Functional Classification of Multi-Use Trails in Arlington, VA

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# Abstract

Multi-use trails (MUT) are typically funded and managed as recreational facilities. However, these separated facilities can also be key elements of the nonmotorized transportation network, especially in urban areas. This study will use automatic traffic counters to develop a functional classification of trail segments in Arlington, VA, according to time of day, seasonality, travel mode (walk or bicycle), and direction of travel. The generalizability of these classifications will be assessed by comparison with other jurisdictions, and their applicability verified by field observations. The observed use patterns will be compared to prevalent trail management scenarios, and implications for trail management and funding will be analyzed.

# Outline

## Introduction

### Background of MUTs and Rail-Trails

### Typical trail funding sources

The NTEC database is one source of information, though it is an incomplete sample

### Typical trail management scenarios

Municipal parks/rec departments are common in urban areas; NPS has an unusually large stake in DC area trails (MVT, Rock Creek, CCT/C&O). Citizen “Friends” groups often surface in an advisory and advocacy role and can help to bridge jurisdictional gaps (CCT is part NPS and part Montgomery County).

### Rationale for study

Misplaced design/management priorities may negatively affect some trail users

Understanding trail use patterns can help jurisdictions better deploy resources for existing trail management; they can also plan, design and fund future trails more appropriately.

## Literature review

### Design classifications

AASHTO: Class I-IV bicycle facilities, MUTs are lumped together at the top

### Functional classification

FHWA: road classifications based on traffic volumes,

### Data collection on trails

Surveys: ability to gather non-count information, including trip purpose, group size, frequency of visits for individual users

Manual counts: ability to gather basic observational information: direction, gender, bike/ped, etc. Steep labor requirements generally

Automatic counts: some technology can provide direction, vehicle type information – though calibration and testing are needed.

### Trail counters

Greg Lindsay and others’ work on weather, automatic counter calibration, extrapolating manual counts to full day/year

### Previous studies on Arlington and DC area trails

W&OD survey 2004; CCT survey 2006; David Patton beginning to look at counter data but more concerned with establishing baseline measurements in anticipation of performance requirements attached to funding (req’s in other parts of MAP-21 as an example)

### Statistical methods

Studies developing similar functional classifications; selected method for this study

## Functional classification

### Data

#### EcoCounter Multi

Description of technology

Description of output data: 15 minute bins, bike/ped, direction

#### Arlington data

Counter locations (trails and bridges), selection criteria, study timeframe

#### Data prep

Handling of unique situations: unusual weather events, equipment outages, etc.

Addition of dummy variables (season, day of week, etc.), incorporation of other data sets

### Statistical methods

Description of analysis procedure

### Results

Figures showing typical patterns

Tables and maps showing classifications of specific counter locations

### Interpretation

Commuter vs. recreational; discussion of use class compared to location, other factors

## Verification

### Onsite observations

Talk to Tracy about other helpful data that can be collected while in the field

#### Direct observation/video

Target locations and times of day based on classification divisions

Description of method for data collection: traits recorded, video recording setup

#### User interviews

Questions can be simple: destination, purpose, frequency of trips using this facility

### Interviews with trail managers

#### David Patton

His interpretation of results for Arlington trails

#### Other jurisdictions

Phone calls with Tracy’s contacts

2-3 other jurisdictions at least

## Conclusions

### Implications for trail management

How well do the management structures align with usage patterns?

Are there specific management concerns (such as snow clearing) that could be better addressed by other management scenarios?

What would a more appropriate management scenario look like?

### Implications for planning

Given the classifications found here, should some trails seek other funding mechanisms that would be more appropriate for their eventual use?

Should urban/suburban trails be sited differently based on their likely use patterns?

Are trail design guidelines appropriate for the functional classifications found here?

From a transportational (vs. recreational) cycling point of view, these trail facilities likely serve a similar role as limited-access highways do for cars. Is this borne out by the data, and does this have implications for trail design (separating transportation and recreation) or other connecting facilities?

### Implications for research

Having performed this study, are there insights for the TRB Research Need for traffic count database standards?

#### Limitations/opportunities for future research

15 minute bins

Not a whole lot of historical data since the counters were installed recently

Location coverage is dense for bicycle researchers, but sparse for automotive researchers. We are far from working up a TAZ-style model of cycling/walking demand for an area.

This study does not account well for off-street facilities, connections to employment centers, etc.