Greater Cleveland Trails and Greenways Conference
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Trail Maintenance
and
the Operations Manual

Operations and Maintenance

Operations Manual Purpose

- Quantifies and Qualifies your work
- Helps justify your budget
  - NRPA article
- Serves as a training manual for staff

Requires establishing policies and procedures

May want to include your Mission Statement

May want to include statement of standards

Manual needs to include:

What – What needs to be done

How – How do we accomplish task

- Tools
- Equipment
- Steps to be taken to accomplish task

When – When does it need to be done; how often

Who – Personnel to accomplish task

- Laborers, technicians, specialists or contractors

Maintenance Premise

- Good maintenance begins with good design.
- Drainage is the most critical element in the life of your trail.
- With proper maintenance you can extend the life of your trail surface beyond the averages.

Maintenance Costs

- $500 - $5,000 per mile per year
- Factors
  - Level of care
  - Site of trail
  - Surface of trail

Determine Level of Care/Service

- What do you want to provide
- What can you expect to provide
- What are Community/User expectations
  - May vary from site to site
- What brings return users?
  - Safe
  - Clean
  - Aesthetically pleasing/ Attractive

Trail Surfaces

- Concrete
- Asphalt
- Aggregate

How to set up your Operations Manual

- Maintenance items
- Operation items
- Tools and Equipment
- Chemicals

General – applies universally to all facilities

Specific – detailed applications to specific site or part of

Types of Care

- Routine Maintenance
- Periodic Maintenance
- Long Term Care

Routine Maintenance

- Mowing – policy on frequency; mowing height
- Cleaning
- Trimming
- Vandalism repair
- Litter control


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Routine Maintenance

- Mowing
- Cleaning – policy on how often; under what conditions
- Trimming
- Vandalism repair
- Litter control

Blower vs. Sweeper vs. Vacuum

- Vacuum creates major dust in dry weather
- Low profile makes vacuum hard to get over bollards
- Sweeper only gets debris off immediate trail surface
- Leaves piles where sweeper stops
- Blower gets clippings, leaves, twigs, rocks and debris way off of trail

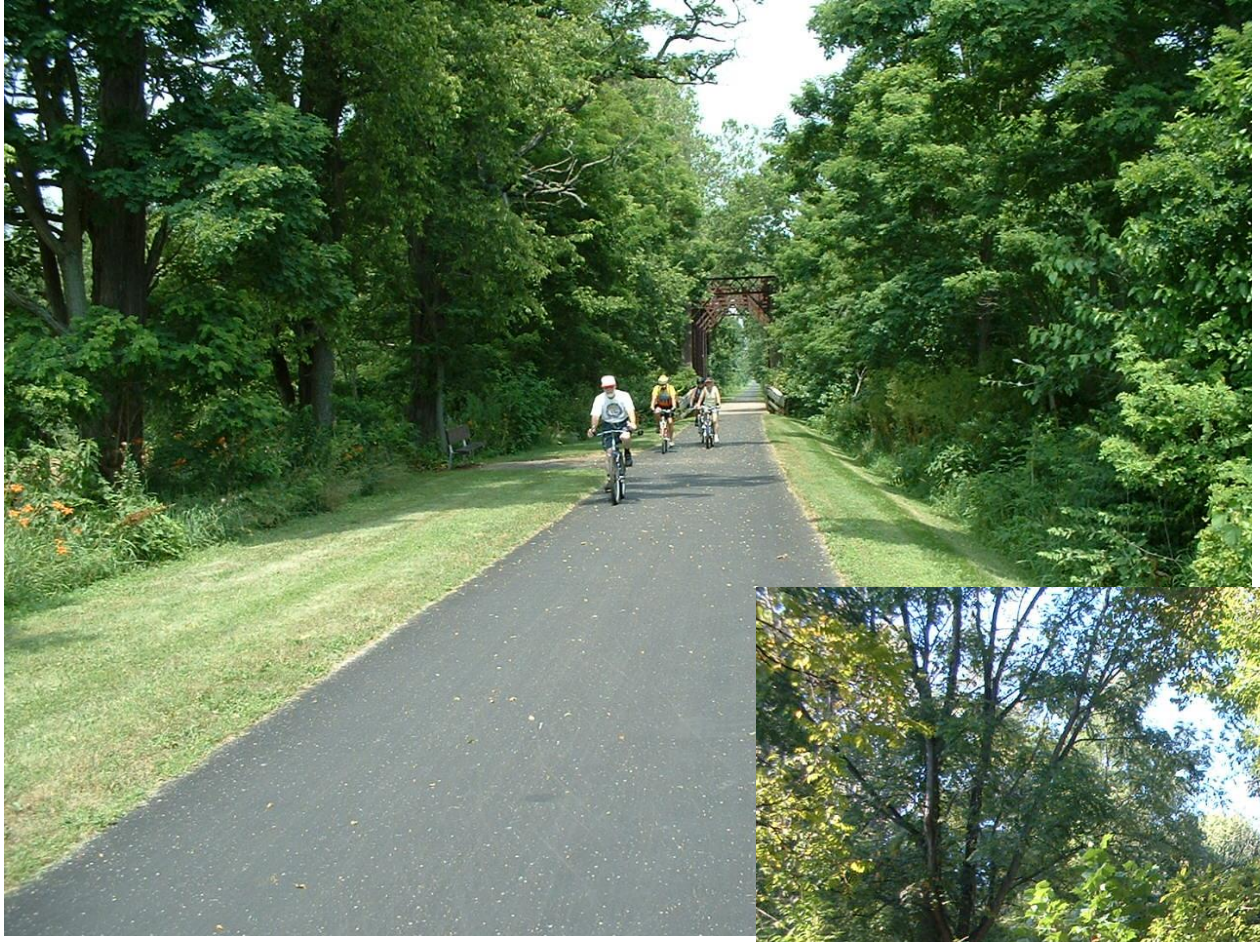

TORO

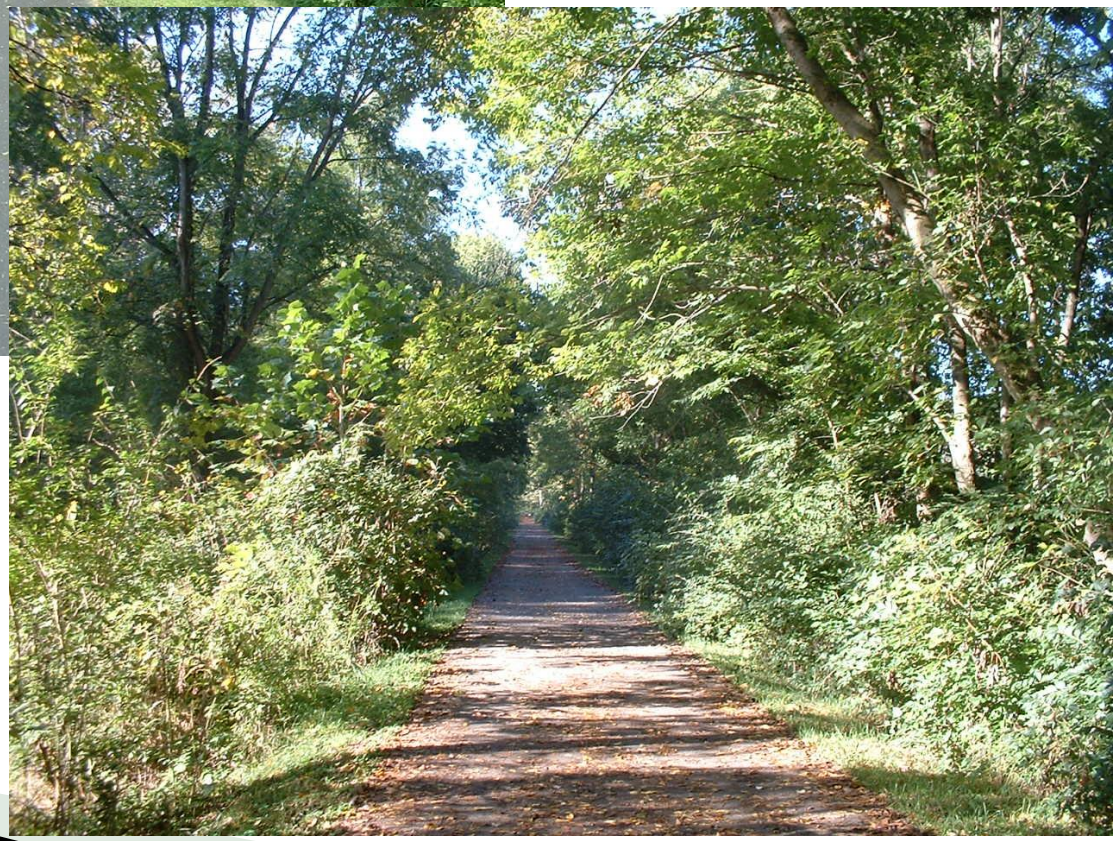
Routine Maintenance

- Mowing
- Cleaning
- Trimming – policies on around obstructions; clearances
- Vandalism repair
- Litter control

Routine Maintenance

- Mowing
- Cleaning
- Trimming
- Vandalism repair – policy
- Litter control – policy – cans; pack-in/pack-out





Periodic Maintenance – all Surfaces

- Clearance pruning – maintain 3’ setback
- Tree trimming– maintain 12’ height clearance
- Brush cutback – keep shrubs from encroaching onto the berm
- Leaf Collection; snow removal; cutting an extra swathe – policies

Periodic Maintenance – Aggregate Trails

- Control encroaching vegetation
- Scarify areas to be corrected
- Add aggregate if needed
- Grade and compact

Periodic Maintenance – Concrete Trails

- Edging
- Seal Cracks
- Re-stripe annually (if using paint)

Periodic Maintenance – Asphalt Trails

- Edge pavement to prevent vegetation encroachment.
- Restripe annually (if using paint)

Long Term Maintenance for asphalt surfaces

- Crack sealing
- Seal Coating
- Pavement Repair

Asphalt Maintenance Strategy

- ✓ Retard progressive failure
- ✓ Arrest light deterioration
- ✓ Reduce need for reactive maintenance

Crack Sealing

- Prevents water from entering base and sub-base.
- Prevents debris build-up in cracks.
- Prevents continued deterioration.
- Perform every 2 years.
- Recommend use of a rubberized sealant - policy

Crack Sealing

Purpose of Seal Coating

- Arrest deterioration
- Prevent water infiltration
- Restore oils to upper surface
- Prevent loss of fines

Seal Coat Products

- Reclamite
- GSB 88
- Agricultural oil based sealers
  - Replay
  - Bio-Re-Stor

- Do Not Use Coal Tar based Products
  - Cost – $4,500 – 5,000/mile

Reclamite

- Chemical composition product
- Goes on nearly clear
- Requires 24-hour penetration time
- Requires sand coat to absorb excess
- Sand must be swept off before re-open
- Questions on friction co-efficient

GSB – 88

- Asphalt emulsion
- Goes on black
- Requires masking or re-striping
- Dries 1- 2 hours
- Adds silica sand to fill fines, increase friction

Agricultural Oils

- Agricultural base, not Asphalt
- Green product
- Restores oils to upper 3/8” of asphalt surface
- Prevents loss of fines
- Goes on virtually clear; no need for re-striping
- Maintains co-efficiency of friction

Replay Applicators

Trail Surface Repairs

- Establish Policies and Procedures for cuts through your trail.
- State when and how cuts must be made.
- Set specifications for restoration of disturbed areas.
- Have this policy and the specs available to distribute to utilities and developers.

Pavement Repair – Aggregate

- Correct underlying Issues
- Use ripper tines to penetrate into existing surface
- Add new aggregate to match existing
- Grade to blend into existing surfaces
- Compact with vibratory roller

Pavement Repair – Concrete

- Saw-cut all joints
- Make sure drainage can occur
- Install porous stone base
- Form new concrete to match existing
- Finish surface to match existing
- Provide for expansion of new concrete

Pavement Repair – Asphalt

- Avoid cuts at all costs
- Saw-cut all edges
- Properly compact all fills
- Specify compaction rates for fill and asphalt
- Apply AC-20 to sides of cuts
- Consider re-heating techniques

Asphalt Surfacing Alternatives

- Slurry seal
- Skim coats
- Micro-surfacing
- Chip and seal

Asphalt Re-surfacing

- Consider grinding and repaving
  - May be more cost effective
  - Requires no re-berming
  - Requires no re-seeding

Always add at least a 1 ¼" course of asphalt

Operation Items

i.e. – event set-up or break-down

i.e. – water service turn on or off – policy

Other Items

Signs – Policies – setbacks, replacement, content (diagram)

Kiosks – policy on content

Bollards – policy when and where; types; justification for use

Bumper blocks – placement and use – policy

Tools and Equipment

List out equipment, where it is kept, preventative maintenance requirements, maintenance schedules

List out safety equipment use and operation requirements.

Policies

Chemicals

This is a sub-section of your manual.

Policy on use of chemicals in your facilities.

List all chemicals in use anywhere within your operation.

Include all MSDS sheets.

Follow state guidelines for use, storage and reporting.

Include these guidelines in your manual.

What is not included

- Capital Improvements
- Major Renovations/Repairs

Operations Manual is not a static Document

Customize to fit your needs

Other Considerations

- Maintenance Logs/Records – Policy
- Inspection forms/Schedule – Policy
- Incident/Accident/Reporting – Policy

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