

Trails and Bikeways Master Plan



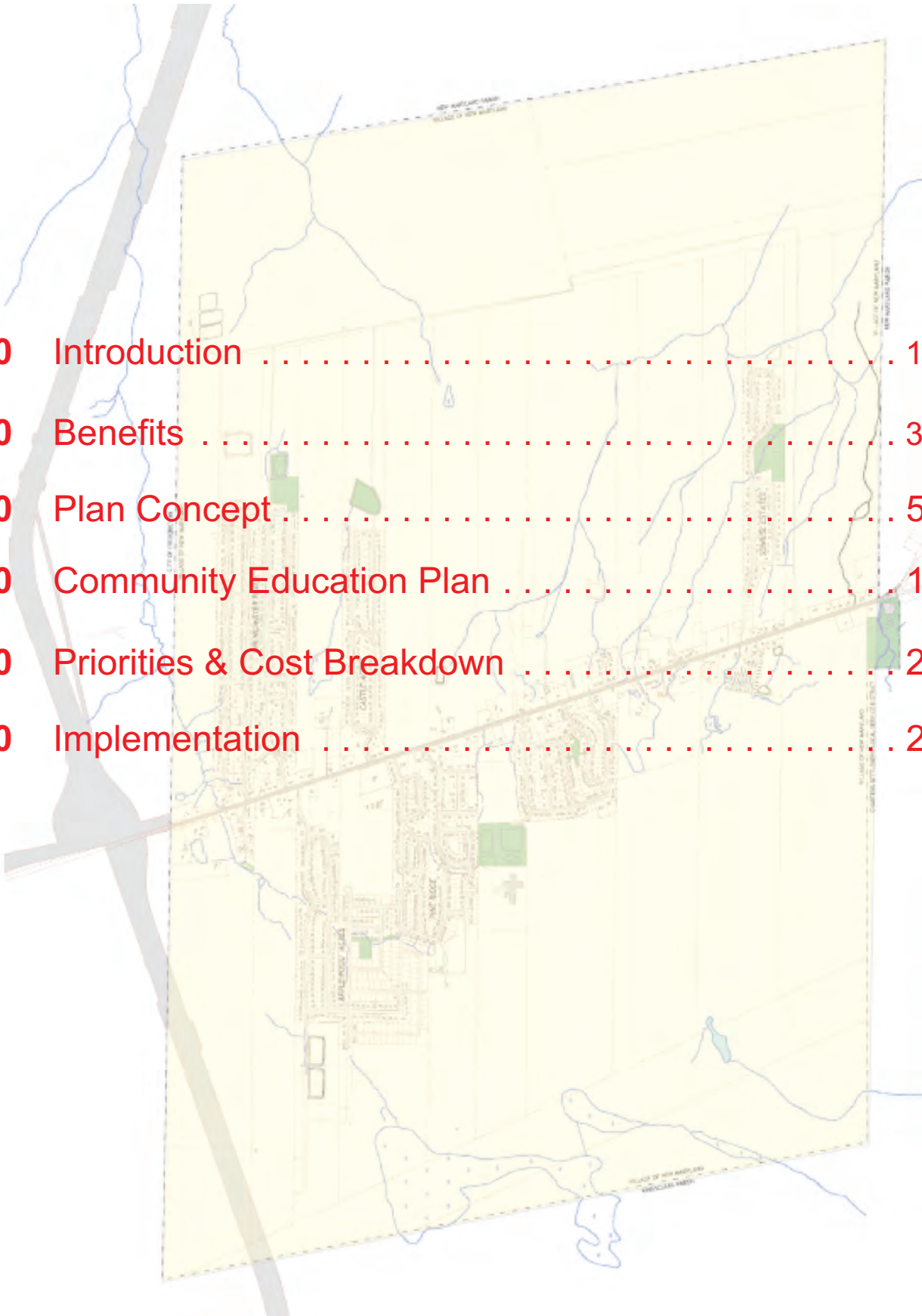
New Maryland, New Brunswick

Prepared By:

BDA *Landscape Architects*

September 2012

Table of Contents



1.0	Introduction	1
2.0	Benefits	3
3.0	Plan Concept	5
4.0	Community Education Plan	18
5.0	Priorities & Cost Breakdown	21
6.0	Implementation	23

1.0 Introduction

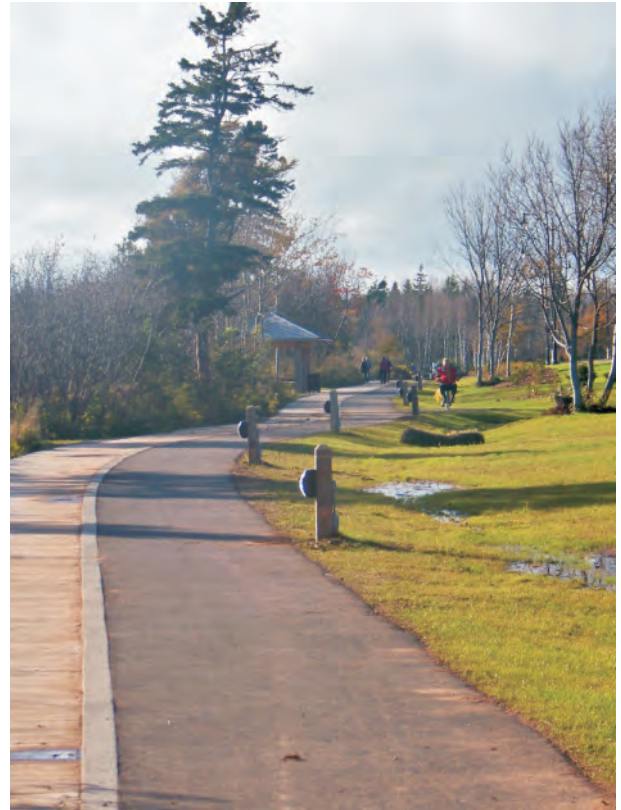
In May 2011 the Village of New Maryland engaged BDA Landscape Architects and Cynthia Stacey of the University of New Brunswick, Department of Kinesiology, to develop a Trails and Bikeways Master Plan for the Village of New Maryland.

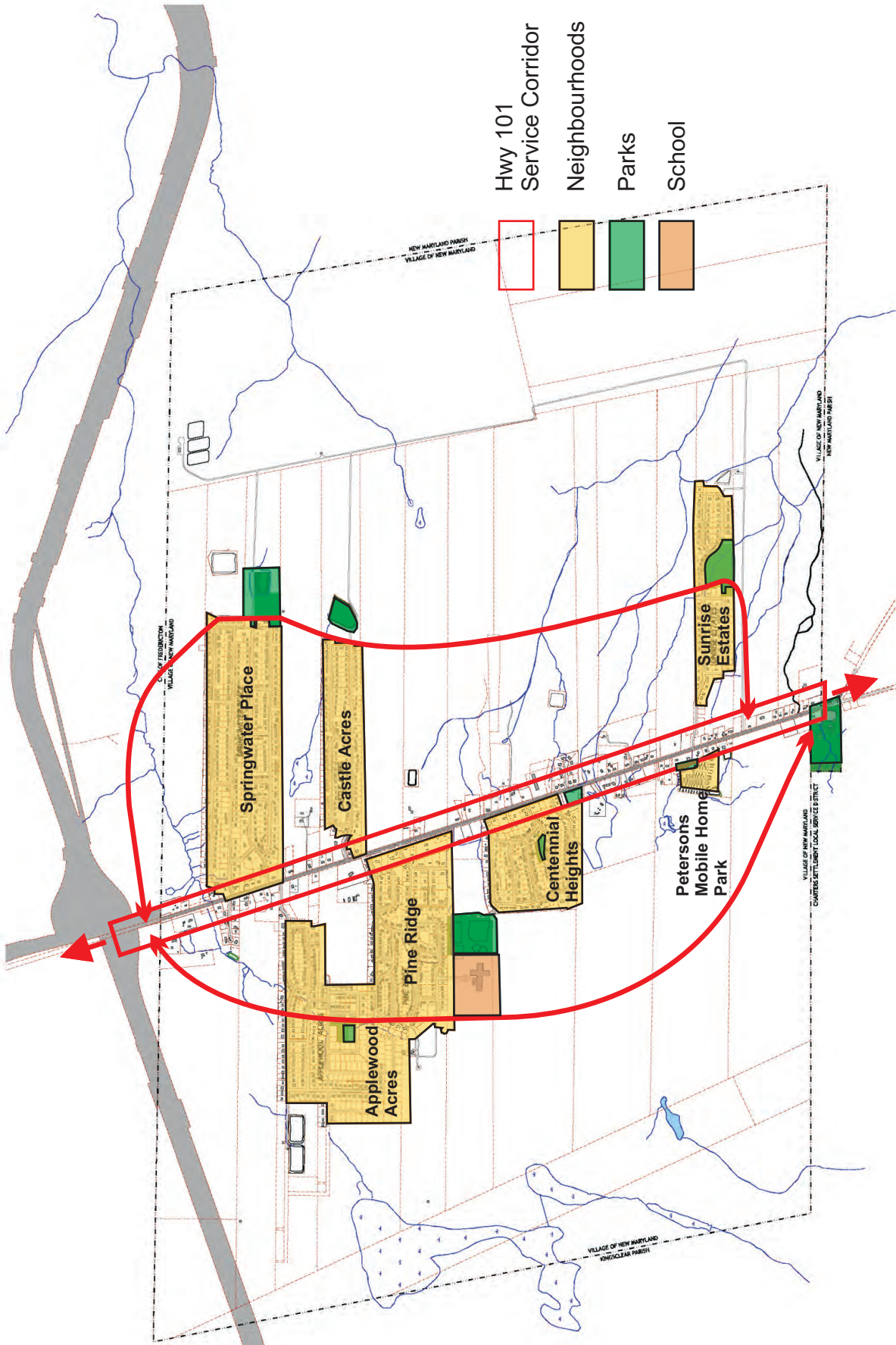
The plan was developed with the objective of establishing an active transportation network of off-road and on-road trails that can be used all seasons by residents and visitors to safely recreate and commute within the village and to adjacent communities.

Active transportation can be defined as any human powered transportation (i.e. biking, walking, jogging, cross country skiing, skateboarding, etc.)

The trail and bikeway network will include parks, service corridors, existing trails, sidewalks and bike lanes on designated streets. The network will connect major activity nodes (i.e. schools, shopping areas) with residential subdivisions.

The plan will also provide a looped system connecting existing residential areas and provide planning direction for future development. The overall purpose of the plan is to provide a safe interconnected system that is accessible to a wide range of residents and abilities. The goal is to provide a long-term vision for planning over the next 10 plus years.





Trails and Bikeways Concept

2.0 Benefits

The purpose of developing active transportation infrastructure is to:

- 1) Promote fitness, health and wellness
- 2) Contribute to environmental health
- 3) Contribute to social community building
- 4) Create positive economic spin-off

2.1 Health Benefits

The active transportation network will contribute to a reduction of airborne pollutants and will improve individual health because of higher levels of activity.

- It is recommended that everyone get 30-60 minutes of physical activity every day.
- Two thirds of Canadian children & youth are not active enough to lay a solid foundation for future health and well-being.
- Currently 63% of Canadians aren't active enough to achieve the health benefits associated with daily physical activity.
- About one third of New Brunswick children and youth (ages 2-17) are overweight or obese, much higher than the Canadian average (about 25%).



- About 60% of New Brunswickers (18 years and older) are overweight or obese compared to the Canadian average (about 50%).
- Improved vigour, self-esteem and a sense of well-being come from physical health and in turn contribute to healthier and happier relationships and improved productivity at work and school.
- Rates of chronic diseases continue to rise every year and are generally higher in New Brunswick than the Canadian average.
- In 2010, 8% of the NB population had been diagnosed with diabetes. The number is expected to increase to 12.7% by 2020.
- Regular physical activity reduces the risk of heart disease, obesity, high blood pressure, diabetes, osteoporosis, stroke and depression.
- Active living leads to a reduction of health care costs

2.2 Environmental Benefits

Active transportation can contribute to national and global commitments for the reduction of greenhouse emissions responsible for climate change and global warming.

- Active transportation (walking, cycling) can help reduce the number of daily vehicle trips and reduce the amount of emissions in the atmosphere.
- Reduced demand for fossil fuels.
- If the working population across Canada shifted from the current average of 8% walking or cycling to and from work to 10% the total number of vehicle trips would drop by approximately 100 million annually.

2.0 Benefits

- Each motor trip that is switched to cycling or walking avoids releasing 26 grams of hydrocarbon, 20 grams of carbon dioxide and 1.6 grams of nitrogen oxides per passenger mile.



2.3 Social Benefits

The community trail system will provide the infrastructure to allow people to enjoy recreation in a setting where they can meet others

- 85% of Canadians walk for leisure and recreation, 82% express a desire to walk more often.
- 63% of Canadians ranked walking as their favorite activity (gardening ranked second)
- 44% of Canadians cycle for physical activity, 63% reported they would like to cycle more often.
- Active people have fewer illness and sick days in the workplace and school.



- Active people have more energy, experienced improved well being and enhanced quality of life.

2.4 Economic Benefits

A walking and biking network will provide short-term and long-term economic benefit for the Village of New Maryland.

- Reduced household expenditures on transportation costs
- Creation of local jobs
- Positive effect on real estate value
- Positive beneficial impact on tourism

Sources: Various including Health Canada, Canadian Fitness and Lifestyle Research Institute, Transport Canada, Go for Green, NB Government, Canadian Diabetes Association, and Stats Canada

3.0 Plan Concept

Planning Process

The trails and bikeways network is to a degree built upon the future land use plan outlined in the 2006 municipal plan and is a step toward furthering the recreation goal of the plan (Section 7). The goal is “to provide a full range of recreation facilities and programs that are well integrated into both individual neighbourhoods and the overall community”. It also follows from recommendations made in the 2009 Village of New Maryland Recreation Master Plan and the 2010 VONM Strategic Plan, which called for the development of a Trails and Bikeways Master Plan.

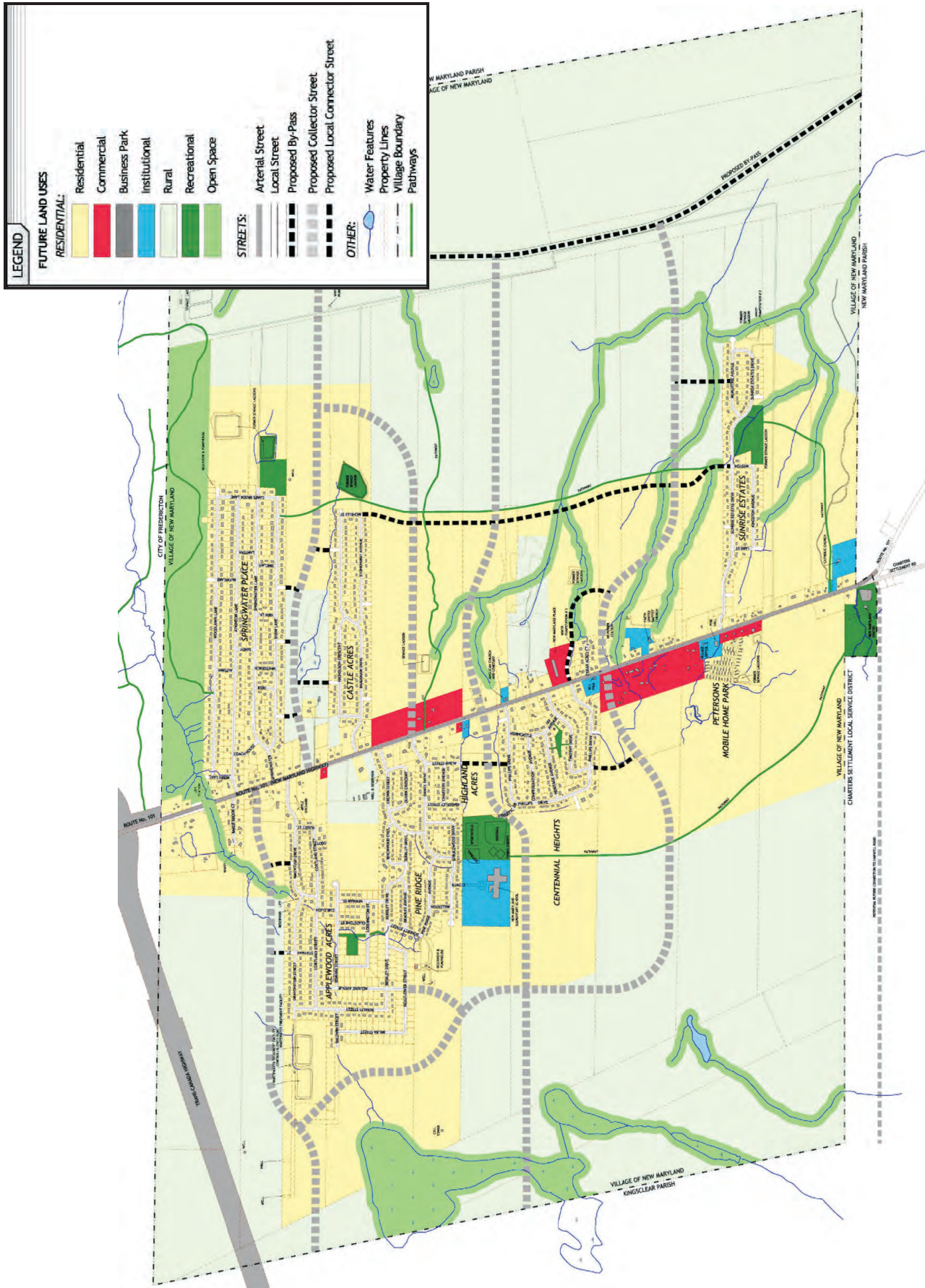
A multi-phased approach was followed in the development of the Trails and Bikeways Master Plan. The phases included:

- 1) *Initiation* : which involved discussions with the Recreation Coordinator and village staff to obtain opinions, concerns, information and direction pertaining to the trail network
- 2) *Inventory and Assessment of Existing Conditions* : which involved a review of all relevant documents and mapping, site visits and photographic inventory.
- 3) *Identification and Assessment of Potential Routes* : which involved selection of locations and appropriate trail types based on criteria such as safety, accessibility, attractiveness, ability to integrate areas and services, accommodation of a variety of users and cost effectiveness.
- 4) *Preliminary Plan Development* : which involved trail variety, route mapping and design considerations.
- 5) *Consultation* : which included presentation of the preliminary plan to stakeholders such as Village staff, the Recreation Committee of Council and the

general public. The public consultation session was held August 9, 2011 in the New Maryland Centre. The preliminary plan was also made available and residents were encouraged to review the plan and comment for a period of three weeks following the public meeting. The consultations revealed a wide range of policy, safety, operational and funding concerns as well as valuable suggestions for route locations. In general there was a high level of support for the concept and the potential connections and benefits that such a trail network can make within the village.

6) *Final Plan Preparation* : following the consultation phase the concerns and suggestions were addressed. A draft report was prepared and reviewed by the Recreation Committee and Council prior to the final Trails and Bikeways report being developed and approved.

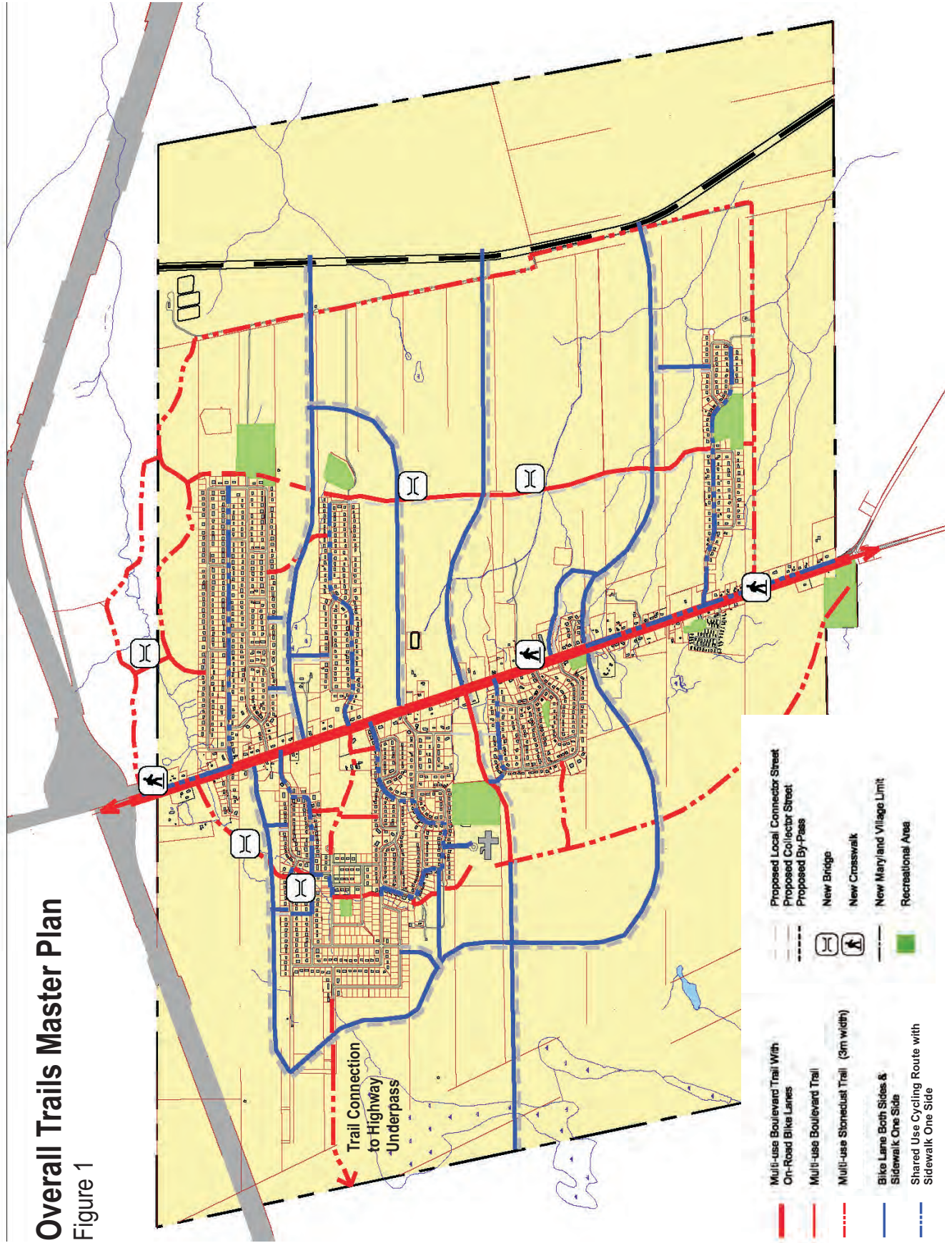
Figure 1. Illustrates the proposed overall on-road and off-road routes for the planned trails and bikeways. The following descriptions and cross sections illustrate the various components of the plan.



Future Land Use Plan

Overall Trails Master Plan

Figure 1



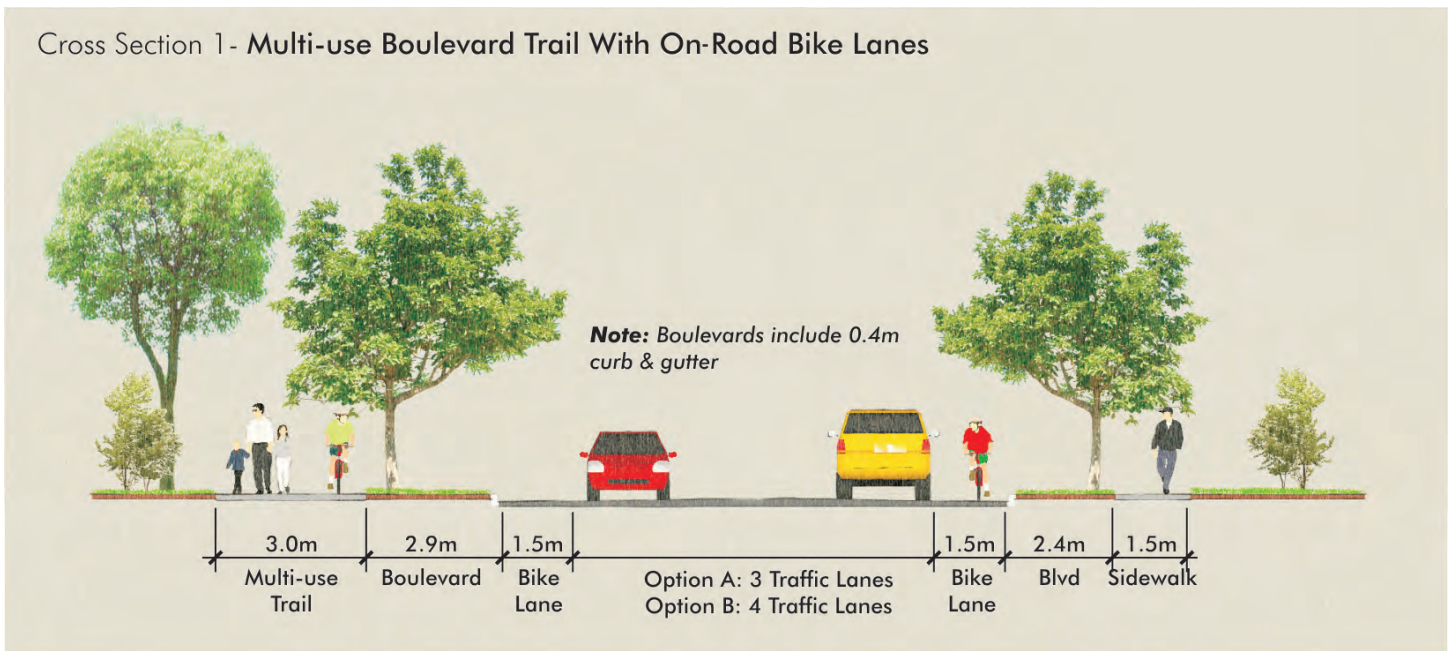
3.0 Plan Concept

1. Multi-use Boulevard Trail With On-Road Bike Lanes

Cross Section 1. Illustrates a two way bikeway boulevard located on one side of the roadway within the road right-of-way. This multi-use trail will be 3m in width with an asphalt surface. This trail is typically separated from traffic by a grassed boulevard with street trees. This type of trail is proposed for the west side of route 101 extending from the north to the south limits of the village. We also propose that a bike lane be provided on each side of Highway 101. This highway is the major arterial route in the community providing connection to the City of Fredericton and communities to the south and should accommodate high speed bike lane travel as well as a multi-use boulevard trail. This cross section illustrates trail and bike lane locations that are applicable for 3 or 4 future traffic lanes.



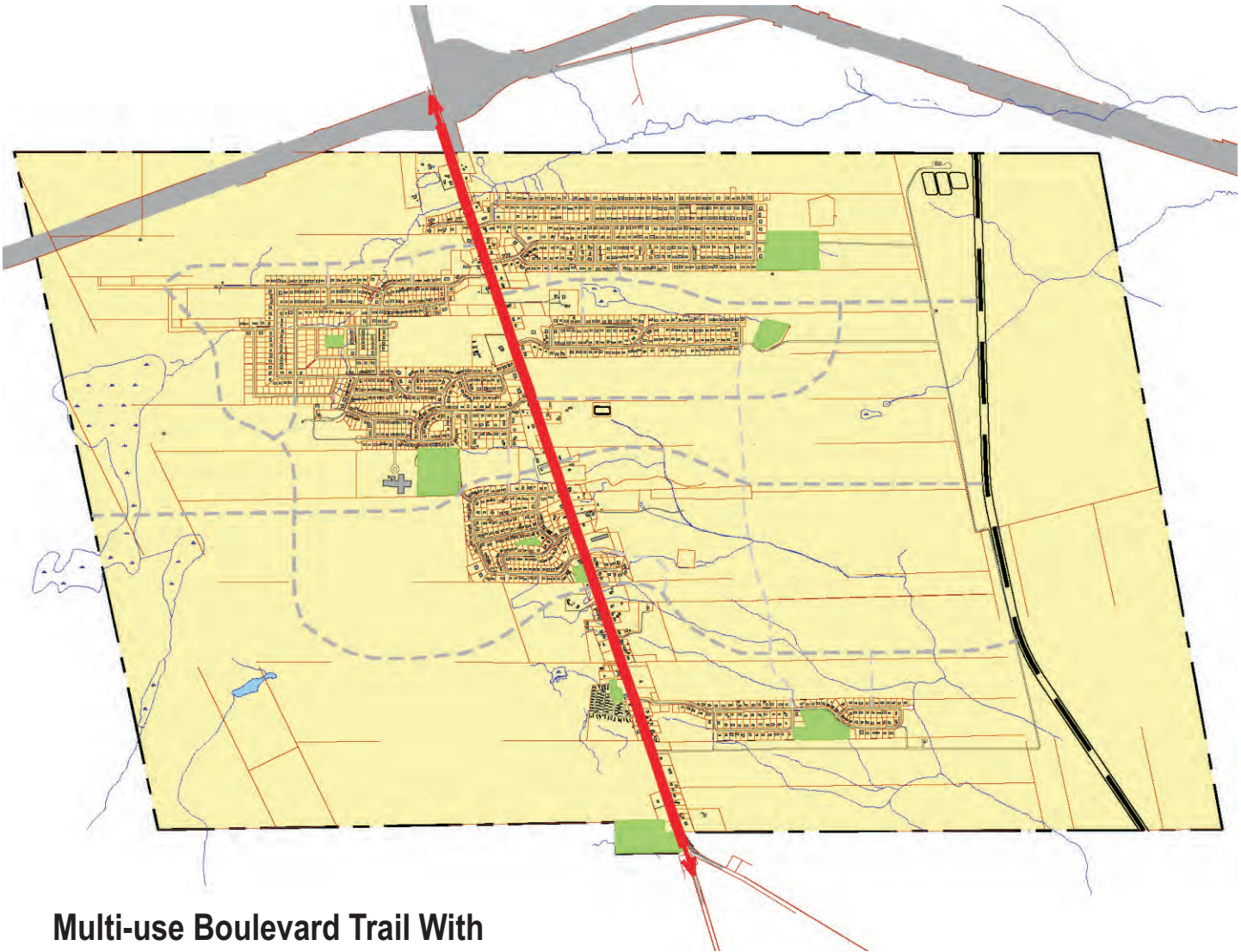
Cross Section 1 - Multi-use Boulevard Trail With On-Road Bike Lanes



3.0 Plan Concept



- Multi-use Boulevard Trail With On-Road Bike Lanes
- Proposed Local Connector Street
- Proposed Collector Street
- Proposed By-Pass
- New Maryland Village Limit
- Recreational Area



Multi-use Boulevard Trail With On-Road Bike Lanes

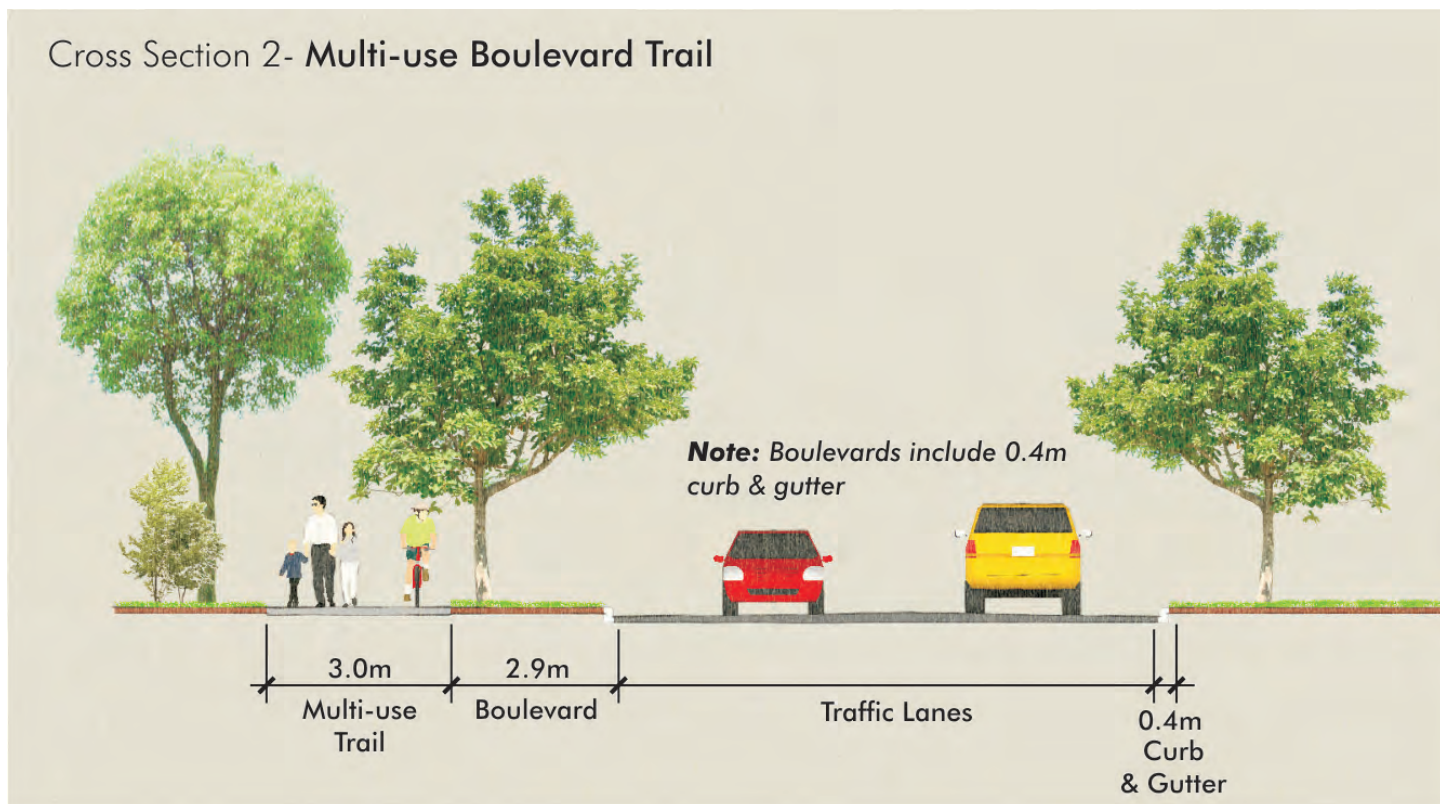
3.0 Plan Concept

2. Multi-use Boulevard Trail

Cross Section 2. Illustrates a boulevard trail 3m in width separated from the roadway by a tree lined boulevard. This multi-use asphalt trail is proposed for two future collector streets that are shown in the municipal plan. One of these future connector streets provides direct linkage to the elementary school from the planned Highway 101 trail system. The second multi-use boulevard trail provides connection between subdivisions to the east of Highway 101.



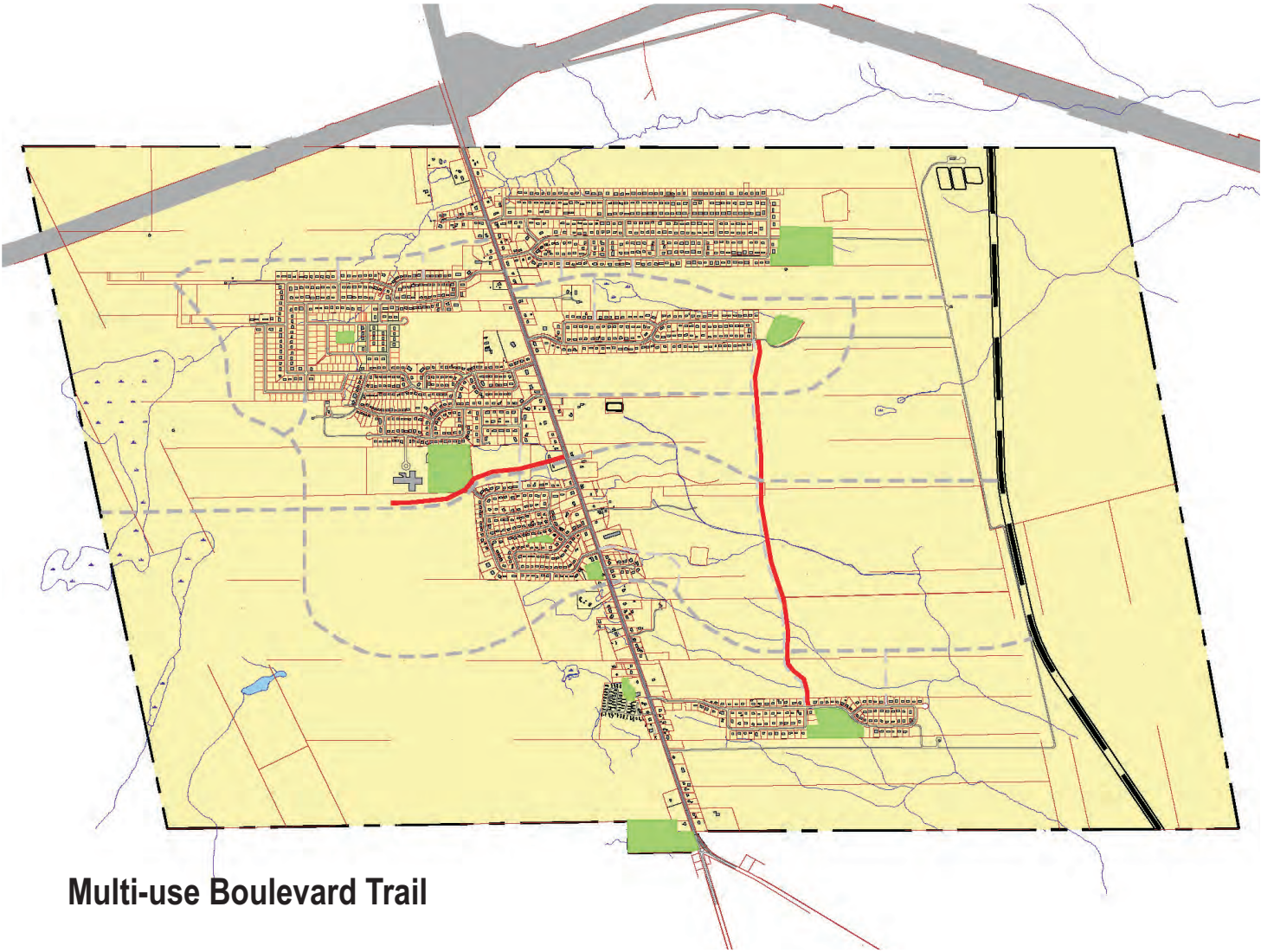
Cross Section 2- Multi-use Boulevard Trail



3.0 Plan Concept



- Multi-use Boulevard Trail
- Proposed Local Connector Street
- Proposed Collector Street
- - - Proposed By-Pass
- - - New Maryland Village Limit
- Recreational Area



Multi-use Boulevard Trail

3.0 Plan Concept

3. Multi-use Stonedust Trails

Cross Section 3. Illustrates an off-road multi-use trail with a width of 3m. These trails are designed to accommodate cyclists, hikers, cross country skiers and pedestrians. The master plan shows multi-use trails with a stonedust surface but these should be constructed with the consideration that they might in the future be converted to a paved surface to make them accessible to as many different users as possible.

Where possible proposed trails are located on existing public right-of-ways or existing travel routes. The multi-use trail connection to the community centre will be adjacent to the existing walking trail in this area. The public right-of-ways will require a landscape management plan to improve the visual and environmental quality of these corridors.

Stream crossings and wet areas will require bridges, boardwalks or in the case of small drainage channels, culverts.

All trail routes should be designed with wayfinding signage. These signs should display a common logo and could communicate distance traveled, directions or interpretive information.



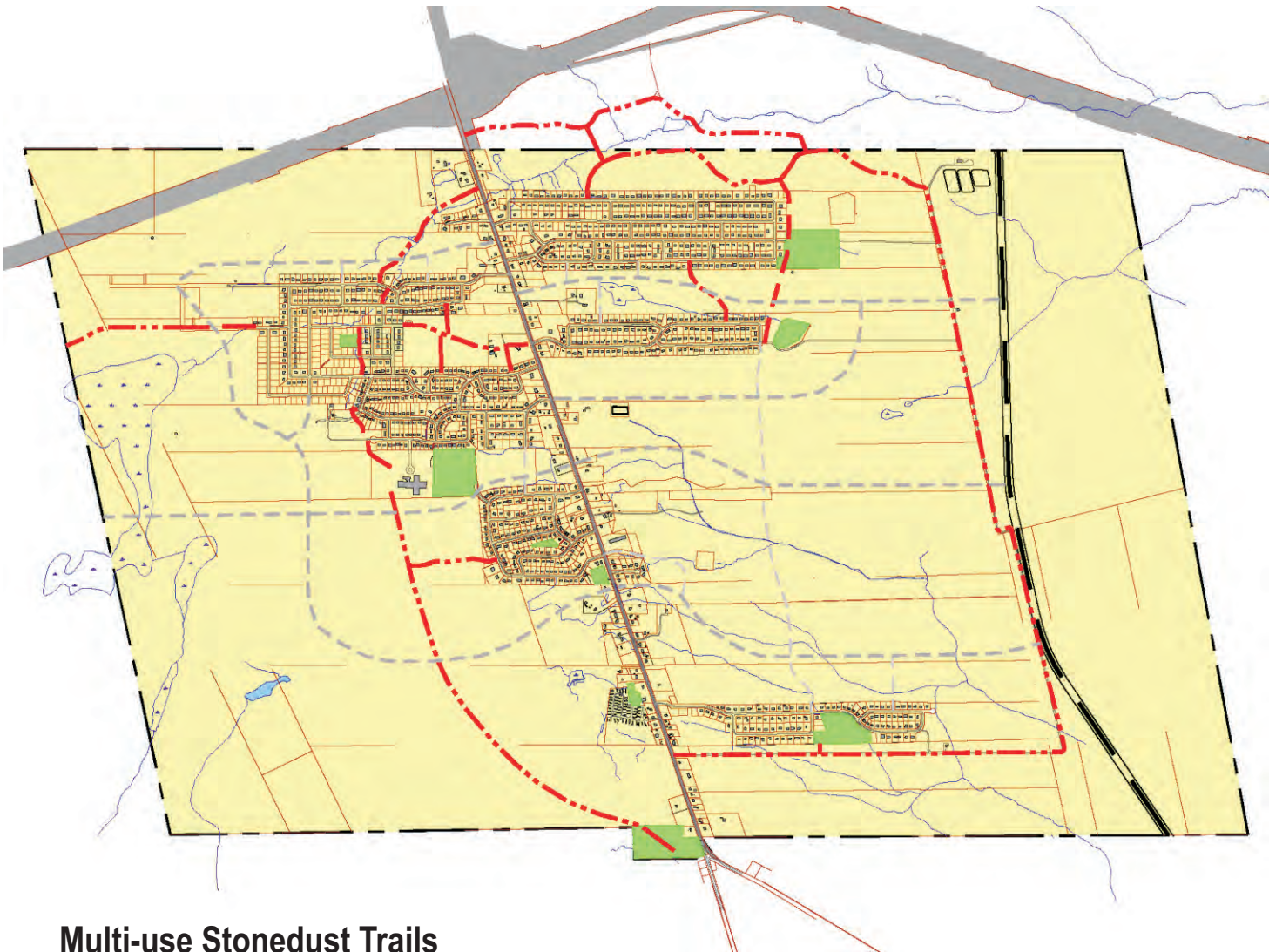
Cross Section 3 - Multi-use Stonedust Off-road Trail



3.0 Plan Concept



- Multi-use Stonedust Trail (3m width)
- Proposed Local Connector Street
- Proposed Collector Street
- Proposed By-Pass
- New Maryland Village Limit
- Recreational Area



Multi-use Stonedust Trails

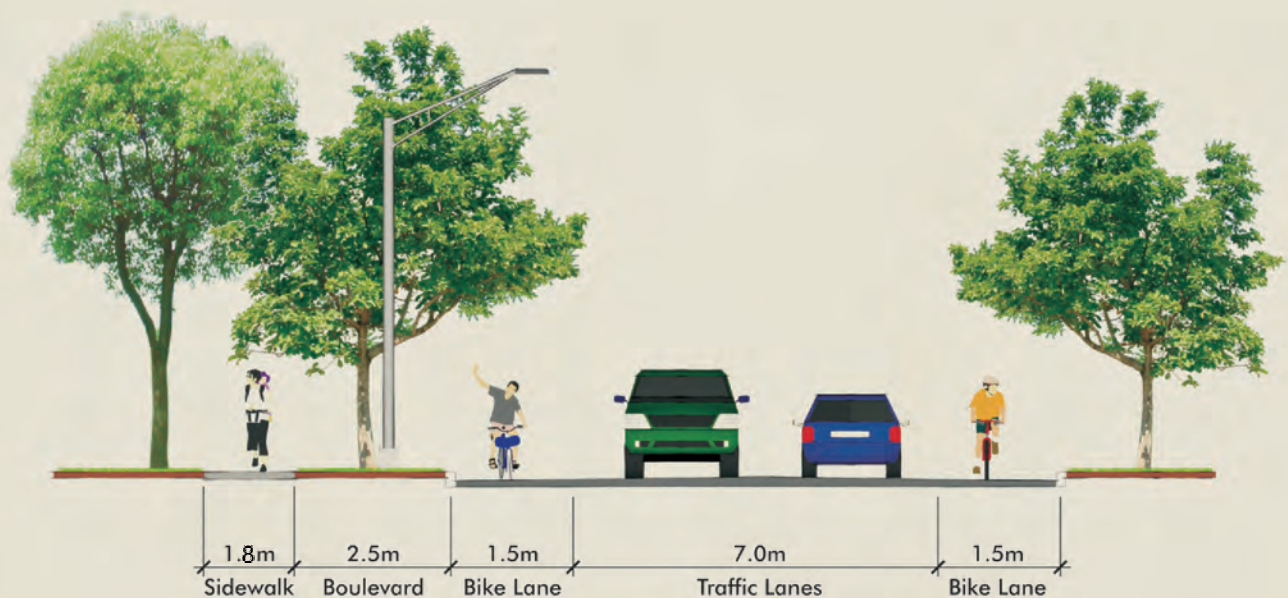
3.0 Plan Concept

4. Bike Lane Both Sides & Sidewalk One Side

Cross Section 4. Illustrates an on-road bike system with 1.5m width bike lanes on both sides of the street and a sidewalk on one side. The bike lanes are defined with pavement markings and signage. The master plan shows locations of future bike friendly streets based on the street layout proposed in the 2006 Municipal Plan. Bike lanes are also proposed for both sides of Route 101 for its total length through the village.









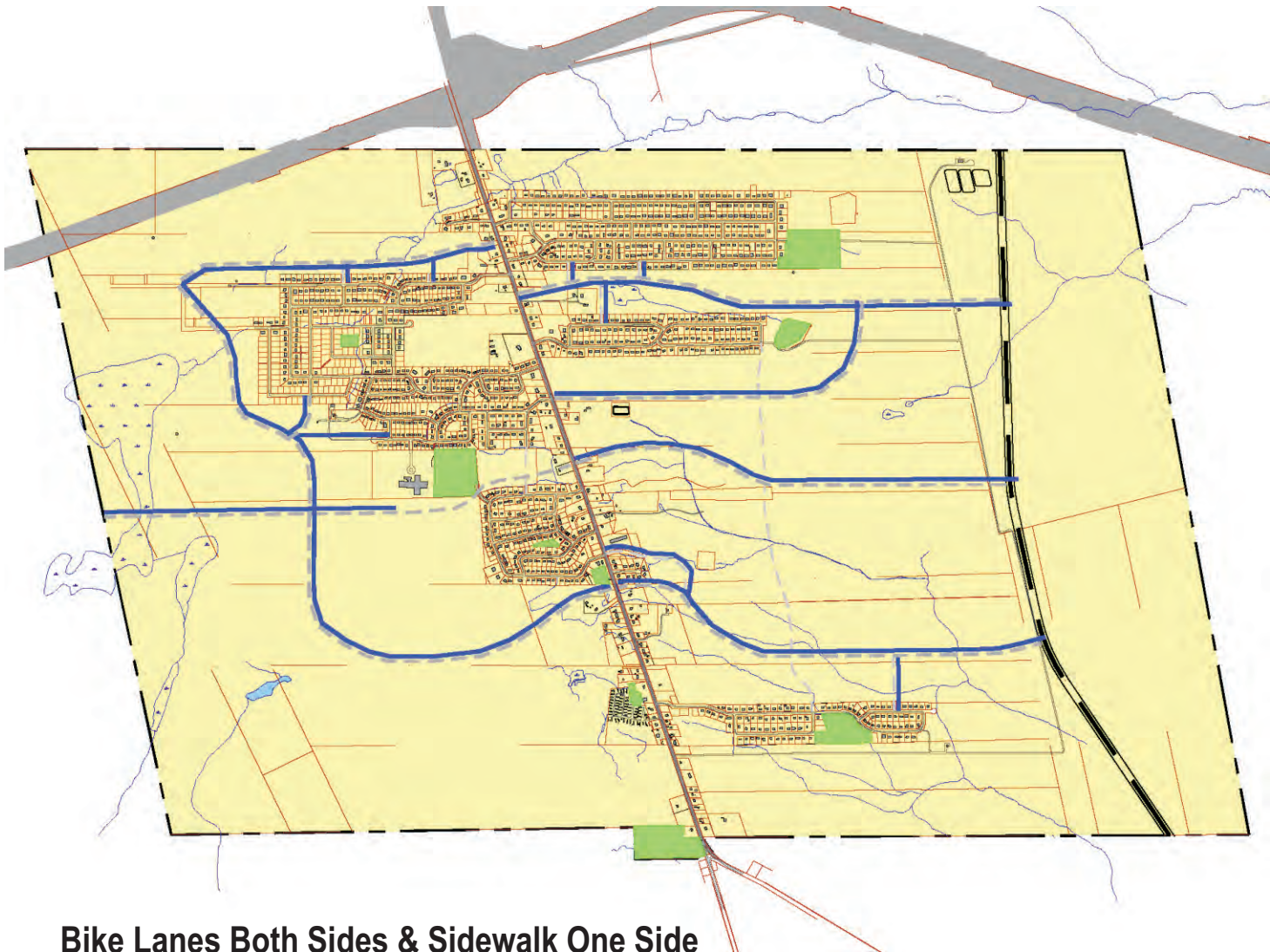
Cross Section 4 - Bike Lane Both Sides/ Sidewalk One Side



3.0 Plan Concept



-  Bike Lane Both Sides & Sidewalk One Side
-  Proposed Local Connector Street
-  Proposed Collector Street
-  Proposed By-Pass
-  New Maryland Village Limit
-  Recreational Area



Bike Lanes Both Sides & Sidewalk One Side

3.0 Plan Concept

5. Shared Use Cycling Route with Sidewalk on One Side

Future sidewalks shown on the concept plan include Phillips Drive, which provides direct access to the elementary school playing-fields and uncompleted sections on the east and west side of Hwy 101. In each case future sidewalks should be separated from the road surface by a tree linked boulevard. Existing and future sidewalks should be designed at a 1.8-2.5m width.

Shared use streets are meant to be used by bicycle and with vehicular traffic and require no pavement markings. Streets that give through access to Highway 101, such as Crown St., Berkley St., MacIntosh Dr., Cortland St. - Stayman St., Atkinson Ln, Phillips Dr. and Sunrise Estates should be given priority in the future.

The route through Pine Ridge subdivision provides a North/South connection to the school and completes an existing trail system in this area.



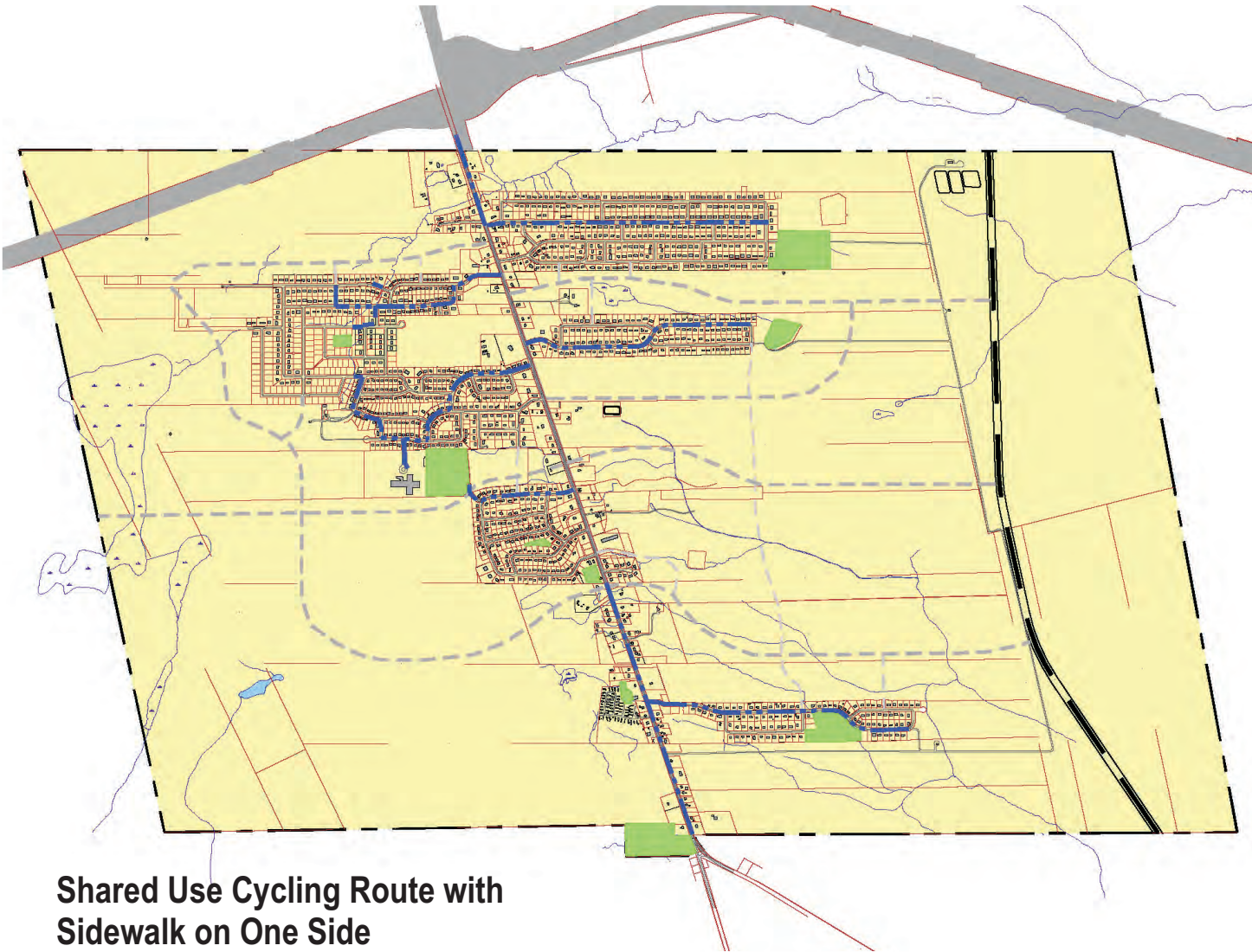
Cross Section 5- Signed-Only Cycling Route/ Sidewalk One Side



3.0 Plan Concept



- Proposed New Sidewalk/Shared Route
- Proposed Local Connector Street
- Proposed Collector Street
- Proposed By-Pass
- New Maryland Village Limit
- Recreational Area



Shared Use Cycling Route with Sidewalk on One Side

4.0 Community Education Plan

As the Trails and Bikeways Master Plan is implemented it is important to raise the awareness of residents about the individual, community benefits to be derived from active transportation and to promote the use of the system. Equally important is the education of pedestrians, cyclists and motorists about the basics of system use and the interaction between users and non-users. The promotional and educational aspects associated with the planned trail system are vital to ensuring the continued development of the system and the realization of a more active and healthy population.

Awareness

To increase support and achieve ongoing awareness about the trail system it is suggested that a focused campaign be mounted and directed at improving understanding of the Master Plan and its intent as well as explaining the various route types, the sort of users on each and how the users can interact for the safety and enjoyment of all. A variety of approaches can be taken to increase awareness. These approaches can include information directed to the general public or can target specific groups such as cyclists, children, teachers, community groups, parents and land owners adjacent to the trails. The following are offered as examples:

- Give public or focused presentations showing the plan, explaining the trail types and the implementation phasing.
- Provide information on the Village website
- Distribute information pamphlets at key community locations such as the Village Office and the New Maryland Centre.
- Create a Trail or Active Transportation Advisory Committee comprised of supporters of the system willing to give presentations throughout the community.

- Organize walking or biking events to introduce the Master Plan and its intent to improve opportunities and safety.
- Distribute postcard size invitations throughout the Village encouraging residents to visit the website to learn more about the Master Plan.



Benefits

In addition to increasing awareness about the Master Plan, it is also important to increase awareness about the benefits of walking, cycling, and perhaps the winter use of some trails. Examples of ideas and online resources include:

- Enlist the help of known walkers, cyclists, fitness and tourism professionals, and environmental experts in the community to make presentations about the individual, economic benefits to be derived from trail use.
- Add a benefits section with the Master Plan on the Village website.
- Consult the Pedestrian and Bicycle Information Centre site (www.pedbikeinfo.org). This is an American

4.0 Community Education Plan

organization with a mission to improve the quality of life in communities through walking and bicycling.

- Consult Walking, The Activity of a Lifetime at (www.active2010.ca). This contains information on the benefits of walking and methods to begin and maintain a walking program.
- Consult the “in motion” site (www.in-motion.ca). This site contains information on active living and the benefits of a walking program.
- Consult www.benefitshub.ca for research on the benefits of trails and bikeways to individuals, communities and adjacent land owners.

Safety

Once the purpose and benefits of the trail system are fully understood, it is then important to educate potential new users, as well as non-users, on how to function for the safety of all. One of the most important educational needs is ensuring the safe interaction among pedestrians, cyclists and motorists. Motorists do not always look for walkers and cyclists and there are some who are of the opinion that these users should not be in or near roadways. In addition, cyclists and pedestrians need to know the rules of the road in relation to motorized vehicles and the importance of being responsible for their own safety. Similarly, bikers and walkers must understand trail etiquette.

Several of the previously mentioned online sources provide information and guidance for developing education programs to New Maryland. Examples of program ideas include:

- Work closely with the school as a means to distribute safety information for students, as well as their parents. Also, encourage the

school to offer programs such as CAN-BIKE and the 'Walking School Bus' (www.walkingschoolbus.org). Safe walking and biking could also be incorporated in physical education classes.



- Offer Bike Camp as part of the summer recreation programming.
- Develop pamphlets containing safety tips and distribute them widely in the community, as well as posting the information on the Village website.
- Offer education sessions to community organizations such as service clubs, churches and youth groups.
- Consult the National Center of Biking and Walking (www.bikewalk.org) for guidelines, policies and technical resources.

4.0 Community Education Plan

- Consult Transport Canada (www.tc.gc.ca) for cycling and traffic skills.
- Consult (www.bikesense.bc.ca) for a guide to skills and other issues pertaining to safety.

Route Signage

Signage should be provided to supply clear and direct information to the trail user regarding direction or information of what will make the trip easier. Signage should also be used to promote the shared use of streets.

Interpretive signage should be used to inform/educate trail users about natural or cultural features along the route.

Promotion

As the trails and bikeways system develops, it is important to promote opportunities and use. Encouraging increased utilization of the system is an ongoing process and should contain continual messaging, as well as annual and special promotional events. Ongoing promotion could be in the form of 'I Ride' and 'I Walk' campaigns directed to all ages and ability levels. Use could also be reinforced through Cycling and Walking Clubs. Annual events could include bike maintenance classes, walking for fitness programs as well as encouraging involvement in programs such as International Walk to School Day/week (www.iwalktoschool.org) which is the first week of October each year and International Trails Day (www.tctrail.ca) which is the first Saturday of June. Other programs to incorporate into promotions are 'June is Recreation Month', 'Nutrition Month' Month of March, 'Active Healthy Kids Day' May 29th, 'Clean Air Day' June 4th and 'World Health Day' April 7th. Consideration could also be given to promoting trail use during the winter months for skiing and

snowshoeing. Information and resources can be found on sites such as www.backpacking.net and www.cross-countryski.com. To further compliment promotion efforts special events can be held. Examples of such events could include; commuter challenges, walking to the Olympics challenges, awards for days or distances involved in active transportation, family and classroom competitions and most courteous motorist awards.

5.0 Priorities & Cost Breakdown

Implementation of the plan is a long-term commitment and development should be approached in stages.

(based on 2012 prices)

Items	Quantity	Units	Unit Price	Total Price
Multi-use Boulevard Trail With On-Road Bike Lanes				
Multi-use Trail (3m Asphalt)	4000	lin.m	\$ 120.00	\$ 480,000.00
Bike Lanes & Road Widening	<i>estimate by others</i>			\$ 500,000.00
Boulevard (4.5m Sod)	18000	sq.m	\$ 10.00	\$ 180,000.00
Planting (Street Trees)	<i>not included</i>			\$ -
Multi-use Boulevard Trail				
<u>Route 101 to School</u>				
Multi-use Trail (3m Asphalt)	950	lin.m	\$ 120.00	\$ 114,000.00
Boulevard (2.5m Sod)	2375	sq.m	\$ 10.00	\$ 23,750.00
Planting (15m o.c.)	<i>not included</i>			\$ -
<u>Castle Acres to Sunrise Estates</u>				
Multi-use Trail (3m Asphalt)	1960	lin.m	\$ 120.00	\$ 235,200.00
Boulevard (2.5m Sod)	4900	sq.m	\$ 10.00	\$ 49,000.00
Planting (15m o.c.)	<i>not included</i>			\$ -
Multi-use Asphalt and Stonedust Trails				
Multi-use Trail (3m Stonedust)	17180	lin.m	\$ 70.00	\$ 1,202,600.00
Bike Lane Both Sides & Sidewalk One Side				
Sidewalk (1.8m Concrete)	18275	lin.m	\$ 155.00	\$ 2,832,625.00
Boulevard (2.5m Sod)	45685	sq.m	\$ 10.00	\$ 456,850.00
Bike Lanes (One Side)	18275	lin.m	\$ 10.00	\$ 182,750.00
Shared Use Cycling Route with Sidewalk on One Side				
Sidewalk (1.8m Concrete)	9670	lin.m	\$ 155.00	\$ 1,498,850.00
Boulevard (2.5m Sod)	24175	sq.m	\$ 10.00	\$ 241,750.00
Signage (100m o.c.)	97	each	\$ 1,000.00	\$ 97,000.00

Subtotal \$ 8,094,375.00
 Contingency (20%) \$ 1,618,875.00
 Total \$ **9,713,250.00** *plus HST*

6.0 Implementation

In order to implement the plan it is recommended that the plan network outlined in this report be formally adopted by Village Council and reviewed on an annual basis. It is also recommended that the following negotiations be undertaken and appropriate changes to the Village policies and by-laws be made.

Ongoing negotiation by village staff

1. Negotiate with landowners and establish agreements regarding a proposed multi-use trail on water and sewage R.O.W.
2. Negotiate with landowners to establish a temporary trail connecting Springwater Place to Castle Acres.
3. Negotiate with landowners to establish a multi-use trail connection linking the New Maryland Centre with the elementary school.
4. Incorporate bike lanes, multi-use trail and street tree planting into the design for future upgrading of Route 101.

Policies and By-Laws

1. Amend developer requirements to coincide with the Trails and Bikeways Master Plan.
2. Incorporate the trail concept into future subdivision planning and roadway planning and construction.

Changing values towards the environment and healthy lifestyle choices are acknowledged as important. Implementing the Trails and Bikeways Master Plan is a step toward making change possible. The trail network provides options for residents and visitors to enjoy physical activity and it helps the environment through the use of the trail system for commuting and daily errands.