

5-791.400 SAFETY REST AREAS

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Safety rest areas are designed and constructed along highways to afford the motorist a safe exit from the traveled way, to offer comfort, convenience, relaxation, travel information and shelter during trips and to provide weather emergency stopping points. Between 1965 and 1979, Mn/DOT has actively supported a comprehensive program of safety rest area development on both primary and secondary trunk highways and primary interstate highways. Increased development during this period is a result of increased traffic volumes, a desire to provide safety related highway features, federal policy and regulations and funding availability through the Federal-Aid Interstate Program and the 1965 Highway Beautification Act. A moderate level of rest area development has occurred from 1984 to this date.

Some criteria for locating Class I and Class II safety rest areas are projected traffic volumes and a desirable spacing interval of approximately 80 km. Class III and Class IV safety rest areas may be located at any historic or scenic site.

Travel information centers are combined with select Class I safety rest areas and are designed to provide a statewide network of travel services. Travel information centers are located at major border entry points to Minnesota and on heavily traveled visitor routes. These centers are staffed by the Office of Tourism, Department of Trade and Economic Development, to provide information on travel, tourist attractions, recreational opportunities and road and weather conditions.

In order to manage, maintain and protect the capital investment associated with safety rest areas, interstate and non-interstate, policies and guidelines have been established. When implemented in a uniform manner statewide, the policies and guidelines will provide continuity in site and building management operations. The following policies and guidelines will identify the levels of maintenance service necessary for each rest area classification.

5-791.402 REST AREA CLASSIFICATIONS

In 1975 the Minnesota Legislature enacted the Outdoor Recreation Act, Minnesota Statutes, Chapter 86A, Subdivision 12 which established an outdoor recreation system and classified various recreational units. One of the recreational units classified was state rest areas. The Act states: "A state rest area shall be established to promote a safe, pleasurable, and informative travel experience along Minnesota Highways by providing areas and facilities at reasonable intervals for information, emergencies, or the rest and comfort of travelers." The administrative responsibility for rest areas lies with the Commissioner of Transportation.

In conformance with the 1975 Outdoor Recreation Act, Mn/DOT Safety Rest Areas have been classified into the following four categories which define appropriate levels of development and services.

Class I: Class I rest area sites are approximately 6 to 12 ha in size. The rest area buildings have a heating and ventilating system; pressurized, hot and cold water; flush type toilets and sewer systems. The rest area sites have picnic shelters and tables; surfaced parking for cars, trucks and car trailers; terraces; walkways, benches; lighting; signing; landscaping and other special amenities. Some sites provide travel information service.

Class I rest areas are open 24 hours per day, 7 days per week throughout the year unless usage is determined to be seasonal.

Class II: Class II rest area sites are approximately 2 to 6 ha in size. The facilities include vault type toilets; water well; picnic shelter and tables; information board; surfaced parking for cars, trucks and car trailers; walkways; waste receptacles; signing; and landscaping and other site amenities.

Class II rest areas are open 24 hours per day, 7 days per week, seasonally, generally May through October.

Class III: Class III rest area sites are approximately 0.5 to 2 ha in size with individual vault toilets. Sites may include a water well; picnic tables; an information board; surfaced or unsurfaced parking for cars and car trailers; landscaping and other amenities. These sites are opened seasonally.

Class IV: Class IV rest area sites are approximately 0.5 to 2 ha without toilet facilities. Sites may include picnic tables; an information board; and surfaced or unsurfaced parking. This type of site may have historical or cultural interpretation signing or serve as a scenic overlook facility. These sites are opened seasonally.

Average daily traffic volumes (ADT) determine which class of rest area development is applicable. It should be noted that advance signing of rest area facilities should properly identify them as rest areas and not waysides in accordance with the 1975 Outdoor Recreation Act.

5-791.403 MAINTENANCE GUIDELINES

It is essential that rest areas be maintained in a manner that reflects the design quality and the level of service determined appropriate through the comprehensive statewide development program. The existing interstate and non-interstate rest area program is recognized nationally as one of the very best. The traveler has come to expect clean, well maintained rest area facilities which have created a positive image for Mn/DOT. Standard maintenance and operating procedures should provide adequate safety, health and welfare conditions for all users of rest area facilities.

A. Ground Maintenance.

Individual rest areas vary considerably in size, location, topography, physical development and site features and require special grounds maintenance considerations. Due to these variations, personnel from the Design Services Section, Office of Technical Support, and the appropriate Maintenance Engineer will develop individual site management guidelines which will address specific site maintenance and management requirements based on overall site size and design.

Generally, grounds maintenance activities required at rest areas are similar for Class 1,11,111, and IV sites. However, sod and vegetation watering and snow removal from roadways and parking areas are only performed at Class I rest areas. The essential activities of successful grounds maintenance for rest area include:

- Mowing
- Fertilization
- Spraying
- Irrigation
- Seeding and Sodding
- Weeding and Mulching
- Landscaping
- Pruning
- Snow Removal
- Trash Removal and Resource Recovery

These essential activities are further defined as follows:

1. Mowing.

Mowing should be performed often enough so that the primary use areas and picnic grounds are well groomed. A park-like appearance is desirable. A comprehensive mowing identification plan should be available for each rest area in the site management guidelines developed for each site.

RECOMMENDATION:

MOW REGULARLY, TO MAINTAIN 60 TO 75 MILLIMETERS HEIGHT IN ACTIVE USE AREAS AND NEAR BUILDINGS.

2. Fertilization.

A timely fertilization program is essential to the establishment and continued growth of plant materials and turf grasses. Fertilization is particularly important to turf areas adjacent to the building, picnic shelters, picnic areas and other use areas where user impacts create stress on grasses. A well developed fertilization program will generate vigorous growth in plant materials and turf areas and allow better recovery from user activities. Fertilization recommendations should be available for each rest area in the site management guidelines.

RECOMMENDATION: FERTILIZE ANNUALLY.

3. Spraying.

Use of chemicals should be under the supervision of a licensed applicator. (Refer to Section 5-791.153, Weed and Brush Control). Any spraying activity should be completed as part of an integrated management approach that may include cultural and biological controls.

Vegetative spraying is required on plant materials and turf areas at proper intervals. Both deciduous and evergreen trees, shrubs and ground covers should be sprayed with the recommended pesticide or fungicide whenever harmful insect problems are observed and identified. Once an insect problem has been observed, the Forestry Unit, Office of Environmental Services should be notified so that the problem can be diagnosed and the appropriate treatment program recommended.

Turf grass areas must be inspected regularly to determine if broad leaf weeds are becoming a problem. If a problem is identified, the weed types should be identified and the proper spray applications made. Spray applications should be made at certain critical times to effectively control weed invasions. This is particularly true of Crabgrass which requires treatment prior to the germination period. In order to control certain broadleaf weed species, several herbicide applications may be necessary. Specific recommendations for spraying can be obtained through the Turf Establishment Unit.

RECOMMENDATION: SPRAY WOODY VEGETATION AS NEEDED. TREAT TURF AREAS WITH AN ANNUAL APPLICATION OF PRE-EMERGENT OR POST-EMERGENT BROAD LEAF WEED KILLER AS APPROPRIATE.

4. Irrigation.

Irrigation requirements apply to Class I rest areas only.

Maintaining the proper amount of water available in the soil is one of the most important factors in plant growth survival. Plants are continually transpiring water to the atmosphere and, if their water supply is not replenished, growth will be seriously limited and the plant may die. An over-or-under supply of water can also have serious consequences. Too much water can deplete the roots air supply and eventually kill the plant. Too little water will limit vigorous growth and failure may occur due to drought.

One of the most important factors to water availability and irrigation requirements is soil type. Soil type determines the water holding capacity of the soil and ultimately how often plant materials and turf grasses should be watered. Other factors which can influence water availability are temperature, slope and rainfall. Trees, shrubs, ground covers and other grasses should be watered on a regular basis unless adequate rainfall has occurred that week.

RECOMMENDATION: WATER PRIMARY USE AREAS AS NEEDED BASED ON RAINFALL.

5. Seeding and Sodding.

Seeding and sodding at an existing rest area are generally a result of user impacts in popular use areas. Seeding or sodding may also be required along walkway edges where grasses have been compacted during snow removal. Occasionally, entire areas may require seeding or sodding due to intensive use. This is especially true at those rest areas where turf maintenance, e.g. watering, fertilization and spraying, have been neglected over a period of time. If seeding or sodding is required at a rest area, refer to Section 5-791.160, Grasses and Forbs.

6. Weeding and Mulching.

Lawns and shrub beds can become weedy if left unattended. Weeds can be controlled through the use of an approach that integrates cultural, biological, mechanical and chemical methods. For example, weeds in lawns can often be managed at reasonable levels by raising the mowing height and by providing timely fertilization and irrigation. Serious weed infestations in lawns may require herbicide spraying or granular applications. Use of chemicals should be under the supervision of a licensed applicator.

Weeds in shrub masses and around trees may be controlled by applying wood chip mulch to a depth of four inches. Mulch may need to be replaced every two to three years. Some noxious

weeds that are difficult to control such as Canada thistle and leafy spurge will require chemical treatment under the supervision of a licensed applicator. Wherever possible the natural leaf litter layer in wooded areas should be left in place to prevent weeds and soil compaction and to serve as a sponge for retaining precipitation.

7. Landscaping.

Landscaping, the utilization of plant materials within the rest area, has been introduced into each site to provide shade, delineation, blending with natural features and to enhance the visual quality of the site. Shade trees, evergreens, shrubs and ground covers are normally selected for their hardiness, size, texture and color. When properly cared for, plant materials will outlive other physical elements of a site. However, if neglected initially or through the course of their growing period, costly replacement becomes necessary.

Maintenance of landscape plant materials should include watering, fertilization, pruning and spraying when required. Each rest area project has specific plant material maintenance considerations which should be identified in the site management guidelines or obtained through the Office of Environmental Services. In the event that plant materials require replacement, or a landscape plan requires redevelopment, the Site Development Unit, Office of Technical Support, should be contacted for assistance.

8. Pruning.

Pruning of plant materials may vary markedly depending on the species and varieties of plant materials used. Individual trees and large shrubs may require pruning annually or biennially. Shrub masses and ground cover areas may require pruning more often to achieve a desired design effect. The Forestry Unit, Office of Environmental Services is available to provide training in the pruning of site plant materials.

RECOMMENDATION: PROVIDE FOR THE MAINTENANCE OF VISTAS, REMOVAL OF OVER-GROWTH VEGETATION AND PROPER PRUNING. ANNUALLY INSPECT FOR AND REMOVE HAZARDOUS TREES.

9. Snow Removal.

Snow removal requirements apply to Class I rest areas only.

Snow removal is perhaps the single, most important site maintenance consideration during the winter period. Due to the element of safety associated with rest areas and their use as emergency shelters during the winter season, it is imperative that snow removal be an important objective. Snow removal from entrance and exit roadways and parking areas will be accomplished with regular highway maintenance crews. This activity should be completed immediately after all regular trunk highways have been plowed.

During snow removal from roadway and parking areas, equipment operators should take care to avoid damaging plant materials and other site furnishings through snow removal operations or through excess snow storage.

Removal of snow at site and building walkways shall be completed by on-site custodians. Ice and snow should be removed from walkways adjacent to parking areas and walkways leading to building entries on a regular basis during storms and all walkways, entry areas and plazas should be returned to a clear condition as soon after cessation of a snow fall as is reasonably possible.

10. Trash Removal and Resource Recovery

Trash removal is an integral part of safety rest area grounds maintenance, and resource recovery or recycling is a requirement according to Minnesota Statutes 115.A151. The law requires that Travel Information Centers and Class I rest areas recycle at least three of the following materials: paper, glass, plastic and metals. Currently, glass, aluminum and #1 plastic are being recycled. Containers are provided for recycling these materials. Each site shall be regularly policed for paper, trash and other debris. All trash, litter and garbage in Class I rest area buildings and on the grounds will be collected daily, or as otherwise required by the on-site custodian. Trash will be disposed of in an approved disposal area. Recoverable materials will be properly recycled. Disposal areas should be fenced or screened and equipped with large refuse containers. The refuse containers shall be emptied as needed by Mn/DOT maintenance personnel or by contract vendor as directed by each Area Maintenance Engineer. In all cases, state and local regulations pertaining to garbage and solid waste disposal shall be complied with. If trash or garbage begins to accumulate outside the waste receptacles, or broken glass or other debris begins to accumulate at the main site disposal area, the maintenance level for the particular site should be increased.

The placement of recycling containers should be convenient for pedestrians walking from the parking lot to the building but inconvenient for drop off directly from a vehicle.

The location or placement of large refuse containers should be removed from the public's direct view and accessible to trash hauling vehicles. The most desirable location is adjacent to truck parking areas.

B. Building Maintenance.

Rest area buildings and related structures have been designed as an integral feature of each site. Interior and exterior building materials have been used which are durable, require minimal maintenance and are vandal resistant. Rest areas are heavily used during summer travel periods and often reflect an image of the State and the Department. Therefore, routine maintenance is essential to create a pleasant user experience and to protect the original investment costs of each rest area.

Most Class I and some Class II rest areas are maintained through custodial contract agreements which are negotiated annually. The rest area buildings and immediate adjacent areas are maintained through these agreements. The agreements are negotiated annually with Green View, Inc., a non-profit organization which promotes and encourages the employment of needy, retired, elderly persons, as provided for by Minnesota Statute 160.282. The custodial agreements specify the services and compensation to be provided. Terms for the contract call for Green View, Inc. to employ, supervise and administer the performance of custodial and minor maintenance at Class I and II safety rest areas and travel information centers. Contract custodial work scheduling at all rest areas should correspond with the heaviest daily user periods at each site. These heavy user periods generally occur between 8 A.M. and 8 P.M. During this time period, building facilities, entry areas, lobbies and rest rooms are heavily occupied, and this results in continual cleaning and maintenance requirements.

All rest area maintenance not covered by the contract agreements is performed by Mn/DOT forces.

In the long run, lack of regular daily maintenance will result in visual and physical deterioration of the building and other site facilities and increased costs due to vandalism. A clean, well-maintained rest area is enjoyed, respected and appreciated by the highway traveler.

Class I: All Mn/DOT Class I rest area facilities remain open to the public 24 hours per day, seven days per week generally 12 months per year. Exceptions may result due to unusual circumstances. This schedule is determined by traffic and usage. A few Class I rest areas are closed seasonally. The building facilities should be serviced daily during the months open to the public. The following levels of service should be performed.

USE ONLY CLEANING AGENTS PROVIDED BY OR AUTHORIZED BY MN/DOT.

Each (2) hours - daily

- * Remove waste paper from floor.
- * Mop problem areas - rest rooms, lobby, and entry areas.
- * Clean smudges and smears on windows, doors, walls and partitions.
- * Clean sinks and mirrors.
- * Clean water closets, urinals and drinking fountains.
- * Check toilet tissue dispensers.
- * Clean sanitary napkin container.
- * Empty waste receptacles, if required.

Daily

- * Clean window sills, ledges, grills, soap dispensers, shelves and mirrors.
- * Clean light fixtures and lenses.
- * Clean walls, floors and partitions.
- * Clean and empty exterior ash trays.
- * Check operation of utilities such as heating and cooling systems, sewage systems, water systems and electrical systems. Notify the Area Maintenance Office if any problems are observed.

Weekly

- * Check and clean floor drains.
- * Add water to low use floor drains.
- * Wash all interior and exterior windows (except during winter periods).
- * Make sewage treatment pond observations, if applicable.

Monthly

- * Wipe off electric motors to keep free of dust.
- * Check filters installed in air, fuel and water systems.
- * Check fire extinguishers.
- * Replenish water treatment chemical feeders.
- * Inspect drainfield monitoring pipes.
- * Clean all air vent grills.

Annually

- * Clean all light fixtures.
- * Wash walls and ceilings.
- * Strip, clean and refinish floors.

The following maintenance activities are to be performed by Mn/DOT forces:

Annually or as needed

- * Paint, stain, varnish or seal all trim, doors, partitions and exposed wood surfaces as required with colors that match existing finishes.
- * Make minor building and site repairs.
- * Pump septic tanks once per year or as use requires.

Class II: Class II rest area facilities remain open to the public 24 hours per day, seven days per week approximately six months per year. This schedule is determined by traffic and usage. The building facilities should be serviced at least three (3) days per week during the months open to the public. Heavy usage rates during the summer tourist season may require that facilities be serviced more often and perhaps during weekends. The following levels of service should be performed:

USE ONLY CLEANING AGENTS PROVIDED BY OR AUTHORIZED BY MN/DOT.

(3) Days - Weekly

- * Remove waste paper and trash from floors.
- * Clean all toilets and urinals.
- * Clean and check toilet tissue dispensers.
- * Clean walls, partitions, doors, windows, sills, ledges and grills.
- * Add top-side and bottom-side deodorants.
- * Flush floors.
- * Sealed concrete floors in rest rooms should be deodorized and disinfected chemically. Following manufacturer's recommendations, deodorizing agent should be sprayed on floors and allowed to air-dry.

Monthly

- * Wash walls and ceilings.
- * Clean and wash skylight.
- * Check operations of water well.

Annually or as needed

- * building interiors and exteriors should be inspected for any damage requiring repair or equipment needing replacement. Painting, staining and refinishing should be in keeping with original materials and color selections.
- * Vaults should be pumped annually. Additional periodic pumping may be required depending on summer usage. The Maintenance Engineers office should contract with local septic tank contractors for this service.

Class III: Class III rest areas remain open to the public 24 hours per day, seven days per week, approximately six months per year subject to traffic and usage. These facilities will be serviced the same as Class II rest areas except the rate shall be reduced to at least two (2) days per week during the months open to the public.

Class IV: Class IV rest areas will normally be open to the public 24 hours per day, seven days per week during the spring, summer and fall seasons. This schedule is subject to change because of possible traffic and usage changes during certain months. Class IV rest areas do not include toilet buildings but do require regular servicing, minimum one (1) day per week, to remove trash or litter and monitor the site for maintenance requirements.

5-791.404 SITE FURNISHING MAINTENANCE

Site furnishings are the amenities which have been designed for the rest area to comfortably accommodate pedestrian users. The on-going maintenance of the site furnishings is very important. Minor maintenance should be accomplished as soon as practical by trained on-site personnel and major maintenance needs should be referred to the Area Maintenance Engineer. Repair or refinishing work should attempt to match colors, textures, patterns and materials as closely as possible to the in-place materials. Consultation with the Site Development Unit, Office of Technical Services may be appropriate.

A. Walkways.

Walkways throughout a site should be kept free of debris, foreign objects, ice and snow (see Section 5-791.403, A, 8, Snow Removal). This is particularly important for access walks along parking areas and entry walkways to rest area buildings.

1. Concrete Walks.

Concrete walks generally require little maintenance. However, concrete walks should be inspected annually for structural deficiencies and when heaving, joint deterioration or panel deterioration occur, the Area Maintenance Engineer should be notified so walks may be scheduled for repair.

2. Bituminous Walks.

Edge deterioration on bituminous walkways is a common problem. Bituminous walks should be reviewed annually for deterioration and scheduled for any needed repair, replacement or overlay.

B. Terraces and Decks.

Terraces and decks are generally adjacent to buildings or located as a special feature within a site. Terraces are normally constructed of concrete which is textured or includes special scoring patterns.

Terraces may also include retaining walls, benches, planters, railings, lighting, waste receptacles and information signs. Concrete terrace surfaces should be inspected annually and maintained in a manner similar to other concrete surfaces and walkways.

Decks are generally constructed of wood which has been stained or has received a permanent wood preservative treatment. If wood has been stained it will usually require additional staining in two to three years. Decks should be inspected annually, and repair of deck surfaces and adjacent hand rails may be required in order to ensure customer safety.

C. Picnic Shelters.

Design of picnic shelters generally reflect the architectural considerations of the rest area building. Therefore, the maintenance of these structures should be similar to the buildings.

D. Picnic Tables.

Picnic tables are normally designed to resist vandalism and minimize maintenance requirements. Concrete table tops are usually sealed with an epoxy paint or clear sealer. The tops should be inspected annually to determine their condition and to see if resealing is necessary.

Wooden bench seats and table tops should be reviewed annually for repair, repainting or restaining. Where applicable, metal tube framing should be inspected periodically for repair and repainting requirements. Members severely damaged by vandalism should be removed or repaired as soon as possible.

E. Retaining Walls and Stairs.

Walls and stairs are normally constructed of concrete, wood, stone or brick and function as space delineators and links between various grade levels. Retaining walls should be inspected annually for structural integrity and general repair requirements. In the case of wood walls, staining or painting may be required.

Stairs should be inspected annually to detect settlement or deterioration of treads and risers. Stairs and hand rails should be scheduled for routine inspection for needed repairs and repainting every two years.

F. Play Areas.

Play areas should be inspected daily, for hazards, by the custodial staff, and the sand in play areas should be leveled daily, specifically the low areas at the bottom of slides. Sand impact areas should be cleaned of debris and encroaching vegetation. Sand in play areas should be maintained approximately 0.3 m deep for user safety. Hazardous objects shall be removed without delay.

All moving parts should be inspected weekly and worn parts should be replaced. Play areas and play structures should be inspected annually for damage and to tighten all fastening devices.

G. Benches.

Benches located throughout rest areas are generally constructed of wood, concrete or stone. Wood is most often used due to comfort and maintainability. Bench surfaces and support structuring should be reviewed annually and refinished as necessary. Bench members severely damaged by vandalism should be replaced or repaired as soon as possible.

H. Drinking Fountains.

Drinking fountains should be kept in good working order. When facilities are closed for the season, the fountains must be thoroughly drained and all water lines should be blown out with compressed air to prevent breakage from freezing.

I. Irrigation Systems.

Some rest area sites have irrigation systems. The site irrigation system provides water for shrubs and lawn areas. It is intended for use only during summer months. Drain valves and quick coupling connectors should be made prominent around the site so they can easily be avoided during mowing operations. Due to neglect, many quick coupling connectors become filled with sand and, as a result, are inoperable. These should be repaired and maintained in areas where periodic watering is needed. Before the ground starts to freeze, the system must be winterized by draining and blowing out the lines with compressed air.

J. Waste Receptacles.

Waste receptacles are, perhaps, the most heavily used feature in a rest area and are subject to a great deal of abuse. These facilities may be constructed out of concrete, metal, plastic, fiberglass or wood and require periodic maintenance. Receptacles should be checked annually for minor repairs and/or replacement, secure anchoring and liner condition. The receptacles should be refinished as necessary. Colors and materials which closely match original finishes should be selected.

K. Recycling Containers.

Concrete recycling containers have been specified at Class I rest areas in conjunction with rehabilitation and new construction projects. Maintenance shall be the same as for waste receptacles.

L. Pet Exercise Areas.

Pet exercise areas should be adequately signed and tethering posts maintained so that leashing hardware and posts are in good repair. Gravel areas adjacent to posts should be replenished periodically.

M. Site Signing.

Site signing deals primarily with pedestrian signs which provide identification, direction, orientation and interpretation. Signing should be maintained annually to insure that necessary messaging is legible. Wood sign posts and message plaques require refinishing periodically. All

signs, posts and routed lettering should be refinished in a manner and color similar to the original sign.

Site identification and entry signs, which are generally metal lettered signs, should be inspected annually. Loosened metal lettering should be reinstalled with permanent type epoxy bonding. Interpretive signing should also be inspected annually and necessary repairs, replacements and refinishing should be made.

If special consideration is required in the repair or replacement of site signing, the Site Development Unit, Office of Technical Services should be contacted.

N. Lighting.

Maintenance of site lighting fixtures should be limited to relamping and relensing. Most site lighting fixtures are color extruded aluminum or weathering steel.

Problems associated with area lighting and site walkway lighting should be directed to the Office of Traffic Engineering.

5-791.405 WATER SYSTEMS

A. Water Wells and Pumps.

Most of the Mn/DOT Class I Rest Areas have on-site water wells which have been equipped with submersible well pumps. These pumps require little or no routine maintenance.

Some Mn/DOT rest areas are equipped with outdoor hand pump facilities. If the hand pump is properly installed, little or no maintenance will be required. It is recommended that the pump be shut down and the handle be removed for the winter months. These actions will reduce or prevent freeze damage to the drop pipe. Areas around pumps and wells should be kept clear of refuse and/or debris.

The Minnesota Department of Health:

1. Requires a minimum of yearly testing of well water for coliform and nitrates. Currently the Health Department performs all required collecting and testing of nitrate samples at all rest areas which offer potable water to the public. The Health Department also performs all required collection and testing of coliform for rest areas which serve less than 1,000 people per day on any consecutive 60-day peak basis. For rest areas that serve more than 1,000 people per day, the coliform testing frequency increases substantially and the Building Maintenance Supervisors are responsible for making sure that the required coliform samples are collected. The Wastewater and Water Supply Unit members should be contacted for specific water testing requirements for each rest area since these requirements quite often change over time.
2. Establishes the rules regulating design and construction of water wells that apply to new wells, installation of hand pump wells, well abandonment, etc.

B. Water Treatment Equipment.

Rest Areas have been equipped with many different types of water treatment equipment. Some

sites require no treatment at all while others have disinfection, iron removal and softening equipment. All equipment should be maintained according to the manufacturer's recommendations and chemicals or salt used in equipment should be properly labeled and stored and be only those types recommended by the manufacturer.

Softener salt should be added to the brine tank daily or as needed by the contracted custodial personnel. Chlorine and phosphate feeders should be replenished with chemicals at least monthly or as necessary by the Mn/DOT Building Maintenance Supervisor. If treatment is applied to the water, appropriate testing of the water should be conducted monthly by the building maintenance supervisor, i.e. hardness, iron, phosphate.

If water softeners are used to remove iron, sodium hydrosulfide should be added to the backwash brine tank. The recommended dosage and frequency can be obtained from the Wastewater and Water Supply Unit.

Phosphate addition must only occur when a chlorination system is available and is effectively operating.

C. Water Meters.

Most Class I rest areas have been supplied with forms for recording daily water usage. This information is very useful both in designing new rest areas and in keeping abreast of public usage at various sites. These forms, which are usually completed by the custodian, should be sent to the Area Maintenance Engineer where they shall be compiled and submitted annually to the Wastewater and Water Supply Unit. At some locations the Department of Natural Resources requires monthly pumping records to be submitted on an annual basis.

D. Site Irrigation.

The site irrigation system provides water for shrubs and lawn areas. It is intended for use only during summer months. Before the ground starts to freeze, the system must be winterized by draining and blowing out the lines with compressed air.

E. Freezing Conditions.

Water systems in any facility which may be closed or left unheated during the winter months must be properly drained and blown out with compressed air. Failure to drain the lines and fixtures may result in broken piping and/or fixtures.

5-791.406 WASTEWATER SYSTEMS

Many different types of wastewater systems have been installed at Mn/DOT Safety Rest Areas. Safe and effective wastewater treatment systems are essential to the continuing operation of these rest areas. Only through proper operation and maintenance can the public and Mn/DOT be assured that these wastewater systems comply with established environmental standards. The various types of treatment are as follows:

A. Septic Tank/Drainfield.

The septic tank-drainfield system is a successful and long lasting means of wastewater disposal if properly maintained. It is recommended that the septic tank be pumped once a year, however, spring time is the best due to increased summer use. Before pumping, the actual sludge and scum levels should be measured and evaluated to determine whether future pumping frequencies should be increased. The baffles inside the tank should be inspected yearly to see that they are functional and in good repair. The drainfields should be inspected each summer for signs of problems, such as, water surfacing on or around the fields.

Normally, the septic tank/drainfield system includes some means of transferring a large volume of water from the septic tank to the drainfield. Dosing siphons and wastewater pumps are common means of transferal at Mn/DOT rest areas. It is recommended that the siphons or pumps be inspected yearly for proper operation. Dosing siphons must be cleaned up periodically to prevent clogging of the vent and discharge piping. Pumps should be inspected for impeller wear and possible seal leakage. The pump electrical control panel must be inspected every 3-4 months to insure that the pumping system is functioning properly. The District should keep a weekly written record of the hours on the running time meters to insure that the pumps are getting nearly equal duty.

Because of increased use, some drainfields may be too small to handle the wastewater being generated. Since overloading can lead to failure of the drainfields, the Area Maintenance Engineer should be notified when this condition becomes apparent. Frequent observations of the drainfield should be conducted to check for water levels in the monitoring pipes and soft or wet areas in or around the drainfield. Continually standing water depths greater than one tenth of a meter in all sections of the drainfield indicate a hydraulic overloading condition.

B. Ponds.

In some instances, where a pond system has been installed, the ponds may be preceded by a septic tank, wastewater pump lift station, dosing siphon or settling tank. These installments should be pumped, inspected and maintained as previously described. The ponds are point sources of discharge and as such require a National Pollutant Discharge Elimination Systems (NPDES) permit.

The ponds must be maintained and operated in accordance with these permits and the pond system operation and maintenance manuals published by the Minnesota Pollution Control Agency. Failure to comply with the permit or maintenance guidelines could result in fines being levied against Mn/DOT. The NPDES permit requires weekly observation of the ponds. This should be accomplished by District personnel familiar with pond operation. Sampling of the pond water as required by the permit and pond discharges should be handled by the Waste and Waste Water Supply Unit or under their direction.

C. Recalculating Sand Filters.

The recalculating sand filter system is similar to the septic tank/drainfield system. The sand filter is constructed similar to a drainfield, except that the filters are constructed with a thicker sand layer and an underdrain collection system. Since treated wastewater from the sand filters can be discharged to a nearby body of water; a NPDES permit is required for operation of the system and the operation and maintenance of the system must be in accordance with the provisions of the permit.

D. Vault Toilet.

The vault toilet has been utilized throughout the U.S. for many years. The elimination of odors in these facilities is accomplished by timely cleaning and proper ventilation. **Maintain water level above organic solids level to minimize the odor.**

If chemicals are used, they must be handled and applied according to the manufacturers recommendations since, if used improperly, these chemicals can generate more offensive odors than the waste.

Some of these chemicals are disinfecting agents and if they are dumped into the vault, they could eventually reach a municipal treatment plant. In extreme concentrations they can completely disrupt treatment plant operations by destroying helpful bacteria. Therefore, the overuse of the materials is not recommended.

An effective method of distributing the chemicals is to spray them on the walls of the vault. Straight dumping of the materials into the vault tends to concentrate them and is not as effective. As with all chemicals, the manufacturer's recommendations as to application method should be followed.