

City Council Staff Report



Subject: Shared Lane Markings for Bicycles on Roadways (Sharrows)
Author: Heinrich Deters
Department: Sustainability Department
Date: July 10, 2014
Type of Item: Informational

Summary Recommendations:

Staff recommends Council direct staff to implement a one year pilot program for Shared Lane Markings (Sharrows) on public roadways within City limits. Additionally, staff recommends returning to Council after the pilot program has been completed and evaluate the pilot program’s results, effectiveness and criteria.

Topic/Description: City Policy on the use of Shared Lane Markings for Bicycles on Public Streets.

Figure 1: Typical Sharrow Symbol



Background:

The Neighborhood Traffic Management Program (NTMP) is an internal staff committee, comprised of several City Departments, that addresses resident requests related to traffic management concerns and other administrative functions related to traffic, circulation, safety and transportation policy recommendations.

[NTMP Policy and Manual](#)

In November of 2013, City Council received public comment from a Snyderville Basin resident, seeking information associated with the placement of shared lane markings or ‘Sharrows’ along a stretch of SR-224 (Park Avenue) from Kearns Blvd. to Empire Ave. Consistent with the NTMP process, staff presented the item at the December 10, 2013, meeting. The NTMP committee invited the resident to present his concern and discuss next steps. The decision was made to procure a study from a professional traffic engineering firm that would provide a holistic approach and policy direction on the implementation of ‘sharrows’. (Exhibit A- Sharrow Policy)

At the January 14, 2014, NTMP meeting, staff and the consultant from InterPlan, a traffic engineering firm, presented the study to the Committee and requesting resident. The study, which examined federal standards associated with the markings, as well as peer review the City's existing policies on implementation and incorporate those findings into a recommended set of criteria consisting of posted speed limit, road grade, and average daily traffic counts (ADT). Next, the recommended criteria were overlaid on the City's streets plan, creating an exhibit of what streets the 'sharrows' might be implemented within City limits. Per the criteria, the area requested by the resident on Park Avenue was not recommended for 'sharrows'. The study also recommended the City implement a pilot program and document results. The Committee was split on where to implement the proposed pilot program; however, the Committee agreed that the next step would be to present the study at a public open house in the near future, in addition to discussing the study with UDOT.

On March 18, 2014, Staff presented the Sharrow criteria at the City Projects public open house. Approximately twenty people expressed interest in the item. All very supportive of the City having a policy regarding their use and there was a broad understanding of the reasoning behind the criteria (low volume traffic, low speeds). The NTMP applicant requested their use along Park Avenue, which is not supported by the criteria in the report.

At the May 13, 2014, NTMP meeting, staff reconfirmed support for InterPlan's criteria recommendations and recommends the use of a pilot program to collect data applicable to the program and approved the use of the markings on Prospector and Sidewinder Drives. Staff forwarded the InterPlan report to the UDOT Region 2 Director and staff along with the recommendation not to use Sharrows on State Route 224.

Analysis:

A Shared Lane Markings policy is a good complement to existing transportation planning documents, as many similar cities have found them to be effective tools. Sharrows are important in executing contiguous bicycle networks, where existing infrastructure does not allow for more traditional practices.

Although many roadways may have characteristics which are suitable for Sharrows, not all are ideal candidates. When selecting for Sharrow locations, one should look for roadways which contain on-street parking, where there is danger for a cyclist to collide with the open door of a parked car, or roadways with inadequate width to safely allow for parallel travel of a motor vehicle and a bicycle. When possible, traditional bike lanes are preferred as they allow for both bicycles and automobiles to travel unencumbered by each other.

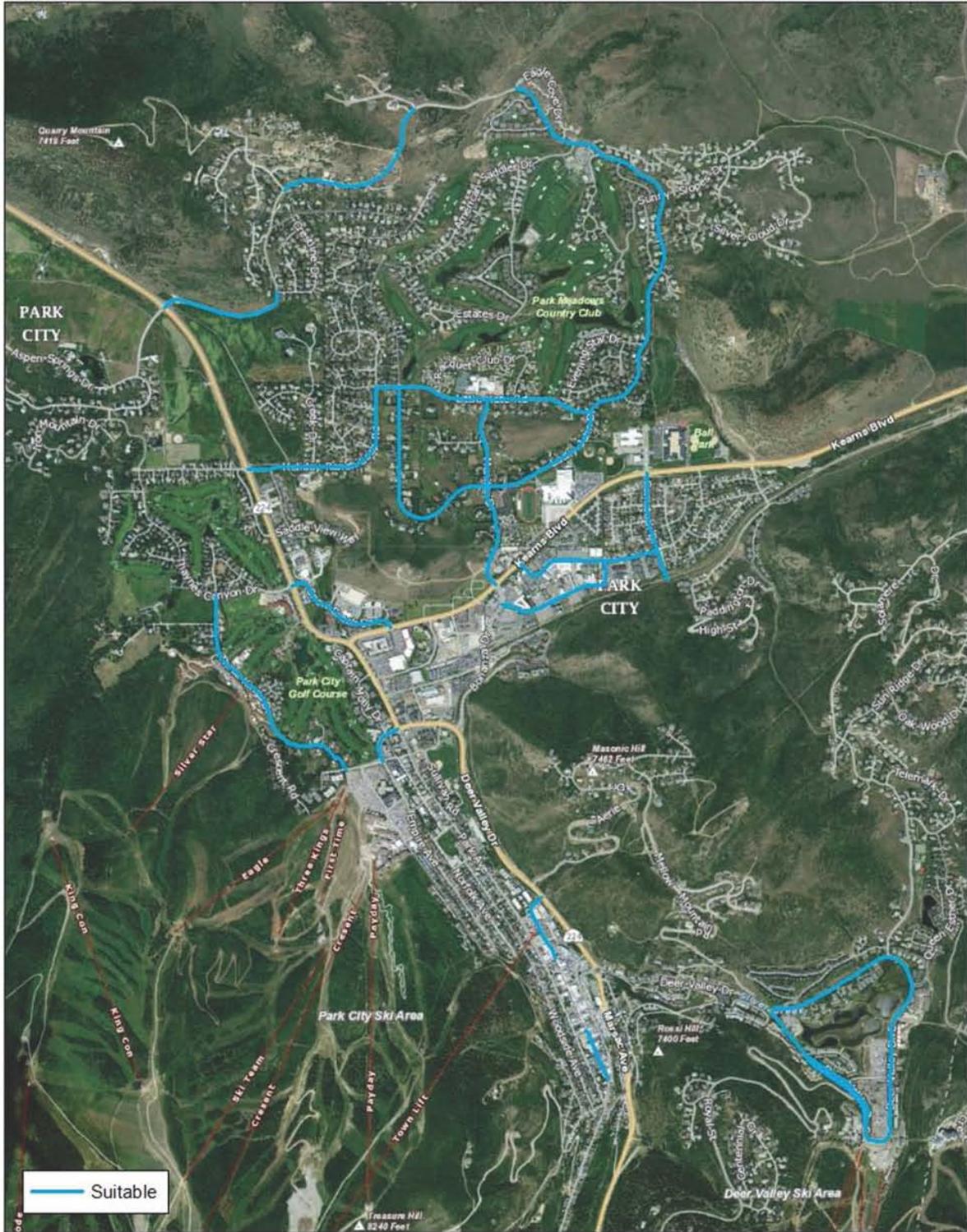
Based on administrative criteria proposed by InterPlan and recommended by staff, a Sharrow may be incorporated into a roadway only:

- When consistent with existing corridor plans (SR-224 & SR-248);
- Where the speed limit does not exceed 25 mph;
- Where the average daily traffic volumes is less than 3,500;

- Where the slope is less than 6 percent.

For sections of roadway where the slope exceeds 6 percent, Sharrows should only be applied on the downhill slope. These should be considered on a case-by-case basis.

A map depicting the recommended roadways is provided below:



Department Review:

This report has been reviewed by the Sustainability, Transit, Streets, Engineering Legal and Executive Departments.

Significant Impacts:

A policy regarding shared lane markings within City limits will allow staff to implement additional bicycle safety measures on roadways.

	World Class Multi-Seasonal Resort Destination (Economic Impact)	Preserving & Enhancing the Natural Environment (Environmental Impact)	An Inclusive Community of Diverse Economic & Cultural Opportunities (Social Equity Impact)	Responsive, Cutting-Edge & Effective Government
Which Desired Outcomes might the Recommended Action Impact?	Accessible and world-class recreational facilities, parks and programs Safe community that is walkable and bike-able	-		Engaged and informed citizenry
Assessment of Overall Impact on Council Priority (<i>Quality of Life Impact</i>)	Positive 	Neutral 	 Neutral 	Positive 
Comments:				

Funding Source:

Funding for the pilot program (Exhibit B, Scope of Services) in the amount of \$7,162 is projected to come from the Neighborhood Traffic Management Fund.

Recommendation:

Staff recommends Council direct staff to implement a one year pilot program for Shared Lane Markings (Sharrows) on public roadways within City limits. Additionally, staff recommends returning to Council after the pilot program has been completed and evaluate the pilot program’s results, effectiveness and criteria.

Exhibits:

Exhibit A-PCMC 2014 Sharrow Policy and Map

Exhibit B- InterPlan Scope of Services for Shared Lane Marking Pilot Program

Exhibit A
Park City Municipal Corporation
Sharrow Policy and Map
January 2014

Introduction

Shared lane markings, increasingly referred to as Sharrows, are sections of road lanes where bicycle right-of-way is physically marked within the driving lane. Sharrows differ from traditional bike lanes in that they are within the driving lane and not parallel to it. Sharrows are typically utilized when road characteristics do not lend themselves to a traditional bike lane, such as narrow sections of road or when parallel street parking is present. Sharrow lanes are also helpful to clearly define the preferred travel path for cyclists and to communicate to drivers to be aware of their presence. Figure 1 shows a typical application of sharrow lanes.

Figure 1: Sharrow lane markings



FHWA Evaluation of Shared Lane Markings (Sharrows)

In December of 2010 the Federal Highway Administration (FHWA) conducted an evaluation of shared lane markings to evaluate their impact on operational and safety measures for bicyclists and motorists. Sharrows were evaluated in three cities, Cambridge, MA, Chapel Hill, NC, and Seattle, WA, to explore the following hypotheses:

- The markings may help indicate a preferred travel path and thereby improve bicyclist positioning relative to parked motor vehicles when riding in shared lanes with on-street parking.
- The markings may help to improve spacing or operations when motorists pass bicyclists on streets both with and without parking
- The marking could improve bicyclist positioning relative to the curb or other hazards along the roadway edge including unsafe drain grates or uneven pavement.
- The markings could be used in a situation where a bicyclist needs to take control of the lane, such as on a section of steep downgrade where more operating space is needed and there is not enough width to provide a sufficiently wide bicycle lane. Another such situation might be on a narrow lane where bicyclists need to move away from the door zone or other hazards.
- The marking may reduce wrong-way and sidewalk riding, which can cause collisions.
- The markings may increase the distance of motor vehicles in the travel lane from parked motor vehicles or from the curb or edge of pavement in the absence of bicyclists, thereby providing more operating space for bicyclists.

Findings of the evaluation showed that usage of Sharrows was high, with between 88% and 97% of riders riding over the markings, when used on flat sections of road both with and without on-street parking. Alternatively, where the Sharrows are placed on steep grades, usage was low, with only 15% of riders riding over the markings. Other findings indicate that Sharrows increase operating space for bicyclists, reduce sidewalk riding and increase safety in variables related to the interactions between bicycles and motor vehicles. In general, conclusions from the study were minimal and it documented a need for further research.

AASHTO Guidelines on Marked Shared Lanes

Included in AASHTO's fourth edition of its Guide for the Development of Bicycle Facilities, is a section on the design of on-road facilities. Included within this section are these guidelines on the proper application of Sharrows (AASHTO 2012, Pages 4-4 – 4-5):

- In a shared lane with adjacent on-street parallel parking, to assist bicyclists with lateral positioning that reduces the chance of a bicyclist impacting the open door of a parked vehicle.
- On wide outside lanes, to indicate more appropriate positioning away from the curb or the edge of the traveled way.
- On a section of roadway with shared lanes, to fill a gap between two sections of roadway that have bike lanes, or to fill a gap between a shared use path and a nearby destination, or other similar connections.
- On a section of roadway where the lanes are too narrow for a bicyclist and motorist to travel side-by-side in the lane.
- On a steep downgrade section of roadway where there is room for only one bike lane. In these situations, a bike lane should be used on the upgrade section due to the bicyclist's slower operating speed moving uphill.
- It may be appropriate to use shared-lane markings, rather than a bike lane, on a steep downgrade section of roadway where bicycle speeds are high and parking is present, since bicyclists may choose not to use a bike lane when traveling at high speeds adjacent to parked vehicles.
- At multilane intersections where there is insufficient width to provide a bike lane, and conflicts make it desirable to indicate proper positioning.
- At transit stops, to provide visual cues to motorists and bicyclists on the correct path to follow.
- Shared-lane markings are not appropriate on paved shoulders or in bike lanes, and should not be used on roadways that have a speed limit above 35 mph. Shared-lane markings should be placed immediately after an intersection and spaced at intervals not greater than 250 ft. thereafter.
- Shared-lane markings should be marked on an alignment that represents a practical path of bicycle travel under typical conditions. For some streets, that may be the center of a shared travel lane. On a one-way street designated as a bicycle route, where the bicycle route makes a

left turn, it may be appropriate to place shared-lane markings on both the outside right and left lanes of the street.

Comparative “Peer Community” Sharrow Policy Overview

In the 2011 Traffic & Transportation Master Plan peer cities were identified for the purposes of demographic comparison. The communities were selected due to their location in the Intermountain West and their existence as recreation-oriented communities. These cities were again looked to, but for the purposes of finding shared lane marking and Sharrow policies which could be used to guide the formulation of Park City’s own guidelines.

Town of Jackson and Teton County, WY

Jackson’s 2013 Bicycle Improvement plan identifies “bicycle boulevards” as a recommended facility type. These “bicycle boulevards” are described as low-volume, low-speed streets modified to enhance bicyclist comfort and feature share-lane markings. Requirements for these boulevards are speeds less than or equal to 25 mph and motor vehicle volumes less than 3,000 vehicles per day.

Crested Butte and Gunnison Area, CO

The City of Gunnison makes reference to the usage of sharrows, but does not provide much guidance surrounding their usage. They state that their usage is to be restricted to “low-volume” streets, however no specifications are provided.

Flagstaff and Coconino County, AZ

Flagstaff’s Zoning Code identifies three classes of bicycle facilities. Class III: Sharrow/Bicycle Boulevard are described as a road shared by bicycles and vehicles and are allowed on streets with a design speed of less than 25 mph.

Breckenridge and Summit County, CO

The town of Breckenridge describes “sharrows” as a shared lane marking used on roads to:

- Assist bicyclists in lateral positioning in a shared lane with on-street parallel parking in order to reduce the chance of a bicyclist impacting the open door of a parked vehicle.
- Assist bicyclists with lateral positioning in lanes that are too narrow for a motor vehicle and bicycle to travel side by side within the same traffic lane.
- Reduce the incidence of wrong-way bicycling
- Encourage safe passing of bicyclists by motorists
- Alert road users of lateral location of bicyclists within the travel lane.

Proposed Park City Sharrow Policy

The goal for the Park City Sharrow Policy is to act as a supplement to the existing documents which guide transportation related decision-making. Two such documents exist: the 2011 Park City Traffic & Transportation Master Plan and the 2008 Park City Trails Master Plan. The Traffic & Transportation Master Plan does have a Non-motorized Vehicles/Trails section, but mainly points to the Trails Master Plan, and does not provide any guidance on Sharrows specifically. The Trails Master Plan does cover shared roadways, the category which Sharrows would fall under, but only looks to signed and unsigned roadways and does not contain guidance on Sharrows or shared lane markings.

The recommended guidance on the usage of Sharrows to be amended to the Park City Traffic & Transportation Master Plan and the Park City Trails Master Plan is as follows:

Although many roadways may have characteristics which are suitable for Sharrows, not all are ideal candidates. When selecting for Sharrow locations, one should look for roadways which contain on-street parking, where there is danger for a cyclist to collide with the open door of a parked car, or roadways with inadequate width to safely allow for parallel travel of a motor vehicle and a bicycle. When possible, traditional bike lanes are preferred as they allow for both bicycles and automobiles to travel unencumbered by each other.

A Sharrow can be incorporated into a roadway only:

- When consistent with existing corridor plans (SR-224 & SR-248)
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- Where the slope is less than 6 percent

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Park City Sharrow Network

Figure 2 shows roadway sections in Park City which are suitable for Sharrows. Blue lines indicate roads with speed limits of 25 mph or less and with an ADT of less than 3,500. A majority of the roads identified already contain either a primary (paved, separated path) or a secondary (striped shoulder) bicycle route (see Figure 6-12 of the Park City Traffic and Transportation Master Plan). These paved separated paths and striped shoulders are typically preferable to a Sharrow style bike route, especially in the absence of on-street parking, and so in most cases should be kept in place. Figure 3 highlights the sections of roads that do not currently contain a primary or secondary bicycle route and are also suitable for a Sharrow lane, as well as sections of road where a secondary route is in place, but a Sharrow lane is preferable. These sections of road could be marked as Sharrows to help supplement the current bicycle network.

Figure 2: Road Segments Suitable for Sharrow Application

Sharrow Lane Suitibility

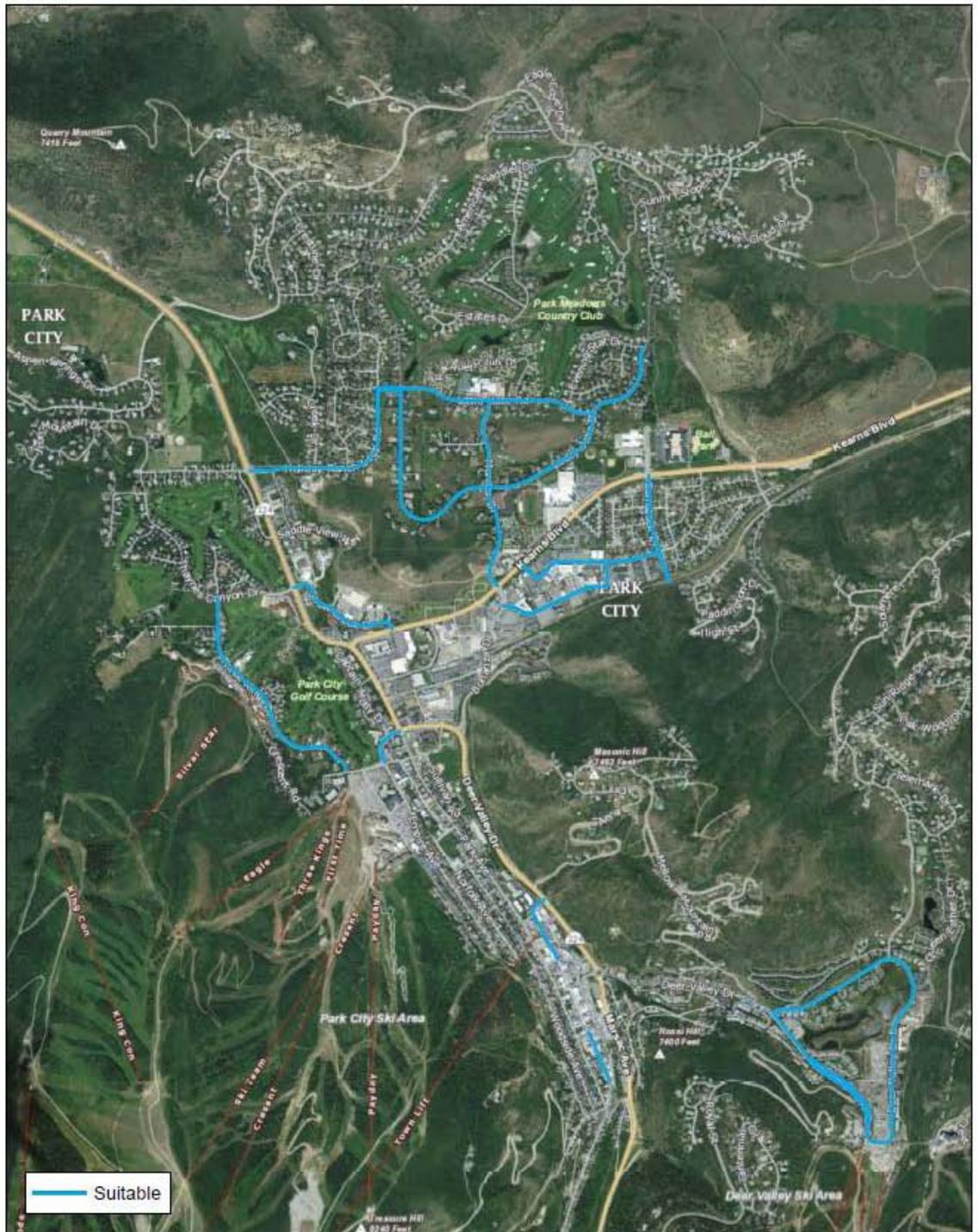


Figure 3: Potential Sharrow Lane Application Sites

