2017

Public Works Bicycle Facilities Maintenance Program

City of Madison Public Works

12/11/2017

CITY OF MADISON PUBLIC WORKS BICYCLE FACILITIES MAINTENANCE

MAKING BICYCLING A VIABLE MODE OF TRANSPORTATION YEAR ROUND

GOALS AND OBJECTIVES

The City of Madison's bicycle transportation network includes more than 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 shared use paths is an important consideration in people's decision to bicycle and a key factor in bicycle safety. Inadequately maintained bike lanes and shared use paths can create hazardous conditions on the roadway and disrupt connectivity of the bicycle transportation network. The objective of the City's bicycle facilities maintenance program is to provide safe, comfortable riding conditions, which promote bicycling as a viable alternative mode of transportation.

The City's Public Works agencies involved in bicycle facilities maintenance include Engineering, Parks, Streets and Traffic Engineering. These agencies have formed a staff team to identify specific bicycle facilities 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 shared use paths. Maintaining the safety of the City's streets and shared use paths 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 and shared use paths.

Engineering uses the Pavement Surface and Evaluation Rating System (PASER) developed by the University of Wisconsin–Extension. The PASER rating system is used to rate all city streets and shared use paths on a biennial basis to evaluate the condition of the pavement. The type and severity of defects noted in a given street or shared use 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 Division's Geographical Information System (GIS). This system is used to identify and schedule ongoing street and shared use path maintenance in an efficient and cost-effective manner.

The City of Madison utilizes preventative maintenance techniques to extend the life of our streets and shared use path systems. The type of maintenance is based on the pavement age and rating.

If a shared use 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. Transverse crack sealing is done at around 5 and 10 years of age.

The City of Madison also utilizes infrared seamless bituminous pavement patching of cracks and other distressed areas of our shared use 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 of the shared use paths is used to prioritize these projects.

POTHOLES AND PATCHES

The Streets Division is responsible for routine street and shared use path maintenance, which includes 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.

The patching equipment used by the Streets Division limits the size of damaged pavement it can repair in-house. Patches or repairs that exceed the Streets Division's capacity will be referred to the Engineering Division. Engineering evaluates the underlying causes of deterioration and identifies the most effective and cost-efficient method of repair.

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 and streets with a pavement condition rating greater than six (6). Theses patching criteria are available at:
http://www.cityofmadison.com/engineering/patchingCriteria.cfm

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 and lighting.

Traffic signs and pavement markings are maintained as originally installed. This includes signing and marking on shared used paths, at road crossings and those 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 along shared use paths, pedestrian areas and rights-of-way.

MOWING

Shared use path mowing is performed bi-weekly during the growing season. At a minimum, a 5' shoulder on either side of the edge of the pavement is mowed to eliminate site distance problems and to maintain vision triangles at intersections and crossings. Engineering and Parks each have specific shared use 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 work with volunteers to eradicate invasive species as resources allow.

BRUSH & SHRUB CLEARNING

Engineering and Parks are responsible for clearing brush and shrubs to maintain visibility at intersections.

TREE TRIMMING

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

SNOW & ICE CONTROL

Engineering, Parks and Streets each have areas responsibility for snow and ice control for the City's bicycle transportation network. These responsibilities and associated activities vary based on the type of facility and location. The following sections identify the specific activities by facility type along with the responsible agencies.

ON-STREET BICYCLE FACILITIES

The Streets Division is responsible for the removal of snow and ice from all Madison streets and on-street bicycle facilities, including bike lanes, bike boulevards and other key on-street connections in the bike network. This operation includes salting, sanding and plowing.

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

When conditions are favorable, the Streets Division will apply 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. On-street bike lanes on salt routes will be maintained in this manner when salt routes are deployed.

- **GENERAL PLOWS**

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 the Streets Division, Engineering and Parks assist in this operation. The City also deploys private contractors capable of providing heavy equipment appropriate for plowing. Under normal general plow conditions, initial plow operations can typically be completed in 12 to 14 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. The Streets Division also maintains its assigned secondary shared use paths during this post-plow period.

In heavier snows, on-street bike lanes may not be immediately cleared as plowed snow 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 until later in the plowing operation when they will be removed.

After plowing, some on-street bike lanes may be partially covered due to a lack of adequate space for curbside snow storage.

Trucks deployed to area sanding can help maintain on-street bike lanes when snow from vehicles or

other accumulations impede the lanes. 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 become too narrow for emergency vehicles and safe travel. In response to these conditions, the Streets Division organizes a snow removal effort. Snow removal operations require one vehicle using a truck-mounted blower shoot the accumulated curbside snow now into a second truck, and when full, the snow is hauled to a dump site.

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, most street connectors and other secondary on-street bicycle facilities found on city streets are maintained as part of general plow activities in accordance to the Streets Division Winter Maintenance Policy, which can be found here: http://www.cityofmadison.com/residents/winter/documents/SnowIceProcedures.pdf.

SHARED USE PATHS

For snow removal purposes shared use paths are categorized as either primary or secondary. Primary shared use paths are identified as those within the Madison bicycle transportation network with the highest traffic volume. Engineering and Parks each have specific primary shared used paths for which they are responsible. Secondary shared use paths include all other shared used paths connected to the Madison bicycle transportation network. These paths are maintained by Engineering, Parks and Streets based on assigned geographic territories.

- **PLOWING**

PRIMARY SHARED USE PATH

Shared use paths that have been identified as primary routes are a top priority for snow and ice control. As a general rule, if a homeowner would be expected to clear snow from their sidewalks these shared use paths are cleared. The goal is to have primary shared use paths cleared by 7:00 AM, Monday through Friday, excluding holidays) to facilitate users commute to work and school. As such, snow plowing operations for these shared use paths commence no later than 5:00 AM Monday through Friday. Crews are also assigned to clear these shared use paths during the workday to ensure that commuters can safely use this transportation network to return home from work and school.

SECONDARY SHARED USE PATH PLOWING

Secondary shared use paths are incorporated into the City's snow plow routes for sidewalks that abut City-owned parcels and bridges. Depending upon snow depth and timing of the snowfall, the goal is to have these facilities usable no later than 4:30pm the day after the snow has stopped falling or ice accumulation.

WEEKENDS AND HOLIDAYS

Weekend and holiday snow removal is dependent on a number of factors including, but not limited to snow depth, the timing of the storm and personnel availability.

- **SALT AND SAND USE**

Ice control practices vary by agency. Engineering and Parks use a sand/salt mixture which is 95% sand and 5% salt. Material is to be spread judiciously at the discretion of the operations staff responsible for maintaining shared use path safety. This material is also used in response to complaints of slippery conditions. This practice applies to both primary and secondary shared use paths maintained by Engineering and Parks. The Streets Division does not maintain any primary shared use paths. For the secondary shared use paths that are its responsibility, the Streets Division applies salt when appropriate for the weather conditions.

The Engineering Division began piloting the use of brine to pre-treat the Southwest Commuter path during the 2015-16 and 2016-17 winters. While results were promising, both winters were exceptionally mild. As such, the Engineering Division is continuing the pilot for the 2017-18 winter.

- **WINDROW REMOVAL**

As a result of plowing operations, windrows will form along points where a shared use path crosses a city street. These are a major obstacle to people on bikes on shared use paths.

Plowing operations can last for multiple days after a snow event and recreate windrows multiple times. Crews responsible for shared use path plowing will revisit these intersections in an attempt to clear the windrows as soon as possible. Ability to remove the windrow will depend upon when the windrow is formed, how many shared use path users compact the windrow while traversing it prior to the arrival of a crew to clear it, equipment availability and extenuating weather conditions.

- **ACCESS TO SIGNAL CONTROLS**

Providing access to signal controls is important for the safety of people biking. Removing snow to provide access to signal controls at crosswalks is incorporated into the City's snow removal routes for sidewalks abutting City of Madison owned parcels and bridges. The Streets Division is responsible for clearing snow to the curb to provide bicyclists access to street facing controls. The locations of street facing call buttons are provided below:

- Buckeye-Monona-Lake Edge (SB Lake Edge Blvd)
- Jenifer-Williamson (on Jenifer approach)
- Wilson-Blair-John Nolen-Williamson (on Wilson Street approach)
- Broom-John Nolen (in N-Leg of John Nolen median)
- Blair-Mifflin (button on poles for bikes but not on extender arms)

GLASS & DEBRIS REMOVAL

ON-STREET BICYCLE FACILITIES

SWEEPING

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. During the course of performing this work as outlined below, crews can respond to complaints received about debris in the bike lanes. There is no dedicated program to remove glass or other debris from the bike lanes.

The Streets Division operates eight traditional sweepers, one vacuum sweeper and one mechanical sweeper for the shared use paths. Streets, both improved and unimproved, and on-street bike lanes 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 per day 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.

- **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.

- **REGULAR SWEEPING ROTATION**

After the Spring Cleanup procedure is complete, sweepers return to their normal rotation through the city to sweep each city street and the bicycle transportation network multiple times. Barring equipment breakdowns or other considerations, most streets outside of the special weekly special sweep areas will be swept approximately once each month.

- **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 because their inlets drain directly into the lakes, therefore extra attention is needed to keep debris and pollutants swept. These areas receive weekly sweeping.

- **GLASS AND DEBRIS REMOVAL**

The Streets Division will deploy sweepers to remove glass and other hazardous debris from on-street bike facilities as they are reported.

SHARED USE PATH SWEEPING

The Streets Division sweeps, the entire network of shared use paths eight times a year on average. Sweeping of the shared-use paths begins when weather conditions allow following the spring thaw.

- **GLASS AND DEBRIS REMOVAL**

The Streets Division will deploy a sweeper to remove glass and other hazardous debris from on-street bike facilities as they are reported.

LEAF COLLECTION/SWEEPING

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 in our lakes, and therefore it is a major cause of algae blooms. 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, workload, weather conditions and equipment and personnel availability may cause delays.

LARGE DEBRIS

The Parks and Engineering Divisions are responsible for removing large debris from shared use paths.

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 Graffiti removal occurs in response to complaints and upon normal patrol operations.

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

CITY-MAINTAINED BICYCLE PARKING

All City facilities have bicycle parking facilities. These facilities are maintained by the agency responsible for snow and ice control for the facility. Typically, this is the owner/occupying agency. 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 Department – Mall Concourse group.

BICYCLE PARKING IN THE PUBLIC RIGHT OF WAY

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

REMOVAL OF ABANDONED BICYCLES

The Madison Police Department is responsible for the removal of abandoned bicycles. Removal of bikes occurs in response to complaints.