

City of Madison
Public Works Street and Bikeway Maintenance
DRAFT
November 1, 2016

Making Bicycling a Viable Mode of Transportation

Goals and Objectives

City of Madison's transportation network includes 55 miles of shared use paths, 133 miles of streets with bike lanes, and 116 miles of signed bicycle routes.. The City of Madison's vision is to make bicycling an integral part of daily life in Madison, thereby making Madison a model for health promotion, environmental sustainability, and quality of life.

Proper maintenance of bike lanes and bikeways is an important consideration in people's decision to bicycle and a key factor in bicycle safety. Inadequately maintained bike lanes and bikeways can create hazardous conditions on the roadway and disrupt connectivity of the street and bikeway network. The objective of the City's bikeway maintenance program is to provide safe, comfortable riding conditions, which promote bicycling as a viable mode of transportation.

Several City agencies are involved in street and bikeway maintenance include Engineering, Parks, Streets, and Traffic Engineering. These agencies have formed a staff team to identify specific street and bikeway maintenance requirements and ensure that the appropriate agency is designated to assume these responsibilities. This policy is designed to ensure that each agency is aware of the specific maintenance requirements and standards.

Pavement Management

The Engineering Division is responsible for the design, construction and inspection of all streets, highways, sidewalks and bikeways. A high priority is placed on citizen involvement in these projects. Maintaining the safety of the City's streets and bikeways through regular inspections, routine maintenance and scheduled rehabilitation and replacement is part of the City's Pavement Management Program. This program involves local streets, collector streets, arterial streets, sidewalks, and shared use paths.

Engineering uses the Pavement Surface and Evaluation Rating System (PASER) developed by the University of Wisconsin –Extension and used by the Wisconsin DOT. The PASER rating system is used to rate all city streets, shared use paths and other path systems on a biennial basis to evaluate the condition of the pavement. The type and severity of defects noted in a given street or path segment yields a numerical rating between 1 and 10, with a rating of 10 being assigned to a newly constructed street. These ratings are incorporated into the Engineering's Geographical Information System (GIS), which includes a comprehensive inventory of all city streets and shared use paths. This system is used to identify and schedule ongoing street and path maintenance in an efficient and cost-effective manner.

The City of Madison utilizes preventative maintenance techniques to extend the life of our off-street bicycle and pedestrian path system. The type of maintenance is based on the pavement type, age and rating.

If a street or path has a rating of a 7 or above, crack sealing is used. Crack sealing consists of filling cracks and joints with asphalt materials to prevent water from entering the base and sub-

base. This slows pavement deterioration. Crack sealing is done at around 5 and 10 years of age. The City is no longer filling longitudinal crack on shared use paths, only transverse cracks.

The City of Madison also utilizes infrared seamless bituminous pavement patching of cracks and other distressed areas of our off-street paths. Infrared Thermal Bond Seamless Bituminous Pavement Patching is a method of blending new bituminous concrete material with infrared heated existing surface material to form a joint free integral mix patch.

The City resurfaces shared use paths when the pavement has exceeded the useful life. The PASER rating on the shared use paths is used to prioritize these projects.

Potholes and Patches

Potholes, and patching potholes, are a fact of life in Wisconsin. Potholes form when water, whether from melting snow, rain or frost thawing, gets into the cracks in the pavement and cause the road base to shift and develop voids just under the pavement. When this occurs, the weight of vehicles causes the pavement to crumble causing potholes.

The Streets Division Pavement Maintenance Program is responsible for routine street and path maintenance. These activities include

- filling of potholes and depressions,
- removal and replacement of damaged pavement,

Weather permitting, it is the goal of the Streets Division to respond to pothole reports no later than the next working day. If weather is bad, it could take longer to get the pothole patched.

Areas of damaged pavement that exceed the Streets Division's capabilities, or are otherwise inaccessible for Streets Division equipment, are referred to the Engineering Division for repair. Engineering evaluates the underlying causes of deterioration and identifies the most effective and cost-efficient method of repair. [NOTE: do we have a time frame we can add to expect these repairs to be completed after a complaint has been received?]

Other street and shared use path repairs that are the responsibility of the Engineering Division include

- grinding
- resurfacing with crushed stone and sealant.
- Wedging gaps where asphalt paths abut concrete (for example at a bridge or tunnel) and the asphalt has settled below the concrete.

Utility Cuts

Utility cuts are the cuts in pavement made in order to make repairs or modifications to underground utilities (i.e. sewer, water, electric, gas, fiber optic, etc.) All utilities and contractors performing work in the public right-of-way (ROW) are required to obtain an Excavation in the Right-of-Way permit from Engineering. This permit requires that pavement be restored to City of Madison Public Works Standard Specifications. These standards specifications can be viewed at: <http://www.cityofmadison.com/Business/PW/documents/StdSpecs/2009/Part4.pdf>.

Specific pavement patching criteria is applied to arterial streets with a pavement condition rating greater than six (6) with particular attention being paid to areas near bicyclists' typical travel alignments. More information on these criteria are available at:

<http://www.cityofmadison.com/engineering/patchingCriteria.cfm>

Engineering has a full-time ROW Utility inspector to ensure that this work is done correctly and promptly. If repairs fail within three years, the utility or contractor who performed the original

work is required to take remedial action.

Pavement Markings, Signage and Lighting

Traffic Engineering is responsible for the design, inspection and maintenance of all street and shared use path pavement markings, signage, signals and lighting.

Traffic signs and pavement markings are maintained as originally installed. This includes signing and marking on both the shared used path and signing, marking for path crossings at roadways, and signing and markings directed at motorists. All devices, signs, and markings are required to conform to the *Manual on Uniform Traffic Control Devices (MUTCD)*.

Damaged or malfunctioning traffic warning signals are promptly repaired or temporary corrections made until permanent repairs can be made. Luminaires and fixtures for illuminated signs not essential for traffic safety are routinely scheduled for repair or replacement.

Vegetation Maintenance

Engineering, Parks and Streets each have areas of responsibility for managing vegetation in ditches, storm water facilities, off-street paths, pedestrian areas, and rights-of-way.

Mowing

Shared use path mowing is performed bi-weekly. At a minimum a 5' shoulder on either side of the edge of the pavement is mowed to eliminate site distance problems. Engineering, Parks and Streets each have specific paths that they are responsible for mowing.

Noxious Weeds & Invasive Species

Noxious weeds outside of the shoulder area are handled on a complaint basis. Engineering and Parks also work with permitted volunteers to eradicate invasive species as resources allow.

Tree trimming

Parks-Forestry provides tree and shrub planting, trimming and maintenance along Madison's streets and shared use paths as needed. . Forestry staff responds to specific complaints of low-hanging branches and/or downed trees along shared use paths, and to maintain vision triangles at intersections.

Bicycle Functional Classification System

The *Bicycle Transportation Plan for the Madison Metropolitan Area and Dane County 2015* created a bicycle facility functional classification system similar to the one for streets for motor vehicles. The roadway functional classifications for motor vehicle traffic does not translate directly to bicycling. The bicycling network has major and minor components with varying functions, from long shared-use path systems like the Capital City Trail to local and collector streets that connect neighborhoods.

Primary bicycle facilities typically have high bicycle volumes or are comfortable, direct routes for the majority of bicyclists linking neighborhoods and destinations. Primary bicycle facilities typically include routes on shared-use paths, buffered and protected bike lanes, bike lanes on moderate-volume streets, and low-volume streets.

Secondary bicycle facilities fill in the gaps between primary bicycle facilities and provide neighborhood access to the primary bicycle facilities system. Secondary bicycle facilities typically consist of routes on continuous low-volume streets, short segments of shared-use paths,

or moderate-volume highways with shoulders.

Some direct, high-volume arterial streets with bike lanes are classified as secondary bicycle facilities. These routes are often the fastest, most direct way to travel, but are not used by some bicyclists because of high traffic volumes. Experienced riders may consider this class of secondary bicycle facilities to be primary, but primary bicycle facilities are defined as being comfortable for the majority of users.

For more information on the bicycle facilities functional classification, see pages 35 – 40 of http://www.madisonareampo.org/planning/documents/Final_BTP_2015_web.pdf

Snow & Ice Control

All responses to winter weather are dependent upon conditions and may require procedures somewhat variant from those outlined below due to temperature, wind, snow type, snow depth, timing of the storm, traffic concerns, obstructions to plowing, and equipment and personnel availability.

Shared Use Paths

Primary Shared Use Paths

Shared use paths that have been identified as primary bicycle facilities will be held to the same standard as homeowners needing to clear snow from the public sidewalks in front of their homes.

Depending upon snow depth and timing of the snowfall, the goal for Engineering and Parks is to have shared use path primary bicycle facilities cleared by 7:00 AM, Monday through Friday, (excluding holidays) to facilitate users commute to work and school. As such, and as conditions allow, snow plowing operations for these shared use paths will begin no later than 5:00 AM Monday through Friday. Crews are also assigned to clear these shared use paths during the work day to ensure that commuters can safely use this transportation network to return home from work and school.

In the event the Streets Division declares a general plow over a weekend, crews shall be scheduled to plow shared use path primary bicycle facilities once snow has stopped falling.

Secondary Shared Use Paths

Shared use paths that have been identified as secondary bicycle facilities ~~All other bikeways are incorporated into the City's snow removal routes for sidewalks abutting City of Madison owned parcels and bridges.~~ Depending upon snow depth and timing of the snowfall, the goal is to have these facilities usable no later than 4:30 PM of the day after ~~the snow has stopped falling or ice accumulation. or ice has accumulated on the sidewalk.~~ This includes weekends and holidays.

Depending on snow depth and the timing of the storm, weekend ~~Weekend snow-plow-removal operations typically begin at 7:00 AM, Saturday and Sunday.~~ This enables crews to remove snow more efficiently and effectively prior to it becoming impacted by bicycle and pedestrian traffic.

~~Crew assignments are often made the evening before depending on conditions and the weather forecast. Note: Clearing these paths of snowfall greater than 3" requires more time and the crew start time is to be adjusted accordingly.~~

Salt and Sand Application

Shared use paths will be treated with the sand/salt mix. Material will be used sparingly and at request by path users upon receipt of a complaint of slippery conditions in order to maintain safety.

The sand/salt mix will be applied atop snow and not on bare pavement. It should be noted that after the thaw, the accumulated sand can pose a new slipping hazard to bicyclists and must be swept as soon as practical for the Streets Division to do so. Sweepers that can operate on the bike path must wait for warmer temperatures since they use water to sweep, and the frost must also be out of the ground to prevent damaging the path pavement with the heavy equipment.

The Streets Division applies salt when appropriate for the weather conditions to the Secondary shared use paths that are their responsibility to clear, which are the paths incorporated into their sidewalk and bus pad clearing routes.

Windrow Removal and Access to Signal Controls

As a result of plowing operations, windrows will naturally form along points where a shared use path crosses a city street. Crews responsible for shared use path plowing will revisit path intersections in an attempt to ensure windrows are removed prior to them solidifying. Ability to remove the windrow will depend upon when the windrow is formed, how many path users compact the windrow while traversing it prior to the arrival of a crew to clear it, equipment availability, and extenuating weather conditions.

The Streets Division will provide access to the signal controls at the crosswalks that their crews are responsible for clearing. Generally speaking, and depending on snowfall timing, snow amounts, and crew availability, crosswalks are maintained with the same frequency as sidewalks with the exception of certain crosswalks in the Capital Square area that will be cleared after a general plow in order to ensure that residents with disabilities can use the crosswalks.

[Engineering bit about signal control access]

Streets Division General Winter Maintenance Policy

The Streets Division is responsible for the removal of snow and ice from all City of Madison streets and on-street bicycle lanes. This operation includes salting, sanding and plowing.

After and during snow events, the Streets Division practices a "sensible salting" applying only 300 pounds of salt per two lane miles. Salt application is restricted to predetermined routes that include Madison Metro bus routes,; Salt application is restricted to predetermined routes that include Madison Metro bus routes, main streets, connecting streets, streets leading to and from schools and hospitals, and some secondary streets. All other City streets, hills, curves and intersections are treated with sand for additional traction. Sand is also applied to residential streets when complaints of slippery patches are received.

Madison also applies a saltwater brine to select major streets prior to snow events to prevent the snow from binding to the pavement to making plowing operations more effective.

After snow events, the Streets Division deploys between 1 and 20 trucks, depending on a variety of conditions, to apply sand to residential zones of the city to treat slippery patches as well as performing any necessary plow back procedures. This operation is called area sanding.

On-Street Bike Lanes on Salt Routes

Most on-street bike lanes are on the current salt routes. On-street lanes will be cleared as much as possible during normal salting operations. During the final pass of the salt route, the on-street

bike lanes are to be cleared to the curb unless otherwise obstructed by parked vehicles or any other obstacle that would prevent plowing back to the curb. On-street bike lanes on salt routes will be maintained in this manner when salt routes are deployed.

Note that due to snow falling from vehicles on these salt routes, accumulations may occur in the bike lane after it has been cleared by the salt routes.

General Plows and On-Street Bike Lanes

A snow event of three inches or more accumulated on city streets will result in a City-wide, or "general" plowing operation where each public street in the city of Madison will be plowed curb-to-curb. In addition to Streets Division equipment, the City deploys private contractors capable of providing heavy equipment appropriate for plowing. Under normal general plow conditions, plow operations can be initially completed in 10 to 12 hours.

Post-general plow clean-up is necessary in order to plow back areas from where cars had been parked, and to touch up other areas that may not have received a full curb-to-curb plowing. The clean-up process can take an additional 8 to 12 hours, depending on weather conditions, equipment availability, and personnel availability.

In heavier snows, on-street bike lanes may not be immediately cleared as plowed snows will be piled along the curb and gutter. Due to depth of the snow, and an inability to put the snow elsewhere during plow operations, these windrows may encroach on the on-street bike lane.

After plowing, some on-street bike lanes may be partially covered due to lack of adequate area for snow storage. Trucks deployed to area sanding can help maintain on-street bike lanes when snow from vehicles or other accumulations impede the lanes, making it unsafe for travel. However, since area sanding trucks' priority is to help maintain safe winter conditions in residential zones and on hills, curves, and intersections, their workload may prevent a swift response to on-street bike lane concerns.

Snow Removal Operations

After significant snowfalls, or extended periods of smaller accumulations, snow piles begin to form vision hazards for drivers along boulevards and older streets begin to unsafely narrow. The Streets Division organizes a snow removal effort from these areas in order for them to be safely traveled.

Snow removal is a slow, lengthy, multi-vehicle process and will be deployed as needed as determined by Streets Division staff.

Bicycle Boulevards and Other Bicycle Facilities

Designated Bicycle Boulevards, street connectors, and other secondary bicycle facilities found on city streets will be maintained in accordance to the Streets Division Winter Maintenance Policy.

~~Other Bikeways~~

~~All other bikeways are incorporated into the City's snow removal routes for sidewalks abutting City of Madison owned parcels and bridges. These areas are to be clear of snow and usable no later than 4:30 PM of the day after the snow or ice has accumulated on the sidewalk. This includes weekends and holidays.~~

Bicycle Parking Facilities

Snow removal around bicycle parking facilities at City facilities is the responsibility of the specific facility's maintenance staff. [LISA, can you insert policy / procedure for the State Street Mall / Capitol Concourse?]

Pilot Projects

The Engineering Division piloted the use of brine to pre-treat the Southwest Path during the 2015-2016 winter. While the results were promising, the 2015-2016 winter was exceptionally mild. The Engineering Division intends to continue the pilot into the winter of 2016/2017

Glass & Debris Removal

Street Sweeping Operations

The City of Madison's Street Sweeping Program is funded through the Storm Water Utility. The primary goal of this operation is to control roadway runoff by removing pollutants to prevent them from reaching surface waters.

The Streets Division operates eight traditional sweepers, one vacuum sweeper, and one sweeper for the shared use paths. Streets, both improved and unimproved, on-street bike lanes, and shared use paths are swept multiple times throughout the year on a rotation. Debris collected by sweepers is dumped into another vehicle and then hauled to the landfill..

Spring Cleanup

As soon as weather permits, generally mid to late March to early April, the Streets Division begins the annual Spring Cleanup. Sweepers are deployed to work 16 hours to sweep debris accumulated in the streets from winter operations. Depending upon weather conditions, the goal is to perform two sweeps of the entire city in the window between the spring thaw and the early spring rains.

Upon the completion of the Spring Cleanup, sweepers move to regularly scheduled sweeping throughout the City and continue doing so until the middle of October. Barring equipment breakdowns or other considerations, most streets outside of the special weekly sweep areas will be swept approximately once a month.

Unimproved Streets

Due to how unimproved streets were constructed, the Streets Division waits until sustained warmer weather to deploy street sweepers to unimproved streets to not damage the roads and cause clay boils within the road base.

Clean Streets/Clean Lakes

Multiple areas of the city have been identified as being a part of the Clean Streets/Clean Lakes program. These areas are primarily in the isthmus area of Madison because their inlets drain directly into the lakes, therefore extra attention is needed to keep debris and pollutants swept. These areas receive weekly sweeping.

Shared Use Path Sweeping

Depending on weather conditions, and equipment and personnel availability, the entire network of shared use paths is swept on average eight times a year. The network is vast and ever-expanding, and the Streets Division has one dedicated path sweeper. As shared use path miles increase, fewer rounds of sweeping may result as long as the current ratio of sweeper to lane miles exists.

. The Southwest Path (from the Capital City Trail to Proudfit) is swept two times each week. This is due to heavy traffic volumes and a historical problem with broken glass.

Glass and Debris Removal

The Streets Division will deploy sweepers to removed glass and other hazardous debris from on-street bike lanes as they are reported. Since the primary goal of street sweeping is to prevent pollutants from entering the lake, the number of lanes miles that needs to be routinely swept, plus the Clean Streets/Clean Lakes area, performing debris removal upon receipt of complaint is the best way to ensure the hazards are removed in a timely fashion.

If a sweeper is in the area of the request, it can be rerouted to respond to the complaint. If a sweeper is not nearby, the Streets Division supervisor in charge of sweeping crews that day will respond to the complaint site to assess the situation. If the debris is a small amount, the debris will be swept by hand by the supervisor to eliminate needing to re-route a sweeper to the site the following day.

The Parks and Engineering Divisions are responsible for removing refuse and other large debris from the protected/separated bike lanes.

Fall Leaf Collection Sweeping Operations

At the start of the fall yard waste and leaf collection, sweepers attempt to shadow leaf collection crews to sweep the leaf litter created in the streets after leaf collection operations. Runoff from leaves is a large driver of phosphorus levels and therefore algae blooms in the lakes, therefore it is important to sweep the leaves from the street as quickly as possible. The goal of the Streets Division is to sweep the leaves no more than two work days after leaves have been collected from a neighborhood, however, due to workload, weather conditions, and equipment and personnel availability way cause delays.

Graffiti Removal

The Streets Division performs graffiti removal throughout the City on public property. Two graffiti crews patrol the City and remove graffiti from public owned locations and the right-of-way. They also respond to citizen notifications of graffiti.

Storm Grates

Storm inlet grates currently installed in Madison are “bicycle friendly” with the openings oriented on the diagonal. Older style grates located in areas with bicycle traffic are replaced where feasible.

Bicycle Parking

All City facilities have bicycle parking facilities. These facilities are maintained by Engineering Operations, Parks, the agency occupying the facility or the property owner/manager if not city owned.

Bicycle parking facilities are also provided in public parking structures. The Madison Parking Utility maintains these facilities.

Bicycle racks are provided in a variety of State Street locations and are maintained by the Parks

Division – Mall Concourse group.

Traffic Engineering has placed a number of bicycle racks in the ROW at the request of the abutting private property owner. These racks are maintained by the city.

Property owners can install bicycle racks in the public right-of-way adjacent to their property through a Privilege is the Streets permit. These racks are maintained by the permit holder.

Removal of Abandoned Bicycles

The Madison Police Department is responsible for the removal of abandoned bicycles.