Shared Path Widths

**Project Aim:** to determine appropriate widths and develop a tool for off-road pedestrian and cyclist paths

Undertaken for VicRoads, Victoria, Australia

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**Path Types**

- **Shared**
  - Pedestrians and cyclists both allowed on the same part of the path.

- **Segregated**
  - Paint markings or different surface types used to delineate different areas for pedestrians and cyclists.

- **Separated**
  - Different areas for pedestrians and cyclists divided by physical barriers or wide distances.

**Modelling Issues**

**Model Development**

**Model Assumptions and Inherent Characteristics**

- **User Types**
  - Two main modes: adult cyclists, walkers
  - Also allowance for child cyclists
  - Determined from site surveys
  - Simplifies modelling and design process

- **User Speeds**
  - For each mode group
  - Average speed
  - Standard deviation

- **Los at which path is deemed sufficiently “safe”**
  - Taken as 12 delayed passings per hour (for average cyclist)

**User Widths and Clearances**

- Lane-based model
- No LOS increase for additional width less than required user width

**User Assumptions**

- When is the design year?
- What growth rates will be experienced?

**User Input**

- Pedestrian volumes
- Cyclist volumes

Note that segregated paths are more suitable than shared paths at higher volumes!

**Modelling Issues**

**Travel Directions**

- Directional split of flow affects the occurrence of user interactions

- Even split
- Tidal flow

**Existing Guidance**

- Current path design generally based on empirical observations rather than scientific consideration of user interactions.

**User Interactions**

- Users encounters another in the opposite direction
- Active User overtakes another
- Passive User overtaken by another
- Delayed User has to wait to overtake

**Quantifying Safety**

- Few data available regarding crashes and conflicts on shared paths
- Crashes on paths are relatively rare and of low severity
- Level of Service (LOS) used as proxy for safety

**Level of Service**

- A high LOS indicates plenty of room for path users to move safely and enjoy the experience
- A low LOS indicates users do not have sufficient space and may be likely to take evasive moves unsafely
- Delayed passing the most critical component of LOS

**Conclusions**

- There is currently little quantitative guidance available regarding the determination of shared path widths.
- Shared paths are complex due to their wide range of user characteristics, mode splits and directional splits.
- It is difficult to quantify safety.
- A simplified situation has been developed:
  - Two modes: walkers and adult cyclists
  - Conservative 50/50 directional split
- LOS based on threshold of 12 delayed passing events per cyclist per hour
- The model shows that segregated paths require less total width and therefore are more appropriate than shared paths at higher volumes.
- We anticipate that this model will be of significant use in properly designing shared paths in Australia and, after some site-specific calibration, New Zealand.
- Designers must have a good appreciation of how to predict path volumes, including allowing for future growth.

**Recommendations**

- Determine the user widths, clearances, speed distributions and delayed passing threshold appropriate to NZ conditions and thus develop a NZ path design chart.
- Further research to understand how to identify design year and predict design volumes is needed.
- Further investigations to identify the most appropriate way of detailing segregated paths so that users are happy to comply with the segregation.
- We have observed that simple paint markings are ineffective and suggest research into colour and texture differentiation.

This could be done by before and after surveys on a group of test treatments to determine the most effective.