

Washington Park Loop Road Safety Planning

FINAL RECOMMENDATIONS REPORT

CITY AND COUNTY OF DENVER, COLORADO
MARCH 31, 2015

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Table of Contents

Introduction.....	2
Project Goals and Objectives.....	4
Plan Development.....	5
Physical Improvement Recommendations	
Lane Configuration	7
Crosswalks and Mixing Zones.....	10
Vehicular and Parking.....	26
Signage.....	34
Education and Awareness Recommendations.....	38
Regulation and Enforcement Recommendations.....	39
Cost Estimate and Phasing Plan.....	40
Closing Remarks	46
Appendices	
I. Data Gathering Investigations Report and Issue Summary.....	49
II. Copy of Opinion Survey Questions.....	65
III. Plan Selection Process: Decision Matrix	71
IV. Public Process: Meeting Minutes.....	75

INTRODUCTION



Riders of rented surreys often do not know the Loop Road rules and can create hazards for other users.



Some improvements are simply a matter of removing obstacles, such as moving these San-o-lets from the Loop Road to a concrete pad adjacent to the road.

Washington Park is a popular and busy Denver city park with perhaps the highest level of visitation of any park in the City. It is particularly popular with users as a place to both train and recreate on its perimeter Loop Road, which is unique in Denver in that it offers the only continuous loop available to cyclists and other wheeled recreational modes within the City. The Loop Road is also very popular with walkers, rollerbladers and joggers. As Denver continues to urbanize, the use of the Park and the Loop Road has steadily increased, and as a result, so has the incidence of user conflicts. These conflicts occur in some degree between all the users that use the Loop Road. Vehicular circulation is limited to portions of the northern half of the loop where access to parking lots and facilities such as the Washington Park Recreation Center are necessary (see Figure 1). While the mixing of vehicles and other Loop Road users creates a significant number of user conflicts in these areas, many other conflicts occur between users in the non-vehicular portions of the road as well. The park has a long history of efforts to improve the Loop Road for all users, and by most accounts the most egregious safety concerns have been substantially addressed. (See Appendix I for a list of previous studies.) However, significant safety problems still exist, largely driven by the lack of a clear system that users can adhere to and understand. Denver Parks and Recreation undertook this project, the Washington Park Loop Road Safety Plan (the Plan), to develop a comprehensive and understandable approach to creating a safer and more enjoyable Loop Road for as many different types of users as possible while maintaining the wonderful character of Washington Park that is so highly valued.

The Loop Road is a 2.2-mile internal park road that roughly follows the perimeter of the park, with vehicular entry/egress points at Marion Street on the north side of the park, Exposition Avenue at Downing on the west, and Kentucky Avenue and Exposition Avenue at Franklin Street on the east. The 32-foot wide (average) asphalt surface road passes by many popular picnic and activity areas, including parking lots and functional facilities such as restrooms and a maintenance yard and is used by visitors for getting around the park, for training, and for



Figure 1. Loop Road Vehicular Park Access Points Map. Vehicular access is permitted in yellow areas. Access and egress locations indicated by red circles. Vehicular parking is indicated by "P" symbols.

recreating. The original design of the Loop Road never could have anticipated the intense level of use that it currently receives, so as a result there are numerous conflict points. The conflicts are often most acute in the vehicular entrance/egress areas where numerous user types cross and mix. In the absence of clear direction, users are often left to use their own judgment on how to navigate through these areas. In addition, users that do not clearly fit the “bicyclist” or “pedestrian” category, such as rollerbladers, skateboarders, joggers with strollers, and rented surrey riders, often do not know where they are supposed to be. While rules are in place, they are not clear or well communicated. This results in a significant number of visitors using the incorrect lanes, traveling in the wrong direction, crossing the Loop Road without looking for on-coming traffic, and other behaviors that either create safety hazards or diminish the quality of the park experience for other users. Some users appear to understand the rules, but choose to ignore them, such as cyclists exceeding the speed limit, and walkers using Wheels lane. Enforcement of rule violations is inconsistent as a result of limited enforcement due to manpower constraints on the Park Ranger staff.

Project Process Summary

The Washington Park Loop Road Safety Plan (The Plan) was developed through a comprehensive process that first obtained feedback from key stakeholders, neighborhood groups, Denver Parks and Recreation staff (parks planners, parks maintenance staff, and park rangers) and the general public through workshops, on-site intercept surveys, on-line surveys and three public meetings. In addition, the project team conducted numerous site visits and observations to develop a clear understanding of the Loop Road’s function. These observations, and the cumulative feedback and input obtained, were used to develop an assessment of the Loop Road’s safety issues, which is documented in the Data Gathering Investigations Report and Issue Summary, in Appendix I of this document.

Following the completion of the assessment and issue summary, a Tool Kit of potential improvements to the park was developed and presented to Denver Parks and Recreation staff, stakeholder groups, and the general public to get feedback on the desirability, usefulness, and appropriateness of the many different potential Tools that could be used as part of a comprehensive safety improvement plan. Extensive feedback was received, evaluated, and incorporated into the consultant team’s recommendations to help formulate the Final Plan. The Plan compiles a comprehensive approach that addresses Loop Road safety with a broad range of improvements, that can be grouped into three main categories:

- Physical improvements to the Loop Road system;
- Education and awareness measures to inform users of the rules and function of the Loop Road; and
- Regulatory and enforcement strategies to enhance the function and experience of the Loop Road and the Park.



Developing Consensus on “Essential Issues”

Once the project team completed the information gathering and analysis phase of the project, a clearer understanding of the user conflicts and safety issues along the Loop Road emerged. Working together with Denver Parks and Recreation and the project stakeholder group, the team identified the “essential issues” to guide the proposed development solutions:

1. **Most users are happy with the Loop Road**, but some users **do not follow the rules**.
2. More and consistent **education and enforcement** would help.
3. Changes to road configuration should be **subtle “tweaks”** and should **preserve the park setting, function, and experience**.
4. The current **rules and configuration are not intuitive** and **do not identify where “non-standard” modes would travel**.
5. The **existing rules are not communicated adequately**.
6. There are **competing needs regarding vehicular access and parking**.
7. The park is **very busy**, but there is **no consensus on limiting usage** (or user types).
 - Loop Road should accommodate large numbers and types of users
 - Varying modes of travel come with varying speeds
 - Combined uses are dangerous (i.e. skaters with dogs on leashes)
8. **Non-legally enforceable infractions create unsafe situations** (i.e. users traveling in the wrong direction, “road hogging”, dogs, stroller groups, etc.).
9. Park users often cause **conflicts on the Loop Road when crossing**.
 - Crossing areas are insufficiently marked or are outdated.
 - There is no warning at the edge of the road to warn filtering/crossing pedestrian traffic.
 - There are awkward and dangerous scenarios created by crossing as a result of the configuration, size and approach angles.
 - Sight lines, lanes and views are often obstructed.
 - Motorists are not accustomed to bicyclist cross traffic (faster than peds).

Development of Tool Box of All Feasible Improvements

The team developed a comprehensive Tool Box of different solutions to address the issues identified above. These solutions/potential improvements were then evaluated for appropriateness and feasibility using criteria derived from the project objectives, and other criteria that the team and the City identified as necessary for success. These criteria require that improvements:

- **result in a significant improvement to safety.**
- **are logical / intuitive.** Improvements should be easily communicated and understood. Ideally, new improvements should build on cultural / traffic system standards, such as “keep to the right side of the road” and “slower traffic keep right” and “pass on the left.”
- **are cost effective.** As with any public improvement project, proposed improvements need to exhibit a significant value for the investment made.
- **are in accordance with public input.** The vast majority of citizens interviewed and surveyed do not want to see significant changes to the Park. They do not want the essential park experience changed or impacted. They also voiced a preference to include all of the currently approved uses/users of the Loop Road in any improvement scenario.
- **are in accordance with Washington Park Master Plan objectives.** Improvements must not detract from the park resource, or undermine other agreed-upon planning objectives for the park.

The range of design and management alternatives considered as part of the Tool Box but not necessarily part of the final recommendation include:

- Lane configurations that:
 - incorporate mixed use lanes which organize and separate users according to their speed rather than by their mode (i.e. a Slow Mixed lane).
 - separate wheeled modes and pedestrians using curbs and/or other barriers.
 - provide separate lanes for both wheels and peds in both clockwise and counter clockwise directions.
- parking lot modifications that reduce vehicle conflicts with both peds and wheeled users.
- managed use and enforcement strategies, i.e. specific time periods when bicyclists would be allowed to train at faster speeds.
- changes to regulations (i.e. a lower speed limit for wheeled users).
- additional signage, including digital message boards and speed indicator signs.
- pavement textures and speed bumps to control speed.
- traffic calming techniques, including narrowed lanes.

USER GROUP	SYMBOL	SPECIFIC USERS	MIN WIDTH
PEDESTRIAN ONLY		Pedestrians, Runners, Strollers, Pedestrians with Dogs	10' MIN.
SLOW MIXED		Pedestrians, Runners, Strollers, Pedestrians with Dogs, Slow Bikes, Rollerbladers, Skateboarders	12-14' MIN.
SLOW WHEELS		Slow Bikes, Rollerbladers, Skateboarders	6' MIN.
FAST WHEELS		Fast Bikes, Rollerbladers, Skateboarders	8' MIN.
FAST WHEELS & CARS		Fast Bikes, Rollerbladers, Skateboarders, Cars	12' MIN.
CAR		Cars Only	12' MIN.

Figure 2. These lane use designation types were incorporated into different potential lane configurations which were presented to the working group and public for feedback.

Evaluation of Tool Box and Crafting of Final Plan

The Tool Box solutions were evaluated on the criteria described above, and on conformance with the objectives articulated in the “Project Goals and Objectives” section. The preliminary Plan recommendations were created using the highest ranked toolbox elements and the professional judgment of the project team to achieve the best overall safety plan (see Evaluation Matrix, Appendix III).

The subsequent preliminary plan was presented to Denver Parks and Recreation staff, the stakeholder group and the general public for further comment and feedback. Final revisions were made and the resulting final Plan is presented in the following pages. While maximum benefits will be achieved by implementation of the full list of improvements, the Plan may be implemented incrementally. Phasing recommendations are provided in the Phasing Section of this document.

The Washington Park Loop Road Safety Plan addresses safety improvements in a comprehensive manner and includes the following components:

Plan Components:

- Physical Improvements including:
 - Loop Road Lane Configuration
 - Crosswalks and Mixing Zones
 - Vehicular Roadway Areas and Parking Lot Modifications
 - Signage
- Education and Awareness Programs
- Regulation and Enforcement Recommendations

PHYSICAL IMPROVEMENT RECOMMENDATIONS: LANE CONFIGURATION

Purpose and General Description: The current lane configuration and rules for the use for the Loop Road are unclear, and improper uses cause unsafe situations. The proposed lane configurations plan has been developed to respond to the consensus project objectives; the most relevant being:

- Accommodation of multiple user types within the Loop Road
- Minimal changes to the existing character and configuration of the road
- Separation of travel modes
- Use of traffic/speed “calming” principles
- “Rules of the Road” based upon intuitive safety features – i.e. “keep right”
- Raising awareness of pedestrians crossing Loop Road to road/lane use, speeds
- Adherence to master plan objectives

Project Assumption: Implementation of the following proposed lane configuration recommendations will require the implementation of the Washington Park Master Plan objective **to remove parallel parking from the Loop Road**. To achieve the important objective of establishing a more understandable, uniform, and intuitive lane configuration, keeping the parallel parking along the Loop Road in place is simply not an option. (It should be noted that all of the parking spaces that are “lost” along the Loop Road by the elimination of parallel parking are easily regained by implementing the parking lot modifications proposed in this Plan. See Vehicular and Parking Recommendations Section.)

Existing Lane Configuration: Figure 3 shows the current typical lane configuration along the Loop Road, characterized by:

- 16’ wide bike/wheels lane with traffic circulating in a counter-clockwise direction
- 16’ wide pedestrian lane with circulation indicated by pavement markings clockwise (direction generally not heeded by users)
- a double yellow roadway stripe down the middle of the road
- painted lane usage symbols for pedestrians and bikes at approximate 300’ intervals

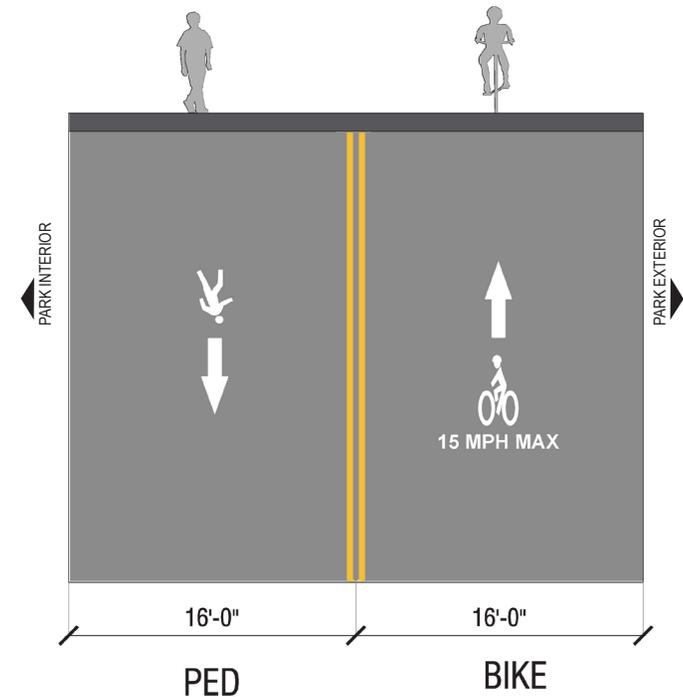


Figure 3. Existing Lane Configuration

PHYSICAL IMPROVEMENT RECOMMENDATIONS: LANE CONFIGURATION

Recommended Lane Configuration:

Figures 5 and 6 show two recommended options for lane configuration and user assignments for the Loop Road. Option A and B both provide: 1) a 14' to 16' wide two-way pedestrian lane, 2) a 10' wide unidirectional (counterclockwise) Wheels lane, 3) a 2' wide buffer between the pedestrian lane and the Wheels lane, and 4) a 6' to 8' wide Slow Wheels lane. Option A and B essentially function identically and are only differentiated by the green painted Slow Wheels lane in Option A. Option A is preferred due to its advantages in traffic calming and visibility/awareness, as described below; Option B can be implemented as an interim solution or as a cost saving measure (See Bid Alternate 1 in Cost Opinion).

The proposed lane configurations do not substantially change how the Loop Road is used; however, they will greatly improve safety through the establishment of a simple and logical system that is clearly communicated through pavement markings and signage. The new configurations also create better separation between differential speed groups, especially between pedestrians and faster wheels/bicyclists. The system is based on intuitive and universal traffic rules, such as "slower traffic keep right", and is sufficiently flexible to accommodate difficult-to-classify users such as parents walking with children on strider bikes (in Feet lane) and parents riding their bikes together with children on strider or trainer bikes (in Slow Wheels lane). Important aspects of the plan are the signage and pavement markings indicating lane usage. Signs and pavement markings are strategically located near crosswalks and key entry points, and on a regular basis around the Loop Road, as shown in Figure 4.

Key Elements of Proposed Lane Configuration Improvements:

- Buffer (2' wide painted and/or textured strip) between the pedestrian and wheels lanes effectively splits the major modes using the Loop Road, reducing the safety concerns caused by the large speed differential of these two user groups.
- Pavement markings inform users of the primary modes/uses designated to use each lane. See Figure 4 for spacing information for pavement markings.
- Lane use signs adjacent to the Loop Road support the lane use information communicated by the pavement marking, and provide more detailed direction for less common users (skateboarders, rollerbladers, joggers with strollers). See Sign Graphic Figure 41.
- Slow Wheels lane provides a safer place in the roadway cross section for users too slow for the Wheels lane, and users/uses not compatible with the pedestrian lane, including cruiser bikes, children on bikes, joggers with strollers, rental surreys and maintenance vehicles.

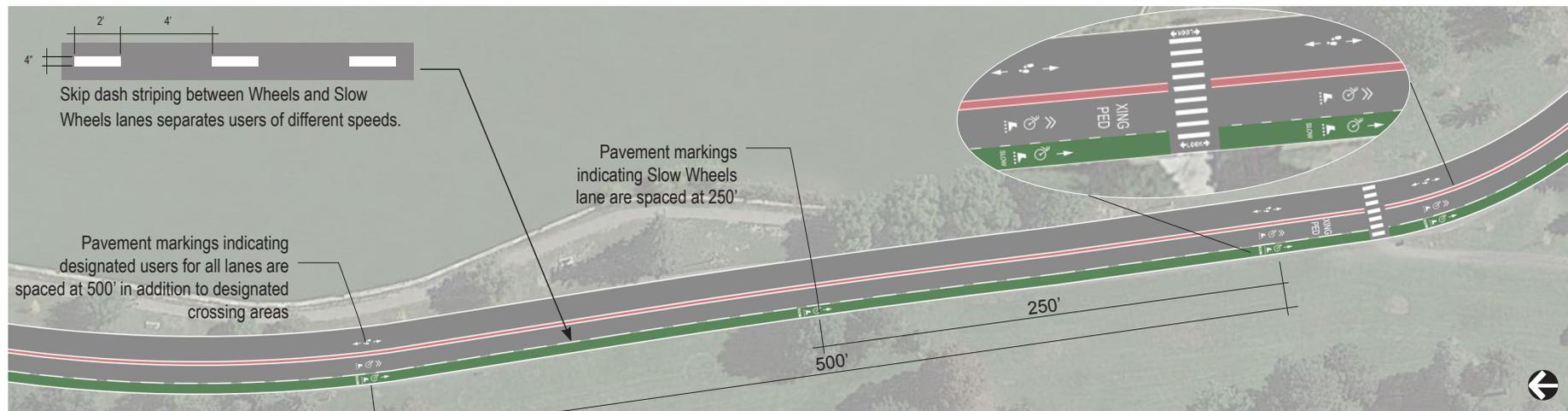


Figure 4. Preferred Recommended Lane Configuration

PHYSICAL IMPROVEMENT RECOMMENDATIONS: LANE CONFIGURATION

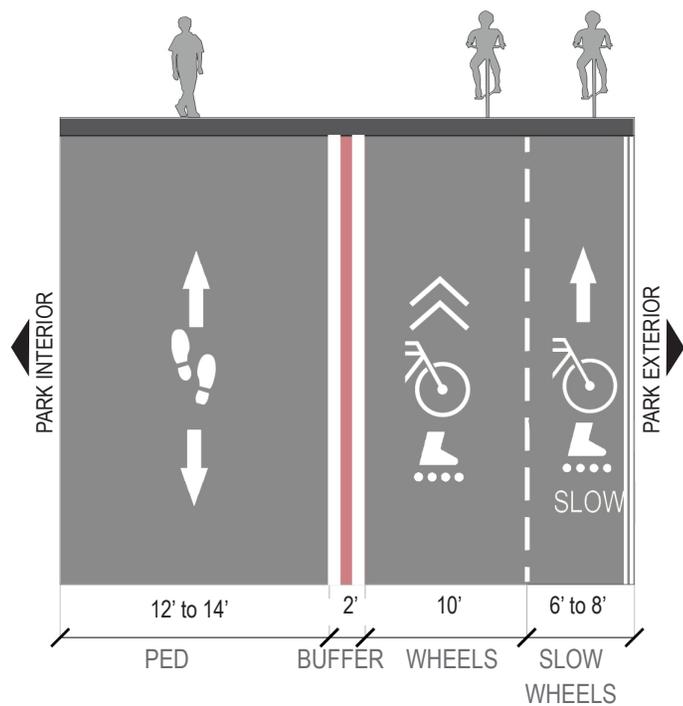
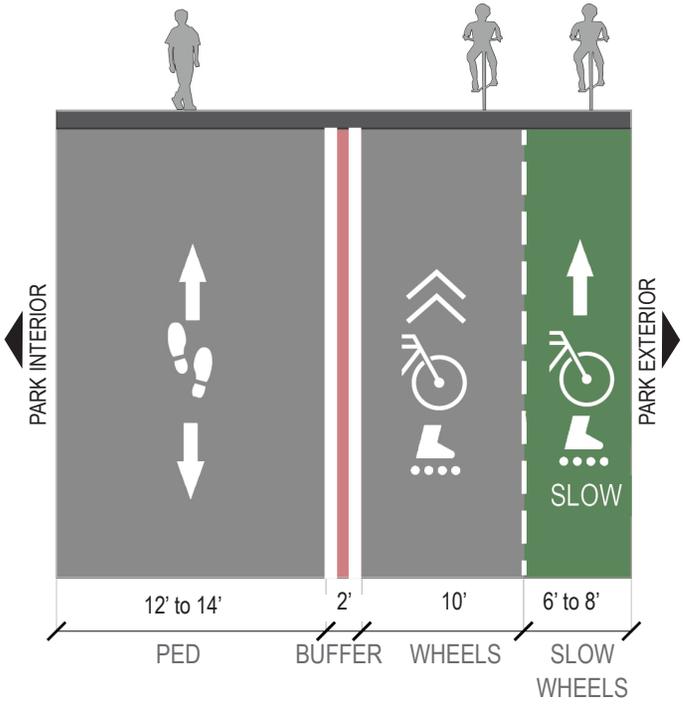


Figure 5. Option A: Preferred Recommended Lane Configuration

Option A: The green painted Slow Wheels lane serves to visually narrow down the faster Wheels lanes, helping to calm speeds. It also provides a highly visible and continuous warning edge that alerts pedestrians crossing the Loop Road between designated crossings that they are entering a bicycling environment and that attention is needed. This is the recommended solution.



Figure 6. Option B: Alternate Recommended Lane Configuration

Option B (interim condition): A double white line along the roadway edge of the outside of the Loop Road serves to provide a warning strip that is similar (but less obvious) to alert crossing pedestrians to the presence of cyclists/wheels users. This option is shown as a cost savings measure that could allow the plan to be implemented in advance of funding for the ultimate recommended solution. Refer to Bid Alternate 1 in Cost Opinion.



Figure 7. The typical intersection mixing zones lack striping and signage, likely contributing to improper vehicle movements due to lack of understanding by users.

General Description:

Meeting the objective of creating a safer environment for pedestrian crossings and mixing zones (where motor vehicles, pedestrians and wheeled users all converge and often cross paths) requires increasing the awareness of all users to the prescribed pedestrian, wheels and vehicular movements at each location through the use of common and intuitive symbols and markings, and the clear definition of circulation routes for each mode.

Typical Existing Mixing Zone Conditions:

As shown in Figure 7, the existing intersections/mixing zones appear as standard roadway intersections. There is no indication to the entering drivers that significant pedestrian and bike traffic exists within the Loop Road, and furthermore, there are no cues as to how the vehicle should interact with pedestrians and bikes in the Park (i.e. “share the road”). In addition, the excessively wide entry roads and non-perpendicular intersections that they often form with the Loop Road create long and poorly defined mixing zones that expose travelers in the Wheels lane to greater risk than is necessary.

Recommendations for Typical Mixing Zone Improvements:

As mentioned above, mixing zone area improvements are intended to clearly define user circulation and to raise awareness to the presence of recreational and other non-vehicular users in the Loop Road among vehicular users entering the park. In the adjacent diagram the proposed improvements to the Marion Street intersection/mixing zone show typical recommended improvements for intersections/mixing zones throughout the park and include:

- hatched buffers which clarify and narrow the usable travel areas for entering vehicles, and importantly, reduce the length of mixing zone areas (and thereby the exposure to risk for cyclists and others in the Wheels lane);
- green dashed pavement markings which indicate the Loop Road’s Slow Wheels lane where it passes through the mixing zone;
- multiple Modified Sharrow pavement markings which indicate the Loop Road’s shared vehicle/Wheels lane where it passes through the mixing zone.
- bollards, regulatory vehicle signs and crosswalk markings which provide appropriate traffic regulation, barriers, and guidelines to maximize safety for all users in the intersection.

NOTE: Crosswalk and mixing zone recommendations are conceptual only, and are not for construction. Signage placement, pavement marking locations, striping locations and installation methods require final designed by an engineer.

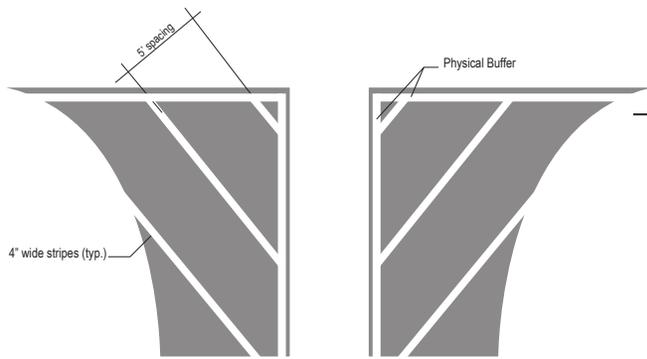


Figure 8. Hatched buffers at intersection narrow and clarify the driving movements for vehicles and create a more perpendicular intersection function. Hatched buffers to include a physical barrier, such as a curb, reflective flexible (or non-flexible) bollard, or parking block.



Figure 9. Skip dash striping for lane extensions through intersections indicates where vehicles must go. In the example shown, the skip dashes tell the driver that he/she must proceed straight through the intersection without turning onto the Loop Road.

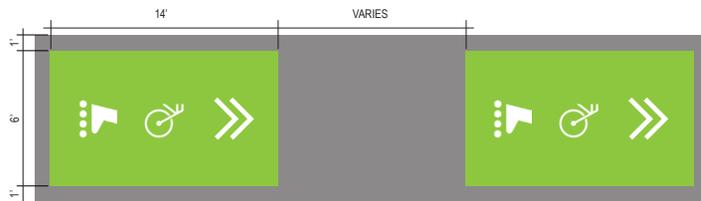


Figure 10. Green-backed modified sharrows indicate the continuation of the Wheels lane through the intersection, raising the awareness of vehicle drivers that this lane should be crossed with care. Where vehicles are permitted to turn onto the Loop Road, a vehicle symbol is added to the other Wheels lane users (bicycle, roller blade) on the sharrow symbol.

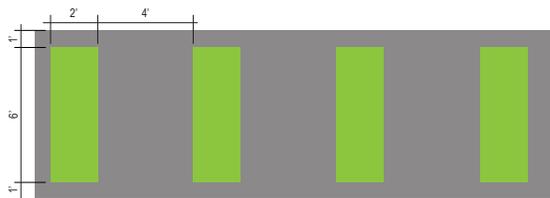


Figure 11. Green dashes at intersections indicate the continuation of the Slow Wheels lane through the intersection, indicating to vehicle drivers that this is an established use lane that must be crossed with care.

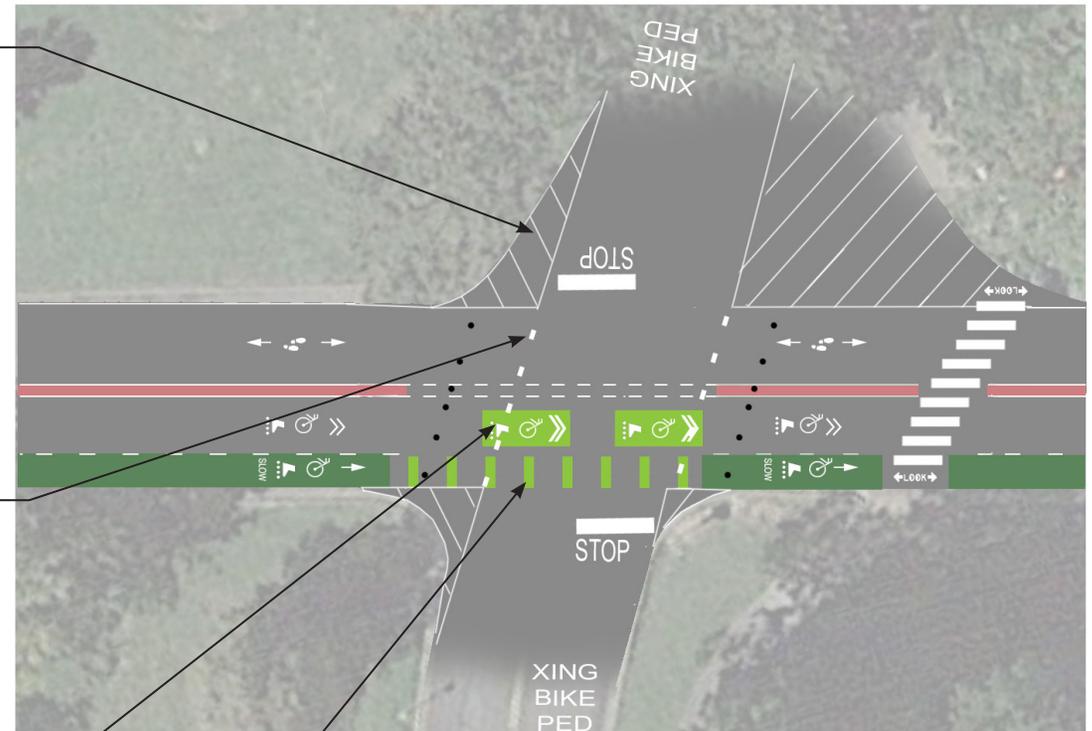


Figure 12. Typical intersection treatment diagram.

NOTE: See page 36-39 for individual sign descriptions/illustrations.

Crosswalks

Existing conditions and treatments for crosswalks crossing the Loop Road are inconsistent. Not all crossings are marked, and some marked crosswalk locations do not make sense or are now obsolete. In addition, there are no signs along the Loop Road indicating crosswalk locations to vehicles or other users on the Loop Road. The recommended treatment for crosswalks is shown in Figure 14. The intent of this typical crosswalk treatment is to both alert Loop Road travelers that a crossing is present through the use of signage and pavement markings, and also to alert and inform pedestrians in the crossing of the types of use lanes they are crossing (Slow Wheels, Wheels, or Feet) through the use of pavement markings indicating lane usage designations for each lane. Crossing pedestrians should be better prepared to respond accordingly as they cross. A “Look” pavement marking at each crosswalk entrance notifies pedestrians that attentiveness is needed to traffic from the left and right while crossing.

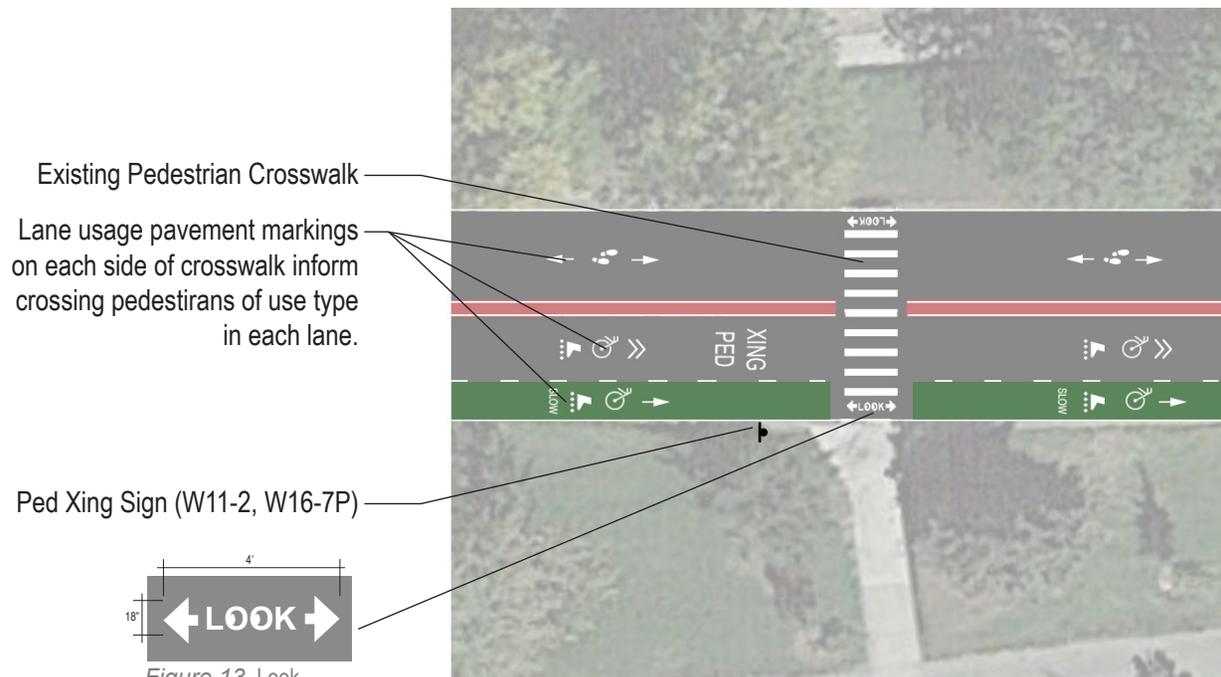


Figure 13. Look marking at pedestrian crossings alert pedestrians entering cross walk that attention is required to look for on-coming traffic.

Figure 14. Typical pedestrian crossing recommendations.



Figure 15. Existing Crosswalks and Mixing Zones Diagram

CROSSWALKS AND MIXING ZONES



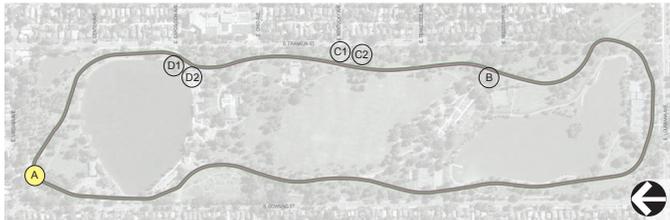
A Figure 16. Marion Street/Loop Road Intersection Existing Conditions

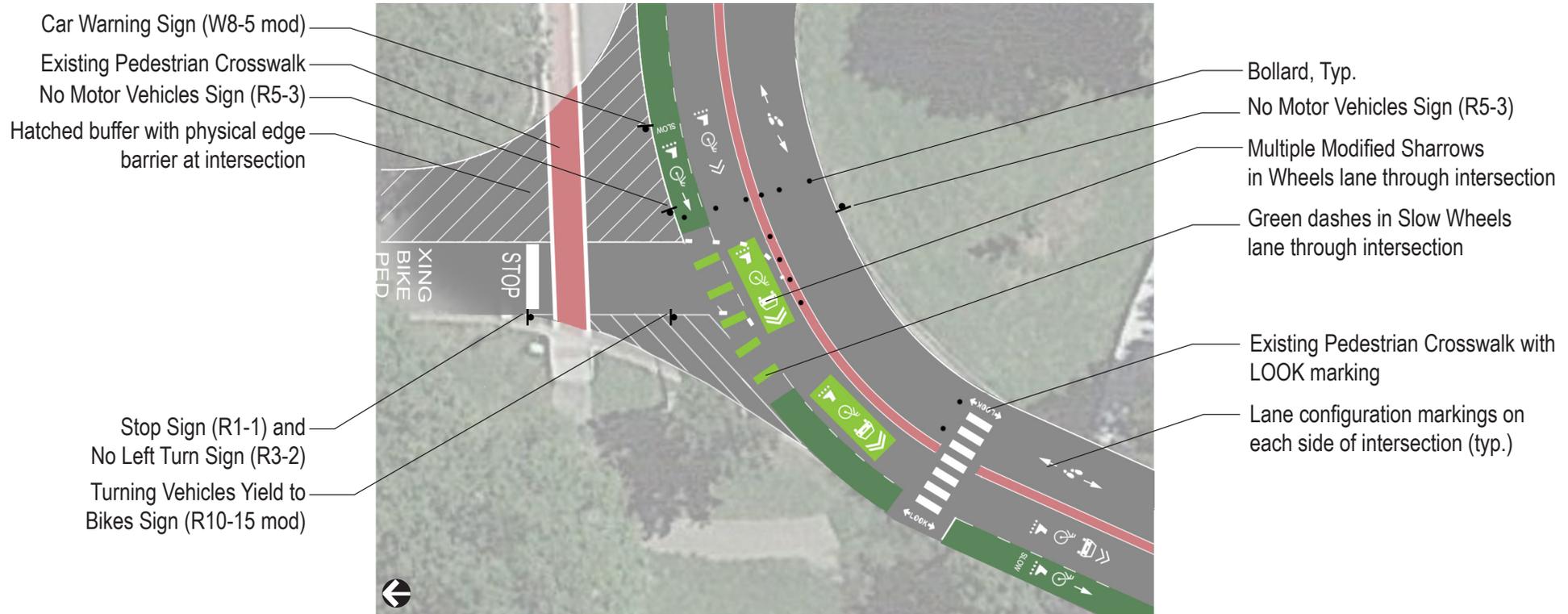
Marion Street Mixing Zone--Analysis of Existing Conditions:

The Marion Street park entry is a primary entry point for both vehicles and bicyclists. One of the key safety concerns with this intersection is the excessive width of Marion Street; built as a two-way entry/exit, it is now only used as an entrance (for vehicles), leaving much more roadway width than is necessary or desired, and thereby extending the mixing zone at its intersection with the Loop Road much longer than necessary. In addition the intersection is not completely perpendicular, making vehicle movements into the Loop Road somewhat unpredictable. Other safety considerations include:

- an existing pedestrian crosswalk across Marion Street does not exactly align with the normal stopping area for the intersection;
- a downhill approach for bicyclists and other wheeled users on the Loop Road raises their speed as they approach the Marion Street intersection, often fooling vehicles into thinking that they have more time to maneuver / merge into the Loop Road than they actually do;
- bollards across the Loop Road intended to prevent vehicles from mistakenly turning left (east) from Marion Street cause cyclists to make some unpredictable maneuvers in order to thread their way through the gaps as they approach the mixing zones.

Crosswalks and Mixing Zones Key Map





A Figure 17. Marion Street Mixing Zone Recommendations

Marion Street Mixing Zone Improvements: Design Intent

The primary objectives of this plan include:

- narrowing and defining the approach lane for vehicles on Marion Street;
- striping along the Loop Road that alerts vehicles to Slow Wheels and Wheels lanes;
- bollards in buffer strip between Wheels and Feet lanes to prevent vehicles from making wide turns into Feet lane;
- accommodation of existing crosswalk with stop sign and pavement marking.



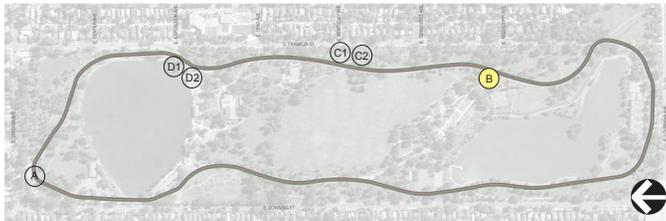
B Figure 18. Mississippi Ave/Loop Road Intersection Existing Conditions

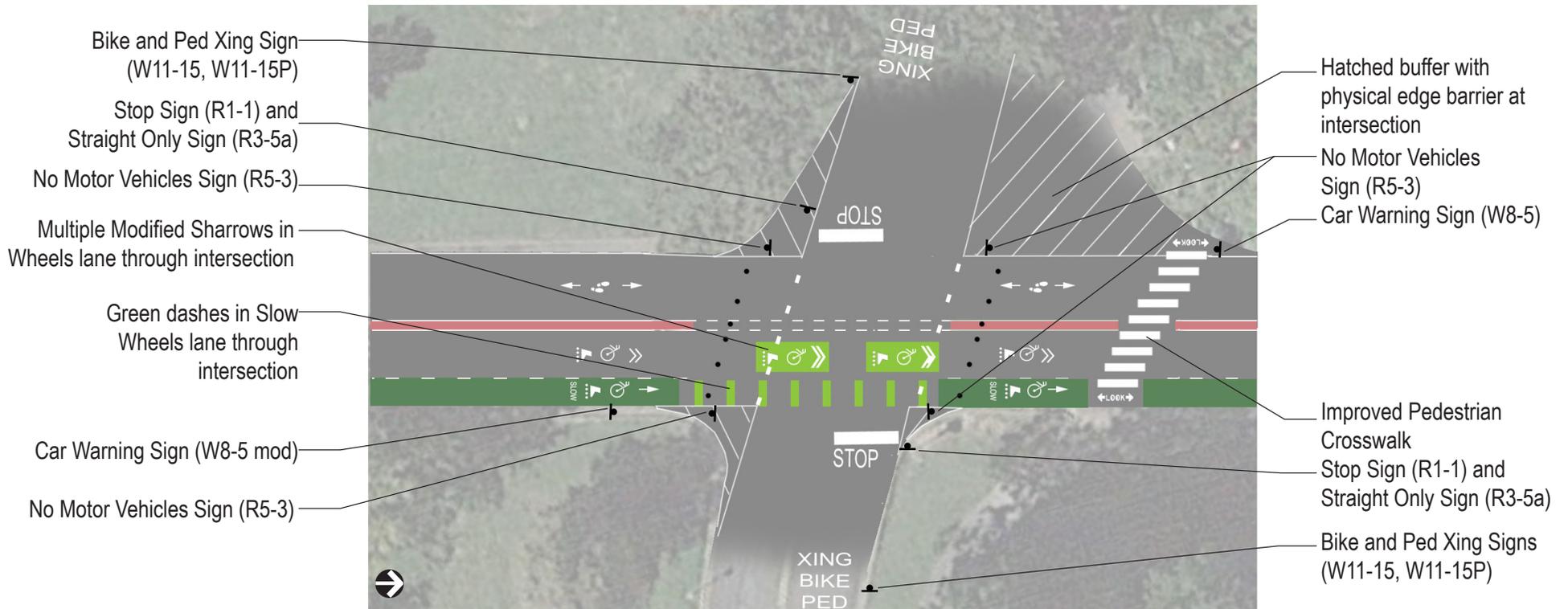
Mississippi Avenue Mixing Zone--Analysis of Existing Conditions

Better known as the entrance to the Diagonal Area, this intersection accommodates two-way vehicle traffic crossing the entire Loop Road to enter and exit the Diagonal Road. Some bicycle traffic also enters and exits the park at this location. Primary safety considerations include:

- this is the only vehicle entrance to the Park where vehicles are not permitted to turn onto the Loop Road, which causes some confusion;
- vehicles must cross both the Wheels lane and the Feet lane of the Loop Road and may not understand how these lanes function (travel directions, speed, etc.);
- the intersection is very wide at the northwest corner, potentially causing some confusion for vehicles, particularly those exiting the Diagonal Road, who might think that this wide area is a “free left turn” onto the Loop Road heading north.

Crosswalks and Mixing Zones Key Map





B Figure 19. Mississippi Ave. Mixing Zone Recommendations

Mississippi Avenue Mixing Zone Improvements--Design Intent:

Primary objectives of the intersection / mixing zone improvements at Mississippi Avenue include:

- reinforcing vehicles' understanding of the straight, crossing-only movement at the Loop Road;
- narrowing of the traffic zone at the Loop Road to prevent mistaken attempts by vehicles to turn onto the Loop Road;
- marking / highlighting of Wheels and Slow Wheels lanes as they move through mixing zone to raise awareness of these uses.



C1 Figure 20. Kentucky Ave/Loop Road Intersection Existing Conditions

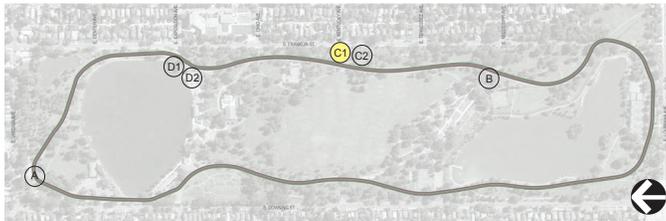
Kentucky Avenue to the Recreation Center Parking Lot Mixing Zone-- Analysis of Existing Conditions

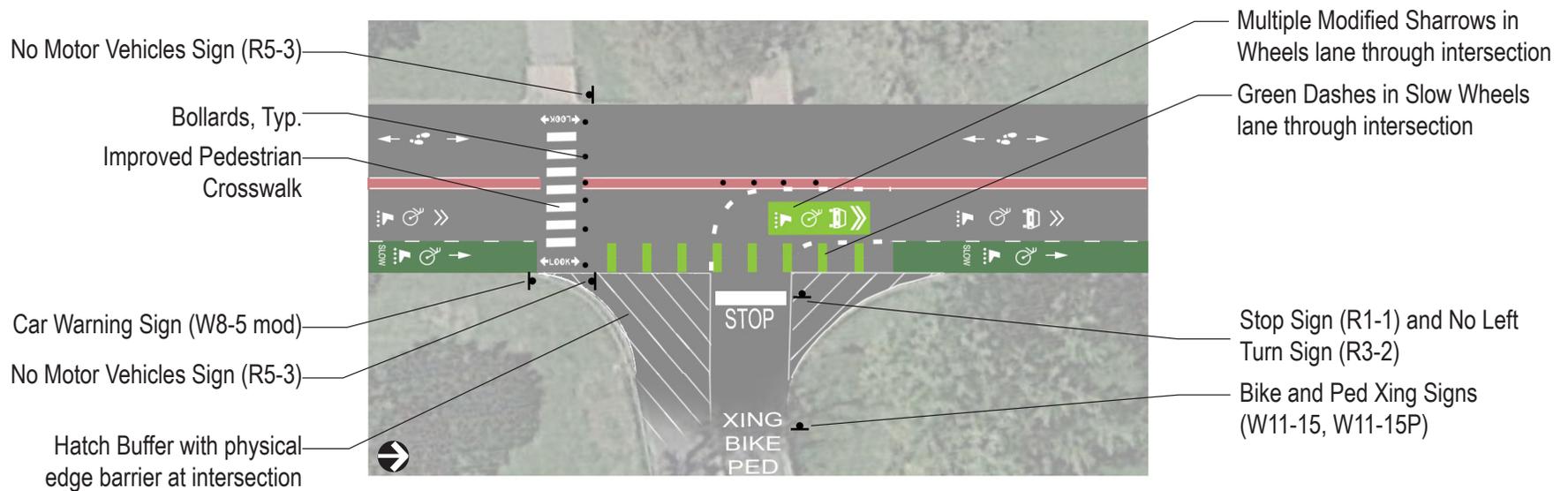
Kentucky Avenue is the primary entrance for vehicles seeking to park within the east side of the park, as well as those wanting to park at the Rec Center or the Boat House parking lots. A moderate number of cyclists enter the park at this location as well. Vehicles entering the park must turn right onto the Loop Road and travel in the shared Wheels lane. In addition to the mixing that occurs right at Kentucky Avenue, it is important to acknowledge the continued mixing that occurs when vehicles traveling north on the Loop Road turn left across the Feet lane into the Rec Center parking lot. Additional mixing actions occur where vehicles turn left across the Feet lane into the Boat House parking lot. These left turn maneuvers create unsafe conditions not only due to conflicts with unsuspecting cyclists passing vehicles on the left, but also due to the poorly defined parking lot entries which are not perpendicular to the Loop Road, and thereby create very long and confusing mixing zones that expose pedestrians in the Feet lane to turning vehicles.

Other safety considerations for this intersection/mixing zone include:

- the intersection is built with too large of an inside turning radius for vehicles turning from Kentucky Avenue onto the Loop Road, which enables these vehicles to start turning onto the Loop Road before coming to a complete stop, thereby reducing the driver's vision of on-coming Wheels traffic, and reducing safety;
- as with other vehicular entry points, drivers are not provided with sufficient information to understand how the Loop Road lane configuration, and may unknowingly cause a dangerous situation as a result;
- bollards prevent vehicles from mistakenly turning left and going the wrong way on the Loop Road. However, there are reports that when some of the bollards are removed for maintenance access, vehicles entering at Kentucky Avenue have mistakenly turned left and gone the wrong way;
- parallel parking north of the Kentucky Avenue entrance constricts the Loop Road and adds to safety issues.

Crosswalks and Mixing Zones Key Map





C1 Figure 21. Kentucky Ave. Mixing Zone Recommendations (Alternative 1)

Kentucky Avenue Mixing Zone--Design Considerations

C1 Figure 21 (above) and C2 Figure 23 (page 23) are two very different alternatives for treatment of the Kentucky Avenue mixing zone. The fundamental difference between these alternatives is that Alternative C1 deals only with the Kentucky Avenue mixing zone issues and assumes a status quo condition for the mixing zones at the entrances to the Rec Center and the Boat House parking lots, while Alternative C2 addresses both Kentucky Avenue and the parking lot entry points.

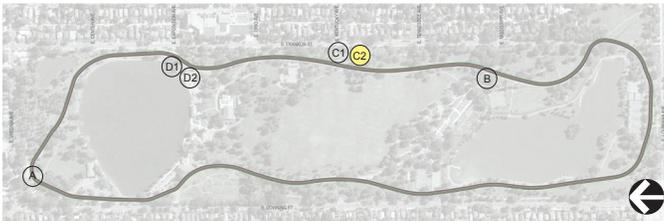
Alternative C1: The intersection would continue to function as it does currently, with the vehicles entering the park from Kentucky Avenue turning right at the stop intersection with the Loop Road and proceeding the shared Wheels lane. Key aspects of the improvements include:

- a narrowing and better definition of the traffic lane for entering vehicles on Kentucky;
- marking / highlighting of Wheels and Slow Wheels lanes as they move through the mixing zone to raise awareness of these uses;
- bollards in the buffer zone between the Wheels and Feet lanes, and opposite the Kentucky Avenue vehicle entrance to prevent vehicles from turning wide into the Feet lane by mistake;
- traffic and warning signs as required.



C2 Figure 22. Kentucky Ave/Loop Road Intersection Existing Conditions

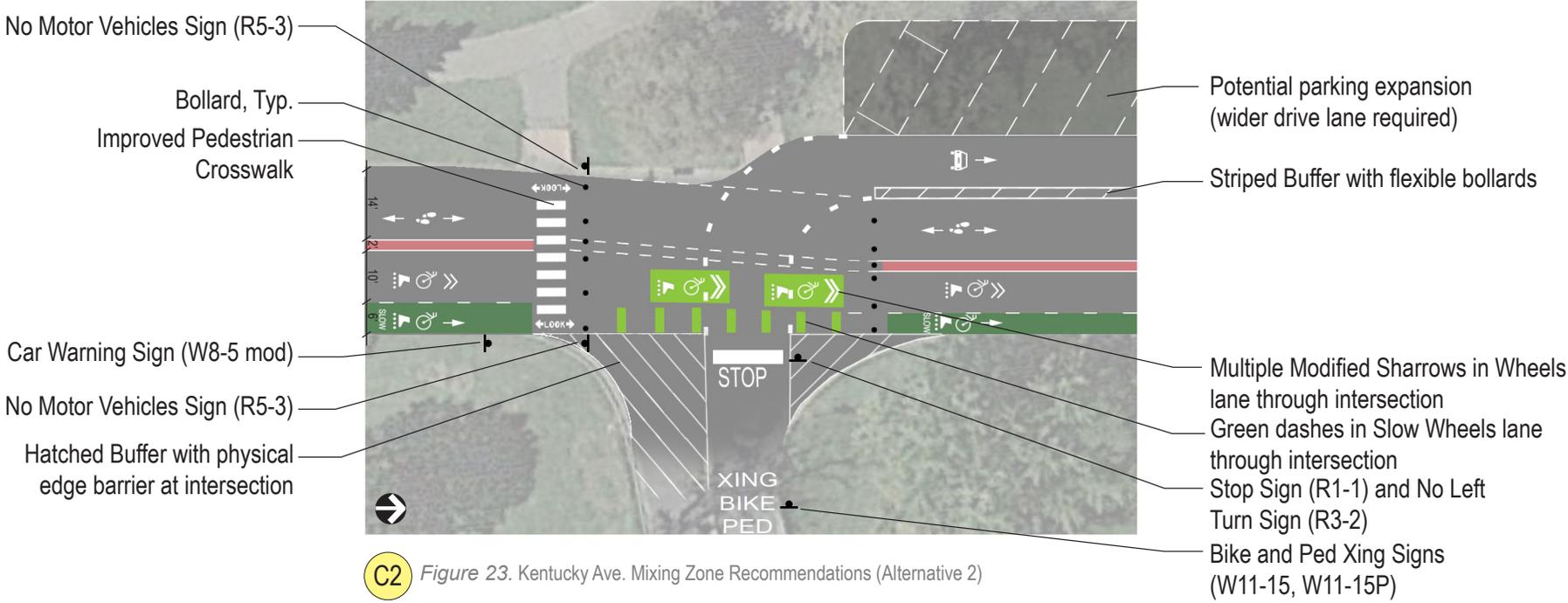
Crosswalks and Mixing Zones Key Map



Kentucky Avenue Mixing Zone--Design Considerations

Alternative C2: This alternative deals with the mixing zones safety issues in this segment of the Loop Road in a more comprehensive manner than Alternative 1 by creating a vehicle-only lane on the inside (west side of) the Loop Road that is separated from the Feet lane of the Loop Road by a physical barrier, see Figure 23. The intent is to eliminate the left turning maneuvers of vehicles entering the Rec Center or the Boat House parking lots from the Loop Road by directing all vehicles across both lanes of the Loop Road (Wheels and Feet) at the very controlled and highly visible Kentucky Avenue intersection. Once this maneuver has been accomplished, vehicles can enter into the Rec Center lot without further mixing with Loop Road users. (Please see further discussion of improvements related to the Rec Center and Boat House parking lots in the Vehicular and Parking Recommendations section.) Key aspects of the improvements associated with this alternative include:

- a clearly striped vehicle travel path that crosses both lanes of the Loop Road and leads vehicles into a vehicle-only lane on the interior side of the road;
- bollards preventing vehicles entering from Kentucky Avenue from making wrong turns either to the south, or to the north into the Loop Road's non-vehicle lanes;
- a narrowing and better definition of the traffic lane for entering vehicles;
- marking / highlighting of Wheels and Slow Wheels lanes as they move through the mixing zone to raise awareness of these uses;
- traffic and warning signs as required.

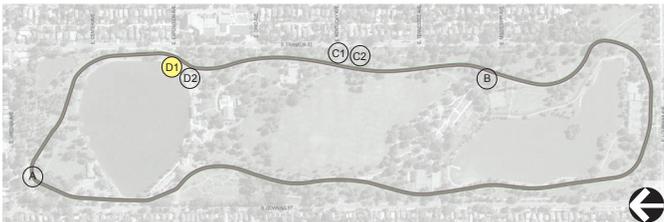


C2 Figure 23. Kentucky Ave. Mixing Zone Recommendations (Alternative 2)



D1 Figure 24. Exposition Ave/Loop Road Intersection Existing Conditions

Crosswalks and Mixing Zones Key Map



Exposition Avenue (East) and Boat House Mixing Zones--Analysis of Existing Conditions

The Exposition Avenue intersection serves as an exit for vehicles leaving the park. Discussion of this intersection / mixing zone needs to include discussion of the mixing zone that occurs at the exit to the Boat House parking lot, as these two elements work in tandem. Currently vehicles leaving the park simply exit the park and the Loop Road by turning right from the shared Wheels lane on the Loop Road onto a short segment of Exposition Avenue that connects to Franklin Street. No significant safety concerns exist in this mixing zone, as very little actual mixing occurs. However, the intersection between the Loop Road and the entry/exit drive to the Boat House parking lot does create significant safety concerns due to the poor geometry of the intersection, which creates a very long mixing zone that is particularly dangerous for pedestrians who are exposed to entering and exiting vehicles for over 150 feet. Other safety concerns include:

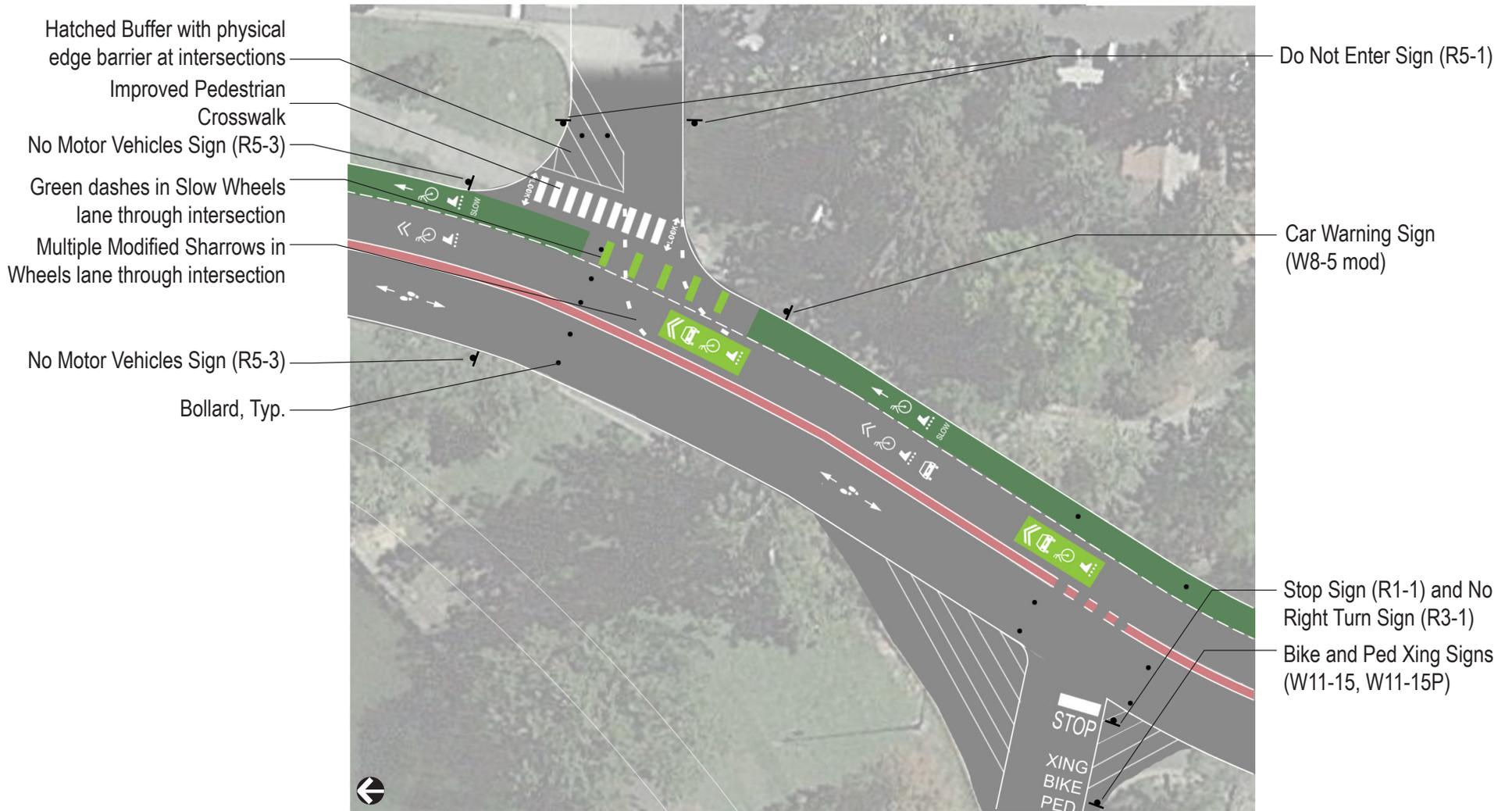
- bicyclists descend a steep hill and gain speed as they approach both the Boat House parking lot driveway and the Exposition Avenue park exit, which increases safety concerns;
- vehicles exiting the Boat House parking lot have to make an awkward crossing and merging maneuver at the Loop Road in order to exit at Exposition Avenue, which further adds to the potential for conflicts;
- the driveway from the Boat House parking lot is poorly defined, so vehicles are not directed to a safe crossing of the Loop Road.

Note: Changes to the lane configuration for the Loop Road will change the conditions in this area. Issues related to these changes are discussed in the Design Consideration for Crossing D2.

Exposition Avenue and Boat House Mixing Zones--Design Considerations

There are two very different alternatives for treatment of the Exposition Avenue mixing zone, as introduced by the previous discussion of Crossings C1 and C2. Crossing D1 correlates with Crossing C1 by keeping the vehicle traffic on the Loop Road mixed with the Wheels Lane between Kentucky Avenue and Exposition Avenue, whereas Crossing D2 shows a detached vehicular drive lane on the interior of the Loop Road accessing the Rec Center and Boat House parking lots, and then crossing the Loop Road at a redesigned intersection at Exposition Avenue. Crossing D1 improvements/changes include:

- a narrowing of the turn lane for vehicles exiting the Boat House parking lot;
- bollards to prevent vehicles from turning right and/or into the wrong lane;
- marking of Wheels and Slow Wheels lanes as they move through the mixing zone to raise awareness of these modes;
- clearly marked pavement striping to guide vehicles exiting the Loop Road at Exposition Avenue;
- traffic and warning signs as required.



D1 Figure 25. Exposition Ave. Mixing Zone Recommendations (Alternative 1)



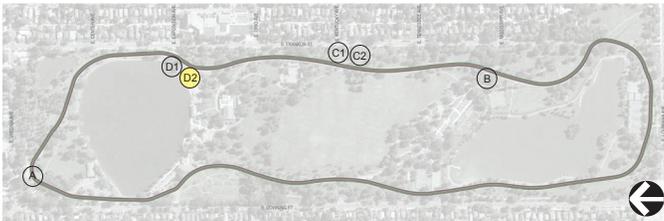
D2 Figure 26. Exposition Ave/Loop Road Intersection Existing Conditions

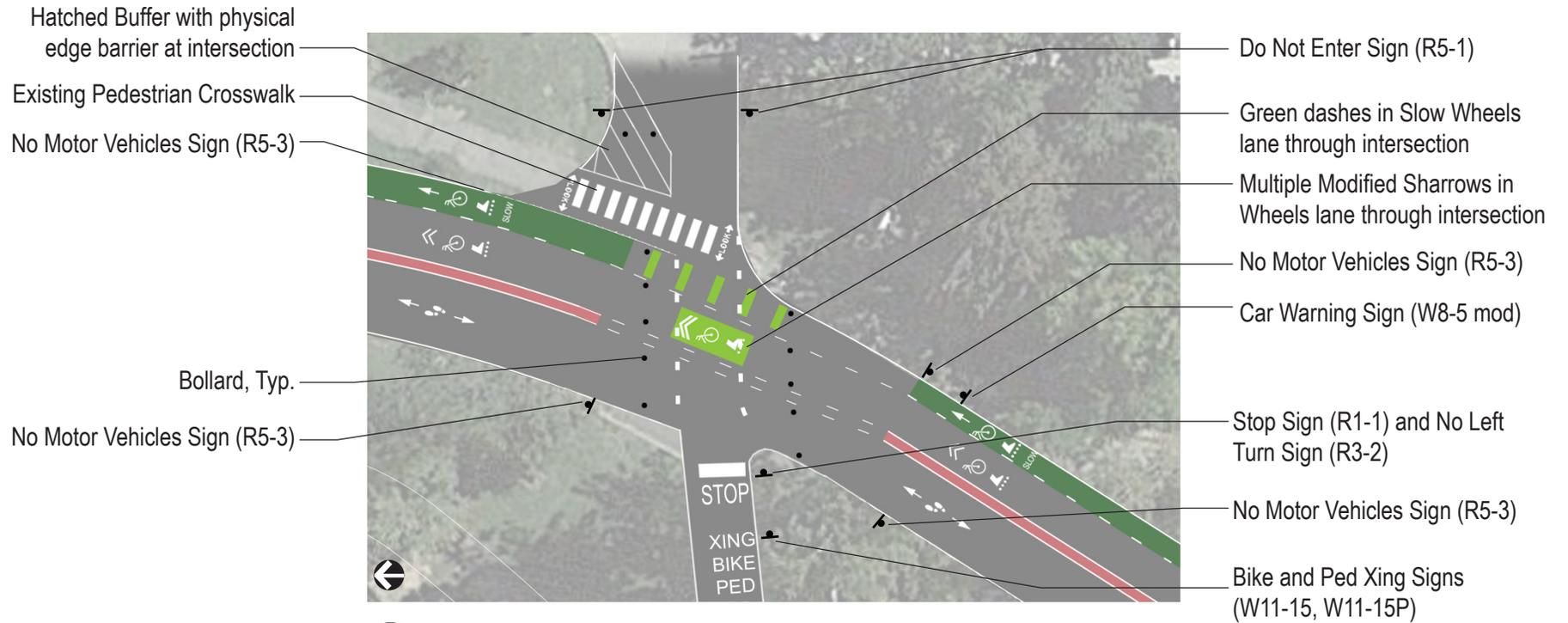
Exposition Avenue and Boat House Mixing Zones--Design Considerations

Crossing D2 pairs with Crossing C2 by implementing the vehicle-only lane along the interior side of the Loop Road. In this alternative, all vehicles leaving both the Rec Center and the Boat House cross the Loop Road at one single point at the Loop Road / Exposition Ave. intersection. Considerations for Crossing D2 include:

- the vehicles exiting the Rec Center and Boat House parking lot stop and then cross perpendicular to Loop Road traffic;
- bollards prevent vehicles from turning onto the Loop Road, allowing only straight a movement;
- marking / highlighting of Wheels and Slow Wheels lanes as they move through the mixing zone to raise awareness of these uses;
- clearly marked pavement striping for vehicles exiting the Loop Road on Exposition Avenue;
- traffic and warning signs as required.

Crosswalks and Mixing Zones Key Map





D2 Figure 27. Exposition Ave. Mixing Zone Recommendations (Alternative 2)

VEHICULAR AND PARKING AREA RECOMMENDATIONS

General Description:

While designing the reconfiguration of the Loop Road, several parking and vehicular circulation issues became apparent to the team, including major congestion points and unsafe mixing zones which are found near the parking lots along the Loop Road. The existing parking lots along the Loop Road tend to have poorly organized access points, and in most cases too many access points, which increase the potential for vehicle/recreation user conflicts beyond what is necessary. This section includes conceptual design for proposed improvements to the existing parking lots and for several segments of roadway connecting to these lots that work in conjunction with the reconfiguration of the Loop Road lanes to create a more comprehensive Loop Road system.

Typical Existing Vehicular and Parking Area Conditions:

- Multiple parking lot access points which increase the number of vehicles crossing the Loop Road traffic;
- Lack of pavement markings and signage to direct vehicles;
- Vehicle congestion at ingress and egress locations which results in queuing on the Loop Road;
- Parallel parking along areas of the Loop Road that reduces the available roadway width for recreational users;
- Inefficient layout of parking areas.

Recommendations for Typical Vehicular and Parking Area Improvements:

- Minimize pedestrian vs. vehicular interface at drive and parking areas;
- Increase pavement markings and signage to direct vehicles;
- Improve vehicular circulation and access;
- Optimize parking capacity and efficiency in appropriate locations to offset parallel parking removed along the Loop Road.

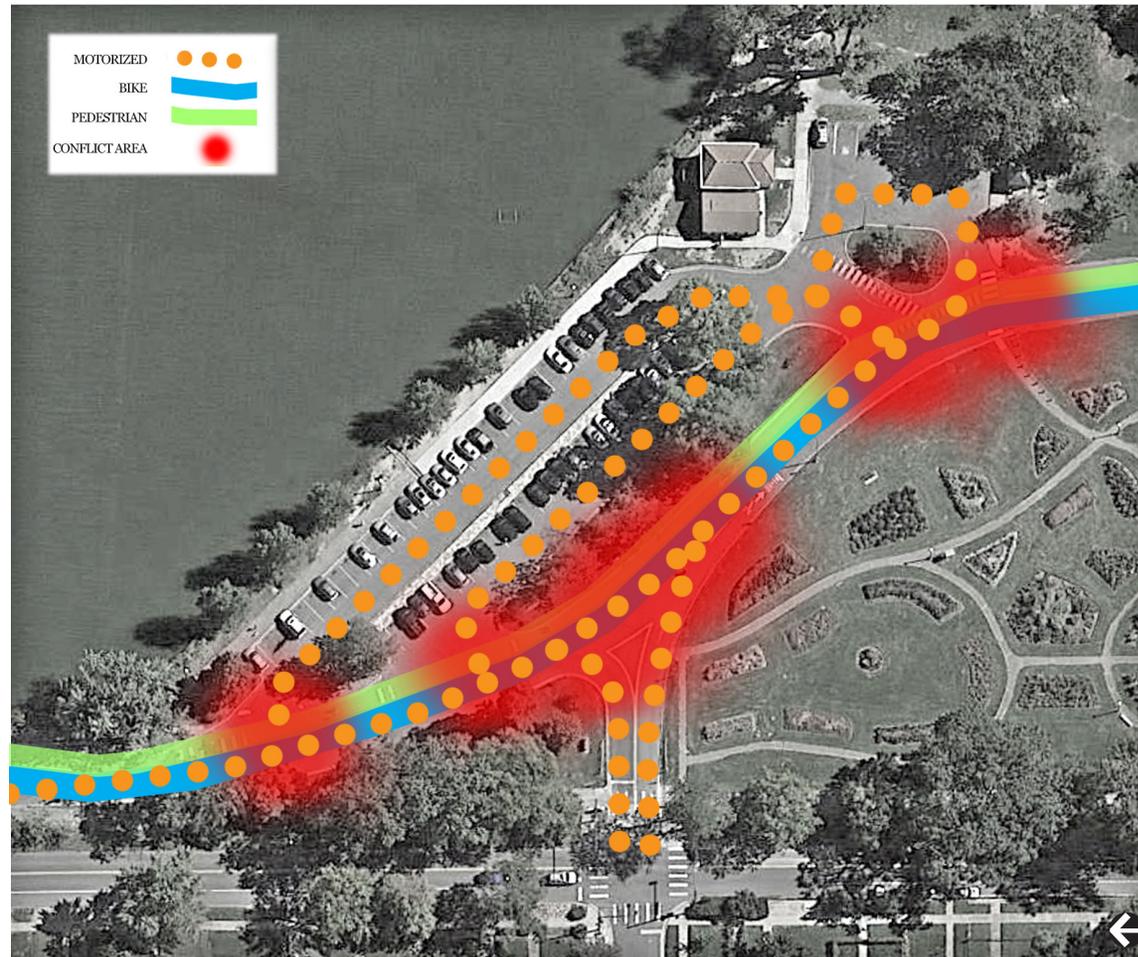


Figure 28. “Hot Spot” Diagram used to illustrate vehicular conflict areas along the Loop Road. Similar diagrams for each parking area will be shown in the following pages to explain the existing issues and how the recommended plan will improve these conditions.

Hot Spot Diagrams:

A “hot spot” diagram, as shown above, was created for each parking area to illustrate the identified issues/concerns. The various symbols are described below.

- The dotted orange line shows where motorized traffic is permitted.
- The solid blue (bike) and solid green (pedestrian) lines show traffic lanes on the Loop Road.
- Red clouds indicate concentrated conflict areas between Loop Road users and vehicles.

VEHICULAR AND PARKING AREA RECOMMENDATIONS

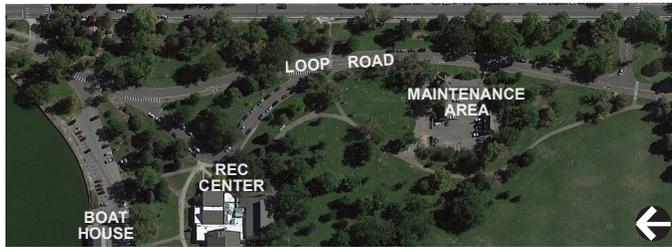


Figure 29. Existing Conditions: Recreation Center / Boat House

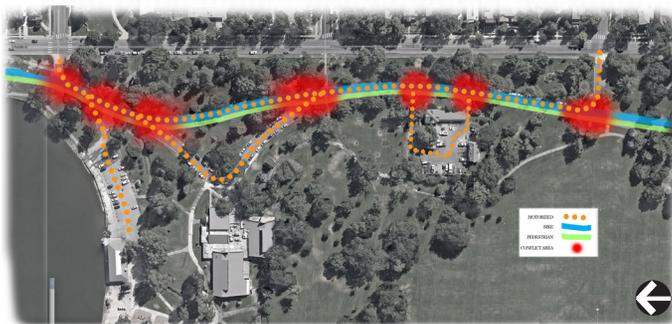
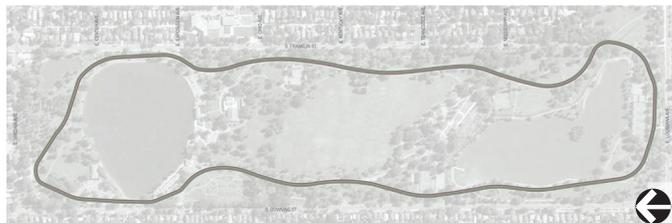


Figure 30. Existing Conditions Analysis: Recreation Center / Boat House



Parking Key Map

Recreation Center / Boat House Parking Lot--Analysis of Existing Conditions

On the east side of the park cars are permitted on the Loop Road from the entrance at Kentucky Avenue to the exit at Exposition Avenue (East). In addition to the maintenance building entrance, there are two vehicular crossings for the Rec Center and one for the Boat House. At these crossings vehicles must cross pedestrian and bike traffic to turn into the parking lots. For the vehicle driver it can be challenging to turn around to see if anyone is coming from behind before making this left turn. The turn-in points to the parking lots lack defined pavement markings and do not intersect the Loop Road at 90° angles, resulting in very long crosswalks (up to 100' in length). These crosswalks become a safety concern as vehicles can turn into the parking lot anywhere along the crosswalk length creating prolonged exposure for pedestrians. In addition to crosswalk concerns, the existing parallel parking along the Loop Road causes inconsistent conditions for users when people are unloading their cars and crossing traffic. (As mentioned in the project assumptions earlier in this document, it is assumed that all parallel parking will be removed from the Loop Road as part of the implementation of this safety plan.)

Recreation Center / Boat House Parking Lot--Design Considerations

The recommendations for the Rec Center and Boat House parking lots includes adding a separated vehicular lane, which removes cars from the Loop Road user traffic, as shown in crossings C2 and D2. Vehicles will intersect the Loop Road at Kentucky Avenue and be guided into the separated vehicle lane, which will lead them to the parking lot at the Rec Center. In addition, this plan connects the Rec Center parking lot with the Boat House parking lot, thereby eliminating the multiple vehicular intersection points along the Loop Road. When exiting the parking lot, cars will return to the vehicle lane and exit perpendicular to Loop Road traffic at the Exposition Avenue intersection. These changes will significantly reduce the vehicle and Loop Road user interaction, contributing to greater safety. The interim condition (Phase 1 which correlates with Crossings C1 and D1) is a simplified plan that preserves the existing Loop Road lane configuration, but improves safety and clarity of the “rules of the road” through the use of pavement markings and buffer zones that create perpendicular drive lanes into the parking areas, thereby reducing the length of the pedestrian crosswalks.

VEHICULAR AND PARKING AREA RECOMMENDATIONS

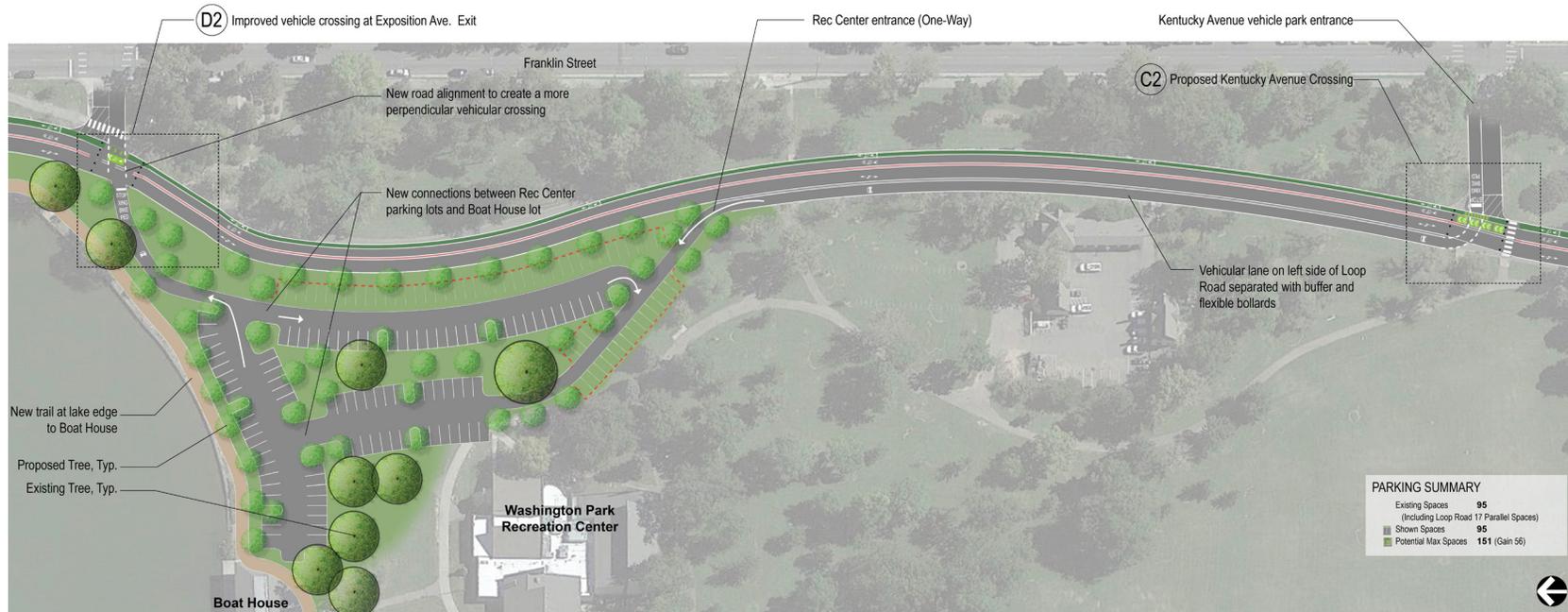


Figure 31. Recommended Improvements Concept: Recreation Center / Boat House Parking

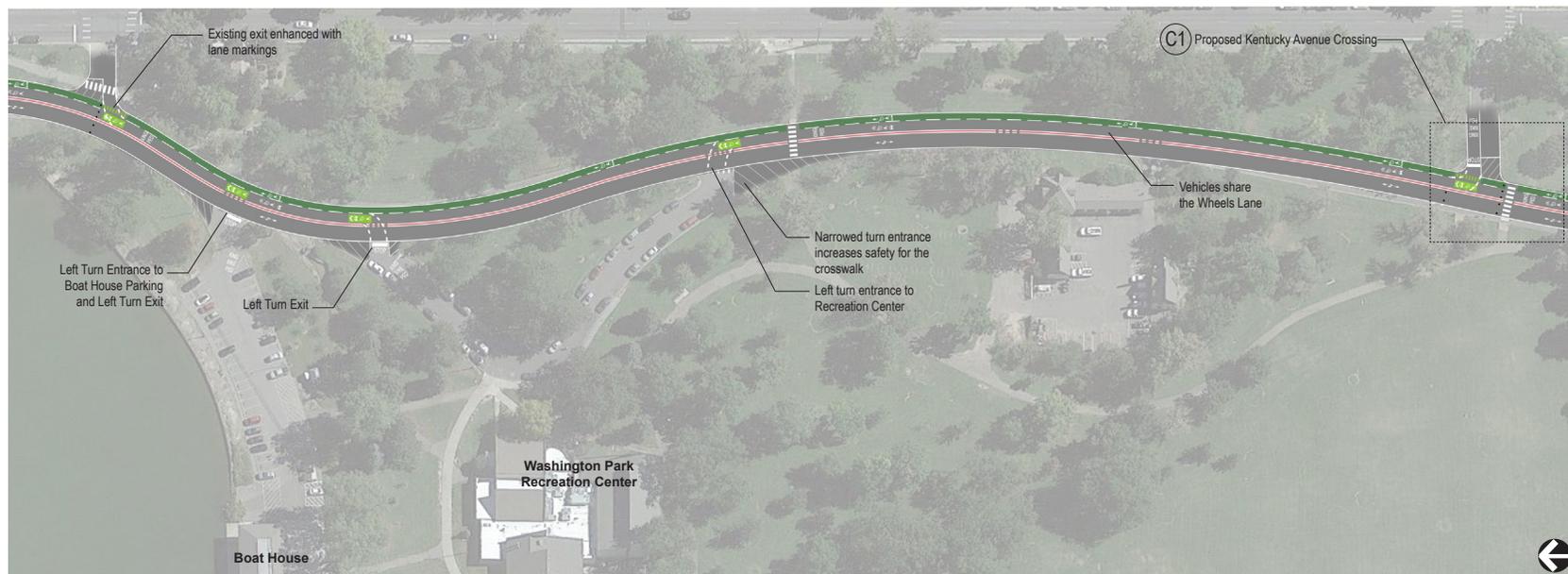


Figure 32. Interim Improvements Concept: Recreation Center / Boat House Parking (Included in Phase 1)



Figure 33. Existing Conditions: Exposition Avenue Parking

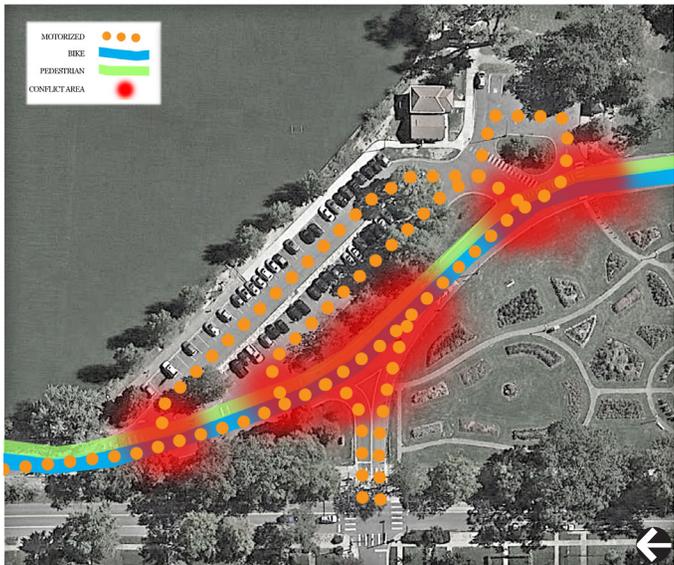


Figure 34. Existing Conditions Analysis: Exposition Avenue Parking

Exposition Avenue (West) Parking Lot--Analysis of Existing Conditions

The Exposition Avenue parking lot is a notorious area for congestion and conflicts between vehicles and recreational users. Many of the problems result from the lot itself--it is actually two halves separated by a retaining wall down the middle, and each side has a single loaded parking bay--so in addition to being inefficient in providing parking, it also requires visitors to circle around into the Loop Road to get from one half of the lot to the other--exposing more recreational users to vehicle movements across the Loop road Feet lane. Other issues arise from the location and layout of the entry drives--the main entry for cars entering the park from Downing requires vehicles to make a left turn from the Loop Road's shared Wheels lane across the Feet lane and into the east bay of the lot. High-speed cyclists passing these left-turning vehicles on the left create more potential conflict. A loop for the handicapped parking and a drop-off area just to the south of this entry adds to potential confusion and vehicle driving errors. At the other end of the lot, vehicles entering the parking lot from the north via the Loop Road make a left turn across the Feet lane into the western bay of the lot, again--creating more exposure to recreational users in the Feet lane, as well as creating conflicts with the cyclists and other wheels users who are sharing this section of Loop Road with the motor vehicles. Finally, cars exiting the lot and the park must cross the Loop Road and turn right at Exposition, which has a signalized intersection with Downing with limited queuing space. Vehicles waiting for the traffic signal often back up into, and block the Loop Road's Wheels lane adjacent to the parking lot, creating a significant safety concern. These numerous conflict points are highlighted in Figure 34 below.

Exposition Avenue Parking Lot--Design Considerations

The recommended improvements for this area flip the locations of the parking area and Loop Road, shifting the parking lot away from its current location along the lake's edge, and replacing it with the Loop Road, which becomes completely segregated from all of the vehicular circulation entering or exiting the parking lot (see Figure 35). The parking lot, now west of the loop road, is accessed directly from Exposition Avenue, and is reconfigured into a more efficient layout to provide more parking than the existing lot (allowing the park to recoup spaces lost due to removal of parallel parking along the Loop Road). As an additional benefit of this plan, a new lakeside promenade is possible along the water's edge adjacent to the relocated Loop Road, greatly improving the pedestrian environment in this area. The entire improvement for this area plan can be accomplished with no net increase in pavement area.

An interim condition is possible that maintains the existing parking lot/Loop Road locations, but improves safety through the use of new pavement markings and signage (see Figure 36).

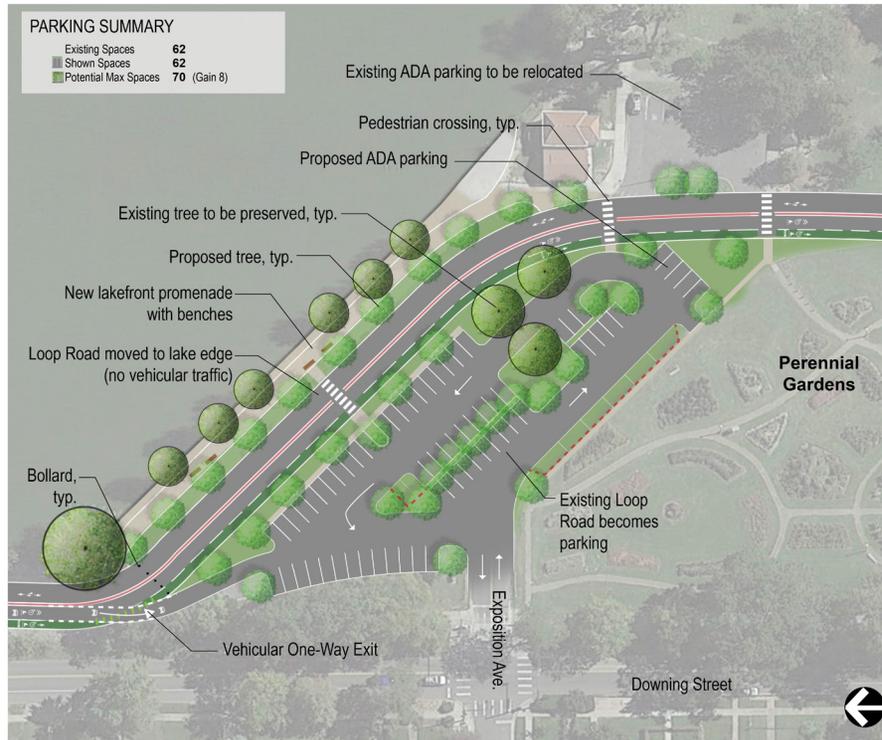


Figure 35. Recommended Improvement Concept: Exposition Avenue Parking Lot

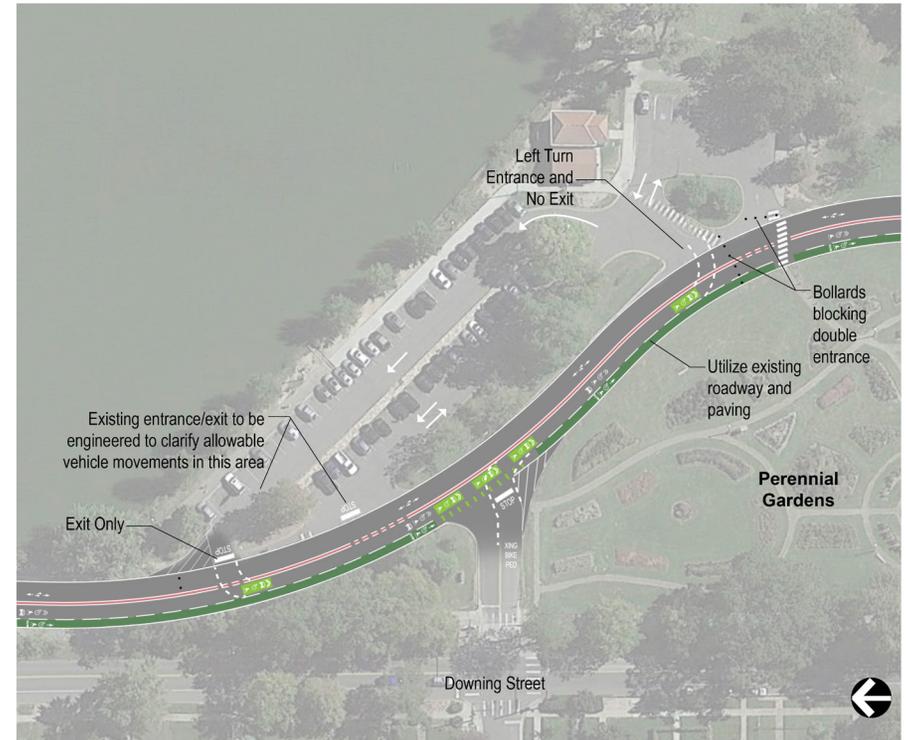
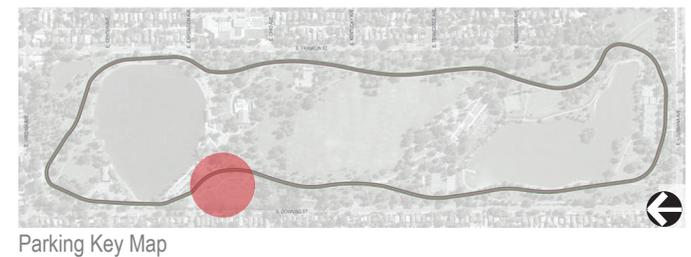


Figure 36. Interim Improvement Concept: Exposition Avenue Parking (Included in Phase 1)



VEHICULAR AND PARKING AREA RECOMMENDATIONS



Figure 37. Existing Conditions: Bath House Parking

Bath House Parking Lot--Analysis of Existing Conditions

Parking for the Bath House is currently divided into two separate parking areas (divided by a wall) with a total of four access points off of the Loop Road, see Figure 38. In a short distance vehicles entering and exiting these lots cross bike and pedestrian traffic in four areas, causing an unsafe and inconsistent experience for the Loop Road users. Vehicles in search of parking spaces often drive through one parking area, exit onto the Loop Road again, crossing bike and pedestrian traffic as they enter the second parking area. In addition, vehicles often enter the lots at the wrong end (intended to be from the south side of lots) further adding to the confusion and potential for conflicts with recreational users.

Bath House Parking Lot--Design Considerations

The recommended parking improvements propose to combine the two lots into one, and to close the two middle access points, which currently serve the smaller western lot, eliminating much of the vehicular cross traffic the combined lot has one entrance and one exit, see Figure 39. Pavement markings, signs and bollards clearly define vehicular traffic routes and parking lot entrances and exits. An interim condition (Phase 1) includes clearly defined pavement markings for drivers and Loop Road users, see Figure 40.

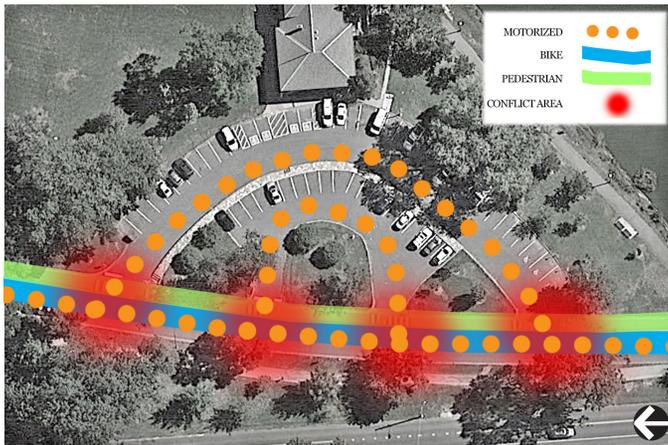


Figure 38. Existing Conditions Analysis: Bath House Parking



Parking Key Map

VEHICULAR AND PARKING AREA RECOMMENDATIONS

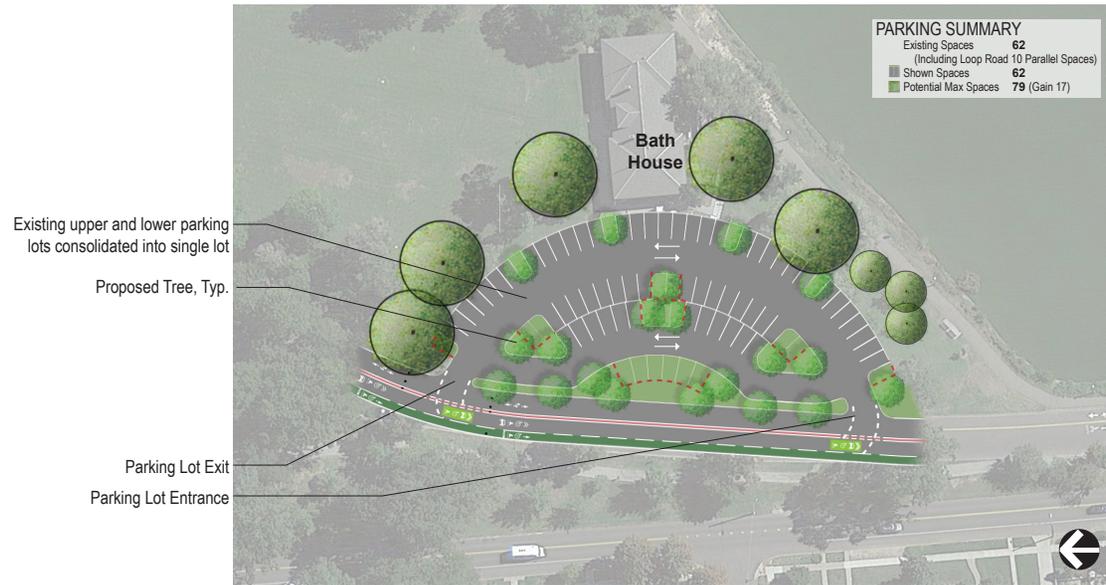
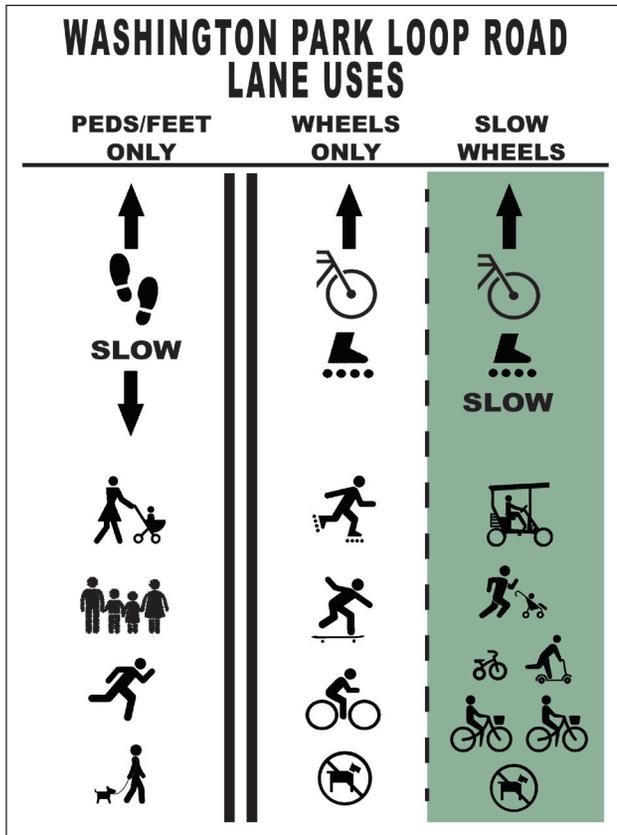


Figure 39. Recommended Improvement Concept: Bath House Parking



Figure 40. Interim Improvement Concept: Bath House Parking (Included in Phase 1)

Figure 41. LANE CONFIGURATION SIGN



The lane configuration sign works to communicate Loop Road usage regulations, and works in tandem with pavement markings to direct users to the appropriate lanes and travel directions for their activity.

Location: Lane usage signs (and pavement markings) shall be located on the “downstream” side of all crosswalks, intersections, and driveway entrances and exits. In locations where this spacing exceeds 500’ to 600’, intermediate signs should be added. Signs should be staggered with similar message pavement markings so message is communicated more frequently in different media to more effectively communicate to users.

Approximate Quantity: 17

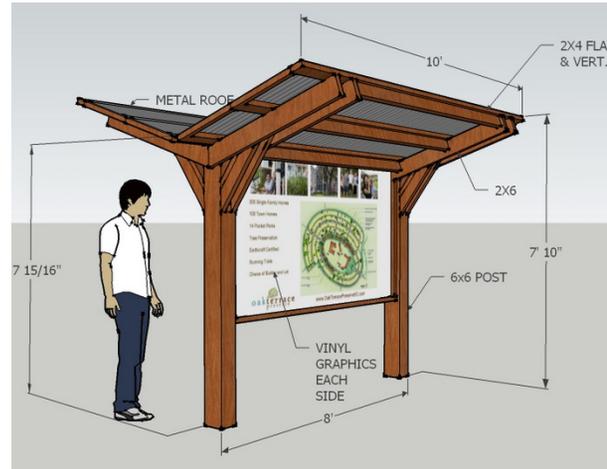


Figure 42. LARGE KIOSK

A multi-purpose sign/structure that provides an overall orientation to Washington Park. Combines way-finding, park rules, map information, and general tourist/visitor information and features. This is a free-standing structure (8’ wide x 6’ tall) with roof. The graphic area is approximately 4’ tall x 7.5’ wide.

Main components of sign include:

- Park map (including main facilities, parking lots, restrooms, concessionaires, etc.)
- Park rules
- Information on park attractions, facilities, special events (changeable area)
- Park history / interpretation features

Information specifically pertaining to the Loop Road includes:

- Loop Road diagram (part of larger, overall park map)
- Loop Road rules & user information
- Loop Road usage diagrams (including specific direction on designated lanes for each user type)

Location: Prominent “entry points” close to where visitors begin their visit to the Park (such as parking lots, gateways) and in places where people tend to congregate prior to beginning their park activities.

Approximate Quantity: 4



Figure 43. SPEED LIMIT SIGN

Speed limit signs are to be the standard regulatory roadway speed limit sign graphic as used on typical city streets, mounted on a uni-strut post.

Location: Speed limit signs should be placed after every intersection/driveway encountered along the Loop Road (only in the bike/vehicle direction). These would occur at the Diagonal, Kentucky Ave., Exposition Ave. (east side of park), Marion St., near Exposition Ave. by the gardens (west side of the park), south of the western tennis courts, and in the area of the southern tennis courts.

Approximate Quantity: 7



Figure 44. SMALL KIOSK



A large sign/small kiosk that provides way-finding and user information for park visitors. Includes park rules, park map, tourist/visitor information (for major attractions, facilities). Format shall be the Denver Park standard format sign with small roof or sunshade, about 4' wide x 6' tall. The graphic area shall be approximately 3.5' wide x 3' high.

Informational content pertaining to the Loop Road includes:

- Park map (including main facilities, parking lots, restrooms, concessionaires, etc.)

Loop Road information:

- Loop Road diagram (part of larger, overall park map)
- Loop Road rules & user information
- Loop Road lane usage diagrams (including specific direction on designated lanes for each user type)

Location: Well-used pedestrian entry points to the Loop Road, and at trail locations where people have room to stop and peruse information.

Approximate Quantity: 5

Figure 45. ELECTRONIC "SLOW DOWN" SIGN



These signs are equipped with speed radar, similar to "speed reading" signs often placed on streets, but instead of indicating speed, flashes "SLOW DOWN!" sign when users exceed speed limit (15 MPH).

Location: On descents of hills, at approaches to intersections, or areas of increased safety concern (mixing areas, major crosswalks).

Approximate Quantity: 5

Figure 46. ELECTRONIC/DIGITAL MESSAGE BOARD



Note: Park Maintenance Staff will manage the installation and funding of these signs.

Digital message boards communicate major events, park closures, special lane closures or hazards and other important information to park users. Message boards may also be used for education campaigns to improve overall awareness of Park / Loop Road rules and regulations. The signs should be digital, yet should appear (as much as possible) as simple lit signs, having a monochromatic, "non-flashy" appearance. Signs should be approximately 4' wide by 2' high, and mounted a minimum of 8' high (ground surface to bottom of sign) to minimize vandalism. Sign should be sited so as to not negatively affect prominent park views, and should "disappear" into background when not in use.

Location: Near major park entry points for vehicular and bicycle traffic

Approximate Quantity: 5

SIGNAGE

R1-1		R10-15 mod	
R3-1		W8-5 mod	
R3-2		W11-2	
R3-5A		W11-15	
R5-1		W11-15P	
R5-3		W16-7P	

Figure 47. VEHICULAR REGULATORY TRAFFIC SIGNS

Vehicle regulatory signs to be standard traffic issue, per standard signage protocols, placed as needed in vehicle areas throughout the park. (Example: No Left Turn sign for vehicles entering park at Diagonal)



Figure 48. Recommended Signage Location Map

- Lane Usage Sign
- ▲ Speed Limit Sign
- ↑ Major Kiosk
- ↑ Small Kiosk
- ⬡ Electronic Message Board
- ⬡ Electronic Slow Down Sign (Phase 2)

*Regulatory sign locations indicated in specific diagrams

EDUCATION AND AWARENESS

We know you
love Fido

but here's
the angle

keep that
leash short

to avoid a
tangle!

Creative “Burma-Shave” signs can be used to educate users on rules and regulations.



Events like walk/run races should be part of an awareness campaign.



Temporary signs can be used to address typical issues and safety concerns.

A key component of a successfully functioning Loop Road is public awareness and buy-in to the system of rules, recommendations and physical improvements that will be implemented in the park. To help foster public acceptance of the Loop Road system, a broad approach to educate the public and keep them apprised of changes, improvements, and new safety concerns should be implemented on an on-going basis. These efforts should be recurring and cyclical, perhaps in concert with popular repeating annual and seasonal events.

1. Conduct a Multi-Faceted Education and Awareness Campaign at the Rollout of the Phase 1 Loop Road Safety Improvements. This multi-media campaign is intended to make the public aware of all of the changes, new rules and regulations, and other improvements made to the Loop Road as part of the Phase 1 improvements project. The campaign will seek to reach park users and the general public to communicate important information and to promote the public's participation and cooperation using a variety of forums, events and media types. The campaign could include:

- Press release to local newspapers, community websites, city council blogs, neighborhood groups and to residents informing the public of new changes to the Park/ Loop Road.
- Events and activities in the Park that create a large public presence and attract attention to the roll-out of the new Loop Road facility. Events could include race/ walks with give-aways (maps, dog leashes, T-shirts), food vendors, or live music. Organizers should consider partnering with or co-sponsoring existing high-profile events and races to reach a maximum number of people (such as the Furry Scurry, Turkey Trot, and/or other annual races & events).
- Temporary signage in the park making users aware of changes along the Loop Road. These signs can be inexpensive and more creative (and humorous or edgy) than permanent signs. Possible sign ideas include “Burma Shave”-type signs that include a sequence of signs that communicate a single message. The objective of these temporary sign installations is to grab people’s attention, so sign messages and graphics can (and should) stand out more than the permanent signs that are part of the everyday park environment.

2. Keep Education and Awareness Messages Current: New safety messages will get old, some users will forget the rules, and a few old-timers will slip back into “pre-improvement” behaviors. As a means to keep the Loop Road system running smoothly, a coordinated effort will be required to keep the messages fresh. Some approaches to achieve this include:

- Regularly programmed messages into the proposed Digital Message Boards to reinforce safety and management objectives.
- Mobile and on-line technology can be used to make Park & Loop Road information easily accessed by users. Potential ideas include “QR Codes” that link users to pertinent information (maps, rules and regulations) on the Denver Parks and Rec website, or

better yet, a Denver Parks and Recreation App, which would allow easy access to this information from mobile devices.

- On-going events and media campaigns like the “Phase 1 Roll-Out” should be planned on a continual and regular basis.

Recommendations for regulatory and enforcement changes/improvements include pursuit of changes to allow easier and better enforcement of existing rules (i.e. speed) and to introduce new rules that discourage conflicting lane use. Recommendations include:

- Continued enforcement of speed regulations (current 15 MPH speed limit to remain)
- Designate the Loop Road as a Trail or make adjustments to regulations to allow Park Rangers to enforce rules beyond speed (i.e. long dog leashes)
- Disallow dogs in Wheels lanes
- Discourage road hogging by:
 - Encouraging jogging with strollers to occur single file in the Slow Wheels lane
 - Require all surreys to use the Slow Wheels lane
 - Consider restricting large surreys to weekday use only during May through September
 - Increase resources for enforcement



Consider introducing new regulation to manage slow-moving and wide vehicles such as surreys.



Enabling park rangers to enforce more trail-related rule violations will improve safety on Loop Road.

COST ESTIMATE AND PHASING PLAN



Figure 49. Phasing Reference Map



Project Phases: Recommended improvements are organized into two tiers for the purpose of prioritizing design and construction in a flexible manner to be implemented as funds become available. Phase 1 includes all of the required design elements of the Loop Road to function safely and cohesively. The additional phases for parking expansions, lane configuration upgrades and signage can be implemented as funds become available.

Cost: Estimated costs (see following pages) are in 2015 dollars. Unit take-offs are at a conceptual level based on maps, plans and typical sections included in this report. As detailed design occurs, quantity requirements and unit costs for individual projects will likely change.

*See Signage Location Map for Cost Estimate Section D: Additional Signage (p. 47)



OPINION OF PROBABLE CONSTRUCTION COSTS FOR:
Washington Park Loop Road Improvements
 Final Recommendations Plan
 March 3, 2015

(*All costs shown for 2015.)

Phase	Description	Bid Quant.	Unit	Unit Price	Total Cost	Notes
PHASE 1 REQUIREMENTS						
1.01	Mobilization & Survey	1	LS	\$ 24,752.00	\$24,752.00	7% total
1.02	Erosion Control	1	LS	\$ 6,500.00	\$6,500.00	2% total
1.03	Remove Existing Traffic Striping and Symbols	1	LS	\$ 7,920.00	\$7,920.00	Approx. 0.75/ft
1.04	Paint Striping	30,000	LF	\$ 0.84	\$25,200.00	4" width white high build paint to be 23-25 mil thickness.
1.06	Thermoplastic Lane Symbols*	1	LS	\$ 68,944.00	\$68,994.00	(Subtotal of line items a-i) *Prices referenced from Ennis Flint PreMark Price List 2/15/2014
a	Pedestrian Lane	30	EA	\$ 318.00		\$ 9,540.00
b	Wheels Lane	27	EA	\$ 396.00		\$ 10,692.00
c	Wheels Lane with Car Symbol	3	EA	\$ 630.00		\$ 1,890.00
d	Slow Wheels Lane	41	EA	\$ 576.00		\$ 23,616.00
e	"XING PED" on Loop Road	8	EA	\$ 372.00		\$ 2,976.00
f	Green-Backed Modified Sharrow	2	EA	\$ 666.00		\$ 1,332.00
g	Green-Backed Modified Sharrow with Car Symbol	7	EA	\$ 888.00		\$ 6,216.00
h	"STOP" at car crossings	5	EA	\$ 300.00		\$ 1,500.00
i	"XING BIKE PED" at car crossings	13	EA	\$ 864.00		\$ 11,232.00
1.07	Thermoplastic Crossings	2,472	SF	\$ 12.00	\$29,664.00	Includes "STOP" bar, pedestrian crossing symbol, and green dashes in slow wheels lane
1.08	Asphalt Coloring Treatment: 6' Green Slow Wheel Lane	67,725	SF	\$ 1.50	\$101,587.50	Colored Seal Coat
1.09	Asphalt Coloring Treatment: 2' Red Center Buffer	22,751	SF	\$ 1.50	\$34,126.50	Colored Seal Coat
1.1	Vehicular Regulatory Traffic Signs	35	EA	\$ 300.00	\$10,500.00	
1.11	Speed Limit Signs	7	EA	\$ 300.00	\$2,100.00	
1.12	Lane Usage Sign	17		\$ 400.00	\$6,800.00	
1.13	Bollard	53	EA	\$ 700.00	\$37,100.00	
				SUBTOTAL	\$355,244.00	
				20% Contingency	\$71,048.80	
				10% Design Allowance	\$42,629.28	
				TOTAL	\$468,922.08	
BID ALTERNATE 1 DOUBLE WHITE STRIPING IN SLOW WHEELS						
1.23	Paint Striping: Double White Stripes in Slow Wheels	23,000	LF	\$ 0.84	\$19,320.00	
	Asphalt Coloring Treatment: 6' Green Slow Wheel Lane				\$101,587.50	
				TOTAL DEDUCTION	-\$82,267.50	
BID ALTERNATE 2 ASPHALT SEAL COAT						
1.24	Asphalt Seal Coat: Entire Loop Road (Black)	363,825	SF	\$ 0.25	\$90,956.25	Usually paid for by ton
BID ALTERNATE 3 COLORED/TEXTURED STAMP						
1.25	Colored / Textured Stamp on 2' Buffer	22,750	SF	\$ 3.00	\$68,250.00	Unconfirmed costs. Price assumes using existing asphalt. (DuraTherm by Ennis Flint)

(*All costs shown for 2015.)

Phase	Description	Bid Quant.	Unit	Unit Price	Total Cost	Notes
BID ALTERNATE 4 PAINTED LANE SYMBOLS						
1.26	Painted Lane Symbols (in lieu of thermoplastic)	1	LS	\$ 17,248.50	\$17,248.50	High Build Paint at 23-25 mil thickness. (subtotal of line items a-i)
a	Pedestrian Lane	30	EA	\$ 79.50		\$ 2,385.00
b	Wheels Lane	27	EA	\$ 99.00		\$ 2,673.00
c	Wheels Lane with Car Symbol	3	EA	\$ 157.50		\$ 472.50
d	Slow Wheels Lane	41	EA	\$ 144.00		\$ 5,904.00
e	"XING PED" on Loop Road	8	EA	\$ 93.00		\$ 744.00
f	Modified Sharrow	2	EA	\$ 166.50		\$ 333.00
g	Modified Sharrow with Car Symbol	7	EA	\$ 222.00		\$ 1,554.00
h	"STOP" at car crossings	5	EA	\$ 75.00		\$ 375.00
i	"XING BIKE PED" at car crossings	13	EA	\$ 216.00		\$ 2,808.00
1.27	Painted Crossings	2,472	SF	\$ 2.40	\$5,932.80	High Build Paint at 23-25 mil thickness. Includes "STOP" bar, pedestrian crossing symbol, and green dashes in slow wheels lane
SUBTOTAL					\$23,181.30	
Thermoplastic Cost (deduction)					-\$98,658.00	
TOTAL DEDUCTION					-\$75,476.70	
PARKING EXPANSION A: RECREATION CENTER PARKING EXPANSION						
A1.01	Demo and Removals	1	LS		\$123,100.00	Includes asphalt, clear and grub, concrete, and haul and disposal @ .50/SF
A1.02	Grading Allowance	36,000	SF	\$ 6.00	\$216,000.00	
A1.03	Pipe City Ditch	195	LF	\$ 400.00	\$78,000.00	
A1.04	Curb and Gutter	2,460	LF	\$ 13.50	\$33,210.00	
A1.05	Landscape	18,075	SF	\$ 4.00	\$72,300.00	Accounts for irrigation, turf, shrubs and trees
A1.06	Lighting	7	EA	\$ 6,000.00	\$42,000.00	
A1.07	Asphalt Paving	43,540	SF	\$ 3.50	\$152,390.00	
A1.08	Mill/Overlay Asphalt Paving	7,775	SF	\$ 1.25	\$9,718.75	
A1.09	Crusher Fines Paving	8,130	SF	\$ 1.45	\$11,788.50	Lakeside trail
A1.10	Paint Striping: parking spaces	1,695	LF	\$ 0.80	\$1,356.00	
A1.11	New Vehicular Lane on Loop Road	1	LS	\$ 99,532.50	\$99,532.50	(Subtotal of line items a-e)
a	Grading Allowance	7,500	SF	\$ 6.00		\$ 45,000.00
b	Asphalt Paving	7,310	SF	\$ 3.50		\$ 25,585.00
c	Paint Striping	1,450	LF	\$ 0.80		\$ 1,160.00
d	Curb and Gutter	725	LF	\$ 13.50		\$ 9,787.50
e	Flexible Bollards (1 bollard/8')	90	EA	\$ 200.00		\$ 18,000.00
SUBTOTAL					\$839,395.75	
20% Contingency					\$167,879.15	
10% Design Allowance					\$100,727.49	
TOTAL					\$1,108,002.39	
ADD ALTERNATE: RECREATION CENTER MAXIMUM PARKING BUILDOUT						
A1.17	Demo and Removals	1	LS		\$16,000.00	Includes asphalt, clear and grub, concrete, and haul and disposal
A1.18	Curb and Gutter	580	LF	\$ 13.50	\$7,830.00	
A1.19	Asphalt Paving	8,820	SF	\$ 3.50	\$30,870.00	
A1.20	Mill/Overlay Asphalt Paving	945	SF	\$ 1.25	\$1,181.25	
A1.21	Paint Striping: parking spaces	1,008	LF	\$ 0.80	\$806.40	
A1.22	Landscape Budget (deduction)	-3,185	SF	\$ 4.00	-\$12,740.00	
SUBTOTAL					\$43,947.65	
10% Design Allowance					\$4,394.77	
TOTAL					\$48,342.42	

COST ESTIMATE AND PHASING PLAN

(*All costs shown for 2015.)

Phase	Description	Bid Quant.	Unit	Unit Price	Total Cost	Notes
PARKING EXPANSION B: EXPOSITION STREET PARKING EXPANSION						
B1.01	Demo and Removals	1	LS		\$80,600.00	Includes asphalt, clear and grub, concrete, and haul and disposal
B1.02	Grading Allowance	13,500	SF	\$ 6.00	\$81,000.00	
B1.03	Curb and Gutter	1,469	LF	\$ 13.50	\$19,831.50	
B1.04	Landscape	20,895	SF	\$ 4.00	\$83,580.00	Accounts for irrigation, turf, shrubs and trees
B1.05	Lighting	5	EA	\$ 6,000.00	\$30,000.00	
B1.06	Asphalt Paving	18,355	SF	\$ 3.50	\$64,242.50	
B1.07	Mill/Overlay Asphalt Paving	10,655	SF	\$ 1.25	\$13,318.75	
B1.08	Crusher Fines Paving	4,385	SF	\$ 1.45	\$6,358.25	
B1.09	Wall Demo	245	LF	\$ 25.00	\$6,125.00	
B1.10	Paint Striping: parking spaces	1,080	LF	\$ 0.80	\$864.00	
B1.11	Thermoplastic Symbol: Car with Arrow	1	EA	\$ 265.00	\$265.00	
B1.12	Bollard	5	EA	\$ 700.00	\$3,500.00	
				SUBTOTAL	\$389,685.00	
				20% Contingency	\$77,937.00	
				10% Design Allowance	\$46,762.20	
				TOTAL	\$514,384.20	
ADD ALTERNATE: EXPOSITION STREET MAXIMUM PARKING BUILDOUT						
B1.13	Demo and Removals	1	LS		\$2,870.00	Includes asphalt, clear and grub, concrete, and haul and disposal
B1.14	Curb and Gutter	191	LF	\$ 13.50	\$2,578.50	
B1.15	Landscape	-1,805	SF	\$ 4.00	-\$7,220.00	Accounts for irrigation, turf, shrubs and trees
B1.16	Asphalt Paving	1,640	SF	\$ 3.50	\$5,740.00	
B1.17	Paint Striping: parking spaces	122	LF	\$ 0.80	\$97.60	
				SUBTOTAL	\$4,066.10	
				10% Design Allowance	\$406.61	
				TOTAL	\$4,472.71	
PARKING EXPANSION C: BATH HOUSE PARKING EXPANSION						
C1.01	Demo and Removals	1	LS		\$46,800.00	Includes asphalt, clear and grub, concrete, and haul and disposal
C1.02	Grading Allowance	22,650	SF	\$ 6.00	\$135,900.00	
C1.03	Curb and Gutter	1,300	LF	\$ 13.50	\$17,550.00	
C1.04	Landscape	6,275	SF	\$ 4.00	\$25,100.00	Accounts for irrigation, turf, shrubs and trees
C1.05	Lighting	5	EA	\$ 6,000.00	\$30,000.00	
C1.06	Asphalt Paving	16,715	SF	\$ 3.50	\$58,502.50	
C1.07	Mill/Overlay Asphalt Paving	7,905	SF	\$ 1.25	\$9,881.25	
C1.08	Wall Demo	270	LF	\$ 25.00	\$6,750.00	
C1.09	Paint Striping	1,150	LF	\$ 0.80	\$920.00	*Includes parking striping and dashed guides for cars
				SUBTOTAL	\$331,403.75	
				20% Contingency	\$66,280.75	
				10% Design Allowance	\$39,768.45	
				TOTAL	\$437,452.95	
ADD ALTERNATE: EXPOSITION STREET MAXIMUM PARKING BUILDOUT						
C1.10	Demo and Removals	1	LS		\$4,800.00	Includes asphalt, clear and grub, concrete, and haul and disposal
C1.11	Curb and Gutter	218	LF	\$ 13.50	\$2,943.00	
C1.12	Landscape	-3,010	SF	\$ 4.00	-\$12,040.00	Accounts for irrigation, turf, shrubs and trees
C1.13	Asphalt Paving	2,670	SF	\$ 3.50	\$9,345.00	
C1.14	Mill/Overlay Asphalt Paving	340	SF	\$ 1.25	\$425.00	
C1.15	Paint Striping: parking spaces	306	LF	\$ 0.80	\$244.80	
				SUBTOTAL	\$5,717.80	
				10% Design Allowance	\$571.78	
				TOTAL	\$6,289.58	

COST ESTIMATE AND PHASING PLAN

(*All costs shown for 2015.)

Phase	Description	Bid Quant.	Unit	Unit Price	Total Cost	Notes
ADDITIONAL SIGNAGE D						
D1.01	Kiosk (Large)	4	EA	\$ 10,000.00	\$40,000.00	Unconfirmed cost
D1.02	Kiosk (Small)	5	EA	\$ 3,000.00	\$15,000.00	Unconfirmed cost
D1.03	Digital Message Board Signs	4	EA	\$ 8,000.00	\$32,000.00	Unconfirmed cost
D1.04	Electronic "Slow Down" Signs (Phase 2)	6	EA	\$ 5,000.00	\$30,000.00	Unconfirmed cost
				SUBTOTAL	\$117,000.00	
				20% Contingency	\$23,400.00	
				10% Design Allowance	\$14,040.00	
				TOTAL	\$154,440.00	
MARKETING AND PROMOTION E						
E	Education and Awareness	1	Yearly	\$ 5,000.00	\$5,000.00	Educational Events, Press Release

CLOSING REMARKS

Resolving the Loop Road safety issues is a complex and multi-layered challenge. While the improvements recommended in this plan can be phased, there is also a need to be strategic in assuring that, especially at the outset, improvement measures are sufficiently substantial and comprehensive so as to create a systemic change in the way that the Loop Road is perceived and used. Many users have been recreating on the Loop Road for many years, if not decades, and some users may be resistant to change. A concern is that modest, incremental changes in the Loop Road system will be easy for visitors--especially long time users-- to ignore which could result in further confusion and resistance. As a result, the plan makes recommendations for a broad approach to resolving safety issues that includes guidance beyond physical and lane configuration improvements that include signage, education/awareness programs, and enhanced regulation and enforcement. Without a comprehensive approach to implementation, there is a much greater chance that improvement measures will fall below the desired performance mark for making the Loop Road a safer place.

The Phasing Plan included in this document takes into account the need for a comprehensive approach, and includes broad and multi-faceted recommendations, however, the plan acknowledges that many improvements, such as the various parking lot improvement plans, will require many years and more extensive funding resources to implement fully. While a complete and simultaneous renovation of the Loop Road and all the associated parking lot improvements would be ideal, it should not be a great detriment to phase in some of the more expensive physical improvements over a longer time period once Phase 1 has been implemented, and is successful in creating the new paradigm for the Loop Road.

Successful whole implementation of Phase 1, therefore, is truly the key to achieving the safety and user experience goals and objectives identified for the project by Denver Parks and Recreation, the stakeholder group, and the public. The improvements called for in the first phase of implementation will be fundamental to improving the function, safety, and user experience of the Loop Road. Once implemented, the Loop Road and the Park will be further enhanced, and will support other major park master plan objectives, as funding allows and subsequent phases are implemented over time. Given its importance to the success of the overall endeavor, Phase 1 should only be implemented at such a time that there are sufficient resources to complete all aspects of the recommendations, so that the various elements of the plan can mutually support and reinforce the intended experiential and safety measures designed to create permanent and positive change.

APPENDIX I

DATA GATHERING INVESTIGATIONS REPORT AND ISSUES SUMMARY

Washington Park Loop Road Safety Planning

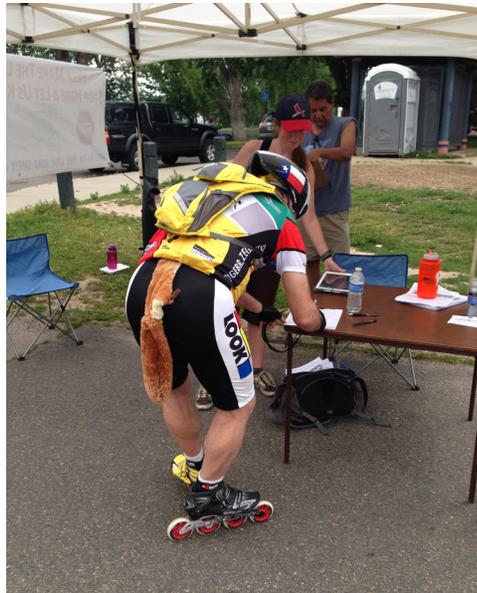
CITY AND COUNTY OF DENVER, COLORADO

DATA GATHERING INVESTIGATIONS REPORT AND ISSUES SUMMARY



TABLE OF CONTENTS

Acknowledgments
Executive Summary
Information Gathering and Analysis Process
Issues Summary
Appendices



APPENDIX I DATA GATHERING INVESTIGATIONS: REPORT AND ISSUES SUMMARY

This overall scope of work for this Data Gathering and Investigations phase of work included the following:

- Review background materials and previous studies including resources identified in the “Prior efforts and resources” section
- Visit Washington Park and the Loop Road to inventory and observe safety/circulation issues and opportunities
- Interview and coordinate with internal DPR staff to gather information and staff perspective about Loop Road issues
- Conduct workshop with WPLRSPG stakeholder group
- Prepare and publish on-line public comment survey for input and observations of existing conditions and Loop Road issues
- Perform intercept surveys on site
- Conduct one public meeting to present the findings of Road problem and issue investigations, and to solicit feedback/information from attendees about their perceived issues with the park road circulation
- Analyze public feedback and comments resulting in (this) brief report summarizing the data, information and summary of Road safety and function issues.

Following the Data Gathering and Investigations task, the design team will continue with alternative development and final planning recommendations. For the initial approximate schedule of tasks in this process, please refer to the schedule provided in the appendices at the end of this report.

Prior efforts and resources:

- 2013 - Fehr and Peers - Preliminary recommendations for access at Franklin, Exposition, and Marion
- 2011 - Wenk Associates - The Washington Park Master Plan
- 2005 - Denver Parks and Recreation - Internal memorandum and preliminary recommendations for short and long term solution development.
- 2005 - Denver Parks and Recreation - Washington Park Road Rules and Regulations
- 2003 - Mundus Bishop - The Washington Park Cultural Landscape Assessment and Preservation Plan



Image 3. Intercept surveys in progress at the Washington Park Loop Road

ACKNOWLEDGMENTS

City and County of Denver

Administration

Denver Mayor: Michael Hancock
 Manager, Denver Parks and Recreation: Lauri Dannemiller
 Deputy Manager, Parks: Scott Gilmore

Planning and Design

Director of Planning, Denver Parks and Recreation: Gordon Robertson
 Parks Planner / Project Manager, Denver Parks and Recreation: Greg Kaiser
 Pedestrian/Bicycle Project Manager, Denver Public Works: Emily Snyder

Maintenance and Operations

Washington Park Maintenance Supervisors: Jill Coffman and Michael Keyser
 Denver Park Ranger Program Administrator: Bob Toll

Consultant Team

Stream Design Landscape

Architecture - Lead

Jess Clark
 Paul Thomas
 Heather Grogan
 Claire Kesecker

Alta Planning and Design

Joe Gilpin
 Alicia Zimmerman
 Josh Mehlem
 Jessica Stonberg

WPLRSPG Working Group

<u>Name</u>	<u>Interest/Role</u>
Gary Christlieb	Park user
Jess Clark	Design Consultant
Jill Coffman	DPR Superintendent
Robert Cornell	DPR Park Ranger
Phil Demosthenses	Park user
Bob Finch	DPR Natural Resources
Scott Gilmore	DPR Deputy Manager
Heather Grogan	Design Consultant
Cindy Johnstone	FANS of Wash Park
Greg Kaiser	DPR Project Manager
Valerie Kerns	City Council (Dist. 7)
Mike Keyser	DPR Operations
Glen Legowik	FANS of Wash Park
David Matthews	West Wash Park
Kevin McCorry	West Wash Park
Josh Mehlem	Design Consultant
Frank Miltenberger	FANS of Wash Park
Stacy Simonet	City Council (Dist. 6)
Emily Snyder	Public Works
Paul Thomas	Design Consultant
Tom Wagner	Mayors Bicycle Advisory Committee
Geno Wasilewski	Concessionaire Wheels of Fun
Alicia Zimmerman	Design Consultant

EXECUTIVE SUMMARY

What the 2011 Washington Park Master Plan calls for:

Of loop road related issues, the Masterplan identifies that the most evident problems in the Park are:

- Not enough parking
- Conflicts with vehicles on roads
- Conflicts between pedestrians and high speed bicyclists

The 2011 Washington Park Master Plan outlines Objectives for circulation and parking as follows:

- Reduce conflicts
- Eliminate parallel parking
- Reduce loop road open to vehicles.
- Relocate vehicular parking away from lakes
- Provide better signage

The 2011 Washington Park Master Plan makes the following recommendations for the loop road:

- Wheeled circulation move one-way only
- Clearly mark loop road
- Encourage appropriate speeds
- Discourage high speed and enforce speed limits.
- Clearly mark crosswalks
- Improve Park signage

Information Gathering

Three main avenues of information gathering were implemented in order to evaluate opinions regarding safety issues on the loop road in order to integrate specific observations, opinions, regulatory boundaries, and desires from local and regional users of the park and Loop Road as follows:

- Planning and maintenance staff interviews
- Park ranger interviews,
- A comprehensive and intensive public outreach/input process

The public outreach/input process included an open public meeting, stakeholder workshops, on-line and field intercept surveys, website presence, and on-line “social network” feedback options (Facebook).

This *Data Gathering Investigations Report and Issues Summary* presents the information collected and a summary of interpreted safety-related issues determined to be of primary concern.

Generally, the primary safety related issues identified fall into three categories:

Physical Character and Format: A lack of clarity for users (all travel modes) regarding where they should be, how they should cross, and which direction they should go.

User Awareness: New and casual users often do not know, notice, or regard the direction of travel, pedestrian/bike lane markings, and speed or usage rules. In addition users with strollers and walking dogs on long leashes often lack awareness of their surroundings.

Regulation Challenges: With limited manpower resources and a restricted ability to enforce non-speed related issues, park rangers and staff are constrained in regulatory abilities. Signage and pavement markings are not adequate to encourage self or passive regulation.

Issues Summary

The design team, working group, and Denver Parks staff evaluated the information and data from the information gathering process and developed the following summary of opinions and safety related issues to be addressed in the future development of solutions:

Most users are happy with the loop road configuration as it is - although many complaints are related to the perception that users do not following the existing rules or are disrespectful to other users.

- Some specific examples include wrong direction or wrong lane usage, vehicles not yielding or stopping, and “close call” passing. *Note: These behaviors may be due to disregard (i.e. scofflaws) or lack of awareness and knowledge of rules.

Most users indicated that they believe more and consistent education and enforcement to reinforce the rules of the loop road would help to address lack of rule awareness.

Most users believe that improvements or changes to road configuration should be subtle “tweaks” rather than dramatically different; and should preserve the setting and experience that makes Washington Park so special.

Most users agree that the current rules and configuration are not intuitive and are confusing. The current configuration also does not adequately identify where “non-standard” transportation modes should travel (i.e. skaters, strollers, children on bikes, etc.) Several visitors explained that they “don’t know where they should be”.

The existing rules are not communicated adequately. Pavement markings are too infrequent or difficult to read, and existing signs “disappear” - are difficult to read, understand, and sparsely distributed through the park.

There are competing needs regarding vehicular access in that most visitors would prefer limited vehicular traffic in the park in order to limit conflict with peds and bikes – but most also agree that existing parking capacity should be maintained in the park to limit parking in neighborhoods on residential streets.

Most users acknowledge that the park is very busy, and that there is not consensus on limiting usage to specific modes,

- The capacity of the loop road to accommodate larger numbers of bikes and peds is important during busy times.
- .Accommodation of “most” users should consider that varying modes of travel come with varying speeds.
- Combinations of uses may be considered more dangerous (i.e. bikes or skaters with dogs on leashes).

A large number of users have indicated that other non-legally enforceable infractions (i.e. wrong direction movement, “road hogging”, dogs, stroller groups, etc.) present unsafe situations as do speed related infractions.

Conflicting overall park user types (i.e. picnickers, field users) sometimes result in conflict and accidents due to crossing traffic.

- Crossing areas are insufficiently marked or are outdated (i.e. abandoned connections), and lack hierarchy.
- There is no “warning” at the edge of the road for filtering cross traffic.
- In some cases where vehicles and/or bicycles approach pedestrian crossings, physical configuration, size, and angles of approach create awkward and dangerous scenarios.
- Sight lines and views are often obstructed by landscape features.
- Motorists may not be accustomed to paying attention to cyclist cross traffic whereby, a faster moving cyclist is difficult to distinguish from a slow moving pedestrian

INFORMATION GATHERING AND ANALYSIS PROCESS

Denver Parks Staff Input

DPR Staff interviews and workshop - April 23, 2014

The design team met with and interviewed maintenance and operations staff to discuss the history of the Loop Road, past and current issues, and potential solutions. The summary of dominant discussion items includes:

- Many issues stem from sheer increased number of users on the Road at the same time
- Speed of users is as important (if not more) as type of user (for example, high speed bikers have different needs and patterns than low speed “cruising” cyclists or children on bikes) so separation by type of user may not necessarily be the best solution
- Road character must be easy to maintain by staff over the long haul
- Dominant but often overlooked issues are related to stroller walkers (often 2 abreast taking up much of the pedestrian or bike lane), dog walkers with longer leashes (rule is 6’ max) and people who are “plugged in” (using headphones to listen to music or talk on the phone), or are paying attention to digital devices (texting, etc.)
- Consider snow removal, waste removal, and access year round
- Maintenance vehicles must have access to and through all segments
- Event usage must be accommodated including maintained width acceptable for large race/walk events, temporary waste and portable toilet access, etc.
- Consider possible varied usage by time and/or day of the week (for example: higher speed activities allowed during early hours weekdays only)

Ranger Staff Conference Call - May 14, 2014

The design team participated in a conference call with park ranger staff to discuss their role specific to enforcement of the rules of the Park (Loop) Road, enforcement policies, challenges, and potential solutions.

The summary of dominant discussion items includes

- Rangers can only legally ticket for bicycle speeding or operations which are punishable by fine only. No other traffic enforcement is allowable by rangers - other enforcement measures come in the form of courtesy traffic stops, informative or advisory interactions with users, etc. - In 2013 rangers issued 577 bicycle speeding tickets and 153 bicycle operations tickets
- Most issues on the Road stem from a large number of users using the Road during peak times with highly varying speeds
- A more self-regulating configuration would allow rangers to focus on more serious issues, they currently often find themselves explaining the rules
- Most Loop Road users do not have speedometers
- Highest use and ranger presence is increased in summer time from roughly May through September
- A disproportionate amount of manpower resources are committed to Washington Park for enforcement relative to the rest of the Denver Parks system - part of this is related to Loop Road issues
- The existing configuration is confusing and there is not enough signage to convey the rules and expectations for the new or occasional user - more frequent users typically know the rules, but may not follow them if they don’t make sense
- One way pedestrian movement around the park is illogical and unenforceable
- It is difficult to know which lane one should be in and which direction they should be going

WPLRSPG Working Group Workshop - April 30, 2014

Purpose of the meeting: To introduce members of the stakeholder group to the project, identify the overall project scope and schedule, and begin to get feedback from the group as to the nature of the safety/user issues, and considerations for the types of solutions that are being envisioned.

Summary of Meeting Items Covered:

- Project goals: Denver Parks staff and the consultant team discussed the project goals of both short and long term solutions that will improve the safety and the user experience of Washington Park Loop Road users.
- Range of solutions: The consultant team will present a “tool box” of potential solutions that will come from one of three different solution types: 1)Physical improvements/modifications; 2)Educational / informative solutions, 3)Regulatory/enforcement.
- Loop Road uses to consider: The meeting participants briefly identified issues associated with the great variety of different users that frequent the Loop Road (over 15 categories and subcategories identified).
- Data gathering process: The consultant team will obtain information upon which to base proposed improvement actions through a data gathering process that includes:
 - Interviews of City staff, including park planners, park rangers, and programming coordinators.
 - Assimilation of available data, including accident data and enforcement data for activity within the park
 - On-line and intercept surveys of park users
 - Review/inventory of solutions used in other locations that may be applicable to Washington Park
- Recommended approach to solutions: Members of the stakeholder group emphasized that many elements of the existing Washington Park Loop Road system work fairly well. Several group members suggested that changes should be “tweaks” of the existing system, and not a complete re-design or re-configuration effort.

* For meeting minutes see Appendix D - WPLRSPG Stakeholder Group Meeting 1

Public Outreach and Input

First Public Meeting: The first Washington Park Loop Road Safety Planning public meeting took place on May 29, 2014 from 6:00pm to 8:00pm at the Platt Park Senior Center. The objective of the meeting was to introduce the project, present Loop Road issues, and solicit feedback from attendees about their perceived issues with the Loop Road circulation.

After the project introduction and summary of issues, the attendees participated in a discussion about safety concerns on the Loop Road. Overall, the attendees agreed that the Loop is a road, but observed that many users do not recognize it as such. Currently users find it difficult to distinguish where one should be on the Loop Road. Conflicts often occur between pedestrians, bicyclists and motor vehicles. How can the rules be better communicated and enforced? Should motor vehicles be allowed in the Park?

Attendees also discussed the lack of clarity in regards to where specialty user groups belong on the Loop Road, such as roller bladers and skateboarders. Based on speed they can fit into either lane, raising the question of use versus speed.

* For meeting minutes see Appendix E - Public Meeting 1

Website and Social Network: In order to keep the general public informed about public meetings and outreach efforts, a Washington Park Loop Road Safety Planning page was created on Facebook (image 6). The Facebook page contains posts about public meeting dates/times and a link to the survey (see survey description in the next section), and provides a forum for public discussion. Additionally, Denver Parks and Recreation posted a banner on their web page with a link to the survey (image 5).



Image 5. Denver Parks and Recreation website banner

APPENDIX I DATA GATHERING INVESTIGATIONS: REPORT AND ISSUES SUMMARY

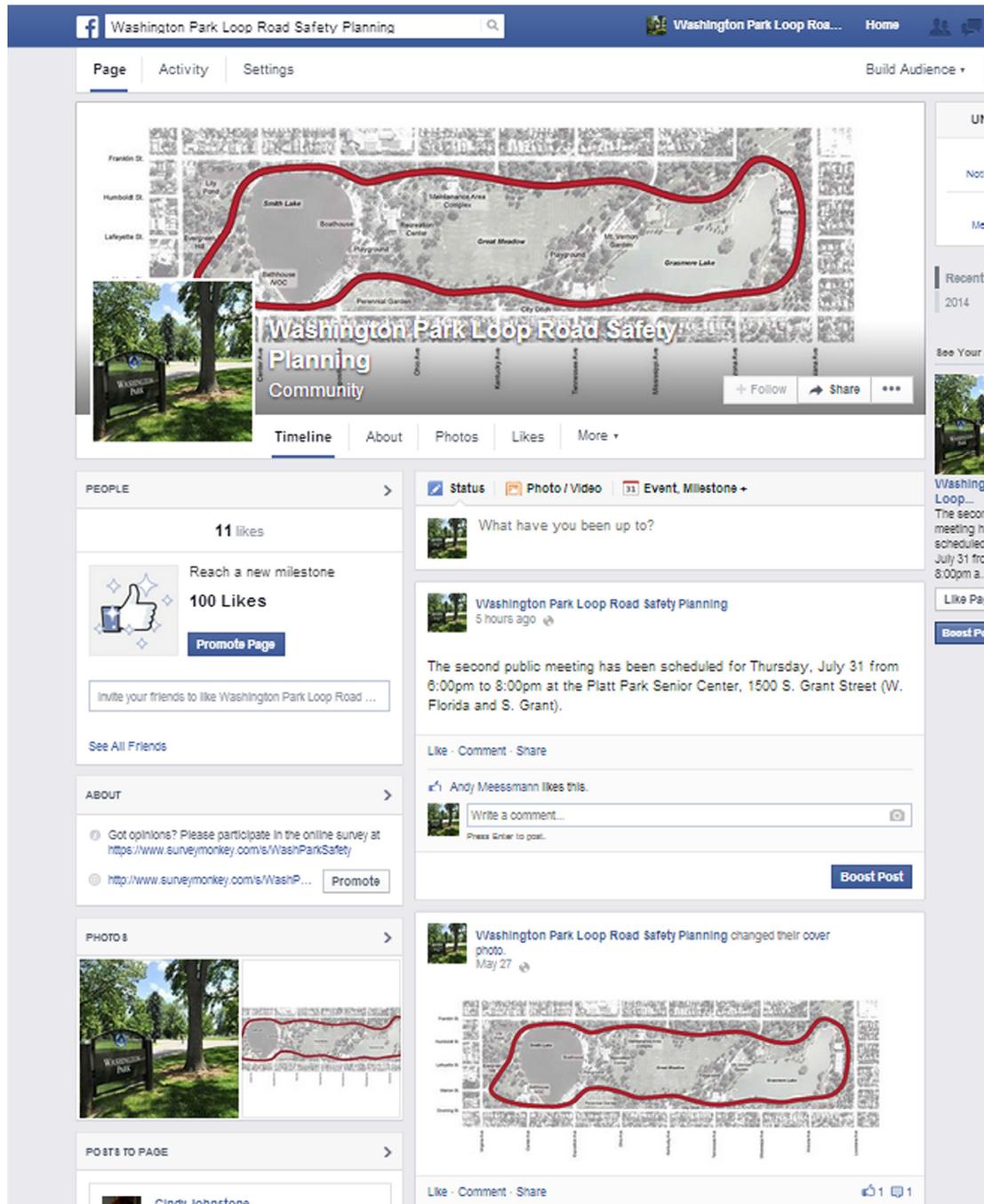


Image 6. The design team created a Washington Park Loop Road Safety Planning Facebook page to post information about

Several individuals commented on and “liked” the Facebook page. The comments are as follows:

- “Complex issues and diverse opinions about what they are. Most of it works. How to make it better?”
- “Looking forward to hearing ideas from everyone on how to improve the safety on the road. Next public meeting July 31!”

Emails to Project Manager and Design Team: Working Group members and the general public were encouraged to email questions and comments about the Washington Park Loop Road Safety Planning project to the Project Manager, Greg Kaiser.

Several Park users emailed Greg Kaiser with safety concerns. General issues are as follows:

- Encourage non-competitive cycling behavior rather than enforcing cycling speeds
- Motor vehicles often come into conflict with other Park users (e.g. vehicles going the wrong direction and not paying attention)
- Is the Loop Road serving the public’s intended purpose?
- Automobile queuing at Exposition and Downing only accommodates three cars after which drivers begin to block the bicycle lane
- Port-a-Potties located next to the bicycle lane create conflicts, because the doors open into bicycle traffic
- Event set up often blocks the Loop Road
- Improve bicycle/pedestrian traffic separation

For more information see Appendix X - Emails to Project Manager and Design Team.

Survey

In addition to public meetings, the design team created an on-line survey in order to reach more people and gather feedback on specific issues. The purpose of the survey was to help identify uses, desires and safety issues on the Loop Road in Washington Park. Denver Parks and Recreation will use this information to help set priorities and make future improvements intended to make the Loop Road a safer, more enjoyable amenity within the Park. The survey consisted of twenty-one questions and took participants approximately five minutes to complete. The questions focused on individual experiences using the Loop Road, what changes can make the Loop Road feel safer in the future, how users get to and use the Loop Road, and concluded with several questions about participant demographics.

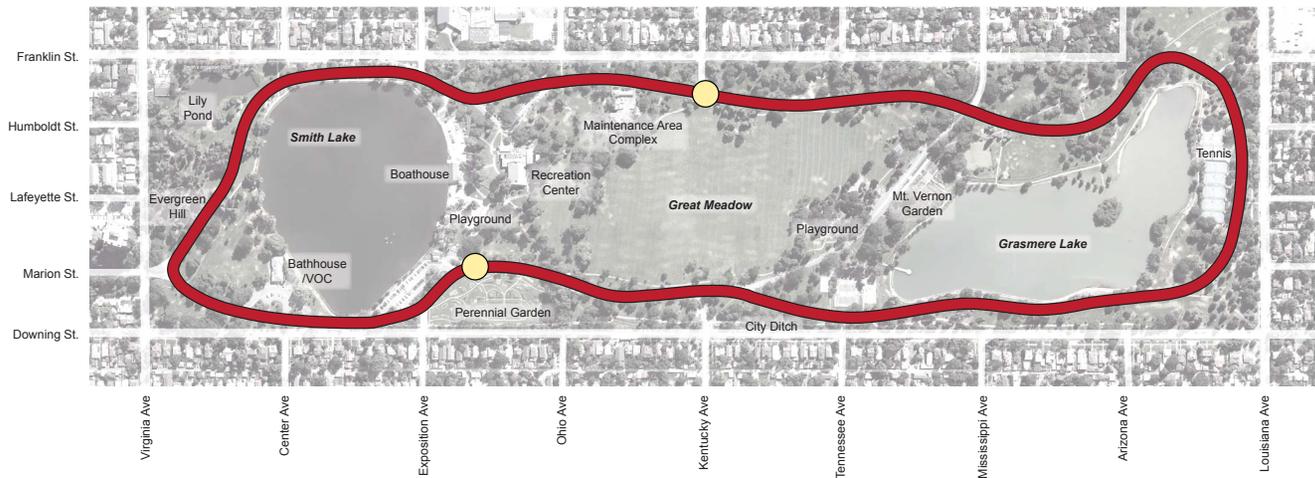


Image 7. The Loop Road is shown in red and the intercept survey locations are indicated with two tan circles

APPENDIX I DATA GATHERING INVESTIGATIONS: REPORT AND ISSUES SUMMARY

The survey was made available on-line from May 16 to June 30. Users were encouraged to take the survey during Working Group and public meetings. Additionally, the survey link was posted on Facebook and the Denver Park and Recreation website. The design team also participated in four intercept surveys:

- Saturday, May 31, 2014, 11:00am - 1:00pm
- Wednesday, June 4, 2014, 4:00pm - 6:00pm
- Sunday, June 22, 2014, 11:00am - 1:00pm
- Wednesday, June 25, 2014, 4:00pm - 6:00pm

During the intercept surveys the design team set up tents at two locations in the Park (image 7). Park users were asked to take the survey on ipads or by filling out paper surveys. Fliers were also given out with the survey link for users who preferred to take the survey at home. Please see Appendix G - Washington Park Loop Road Safety Planning Survey for the full survey and a summary of the results.

In general users felt that the Loop Road functions well and do not want major changes. Participants did, however, note a variety of safety concerns:

- *Dangerous behaviors:* Bikers going the wrong direction, walkers in the bicycle lane, dog walkers with long leashes, cyclists going too fast, etc.
- *Physical issues with the Loop Road:* Unclear where users should be on the Loop Road, lack of signage, direction arrows and double yellow lines are confusing, etc.
- *Enforcement issues:* Too much or too little focus on bicyclist's speed, etc.

Please see the Analysis and Conclusions section below for more detailed information on the survey methodology and results.

Analysis and Conclusions

Methodology

Existing conditions data was gathered from a number of sources, as described above, and compiled into findings to be used in developing proposed safety improvements for the Loop Road. As a significant volume of data was received through user responses to the on-line survey, user survey data was given significant consideration in defining safety issues, determining current use and user satisfaction, and determining potential safety improvement projects and priorities. Additional supporting data from DPR staff, rangers, working group members, public meeting input, and project team observation was compared and contrasted with user sentiment. In most cases, the feedback and data we received from the various sources was complementary and in no cases was the data directly conflicting. As a result, input from all other sources was combined with survey data, creating a mass of existing conditions data for project team analysis. After review of the accumulated data, the project team developed key findings that will drive the development of the safety improvement "tool box" and ultimately the project recommendations.

Consultant Team Observations

In general survey participants felt that the Washington Park Loop Road works well and do not want major changes in regulations. Additionally, the value of the cycling loop resource is very important to those who use it. There is no other alternative in Denver for continuous cycling, and this should be considered when thinking about potential "fixes." The observed safety concerns fall into several categories:

General observations:

- There weren't many conflicts within the pedestrian lane even though users generally travel in both directions there now.
- Losing significant bicycling function on the Loop Road would greatly impact area cyclists – bicyclists use this route for so many different uses, from commuting to

cruising to training, and these uses can't all be displaced without significant impact.

- The concept of groups using the park for profit is interesting. Since the leading “least favorite thing” about using the Loop Road is that the Park is too busy or has too many people (but very few want to actually restrict use or prohibit anyone from using the Park), it seems that commercial use may be a topic to discuss with the City. Volleyball (the volleyball vans also park illegally for a good part of the day), surrey rental, stroller classes, yoga classes, etc, all increase congestion and gain profit from that. This would need to be further discussed with the City to find out background.
- It will be important to consider not only conflict between uses, but also conflict between user speeds.

Activities that create dangerous situations and reduce user enjoyment:

- Bikers riding wrong way.
- Walkers walking in cycling lane.
- Cyclists going too fast.
- Side by side strollers in the walking part of road create jams.
- Dog walkers with long leashes.
- Cyclists (and to a lesser degree walkers) with headphones are unaware of their surroundings and are unable to respond to warnings.
- Motor vehicles not watching out for pedestrians and bicyclists.
- Our team observed vehicles driving the wrong way on the east side of the loop, exiting at Kentucky. In a few instances it was obvious that the driver didn't want to travel through the crowd or all the way to Exposition, and in a few instances it appeared the driver didn't know which way to exit.

Issues with “the system”:

- People approaching the Loop Road can't immediately tell which lane is for walkers versus cyclists (especially if not entering at a main vehicular entry).
- Not enough signage to indicate where users are supposed to go.
- Direction arrows on the walk symbol confuses people—makes them walk on wrong side if they are going counter to the direction arrow.
- It is likely that having a double yellow centerline along the loop road is adding to confusion.
- There is significant confusion over which lane skateboarders and rollerbladers should travel in.
- Basic traffic signage needs to be reviewed:
 - Stop signs at entry points not visible due to trees.
 - Need “no left turn” signs at Kentucky, etc. for times when bollards are not in place (people don't know that they can't turn left).
 - 15 mph speed limit signs on northwest side of park are not understood to be for all vehicles (not just bikes).
 - Additional signage is necessary to try to capture as many entry locations as possible. The “filter” entry pattern makes this harder, but there are locations on the Loop Road where one can look both ways and not see any signage or direction.
- Quite a few folks mentioned safety issues with crossing the neighborhood border roads adjacent to the park (outside our scope). Differentiating (in treatment) between neighborhood roadways and the Loop “Road” may be a good indication to pedestrians and bicyclists that one roadway uses standard operating vehicular traffic laws and one follows other patterns.

APPENDIX I DATA GATHERING INVESTIGATIONS: REPORT AND ISSUES SUMMARY

Issues with enforcement:

- Too much focus on bicyclists' speed and not on other dangerous behaviors.
- Not enough focus on bicyclists' speed.

Precedence and Project References

- Central Park Loop - New York, NY
- Prospect Park Loop – New York, NY
- Green Lake – Seattle, WA

Interpretation of Data and What Does It Mean

Three primary, broad-level themes were evident in input from all data sources, and are summarized below. (See appendices for survey data and staff/user group meeting minutes).

- Overall, Loop Road users and Park staff are happy with their Loop Road experience and with the uses that are currently on the Loop Road (with minor exceptions) and do not want to see drastic changes to the Loop Road configuration or use (such as complete realignment, disallowing a specific use, etc).
- The primary safety conflicts to be addressed are between those on foot on those on wheels – between pedestrians and bicyclists throughout the Loop Road, and between cars and pedestrians/bicyclists in areas of the Park that currently allow vehicular use.
- Although there are locations where a slightly higher number of safety issues were observed, users reported conflicts and safety issues throughout the Loop Road in relatively consistent numbers (no location or locations stood out an order of magnitude above the others).
- If all users were to follow the existing rules and regulations, most conflicts would be eliminated.

In considering how these themes (and all other input received to date) will drive the development of solutions in the next project phase, the project team developed the following guiding principles.

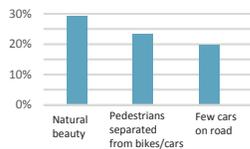
- Develop solutions that don't propose drastic changes to Loop Road use, configuration, or park setting.
- Develop solutions that encourage passive compliance, reducing (or increasing as little as possible) the need for additional enforcement and aiding those park users who may inadvertently not follow rules and regulations.
- Keep wheel/foot mixing areas as minimal as possible except in specific areas where necessary or as calculated "outside the box" solutions.
- Plan for continued use of all of the existing Loop Road users, with possible modifications to vehicular access or circulation.
- At least some solutions should improve conflicts at all locations in the Park.

The project team will use the guiding principles described above and detailed input and survey data received to date as a framework in developing recommendations for safety improvements to the Loop Road.

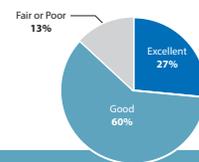
Data Gathering and Findings for the Washington Park Loop Road

Users flock to the loop road as a way to reach Washington Park, exercise, or just enjoy the day. People are overwhelmingly happy with the loop road, although there are a few concerns, including the significant belief that the loop road is too busy.

Top 3 favorite things about using the loop road:



Level of satisfaction with the loop road:



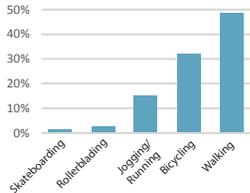
The Takeaway:

- Proposed safety improvements should not be drastic and should respect park setting and feel.
- Many park users commented that they are happy with how the loop road operates now, if other people would follow the rules and show respect to their fellow park-goers.
- Changes increasing vehicular traffic or mixing vehicular traffic with other loop road users would not be well accepted by users.

How we Use the Loop Road Today

Walking, running and bicycling are the most popular uses of the loop road. Half of the people walking are with a child or a pet. Users of loop road are often regulars, with most coming to the park weekly.

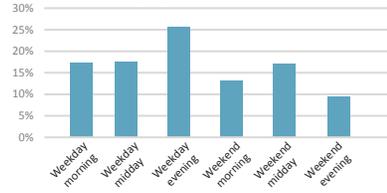
How people use the loop road(1):



People on bikes ride at very different speeds:

54%
Relaxed "Cruising" Speed

When people use the loop road:



23%
Fast "Training" Speed

15%
Slow Family Rides

2%
Slow Surrey Rides

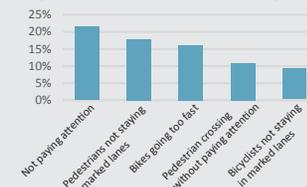
The Takeaway:

- Proposed safety improvements need to accommodate significant numbers of bicyclists and pedestrians, with consideration of multiple speeds of bicycling.
- Any proposed solutions need to take into account peak use days and times while recognizing that no day or time is a low-use time.

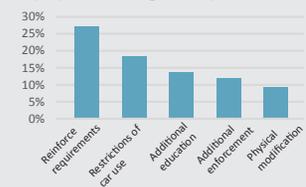
What Could be Better?

Users are concerned about pedestrians out of their lane, people riding too fast, and that users in general are not paying attention.

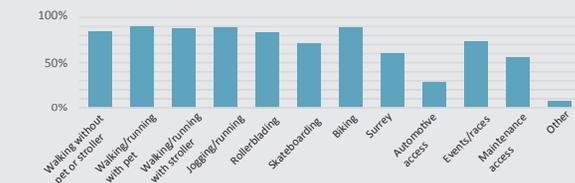
Top 5 unsafe practices observed on loop road:



Top 5 potential changes to loop road:



Desired future uses of loop road:



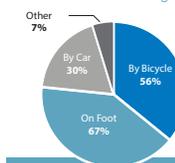
The Takeaway:

- Potential improvements need to consider "passive regulation infractions" as well as user speed differences.
- Users would like to see reinforcement of existing rules and lane requirements with minor modifications as well as additional education and enforcement. This reinforces the finding that users are not interested in major modifications to configuration or significant changes to who is allowed to use the loop road.

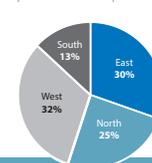
How we Access the Park Today

People access the park from all directions and using many different modes of transportation.

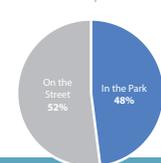
Users travel to Washington Park:



People access the park from the:



Where drivers park:



The Takeaway:

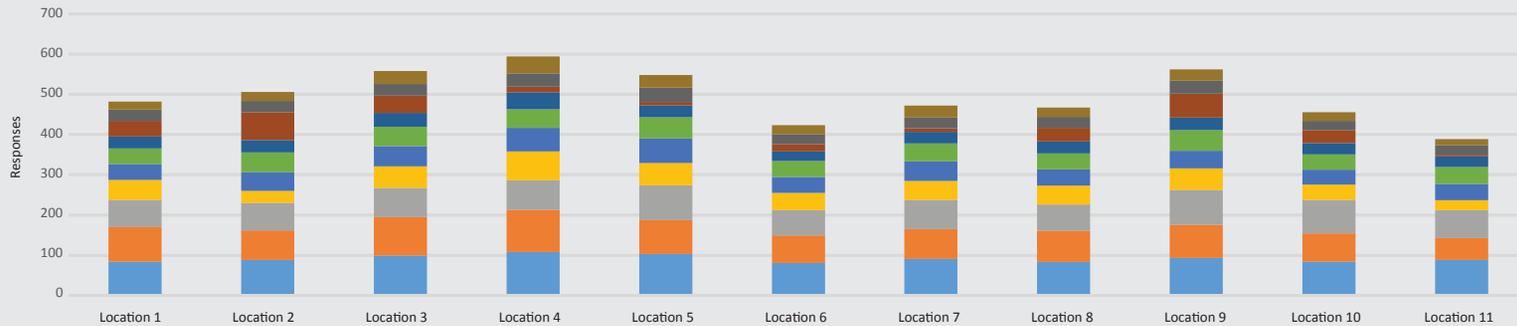
- Because users access the park using many forms of transportation and from many directions, any proposed changes should acknowledge the "filter effect" of the loop road - meaning users will expect to access and cross the road from almost any approach.
- The recommendations need to plan for all forms of travel to the park and loop road.

APPENDIX I DATA GATHERING INVESTIGATIONS: REPORT AND ISSUES SUMMARY

Mapping the Issues

Users consistently identify a wide range of concerns at all points along the loop road. While no location stands out as the primary problem area, three main safety concerns (pedestrians not staying in their marked "lane," users not paying attention, and bikes moving too fast) were confirmed as the most prevalent safety issues for users.

- Users crossing road at unmarked crossing locations
- Users not announcing that they are passing
- Cars moving too fast
- Users using electronic devices
- Bikes not staying in their marked "lane"
- Dogs on leashes that are too long
- Users crossing road without paying attention
- Bikes moving too fast
- Pedestrians not staying in their marked "lane"

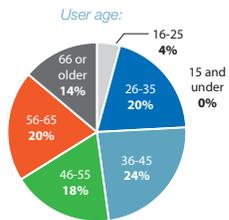


The Takeaway:

- The relatively evenly distributed pattern of user safety concerns means that, although a few location-specific issues will be important to address, potential improvements should primarily consider on solutions that are applicable throughout the loop road and focused on addressing the three primary concerns listed throughout this summary.

Who we Heard From

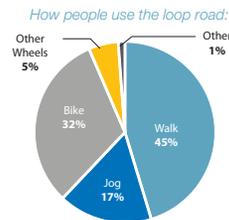
We heard from approximately 500 users, rangers, and park staff. Park users range in age, and roughly 2/3 are from the Washington Park area.



53%
Users are male

47%
Users are female

25%
Use loop road with children



Notes & References

Note: see "Existing Conditions Analysis and Conclusions" Summary Report for source data and written summary.

1. A very small number of survey responders use surly/multi-user bicycles on Loop Road.

APPENDIX II

COPY OF OPINION SURVEY QUESTIONS



stream design, LLC
3330 Larimer st denver, co 80205
(p)720.663.7352
www.streamla.com

WASHINGTON PARK LOOP ROAD SAFETY PLANNING DRAFT SURVEY QUESTIONNAIRE - Date: 05/07/2014

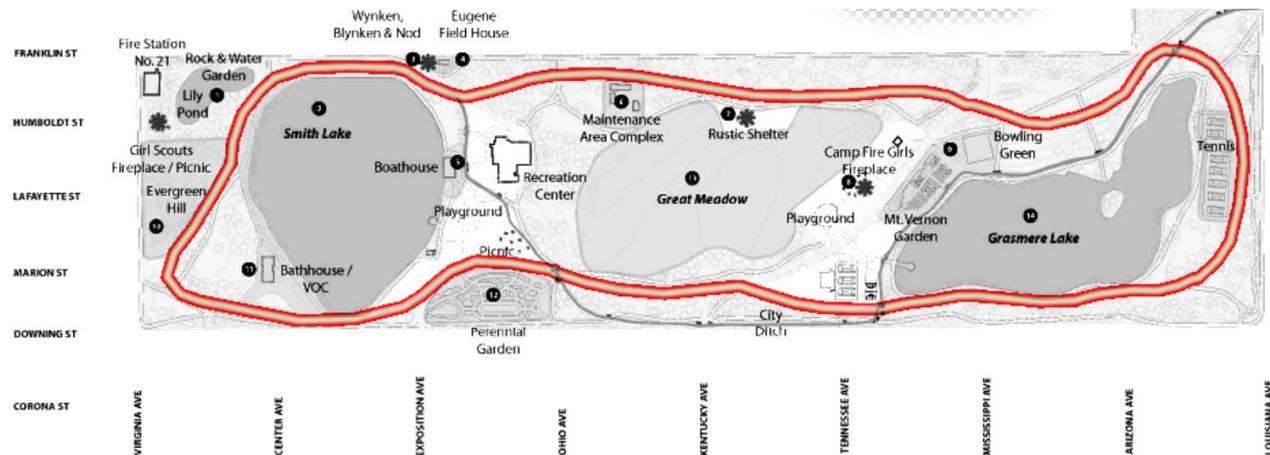
Design Team

City and County of Denver - Parks and Recreation
Stream Design, LLC
Alta Planning and Design

Introduction

Brief introduction narrative to project and purpose and description of survey, (intent, style of questions, etc)

No questions are mandatory, please only answer questions you are comfortable answering.



Questions 1 - 6 ask about your experiences when using the loop road.

1. What is your level of satisfaction of your Washington Park loop road experiences?
 - Excellent
 - Good
 - Fair
 - Poor

2. What is your favorite thing about using the loop road? (select up to three)
 - Natural beauty/park setting
 - Interactions with others
 - Popular location/people watching
 - Length of loop
 - Pedestrians are separated from bikes/cars
 - Few cars on road
 - Provides good access to park amenities
 - Other _____

3. What is your least favorite thing about using the loop road? (select up to three)
 - Too busy/too many people
 - Feel unsafe
 - Don't like the current requirements for who uses what lane and restrictions on travel direction
 - Hard to tell where I am or where I am supposed to be
 - Other _____

4. Do you feel safe when you use the loop road?
 - Yes
 - No
 - Sometimes

5. Have you observed any unsafe practices among other users of the Loop Road? If so, what practices? (rank top 3)
 - Users not paying attention
 - Users using electronic devices
 - Users crossing road without paying attention
 - Users crossing road at unmarked crossing locations
 - Users not announcing that they are passing
 - Pedestrians not staying in their marked "lane"
 - Bikes not staying in their marked "lane"
 - Bikes moving too fast
 - Cars moving too fast
 - Dogs on leashes that are too long
 - Other _____

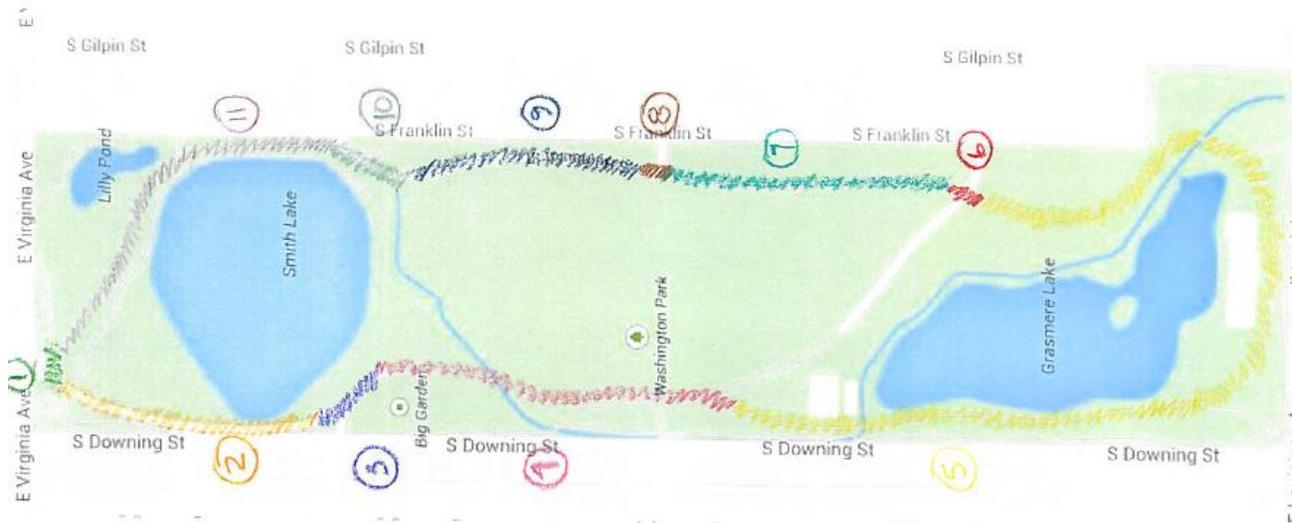
APPENDIX II COPY OF OPINION SURVEY QUESTIONS

6. If you have observed unsafe practices, where do you most commonly observe these behaviors happening? (rank top 3)

Location 1
Location 2
Location 3
Location 4
Location 5
Location 6

Location 7
Location 8
Location 9
Location 10
Location 11

[insert map graphic] DRAFT GRAPHIC INSERTED



7. If you could make changes to the loop road to make it feel safer or more comfortable when you use it, what would you do? (rank top 3)

Additional education

Additional enforcement

Physical modification to loop road (width, surface, curb location, etc)

Reinforce existing requirements for who uses what "lane" and travel direction restrictions with additional/modified signs and pavement stripes/markings

Change requirements for who uses what "lane" and travel direction using new/modified signs and pavement stripes/markings

Restriction of bicycle use (either all the time or just at peak usage or in specific locations)

Restriction of pedestrian use (either all the time or just at peak usage or in specific locations)

Restriction of car use (either all the time or just at peak usage or in specific locations)

Other _____

Questions 8 - 14 address how you get to and use the loop road.

8. How do you typically travel to Washington Park? (select all that apply)
- By bike
 - By foot
 - By car
 - Public transit
 - Combination of above
- 7a. Followup (if answer to Question 7 is "by car.") Where do you typically park?
- In the park
 - On the street outside the park
 - NA
9. Where do you typically access Washington Park?
- From the east (Franklin St)
 - From the north (Virginia Ave)
 - From the west (Downing St)
 - From the south (Louisiana Ave)
10. How do you use the loop road? (rank top three)
- Walking without pet or stroller
 - Walking pet
 - Walking with stroller
 - Jogging/Running
 - Rollerblading
 - Biking
 - Other activity
- 9a. Follow up (if answer to Question 9 is "biking.") How would you describe your bike use of the loop road? (rank top 3)
- Training (speeds approximately 15 mph or faster)
 - Cruising (speeds slower than 15 mph)
 - Surrey (four wheeled rental bikes for multiple people)
 - Family rides (slow speeds with kids)
 - NA
11. Why do you use the loop road (choose all that apply):
- Recreation
 - Health and Exercise
 - Travel through park (not to/from park)
 - Fitness Training (marathon, triathlon, race, etc)
 - Social
 - Partial lap/loop
 - One or more full laps

APPENDIX II COPY OF OPINION SURVEY QUESTIONS

12. How often do you use the loop road?
- Daily
 - A few times a week
 - A few times a month
 - A few times a year
 - First time
13. What times and days do you use the loop road? (rank top 3)
- Weekday morning (5 AM – 10 AM)
 - Weekday midday (10 AM – 4 PM)
 - Weekday evening (4 PM – 9 PM)
 - Weekend morning (5 AM – 10 AM)
 - Weekend midday (10 AM – 4 PM)
 - Weekend evening (4 PM – 9 PM)
14. If you have additional comments or stories, please feel free to include them here.

Questions 15 – 18 request demographic data to help us understand more about who took this survey.

15. What is your zip code?
16. Please identify your age group
- 15 and under
 - 16 – 25
 - 26 – 35
 - 36 – 45
 - 46 – 55
 - 56 – 65
 - 66 or older
17. Do you regularly use the loop road with young children (under 15 years old)?
- Yes
 - No
18. What is your gender?
- Male
 - Female

APPENDIX III

Plan Selection Process: Decision Matrix

APPENDIX III PLAN SELECTION PROCESS: DECISION MATRIX

Washington Park Loop Road Safety Study Recommendations Matrix and Ranking

Note: Matrix scoring methodology (1=low, 5=high)

* The "Mighty Nine" terminology was used during early planning phases and meetings. These issues are referred to as the "Essential Issues" in the final report, page 4.

25-Sep-14		Feasibility			Mighty Nine *										General			Aggregate Points	Relative Ranking Score	
Option	Description	Cost	Maintenance and Operations	Timeframe to Implement	Preserves Park Feel	Communicates Rules / Regulations	Reduces Confusion	Identifies / Defines Modes	Reduces Combined Uses	Limits Vehicular Interaction	Accommodates Large Number of Users	Improves Crossings	Balances Existing Parking in the Park	Addresses Safety Issues	Supports Master Plan	Working Group Feedback	Public Feedback			
Option E	Lane Configurations																			
	CREATE SEPARATE LANES FOR PEDS, "SLOW WHEELS"; AND "WHEELS" Provide bi-directional Ped and "Slow Wheels" lanes, and a separate lane for faster "Wheels" (and cars in vehicular areas).	3	3	4	3		4	4	4	3	4	3		4	4	2	2		155	11.071
Option A1 and A2	Lane Configurations																			
	REPLACE EXISTING ONE-WAY PED-ONLY LANE WITH SINGLE (& WIDER) BI-DIRECTIONAL "SLOW MIXED MODE" LANE "Slow" users of all types share wide lane. Faster "Wheels" are separated out into narrower lane running counterclockwise; (cars in additional separate lane also running counterclockwise in vehicular zones).	3	3	4	3		3	2	2	3	3	2		3	4	1	1		120	8.5714
Option B and D	Lane Configurations																			
	REPLACE EXISTING ONE-WAY PED-ONLY LANE WITH 2 "SLOW MIXED MODE" LANES EACH SIDE OF ROAD. "Slow" users of all types share 2 lanes on either side of the road, with faster "Wheels" (& cars in vehicular zone) in narrower lane in center of road running. "Slow Mixed Mode" lanes can either be one-way or two-way.	3	3	4	3		3	3	2	3	4	3		4	4	2	2		142	10.143
Option C	Lane Configurations																			
	CREATE GRADE-SEPARATED PED LANE W/ SPLIT DIRECTION "WHEELS" Provide uni-directional "Slow Wheels" lanes each side of center lane for faster "Wheels" and cars in vehicular areas).	1	3	2	3		3	3	4	4	4	2	4	4	4	3	3		149	10.643
Preferred	Lane Configurations																			
	REPLACE EXISTING ONE-WAY PED LANE WITH BI-DIRECTIONAL PED LANE & ADD "SLOW WHEELS" (ADVISORY) LANE ON RIGHT SIDE OF FASTER "WHEELS" LANE. "Slow Wheels" lane on opposite side of road from Ped lane provides safer lane for slow bikes, roller bladers, and surreys who want (or are required) to travel in same direction with faster "Wheels" users.	3	3	4	3		4	4	4	3	4	4		4	4	3	3		166	11.857
	Materials and Pavement Markings																			
	Colored/Painted Pavement Identifying Use/ Mode Lanes	2	2	4	3	4	4	4	4	3	4	3		4	4				144	11.077
	Textured Pavement at or before Conflict Zones or Intersections	2	2	4	3	3	3	2		3	2	3		4	4				113	9.4167
	Raised Thermoplastic / Texture used as Rumblestrips / Warning Zones	2	2	4	2	3	3	2		3	2	3		4	4				109	9.0833
	Painted or Thermoplastic Pictograms / Lane User Symbols	3	3	4	4	4	4	4	4	3	4	3		3	4				150	11.538
	Roadway Layout Modification																			
	PED / WHEELS LANE FLIP (ENTIRE PARK) Move Peds to outside lane of loop road and bikes, "wheels" & cars to inside of road (closer to interior of park) to alleviate turning vehicle/ped conflicts at entrances to Rec Center, Boat House, and Bath House parking lots, and at associated park entrances.	3	3	3	2	4	3	3	4	4	3	4	0	4	3				139	9.9286

Washington Park Loop Road Safety Study
Recommendations Matrix and Ranking

		Cost	Maintenance and Operations	Timeframe to Implement	Preserves Park Feel	Communicates Rules/Regulations	Reduces Confusion	Identifies/Defines Modes	Reduces Combined Uses	Limits Vehicular Interactions	Accommodates Large Number of Users	Improves Crossings	Addresses Existing Parking in the Park	Supports Master Plan	Working Group Feedback	Public Feedback	Aggregate Points	Relative Rating & Score
25-Sep-14		Feasibility			Mighty Nine									General				
	SEPARATED VEHICULAR LANE-KENTUCKY ST. ENTRANCE TO REC CENTER / BOAT HOUSE PARKING (EAST SIDE OF PARK) Move cars to separated lane on inside of loop road to eliminate car/ped conflicts at Rec Center parking entrance. (Removes vehicles from loop road section from Rec Center parking entrance to Exposition St. park exit)	2	3	3	2	3	3	3	4	4	3	4	0	4			127	9.7692
	FLIP PARKING LOT / LOOP ROAD LOCATIONS WEST OF BOAT HOUSE / REC CENTER. Move Peds and wheels adjacent to Smith Lake, and move parking formerly in this area to the existing loop road location, alleviating numerous car / ped and car/bike conflicts, and improving ped / bike user experience.	2	4	3	3	3	4	4	4	4	4	4	3	4	4		159	11.357
	EAST REC CENTER / BOATHOUSE PARKING RECONFIGURATION New vehicular connection between Rec Center parking lot and the Boat House lot would allow vehicular circulation separate from Loop road. Potential to reconfigure park exit at Exhibition St. to allow mimimized vehicular conflicts and improved safely at parking lot / park exit.	1	4	2	3		4		4	4	4	4	4				127	11.545
	BATH HOUSE PARKING LOT RECONFIGURATION Regrading and reconfiguration of two existing separate lots into a single lot would eliminate 2 curb cuts and associated vehicle ped and bike conflict areas. Potential single two-way parking lot entrance could further eliminate number of curb cuts to 1. Potential to increase total number of parking spots.	2	3	3	3		4		4	4	4	4	3	4			126	11.455
	Signage																	
	Educational Signage (Major Kiosk)	3	3	4	4	3	2	2						3			90	10
	Wayfinding Signage (Major Kiosk & Small Kiosk)	3	3	4	4	2	3	3						3			94	10.444
	Digital Message Boards	2	4	4	2	4	4							2			94	11.75
	Speed Readings	3	3	4	2	4								2			77	11
	Speed Limit	4	4	4	4	3								4			92	13.143
	"Lane Usage" Sign	4	4	4	3	4	4	4	4					4	4		144	13.091
	Vehicular Signage	4	4	4	4	4	4							3			112	14
	Regulatory/Enforcement																	
	Time Zoned or Limited Activities (surries, higher speeds)	4	3	4	4					2							69	11.5
	Increased Enforcement	2		4	4	3								4			75	12.5
	Education/Awareness																	
	Educational Events	3		4		4	3										56	9.3333
	Media Campaigns	4		4													35	11.667
	Mobile/Online Technology	2		2		4	4										53	10.6

APPENDIX III PLAN SELECTION PROCESS: DECISION MATRIX

Washington Park Loop Road Safety Study Recommendations Matrix and Ranking

	Cost	Maintenance and Operations	Timeframe to Implement	Preserves Park Feel	Communicates Rules/Regulations	Reduces Confusion	Identifies/Defines Modes	Reduces Combined Uses	Limits Vehicular Interaction	Accommodates Large Number of Users	Improves Crossings	Balances Existing Parking in the Park	Addresses Safety Issues	Supports Master Plan	Working Group Feedback	Public Feedback	Aggregate Points	Relative Rating Score
25-Sep-14	Feasibility			Mighty Nine									General					
Other																		
Dumpster/Restroom Relocation	4	4	4	4													67	13.4
Construction Regulations	4	4	4														51	12.75
Weighting Factors (1 (low) to 5 (high))	3	4	2	4	3	4	3	3	3	3	3	2	5	2	4	4		

APPENDIX IV

Public Process: Meeting Minutes



Meeting Notes
Washington Park Loop Road Safety Project
WPLRSP Stakeholder Group Meeting No. 1

Meeting Date: April 30, 2014
Attendees: *City of Denver Dept of Parks and Rec.:* Greg Kaiser, Scott Gilmore.
WPLRSPG Members: David Mathews, Glen Legowik, Phil Domosthenes, Frank Miltenberger, Stacy Simonet , Geno Wasilewki
Stream Design: Jesse Clark, Paul Thomas, Heather Grogan
Alta: Alicia Zimmerman
Location: Washington Park Bath House
Date Issued: May 5, 2014
Compiled By: Paul Thomas

Topics Discussed:

1. Greg Kaiser opened the meeting and discussed the purpose of the project, the roles of City staff, stakeholders and WPLRSPG members, and consultant team members.
2. Scott Gilmore mentioned how important the project was to the City, and was looking for some good solutions from this group. He felt that neighborhood/stakeholder involvement was going to be critical to developing good solutions, and that the City was committed to this inclusive process.
3. Project expectation and goals were discussed. Greg emphasized that the overarching goal was to improve safety on the Loop Road. Phil mentioned that while safety was critical, it shouldn't be the only measure of proposed solutions--that user experience was also important.
4. Jesse Clark gave an overview of the work plan and schedule. There will be 3 stakeholder group meetings, 3 public meetings, and multiple meetings with City staff throughout the course of the project. The project duration is approximately 6 months, with the final report anticipated in mid October. Data gathering will begin immediately, as will the development of an on-line user survey.
5. Range of Tools / Solutions: Jesse mentioned that there are 3 types of tools that the consultant team will be looking at to improve the loop road safety and functionality: 1) Physical improvements, 2) Educational / informative solutions (might include kiosks, wayfinding guides, park hosts), and 3) Regulatory/enforcement. There was general agreement that it would be best if the proposed solutions were more self-regulating, as enforcement staff were very limited. Some solutions will be easy to implement immediately, while others will be long term improvements that will need funding, etc.
6. What we know so far: The project team has performed initial site visits to observe the park function, and has met with DPR staff (maintenance, Rangers, etc.) to debrief on key issues. Some key observations include:
 - Users to be considered in how the loop road functions include:
 - Walkers:
 1. Without Dog
 2. With Dogs
 3. With Strollers
 - Bikers

1. Fast Bikers
 2. Family Bikers
 3. Commuters
 - 4.
- Roller Bladers
 - Runners
 - Surrey users
 - Volleyball players (en route to field?)
 - Field users
 - Motor Vehicles:
 1. Cars
 2. Maintenance Vehicles
 3. Mowers
 4. Emergency Vehicles

- Key hot-spots/problem areas are on either side of the Rec Center, where vehicular traffic is in the mix
- There is not a lot of data available on accidents
- The only regulation that Rangers can currently ticket for is speeding
- The City is not entertaining raising the speed limit above the current 15 MPH.
- People crossing / joining the loop road from various points in the park do not instantly recognize how traffic & users are organized--i.e., people not sure which side of the double yellow line they should be walking/riding on. (The double yellow line may be confusing people.)
- The park is used for many running events which require the entire loop road width. This limits the options for separating users with curbs, barriers, etc., as these would be in the way during events.
- The current system works for most people

7. General discussion of the issues around the loop road ensued. Comments included the following:
 - Still too many people going too fast on bikes--but better than it used to be
 - Some members, however, question whether safety issues for cyclists/german are directly speed related, or more due to people not using the loop road wisely.
 - Park rules / wayfinding signs are lacking
 - Loop road is confusing for cars too--people don't know understand what is happening around them. Geno mentioned that many of the rental bike customers could use a map or better wayfinding guidance on the park cycling rules, etc.
 - Maybe need volunteers like "park hosts" to tell people they are going the wrong way, etc.
 - Should number of events be limited?

APPENDIX IV PUBLIC PROCESS: MEETING MINUTES

- Solutions need to be buildable
- The loop road maybe looks too much like a real road, instead of a park path
- Don't want to compromise the unique park character as part of solving circulation safety
- Long dog leashes a problem
- Emergency vehicles and maintenance vehicles also create problems
- Sunday late morning early p.m. traffic can be worse than Saturday.
- Consider use of "Fiets dimple" to control speeds: a rumble strip for bikes that slows down speeds. of bikers.
- Solutions should be ADA compliant.

8. Next Steps: The consultant team would like the assistance of the WPLRSPG in providing feedback on the proposed intercept survey. A draft survey will be developed by the team and sent out to all WPLRSPG members in the next week. Comments must be submitted back to Greg Kaiser within a few days so that the team can make revisions to the survey and get the survey on-line. Other comments / thoughts on key loop road issues can also be sent to Greg.

Stream Design believes this report accurately reflects what transpired at the meeting. Please provide comment to the appropriate project manager if you have a different understanding of what occurred or would like to add specifics or additional information. Notification should be made within 5 working days of issuing this report, after which, it is assumed that all parties agree that this report is accurate.

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Meeting Notes

Project: Washington Park Loop Road Safety Planning
Date of Meeting: May 29, 2014
Location: Platt Park Senior Center, 1500 S. Grant Street
Attendees: *City of Denver:* Greg Kaiser
Alta Planning + Design: Alicia Zimmerman
Stream Design: Jesse Clark, Paul Thomas and Heather Grogan
Compiled by: Heather Grogan
Date of Issue: June 26, 2014

The Following Items were discussed:

1. **Introduction by Greg** - Greg opened the meeting by introducing the consultants and reviewing the objectives of the public meeting.
2. **Fly-through tour and introduction by Jesse**
 - *Project and team introduction*
 - Project needs – to increase park user experience and safety
 - Partnership with Washington Park Loop Road Safety Planning Group (WPLRSPG) to create community based solutions
 - Meeting objective is to gather input from the attendees
 - The project started up in April with the first public meeting occurring on May 29. The second public meeting is scheduled for July, the third public meeting will take place in August, and the report should be finalized in October.
 - *Review of Loop Road uses*
 - Daily recreation and exercise
 - Events
 - Automobiles

- *What we've heard so far*
 - Previous studies include the Washington Park Master Plan (2011) and Washington Park Cultural Landscape Assessment and Preservation Plan (2003)
 - Operations and maintenance staff have operational concerns and issues
 - Park Rangers pointed out “hot spots” and enforcement observations
 - Preliminary survey results—more than 100 responses have been collected thus far
- *Potential types of solutions*
 - Physical modifications
 - Enforcement / Regulatory
 - Education

3. Discussion led by Jesse

- *Scope of the project*
 - One attendee asked whether entrances are included in the Loop Load study. Parking? Jesse explained that entrances are included and parking as related to the Loop Road.
 - Another attendee asked if there are any non-negotiables. Surreys—do they have a long-term contract? Is the 15 mph bike speed limit a non-negotiable?
- *Rules – compliance / enforcement*
 - One attendee asked what rules are enforceable—pedestrians walking the wrong direction? Someone commented that there are many rules, but none are enforced.
 - Rangers can evict people from the Park and give tickets for speed infractions.
 - Someone suggested making the rules simple—the signs and rules are currently too complex. Users will stand on the bike lane marking signs without even noticing where they are standing.
 - Another attendee commented that the rules also need to be relevant to the season.
- *General Park discussion*
 - One attendee said that the peak weekend Park usage times are Saturday and Sunday from 2-5pm (shear volume). Sunday is the busiest—different types of volumes. It was suggested that the second weekend intercept survey occur during the later time slot (2-5pm vs. the 11am-1pm time slot scheduled for Saturday, May 31). During the week, peak usage time is the evening (5-7pm). Faster speeds are observed in the off hours.

- Another attendee asked what the accident data is showing. Jesse explained that we are getting data from Bob Toll and the police. Several attendees feel like the most accurate date is from Denver Health (ambulance records).
- Attendees agreed that it is very hard to distinguish where they are and where they should be.
- Multiple attendees agreed that there is too much traffic on the road—surreys were the last mode of transportation added. Do they add to the crowdedness?
- More generally, attendees asked whether the park is too crowded. Do we need to reduce the use somehow? Is the Park “a racetrack or a Park?”
- One attendee mentioned that she uses the Park as a social gathering space—meets friends to walk.
- *Washington Park character and role discussion*
 - One attendee asked if we should we define the role of the Park. What is the “mission” statement of the Park overall?
 - Another attendee commented that the Washington Park Loop Road is an enjoyable, safe amenity for users and neighbors of the Park.
 - Someone asked if high speed biking is part of the “mission” statement.
 - One attendee asked if the permitting process at Denver Parks and Recreation makes things worse.
 - Another attendee asked if we should limit the types of uses in the Park (e.g. surreys).
 - Someone asked if we should change the speed limit. Does an overall set maximum speed limit exist for all parks? Jesse explained that the maximum speed limit is 15 mph.
 - One attendee commented that the Loop Road is not appropriate for every kind of use or purpose. Exercisers are important too. The biggest problem is that people are all over the place. Also, people tend to pick on the cyclists. Respect everyone’s use.
 - Another attendee commented that leashes are a problem. Someone then described an accident during which a dog on a 20 foot leash went after a rollerblader and caused an accident involving the rollerblader and a cyclist.
 - Jesse reminded the group that we are still gathering information right now, and the second phase involves a more focused analysis.
- *Past safety issues on the Loop Road*
 - One attendee sat in the same meeting over 25 years ago and one of the main questions was about whether they should open automobile access across the diagonal/Kentucky cutoff.
 - In one attendee’s opinion, the single biggest failure was not removing the yellow stripe.
 - Another attendee commented that when the rules were changed in 1988, ambulances were at the Park on a daily basis, but changing the rules was the right thing to do.

- *Additional general Park discussion*

- One attendee explained that he uses the trail in different ways—he likes to bike fast, but also has a 6 year old daughter, so he is on the fence. In his opinion the group was discussing solutions to symptoms, but not the problem. The Park is overcrowded. People drive from all over the City. He bought a house close to the Park for easy access. Overall, he wants to reduce the traffic and/or volume to and in the Park. This attendee suggested making Downing and Franklin one way, and creating a bike loop outside of the Park. He also suggested removing parking, turning a parking lot into a skate park, and/or implementing 2 hour parking to limit traffic into the Park during peak times.
- Another attendee, who drives to the Park, commented that the Park is crowded, but we should cater to everyone. What technology can we use to help make the Park work better? We can't stop people from using the Park, because it is so great.
- Someone mentioned that a change in demographics has occurred over the last 15 years—an increase in young families with children. The kids can't learn how to ride bikes on the streets, because there is too much traffic.
- One attendee commented that one solution is to improve another park—introduce a bike loop around City Park? Unload some people of various interests to another park.
- Another attendee asked why people are coming to Washington Park and not going to other parks.
- Attendees felt overall that the Loop is a road. Many users, however, don't recognize the Loop as a road. Users have a park mentality and they don't realize that they are stepping onto a road. One attendee suggested painting the curbs red.
- Another attendee suggested that cycling speed isn't a problem if there is no one (e.g. pedestrians) in the cycling lane.
- Someone estimated that there are 16 markings every 2.2 miles on the Loop Road (approximately 1 per 700 feet).
- Another attendee observed that in 30 feet of asphalt no visual clues tell users where to be other than words or signs. Some people don't read or even take pride in not following signs—the Loop Road needs more visual clues. One possibility is tearing up the asphalt on one side of the road and putting in gravel.
- Another attendee suggested the yellow stripe be removed—something about the yellow stripe is confusing in this situation.
- Someone had counted crosswalks as you come into the Park—approximately 28. Some of the crosswalks lead to nowhere—continuity is an issue. Signs reading “bicycles must yield to pedestrians” used to accompany the crosswalks. How do we tell people what the crosswalks are for and what the rules are? The crosswalks should go somewhere and make connections.
- Greg asked if the 15 mph signs made a difference. Overall the group responded no. One attendee commented that he prefers a speed limit of 20 mph. Another attendee mentioned that until 2002, the maximum speed in the Park was 20 mph, except for “hot spots” which were 15 mph. He also commented that fewer fast bikers and packs of bikers have been observed on the Loop Road since the speed limit was changed to 15 mph.

- When asked, about 50% of the bikers in the room had speedometers on their bikes.
- One attendee inquired about the stopping site distance for a bike traveling at 15 mph. Do bikers know how long it takes to stop? Alicia explained that there is more variability in bike reaction time.
- Another attendee commented that some bikers are aggressive. They don't actually stop—they yell or hit you and move on, swerve, etc.
- One attendee called 911 because of an incident at Washington Park and it took 45 minutes for the ambulance to arrive.
- Someone commented that parking or cars in general should not be allowed in the Park.
- Another attendee commented that rollerbladers are a different animal—they used to only be allowed in the bike lanes. Where are rollerbladers and skateboarders allowed? Based on speed they can fit into either lane—use vs. speed.
- *Observations by location*
 - One attendee commented that at Kentucky and Downing many coolers/beer trucks/picnickers cross the path.
 - Another attendee commented that the diagonal road can encourage reverse traffic.
 - Someone mentioned that the northeast corner has less activity.
 - One attendee observed that the south gateway area is changing (more traffic) because of the parking availability at South High School.
 - Another attendee commented that car traffic into the Park creates issues—someone suggested bigger stop signs or stop signs with LEDs.
 - One attendee mentioned that volleyball company trucks/vans come in on Kentucky or the diagonal and drive on the walking lane, thus obstructing the walking lane. Better restriction of use by vendors is needed.
 - Someone commented that westbound on Arizona the new entrance is good, but it's getting a lot of unintended traffic, such as cut through bikes going the wrong way (Exposition at the recreation center—east side).
 - Another attendee mentioned that people are using the Loop Road as a way to get through the park—laps vs. biking for commuting. Need to consider bike commuters.
 - One attendee commented that parking along the Loop Road feels unsafe at locations where parking is on the left side (where you turn to go to the recreation center). Keep all parking on the right? Parking should be consistent or no parking should be allowed on the Loop Road. Also, don't force people into the neighborhoods any more than necessary. Jesse clarified that the master plan calls for eliminating *parallel* parking (not all parking in the Park).
 - Someone mentioned that bike safety is not necessarily related to speed—pack riding, riding the wrong way, racing by default, etc. Is there a way to discourage racing behaviors?

- Another attendee suggested keeping sight lines in mind.
- One attendee commented that a majority of people are very good and respectful.

4. Conclusion

- *Next steps*
 - Intercept surveys at the Park
 - Additional online surveys through June
 - Development of solutions “tool kit”
 - For updates and information check out the “Washington Park Loop Road Safety” Facebook page
- *Attendees suggested additional methods of circulating information*
 - “Nextdoor” website
 - Collecting emails during the intercept surveys
 - Posting information in the Park restrooms

Stream Design believes this report accurately reflects what transpired at the meeting. Please provide comment to the appropriate project manager if you have a different understanding of what occurred or would like to add specifics or additional information. Notification should be made within 5 working days of issuing this report, after which, it is assumed that all parties agree that this report is accurate.

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Meeting Notes
Washington Park Loop Road Safety Project
WPLRSP Stakeholder Group Meeting No. 2

Meeting Date: July 15, 2014
Attendees: *City of Denver Dept of Parks and Rec.:* Greg Kaiser
WPLRSPG Members: David Mathews, Glen Legowik, Phil Domosthenes, Frank Miltenberger, Stacy Simonet , Geno Wasilewki, Linda Matthews, Gary Christlieb, Cindy Johnstone, Kevin McCorry, Tom Wagner
Stream Design: Jesse Clark, Paul Thomas
Alta: Alicia Zimmerman
Location: Washington Park Bath House
Date Issued: July 17, 2014
Compiled By: Jesse Clark

Topics Discussed:

1. Stream Design began their presentation with a brief review of the information gathering process and existing Washington Park Master Plan.
2. Next, the intercept survey findings were explained. Several noteworthy issues were discussed in detail, including:
 - Improvements should not be drastic and preserve the setting and experience
 - More (and consistent) education and enforcement
 - Most users are happy with the Loop Road, if people would follow the rules and show respect
 - “It’s confusing, I don’t know where I’m supposed to be!”
 - Limit vehicles – but accommodate parking in the park
 - Accommodate large numbers of bikes and pedestrians, with varying speeds
 - “Passive infractions” are as important as speed (road hogs, dogs, strollers, etc.)
 - Help heighten awareness of in-line and crossing traffic.
3. The team presented potential tools to provide solutions to the survey findings. The tools include:
 - Regulatory and rule modifications
 - Signage improvements
 - Ground plane and materials improvements
 - Education and awareness
 - Space allocation alternatives
 - Vehicular alignments
4. Following the presentation, Greg Kaiser asked the attendees to email their feedback by June 21, 2014.

Stream Design believes this report accurately reflects what transpired at the meeting. Please provide comment to the appropriate project manager if you have a different understanding of what occurred or would like to add specifics or additional information. Notification should be made within 5 working days of issuing this report, after which, it is assumed that all parties agree that this report is accurate.

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Meeting Notes

Project: Washington Park Loop Road Safety Planning
Date of Meeting: July 31, 2014
Location: Platt Park Senior Center, 1500 S. Grant Street
Attendees: *City of Denver:* Greg Kaiser
Alta Planning + Design: Josh Mehlem
Stream Design: Jesse Clark, Heather Grogan, and Claire Kesecker
Compiled by: Claire Kesecker
Date of Issue: August 1, 2014

The Following Items were discussed:

1. **Introduction by Greg** - Greg opened the meeting by introducing the consultants and reviewing the objectives of the public meeting.
2. **Presentation by Jesse (Summary of Slides)**
 - *Outline of meeting*
 - Information Gathering Summary
 - Issues Summary
 - Range of Potential Tools
 - *Reviewed Process of Collecting Data*
 - Past DPR Efforts and Planning
 - Precedent Projects
 - Interviews
 - Public Meetings
 - Intercept / Online Survey

APPENDIX IV PUBLIC PROCESS: MEETING MINUTES

- Observations
- *Existing Washington Park Master Plan*
 - Problems in the Park:
 - Not enough parking
 - Conflicts with vehicles on roads
 - Conflicts between pedestrians and high speed bicyclists
 - Objectives
 - Reduce conflicts
 - Eliminate parallel parking
 - Reduce loop road open to vehicles
 - Relocate vehicular parking away from lakes
 - Provide better signage
 - Recommendations
 - Wheeled circulation move one-way only
 - Clearly mark loop road
 - Encourage appropriate speeds
 - Discourage high speed and enforce speed limits
 - Clearly mark crosswalks
 - Improve park signage
- *What we've heard that people want the park to become:*
 - A place that is safe
 - A place to enjoy outdoor activities
 - A place to have fun
 - A place that is free and flexible
 - A place of the current character and aesthetic
- Survey Results
 - People are generally satisfied with the loop road
 - Need to encourage awareness and the rules

- Most uses are desirable with the exception of automobiles
- Mostly walkers and varied speed bikers; very little downtime in the park
- Access to the park is dispersed; Cars park both in the park and on the street
- Balanced demographic of users
- Problem areas are distributed around loop; Isolated vehicular conflict areas
- Vehicle conflicts and hot spots on east and west side of park – mixed mode intersections
- Analysis: Issues to be Considered
 - Most users are happy with the loop road, but, some users do not follow the rules or are disrespectful of others
 - Most users think that more and consistent education and enforcement would help to address lack of rule awareness
 - Most users believe changes to road configuration should be subtle “tweaks” rather than dramatically different; and should preserve the setting, function, and experience that makes Washington Park so special.
 - Most users think the current rules and configuration are not intuitive or are confusing and does not identify where “non-standard” modes should travel. (i.e. skaters, strollers, children on bikes)
 - The existing rules are not communicated adequately. Pavement markings are too infrequent or difficult to read, and existing signs “disappear” or are too sparse.
 - There are competing needs regarding vehicular access and parking – most visitors prefer limited vehicles in the park to reduce conflict – but think existing parking capacity should be maintained to limit parking in neighborhoods.
 - Most acknowledge that the park is very busy, but, there is no consensus on limiting usage.
 - Loop road should accommodate large numbers of users
 - Varying modes of travel come with varying speeds
 - Combined uses are dangerous (i.e. skaters with dogs on leashes)
 - A large number of users indicated that in addition to speed related infractions, other non-legally enforceable infractions present unsafe situations (i.e. wrong direction movement, “road hogging”, dogs, stroller groups)
 - Overall park users often cause conflicts due to crossing
 - Crossing areas are insufficiently marked or are outdated
 - There is no “warning” at the edge of the road for filtering traffic
 - There are awkward and dangerous scenarios created by crossing configuration, size, and approach angles
 - Sight lines, lanes and views are often obstructed

- Motorists are not accustomed to cyclist cross traffic (faster than peds)
- Potential Tools
 - Enforced regulations
 - Lane configuration
 - Signage
 - Materials and Pavement Markings
- Example Lane Configurations
 - Explained the different lane configuration options, then asked group to raise their hands for every group that they would “feel comfortable/safe” in (Based on 22 people who signed in):
 - Pedestrian Only -- everyone
 - Wheels Only
 - 3-4 (including striders)
 - 10-12 (without striders)
 - Slow Wheels
 - 10-11 (with striders)
 - 13 (without striders)
 - Slow Mixed -- 4
 - Faster Wheels
 - 9-12
 - 14-16 (if people follow rules and no striders)
 - Faster Wheel and Cars -- 13
 - Cars Only – everyone

3. Discussion led by Jesse and Greg

- *Clarifications*
 - Goals and Objectives of the existing master plan are still valid (which includes the gradual elimination of parallel parking along the loop road)

- *Existing Conditions*
 - Comment: There are currently 37 signs in the park that talk about bike speed, and only 2 signs that discuss the lane differentiation rules
 - Question: Why are there so few vertical signs in the park?
 - Years ago, there used to be clearly marked signs (since have been removed)
 - No one really knew why the signs have disappeared
 - Someone said that the yellow lines work extremely well, they are just not enforced
 - Question: How do/should we include the trail system in the park with this discussion of the loop road?
 - The trails are gravel and function well for their users
 - Should steer away from introducing new users on trails – might complicate things even more
 - Comment: There needs to be better data collection of accidents in the park. Why isn't that information recorded?
 - Many accidents aren't reported – which makes collecting that data very difficult and potentially inaccurate

- *User Groups*
 - Comment: Many people (elderly) don't go to the park anymore because of bike speeds – how do we engage and welcome the elderly?
 - Put elderly in language/discussion of user groups
 - Wheelchair included in symbology
 - Question: “Why are we accommodating the high speed trainers?”
 - Wash Park is the only park that offers an uninterrupted (no stop signs or merges) loop for cyclists –unique asset of the park
 - Should look at the high volume usage times to address the issues
 - Jess asked the group if people would be in favor of “time zoning”
 - 5 in favor
 - 10 not in favor
 - Question: “Is your group trying to accommodate speeders?”
 - Absolutely not.

APPENDIX IV PUBLIC PROCESS: MEETING MINUTES

- *Education/Awareness*
 - Suggestion: Using QR Codes
 - Good idea, but already becoming obsolete

- *Regulations/Enforcement*
 - Comment: Love what you presented and came up with for speed differentials– but monitoring speed won't work. People won't follow the rules.
 - Need to enforce "Slower traffic, stay to right"
 - People don't realize their own speed
 - Question: Who is actively enforcing the rules at the park?
 - Currently, 9 park rangers cover *all* Denver Parks
 - 4 park rangers are assigned to Washington Park in the summer months
 - "It's a resource thing"
 - Suggestion of having volunteer patrol, similar to the volunteer trail patrol
 - Comment: A lot of rules aren't going to help. Everything needs to be slower in general. Keep in mind children and elderly (ex: kids crossing bike lane). Rules must be addressed through a super-structure
 - Comment: (Multi-user woman – walker, biker, stroller with grandchildren) Believes problem is a lack of common sense and common courtesy. "You can't force people to be kind". Disagrees that the park is overcrowded – sometimes the loop road is empty.
 - Need to regulate activities during busy times
 - Comment: "We don't need any more park rangers – we can regulate ourselves." Need signs to reference for support when telling people the rules.
 - Observation: People obey the sign regulations on adjacent roads, but not within the park.
 - There is a conflict of following rules on surrounding streets vs. in the park
 - A difference of state laws versus city park regulations

- *Materials and Pavement Markings*
 - Comment: "Speed bumps are the only way to slow people down!"

- Comment: Textures can be very dangerous for skaters.
- *Lane Configurations*
 - Comment: More than two different lane types are too many for the width of pavement (32'). It will be dangerous/difficult to pass within smaller lanes. Keep lanes wide.
 - Need to guide people to stay to the right, but that can be difficult for some users (skaters) when you are navigating around branches, drains, etc.
 - Comment: There have been successful historic improvements (allowing pedestrians on the loop road) – now it just needs some tweaking to keep continue improving.
- *Forward Steps*
 - Question: Is there a target for improvements and budget?
 - There is no current budget. The city manager needs a recommendation in order to create a budget for the project – which is why we are working towards a recommendation
 - Short term vs. long term goals
 - Goal is to create an “overlay-able” system that can easily be implemented and built upon in stages
 - Question: “How do we measure success in this process?”
 - Suggestion: benchmarking system that measures same data every couple years
 - Should we develop stronger data?
 - Regular users will be able to measure success themselves (ex: if you notice yourself explaining the rules to other users less often)
 - Looking at examples from other parks?
 - Our solution needs to be for Washington Park
 - Greg asked: Do we have enough data?
 - Comment: There is too much information from the loop road users and not enough information from people who use the other parts of the park (the cross-walkers). This data collection skews our focus.
 - Someone responded that we know the “cross-walkers” exist and we don’t need to collect data, but rather can make some assumptions.

- There is a lack of input from the people who quit coming to the park because they feel unsafe

4. Conclusion

- *Closing*
 - The discussion closed when the room reservation ended.
 - Greg encouraged attendees to email him with any additional comments or questions.
- *Next steps*
 - From this discussion, the group will begin developing recommendations for the third and final public meeting in October.
 - The group will develop lane configurations that will address the discussed “issues” while accommodating all user groups.

Stream Design believes this report accurately reflects what transpired at the meeting. Please provide comment to the appropriate project manager if you have a different understanding of what occurred or would like to add specifics or additional information. Notification should be made within 5 working days of issuing this report, after which, it is assumed that all parties agree that this report is accurate.

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Meeting Notes
Washington Park Loop Road Safety Project
WPLRSP Stakeholder Group Meeting No. 3

Meeting Date: November 12, 2014
Attendees: *City of Denver Dept of Parks and Rec.:* David Marquardt
WPLRSPG Members: Tom Wagner, Cindy Johnstone, Tim McHugh, Frank Miltenberger, Glen Logowik, Phil Demosthenes
Stream Design: Jesse Clark, Paul Thomas, Claire Kesecker
Alta: Alicia Zimmerman
Location: Washington Park Bath House
Date Issued: November 13, 2014
Compiled By: Claire Kesecker

Topics Discussed:

1. David Marquardt introduced himself and explained to the WPLRSPG members that he will be taking over Greg Kaiser's position as Project Manager. Cindy Johnstone introduced a new member of the group, Tim McHugh. Then Jesse Clark began the presentation.
2. The presentation began by reviewing the Nine Key Issues of the Loop Road, followed by the detailed discussion of the Design Team's Objectives and strategies to fulfill them:
 - Lane Configuration and Circulation
 - Crosswalks and Mixing Zones
 - Vehicular and Parking Areas
 - Signage Improvements
 - Education and Awareness
 - Regulation and Enforcement
3. General discussion of each objectives ensued throughout the presentation. The comments and discussion points are described below:
 - *Lane Configuration and Circulation*
 - General response to the teams approach was widely positive. All attendees expressed support of the preferred lane configuration.
 - Based on feedback from operations staff, and working group comments, The team was asked to look at the possibility of adjusting the slow wheel lane lane configuration dimensions from 6' to 7', and pedestrian lane from 14' to 13' - which would help accommodate maintenance vehicles in the slow wheel lane.
 - Some attendees asked questions regarding level of maintenance and operational commitment related to the amount of striping and color of the lane configuration recommendation. City response addressed this as a future operational issue.

- The Lane Use Sign was well received; members thought the pictograms will be very effective for directing different users to individual lanes.
- Phil expressed concern for joggers with strollers in the slow wheels lane.
- Cindy thought that texture in the buffer strip could be a good option. Jesse responded that the team has considered this, and that budget could be a factor in implementation of a textured surface
- *Crosswalks and Mixing Zones*
 - General response to the teams approach was positive. All attendees expressed support of the general approach to crosswalk and mixing area configurations.
- *Vehicular and Parking Areas*
 - General response to the teams approach to reconfiguring parking and vehicular access areas was widely positive. All attendees expressed general support of the illustrated recommendations.
 - Cindy expressed concern for graphics that appeared to indicate the addition of paved areas for the parking areas. She suggested (with support from others) that for the next public meeting, the design team should consider reducing the parking capacity shown, and that possible additional “expansion areas” be indicated more subtly. Jess responded that the team could adjust the drawings to do so, and that capacity was a discussion that could be re-visited when the projects were designed.
 - Exposition Parking (west side): It was suggested that the team add more pedestrian crossings across loop road in this area, and to show additional and enhanced green space within the parking area. The design team suggested some approaches to reducing paving including making the drive lane one-way to reduce the amount of pavement and create a safer parking lot. Frank wondered if the loop road configuration could adjusted to be more sinuous --Jesse mentioned that the team is trying to use existing asphalt to avoid additional costs, and maximize parking efficiency. If desired by the City, a more sinuous path could be designed, but would likely require more expensive improvements, and less parking.
 - Bath House Parking: It was suggested to make the parking lot one-way in/one-way out to prevent queuing in the Loop Road.
 - Rec Center Parking: It was suggested to create an additional graphic with the “interim” conditions as well as the preferred implementation.
- *Signage Improvements*
 - Digital Slow Down Sign: suggested changing the example image to show 15 mph, rather than the current 30 mph (to eliminate any confusion at the public meeting).
 - Members feel that there are a lot of proposed signs, perhaps too many. One member asked that an assessment of the current signage be done before the public meeting. This information can be used as a comparison of what is recommended.
 - Cindy expressed concern about the electronic message board signs; in her opinion they are inappropriate for an historic park and would create repercussions (a bad precedent) for other Denver parks. The design team agrees that there should be a balance between park aesthetic and experience and signage. The design team understands that the operations staff has requested permanent electronic signs in the park to reduce the need for temporary “orange trailer” digital sign boards.
- *Education and Awareness*

- Members like the idea of an active park website and/or mobile app with park rules, maps, event information/lane closures, etc.
- *Enforcement:*
 - There was some discussion regarding the restriction of surreys – David M. responded that this was a recommendation that would be considered, but also could be further discussed.
 - Phil thought that the rules / regulations for how the lanes were used should be more "guidance" than "regulatory", so that a regulatory situation isn't created for the rangers every time someone strays across lane lines into the wrong lane.
- *Budget*
 - Suggestion of creating a budget/design phasing diagram. The Design team responded that this was in the next iterations of work.

4. Next Steps: The Design Team will update the presentation and graphics based on the suggestions prior to the public meeting on December 10, 2014. A draft of the final report will be completed in January 2015+/-.

Stream Design believes this report accurately reflects what transpired at the meeting. Please provide comment to the appropriate project manager if you have a different understanding of what occurred or would like to add specifics or additional information. Notification should be made within 5 working days of issuing this report, after which, it is assumed that all parties agree that this report is accurate.

CC: File

