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APPENDIX D – FACILITY MAINTENANCE

Maintenance is a critical consideration in evaluating how recommendations for specific roads in the St. Louis region can be implemented. Bicycle facility maintenance requires clear maintenance responsibilities. The entity that maintains a road will determine who is responsible for creating and maintaining any potential bicycle facility. Bicycle network maintenance is typically incorporated into regular roadway and park maintenance, depending on the facility. The primary roadway maintenance include street sweeping, road restriping, and road resurfacing activities performed by public works departments and state and county highway departments. Typically, parks and recreation departments maintain off-road facilities such as trails and multi-use paths, or the facilities are maintained through volunteer programs. Written maintenance protocols that are budgeted and funded are required in order to maintain a safe Regional Bicycle Network.

Street sweeping is routine street maintenance that when done correctly could be very beneficial to bicyclists, as well as the environment, to minimize debris on the roadway and that which makes its way to storm inlets. Sweeping of bicycle lanes should be integrated into routine street sweeping programs. Additional sweeping may be required on an as-needed basis, such as after a severe storm event.

Similarly, standard restriping and resurfacing maintenance should include bicycle facilities that are a component of the roadway, such as bicycle lanes and shoulders. In restriping, pavement markings for bicycle facilities should also be evaluated and included in the restriping program. Resurfacing activity has the potential to cause temporary or permanent problems for bicyclists, especially when excess loose gravel is left on the roadway. Scheduling sweeping along newly surfaced bicycle routes should be scheduled following resurfacing.

Materials to reduce regular maintenance, regular sweeping, and smooth surfaces are all elements that make bicycle facilities attractive and usable, as well as being cost effective for street maintenance department. The type and quality of the material used for striping on roadways can heavily influence the cost of maintaining bicycle facilities as it affects the frequency it needs to be done. Regular paint will begin to wear after 6 months. As technologies improve, more durable materials have become available, such as thermoplastic pavement markings or epoxy markings, which are more expensive to install, but have a longer lifespan. Location of pavement markings will also have an impact on durability, for example, location of shared lane markings in the center of travel lanes have a longer life than the markings placed in the wheel tracks of motor vehicles. It is important to consider that bicycle facilities often consist solely of pavement markings, and as the markings wear away, the bicycle facility effectively ceases to exist.

While routine maintenance will help keep bicycle facilities usable and safe, additional maintenance may be needed in response to storms and other unforeseeable events. Often, conditions are reported by someone using the facility. Action 5.13 is to develop an interactive Web site where users can report road conditions and other concerns. A telephone hotline may be another mechanism for reporting maintenance needs.

The table below provides general guidance on the frequency of on-street maintenance activities. Maintenance needs will vary for different types of facilities and different locations.

Action	Spot Maintenance	Routine Maintenance
Action 5.10: Identify and focus resources on spot maintenance problems.	<ul style="list-style-type: none"> Perform spot sweeping if debris collects in bicycle lanes and cycle tracks after major rain storms 	<ul style="list-style-type: none"> Sweep bicycle lanes at least two times per year Heavily used facilities should be given consideration for higher frequency sweeping If adjacent travel lanes are swept, sweepers should reach as close to the curb as possible and make sure material is not deposited where bicyclists ride.
Repair and replace pavement (a component of Action 5.10)	<ul style="list-style-type: none"> Fill potholes Remove surface irregularities 	<ul style="list-style-type: none"> Resurface bicycle facilities as part of street repaving projects. Include bicycle facilities as a factor in determining the City's repaving schedule.
Improve drainage (a component of Action 5.10)	<ul style="list-style-type: none"> Unplug individual drains Update/modify existing grates 	<ul style="list-style-type: none"> Include bicycle facilities as a factor in determining the City's schedule for repairing/upgrading drains.
Replace signs (a component of Action 5.15)	<ul style="list-style-type: none"> Replace outdated, missing or damaged warning, regulatory, or wayfinding signs 	<ul style="list-style-type: none"> Replace signs based on manufacturer recommendations related to reflectivity and readability (every 15 to 20 years).
Ensure bicycle detection in traffic signals (a component of Actions 5.10 and 5.12)	<ul style="list-style-type: none"> Respond to citizen complaints about loops that do not detect bikes 	<ul style="list-style-type: none"> Test sensitivity of inductive loops at each approach to all intersections in the city with actuated signals including left turn lanes, to ensure that bicycles can be detected.
Provide adequate lighting (a component of Actions 5.10 and 5.12)	<ul style="list-style-type: none"> Replace burned out and broken lighting fixtures 	<ul style="list-style-type: none"> Lighting is evaluated on a systematic basis.

In addition to the maintenance activities listed above, there are spot maintenance problems that should be addressed as follows:

Filling seams between concrete pavement sections of streets: It is not uncommon for concrete streets to have a seam located at or near the most appropriate place for bicyclists to ride (typically on the right side of the outside travel lane near the on-street parking). This seam can create a hazard, particularly for bicyclists with narrow, road bike tires. In the short-term, seams should be filled on the most important streets for bicycle connectivity. As streets are repaved in the future, seams should be located away from where bicyclists would typically ride.

Physical improvements to improve railroad crossings: Roadways and multi-purpose trails should be designed to allow bicyclists to cross railroad lines perpendicular to the rails (or as close to perpendicular as possible). Improvements may include adding pavement, modifying striping, and adding markings and warning signs. All new roadways and rail lines should be designed provide bicyclists with safe rail crossings.

Reduce problems caused by steel plates: Whenever steel plates are placed in the roadway, they should be shimmed and textured with a no-skid surface to reduce slipping hazards. The locations of these plates should also be highlighted by paint so that bicyclists can prepare to cross them. City inspectors should monitor the installation of steel plates by City work crews and contractors.