

## APPENDIX F

# Pathway Development Process Guidelines

# Pathway Development Process Guidelines

These guidelines provide a summary of the steps and requirements for planning, designing and implementing new pathways in Rocky View County. The guidelines apply to regional pathways, other pathways within a road right-of-way or any pathway that will ultimately be maintained by the County. The Guidelines do not apply to natural trails, equestrian trails or private pathways that will remain private. The County encourages developers and non-profit organizations to take a lead role in identifying active transportation needs, potential infrastructure and funding opportunities within the context of the Active Transportation Plan. To be part of a long-term network, pathways need to be developed in a logical manner and to a consistent quality throughout the County.

There are five main stages to pathway development:

- Pre-Planning – to identify critical constraints
- Planning – to sufficiently develop a concept to demonstrate feasibility and allow for preliminary approval
- Design – detailed engineering leading to construction documents approved by the County
- Construction – by a qualified contractor procured through a process consistent with Rocky View County procedures
- Operation – to be determined on case-by-case basis, but generally the responsibility of the County

Pathway development is similar to developing a roadway, with all of the same considerations. Although primarily used for pedestrians and cyclists, the same planning, design, construction and operational principles apply to pathways as roadways.

These guidelines are focused primarily on Pre-Planning and Planning, with some discussion of Design. The Construction and Operation stages need to be addressed by the County on a case-by-case basis.

## Pre-Planning

The first step in any project is to determine if it worthwhile pursuing. There are several proposed and approved pathways and trail on various planning documents. Inclusion of a pathway in a planning document does not ensure its feasibility. In most master planning documents, pathway locations are indicative only and represent the general location of a desired pathway or other active transportation facility.

**Purpose:** The pre-planning stage is intended to identify potential “show-stoppers”

**Deliverables:** None

**Preparation:** It is recommended that the proponent obtain property mapping from Rocky View County to help determine if there is sufficient right-of-way, and there should be walk-through of the proposed to observe conditions.

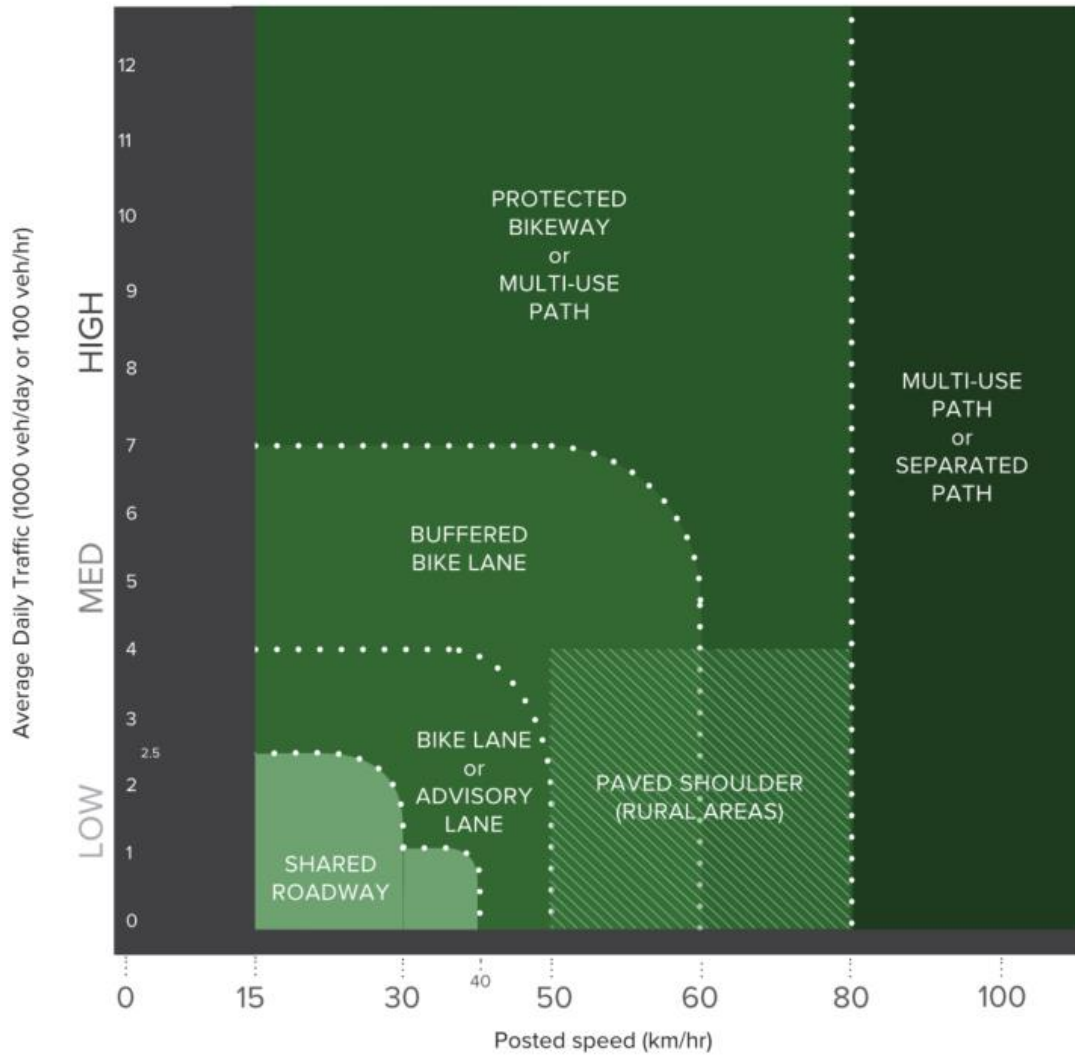
**Approval:** There is no approval at this stage, but proponents are encouraged to meet with Rocky View County staff to review the project and to develop the scope of the analysis for the Planning stage.

**Report, Drawings and Analysis Requirements:** Completion of a pre-planning analysis does not guarantee that a project will be feasible or will be approved. In many cases, further investigation is required to confirm feasibility. However, identification of significant challenges at this stage may save considerable effort in developing a project that has little chance of success within a reasonable cost. Examples of the types of issues that should be considered at the pre-planning stage are:

- Is the facility shown on the Active Transportation Plan – South County network?
- If no, is it shown on as approved or proposed on any other planning document? If yes, please indicate the document:
- Using the facility selection tool, is a shared use pathway an appropriate active transportation facility?
- If the posted speed on the adjacent roadway is 70 km/h or more, is there at least 8.0m from the edge of the lane to the right-of-way line?
- If the posted speed is less than 70 km/h, is there at least 5.0m from the edge of the lane to the right-of-way line?
- Are there steep slopes on the side of the highway that will impede pathway construction.
- Are there stream crossings required, and/or is there significant water in the area the pathway will be constructed?
- Are there multiple driveways or local road intersections with spacing less than 25 apart?
- Are there buried utilities that will impact pathway construction (look for gas line and other signage, fire hydrants, etc. for indicators)

This is a relatively short checklist and only represents a small list of serious issues. Most issues that will determine feasibility require a planning-level review to identify issues and potentially mitigation.

# ROCKY VIEW COUNTY BICYCLE FACILITY SELECTION TOOL



SHARED ROADWAY includes:  
BIKE BOULEVARD, YIELD ROADWAY,  
PEDESTRIAN LANE, AND ADVISORY LANE

## Planning

**Purpose:** The planning stage identifies the general pathway requirements and concept plans. It is used to support funding applications and gain support in principle for the concept.

**Deliverables:** Report, describing the concept, the rationale for the concept and key issues to be addressed in design, along with concept sketches showing the horizontal alignment of the pathway.

**Preparation:** The planning report and concepts will typically be prepared by the project proponent, such as a community group or developer, or possibly Rocky View County. For challenging or constrained locations, it may be prudent to engage an active transportation planner, traffic safety engineer, geometric designer or other professional as appropriate to provide input on specific issues.

**Approval:** The report and concept will be reviewed by Rocky View County staff prior to incurring costs in the design stage. Staff will grant agreement in principle to an acceptable concept to help support funding applications, and may be able to provide advice to reduce risks later in the process.

**Report, Drawings and Analysis Requirements:** A greater effort in the planning stage of the process to identify issues will reduce the potential for unexpected costs and other uncertainties in design and construction, and will increase the potential for long-term project success. The following summarizes the background analysis and steps that should be taken to generate sufficient information to support funding applications and provide reasonable confidence that the project is feasible and will be approved.

### Project Background

- Purpose of the pathway and who it will serve
- Relationship to the Active Transportation Plan
- Relationship to other pathways and initiatives (for example, Trans Canada Trail)
- Start and end points, and destinations along the route
- Factors affecting timing (i.e., answer the question, “why now?”)
- Details of any community engagement as well as supporting stakeholders

### Analysis

- **Current posted speeds and traffic volumes:** Confirm the current posted speeds and daily traffic volumes on the adjacent roadway. Existing traffic volumes can be obtained from Rocky View County recent traffic counts. Where recent traffic counts are not available, the County’s travel demand model can provide a reasonable estimate. Posted speeds can be obtained by checking signs on the roadway, or from Rocky View County’s posted speed sign GIS layer.
- **Pathway Setback Requirements:** Using the references provided in the Active Transportation Facility Guidelines for Shared Use Pathways, use the clear zone distances to determine the pathway setback requirements.
- **Right-of-way:** Using the Active Transportation Facility Guidelines for Shared Use Pathways, confirm that the pathway width can be provided within the recommended

upper and lower limits for pathway width within the setback requirements. A full identification of cut and fill slopes is not needed at the planning stage, but there should be a review of locations where side slope exists and there is potential for cut or fill slope to extend beyond current right-of-way boundaries.

- **Stream Crossings:** Locations where the alignment crosses streams and other water should be identified from maps or Google Earth, but should also be reviewed in the field. Photographs of the existing conditions will help to characterize constraints associated with the alignment. Where possible, the pathway should cross streams at right angles to minimize the environmental effects and cost. If possible, it should be noted whether streams have water intermittently or continuously. For major crossings where the adjacent roadway bridges the stream, consider whether there is sufficient space on the existing bridge to include a pathway, possibly through re-allocation of space. Expansion of the bridge will require further engineering investigation during design.
- **Drainage / Wetlands:** Although drainage issues will be addressed in the design stage, it is useful to note where drainage issues are known to occur. Even anecdotal information on historical trends is useful. Similarly, wetlands mapping and local knowledge can help to identify possible wetland areas, which should be avoided if possible for environmental or engineering reasons. Ideally, the pathway alignment should avoid areas with drainage issues or wetlands, and if they can't be completely avoided, should be noted so that issues can be addressed during design.
- **Road Crossings:** Ideally, the pathway alignment should avoid or minimize the number of roadway crossings. Where crossings are necessary, they should occur in locations that are free of obstructions and on straight sections of roadway. Sight distance evaluations will be required for design, but consideration of good visibility at crossing locations in the planning stage will reduce the risk that the alignment will need to be changed. Pathway approaches to road crossings should as close to 90° as possible.
- **Accesses/Driveways:** Crossings of accesses and driveways should be minimized. This should be a significant consideration in identifying the preferred side of the road to locate the pathway. The same principles apply to crossing accesses and driveways as crossing roadways, with visibility being most important. Pathway users should be able to see vehicles, and drivers should be able to see pathway users.
- **Topography:** The cross-section and vertical alignment elements will be addressed in the design stage. However, some preliminary work to identify issues will reduce the potential need for changes at the design stage. A review of contour mapping and visual observation of the corridor will help to identify potential issues. Side slopes will have a significant effect on the cross-section of the pathway, and could potentially result in the need for cut or fill slopes that extend beyond the right-of-way boundaries, necessitating unexpected property acquisition. Potential



Example of a pathway that has a short section of steep grades because of a roadway cut (Legacy Trail, Banff National Park)

property acquisition is one of the greatest cost risks associated with a pathway project. Similarly, steep slopes should be avoided. Usually, the adjacent roadway alignment will minimize grades. However, sections of roadway in cut or fill may require the pathway to follow a route that is steeper than the adjacent roadway.

### **Conceptual Alignment Sketches**

The conceptual plans should show the following information at an appropriate scale for the specific pathway:

- Preferably on orthoimagery (available from Rocky View County)
- Show right-of-way / property lines
- Show proposed centerline horizontal alignment
- Identify existing pathways and connections
- Identify crossings of roads
- Identify stream crossing and locations where bridges and other structures may be required

### **Cost Estimate**

At the planning level of detail, an order-of-magnitude, conceptual cost estimate is appropriate. This would be based on known pathway costs/metre, plus provisions for stream crossings and other mitigative measures. The best source for the per metre costs is a recently completed pathway in similar conditions. Depending on the level analysis that is completed and the outstanding uncertainties, a contingency of at least 35% should be applied to the conceptual cost, and more likely 50%. Finally engineering costs of 10% should be added.

If there is potential for any of the work associated with the pathway to extend beyond the right-of-way boundary, an additional provision for right-of-way acquisition or other mitigation (eg., retaining walls) will be needed. Property impacts will be assessed at the design stage, but it may be necessary to engage an engineer at the planning stage to identify property issues in order to develop a reasonable conceptual cost estimate.

It is important to not “squeeze” costs simply to meet available funding budgets at this stage. The planning stage is intended to help identify the funding and budget requirements so that the pathway can be constructed properly. An honest and complete estimate of project costs is more likely to result in successful funding and support for the project. Typically costs increase as a project moves into design and construction. It is easier and less expensive to modify the concept or reduce the project to reduce costs if necessary at the planning stage than to run out of money in design or construction.

## **Design**

**Purpose:** The design stage includes development of preliminary design, which establishes horizontal and vertical geometry, developed to a level that identifies space requirements for the project, and in particular any property acquisition (or mitigation) requirements. The preliminary design also provides sufficient information to confirm feasibility of the preferred horizontal and vertical alignments. The final design provides sufficient design for tender and construction, including sufficient information to develop a reliable engineer’s cost estimate.

**Deliverables:** Preliminary design (at approximately 30% design) including horizontal and vertical alignments, typical cross section, property requirements and a drainage plan. The submissions will be generally in compliance with Section 104.5 of the County Servicing Standards as applicable for the project. The final design will provide all detail necessary for construction and generally aligned with Section 104.6 of the County Servicing Standards.

**Preparation:** The design should be prepared under the supervision of a qualified professional engineer. Where pathways are designed within an existing road right-of-way, the engineering can be complex due to issues related to right-of-way constraints, drainage, ground conditions, existing utilities, traffic operation and various other issues. The specific engineering requirements will be site-specific and the level of effort will vary by location. Sufficient detail in the design and full engineering consideration will reduce the risk of unforeseen circumstances and additional costs during construction.

**Approval:** Designs will be subject to approval by the Engineering Services Department of the County. The final design will be sealed by a qualified professional engineer registered with the Association of Professional Engineers and Geoscientists of Alberta.

**Report, Drawings and Analysis Requirements:** The County Servicing Standards should be referenced for submission requirements. Engineering judgment will be required to determine the level of engineering effort required for specific circumstances. The following outlines the engineering investigation required for most major elements, recognizing that these are guidelines only and the local conditions will dictate the specific needs.