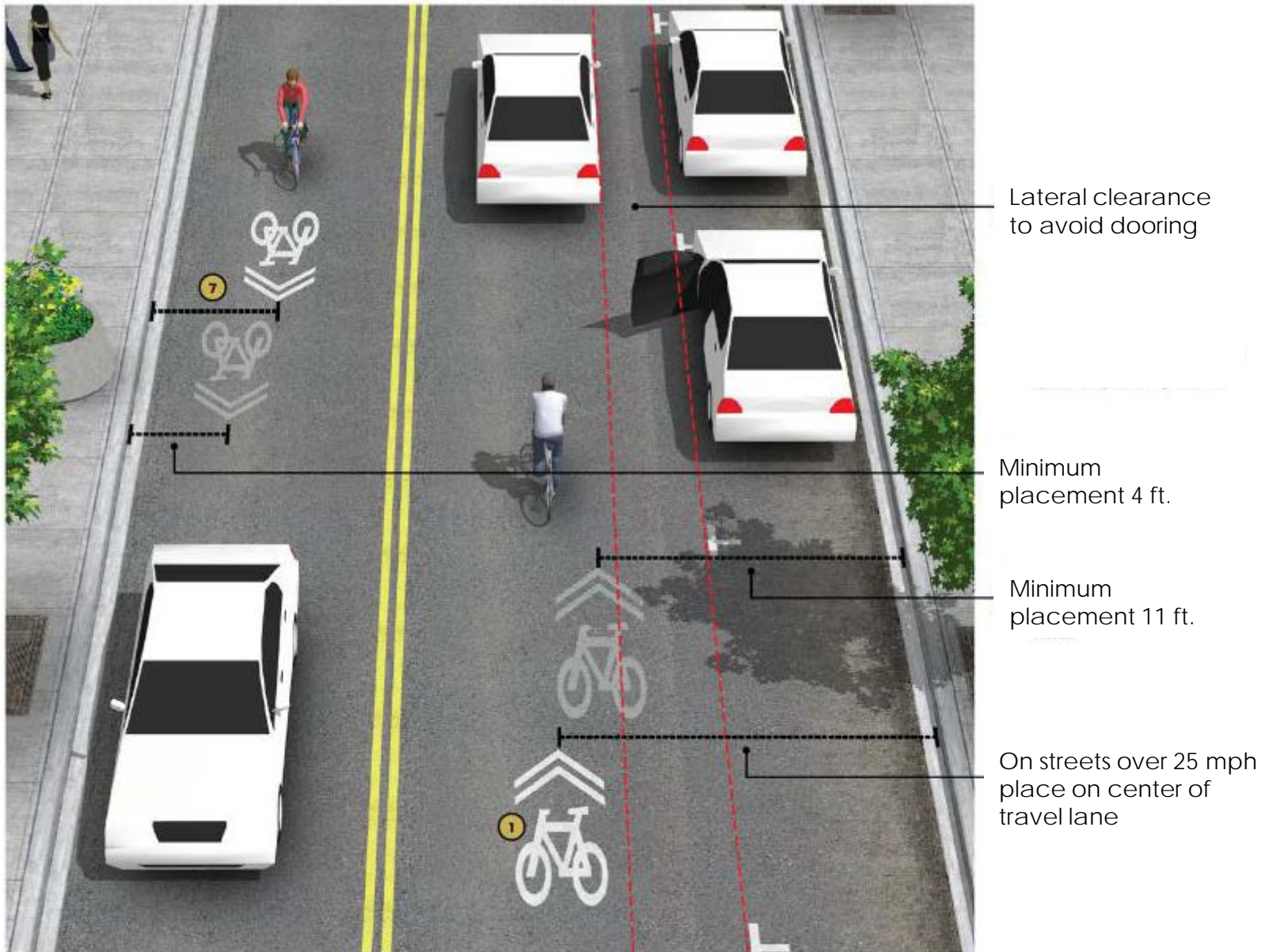


# BICYCLE LANES





# SHARROW POLICY



# SHARED USE PATH GUIDELINES

- Distance between shoulder and shared use path: 4 – 5 ft.
- Recommended paved width : 14 -10 ft.
- Vertical clearance: 8 ft.
- ADA guidelines requirements 2 - 3 %.
- Minimum cross-slope 2 %



# BIKE BOX GUIDELINES

## Required features include:

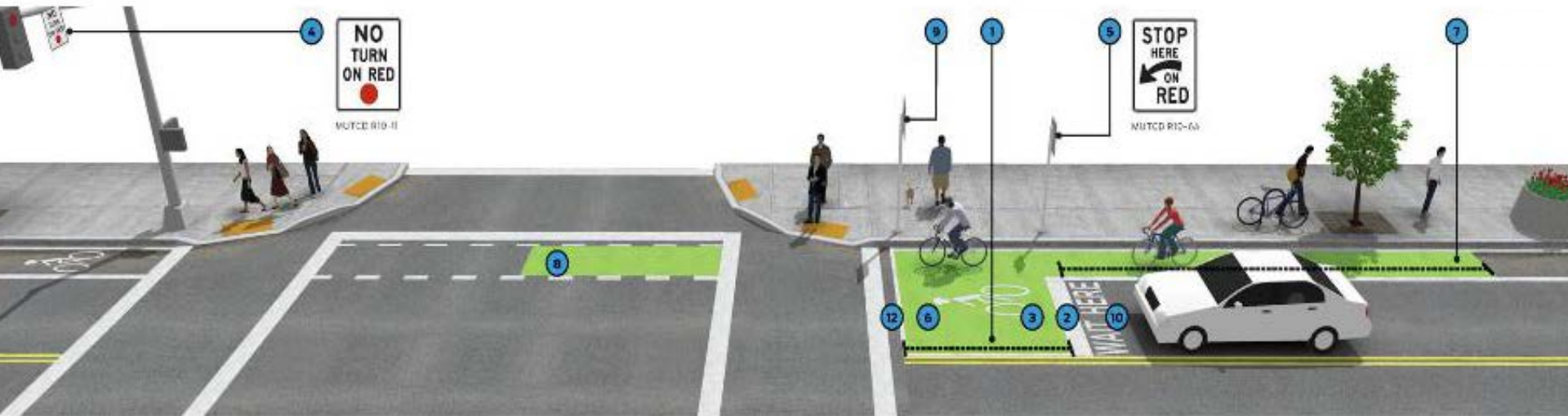
- A box used to hold queuing bicycles
- Stop lines
- “No Turn On Red”

## Recommend features include:

- “Stop Here On Red” sign
- Green colored pavement within box
- “Yield To Bikes” sign

## Optional features include:

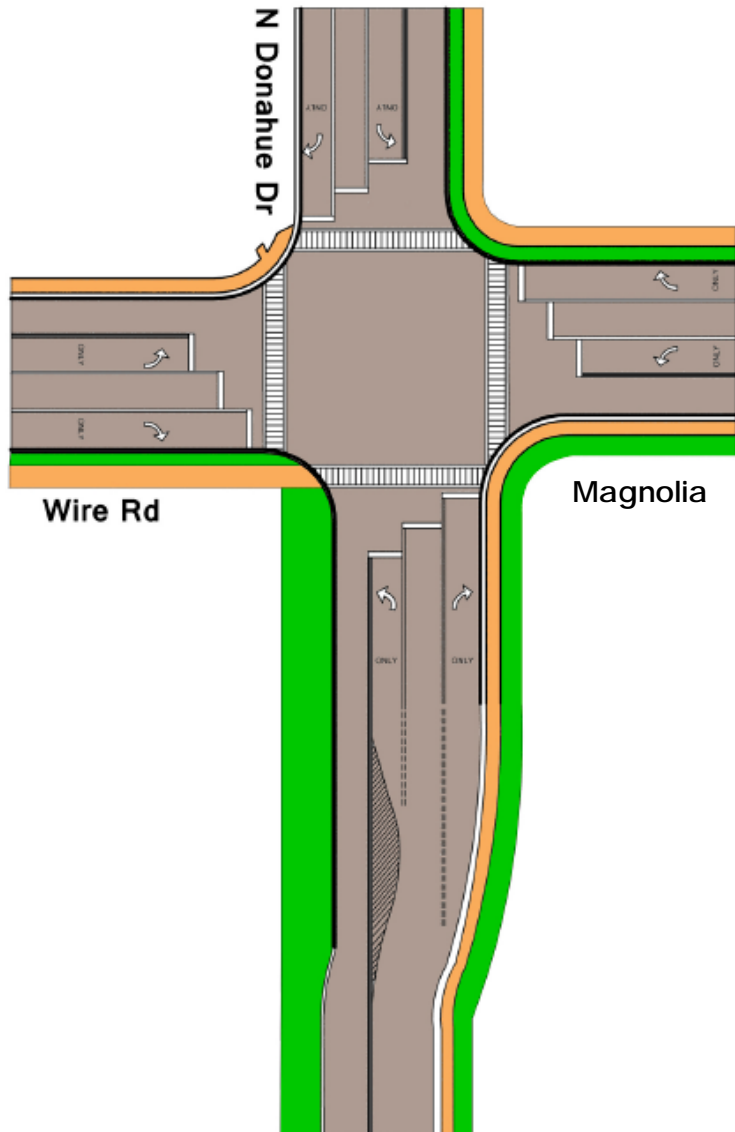
- “Wait Here” legend marking
- Stop lines before bike box
- Bike boxes extending multiple traffic lanes



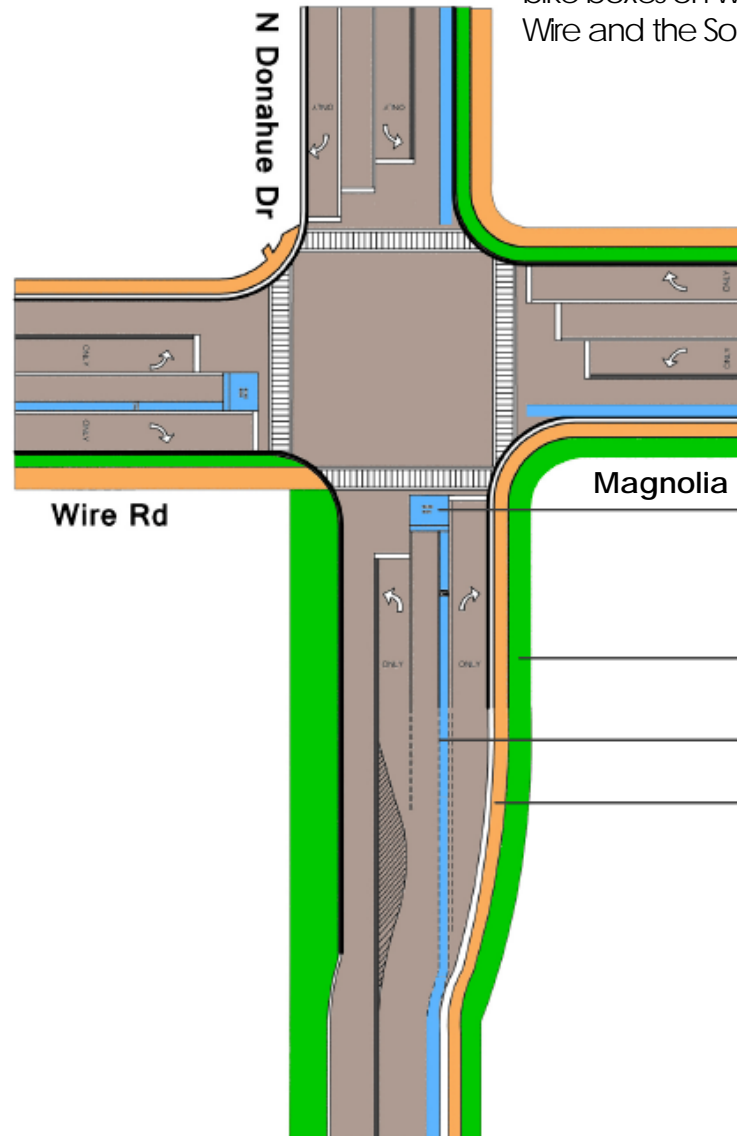
# Wire Rd (Magnolia) and Donahue

Proposed:

Bike lanes added northbound and eastbound  
bike boxes on west side of  
Wire and the South side of Donahue



EXISTING



PROPOSED

Bike Box

Landscaping Bar

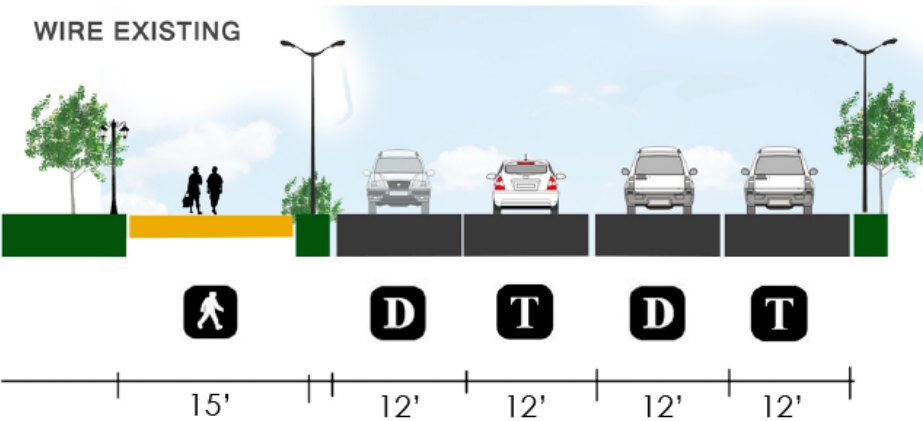
Bike Lane

Crosswalk

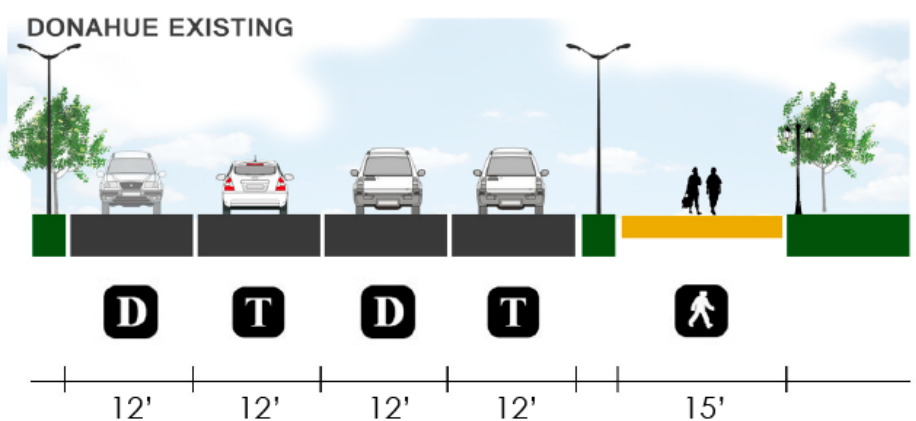


# Magnolia and Donahue

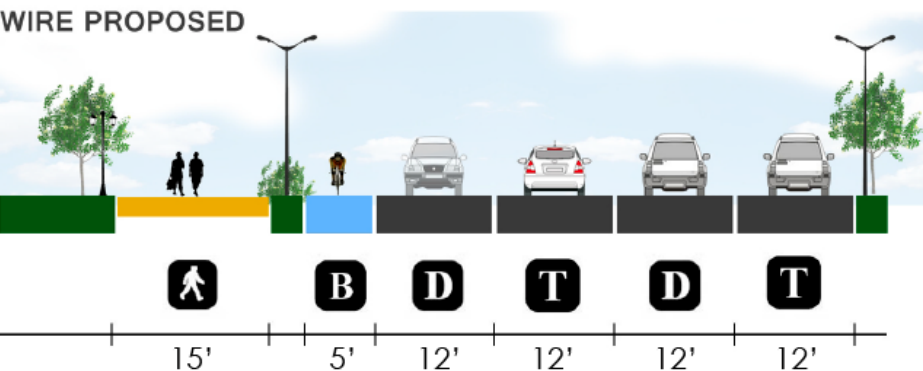
WIRE EXISTING



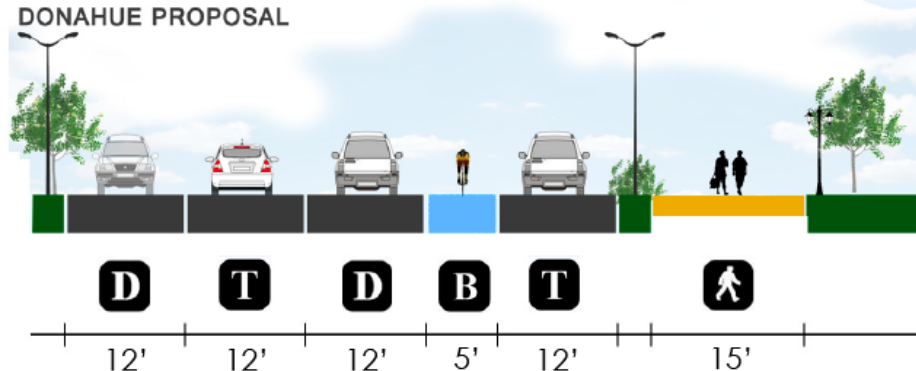
DONAHUE EXISTING



WIRE PROPOSED



DONAHUE PROPOSAL



Why:

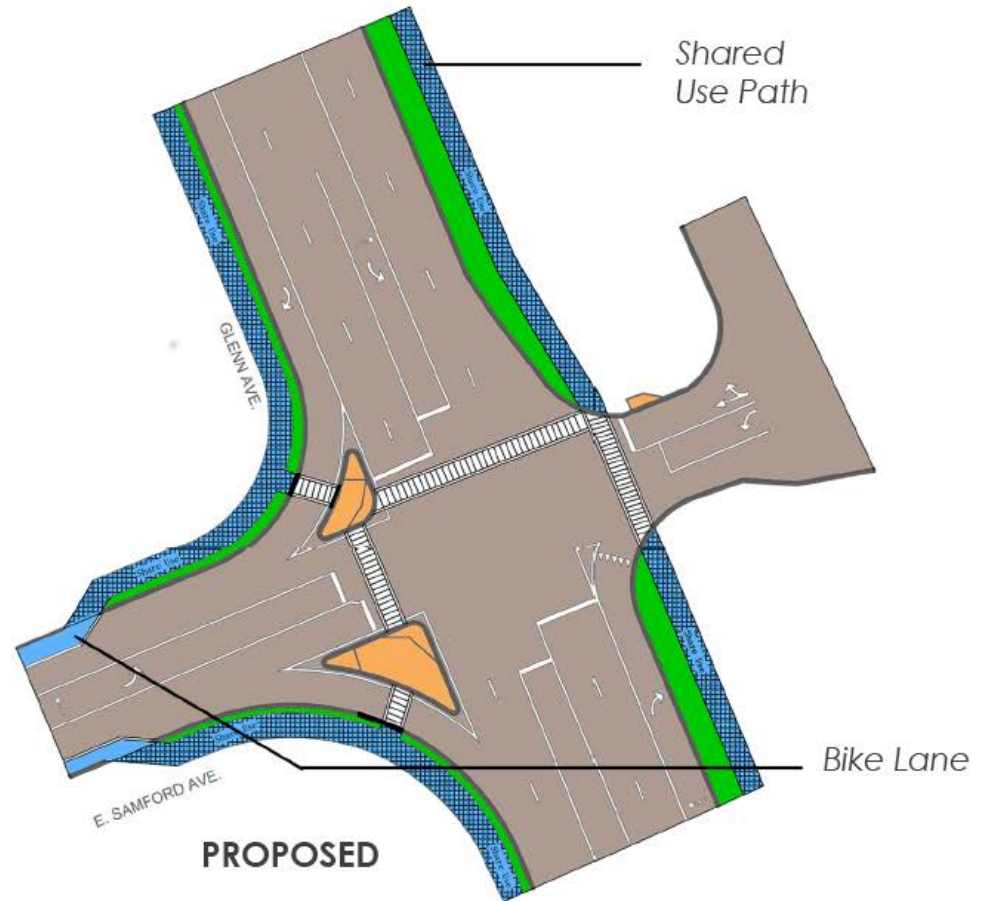
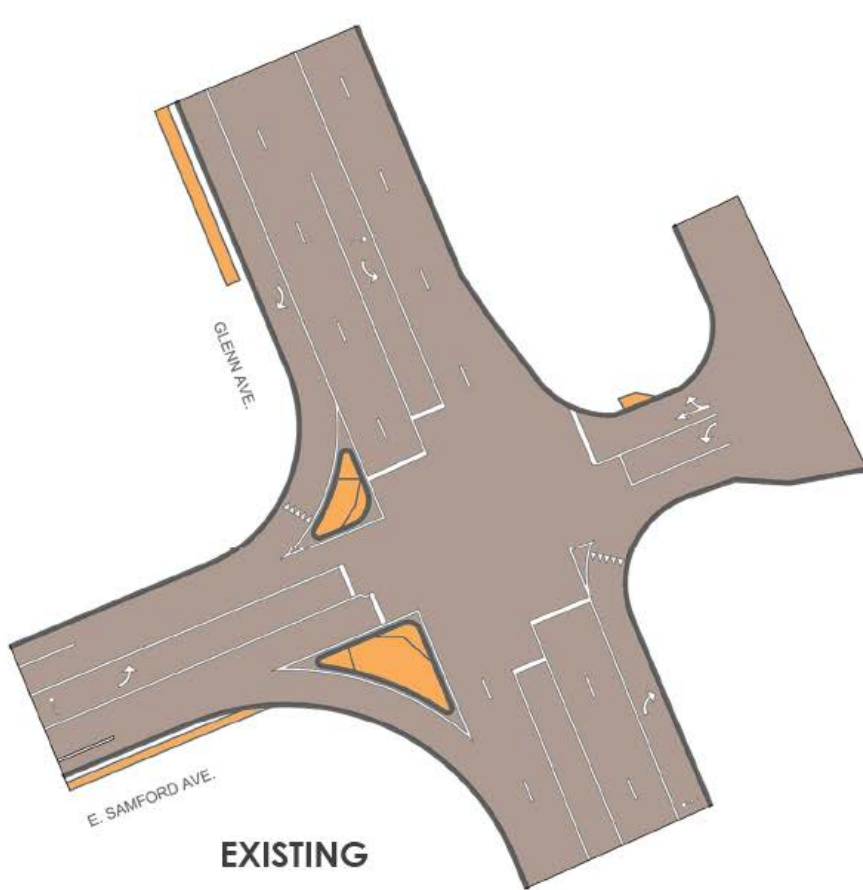
- Bike boxes give cyclists a head start on traffic at a relatively high speed intersection. And increases the visibility of cyclists to drivers.
- High volume of bicyclists in this area due to the proximity of apartments.



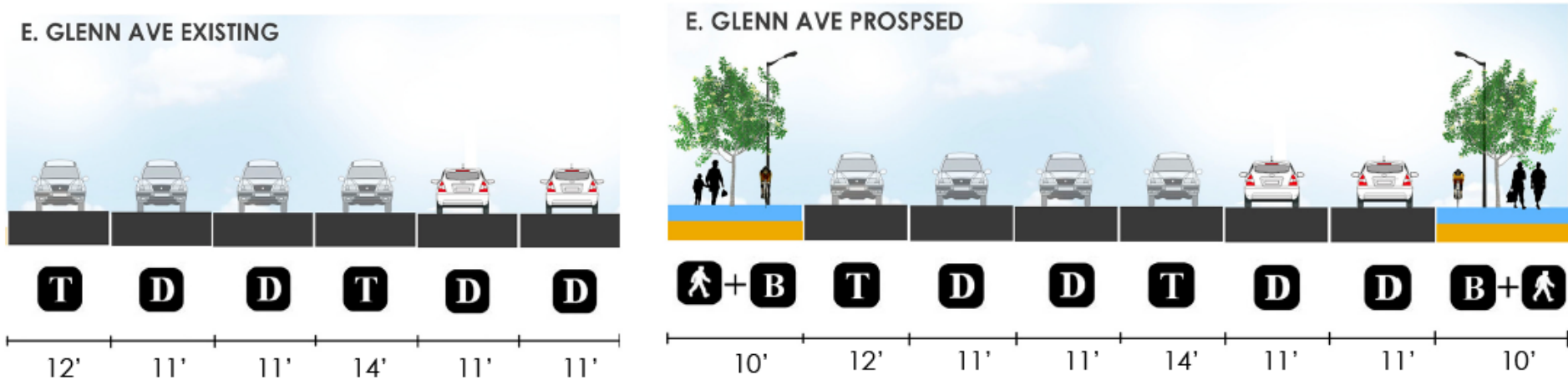
# E Samford Ave & E Glenn Ave

Proposed:

- Addition of shared use path all around
- Addition of crosswalks
- Landscaping opportunities

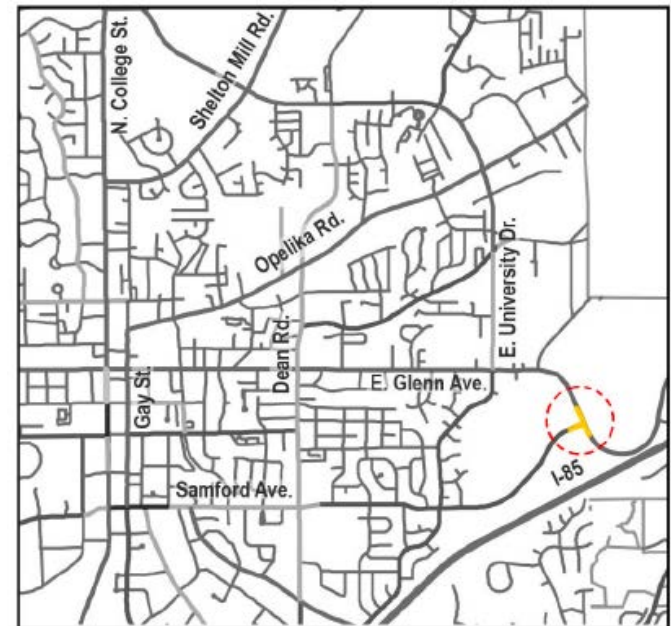


# E Samford Ave & E Glenn Ave



Why:

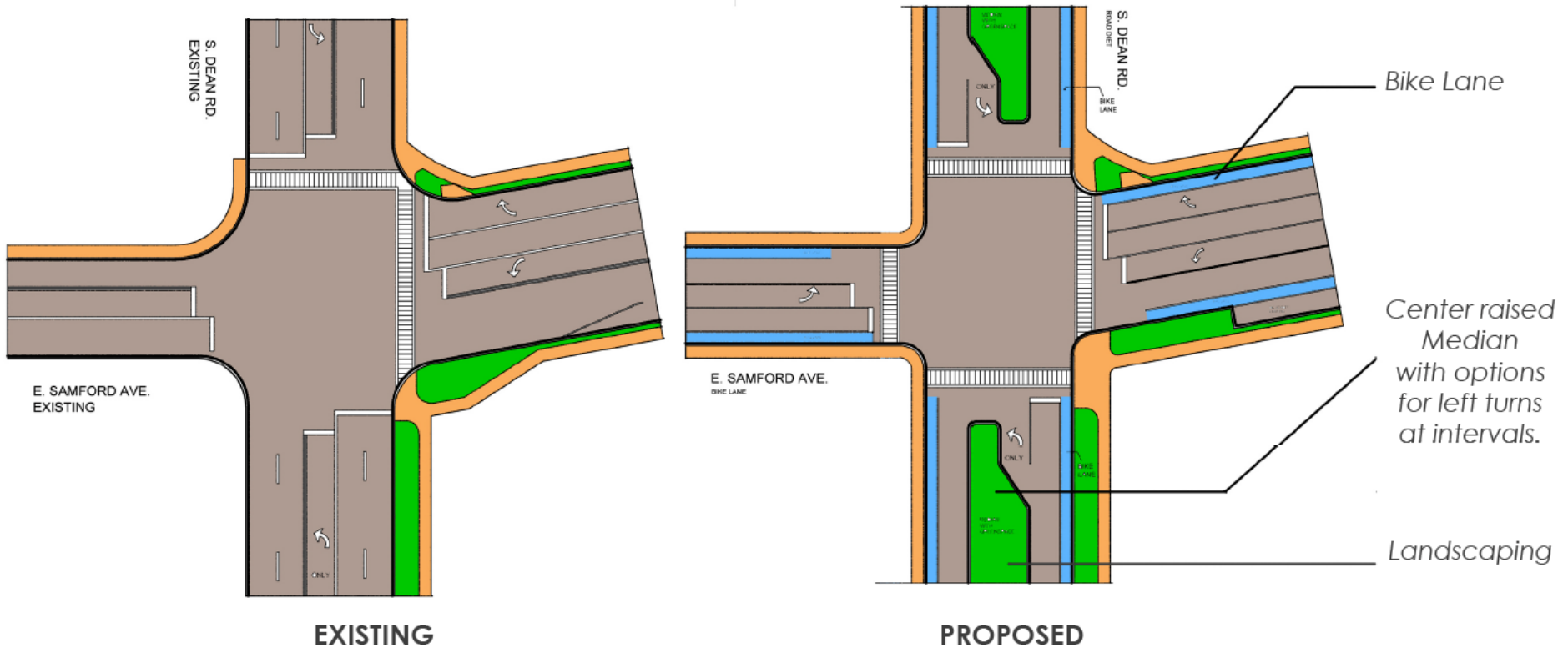
- Addition of shared use paths to provide a safe zone for pedestrians and bicyclists at a high speed intersection.
- Crosswalks added as means for full utilization of the shared use path across the intersection
- High volume area that has the potential for new development



# Dean Road and Samford Avenue

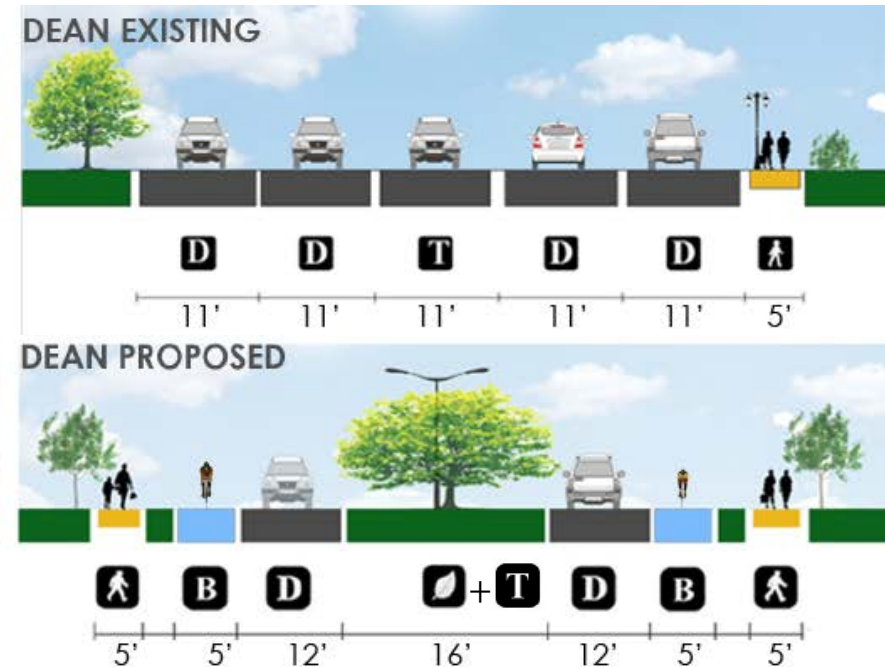
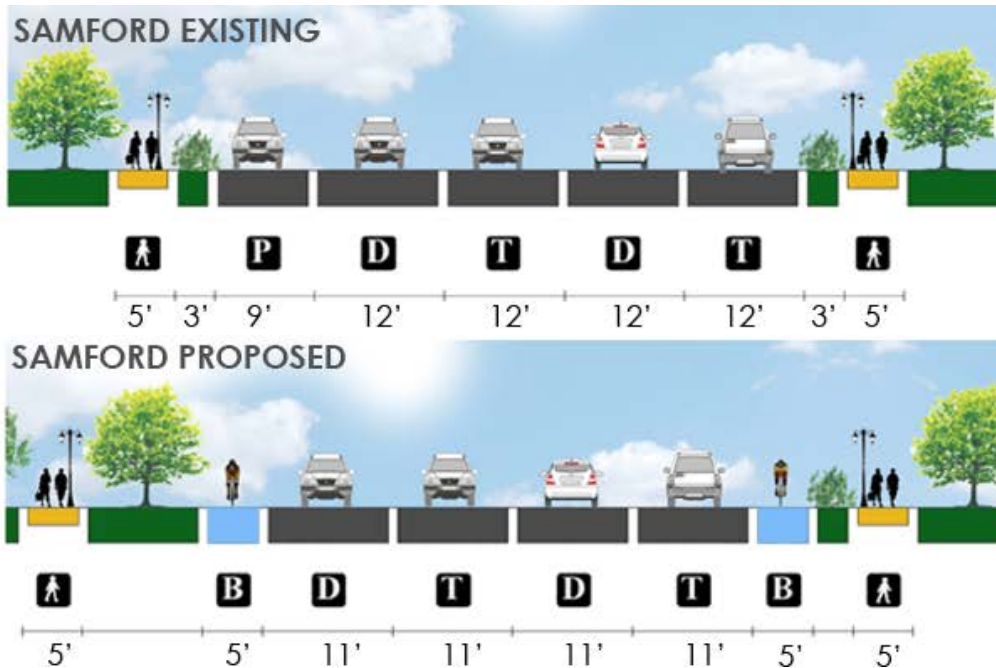
Proposed:

- Addition of bike lanes on both streets
- Addition of crosswalks
- Road diet on Dean Road
- Reduced radii on all corners.
- Additions of sidewalks on west side of dean



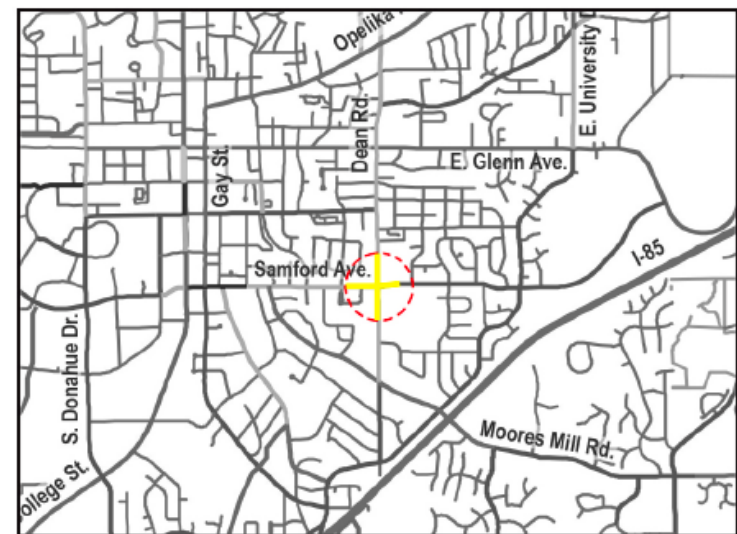


# Dean Road and Samford Avenue



Why:

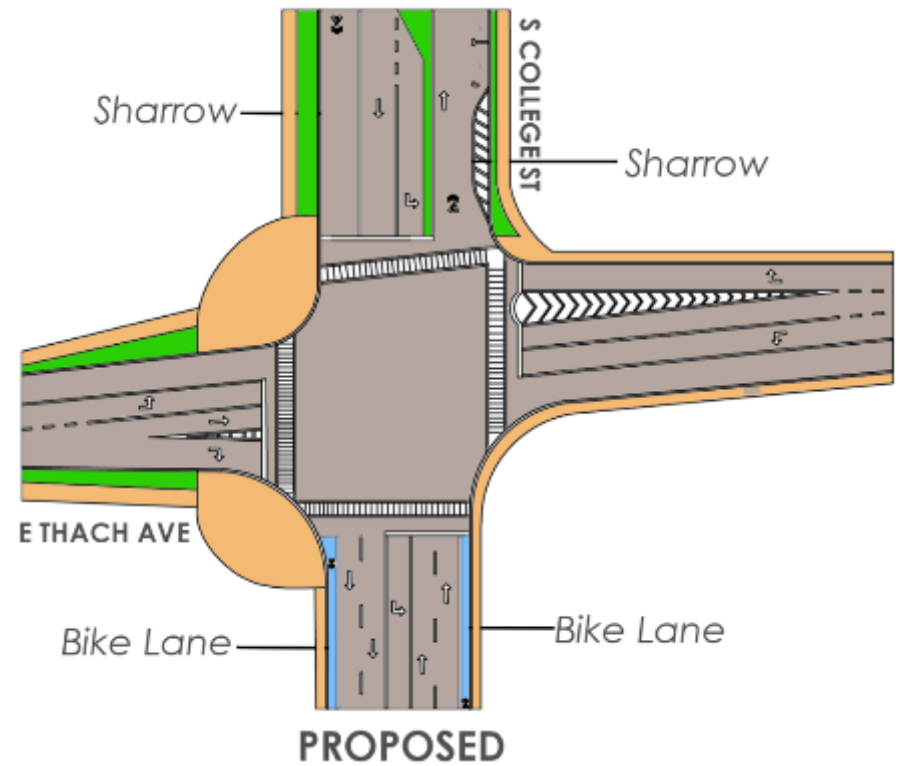
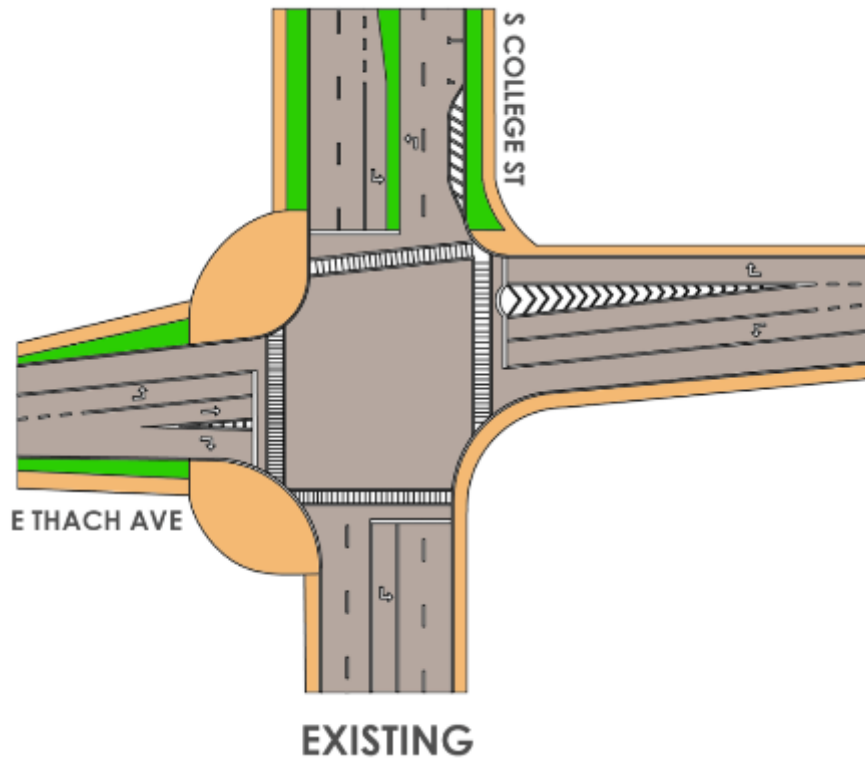
- Addition of bike lanes helps with connectivity on both Samford and Dean
- Smaller curb radii slows down traffic around turns and decreases crossing distance for pedestrians
- Addition of the median on Dean reduces speed and provides more space for bike lanes. It also creates a higher quality street with introduction of street trees and landscaping.
- To improve connectivity for pedestrians, sidewalks were added to the west side of dean where there previously were none



# E Thach Ave & S College St

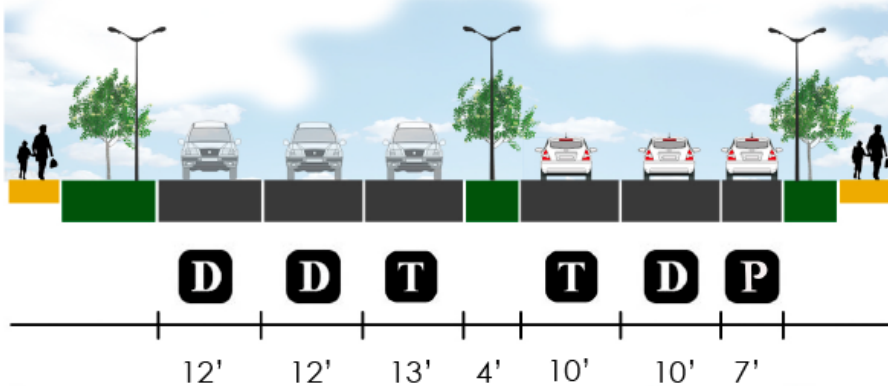
Proposed

Bike lanes on S College below Thach  
Sharrows on S College above Thach

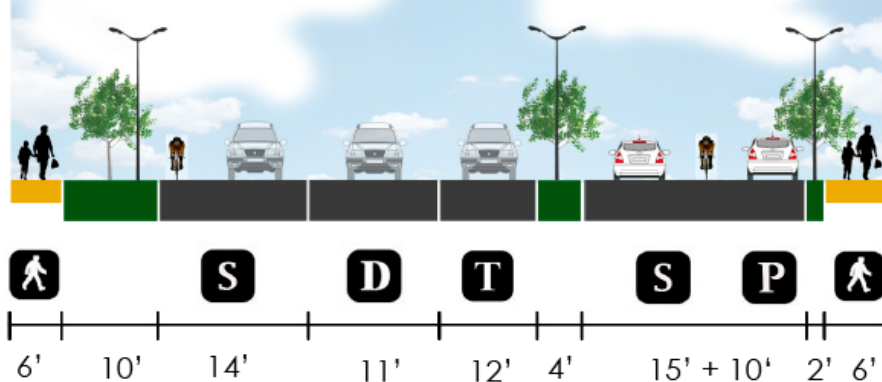


# E Thach Ave & S College St

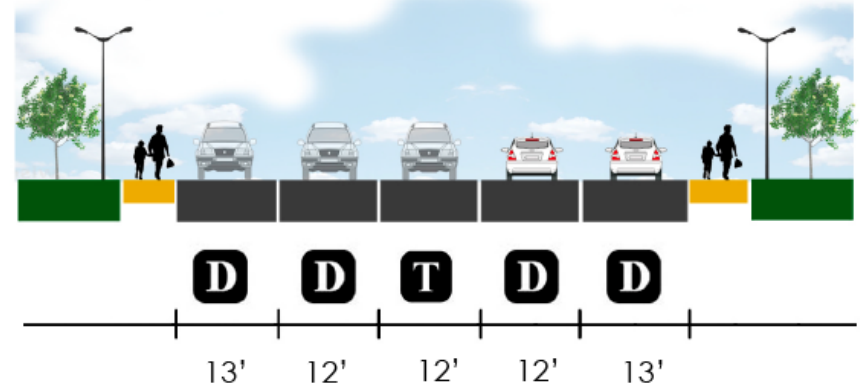
NORTH SIDE - S COLLEGE ST. EXISTING



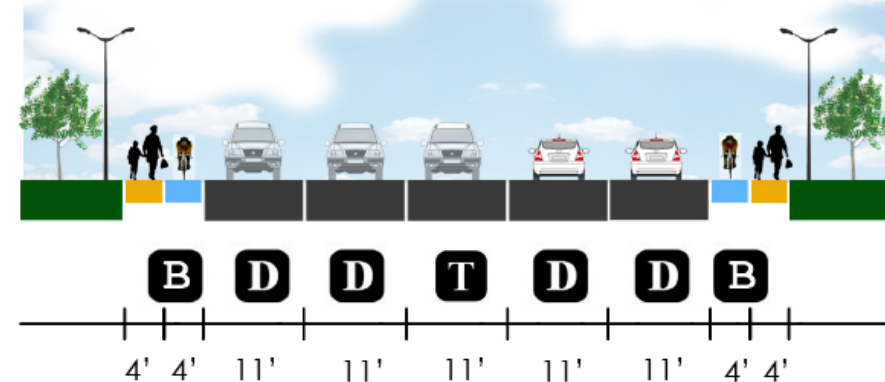
NORTH SIDE - S COLLEGE ST. PROPOSED



SOUTH SIDE - S COLLEGE ST. EXISTING

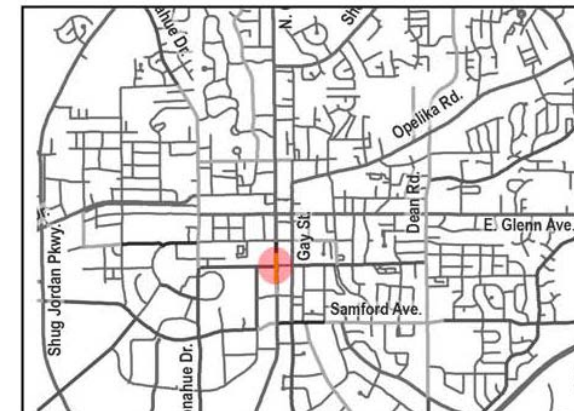


SOUTH SIDE - S COLLEGE ST. PROPOSED



Why:

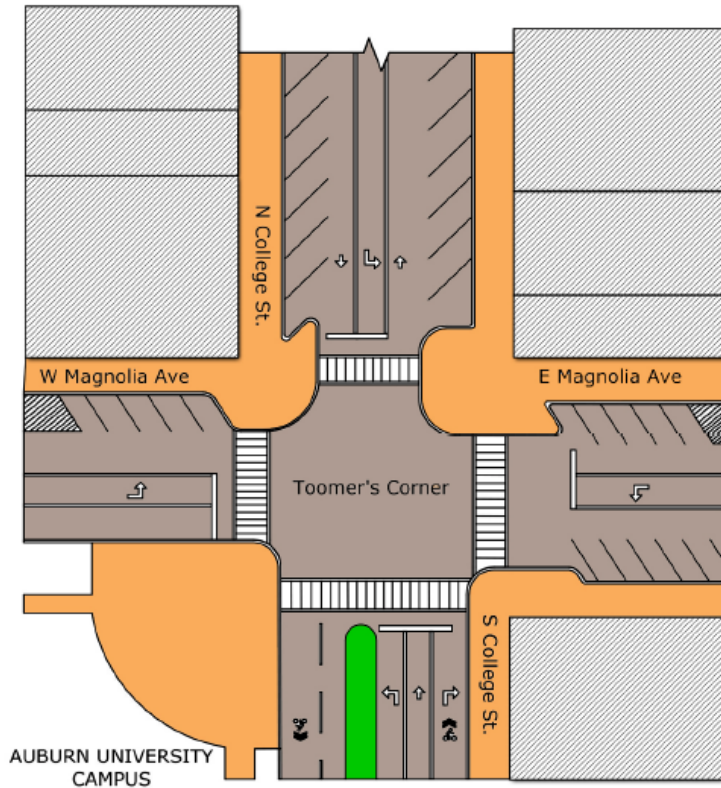
- Bike lanes are needed to get people into the downtown area as well as to and from campus.
- The sharrows alert drivers the possibility of bikers in an area where there was not enough room for a bike lane.



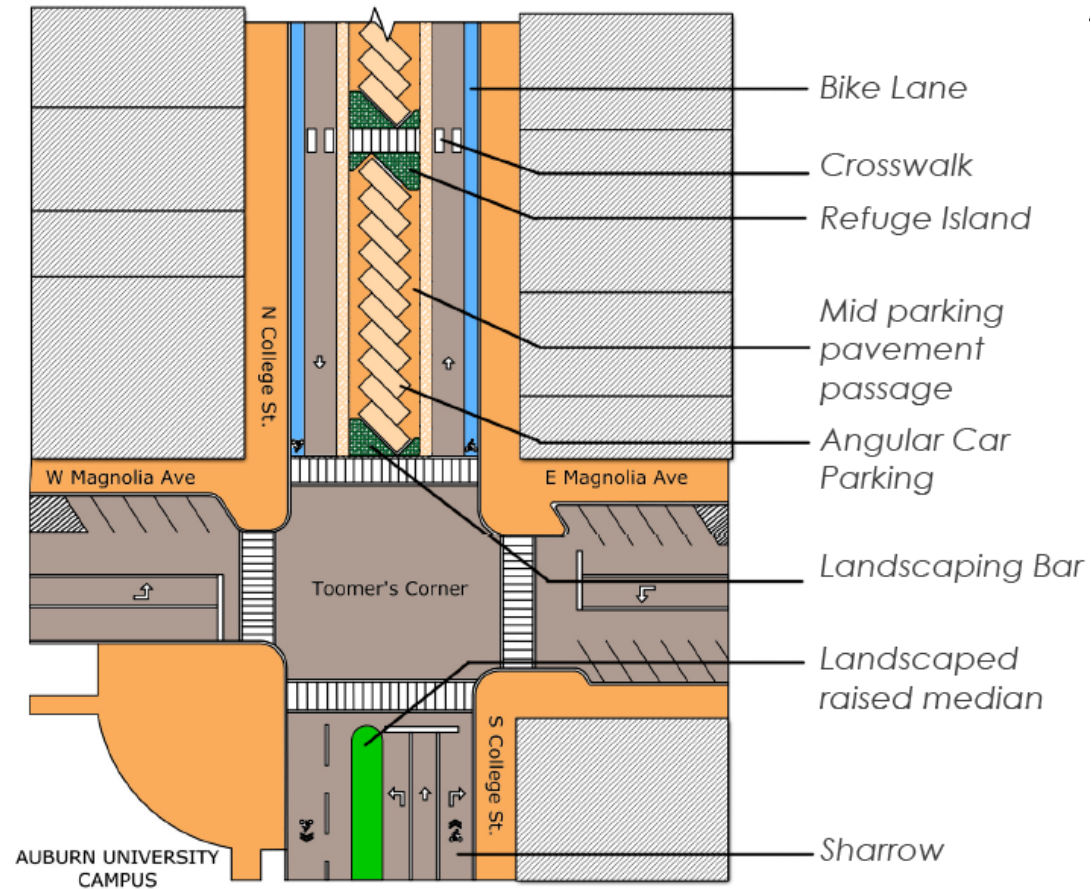
# Downtown- Magnolia and College St.

Proposed

Bike lanes to continue from Thach intersection  
Center median parking  
Sharrows



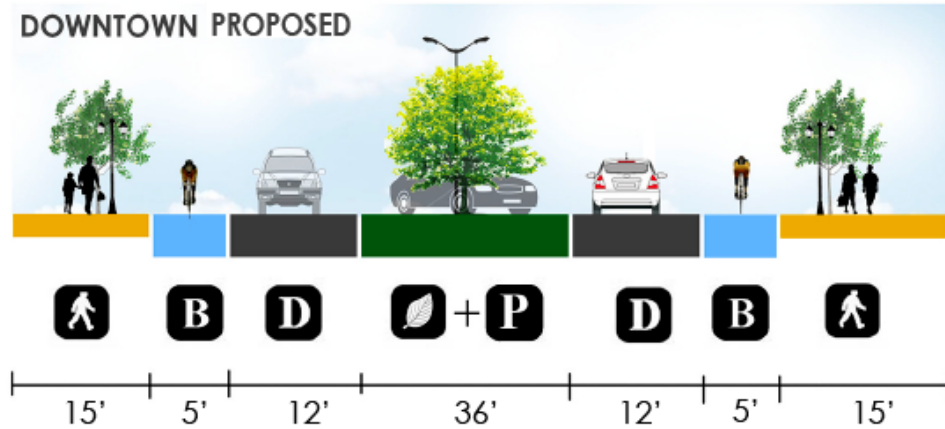
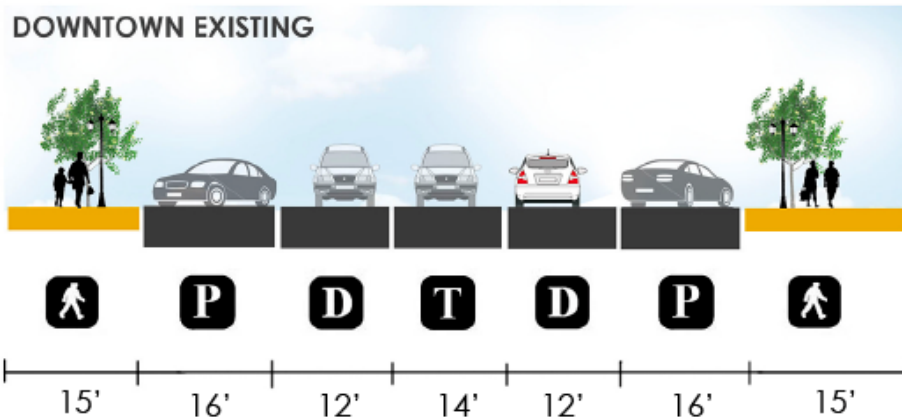
EXISTING



PROPOSED

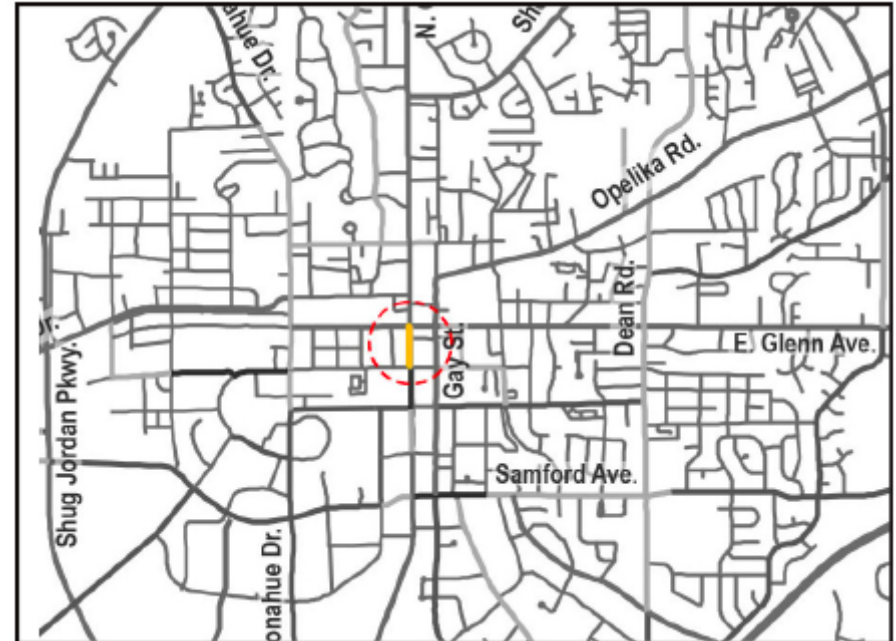


# Downtown- Magnolia and College St.



Why:

- Center parking helps provide a refuge island for pedestrians crossing the street, as well as an opportunity for landscaping.
- Taking out side parking provides room for bike lanes as well as prevents dooring.
- Promotes a complete street design





Source: Philly Mag, 2015

As an innovative change for downtown Auburn, we propose the use of mid street parking. Mid street parking can be utilized in downtown areas to open up street fronts and eliminate dooring issues for bikers as well as providing a refugee island for pedestrians trying to cross.

# POLICY RECOMMENDATIONS

GRASP LIFE BY THE HANDLEBARS





# ACHIEVING THE SILVER RANKING

## **Achieving silver in ENCOURAGEMENT:**

- Bike to work and bike month events must have a “good” rating.
- Active bicycle advisory committee must be present.
- Active bike clubs and signature events must be present.

## **Achieving silver in ENFORCEMENT:**

- Law enforcement must be present
- There must be “some” bicycle friendly laws/ ordinances in place.

## **Achieving silver in EDUCATION:**

- Must have at least 2 adult bicycling skill classes offered annually.
- Public education out reach must be in “good” standing.
- 43% of secondary schools must offer bicycle education.





# EDUCATION PROPOSALS

Children should become aware of bike safety by:

- Guest speakers in schools
- Bike safety videos
- Have primary or secondary schools incorporate bike education into the curriculum.



Encourage adult cyclists :

- Make the population more aware of the Auburn bicycle safety program
- Helmet distribution programs

Public service announcements:

- Use public service announcement campaigns to target motorist, bicyclist and pedestrian to educate the public on safe roadway behavior.
- Dedicated city webpage on bicycle education
- Required short bike educational video to be watched and passing an online quiz before receiving auburn university bike permit.
- Have the city of auburn offer public education on bike education to all road users at least twice a year.

# ENFORCEMENT PROPOSALS

- Educate police officers on the laws regarding cycling.
- Lay out what a cyclist must have on their bike
- Voluntarily register bicycles
- Security cameras
- Increase enforcement of bicyclist and motorist behavior

City Ordinance		
Fine	Section	
\$271.00	22-11	No one shall ride a bike on the sidewalks of Downtown Auburn.
\$164.00	22-11	No one shall park their bicycle in Downtown Auburn, except in bicycle parking racks.
\$256.00	13-11	All bicycles must have an operating headlight on the front of their bicycle and reflectors on the front and rear spokes of the wheels and pedals.
State Laws		
\$164.00	32-5A-260	Every person riding a bicycle upon a roadway shall be granted all of the rights and shall be subject to all of the duties applicable to the driver of a vehicle.
\$164.00	32-5A-263	(a) Every person operating a bicycle upon a roadway shall ride as near to the right side of the roadway as practicable. (b) Persons riding bicycles upon a roadway shall not ride more than two abreast except on paths or parts of roadways set aside for the exclusive use of bicycles. (c) Wherever a usable path for bicycles has been provided adjacent to a roadway, bicycle riders shall use such path and not use the roadway.
\$164.00	32-5A-265	Every bicycle when in use at nighttime shall be equipped with a lamp on the front which shall emit a white light visible from a distance of at least 500 feet to the front and with a red reflector on the rear which shall be visible from all distances from 100 feet to 600 feet to the rear. A lamp emitting a red light visible from a distance of 500 feet to the rear may be used in addition to the rear reflector.
\$164.00	32-5A-261	No bicycle shall be used to carry more persons at one time than the number for which it was designed.
\$164.00	32-5A-262	No person riding a bicycle shall attach themselves or the bicycle to any vehicle upon a roadway.
\$164.00	32-5A-264	No person operating a bicycle shall carry anything which prevents the driver from keeping at least one hand on the handlebars.

# ENCOURAGEMENT PROPOSALS

- Provide the locations and other information of bike shops.
- Safe routes to schools program
- Develop online bicycle route way-finding program. Consider creating an app.
- Support efforts to obtain funding for bicycle education and enforcement programs.
- School bicycle poster contest - use one of the winning posters to publicize bike encouragement or a future bike event.
- Bicycle art exhibit – incorporate an area where people paint and decorate bicycles so that they become art.

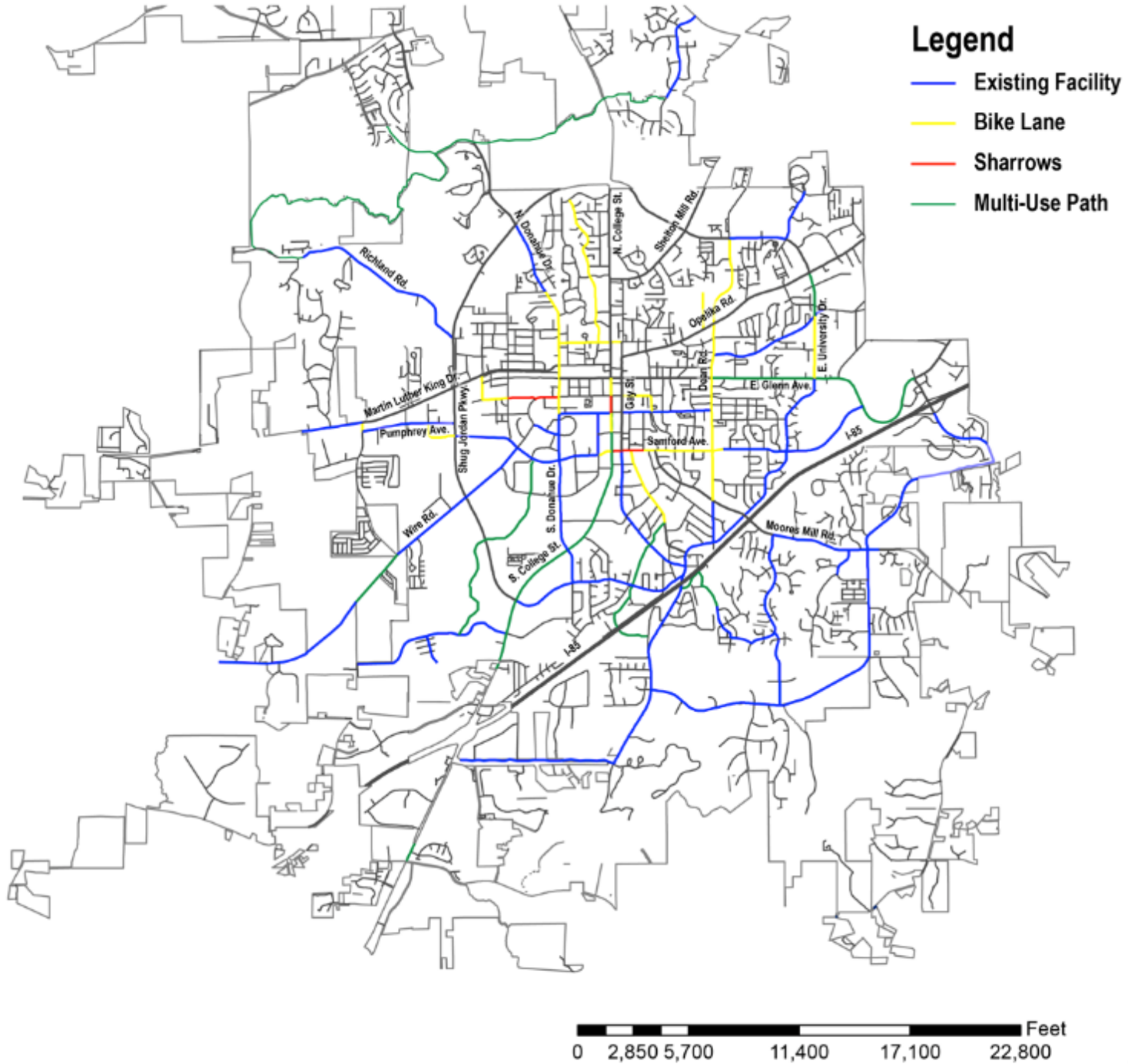


# CONCLUSION

START PEDALING







# Existing Bicycle Level of Service (BLOS)

Data Source: City of Auburn GIS

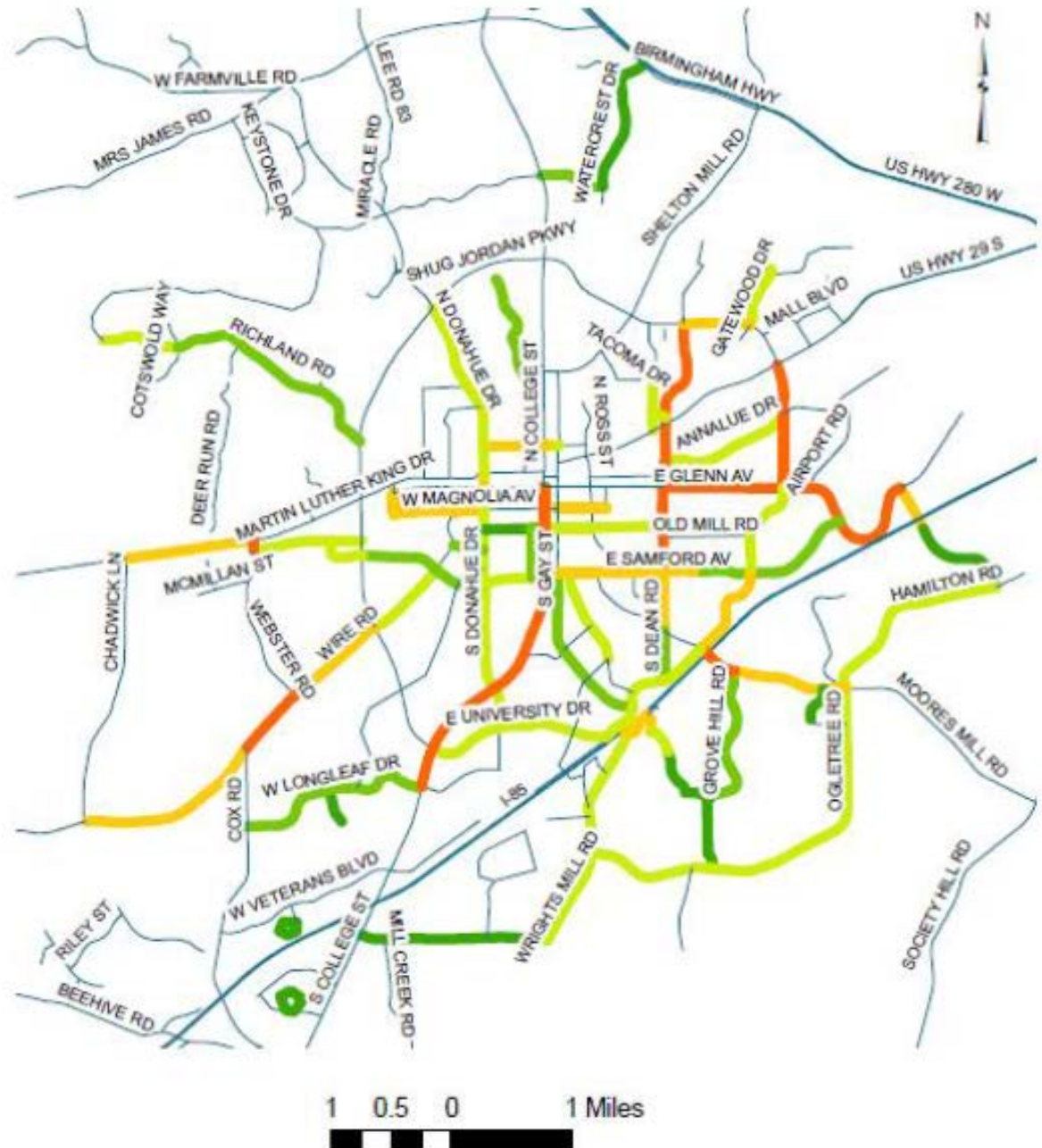
Date: 12/2/2015

## Major Roadways

— Road

## LOS

- █ A
- █ B
- █ C
- █ D
- █ E
- █ F



# Proposed Bicycle Level of Service (BLOS)

Data Source: City of Auburn GIS

Date: 12/2/2015

## Major Roadways

— Road

## Proposed LOS

- █ A
- █ B
- █ C
- █ D
- █ E
- █ F



# QUESTIONS?

THANK YOU FOR YOUR TIME!

