

CENTERVILLE CITY COUNCIL AGENDA

NOTICE IS HEREBY GIVEN THAT THE CENTERVILLE CITY COUNCIL WILL HOLD A SPECIAL PUBLIC MEETING AT 8:00 PM ON AUGUST 25, 2016 AT THE CENTERVILLE CITY COMMUNITY CENTER AND CITY HALL COUNCIL CHAMBERS, 250 NORTH MAIN STREET, CENTERVILLE, UTAH. THE AGENDA IS SHOWN BELOW.

Meetings of the City Council of Centerville City may be conducted via electronic means pursuant to Utah Code Ann. 52-4-207, as amended. In such circumstances, contact will be established and maintained via electronic means and the meeting will be conducted pursuant to the Electronic Meetings Policy established by the City Council for electronic meetings.

Centerville City, in compliance with the Americans With Disabilities Act, provides accommodations and auxiliary communicative aids and services for all those citizens in need of assistance, including hearing devices. Persons requesting these accommodations for City-sponsored public meetings, services, programs, or events should call Blaine Lutz, Centerville Finance Director, at 295-3477, giving at least 24 hours notice prior to the meeting.

A notebook containing supporting materials for the business agenda items is available for public inspection and review at City Hall and will be available for review at the meeting. Upon request, a citizen may obtain (without charge) the City Manager's memo summarizing the agenda business, or may read this memo on the City's website: <http://centerville.novusagenda.com/agendapublic>.

7:00 A. ROLL CALL

Joint City Council/Trails Committee meeting to discuss bike lanes

B. BUSINESS

1. Bicycle Master Plan discussion
Discussion of proposed amendments to the General Plan relating to bicycle and non-motorized vehicle pathways, including proposed bicycle routes/lanes on City roadways
2. Joint Trails Committee/City Council discussion and recommendation for lane striping on Main south of Parrish

C. ADJOURNMENT

Marsha L. Morrow, MMC
Centerville City Recorder

CENTERVILLE

**Staff Backup Report
8/25/2016**

Item No.

Short Title: Joint City Council/Trails Committee meeting to discuss bike lanes

Initiated By:

Scheduled Time:

SUBJECT

RECOMMENDATION

BACKGROUND

CENTERVILLE

Staff Backup Report 8/25/2016

Item No. 1

Short Title: Bicycle Master Plan discussion

Initiated By:

Scheduled Time:

SUBJECT

Discussion of proposed amendments to the General Plan relating to bicycle and non-motorized vehicle pathways, including proposed bicycle routes/lanes on City roadways

RECOMMENDATION

BACKGROUND

In one of their recent meetings, the City Council discussed proposed General Plan amendments pertaining to bicycle pathways, including a proposed master plan showing the location of current and proposed bike lanes in the City. This matter was initiated by the City Trails Committee, and had been forwarded by the Planning Commission to the City Council with a recommendation to approve. Several Council Members, however, requested an opportunity to discuss the recommended amendments and proposed bike lane routes with the Trails Committee before taking action on the recommendation. Therefore, the City Council will meet with the Trails Committee during the Committee's regular meeting on August 25 to ask questions and discuss the content of the proposed General Plan text amendments as well as the map showing proposed bike lanes. Relevant documents are attached.

The City Council will discuss with the Trails Committee this matter as well as the next matter showing on the agenda. The Council will then be excused while the Trails Committee continues to meet for other business.

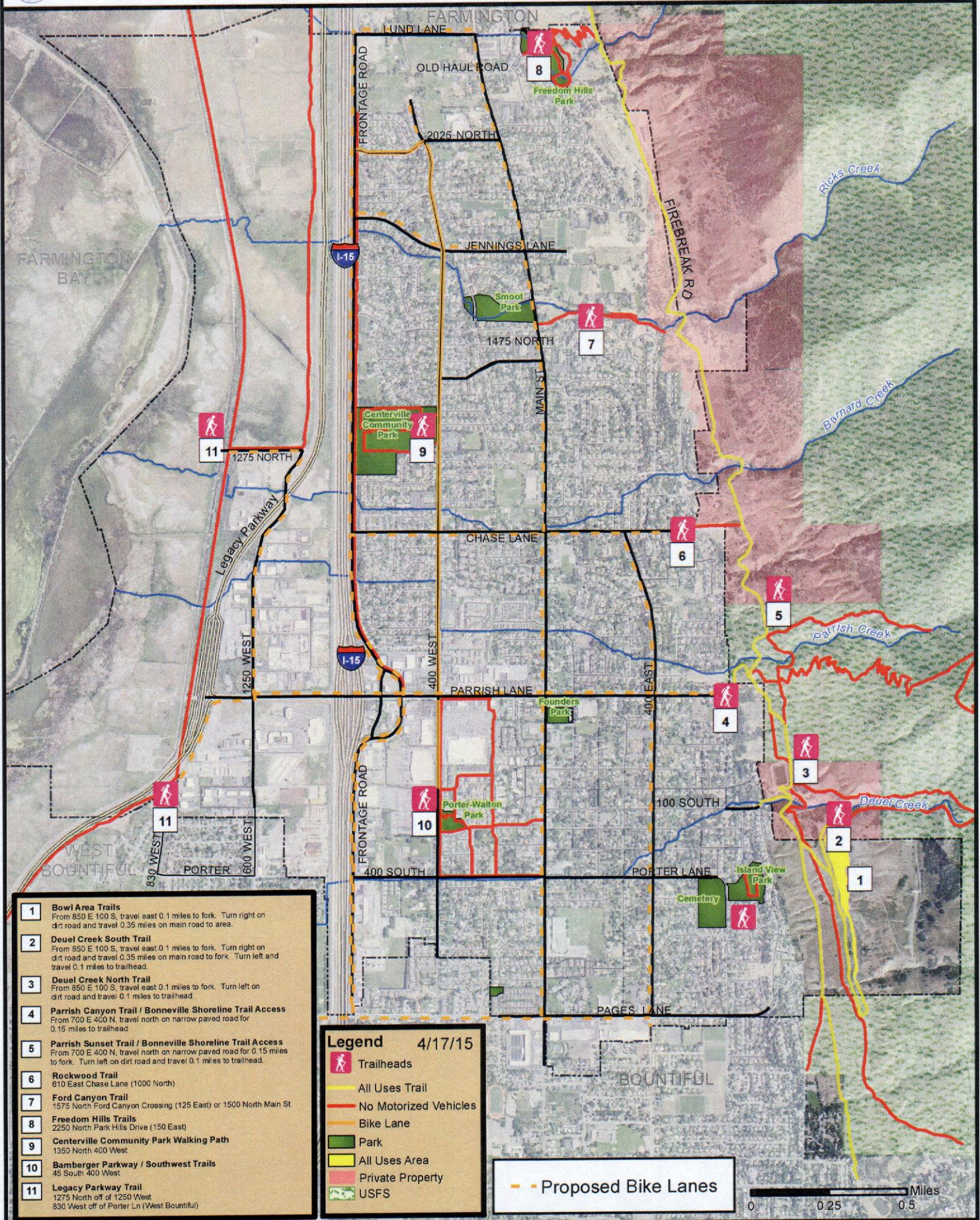
ATTACHMENTS:

Description

- ☐ Parks and Trails Proposed Bike Lanes
- ☐ Ordinance No. 2016-21
- ☐ City Attorney's suggested changes to 12-450-3
- ☐ 7-19-2016 City Council meeting minutes re GP Amendments



CENTERVILLE PARKS AND TRAILS & PROPOSED BIKE LANES



- 1 Bowl Area Trails**
From 850 E 100 S, travel east 0.1 miles to fork. Turn right on dirt road and travel 0.35 miles on main road to area.
- 2 Deuel Creek South Trail**
From 850 E 100 S, travel east 0.1 miles to fork. Turn right on dirt road and travel 0.35 miles on main road to fork. Turn left and travel 0.1 miles to trailhead.
- 3 Deuel Creek North Trail**
From 850 E 100 S, travel east 0.1 miles to fork. Turn left on dirt road and travel 0.1 miles to trailhead.
- 4 Parrish Canyon Trail / Bonneville Shoreline Trail Access**
From 700 E 400 N, travel north on narrow paved road for 0.15 miles to trailhead.
- 5 Parrish Sunset Trail / Bonneville Shoreline Trail Access**
From 700 E 400 N, travel north on narrow paved road for 0.15 miles to fork. Turn left on dirt road and travel 0.1 miles to trailhead.
- 6 Rockwood Trail**
610 East Chase Lane (1000 North)
- 7 Ford Canyon Trail**
1575 North Ford Canyon Crossing (125 East) or 1500 North Main St
- 8 Freedom Hills Trails**
2250 North Park Hills Drive (150 East)
- 9 Centerville Community Park Walking Path**
1350 North 400 West
- 10 Bamberger Parkway / Southwest Trails**
45 South 400 West
- 11 Legacy Parkway Trail**
1275 North off of 1250 West
830 West off of Porter Ln (West Bountiful)

Legend 4/17/15

Trailheads

All Uses Trail

No Motorized Vehicles

Bike Lane

Park

All Uses Area

Private Property

USFS

Proposed Bike Lanes



ORDINANCE NO. 2016-21

AN ORDINANCE AMENDING SECTION 12-450-3 OF THE CENTERVILLE GENERAL PLAN REGARDING BICYCLE AND NON-MOTORIZED VEHICLE PATHWAYS AND ADOPTING AN UPDATED CENTERVILLE TRAILS MASTER PLAN MAP AS REFERENCED IN SECTION 12-460-2 OF THE SAME

WHEREAS, the Trails Committee requests and recommends amendments to Section 12-450-3 of the Centerville General Plan regarding bicycle and non-motorized vehicle pathways in the City and amendments and updates to the Centerville Trails Master Plan Map as referenced in Section 12-460-2 of the same; and

WHEREAS, the proposed amendments and revisions to Section 12-450-3 and Section 12-460-2 of the Centerville General Plan regarding bicycle and non-motorized vehicle pathways and the Centerville Trails Master Plan Map have been reviewed by the Planning Commission and the Planning Commission recommends approval of the proposed amendments; and

WHEREAS, City Council has determined that the proposed amendments to the General Plan as recommended by the Trails Committee and the Planning Commission are consistent with the goals, objectives and policies of the Centerville General Plan and are in the best interest of the City and the public to provide updated language and maps for City trails and bicycle and non-motorized pathways; and

WHEREAS, the proposed amendments to the General Plan as set forth herein have been reviewed by the Planning Commission and the City Council and all appropriate public notices have been provided and appropriate public hearings have been held in accordance with Utah law to obtain public input regarding the proposed revisions to the General Plan.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF CENTERVILLE CITY, STATE OF UTAH, AS FOLLOWS:

Section 1. Amendment. Section 12-450-3 of the Centerville General Plan regarding Bicycle and Non-Motorized Vehicle Pathways is hereby amended to read in its entirety as follows.

12-450-3. Bicycle and Non-Motorized Vehicle Pathways

The goal would be to make every street a safe place to ride and the City a bicycle community. Bicycling in the City should promote, increase, improve, and enhance riding in the City as a safe, healthy, and enjoyable means of transportation and recreation. The Trails Committee desires to make the City a supportive environment for cyclists through establishing the following:

- More biking lanes to increase, improve and enhance bicycling
- Introduce signage, pavement markings, or even traffic diverters, to create bike friendly streets
- Supportive law enforcement and education programs ensures that motorists and bicyclists alike are adhering to and are knowledgeable on the traffic laws

- Create and maintain a bikeways map that is downloadable via the City website that illustrates the current and potential future travel: Bike Paths (Class I); bikeway that provide bicycle travel on a paved right-of-way completely separated from any street or highway, Bicycle Lanes (Class II) bikeway providing a striped and stenciled lane for one-way travel on a street or highway, and Bicycle Routes and Bike Friendly Streets (Class III); bikeway provides for shared use with pedestrian or motor vehicle traffic and is identified only by signing

Due to the City's unique geography many bicycle events pass through the City. Therefore, it is important to establish links to bicycle paths, lanes and routes with neighboring cities. Create safe places to lock bicycles up both at the beginning and end of a trip. Include requirements in new business facility development to include bicycle racks and bicycle maintenance stands with integrated tools.

In some cases, infrastructure solutions alone cannot solve all of the problems that bicyclists encounter. Infrastructure modifications may not always be necessary to create a supportive environment for bicyclists. Integrating engineering approaches with education, enforcement, and encouragement programs multiplies the benefits to bicyclists.

~~Despite attention given to bicycles as an alternative means of regular transportation in recent years, the bicycle today is still used primarily for recreation. Because of the frequent conflicts and problems that result from bicycle-sharing street rights-of-way, Centerville City has determined it best to not encourage Class III bikeways, where the bikeway is on the automobile right-of-way with only signs and stripes on the pavement indicating the bikeway. Public funding for bikeways in Centerville City should only be for Class I and II bikeways, where they are physically separated from the automobile rights-of-way. Such a bikeway could be developed as a part of the buffer strip recommended along the Frontage Road, or as part of a linear park along Ricks Creek. The City should actively support the implementation of a Class I or Class II bikeway/pedestrian pathway from the east side the Interstate to the future Legacy Parkway trail system west of Interstate 15. This pathway needs to be properly incorporated into the expanded overpass for Centerville City at Parrish Lane that will be build during the reconstruction of Interstate 15. The overpass should be planned to be sufficiently wide to properly accommodate the bikeway/pathway including appropriate separation or barriers along with other surface improvements.~~

Section 2. Amendment. The Centerville Trails Master Plan Map as referenced in Section 12-460-2 of the Centerville General Plan regarding Trails is hereby amended and replaced with the updated map set forth in Exhibit A attached hereto and incorporated herein by reference.

Section 3. Severability. If any section, part or provision of this Ordinance is held invalid or unenforceable by a court of competent jurisdiction, such invalidity or unenforceability shall not affect any other portion of this Ordinance, and all sections, parts and provisions of this Ordinance shall be severable.

Section 4. Omission Not a Waiver. The omission to specify or enumerate in this ordinance those provisions of general law applicable to all cities shall not be construed as a waiver of the benefits of any such provisions.

Section 5. Effective Date. This Ordinance shall become effective immediately upon publication or posting, or thirty (30) days after passage, whichever occurs first.

**PASSED AND ADOPTED BY THE CITY COUNCIL OF CENTERVILLE CITY,
STATE OF UTAH, ON THIS 19th DAY OF JULY, 2016.**

ATTEST:

CENTERVILLE CITY

Marsha L. Morrow, City Recorder

By: _____
Mayor Paul A. Cutler

Voting by the City Council:

	"AYE"	"NAY"
Councilmember Fillmore	_____	_____
Councilmember Ince	_____	_____
Councilmember Ivie	_____	_____
Councilmember McEwan	_____	_____
Councilmember Mecham	_____	_____

CERTIFICATE OF PASSAGE AND PUBLICATION OR POSTING

According to the provisions of the U.C.A. § 10-3-713, as amended, I, the municipal recorder of Centerville City, hereby certify that foregoing ordinance was duly passed by the City Council and published, or posted at: (1) 250 North Main; (2) 655 North 1250 West; and (3) RB's Gas Station, on the foregoing referenced dates.

MARSHA L. MORROW, City Recorder

DATE: _____

RECORDED this ____ day of _____, 2016.

PUBLISHED OR POSTED this ____ of _____, 2016.

Exhibit A

Centerville Trails Master Plan Map

City Attorney Suggested Changes to
Trails Committee and Planning Commission Version
July 15, 2016

12-450-3. Bicycle and Non-Motorized Vehicle Pathways

~~The goal would be to make every street a safe place to ride and the City a bicycle community.~~ Centerville should strive to become a bicycle friendly community. Bicycling in the City should promote, increase, improve, and enhance riding in the City as a safe, healthy, and enjoyable means of transportation and recreation. The Trails Committee desires to make the City a supportive environment for cyclists through establishing the following:

- Provide m~~ore~~ biking lanes to increase, improve and enhance bicycling
- Introduce signage, and pavement markings, ~~or even traffic diverters,~~ to create bike friendly streets
- Provide s~~upportive~~ law enforcement and education programs to assist ~~ensures that~~ motorists and bicyclists alike to become ~~are adhering to and are~~ knowledgeable of ~~on the~~ traffic laws and to encourage adherence to such traffic laws
- Create and maintain a bikeways map that is downloadable via the City website that illustrates the current and potential future travel for the following classification of bicycle paths: (1) Bike Paths (Class I); defined as bikeways that provide bicycle travel on a paved right-of-way completely separated from any street or highway; (2) Bicycle Lanes (Class II) defined as bikeways that provide ~~providing~~ a striped and stenciled lane for one-way bike travel on a street or highway adjacent to motor vehicle travel; and (3) Bicycle Routes and Bike Friendly Streets (Class III); defined as bikeways that provides for shared use with pedestrian or motor vehicle traffic ~~and is~~ identified only by signing.

Due to the City's unique geography many bicycle events pass through the City. Therefore, it is important to establish links to bicycle paths, lanes and routes with neighboring cities, and to create ~~Create~~ safe places to lock bicycles up both at the beginning and end of a trip. The City should consider adopting ~~Include~~ requirements for ~~in new commercial business facility~~ developments to include bicycle racks and bicycle maintenance stands with integrated tools.

In some cases, infrastructure solutions alone cannot solve all of the problems that bicyclists encounter. Infrastructure modifications may not always be necessary to create a supportive environment for bicyclists. Integrating engineering approaches with education, enforcement, and encouragement programs multiplies the benefits to bicyclists.

1 from a public protection point of view, as well as the impact on citizens trying to supplement
2 their food supply through gardening.

3
4 Marian Jensen – Ms. Jensen commented that deer seem to be everywhere, and she
5 would appreciate anything the City can do to bring the urban deer population under control.

6
7 Bill Rigby – Mr. Rigby said the urban deer are a huge problem, and he is excited about
8 the archery option. The deer are not scared of people. He stated he would appreciate any and
9 all help to at least thin the herd.

10
11 The Mayor closed the public hearing at 7:38 p.m. Chad Wilson with the DWR stated it is
12 his understanding that the archery option has made a huge difference in Highland City. Mr.
13 Albiston stated he participated in the archery program in Highland, and explained the positive
14 outcome resulting from the predator/prey situation. Mr. Wilson commented that the earlier the
15 City begins the program, the more confidence they can have that resident deer are targeted.

16
17 Mayor Cutler briefly reopened the public hearing, and Mr. Hancey encouraged the
18 Council to consider the archery option over the trapping option. He commented that setting the
19 traps is time consuming and expensive, and archers would be able to eliminate the problem
20 quickly.

21
22 Councilwoman Fillmore said she would prefer to give property owners multiple options
23 by leaving the trapping option in place, and she would not be opposed to sticking with the 50/50
24 cost-share despite the increased cost. Mayor Cutler agreed that multiple options give property
25 owners flexibility. Councilman McEwan stated he thinks archery will be the quickest and most
26 successful option. He is in favor with the condition that shots are ethical and safe. Mr. Wilson
27 advised that DWR regulations only allow residents to be charged up to \$50 of the relocation fee,
28 and relocation is not worth the time and expense if only a few deer are relocated. Mayor Cutler
29 suggested relocation could remain an option to be managed within constraints set by the DWR.

30
31 Councilman McEwan made a **motion** to approve proposed amendments to the City's
32 Urban Deer Control Plan to add archery as an approved method for lethal deer removal, and
33 changing the language for the relocation option to indicate the City will pay \$150 of the \$200 per
34 deer relocation fee, with applying property owners responsible for \$50. Councilwoman Ivie
35 seconded the motion, which passed by majority vote (4-1), with Councilwoman Mecham
36 dissenting. Councilwoman Mecham said she knows something needs to be done, but she is
37 looking into other options.

38
39 **PUBLIC HEARING – GENERAL PLAN AMENDMENTS – BICYCLE & NON-**
40 **MOTORIZED VEHICLE PATHWAYS AND TRAILS MASTER PLAN MAP**

41
42 The Planning Commission has reviewed and recommended approval of the proposed
43 amendments to the General Plan regarding bicycle and non-motorized paths and the Centerville
44 Trails Master Plan Map. Existing language in the General Plan discourages certain classes of
45 bike lanes within the city. The proposed amendments would update the Plan to be consistent
46 with current goals of the Trails Committee.

47
48 At 7:56 p.m. Mayor Cutler opened a public hearing, and closed the public hearing seeing
49 that no one wished to comment.

50
51 Referring to the Trails Master Plan Map, Councilman McEwan said he feels it would be
52 asking for trouble to label Parrish Lane a bike trail going over the freeway overpass,
53 encouraging bike traffic in the wrong place. Mr. Thacker commented that the pedestrian bridge

1 is 10-feet wide to accommodate bike traffic as well as pedestrians. Ms. Romney pointed out that
2 the dashed line on the Map at Parrish Lane over the overpass is labeled a "proposed bike lane",
3 meaning the Trails Committee would like for Parrish Lane to have a designated bike trail at
4 some point in the future. Councilman McEwan responded that when UDOT is ready for an
5 overpass rebuild they can look at the possibilities, but he would not want to include even a
6 dashed line on Parrish Lane at this point. As liaison to the Trails Committee, Councilwoman
7 Mecham commented that the Trails Committee was asked to designate where they would
8 someday like to have dedicated bike trails. Mr. Thacker said the Parks and Recreation Director
9 has given him the impression that a dedicated east/west bike lane on Parrish Lane is a high
10 priority for the Trails Committee.
11

12 Councilwoman Fillmore made a **motion** to approve Ordinance No. 2016-21 as
13 presented. The motion died for lack of second. Councilwoman Ivie expressed a desire for the
14 Council to meet with the Trails Committee to discuss their vision. She said she would also like
15 to personally walk the pedestrian bridge and see how it feels. Councilwoman Mecham said she
16 agrees with updating the map, but would like the Council to meet with the Trails Committee to
17 discuss what they want. Mayor Cutler encouraged the Council to support the work done by the
18 Trails Committee and pass the proposed Ordinance. Councilwoman Ivie said that as a former
19 liaison to the Trails Committee she feels the lines were drawn wherever without a lot of thorough
20 consideration. Councilman Ince stated he is extremely frustrated with bicyclists exercising
21 equal right-of-way on roads. He expressed the opinion that society is putting a lot of money into
22 creating bike lanes, and no one uses them. Mr. Snyder pointed out that Maverik is building a
23 bicycle facility partially funded by the City as a trail connection on the corner of Parrish Lane and
24 1250 West. He said he thinks most people recognize that the pedestrian bridge is shared-use,
25 and advised the Council to remember State vehicle motor laws and the regional efforts and
26 funding being put into improving alternative transportation safety. Councilwoman Ivie stated she
27 is not a biker, so it would be beneficial to meet with the Trails Committee to discuss how to
28 present information to the biking community. Mayor Cutler said he would like to include
29 information in the City newsletter regarding safely sharing roadways.
30

31 Councilman McEwan stated he cannot support the proposed language because it
32 includes encumbering new businesses with the expense of bike stands and other elements. He
33 expressed the opinion that a hobby should not become the responsibility of business owners to
34 support. Mr. Snyder responded that those elements are required in the Parrish Lane Guidelines
35 and the Main Street Plan. He said he gets the sense that an irritation is overriding the balance
36 of decisions that have already been made. Mr. Snyder reminded the Council that State laws are
37 in place that govern bikers' rights. Ms. Romney pointed out that the proposed language only
38 suggests the City should look at adopting zoning ordinances that are more specific to bike
39 elements. Councilwoman Mecham stated she trusts the Trails Committee, and would like the
40 Council to meet with the Trails Committee for discussion and understanding. Mr. Thacker
41 commented that the Council already has work sessions scheduled for the next three months.
42 The Council supported the possibility of meeting with the Trails Committee during the
43 Committee's regular meeting in August. Councilwoman Mecham made a **motion** to table
44 approval until the Council has a chance to meet with the Trails Committee. Councilwoman Ivie
45 seconded the motion. Chief Child confirmed that bicyclists are allowed on the roadways, but
46 are required to obey every traffic law that a car has to abide by. He agreed that mixing bicycle
47 and automobile traffic on the overpass would not be a good idea, and added that there will be
48 far less pedestrian traffic on the pedestrian bridge than automobiles on the overpass. The Chief
49 also pointed out that pedestrian and bicycle traffic is already mixed on the Legacy Parkway
50 Trail. The motion to table passed by unanimous vote (5-0).
51

CENTERVILLE

Staff Backup Report 8/25/2016

Item No. 2.

Short Title: Joint Trails Committee/City Council discussion and recommendation for lane striping on Main south of Parrish

Initiated By: City Council

Scheduled Time:

SUBJECT

RECOMMENDATION

The City Council and Trails Committee should agree on the widths of vehicle travel lanes and bike lanes on Main Street south of Parrish Lane.

BACKGROUND

UDOT offered to add stripes on Main Street through the entire length of the City to define the travel lanes and provide a shoulder that can be used by bicyclists. UDOT has already striped the road segment north of Parrish Lane, but is waiting for the City to tell it how to stripe the segment south of Parrish Lane. In an earlier meeting, the City Council agreed to receive a recommendation from the Trails Committee about the width of vehicle travel lanes and bike lanes in this segment.

UDOT will not stripe official bike lanes this year, but will provide shoulder striping that should enhance the safety of bicyclists using Main Street. UDOT is willing to convert these to official bike lanes in 2018 after they overlay Main Street. At that time UDOT would install signage and pavement markings appropriate to formally designate these as bike lanes. City officials will have the next two years to experiment with the striping to be done this year before having to decide the dimensions of more permanent lane widths for the median, travel lanes and bike lanes in 2018.

The City Engineer recommends the vehicle travel lanes be 11 feet wide, leaving a 4 to 5 foot wide bike lane on each side. The gutter pans are not included in the 4 to 5 foot dimension. The asphalt width of Main Street south of Parrish Lane varies between 42 and 44 feet. Therefore, after accounting for the current 12-foot wide median and two 11-foot travel lanes, this would leave 4 to 5 feet of asphalt for bike lanes on each side.

The City Manager asked UDOT for safety data that might help the Council make decisions about the width of travel lanes and bike lanes. UDOT has not responded to that request. Two credible sources have been consulted, however, about the issue of lane widths. The attachment "FHWA--Bicycle Lanes" is an excerpt from Lesson 19 of the FHWA Course on Bicycle and Pedestrian Transportation. Pertinent sections have been highlighted in yellow. In addition, a Trails Committee member provided a link to a publication of the National Association of City Transportation Officials that addresses vehicle lane widths specifically:

<http://nacto.org/publication/urban-street-design-guide/street-design-elements/lane-width/>. These documents appear to support the City Engineer's recommendation of 11-foot travel lanes and 4 to 5 foot bike lanes. In 2018, the City would have the option of narrowing the current 12-foot median and expanding either the travel

lanes or bike lanes.

ATTACHMENTS:

Description

- FHWA - Bicycle Lanes

L E S S O N 19

Bicycle Lanes

19.1 Purpose

The AASHTO *Guide for the Development of Bicycle Facilities* defines a bike lane as “a portion of a roadway which has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.” As levels of bicycling have increased in the United States, there has been a growing amount of support for bike lanes on urban and suburban roadways. Bike lanes are a preferred facility type in European countries, and in North America, nearly every major city has made an effort in recent years to install bicycle lanes, either as “pilot projects” (to test their success) or, in many cases, on larger networks of interconnecting roadways. Several small towns have led the way in establishing networks of bicycle lanes, particularly college towns where there are high levels of student bicycle commuters (e.g., University of California at Davis and University of Texas at Austin).

As a relatively new feature in the roadway cross-section, bike lane design has been the topic of much study in recent years. Bike lane design can be quite challenging in situations where the existing urban traffic patterns are complex and cross-sections are already constrained by heavy traffic

volumes. Designers throughout the country develop new and better solutions each year. This section includes excerpts from several sources, including Oregon's 1995 *Bicycle and Pedestrian Plan* and Philadelphia's *Bicycle Network Plan*.

Note: The Europeans have pioneered innovative bike lane design solutions. Lesson 22 includes a description of European approaches that have been successful.

As with the other bicycle facility design issues covered in this manual, bike lane design is covered in



some detail by the AASHTO *Guide for the Development of Bicycle Facilities*. This text should be referenced for additional information.

19.2 Bicycle Lane Widths and Construction Standards

Bicycle lanes serve the needs of all types of cyclists in urban and suburban areas, providing them with their own travel lane on the street surface. The minimum width of a bike lane should be 1.5 meters (5 feet) against a curb or adjacent to a parking lane. On streets where the bike lane is adjacent to the curb and the curb includes a 1-foot to 2-foot gutter pan, bike lanes should be a minimum of 4 feet wide (width does not include the gutter pan, since bicyclists are typically unable to use this space).

Wider bike lanes are recommended on streets with higher motor vehicle speeds and traffic volumes, or where pedestrian traffic in the bike lane is anticipated. Width measurements are taken from the curb face to the bicycle lane stripe.

Since bicyclists usually tend to ride a distance of 0.8 meters to 1.1 meters (2.5 feet to 3.5 feet) from the curb face, it is very important that the pavement surface in this zone be smooth and free of structures. Drain inlets and manholes that extend into this area cause bicyclists to swerve, having the effect of reducing the usable width of the lane. Where these structures exist and the surface cannot be made smooth, bike

lane width should be adjusted accordingly. Regular maintenance is critical for bike lanes (see text in this section).

Bike lanes should be constructed to normal full-depth pavement standards since motor vehicles will occasionally cross them, or may use them as a breakdown area.

19.3 Unmarked Lanes

Where the minimum widths listed above cannot be met, it may be possible to provide an unmarked lane. Studies have shown that the bicyclist's perceived level of comfort is higher when a striped area is provided; therefore, this method can raise the bicycle level of service for the street. An unmarked lane is a striped area of 0.6 m (2 ft) wide or more that contains no markings or signing that would denote it as a bike lane. "Share the Road" signs may be used to caution motorists to be alert for bicyclists.

It is important to recognize that this is a temporary solution. Particularly on busy streets, narrow unmarked lanes will not adequately serve the needs of the majority of bicyclists.

19.4 Location Within the Street Cross-Section

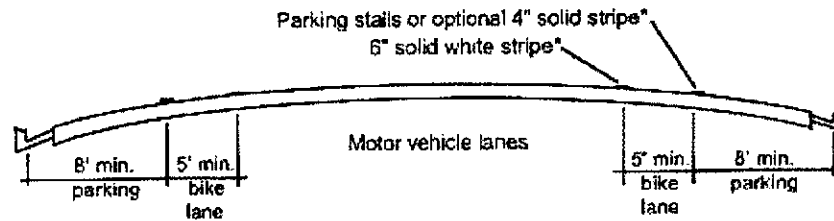
Bicycle lanes are always located on both sides of the road on two-way streets. Since bicyclists must periodically merge with motor vehicle traffic, bike lanes should not be separated from other motor vehicle lanes by curbs, parking lanes, or other obstructions. Two-way bike lanes on one side of two-way streets create hazardous conditions for bicyclists and are not recommended.

On one-way streets, bicycle lanes should be installed on the right-hand side, unless conflicts can be greatly reduced by installing the lane on the left-hand side. Left-side bicycle lanes on one-way streets may also be considered where there are frequent bus or trolley stops, unusually high numbers of right-turning motor vehicles, or if there is a significant number of left-turning bicyclists.



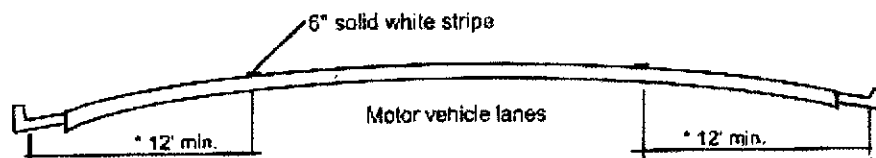
As a temporary solution, striping narrow lanes through intersections may be an option where space is limited.

(1) Striped parking



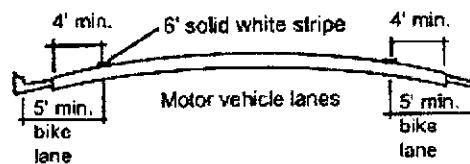
* The optional solid stripe may be advisable where stalls are unnecessary (because parking is light) but there is concern that motorists may misconstrue the bike lane to be a traffic lane.

(2) Parking permitted without parking stripe or stall

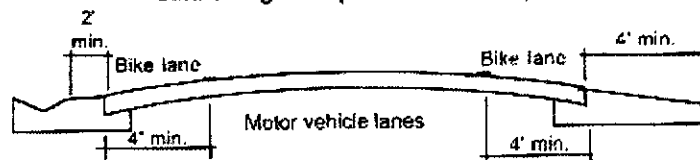


* 13' is recommended where there is substantial parking or turnover of parked cars is high (e.g., commercial district).

(3) Parking prohibited



(4) Cross section on roads with no curb and gutter (source: NCDOT)



Bicycle lanes provided under different types of conditions. Source: AASHTO Guide for the Development of Bicycle Facilities, 1991.