

SMITHVILLE TRAILS AND CORRIDORS MASTER PLAN

Township of West Lincoln

Final - March 2012



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Mayor Douglas Joyner, Township of West Lincoln
Alderman Alex Micallef, Township of West Lincoln
Alderman Luciano Di Leonardo, Township of West Lincoln
Alderman John Glazier, Township of West Lincoln
Alderman Eric Leith, Township of West Lincoln
Alderman Sue-Ellen Merritt, Township of West Lincoln
Alderman Joann Chechalk, Township of West Lincoln
Rachelle Larocque, Township of West Lincoln
Wendy Joyner, Township of West Lincoln
Bob Denison, Township of West Lincoln
Kaveh Etezadi, Township of West Lincoln
Lee-Ann Hamilton, Niagara Peninsula Conservation Authority
Jackie Gervais, Niagara Region Public Health
Denise Landry, Niagara Region
Gina VanderDool, Smithville District Christian High School
Marlene Bergsma, Smithville District Christian High School
Stuart Bender, Smithville District Christian High School
Neale Robb, Smithville District Christian High School
Sydney Vermeer, Smithville District Christian High School
Grade 9 Geography Class and Grade 10 Civics Class, Smithville District Christian High School
Frank Thiele, West-Li Gardens
Mary Dinga, Legion Villa
Margaret Van der Meulen
Uegene VanderWier
Lori Powell, Niagara Student Transportation Services
James Woods, Niagara Catholic District School Board
Krista Zonruiter, Parent Council, St. Martins Catholic School
John Swart, Freewheelers
Sid Frere, Freewheelers
Donna Herrington, The Herrington Group
Members of the Township of West Lincoln's Accessibility Advisory Committee

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INTRODUCTION

The Township, with financial support from the Ministry of Health Promotion and Sport, authorized the undertaking of a Trails and Corridors Master Plan (“TCMP”), as a basis to plan, prioritize and build community capacity for trails and corridors in Smithville. The goal of the Master Plan is develop a trails and corridor system in Smithville that lead in part to a more complete and walkable community. As part of the funding received through the Ministry of Health Promotion and Sport, the Master Plan is to focus on: 1) Physical Activity, Sport and/or Recreation and 2) Injury Prevention.

By way of history, the request for a TCMP originated from the students at Smithville Christian High School (“Smithville Christian”). Several students attended a Healthy Communities Lunch and Learn session on walkability and they were inspired to be a force for positive change in their community on this issue. As a result, the Grade 10 Civics class presented a study to the Township of West Lincoln Council that identified safety issues for pedestrians in Smithville, particularly in accessing the Leisureplex. Smithville Christian assisted the Township in obtaining the funding from the Ministry of Health Promotion and Sport. The need for a TCMP was also a recommendation of the 2010 Township of West Lincoln Recreation Master Plan.

The TCMP is intended to guide the future planning and development of a comprehensive interconnected trail and corridor system for Smithville. The trail system will provide opportunities for non-motorized uses. The trail system will also provide opportunities for different types of recreational use, as well as providing means for alternate transportation to encourage use of a day-to-day basis.

A growing emphasis on health and a trend toward obesity, have called for more emphasis on active living. The planning and development of integrated trail and corridor networks is a rapidly growing phenomenon that supports active living.

Trail activity in many municipalities is often the largest per capita use of public parks and open space infrastructure. No longer are trails looked at for just recreational use. Trails, in combination with designated bikeways/bike lanes, are being planned to carry commuters, students and others in an effort to reduce vehicles trips and the overall impact on our environment.

The master plan is divided into the following components:

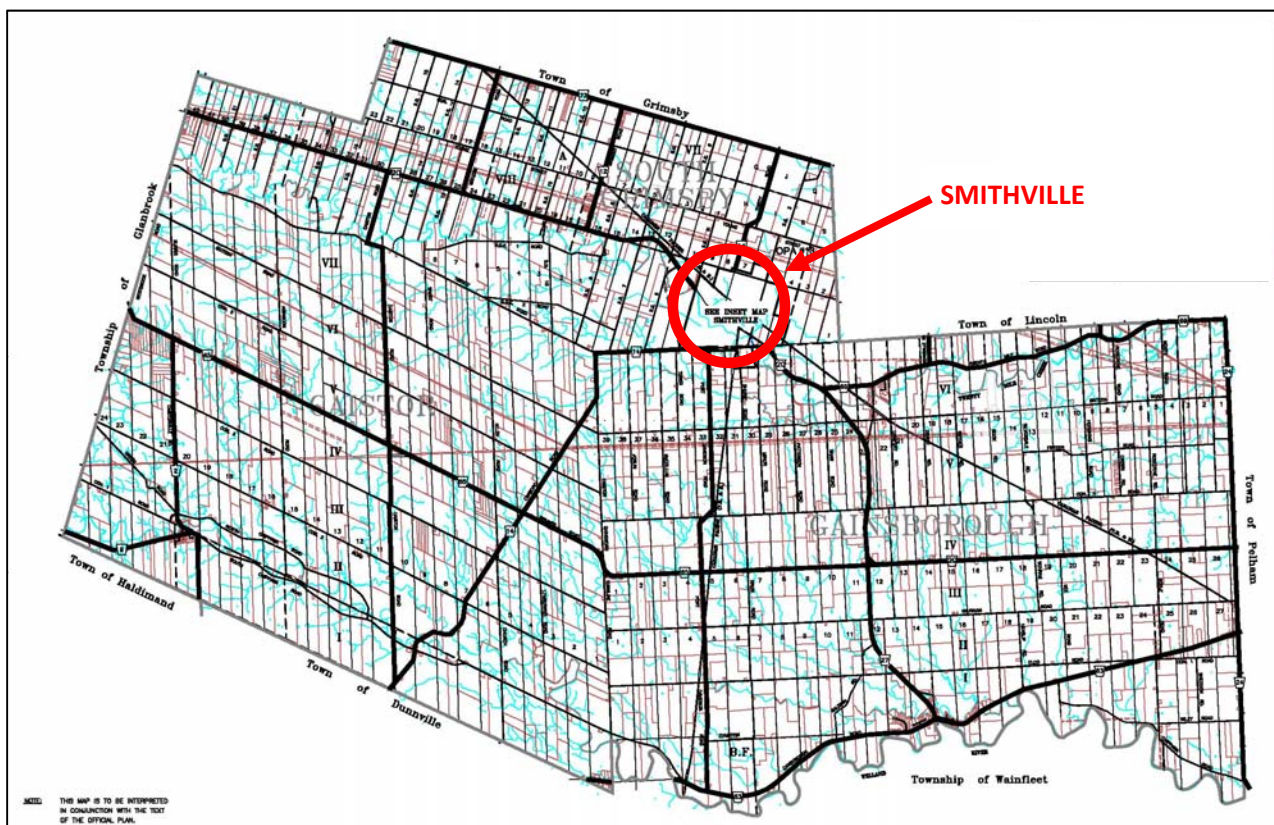
A	•Background Research
B	•Policy Framework
C	•Master Plan Vision, Goals and Objectives
D	•Trail and Corridor Network
E	•Trail and Corridor Design Guidelines
F	•Trail and Corridor Funding
G	•Conclusions and Recommendations

A. BACKGROUND RESEARCH

This Section provides a summary of the background research completed as part of the Master Plan process. It is an aggregate of the demographic, trends, community consultation program and related information to form the highlight the opportunities and constraints.

A.1 COMMUNITY CONTEXT

The settlement area of Smithville is a growing and unique community in the Township of West Lincoln. It lies in the western reaches of the Niagara Region, in close proximity to the Town of Grimsby, City of St. Catharines and the City of Hamilton.



Source: Township of West Lincoln Official Plan

Smithville, with a population of approximately 4,600, is the administrative and institutional centre of the Township. The Township offices as well as the main library branch are located in Smithville. Smithville is unique in that it has a total of six (6) schools, including public, Catholic and private schools. The schools draw students from not only the Township, but the broader Niagara Region. The Township's agricultural history also plays an important role in the community, with the Fairgrounds (West Lincoln Community Centre), the annual Poultry Fest and the Fall Agricultural Fair. Figure 1 provides an illustrative overview of Smithville.

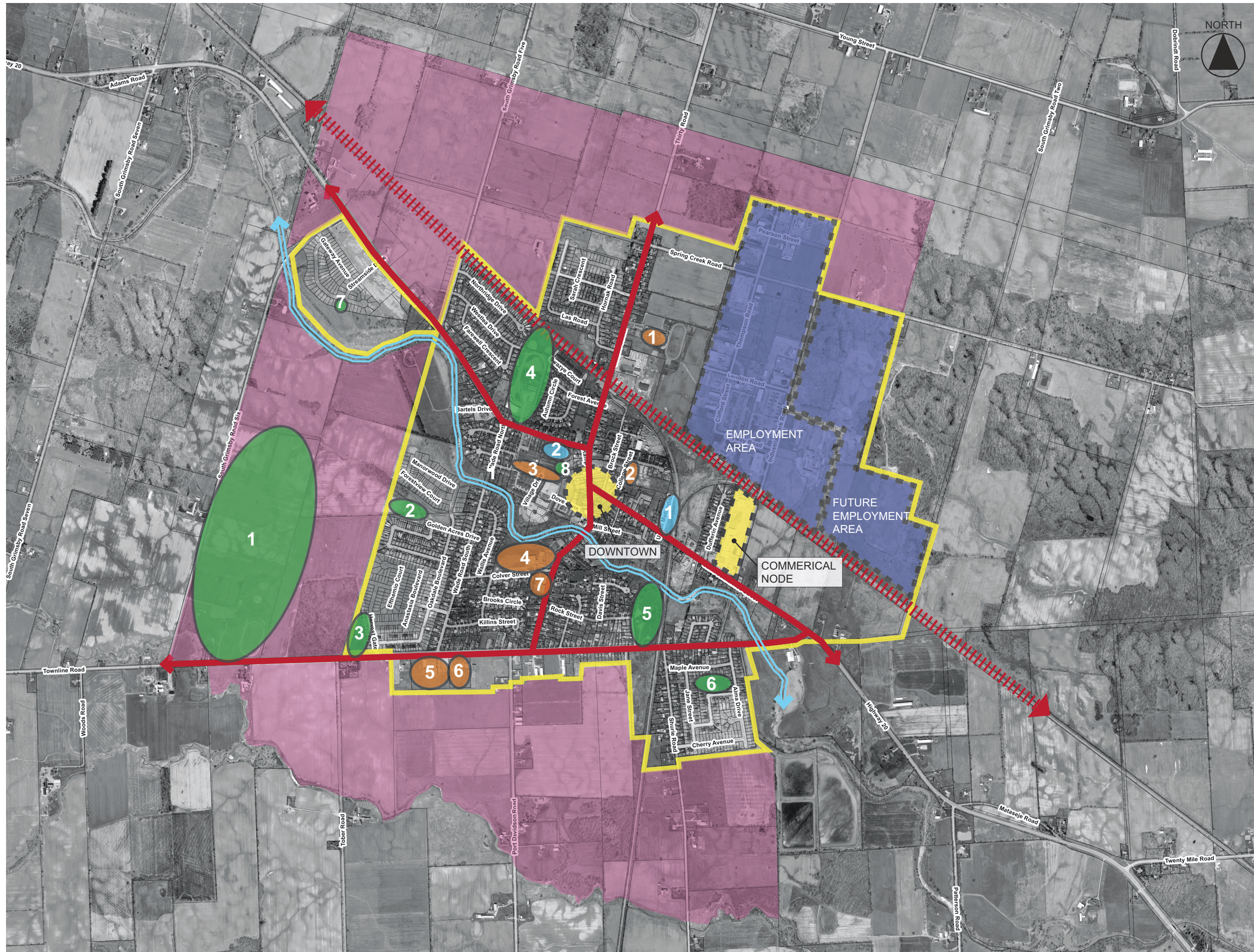










FIGURE 1



LEGEND

-  MAJOR ROADS (REGIONAL)
-  RAILWAY
-  TWENTY MILE CREEK
-  EXISTING URBAN BOUNDARY
-  PROPOSED URBAN BOUNDARY EXPANSION
-  PARKS
 - 1. LEISUREPLEX - TOWNSHIP PARK
 - 2. ANASTASIO ESTATES PARK 1
 - 3. ANASTASIO ESTATES PARK 2
 - 4. WEST LINCOLN COMMUNITY CENTRE (FAIRGROUND AND ARENA)
 - 5. ROCK STREET PARK
 - 6. ALMA ACRES PARK
 - 7. STREAM SIDE PARK
 - 8. LAWN BOWLING GREEN
-  SCHOOLS/INSTITUTIONAL
 - 1. JOHN CALVIN SCHOOL
 - 2. COLLEGE STREET PUBLIC SCHOOL
 - 3. ST. MARTIN ROMAN CATHOLIC SCHOOL
 - 4. SOUTH LINCOLN HIGH SCHOOL
 - 5. SMITHVILLE CHRISTIAN HIGH SCHOOL
 - 6. COVENANT CHRISTIAN SCHOOL
 - 7. MUNICIPAL OFFICE/LIBRARY
-  CEMETARIES
 - 1. UNION CEMETERY
 - 2. SMITHVILLE UNITED CHURCH CEMETARY

FINAL - MARCH 2012
DRAWING NOT TO SCALE (NTS)

Municipal recreation facilities are predominantly located within Smithville, including 32 hectares (79 acres) of parkland, the Leisureplex and the West Lincoln Community Centre¹. There is an existing trail that connects the Leisureplex to the most westerly residential subdivision and through to the Wade Street bridge.

A.2 DEMOGRAPHICS

The purpose of this section is to identify and analyze the community's current and forecast population growth and demographic characteristics. In general, the Township has experienced moderate growth in its population. While Smithville is in close proximity to larger urban centres, there is a small supply of vacant land designated for growth. The demographic characteristics provided in this section are for the entire Township, as detailed demographic information is not available for the settlement area of Smithville.

The 2006 Statistics Canada Census information notes that the Township had a population of 13,167 in 2006. Approximately 4,600 of the population (35%) live in the settlement area of Smithville.

Population Growth

The following table outlines the population growth in the Township of West Lincoln between 1991 and 2006. The growth rate has remained fairly stable at 6.0 to 7.3%.

Table A-1: Historic Population, Township of West Lincoln 1996-2006

Year	Population	Population Change
1991	10,864	N/A
1996	11,513	6.0%
2001	12,268	6.6%
2006	13,167	7.3%

Source: Statistics Canada, 2006

Both the Region of Niagara and the Township of West Lincoln have developed growth forecasts for the Township (Table A-2). The Region's growth forecasts, which are included in the Region's Policy Plan Amendment, are currently under appeal at the Ontario Municipal Board.

Table A-2: Forecasted Population, Township of West Lincoln 2006-2031

Year	Township Forecasts	% Change	Regional Forecasts	% Change
2006	13,167		13,167	
2007-2011	14,600	11%	15,100	14.7%
2012-2016	15,600	6.8%	15,900	5.3%
2017-2021	17,700	13.5%	16,500	3.8%
2022-2026	19,400	9.6%	16,600	0.1%
2027-2031	21,300	9.8%	16,700	0.1%

Source: Township of West Lincoln Draft Official Plan Amendment, October 2010 & Niagara Region Growth Management Strategy

¹ Township of West Lincoln Recreation Master Plan, MHBC, 2010

Age Profile

Ontario's population is aging and this trend is widely observed and recognized throughout most urban and rural communities across the province. From 1996 to 2006, the percentage of Ontarians over the age of 55 increased from 21% to nearly 25%, far exceeding the changes in any other age group. The provincial trend is not as pronounced in West Lincoln, and in fact there is a significant lower average age in the Township (36.5 years of age) in comparison with the provincial average (39 years of age).

Table A-3 below illustrates the high percentage of youth in the community, in comparison to the provincial average. Approximately 31.4% of the Township's population is between the ages of 0 and 19; while the provincial average is 25.1%.

Table A-3: Age Cohorts, Township of West Lincoln and Ontario, 2006

Age Cohort	West Lincoln		Ontario	
	#	%	#	%
0 to 4 years	850	6.5%	670,770	5.5%
5 to 14 years	2,160	16.4%	1,540,035	12.7%
15 to 19 years	1,115	8.5%	833,115	6.9%
20 to 24 years	830	6.3%	797,255	6.6%
25 to 54 years	5,460	41.5%	5,313,425	43.7%
55 to 64 years	1,435	10.9%	1,356,515	11.2%
65 to 74 years	805	6.1%	868,190	7.1%
75 to 84 years	415	3.2%	589,180	4.8%
85 years and over	100	0.8%	191,810	1.6%
Total	13,170		121,60285	

Source: Statistics Canada, 2006

Income and Education

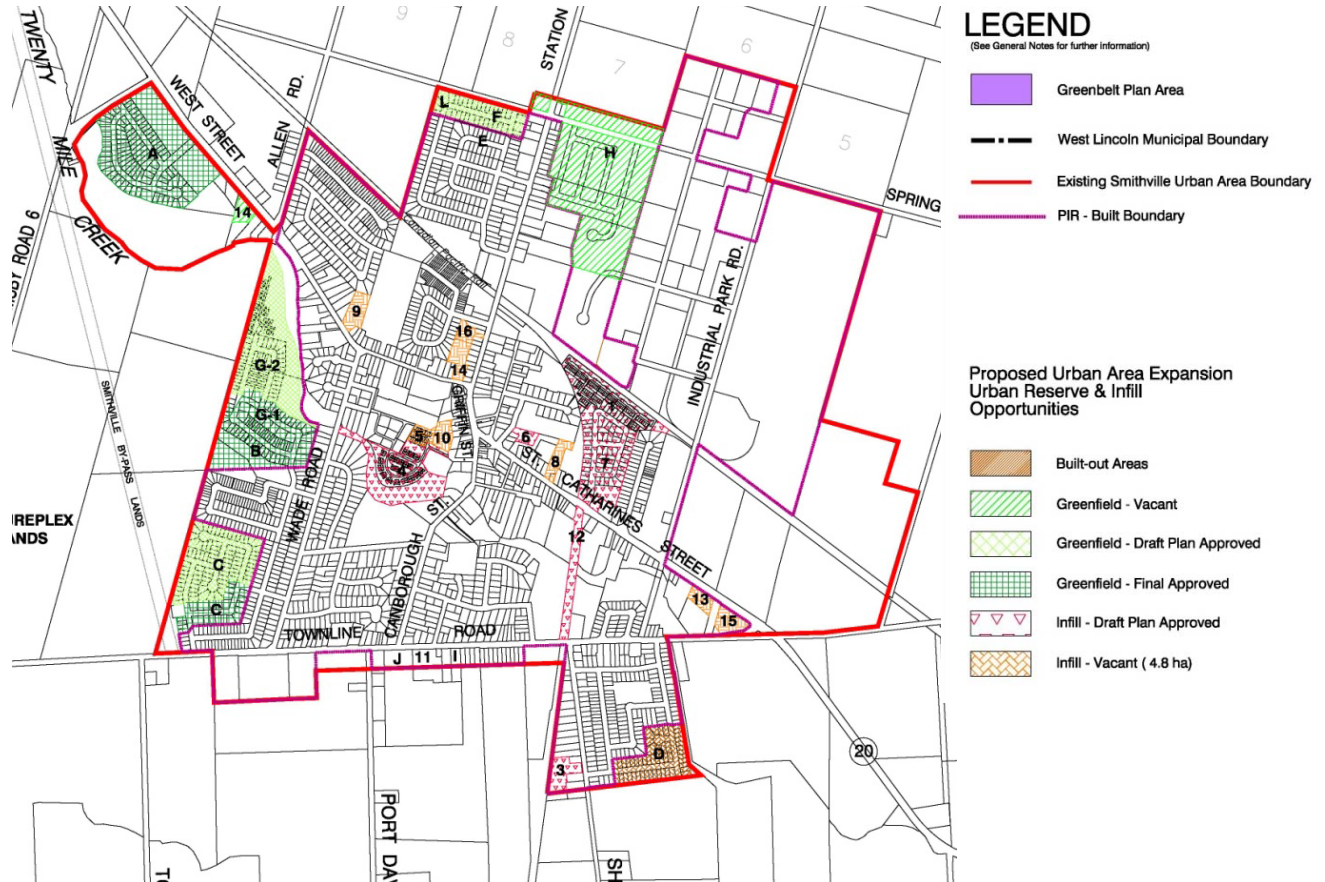
As reported in the 2006 census, the median household income in West Lincoln (\$71,382) was slightly above the provincial average (\$69,156). According to the 2010 West Lincoln Parks and Recreation Master Plan, approximately 4.1% of West Lincoln's population is in the low-income bracket, which is significantly lower than the Ontario (14.7%) and Niagara (12.0%) averages.

A.3 DEVELOPMENT APPLICATIONS

To assist in understanding development patterns in Smithville, Township staff have provided a map which outline the existing supply of vacant units as well as the proposed units. In total, there are 403 vacant, approved lots for residential units and 339 potential units as of the fall of 2011. This results in a total supply of 742 units in Smithville. The majority of growth in Smithville is occurring in the western and northern portions of Smithville. There is infill development occurring in Smithville, including the

expansion of West-Li Garden (retirement community) and the development of a former right-of-way between Smithville Road and Townline Road.

Smithville Strategic Growth Management Plan (Built vs. Unbuilt)



Source: Township of West Lincoln, 2011

A.4 TRENDS AND BENEFITS IN TRAILS AND CORRIDORS

Over the last two decades trails and corridors have emerged as a primary recreational facility accompanied by an explosion of trail construction across North America². Trails and corridors are recognized as a relatively inexpensive opportunity to promote physical activity, contribute to a high quality of life, encourage social cohesion and increase environmental awareness and education.

These trails have utilized hydro rights-of-way, waterfront public lands, linear ravine systems, direct purchases of land and the acquisition of land through the Planning Act in new development areas. Trails and corridors can take many forms and serve a wide range of motorized and non-motorized uses.

² Shared- Use Path Level of Service Calculator – A User’s Guide, Office of Safety Research and Development, Federal Highway Administration, 2006

Community trails have become one of the most popular and sought after recreational development initiatives within communities. Initially, walking and jogging-type activities were the prominent use. In more recent years, off-road cycling, rollerblading, longboarding and other uses have emerged in force.

Trails and corridors have become increasingly important to planning safe and healthy environments for people in both urban and rural areas. Beyond the recreational uses of trails, urban trails are increasingly utilized by people to access public and private facilities and amenities for day-to-day living. Activities on trails in urban areas are primarily non-motorized and provide opportunities for people of various abilities to experience the community.

The design of trails has advanced significantly, in terms of hard surfaces to support wheelchairs and bicycle use, rest areas to support older aged users and the concept of connecting destinations so that linked networks evolve. These destinations often involve schools, parks, attractions, commercial and employment areas, waterfronts, special environmental features and a host of other community resources.

One of the most significant trends of the last five years has been the linking of community trails to broader linear transportation network planning as a component in these networks. As a result, community trails are increasingly taking on a role as an alternate or active transportation resource in combination with the fitness, recreational and related activities that have traditionally been the value basis for these resources.

With the development of the broader network system, and also with the integration of trails between municipalities, particularly in regional government areas, has come the notion of a three tiered trail system:

- The spinal corridors that are the primary transportation routes;
- The local trails that connect neighbourhood and other destinations within communities;
- The specialty trails that are theme-based, such as the Winery Trail in Grimsby and Lincoln, many waterfront trails and those associated key geographic features, such as the Bruce Trail along the Niagara Escarpment.

Community trail development is evolving. Trails should be considered in all new and renewal development occurring within communities. Trails provide recreational experience that sustains leisure interests, fitness and related activities, as well as providing alternate transportation opportunities.

In addition, as trails become more multi-use, involving everything from runners training for marathons to seniors walking for health, comes the need to better design and manage trails to reduce conflicts and to provide trails on a year-round basis. For instance, using defining yellow lines to separate use or to have two track trail systems in heavy use areas have merit to assist in reducing conflicts. Also evolving, are the development of trail heads, the use of tea rooms and other services along the trails. Winter maintenance also facilitates safe, year-round utilization.

As the role of trails evolves and utilization grows, trails will become an increasingly important resource that will need continuing investment, maintenance and management to sustain their value and effective use and benefits.

Healthy Living

Given the increasing obesity rates in Canada, the provision of accessible and affordable trails assist in supporting overall health and fitness levels is critical. In 2004, 11.3 million adult Canadians were overweight or obese and obesity amongst children aged 7 to 13 has increased 200 to 300% over the past 20 years³. A study in 2000 found that walking trails are essential in promoting physical activity, particularly for women and persons in lower income brackets⁴.

In addition to increasing obesity rates, municipalities across Canada are experiencing an aging of the population as the baby boomer generation reaches retirement. Recent statistics illustrate the enormity of the aging phenomenon, with the 55 plus age cohort doubling in size in many communities over the next 20 years. Coupled with the growing older adult population, this age segment is predicted to lead more active, independent lives after retirement and expect higher quality services and facilities.

Provincial policy in Ontario is putting an increased emphasis for its citizens to lead active and healthy lives. To implement these policies, the Province has established the Ministry of Health Promotion to support healthy eating and active living. Two plans have been developed to assist in this regard including Ontario's Action Plan for Healthy Eating and Active Living and Ontario Trails Strategy.

Ontario's Action Plan for Healthy Eating and Active Living was released 2006⁵. The Plan states that:

According to more than 1,000 people who participated in the roundtables, the main challenges to good health are the broader factors that limit Ontarians' ability to make healthy choices, including:

- *Lack of recreation facilities, bike paths and sidewalks in many communities;*
- *Urban planning and land-use practices that create communities where people have to use their cars to get to stores, work and school;*
- *Lack of healthy public policy to support healthy eating and active living;*
- *Low incomes which affect people's ability to buy healthy food or pay to participate in recreation programs;*
- *The high cost of fresh fruits and vegetables – particularly in northern and remote communities – and the high cost of sport and recreation programs in some communities;*
- *Lack of awareness about facilities in the community that can be used for recreation.*

The Ontario Trails Strategy⁶ was released in 2005 and provides an overall strategy and framework for action for trail planning and development in Ontario. While the plan has a 5-year planning horizon

³ The Obesity Epidemic in Canada – Parliamentary Information and Research Service, 2005

⁴ Brownson, R - Promoting Physical Activity in Rural Communities Walking Trail Access, Use, and Effects, 2000

⁵ Ontario's Action Plan for Healthy Eating and Active Living –Ministry of Health Promotion, Province of Ontario, 2006

(2005-2010), it does provide specific and relevant information and recommendations that continue to be relevant. The Vision, Goals and Values of this Strategy are to provide direction in the following areas:

- *A world-class system - The trails community will work together effectively.*
- *Diversified trails across Ontario - Trails in all parts of Ontario will meet the needs of varied users.*
- *Environmentally responsible - Trails will be planned and used in a manner that preserves and appreciates the environment.*
- *Enhanced quality of life - Trail use will help improve the health and prosperity of all Ontarians.*

This means:

- *Ontario will have a sustainable network of urban, rural and wilderness trails that are safe and accessible.*
- *Trail planning and usage will support environmental protection and contribute to the responsible use and appreciation of natural and cultural heritage resources.*
- *Trail-based recreation will contribute to an active lifestyle for Ontarians.*
- *Trails tourism will boost the economic prosperity of communities.*
- *The Ontario government will be actively engaged with trail stakeholders, providing coordination and strategic leadership to ensure the vitality of trails in Ontario.*
- *Trail users will respect property owners and adjacent land uses including those of the agricultural sector, resources industries, remote tourism operators and Aboriginal communities.*

Many communities throughout Ontario are dealing with similar issues surrounding trail planning and development. Some of these issues are relevant to Smithville, while others relate to pressures being placed on trail resources throughout Ontario. The Strategy highlights the following challenges facing the trail community including:

- *Coordination of trail groups.*
- *Need for easily accessible information.*
- *Cost of liability insurance.*
- *Lack of funding and land resources.*
- *Inadequate trail access for off-road vehicles.*
- *Access to land.*
- *Need for education.*
- *Review of public policy.*
- *Increase trail use.*
- *Need for improved trail safety.*

⁶ [Ontario Trails Strategy](#) – Ministry of Health Promotion, Province of Ontario, 2005

- *Challenges for Northern Ontario.*
- *Abandoned rail corridors.*

Walking offers many benefits, both short-term and long term. Short-term benefits for residents includes feeling relaxed, better self-esteem, increased energy levels, improved moods and better sleeping habits. Long-term benefits include decreased aches and pains, better posture and balance, stronger bones and muscles and improved heart and lung function⁷. Research has shown that those individuals who walk regularly have a decrease change of type 2 diabetes, cardiovascular disease, high blood pressure, osteoporosis, obesity, falls and injury and depression.

All of these plans in combination stress the need for healthy eating, active living and building strong communities.

Complete and Walkable Communities

Provincial policy is also putting increased emphasis on building complete and walkable communities, where people can work, play and recreate within their community. A community that supports walkability and active transportation obtains benefits in the following areas:

- **Environment:** Replacing shorter car trips with active transportation modes improves local air quality and reduces greenhouse gas emissions. In Canada, approximately 30% of greenhouse gas emissions result from transportation (Canadian Institute of Child Health, Climate Change and Your Child's Health, Information Package, September 7, 2003.)
- **Transportation Management:** By providing more walkable communities, the number of automobile trips can be reduced, which leads to less traffic congestion, road infrastructure, and road maintenance.
- **Health:** People who live in walkable communities are 2.4 times more likely to get the required daily amount of physical activity (Healthy Weights for Healthy Kids: Report of the Standing Committee on Health, 39th Parliament, 1st session, Government of Canada).
- **Social Cohesion:** Increased rates of walking in a community promotes social cohesion, as well as feelings of belonging, pride and spirit (Leyden, K. Social Capital and the Built Environment: The Importance of Walkable Neighbourhoods, American Journal of Public Health 2003; 93: 1546 -51);
- **Safety:** As more residents walk on community streets, it promotes more "eyes on the street", which deters potential crime and vandalism. The provision of infrastructure for walking also minimizes potential traffic accidents between cars and pedestrians, by providing a safe, separate and distinct area for travel.
- **Economy:** By providing an enjoyable mode of transportation to local stores and restaurants and providing safe sidewalks in front of local businesses, there is a potential for additional spending.
- **Happiness:** Walkable communities are often cited as being more desirable places to live (www.bikewalk.org).

⁷ The Benefits of Walking and the Importance of Trails in Ontario, Hike Ontario, 1998

- **Age Friendly:** As noted in the demographics section, the population in Ontario is aging. Research has shown that the baby boomer population, as they age, will have a stronger desire to age in place. As such, the provision of walkable communities will be vital to ensure that the older adult population has access to essential services (food, medical, etc.) and to stay connected with friends and family.

Road Design

The design of our communities, including road design, contributes to the rate of injuries and deaths from motor vehicle-pedestrian collisions. Road design, which includes roads, sidewalks, cycle lanes, boulevards, crosswalks and speed reduction features, can have a direct affect on the frequency, speed and volume of motor vehicle use in the community and in turn affect the rate of injury and deaths from motor vehicle-pedestrian collisions. By providing clearly designated and safe areas for pedestrians and cyclists, separate from the motor vehicle portion of the road, the rate of injuries and or death will decrease⁸.

Research shows that in the United States approximately 6,000 pedestrians are killed and 110,000 injured in accidents involving cars⁹. In Canada, an average of one pedestrian is killed every day on our roads¹⁰. Roads in Canada are designated for higher speeds, in order to move cars quickly from one destination to another¹¹. In many areas, crosswalks and sidewalks are non-existent, which increases the potential for injury or death.

Benefits of Sidewalks

There has been extensive research completed on the correlation between the provision of sidewalks and the rate of fatalities and injuries. Statistics indicate that:

- 15,500 pedestrians in Ontario killed or injured crossing the road between 1999 and 2003
- Chance of pedestrian/automobile collision on local streets without sidewalks is 2.6 times greater than where sidewalks are provided (U.S. Federal Highway Administration)
- Chance of pedestrian/automobile collision on local streets with sidewalk on only one side is 1.2 times greater than where sidewalks are provided on both sides (U.S. Federal Highway Administration)

According to the Region of Waterloo, sidewalks cost approximately \$75,000 per linear kilometre to construct. Generally, concrete sidewalks have a 20 to 40 year service life (depending on sidewalk material).

⁸ Study of studies compiled on cellphones. Heads Up! The Official Newsletter of SmartRisk. 2008 Fall

⁹ Road Injuries and Fatalities, An Information Series from the Ontario College of Family Physicians, September 2005

¹⁰ Ibid.

¹¹ Built Environment, SMDHU Literature Review, p. 40-55.

Accessibility

Accessibility in our communities is a growing issue, particularly with the aging of the Baby Boomer populations. Accessibility means the ability to reach desired goods, services and activities, regardless of physical, economic or mental ability¹². Poor walking opportunities in a community can contribute to social exclusion and/or isolation for the more vulnerable populations. It is for this reason that the provision of safe and convenient trails and corridors that provide access to key community destinations will continue to be an important piece of urban communities.

A.5 PUBLIC CONSULTATION

Several forms of community consultation were completed as part of the development of the TCMP, including stakeholder workshops, interviews and a public information centre. Also, a Grade 9 Geography class (Ms. VandenDool) at Smithville Christian undertook a youth survey on trails and corridors, which was completed in January 2012. The following material highlights the results from the various community consultation activities.

Stakeholder Workshops and Interviews

Stakeholder workshops and individual interviews were undertaken with community service providers, service clubs and Township Council. The following material summarizes the responses to the questions posed in these sessions. All the sessions were initiated with three questions:

- What are the strengths and attributes of the trails and corridors currently available within Smithville?
- What concerns, gaps and weaknesses exist with the current trails and corridor system in Smithville?
- What are the future trails and corridor needs in Smithville over the next five years and to ten years and beyond?

Strengths and Potential Opportunities

- Trails are fabric builders for the community
- Need community buy-in on trails
- Small town feeling , close community
- At pivotal stage to plan ahead for trails
- Trails could be an incentive for tourists

¹² Litman, 2003b

Concerns, Gaps and Weaknesses

- No existing trails in Smithville
- Need a safe way to get to the Leisureplex
- Sold off municipally owned land that could have been used for trails
- Township needs to plan ahead for trails and integrate into development projects
- There may be concerns in constructing a trail along Twenty Mile Creek as most of land in private ownership
- The current in the Twenty Mile Creek, in heavy run-offs, may be too strong for a trail to located adjacent to the creek
- There is minimal visibility along Twenty Mile Creek, which may cause a trail along the creek to be unsafe for children
- There are no connections between neighbourhoods
- Southeast area needs a route to get to the downtown area/Highway 20 (would require bridge)
- Main concern is connectivity within the community, including school, parks and natural areas
- Fairgrounds will evolve to a central recreation hub, so we need to ensure connectivity
- Smithville has disjointed parks and trails and this creates a safety issue
- No lights in sidewalks by Reform Church
- The bridge at Wade Street needs a higher railing
- The downtown bridge only has sidewalks on one side
- There are no crosswalks from the Foodland to the bank
- More lighting is required for the trails – safety concerns
- Directional signage required
- Need more education on what is available in the community
- Townline Road is in bad shape
- Washroom facilities along trails may be helpful
- Clearing trees around trails could improve visibility
- There are no parks that have access for seniors or children
- Legion Villa and West-Li Gardens should be connected to the community
- We have an aging population and growing younger population
- Need more activities for youth
- There are no marked places for cyclists
- Bike lanes on St. Catharines Street would be supported by the Region
- There are no bike trails

Public Information Centre #1

A Public Information Centre was held on December 1st, 2011 with Smithville residents at the Smithville Christian. A summary of the comments is provided below.

- Access to the Leisureplex is a big concern

- Accessibility on trails will become more important
- ATV use on the existing trail is an issue
- Need more bike lanes in Smithville
- Trails should be coordinated with new development
- A trail along the western portion of Twenty Mile Creek may be possible

Student Survey

The Grade 9 Geography class at Smithville Christian, under the supervision of Ms. Gina VandenDool, administered a trails and corridors survey for students in Smithville. As noted in the introduction to the TCMP, the students at Smithville Christian requested that a Master Plan be undertaken for Smithville, in order to address the lack of a safe pedestrian route from Smithville Christian to the Leisureplex. Currently, students are required to walk on an unpaved shoulder, where the posted speed limit is 80 kilometres an hour. As the students use the Leisureplex for their physical education classes, there are a number of student walking along Townline Road every day.

The survey was completed between December 2011 and January 2012 of students in grade 6 through 12, attending the various schools within Smithville. A total of 598 surveys were completed and analyzed. The intent of the survey was to understand the how the youth in the community use trails and corridors and opportunities for improvement. The following is a summary of the results.

Sydney Vermeer, one of the students in the class, prepared a written summary of the responses. Ms. Vermeer’s summary is contained in Appendix A.

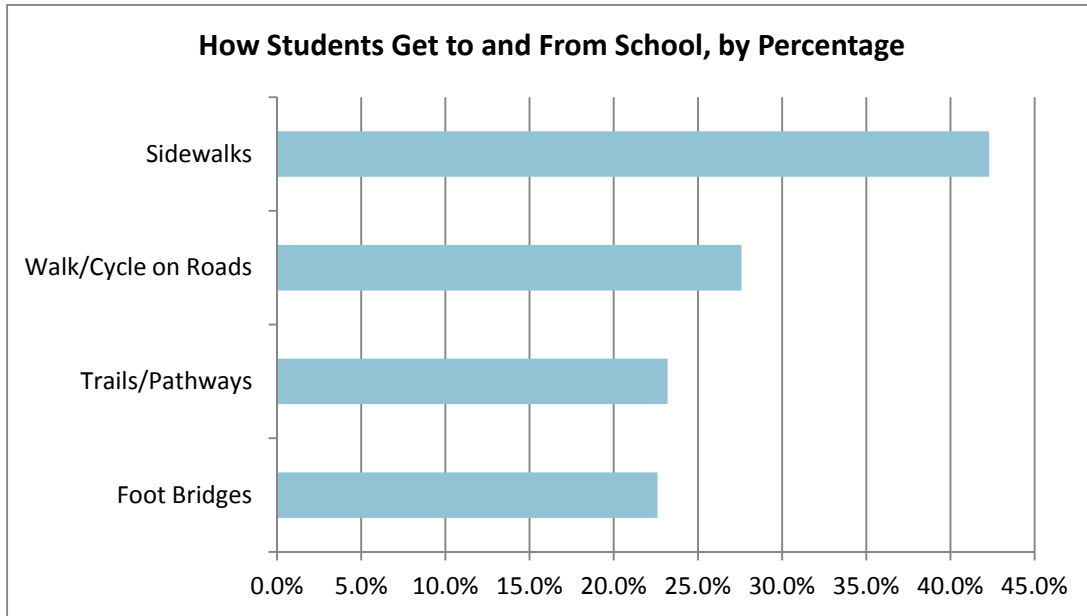
Survey results indicated that 38.5% of the surveyed students were in high school and the remaining 61.5% were grade school age. From these 598, 46.6% of them live in Smithville, and 53.4% do not. Only 60% of the residents who live in Smithville actually know where trails are and the rest are unaware and had no idea.

The following tables provide a summary of the age and grade of those students who completed the survey.

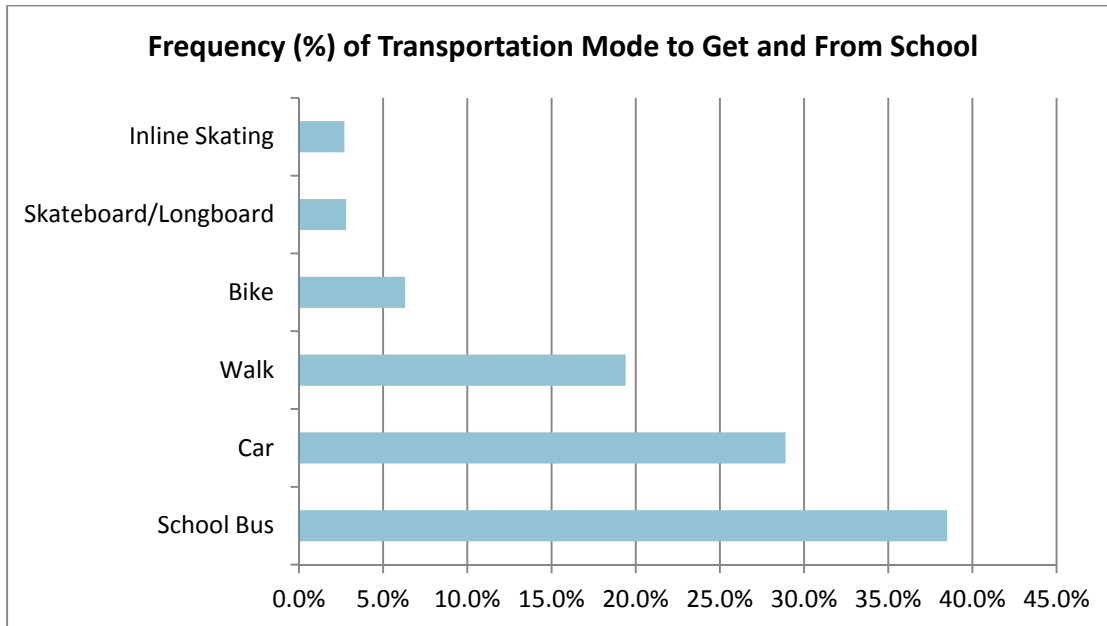
	Age	
	#	%
10	2	0.3%
11	122	20.4%
12	103	17.2%
13	138	23.1%
14	73	12.2%
15	48	8.0%
16	60	10.0%
17	50	8.4%
18	2	0.3%

	Grade	
	#	%
6	122	20.4%
7	103	17.2%
8	142	23.7%
9	70	11.7%
10	49	8.2%
11	60	10.0%
12	52	8.7%

The following table outlines the community facilities that the students use to get to and from school. Sidewalks were the mostly widely used, followed by walking/cycling on roads. Given that Smithville is an urban area, the percentage of students walking/cycling on roads to get to school is high.



Students were then asked the types of transportation they use to get to school, including motorized and non-motorized uses. As illustrated in the chart below, the bus is the most frequently used mode of transportation, largely a result of the fact that Smithville is the educational hub for the entire Township. With approximately 53.5% of students living outside the urban area of Smithville, the level of busing is high.



As a follow-up question, students were asked if they use non-motorized transportation to get to the Leisureplex, Arena/Fairgrounds, Shopping/Restaurants and Parks. Generally, students use non-motorized transportation modes to get to community facilities approximately 30 to 40% of the time.

Students were also asked the modes of transportation utilized for recreational purposes within Smithville. Approximately 75% of students use the local trails, pathways and sidewalks for walking and running, whereas 45% cycle. Under 10% of student's longboard, skateboard and/or inline skate on the local trails, pathways and sidewalks.

The second portion of the survey focused on opportunities to improve trails and corridors in Smithville. Approximately 46% of the students indicated that they would use trails, sidewalks and pathways more often if additional opportunities were available. Responses for opportunities for improvement included:

- Improving the safety (lighting, trail surface)
- Additional trails to provide better community connections
- Enhanced maintenance of trails and corridors
- Additional sidewalks
- Bike lanes
- Better access to the Leisureplex

Based on the input from the students, the following key issues were identified:

- Access to the Leisureplex;
- More education on the location of trails and corridors in Smithville;
- Need for more trails and corridors;
- Need to improve the safety of sidewalks; and,
- Improve opportunities to walk/cycle/longboard to and from school.

The Township of West Lincoln and GSP Group Inc. would like to thank the students for their effort and hard-work.

A.6 ISSUES AND OPPORTUNITIES

Limited Existing Trails

The settlement area of Smithville is relatively compact with a traditional core area and newer development on the periphery. There has been steady population growth in Smithville; however, the planning of trails and corridors has not kept pace with development.

There is one off-road trail within Smithville that starts at the Leisureplex and ends at the Wade Road bridge. The existing trail varies in width and surface material and there is no trail signage.

There are three mid-block walkway connections within the existing residential neighbourhoods that provide direct pedestrian access. The first is located immediately east of the Township offices and connects to Ellis Street and Davis Street. There is poor visibility and sight lines and it was noted through the consultation that this area is not well used due to perceived safety.



Trail Access to Leisureplex



Existing Walking Connection from Canborough Street

Access to Leisureplex

The key issue identified by the Steering Committee, Township Council and Township staff is the unsafe non-motorized access to the municipally owned Leisureplex. The Leisureplex includes:

- 2 baseball diamonds (lit)
- 2 soccer fields (full-size, 1 lit)
- 1 football field
- Track
- Public works facility
- Concession stand
- Parking

The Leisureplex is located outside of the urban boundary of Smithville and there are no sidewalks along Townline Road to connect to the facility.

As noted above, there is an existing trail that connects from Wade Road and Golden Acres Drive to the Leisureplex; however, there are significant portions of the community that do have access to a safe off-road route. Of particular concern is the lack of off-road routes available for the students at the Smithville Christian, as they use the Leisureplex for their physical education programs and the students currently have to walk on the shoulder of Townline Road (see image below). This portion of Townline Road is a rural cross section and has a posted speed limit of 80 km/hr.



Townline Road Between Leisureplex and Smithville Christian (Google, 2010)

Summary of Issues and Opportunities

The following is a list of “issues” and “opportunities” that need to be considered and evaluated in preparing the draft Smithville Trails and Corridors Master Plan (see Figure 2):

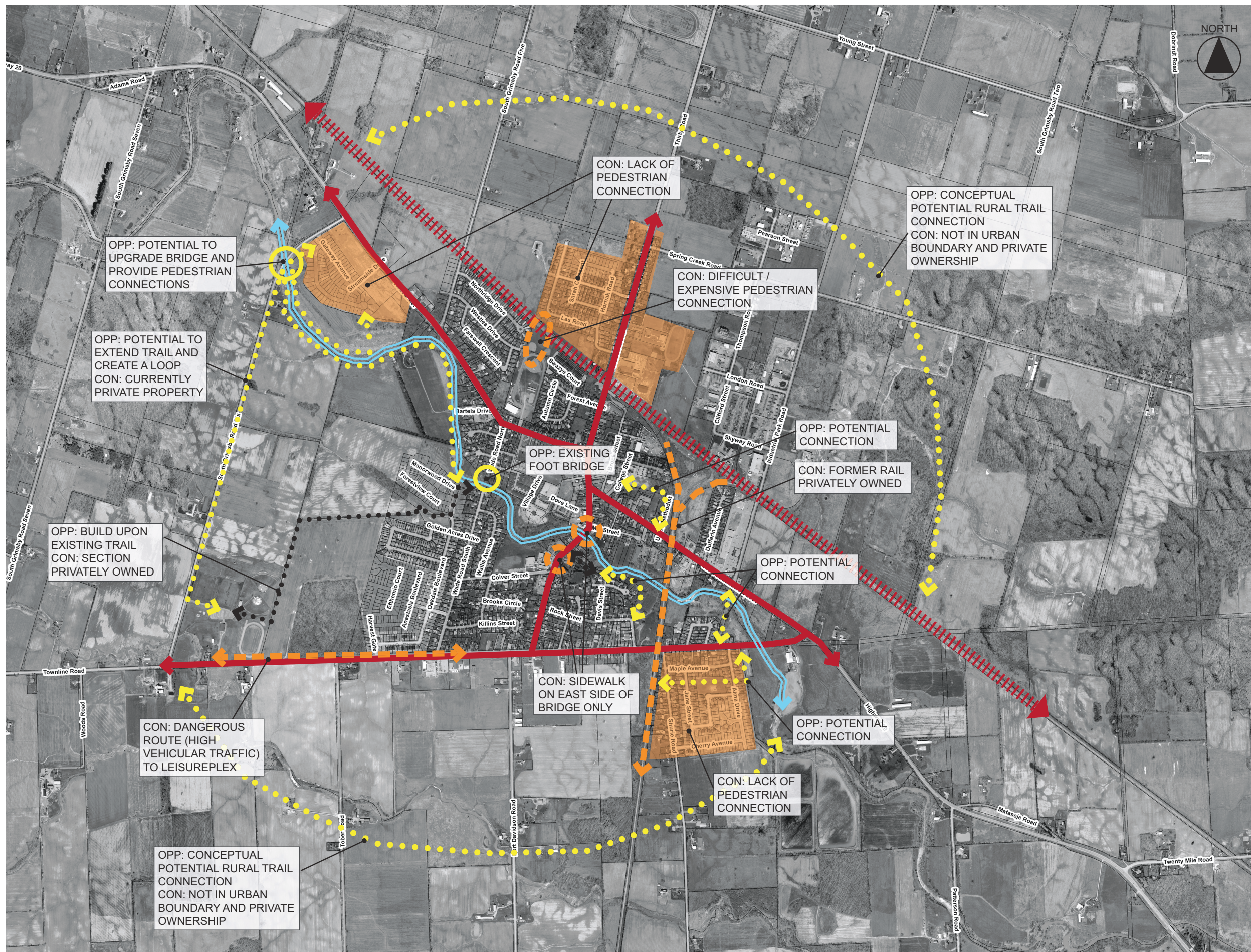
Issues

- Development and management of local trails – need guiding document to assist with new development and planning approvals.
- There are very few linear public lands available for the development of trails. Former railway lands previously sold for development, which could have connected Smithville to Dunville.
- Major roads, a railway line and Twenty Mile Creek are all obstacles to the movement of people in Smithville.
- There is an unsafe pedestrian access to the Leisureplex (rural cross-section, no sidewalks, 80 km/hr speed limit).
- Connectivity between residential neighbourhoods (active railway line and Twenty Mile Creek). For example, the southeast residential neighbourhood and the northwest residential neighbourhood are not well connected to the community.
- Lack of connections from the northern residential neighbourhood to the Fairgrounds.
- There are no off-road linkages beyond the settlement area of Smithville.
- Land abutting Twenty Mile Creek is privately owned amongst a number of property owners which is an obstacle to providing a continuous trail along the Creek.
- There are no sidewalks adjacent to the Township offices or the fire station
- There are no designated on-road cycle routes available.

FIGURE 2



Ontario



LEGEND

- MAJOR ROADS (REGIONAL)
- RAILWAY
- TWENTY MILE CREEK
- EXISTING TRAILS
- POTENTIAL TRAIL
- OPPORTUNITIES
- CONSTRAINTS

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-
- There are no current development standards for trails (i.e. material, width, signage, etc.).
 - The Official Plan does not contain policies that promote acquisition of land for trails.

Opportunities

- Existing recreation facilities and parks that are well utilized by the community.
- Relatively compact community, which allows for comprehensive planning of trails and corridors.
- Smithville is in a growth stage, allowing for integration of trails in future development areas.
- Improve walkability to community destinations (e.g. school, shopping) in older areas.
- Smithville in close proximity to a number of major urban centres, including Grimsby, Hamilton and St. Catharines, which provides a large population of potential tourists/visitors to the area.
- Opportunity to partner with local schools to encourage active living.
- Working with the Region of Niagara on road reconstruction to ensure that bike lanes and sidewalks are provided, where required.
- Possibility for better trail connections to the Leisureplex and other community/institutional facilities.
- Build on the environmental and heritage aspects in the local area through development of destination points or trails.

B. POLICY FRAMEWORK

In Ontario, Provincial legislation and policies provide direction for the planning of parks and open space within municipalities. Key provincial directions are summarized below.

B.1 Planning Act and Provincial Policy Statement

The Planning Act identified matters of Provincial interest, which include the following matters that relate to the important roles and benefits of parks and open space:

- The protection of ecological systems, including natural areas, features and functions;
- The conservation and management of natural resources;
- The conservation of features of significant architectural, cultural, historical, archaeological or scientific interest;
- The orderly development of safe and healthy communities;
- The adequate provision and distribution of recreational facilities;
- The promotion of development that is designed to be sustainable and to be oriented to pedestrians.

The Provincial Policy Statement (PPS) 2005 provides policy direction on matters of Provincial interest for land use planning and development. Municipal official plans and planning decisions must be consistent with the PPS in accordance with the Planning Act.

Section 1.5 of the PPS directs municipalities with respect to public spaces, parks and open space:

1.5 PUBLIC SPACES, PARKS AND OPEN SPACE

1.5.1 Healthy, active communities should be promoted by:

- a) planning public streets, spaces and facilities to be safe, meet the needs of pedestrians, and facilitate pedestrian and non-motorized movement, including but not limited to, walking and cycling;*
- b) providing for a full range and equitable distribution of publicly accessible built and natural settings for recreation, including facilities, parklands, open space areas, trails and, where practical, water-based resources;*
- c) providing opportunities for public access to shorelines; and by,*
- d) considering the impacts of planning decisions on provincial parks, conservation reserves and conservation areas.*

The Planning Act prescribes the parkland dedication requirements for development. Under Section 42, a municipality may require a parkland dedication of 2% of the land for commercial or industrial developments, and 5% of the land for residential developments. If land has previously been conveyed

under Section 42 or Section 51.1 a municipality cannot obtain additional land unless the redevelopment will increase the overall density of the development or unless commercial or industrial land is proposed to be redeveloped for other purposes (e.g. residential).

Alternatively to parkland dedication, the Planning Act allows a municipality to require the payment of money (“cash-in-lieu of parkland dedication”) to the value of the land otherwise required to be conveyed for parkland dedication. Policies for parkland dedication must be included in a municipal official plan and a by-law must be passed. The Township’s adopted OP currently includes policies to guide the consideration of cash-in-lieu of parkland dedication.

The Planning Act also prescribes that the approval authority (i.e. the Township of West Lincoln) may impose conditions to the approval of a plan of subdivision, if the approval authority is of the opinion that the conditions are reasonable. Section 51(25) states that conditions of approval may include a requirement for highways to be dedicated as the approval authority considers necessary. The Act states that highways include pedestrian pathways, bicycle pathways and public transit rights.

B.2 Places to Grow Act and Growth Plan for the Greater Golden Horseshoe

The Growth Plan provides policies for managing growth and development to the year 2031 within the Greater Golden Horseshoe area which includes the Region of Niagara. Municipal official plans and planning decisions are required to conform with the Growth Plan in accordance with the Places to Grow Act.

The Growth Plan encourages “complete communities” with a diverse mix of land uses including “high quality public open space.” “Recreation” is considered part of “Community Infrastructure” and “Complete Communities” within the Growth Plan, and municipalities are encouraged to develop a system of publicly accessible parkland, open space and trails, including shoreline areas that:

- Clearly demarcates where public access is and is not permitted;
- Is based on a coordinated approach to trail planning and development;
- Is based on good land stewardship practices for public and private lands.

B.3 Regional Policy Context

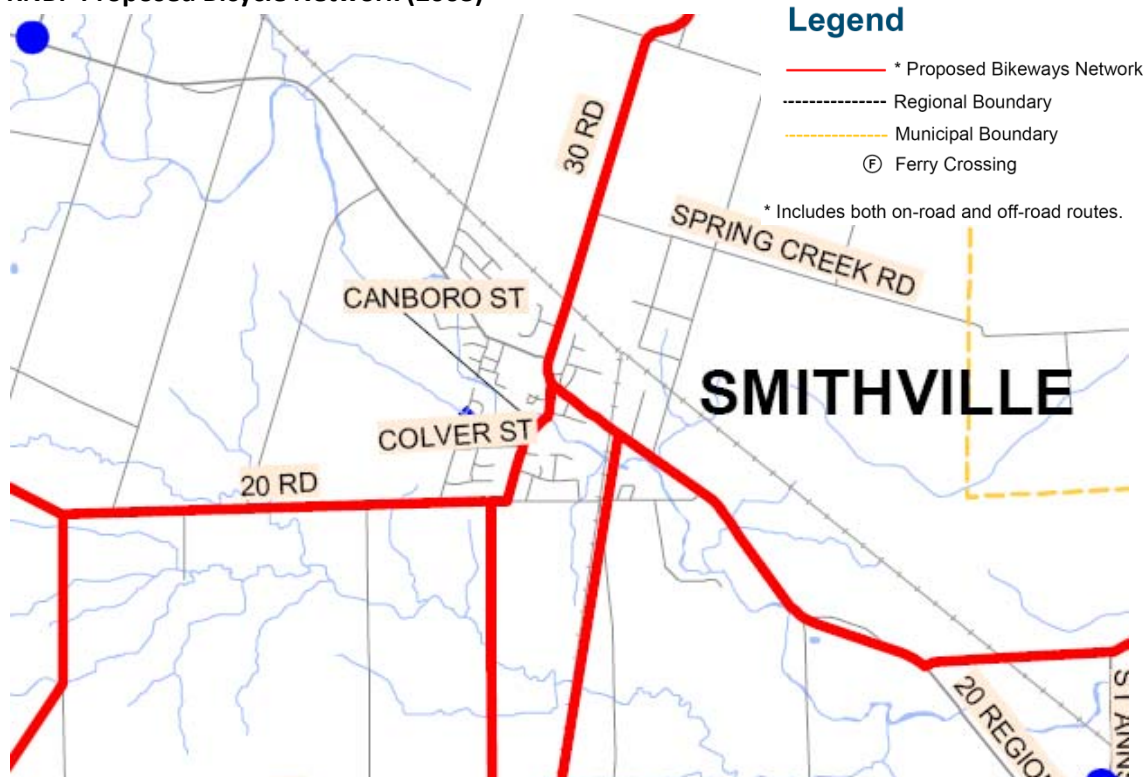
The Regional Municipality of Niagara provides upper-tier planning direction through the Regional Niagara Policy Plan. Municipal official plans for area municipalities in Niagara Region are required to conform to the Regional Plan.

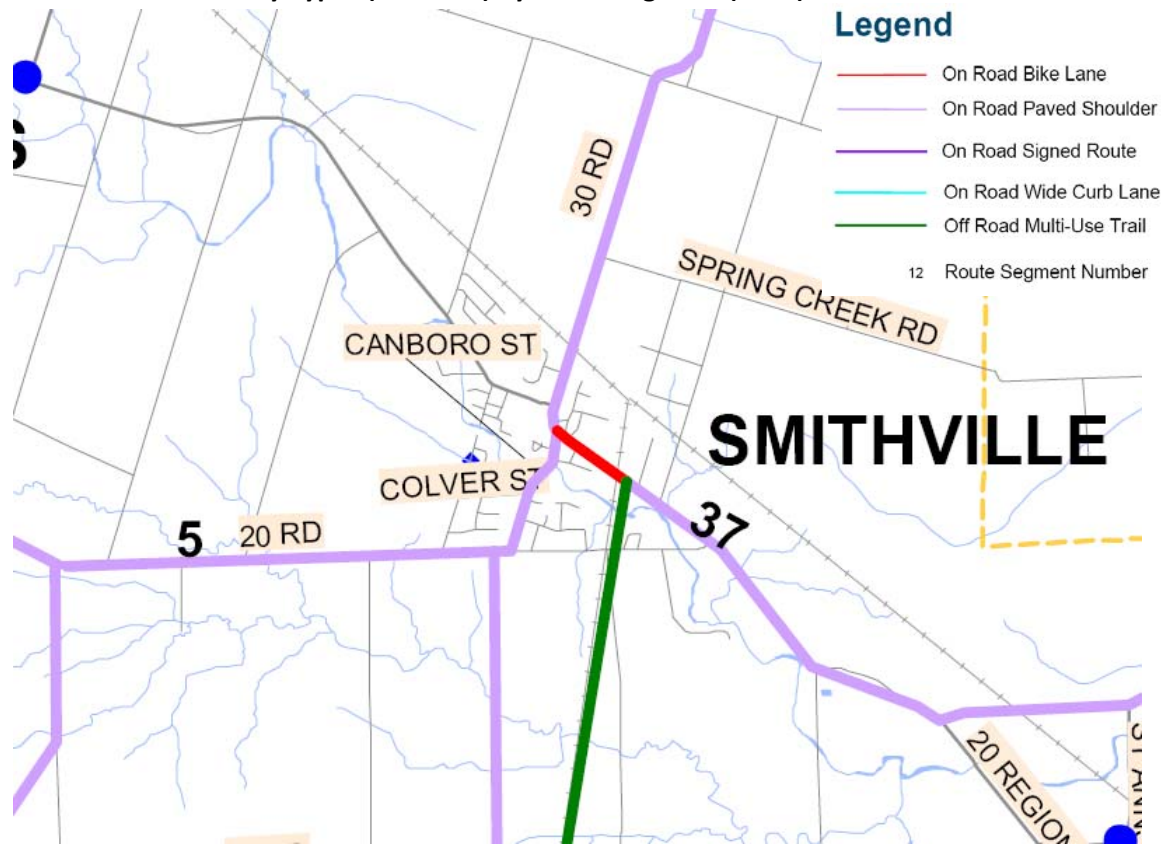
The Regional Plan was recently amended to implement the strategic directions of Niagara 2031, the Region of Niagara’s Growth Management Strategy (GMS) providing a Regional perspective to guide local implementation of the Provincial Growth Plan and a framework to manage and guide growth in Niagara over the next 25 years. Key policy directions provided by the Regional Plan, as amended, include:

- Provide for active transportation within neighbourhoods with connections to adjacent residential areas, parks and schools.
- The Region encourages the planning of integrated parks and open space systems which link urban to rural areas via pathways, trails and cycling routes and incorporate larger facilities such as the Waterfront Trail, the Circle Route, the Gord Harry and Bruce Trails, Niagara Peninsula Conservation Authority (NPCA) Conservation Areas, and the lands of the Niagara Parks Commission.
- The Region and the local municipalities will ensure that pedestrian and bicycle networks are integrated into transportation planning to provide safe, comfortable travel for pedestrians and bicyclists within and between existing communities and new development, provide linkages between intensification areas, adjacent neighbourhoods, and transit stations, including dedicated lane spaces for bicyclists on the major street network where feasible, and encourage provision of appropriate and sufficient bicycle parking facilities at major transit nodes and public and private facilities.

The Region also released a Bikeways Master Plan (referred to as the RNBP) in 2003. The RNBP “establishes a long-term vision and strategy to provide programs and infrastructure to support recreational, tourism and utilitarian cycling.” Within the RNBP, there are a series of maps that identify the candidate bicycle routes, the proposed bicycle network and the type of bicycle route.

RNBP Proposed Bicycle Network (2003)



RNBP Network Facility Types (Ultimate) by Route Segment (2003)

Of note, the “Off-Road Multi-Use Trail” noted in image above is not a feasible future route as the former rail right-of-way has been sold to private landowners.

The Region of Niagara has confirmed that it is the Region is responsible for providing facilities on Regional Roads identified on the Regional Bikeway Network. The Region will consider the installation of bike lanes during the reconstruction and/or resurfacing of roads that have been identified in the RNBP¹³. The Region has confirmed that Townline Road is in “fairly good condition and is not due for resurfacing or reconstruction in the near future”¹⁴.

The Region also released the Model Municipal Bicycle Transportation Policies in August 2010, as a resource document for the local municipalities to use as part of their overall strategy for creating and fostering a healthy, sustainable bicycle friendly community. The premise for creating the policies is that in order to achieve a healthy, sustainable, liveable community, the local municipality need to change the transportation network, such that the reliance on the automobile is reduced and that the provision of sustainable forms of transportation (walking, cycling, etc.) increased.

¹³ Petar Vujic, Traffic Studies Supervisor (through Phil Bergen, January 17, 2012)

¹⁴ John Rizzo Project Manager , Transportation (through Phil Bergen, January 17, 2012)

Key recommended policies, that directly relate to the TCMP include:

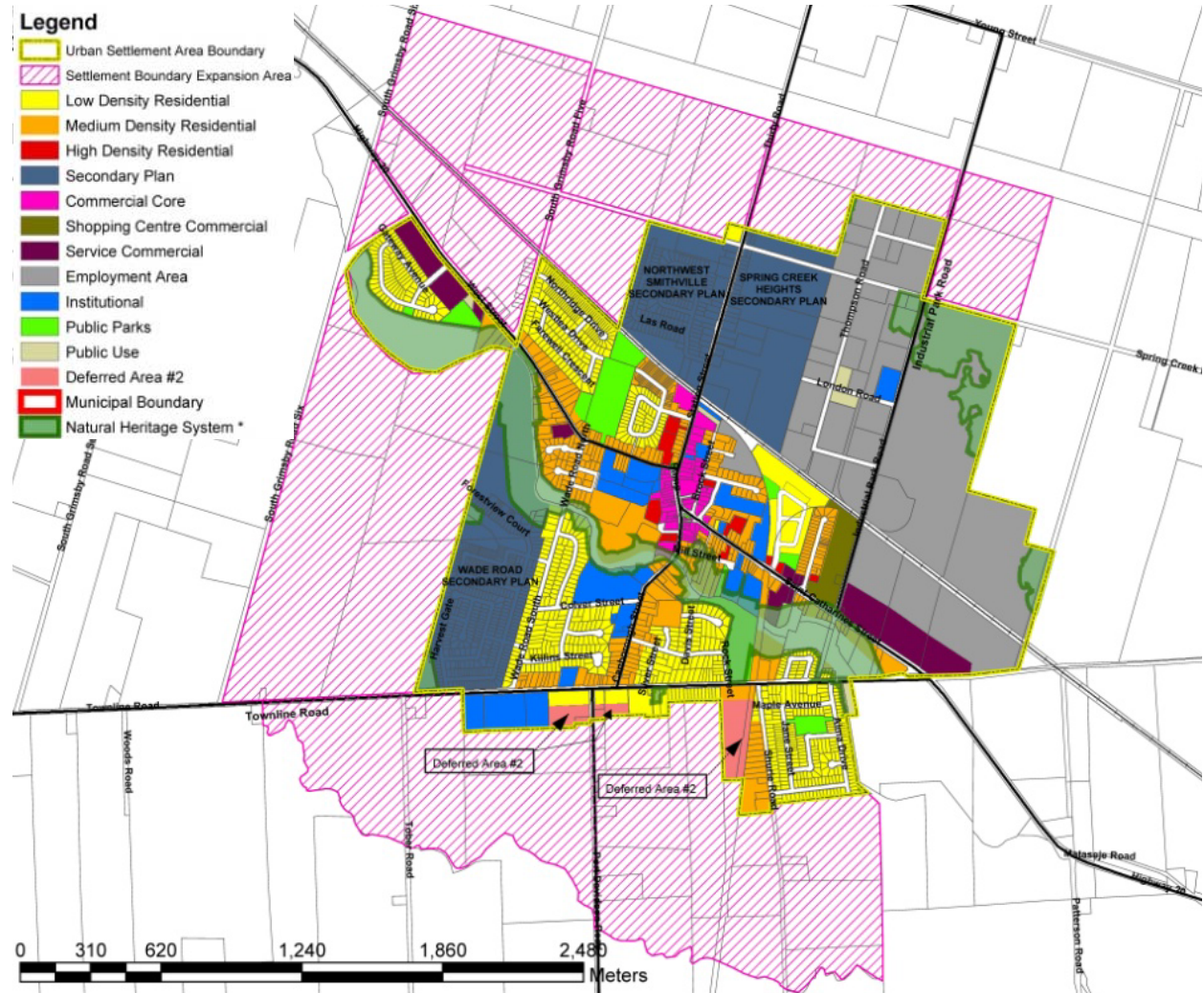
- *The municipality will ensure that efforts will be made, where feasible, to improve and expand upon the cycling network through opportunities to add missing links and develop off-road trails and on-road routes offered by unopened road allowances, utility rights-of-way, existing or abandoned rail corridors, open green space development and future roadway improvement. Amendments to the network shall ensure that continuity and connectivity is maintained*
- *Land Use Review Process: Considering the need for bicycle friendly infrastructure and cycling route connections when reviewing and approving development applications including plans of subdivision and site plans for commercial, industrial and institutional proposals;*
- *Protection of Unopened Road Allowances: Not closing or selling unopened road allowances that have reasonable potential for use as bicycle routes*
- *Local Road Layout: Ensuring that when reviewing development applications, official plan amendments or concept plans, the roadway network in newly developing areas provides a local road layout minimizing cul-de-sac and crescents that increase travel distances for pedestrians, cyclists and transit vehicles. Modified grid patterns are suggested as a way of maximizing connectivity and permeability so that there are alternate vehicular and pedestrian routes to most destinations while discouraging the use of local streets by non-neighbourhood traffic;*

B.4 Local Policy Context

The Township of West Lincoln adopted a series of official plan amendments (OPA 15 and 21) to bring the Official Plan (1998) into conformity with the Provincial Policy Statement and the Growth Plan for the Greater Golden Horseshoe. In addition, OPA 15 incorporates the recommendations from the January 2010 Recreation Master Plan.

While the amendments have been adopted by the Township, they are awaiting approval from the Region of Niagara. It is our understanding that Regional approval has been delayed as a result of issues regarding the Township's forecasted population growth and the resultant urban boundary expansion proposed for Smithville. As illustrated in Adopted Official Plan below, the Township's adopted Official Plan is proposing to expand the urban area of Smithville to the north, east and south of the current urban boundary.

While the policies that implement the Recreation Master plan are not yet in force and effect, the Region has not expressed concerns regarding these specific policies.

Adopted Official Plan – Land Use Smithville (Pending Approval)

Source: Official Plan Amendment 21, October 2010

The policies of Section 2.6 of the Official Plan (OPA 15) deal specifically with the provision of parks and recreation facilities in the Township. Relevant goals include:

- (l) To provide and maintain a safe, convenient, economical and efficient transportation system for all persons and goods.*
- (m) To develop and implement a comprehensive parks and recreation master plan.*
- (n) To ensure the provision of adequate parkland, trails, open space and other indoor and outdoor recreational facilities to meet the need of residents of the Township throughout the plan period of this Official Plan.*
- (p) To co-operate with other government agencies, groups and private individuals in the development and maintenance of public recreational facilities and the provision of complimentary services and facilities throughout the Township.*

The Parks and Recreation Hierarchy includes ‘Linear Parks and Greenspace Corridors’ (Section 9.4.3). The purpose and function of Linear Parks and Greenspace corridors is to “*connect parks and recreational facilities, as well as neighbourhoods, through a safe system of trails and pathways*”. Linear Parks and Greenspace Corridors are to be solely developed and used by pedestrians and cyclists for passive recreation (walking, jogging and biking). The policy states that the majority of Linear Parks and Greenspace Corridors should be located in Smithville and the hamlet areas.

Linear Parks and Greenspace Corridors are encouraged to follow the topography of land, while minimizing significant grade changes to ensure accessibility. Linear Parks and Greenspace Corridors are to be clearly identified and should be maintained to ensure that they are safe and free of pot-holes or other hazard issues associated with the repeated use of the linear park system.

OPA 15 includes specific policies related to the development of Linear Parks and Greenspace Corridors. Policy 9.5.3 b) states that “*the Township shall actively pursue the development of an integrated and interconnected system of public parks and open spaces in accordance with the following provisions:*”

- i. As far as possible, this system is to be continuous and lands will be added whenever feasible to improve upon the continuity and gain direct pedestrian access from adjacent parks.*
- ii. Minor watercourses, utility corridors, and other open spaces will be joined to the system wherever possible in order to facilitate public access and to maximize the opportunities for linear park development.*
- iii. Where any of the lands involved are in their natural state, they will be protected and preserved as wilderness as far as possible except for the purposes of general maintenance and provision of linear park facilities.”*

Parkland Dedication is one of the means by which the Township may acquire lands in support of its parks, open spaces and trails. The Township requires parkland dedication at the rate of 5% of lands proposed for residential development and 2% of lands proposed for commercial, institutional and industrial development, or cash-in-lieu at the Township’s discretion.

Township may also accept cash-in-lieu of parkland at its discretion where the required parkland would be small and isolated. While natural heritage features and hazard lands are not accepted as part of the mandatory parkland dedication, the conveyance of these lands into public ownership is encouraged by the Official Plan.

Section 9.3 f) of OPA 15 states that parkland dedications are to be of an acceptable quality and shall satisfy a number of criteria including:

ix) Where required, secondary accesses in the form of pedestrian walkways shall be provided by the developer in accordance with the following design criteria:

- 1. 3.65 metre minimum right-of-way*

2. *durable walking surface materials*
3. *fencing to Township specifications*
4. *other requirements as may be applicable from time to time.*

It is noted that the Township does not currently have a standards manual for the development of trails and corridors.

B.5 Policy Recommendations

Building on the Township's current Official Plan policies, additional policies are recommended to provide more detailed direction on the location and design of trails and corridors in Smithville.

1. *Prepare and include a Recreation and Active Transportation schedule to the Official Plan, which illustrates existing and proposed on-road cycling routes, off-road trails and key pedestrian connections.*
2. *The Township Official Plan be amended to include reference to the Trails and Corridors Master Plan and the associated trails and corridors design standards for detailed information regarding the development of trails and corridors.*
3. *Section 9.3 f) xi) of the Township Official Plan be deleted and replaced with:*
 - a. *Trails for pedestrians and cyclists shall be of a sufficient width to accommodate both cyclists and pedestrians. Pedestrian-only-trails may be of smaller width;*
 - b. *Trails will be designed to accommodate a range of users and abilities. Slopes, where possible, should be under 5 percent. The use of permeable materials shall be encouraged in trail construction in areas where sufficient drainage exists;*
 - c. *Trails should be clearly signed regarding permitted use and speed. Way finding signage shall be provided throughout the trail network;*
 - d. *Benches and garbage receptacles should be provided at trailheads and at regular intervals along the route; and,*
 - e. *Trails located in proximity to sensitive natural features should incorporate interpretive signage at various locations to promote stewardship initiatives that will protect and enhance the features and functions of the natural environment.*

C. MASTER PLAN VISION, GOALS AND OBJECTIVES

The development of a trail system for the settlement area of Smithville requires a general conceptual framework that contains the vision, ideas and values associated with proposed physical system. The intent of this section is to set the foundation upon which the trail infrastructure is developed in Smithville. This conceptual framework includes the anticipated benefits of trails, the principles, goals and objectives to achieve the trail system, as well as the categories of trails in the system based on uses.

A comprehensive trail system can provide many benefits to settlement area of Smithville including:

- Encourage active living and improve physical health for Township residents and visitors.
- Providing safe access to trails to decrease the potential for injury.
- Improve the range of recreational opportunities for non-motorized users.
- Enhance the appreciation of open space, heritage features and the natural environment, therefore encouraging their preservation.
- Provide for alternate active transportation corridors and linkages, reducing transportation costs and environmental impact.
- Contribute to local economic development through increased local tourism and enhanced visitor experiences.
- Promote community pride, participation and interaction.

C.1 Vision

The vision for trails, which represents the core values for providing trails in Smithville, is as follows:

PROVIDE UNIVERSAL AND SAFE ACCESS TO THE SMITHVILLE TRAIL AND CORRIDOR SYSTEM, ENSURING THAT BOTH THE ACTIVE TRANSPORTATION AND RECREATION NEEDS OF THE COMMUNITY AND ITS VISITORS IS ACHIEVED

C.2 Goals

The goals build upon the vision and are intended to assist in setting the foundation of the recommended trail system:

- Accommodate the greatest number of uses and experiences within the trail system.
- Ensure that the trail and corridor system is safe and accessible to all community members.
- Provide non-motorized connections to key community destinations, including downtown, the shopping centre and local institutional facilities.
- Enhance connectivity between residential neighbourhoods through the use of municipal right-of-ways.
- Accommodate the greatest number of participants, with the needs of the residents taking precedence over visitors.

- Consider other trail priorities such as the promotion of health and fitness, injury prevention, environmental education, sustainable transportation, and user accessibility.
- Seek opportunities for connections to regional trails and resources.
- Provide a stable funding and resource contribution for trails, with preference to budget increases commensurate with increases of the population and tax-base.

C.3 Objectives

Objectives are more discreet, somewhat measurable statements that build upon the Goals to provide an outline for implementation:

- Maintain and improve the existing trail, linking the Leisureplex to the most westerly residential community.
- Provide a safe non-motorized on-road connection along Townline Road from Harvest Road to South Grimsby Road to allow children and youth to access the Leisureplex.
- Explore opportunities for trail connections along Twenty Mile Creek in the developing areas of Smithville.
- Promote the development of non-motorized, urban trails that offer perimeter or corridor loops, meet current accessibility standards, connect to rural or regional trails, and connect to significant destinations in Smithville.
- Coordinate trail planning on a Township-wide basis and cooperate with other municipalities, agencies and groups/organizations to develop and link new or existing trails.
- Use partnerships to fund, develop and maintain new trail systems.
- Complete missing trail linkages or develop additional trail linkages to complete the overall trail system, with a particular focus on linking the community to the Leisureplex, downtown and the Community Centre.
- As new development is proposed additional trails and linkages will be acquired.
- Encourage public education and involvement in the trail system. Prepare trail maps, guides and other promotional materials to support overall knowledge and use of the trail system.
- Develop an overall set of standards and specifications for trails in order to provide consistency for the user and identity for the overall trail system.
- Provide an annual Township budget for trail maintenance, improvements and new development.
- The existing and proposed trail system will be incorporated as a schedule(s) in the Township Official Plan.

D. TRAIL AND CORRIDOR NETWORK

The proposed trail and corridor network for Smithville has been developed based on the background research, demographic trends, community and agency consultation and identified community needs.

Some urban trails exist within Smithville. These trails have evolved over time through development of parks, subdivisions and along natural environment corridors. Due to the incremental nature of urban development, it is important for the Township to maintain the objective of an ultimately having a fully linked trail system.

Currently, there is only one off-road trail in Smithville, which connects the Leisureplex to the most westerly residential community. In addition, there are a number of existing walkways within Smithville (Figure 1):

1. Westlea Drive to the Fairgrounds
2. Swayze Court to the Fairgrounds
3. Canborough Street to Ellis Street
4. Wade Road Bridge

Given that this Master Plan covers only the urban area of Smithville, all existing and proposed trails and corridors are intended for non-motorized use only. Non-motorized uses include such activities as walking, running, cycling, in-line skating, cross-country skiing, snow-showing, nature and heritage appreciation. Such activities may occur on-road or off-road, depending on the nature of the use. Trails use is to be free of charge and therefore are dependent on municipal funding, provincial grants or private donations and volunteers for their development and maintenance.

D.1 Trail Hierarchy

In order for the Township to maximize and sustain the benefits of trails, meet the expectations of trail quality and maintenance levels, minimize environmental impacts and ensure public safety and accessibility, the overall network must be developed and managed in a logical and hierarchal manner.

The trail and corridor network for Smithville is proposed to include the four classifications, which are differentiated by type and frequency of the use. An inherent assumption to this Master Plan is that the existing and proposed trails and corridors in Smithville will provide for both active transportation and recreation opportunities. The dual function of trails and corridors and the resultant benefits to the community should be reflected in the priority placed on their development and maintenance.

The classifications are as follows:

Table D-1: Trail and Corridor Hierarchy

	Location	Purpose	Current Example
Off-Road - Primary Trail	Off-road, preferably on government owned land (e.g. Township or Conservation Authority)	To provide connections to major destinations, including Township Hall, educational facilities, library, major recreation facilities (i.e. Leisureplex) and the downtown area and to provide enhanced recreation opportunities to trail users	Trail linking the Leisureplex to Oakdale Boulevard
Off-Road - Secondary Trail	Off-road, preferably on government owned land (e.g. Township or Conservation Authority)	To provide recreation opportunities to the local community, such as walking the dog or an evening stroll	No current example in Smithville
On-Road - Primary Corridor	Sidewalks and bike lanes along the edge of arterial roads	To provide connections to major destinations, including Township Hall, educational facilities, library, major recreation facilities (i.e. Leisureplex) and the downtown area	Sidewalk along Canborough Street
On-Road - Secondary Corridor	Sidewalks along the edge of collector roads	To provide local connections to On-Road Primary Corridor(s)	Sidewalk on Wade Road South

The hierarchy allows sufficient flexibility for the Township to match the appropriate trail to the anticipated types and volumes of use, and meet the objective of enjoyable and safe trail or corridor experiences and recreation and travel needs.

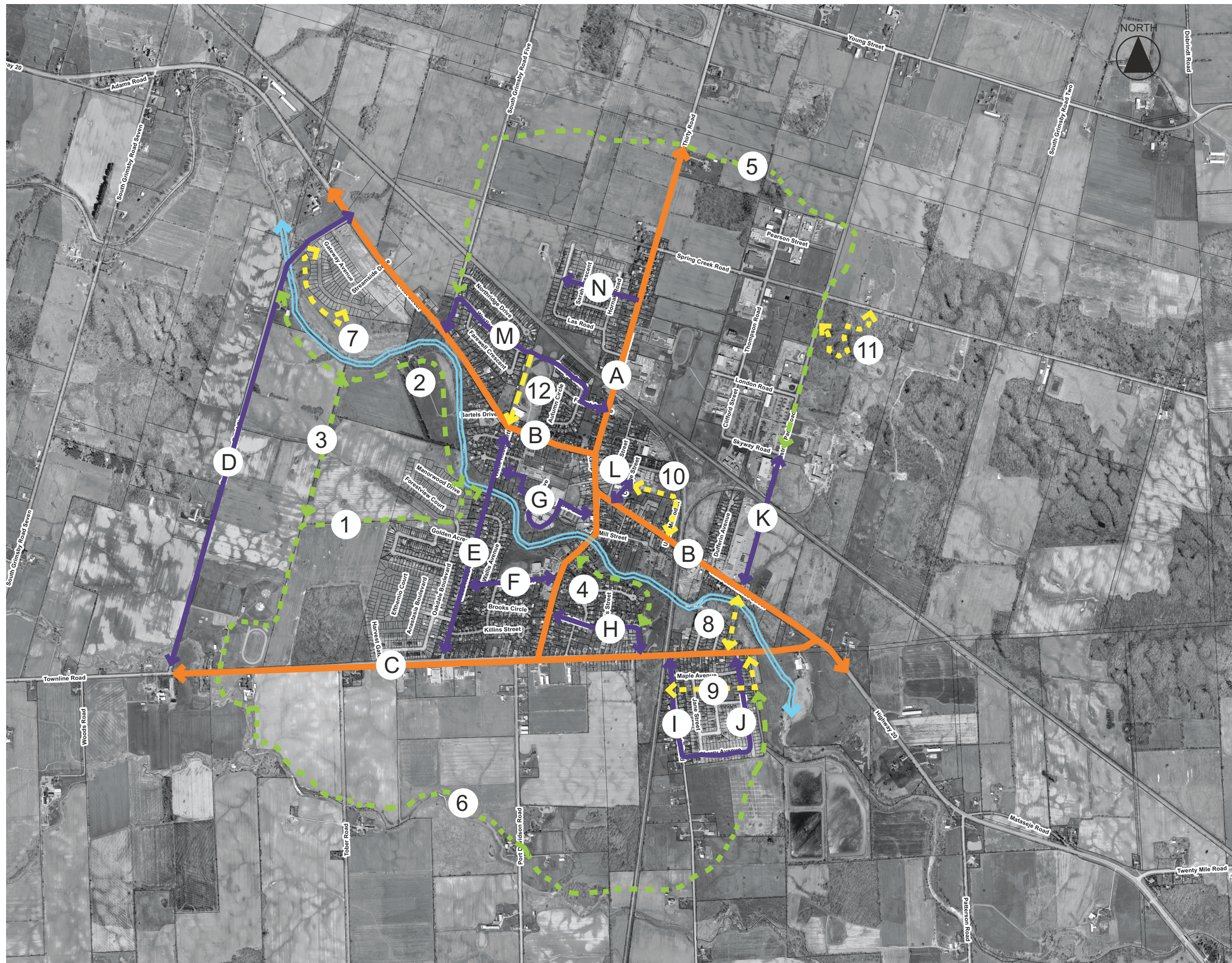
D.2 Proposed Trail and Corridor Network

As illustrated in Figure 3 (Trail and Corridor Network) and detailed in Table D-2 and D-3, a number of trails and corridors are proposed within Smithville over the planning horizon of the Official Plan (2031). When planning for trails, it is important to look at the various nodes, destinations, features and facilities within the system. Trails are more than just a route; there should be opportunities along the way to access view points, rest areas, and significant natural and heritage features. The tables below separate the proposed trails and into short-term and long-term recommendations. The short-term recommendations are those that are to be implemented in the next 5 years. Generally, the short-term recommendations are those that are more straightforward to implement and have lower capital investment. The long-term recommendations are generally the larger projects that require coordination with land owners and the community.

FIGURE 3



Ontario



LEGEND

- TWENTY MILE CREEK
- PRIMARY OFF-ROAD TRAIL
- SECONDARY OFF-ROAD TRAIL
- PRIMARY ON-ROAD CORRIDOR
- SECONDARY ON-ROAD CORRIDOR
- (A) SEE TABLE E-1
- (1) SEE TABLE E-1

NOTE:
 1. TRAIL LOCATIONS ARE CONCEPTUAL
 2. TRAILS 2, 4, 8, 11 AND F SUBJECT TO NPCA PERMIT
 3. TRAILS 1, 2, 3, 5, 6 & 11 ARE NOT IN TOWN OWNERSHIP. TO BE DEVELOPED THROUGH DRAFT PLAN OF SUBDIVISION PROCESS.

TRAILS & CORRIDORS MASTER PLAN - MARCH 2012
 DRAWING NOT TO SCALE (NTS) FINAL

Table D-2: Short-Term Trails and Corridors (2012 to 2017)

Reference to Figure 3	Recommendation	Type	Timing	Cost
#C	Smithville Road/Townline Road Temporary trail (wood chips) connection on the north side of Townline Road, between Harvest Gate to Leisureplex entrance (within the Regional Road Right of Way)	Off-Road Primary Corridor	2013-2015	1,200 sq.m. x\$35 = \$42,000
#1	Leisureplex Trail Upgrade City owned portion of existing Trail from Oakdale Boulevard to Leisureplex to comply with recommended trail standards as well as land to the southwest (should it come under municipal ownership)	Off-Road Primary Trail	2014-2017	4,200 sq.m. x \$70 = \$294,000
#2	South Creek Trail Trail link from Manorwood Drive on the east to South Grimsby Road 6 (trail to connect to Leisureplex trail in future). Of note, the land is currently under private ownership. ^A	Off-Road Secondary Trail	Draft Plan process (2013- 2015)	4,900 sq.m. x \$55 = \$269,500
#7	North Creek Trail Trail link from Stream Side Park to South Grimsby Road 6 to Streamside Drive*	Off-Road Secondary Trail	2015-2017	960 sq.m. x \$55 = \$52,800
#9	Alma Acres Park Trail Trail access across Alma Acres Park (over Enbridge easement)	Off-Road Secondary Trail	2015-2017	720 sq.m. x \$55 = \$39,600
#10	College Street Trail Trail link from College Street School to Union Cemetery	Off-Road Secondary Trail	2016-2017	480 sq.m. x \$55 = \$26,400
TOTAL in 2012 dollars^B				\$724,300
Total per Year^C				\$ 144,860

A) It is intended that this trail would develop at the time that this area develops for urban uses (i.e. residential subdivisions). Consultation with Niagara Peninsula Conservation Authority required

B) Approximate figure, full budget to be determined through detailed design

C) Add 2% to the construction cost for each year beyond 2012

Table D-3: Long-Term Trails and Corridors (2018-2031)

Reference to Figure 3	Recommendation	Type	Timing	Cost
#3	Leisureplex Trail Extend trail constructed between 2012-2017 to the South Creek Trail	Off-Road Primary Trail	2018- 2022	2,400 sq.m. x \$70 = \$168,000
#4	Rock Street Park Trail Trail link from Canborough Street walkway to Rock Street Park, along the rear of the Ellis Street properties (on municipally owned land between private properties and Twenty Mile Creek)	Off-Road Secondary Trail	2018- 2022	1,785 sq.m. x \$55 = \$98,175
#8	Townline Rd. – St. Catherine St. Connection Trail link on unopened road allowance between Townline Road and St. Catharines Street	Off-Road Secondary Trail	2018- 2022	660 sq.m. x \$55= \$36,300, plus bridge with range of \$50,000 to \$75,000
#11	Spring Creek Road Nature Trail Trail loop within the employment area	Off-Road Secondary Trail	2022- 2025	960 sq.m. x \$35 = \$33,600
#C	Smithville Road/Townline Road Full municipal sidewalk connection on the north side of Townline Road, between Harvest Gate to Leisureplex entrance ^A	On-Road Primary Corridor	2020- 2022	1,200 sq.m. x \$75 = \$90,000
#D	South Grimsby Road 6 Municipal sidewalk on east side of South Grimsby Road 6, between Townline Road and Highway 20 ^A	On-Road Primary Corridor	2022- 2024	2,250 sq.m. x \$75 = \$168,750
#5	North Loop Loop around northern portion of Smithville (within urban boundary expansion area) ^B	Off-Road Primary Trail	2020- 2031	N/A
#6	South Loop Loop around southern portion of Smithville (within urban boundary expansion area) ^B	Off-Road Primary Trail	2020- 2031	N/A

A) Cost to construct sidewalks could be assigned to the developer of land between Harvest Gate and South Grimsby Road 6 at the time of Draft Plan of Subdivision. The extension of a sidewalk on the north side of Townline Road is anticipated to be completed at the time of the reconstruction of Townline by the Region of Niagara

B) Subject to the approval of the proposed urban boundary expansion

C) Add 2% to the construction cost for each year beyond 2012

D.3 Capital Costs for Trails and Corridors

Capital Costs have been provided in 2012 dollars on a square metre basis for trail construction (Table D-4). Provisional project costs include site surveying, geotechnical investigation, tree protection, clearing, grubbing, consulting, earthworks and erosion control measures.

Table D-4: Capital Costs for Trail and Corridor Implementation

Trail Element	Unit	Price Per Unit
Grading/Earthworks	cu. m.	\$12.00
Removals and disposal of clean fill	cu. m.	\$12.00
125mm Concrete Sidewalks w/ 125mm Granular 'A' base	sq. m.	\$57.00
75mm Asphalt Paths w/ 300mm Granular 'A' base	sq. m.	\$50.00
50mm Limestone screenings w/ 200mm Granular 'A' base	sq. m.	\$37.00
50mm Pine Bark Mulch, w/ 100mm Granular 'A' base	sq. m.	\$25.00
Boardwalk-composite material, including footings	sq. m.	\$ 140-\$200.00
Sod/seed w/native 125mm topsoil	sq. m.	\$ 1.25-\$4.00

Estimates for the total square metre costs for the various types of surfaces including earthworks, surface, base materials and sod/seed repair either side of trail are as follows:

125mm Concrete	\$ 75.00 sq.m.
75mm Asphalt -HL3	\$ 70.00 sq.m.
50mm Limestone Screenings	\$ 55.00 sq.m.
50mm Pine Bark Wood Chips	\$ 35.00 sq.m.
Boardwalk-Avg.	\$175.00sq.m

Table D-5 - Additional Costs

Trail Element	Price Per Unit	Price Per Unit
Drainage (Clear stone/culvert) Geotextile	varies	
Tree Protection	varies	
Access Control Gates	each	\$4,000
Benches	each	\$2,000
Waste Receptacles	each	\$300.00
Trees-60mm cal.	each	\$450.00
Signage (wayfinding/regulatory/graphics)	varies	\$750-\$5,000

Table D-6 - Additional Costs

Planning, Design and Contract Administration	Price Per Unit
Surveying/Geotechnical	1% of Trail Costs
Detail Design	2% of Trail Costs
Construction Documents	4% of Trail Costs
Administration	2% of Trail Costs

D.4 Trail Maintenance and Operation Costs

Table D-7 on the following page provides a detailed description of the costs for trail maintenance and operations. The costs are approximate and are based on a range of maintenance costs per linear kilometer. Tracking activities, time and costing of trail maintenance and operation costs by Cities, Townships, etc. as separate from parks and recreation, forestry and roadway department operations is relatively new and resulting data highly variable due to wide range of practices and standards. Variation in costs is due to some of the following factors: rates of pay; trail location within Hydro corridors require higher frequency of maintenance; budget; equipment; accessibility (i.e. for maintenance equipment); population & use; volunteers or trails adoption programs; etc.

D.5 Review Process for New Trails and Corridors

The TCMP provides specific recommendations regarding the location and type of new trails and corridors for Smithville. As the urban area expansion for Smithville has not yet received final approval, the proposed North and South Off-Road Primary Trail loop are conceptual at this time. As such, this section provides an outline of the review process required to ensure north and south loop along with Off-Road Secondary Trails, are designed at the time when development is proposed in these areas. Accordingly, the north and south trail loop are not proposed to be developed on private property, but should ultimately form part of a publically accessible trail system.

As will be discussed in Section F, a new Trails and Corridors Development Committee is recommended for Smithville, and this Committee will be instrumental in the review process.

The review and general design of the North and South Off-Road Primary Trail loops should be undertaken at the time of a secondary plan process. The opportunity for Off-Road Secondary Trail loops that provide for shorter recreation activities should be considered through this process and further refined through the draft plan of subdivision process. The secondary plan process has a public meeting component built into the review through Planning Act requirements. This process would allow for public feedback and input into the alignment of trails and connections within a defined urban area of the Township.

The planning and development of future non-motorized trails should take into account the following criteria:

1. Ecological Sustainability

The ecological impact of the trail must be minimal and not harm the environmental sustainability of the area. Seasonal restriction on the use of trails may also be imposed by the Township to protect the integrity of the natural environment or protect health and safety of residents. The Niagara Peninsula Conservation Authority, and/or the Region of Niagara may be consulted for opinion on ecological suitability.

TABLE D-6: OFF-ROAD TRAIL OPERATIONS AND MAINTENANCE COSTS

TYPE	COMMON MAINTENANCE OPERATIONS	TRAIL SPECIFIC MAINTENANCE OPERATIONS	AS NEEDED SPECIAL TASKS	APPROXIMATE * COSTS PER KM/YEAR
Multi-Use Trail/ Natural Heritage and Environmental Trail - Asphalt Surface	<ul style="list-style-type: none"> ▪ Mowing (weekly) and pruning of 'maintenance box' for required trail vertical and horizontal clearances (as required or after storm events) ▪ Annual Spring clean-up of garbage and debris ▪ Clearing of drainage channels and culverts (monthly or only after storm events) ▪ Hazard Tree removal (i.e. wind-fall) ▪ Maintaining Regulatory Signage ▪ Emptying of Waste Receptacles at trailheads ▪ Bench maintenance 	<ul style="list-style-type: none"> ▪ 3.0m width with 1 to 3m clearance areas either side (context sensitive); ▪ Surface cleaning of high-use asphalt trail, highly variable depending upon location, use, weather etc. (weekly for high use to bi-weekly); ▪ Surface cleaning of asphalt trail (quarterly, or after storm events as needed); ▪ Trail litter and debris removal (weekly to seasonally or as reported); ▪ Trailhead litter and debris removal (2x week); ▪ Snow-clearing for trails serving as connecting links to sidewalk system, schools, etc. (approx. 2x per week) at approx. \$350/km/winter 	<ul style="list-style-type: none"> ▪ Coating or sealing of asphalt trail as needed or every 5 years ▪ Repaving as needed ▪ Repair of potholes (winter & spring) as needed 	\$400 - \$2000 *
Green Corridor Trail – Limestone Screenings Surface	<ul style="list-style-type: none"> ▪ Litter and Vandalism Clean-up along trail ▪ Surface Maintenance of Parking Areas ▪ Access Control ▪ Landscaping - watering, weeding at trailheads (weekly depending upon design and location i.e. high profile) ▪ Reaction to storm events & flooding wash-outs 	<ul style="list-style-type: none"> ▪ 3.0m limestone screenings path with 1.5 to 5m clearance areas either side (context sensitive); ▪ Seasonal removal of potholes, washouts, regrading, surface grooming and re-compaction as condition requires. ▪ Removal of stones larger than ¼" to facilitate cycling 	<ul style="list-style-type: none"> ▪ Dust suppressant control as needed or every 3 years ▪ Regrading as needed ▪ Repair of erosion (winter & spring) as needed 	\$400 - \$1000 *
Wooded Areas Trails – Wood Chips	<ul style="list-style-type: none"> ▪ Posting of Trail conditions/closures as needed due to environmental considerations (i.e. nesting/breeding season), maintenance; or safety hazards (i.e. washouts, flooding) 	<ul style="list-style-type: none"> ▪ 2.0m wide trail with 0-300mm clearance areas either side (context sensitive); 	<ul style="list-style-type: none"> ▪ Resurfacing as needed ▪ Repair of erosion (winter & spring) as needed 	\$25 - \$500 *
Hazard Areas /Wetlands - Wood Boards		<ul style="list-style-type: none"> ▪ 2.4m wide boardwalk 	<ul style="list-style-type: none"> ▪ Mould cleaning to reduce slip hazards (as needed) 	\$50 - \$1000 *

* A. Approximate costs are based on a range of maintenance costs per linear kilometer as provided in the following reference documents: City of Cambridge Trails Maintenance Report, MTE File No. 34336-100, June 30, 2010, Cambridge, Ontario; Trails Master Plan for the City of Kawartha Lakes, March 2006, Ontario; Rail-Trail Maintenance & Operations, July 2005, Rails-to-Trails Conservancy, Northeast Regional Office, Camp Hill, Pennsylvania;

B. Tracking activities, time and costing of trail maintenance and operation costs by Cities, Townships, etc. as separate from parks and recreation, forestry and roadway department operations is relatively new and resulting data highly variable due to wide range of practices and standards;

C. Variation in costs is due to some of the following factors: rates of pay; trail location within Hydro corridors require higher frequency of maintenance; budget; equipment; accessibility (i.e. for maintenance equipment); population & use; volunteers or trails adoption programs; etc.

D. Reference materials for approximate costs for trail maintenance include the "maintenance box" (the horizontal and vertical clear area requirements on either side of the trail) with the following dimensions 3.0 meter vertical distance and 4.0m horizontal distance (3.0m trail width with 0.5m cleared area on either side). The maintenance box is 'context sensitive', especially along the horizontal plane, and can vary greatly depending upon trail location – i.e. a woodland path could have a 0 to 300mm width shoulder either side of the trail.

2. Social Sustainability

The rights of adjacent landowners and other affected parties must be taken into consideration, including concerns over dust, noise, and trespass to property. Usage conflicts with residential areas must be avoided whenever possible. Spatial separation and site specific characteristics, or the lack thereof, shall be given due consideration when selecting a trail location. New trails and additional linkages should promote loops in the trail system; connect to significant local resources or features and provide a broader connection outside of Smithville, where available.

3. Economic and Tourism Benefits

The trail or trail system should assist where possible in attracting visitors/tourists to the Township or keeping them longer. Routing of the trail system should be considered to attract new development and investment. Partnership opportunities should be developed to reduce the overall impact on the finances of the Township.

4. Environmental and Health Benefits

The trail system should be developed to reduce overall dependency on the automobile and link significant land uses within Smithville and surrounding areas. The trail system should encourage active living and provide readily accessible recreation opportunities for residents and visitors.

5. Trail Standards, Guidelines and Maintenance

Trail standards and guidelines contained within the TCMP, as amended from time-to-time, should be used when planning and developing trails. Universal accessibility should be considered, including appropriate supportive features, signage and ongoing maintenance.

6. Trespass to Property

The proposed trail layout must not lead users to private property, unless specific written permission exists for use of the private or utility-owned lands. Deviation from an established trail is illegal under the Trespass to Property Act.

E. TRAILS AND CORRIDORS DESIGN GUIDELINES

The TCMP includes a set of design guidelines to assist the Township in designing, constructing and maintaining trails and corridors. Guidelines and standards are important tools to assist with trail and corridor management and they can include innovative development methods, context sensitive and eco-effective solutions, trail safety, and development regulations in natural areas, as well as implementation and maintenance.



The following trail and corridor design objectives have been established as a framework for the detailed guidelines:

- *Maximize connectivity and accessibility throughout the community;*
- *Provide trails that are well designed and safe;*
- *Where appropriate use recycled materials for new trail surfaces and routes (recycled materials);*
- *Trails design and standards should reflect considerations of sensitive areas, type of use, maintenance requirements, costs, safety, and habitat protection;*
- *Integrate wayfinding/signage, and amenities such as shade seating and trash receptacles;*
- *Provide variety in the types of trails;*
- *Integrate trail management and maintenance considerations; and*
- *The design of a trail system should be easily accessible to pedestrians, cyclists and other non-motorized means of transportation.*

E.1 General Design Standards

The following is a description of the existing conditions for trails and corridors in Smithville as well as the general design standards for each category. Details such as surface materials, signage and accessibility are noted in Section E.2.

Off-Road Primary Trails

Off-Road Primary Trails are classified as trails that provide connections to major destinations, including the municipal offices, educational facilities, major recreation facilities (i.e. Leisureplex) and the downtown area and to provide enhanced recreation opportunities to trail users. These trails do not run along roads or streets and are preferably located on government owned land (e.g. Township or Conservation Authority).

Off-Road Primary Trails provide for safe, off-street movement throughout the Township and are primarily intended for recreational purposes. For the purposes of the TCMP, Off-Road Primary Trails can include Multi-use trails, Green Corridor trails and Natural Heritage and Environmental trails. Multi-use

trails, accommodate a wide range of users including, walking, running, strollers, wheelchairs, in-line skating and cycling. Green Corridor trails provide links between new neighbourhoods. Detailed design standards for the categories are provided in Section E.2. Natural Heritage and Environmental trails are those that are located in environmental sensitive areas where special design considerations are required.

An existing example of an Off-Road Primary Trail in Smithville is the trail linking the Leisureplex to Oakdale Boulevard. It is important to note that the Township does not own the entire trail, but only the eastern portion. The remaining land is currently owned by Phelps, a local developer.

Off-Road Secondary Trails

Off-Road Secondary Trails are classified as trails that provide additional recreation opportunities to the local community and provide connections within the entire trail network. These trails do not run along roads or streets and are preferably located on government owned land. There are currently no trails in Smithville that fall under this classification.

It is recommended that for Off-Road Secondary Trails that a 2.4m wide limestone screenings path with access control be provided.

On-Road Primary Corridors

On-Road Primary Corridors are classified as sidewalks that provide key connections to major destinations, including municipal offices, educational facilities, major recreation facilities (i.e. Leisureplex) and the downtown area. These sidewalks occur along arterial roads and typically have a boulevard treatment, either landscaped or hard surfaced. In Smithville there are varying boulevard conditions along the arterial roads. The following is a summary of the existing On-Road Primary Corridors:

- West Street (Regional R-20) has a 20.11 metre R.O.W. profile with 1.5m curb faced sidewalks on both sides. There is no boulevard and the roadway is narrow with no shoulders. The sidewalk is used as a pedestrian and bike way although the width of the sidewalk does not provide room for shared bike/pedestrian use. There is one pedestrian signalized crosswalk on West Street.
- Griffin Street (Regional R-20) has a 26.2 metre R.O.W. profile through the commercial core. Conditions vary with 1.5m concrete sidewalks on both sides and either sodded or paved (asphalt) boulevard. There are no traffic lights/crosswalks from West Street to Griffin Street from the North to South.
- St. Catharine Street (Regional R-20) has a 26.2 metre R.O.W. profile with 1.5m sidewalks on both sides of the street with wide paved (asphalt) boulevards. A paved shoulder is demarcated with a solid painted line and used as on street short term parking. The section of Saint Catharine at the old rail bridge crossing, there is a walkway incline with railings.
- Townline Road has a 26.2 metre R.O.W. profile between South Grimbsy Road 6 and Canabourgh Street. The existing conditions vary within the R.O.W., with 1.5m sidewalk on one or both sides

of the road where there is residential/institutional development and no sidewalks west to the Leisureplex. The Twenty Creek bridge crossing on Townline Road has a narrow 1.2m raised concrete pedestrian sidewalk. The road has narrow shoulders.

- Canborough Road has a 26.2 metre R.O.W. profile.

It is recommended that the sidewalk widths be considered for new or redevelopment of On-Road Primary Corridors, where feasible, to better accommodate pedestrians, strollers, wheelchairs, and high pedestrian volumes, through the central community core, with connections to major facility such as the Leisureplex.

On-Road Secondary Corridors

On-Road Secondary Corridors are classified as sidewalks that provide connections from residential neighbourhoods to On-Road Primary Corridors. These sidewalks run along the edge of collector roads (i.e. residential streets) and an existing example of an On-Road Secondary Corridor is Colver Road where the sidewalks are located on either one side or both sides of the road.

It is recommended that for on-road secondary corridors that a 1.5m concrete sidewalk with a minimum 1.5m wide landscaped boulevard be provided. In proximity to the downtown, sidewalks should be placed on both sides of the road and in rural locations the sidewalk should be placed on one side of the road (i.e. Grimsby Road 6).

On-Road Secondary Corridors also includes Connectors, which are classified as sidewalks that provide pedestrian connections between residential streets to On-Road Secondary Corridors or from On-Road Secondary Corridors to On-Road Primary Corridors. An existing example of a Connector is the 1.5m concrete walkway connecting Autumn Circle to West Street (Rd 20).

It is recommended that Connectors have a 1.8m wide sidewalk with a 1.8m clearance on each side (total right-of-way of 5.4m). These connectors should be located strategically throughout all new subdivisions.

E.2 Design Standards for Off-Road Primary and Secondary Trails

This section provides design standards for Off-Road Primary and Secondary Trails, including width, surface materials and site amenities have been proposed to support anticipated trail and corridor use. Specific design standards have not been developed for On-Road Primary and Secondary Corridors given that their design is generally guided by municipal engineering standards.

Design standards are flexible in order to allow for varying site conditions such as topography, sub-soils, drainage, existing vegetation and rural /urban context. This flexibility allows the trail design is to be 'context' sensitive and adjusted based on trail location. The following is a description of the Off-Road Secondary Multi-Use Asphalt Trail, Green Corridor Limestone Trail and Natural Heritage and Environmental Trail. Refer to table E-1 (following page) for further discussion.

TABLE E-1: TRAIL AND CORRIDOR GUIDELINES

Note: Trails 1, 2, 3, 5, 6 & 11 are not in town ownership. To be developed through draft plan of subdivision process. Trails 2, 4, 8, 11 and F subject to NPCA permit.

CORRIDORS

TYPE	RECOMMENDATIONS	RESTRICTIONS	LOCATION – REFER TO MAP	DETAIL
Primary On Road Corridor	<ul style="list-style-type: none"> ▪ 1.8m wide concrete sidewalk with 1.8m wide landscaped boulevard ▪ sidewalk on both sides of road ▪ pedestrian road crossings at signalized intersections, constructed to regional standards ▪ Maximum 5% slopes 	<ul style="list-style-type: none"> ▪ Limited Space <ul style="list-style-type: none"> a. Minimum 1.5m wide sidewalk with 1.5m landscape boulevard b. Sidewalk on one side of road (i.e. Bridges) ▪ Topography <ul style="list-style-type: none"> a. Provide techniques to achieve accessibility 	A. Canborough Street/Griffin Street/Station Street B. Road 20/West Street/St. Catherine Street C. Smithville Road/Townline Road	D1 - 1.8m Wide Concrete Sidewalk
Secondary On Road Corridor	<ul style="list-style-type: none"> ▪ 1.5m wide concrete sidewalk with 1.5m landscape boulevard ▪ Sidewalks on both sides of street in Urban Areas ▪ Sidewalk on one side of street in Rural Areas (i.e. South Grimsby Road 6) ▪ Maximum 5% slopes <p>Connectors:</p> <ul style="list-style-type: none"> ▪ 1.8m wide concrete sidewalk with 1.8m clearance on each side for mowing. ▪ Separate from residential lot with 1.5m high black chain link fence ▪ Maximum 5% slopes ▪ Access Control 	<ul style="list-style-type: none"> ▪ Limited Space <ul style="list-style-type: none"> a. Existing condition: 1.2m wide concrete sidewalk with no boulevard b. Proposed condition: 1.2m wide concrete sidewalk with 1m wide landscape boulevard ▪ Topography <ul style="list-style-type: none"> a. Provide techniques to achieve accessibility 	D. South Grimsby Road 6 E. Wade Road F. Colver Street G. Margaret Ct./Garden Dr./Village Dr./Dove Lane H. Rock Street I. Shurie Road J. Alma Drive K. Industrial Park Road L. College Street M. Westlea Drive/Swayze Court/Forest Avenue N. Van Woudenberg Way <ul style="list-style-type: none"> ▪ Connectors – new subdivisions 	D2 - 1.5m Wide Concrete Sidewalk D3 - 1.8m Neighbourhood Trail Connection D6 - Access Control Swing Bollard Gates

TABLE E-1: TRAIL AND CORRIDOR GUIDELINES

Note: Trails 1, 2, 3, 5, 6 & 11 are not in town ownership. To be developed through draft plan of subdivision process. Trails 2, 4, 8, 11 and F subject to NPCA permit.

TRAILS

TYPE	RECOMMENDATIONS	RESTRICTIONS	LOCATION – REFER TO MAP	DETAIL
Primary Off Road Trail	Multi-Use Trail/ Natural Heritage and Environmental Trail <ul style="list-style-type: none"> ▪ 3m wide asphalt path ▪ Trail head amenities: ▪ Seating ▪ User signage and Wayfinding ▪ Regulatory Signage ▪ Waste Receptacles ▪ Parking ▪ Access Control ▪ Maximum 5% slopes 	<ul style="list-style-type: none"> ▪ Limited Space ▪ Minimum 2.4 wide asphalt path ▪ Hazard Areas /Wetlands ▪ 3m wide boardwalk ▪ Creek Buffers ▪ Stay beyond set back limits ▪ Regional/Local Road Crossings ▪ Provide for a stop bar or gate at trail head ▪ Topography <ul style="list-style-type: none"> a. Provide techniques to achieve accessibility 	<ol style="list-style-type: none"> 1. Leisureplex Trail 2. South Creek Trail 3. Leisureplex Trail Connection 4. Rock Street Park Trail 	D4 - 3m Wide Asphalt Multi-Use Trail D5 - 3m Wide Boardwalk D6 - Access Control Swing Bollard Gates
	Green Corridor Trail <ul style="list-style-type: none"> ▪ 13m Corridor width ▪ 3m limestone screenings path ▪ Trail head amenities: ▪ Seating ▪ User signage & Wayfinding ▪ Regulatory Signage ▪ Waste Receptacles ▪ Parking ▪ Access Control ▪ Maximum 5% slopes 	<ul style="list-style-type: none"> ▪ Hazard Areas /Wetlands <ul style="list-style-type: none"> a. 3m wide boardwalk ▪ Creek Buffers ▪ Stay beyond set back limits ▪ Regional/Local Road Crossings ▪ Provide for a stop bar or gate at trail head ▪ Topography <ul style="list-style-type: none"> a. Provide techniques to achieve accessibility 	<ol style="list-style-type: none"> 5. North Loop 6. South Loop 	D6 - Access Control Swing Bollard Gates D7 - Green Corridor Limestone Screenings Trail
Secondary Off Road Trail	<ul style="list-style-type: none"> ▪ 2.4m wide limestone screenings trail ▪ Maximum 5% slopes ▪ Access Control 	<ul style="list-style-type: none"> ▪ Hazard Areas /Wetlands ▪ 2.4m wide boardwalk ▪ Wooded Areas/Wetlands ▪ Reduce path to 2m wide Woodchip Trail ▪ Topography <ul style="list-style-type: none"> a. Provide techniques to achieve accessibility ▪ Creek Crossing ▪ Provide pedestrian bridge 	<ol style="list-style-type: none"> 7. North Creek Trail 8. Townline Rd. – St. Catherine St. Connection 9. Alma Acres Park Trail 10. College Street Trail 11. Spring Creek Road Nature Trail 12. Community Centre Trail 	D6 - Access Control Swing Bollard Gates D8 - 2.8m Wide Limestone Screenings Trail D9 - 2.4m Wide Boardwalk D10 - 2m Wide Woodchip Trail, Wood Areas/ Wetlands

- **Maintenance Box:** The maintenance box is described as the vertical and horizontal clearances required for safety and to maintain desired site lines. The vertical clearance is measured from the finish grade of the trail, upwards and the horizontal clearance area is the total width, including the shoulders.

Typically the vertical clearance height is standard. However the horizontal dimension can vary widely depending upon the context and siting of the trail. In a more urban setting, a 2 meter shoulder clear zone on either side of the trail may be appropriate, whereas, with a 0.3 meter clear zone would be appropriate for a woodland trail.

- **Multi-Use Asphalt Trails:** The recommended width of the multi-use trail is 3.0m with a minimum 2.0 clear zone either side, and a clearance height of 3m, free of obstruction including trees, fencing, and boulders.

The trail surface is to be asphalt, providing the highest use with relatively low maintenance. An example of an Off-Road-Primary trail recommended for upgrade to the new standard is the existing trail from the Leisureplex to Oakdale Boulevard.

- **Green Corridor Limestone Trail** – The Green Corridor Limestone Trail is proposed for the urban expansion areas of Smithville and will provide a link between new neighbourhoods and provide an extensive trail corridor. The recommended width of the Green Corridor Limestone Trail is 3.0m. Refer to detail D7.

The right-of-way of the Multi-Use Trail Corridor, for both asphalt and Limestone is proposed to be 13m, which includes a 1m sod maintenance strip and native low seed mix. The right-of-way includes the trail as well as the buffers on either side to adjacent residential development. The trail delineation between new residential to be defined by groupings of landscape or a continuous 1.5m black vinyl chain link fencing. The intention is to keep open site lines across the trail corridor and provide neighbourhood surveillance. Native trees to be incorporated either side of the trail to provide shade. Access control gates at road crossing with signage to include wayfinding, regulation and stop sign.

- **Natural Heritage and Environmental Trail** - The trails network should minimize intrusion into core natural areas and avoid know locations of rare or sensitive species. Where possible and practical, trails should avoid hazard lands which are prone to flooding and erosion, such as floodplains. In some cases making trail connections via floodplains and hazard lands will be necessary to create a connected system. Where this is necessary, the details of the trail design should respond to the conditions of the site.

Trails may be located in environmental buffer zones provided that the width and condition of the buffer can support the trail without compromising the intended function of the buffer.

Where possible and practical, trails in natural areas should make use of existing corridors and disturbances such as existing informal trails, sanitary sewer easements and gas pipelines, rather than impacting undisturbed areas. Proper drainage is one of the most important factors affecting pavement performance. Surface water runoff should be handled using swales, ditches and sheet flow. Trails through wet areas may have to be closed during the spring or other wet periods. Planning for an alternate route should be made, if possible.

The Niagara Peninsula Conservation Authority has indicated through correspondence in February 2012, that any trail proposed to cross over, through or adjacent to a feature regulated by the NPCA (creek or wetland) may require a NPCE Permit and could potentially require an Environmental Impact Study if there is concern that there could be any impacts from the trail development. Proposed Trails #2, #4, #8, and F on Figure 3, may fit into this scenario. While the NPCA is supportive of these trail concepts, they have requested to be a part of the detailed design and location phase of each trail.

The following is a description of the Off-Road Secondary 2.4m Limestone Trail.

- **2.4m limestone Nature Trails** – Off-Road Secondary Trails are proposed through rural open space areas, existing parks and natural settings. The proposed trail width is 2.4m with a clearing width between 1.25 to 3 metres and clearing height of 3.0 metres. An example of the 2.4 m nature trail is proposed along Spring Creek Road Nature Trail and associated with the Nature Reserve. There is potential to incorporate a small parking lot and interpretive signs strategically placed to educate visitors regarding the significance and uniqueness of the site.

These trails should be constructed and/or maintained to minimized disturbance to the natural features of the site.

E.3 Trail and Corridor Surface Materials

Trail surfacing and width has been proposed with location, type of use and the other design considerations. Trail surfaces are classified into four categories as follows:

- **Asphalt** - Year-round use

Asphalt surfaces allow for the broadest, most inclusive range of uses and users, and also provide for year round use. The jointless surfaces are durable and long lasting. The use of hard surface materials permits easier user accessibility. Hard surface trails are easy to clear as part of winter snow-clearing programs. Asphalt pavement maintenance is kept to a minimum through proper design and construction. A significant advantage over concrete pavement is asphalt's ability to be repaired quickly and inexpensively.

- **Concrete Sidewalks** - Year-round use

Concrete surfaces shall be constructed using 25MPa concrete with an air entrainment of 5% to 7%. Refer to Detail Sheets 1 and 2 (Appendix D). The minimum width for all sidewalks shall be 1.5m, with 1.8m proposed along Primary –On-Roads. All concrete sidewalks shall be constructed in accordance with OPSD 310.010. Sidewalk ramps shall be provided at all intersections. All sidewalk ramps shall be constructed in accordance with OPSD 310.030. Construction of concrete sidewalk adjacent to curb shall not be permitted, except in certain circumstances, and not without prior approval by the Director.

Minimum bedding shall be 125mm of Granular 'A' limestone base. Substrate native base shall be compacted to a minimum of 98% Standard Proctor Density with a minimum bearing capacity of at least 75 kPa. Sidewalks shall not be constructed on organic soils.

Where fill is required to bring the sidewalk to the approved grade, the fill shall be equivalent to Granular 'C' material compacted to a minimum of 95% Standard Proctor Density.

- **Granular (Limestone)** - seasonal use.

Granular surfacing is the most commonly used surfacing for off-road trails. Easily compacted granular surfacing of fine screenings is an accessible surface for most trail users. Granular surfacing may require annual upkeep to ensure a smooth surface.

The limestone screening surface to be a minimum thickness of 75mm after compaction, and spread to a width of 2.4m or 3m depending on trail type. Trail width shall have a 2% cross-fall or central crown, and trail edges will slope down to existing grade. Grading of the limestone screenings will be carried out in such a means that the surface is free from depressions and projections.

Minimum bedding shall be 300mm of Granular 'A' base. Refer to Details D7 and D10 for Limestone Screenings Trails. Variations in the typical base profile are illustrated. To avoid disturbance to existing roots, reduce excavation and elevate the granular base. A layer of Granular 'B' sub-base is recommended to build up low lying areas. For areas that are poorly drainage a layer of free draining clear stone wrapped in geotextile is recommended.

- **Boardwalks** – seasonal use

Trails should be routed in areas where soils are well drained and stable. Wet, boggy or organic soils should be avoided. Where this is not possible or where controlled access will provide educational opportunities, trail hardening (i.e.; boardwalks) should be considered to clearly define the route and encourage users to stay on the trail.

Design and implementation of the boardwalk will require appropriate approvals. Depending on the height of the boardwalk, railings maybe required. Boardwalk decking to be wood, recycled materials, or perforated metal. The appropriate use of materials will depend on site specific conditions, user safety and product durability.

E.4 Trail Safety

Crime Prevention Through Environmental Design (C.P.T.E.D) is defined as the proper design and effective use of the built environment to reduce crime and the fear associated with crime, and improves the quality of life. CPTED Principles emphasize the importance of providing natural surveillance of public spaces by surrounding land uses. Security of the user should be considered when introducing plantings and lighting. Refer to section on Lighting below.

Trails, whether they are for a single-use or multi-use, seek to provide a high quality recreational experience to participants in a safe and predictable manner. Trail safety is a primary concern for trail managers and must be balanced with the desires for aesthetic or athletic experiences of trail users, as well as environmental and other constraints. Some activities entail an element of risk (i.e. element of danger) versus hazards which are unknown dangers. All reasonable effort should be made to eliminate hazards in the trail system. If a trail involves some risk, provide such elements at the beginning of a trail (steep grades, natural surface, narrow width, etc). Some activities may provide a hazard when combined on a trail, therefore single use or separated trails may be required.

Trail safety includes the following general factors:

- providing universal accessibility with the proper precautions;
- reducing the risk of conflict or collision among different types of trail users;
- reducing the opportunity for inappropriate behavior (vandalism, etc);
- Identifying environmental hazards (fallen trees, winter maintenance, mud slides, etc.).

One of the predominant factors in trail safety, particularly related to conflict and collisions on multi-use trails, is the trail width.

Where trails are used by an older person or a person with disabilities, the provision of safety measures such as regular patrols should be provided. Passive measure should also be installed such as benches, and shaded rest areas, where appropriate and on a detailed site or trail basis.



E.5 Safety Design Guidelines at Roadway Crossings

Midblock crossings are a non-preferred, yet often unavoidable feature of trail development. While every attempt should be made to encourage crossings at intersections, trail user movements gravitate to the shortest distance between two points. Midblock crossings must be carefully considered, as poor design may contravene driver and pedestrian expectations resulting in serious potential safety problems for trail users. Generally, the standard mid-block crossing is appropriate for minor and local, two lane roads. Collector Roads or any four lane roads will require a median refuge.

The omission of pavement markings, along with the use of stop signs for the trail, conveys to cyclists and pedestrians that they do not have the right-of-way at these crossings. Therefore, these trail users will be more cautious as they cross at these locations. This pavement marking practice is consistent with the Highway Traffic Act requirements that pedestrian crossings are only painted where there is positive control over traffic on the main road in the form of either stop signs or traffic signals.

Design considerations for midblock crossings include:

- Level of use, distance to the nearest controlled intersection.
- Adequate sight distance for both drivers and trail users.
- Adequate night-time illumination.
- Traffic gap analysis.
- Requirement for pedestrian-activated signal.
- Existing lane (road) widths and potential for shortening crossing distance (curb extensions; crossing islands, etc).
- High visibility crosswalk marking treatment
- Adequate signage including potential signage of yellow-green warning signs.
- Design road speeds and traffic calming potential to reduce excessive vehicle speeds in advance of the midblock crossing.

A Transportation or Traffic Engineer should determine the appropriate solution for each location considered for a midblock crossing.

E.6 Trail and Corridor User Management and Signage

Trail Gates/Access Control

Lockable access control gates are recommended at all entrance points to existing and proposed Primary and Secondary Off-Road trails and Connectors. It is recommended that a standard gate design be adopted for all trail entrances to ensure safety of users and to increase identity of the trail system.

All multi-use trails shall have gates, where they intersect roadways. These gates, will be designed to prohibit motor vehicle access (gaps of 1.8m to 2.0m), and special provision will be made for authorized vehicles only (lockable gate).

Direction, wayfinding and interpretation

Signage is one of the most important aspects to the development of a safe and user friendly trail system. It is recommended that a trail logo be developed for all trails in Smithville to increase overall identity of the trail system. A common colour scheme for signage should be used to promote the trail system. Pictograms are used on trail signage to communicate permitted and non/permitted uses.

Signage and other wayfinding elements should be developed as an integral part of the trail system. Wayfinding elements should be designed to be easily recognizable, clear and concise.

Safety Signage

All multi-use paths shall have a standard stop sign (60cm x 60cm) at the approach to roadway crossings. All multi-use paths shall have a standard sign prohibiting autos and motorcycles near access or crossing points with public roadway.

Trail Clearances

Obstacles may cause damage if struck or impair visibility. Vertical and horizontal clearances on the trails area a necessity for user safety. The clearances, both vertically and horizontally allow for enhanced site lines along the trail.

Trail Heads and Amenities

Adequate parking should be considered for the Green Corridor Trail Loop or Spring Water Road Nature Trail loop, especially for accessible trail use. Trail amenities to include rest stops with shade seating with durable benches, garbage and recycle bins, wayfinding/interpretive signage and bike racks to be strategically placed.

Seating areas should be provided in regular intervals along trails. Rest areas should have consideration for accessibility and provide appropriate requirements for wheelchair and mobility assisted devices (widen the paved surface beside the bench to 1.2m to allow room for a wheel chair). Bench material options range from recycled plastics, wood, and metal.

Lighting

Lighting trails may provide the public a false sense of security especially where there is limited natural surveillance by the surrounding communities. Lighting may be considered where appropriate, in particular in settlement areas and when pedestrian use is more of an active transportation alternative.

E.7 Accessibility

Accessibility standards are important design considerations when developing trails and open spaces. The Accessibility for Ontarians with Disabilities Act, 2005 (AODA) provided the policy framework for guiding trail design and development. Trail designs will ensure access for people of all abilities. Trail accessibility is achieved through design.

There are a number of design treatments to improve trail accessibility, as well design standards. Trail gradients 5% or over are not accessible unless a ramp is provided with handrails on both sides, to a maximum length of 9m. It is anticipated that the majority of the proposed trails and corridors in Smithville will have a gradient of 5% or less. However, there are some proposed trail connections within existing open space areas, such as the Rock Street Park Trail, that may exceed this gradient. In this case, a ramp section would be provided. For the proposed Spring Creek Nature Trail, the gradients may exceed the minimum. If a lengthy nature trail cannot be accessible, an alternate convenient accessible loop may be provided and clear direction to this accessible trail to be signed. Accessible parking at the trailhead is also an important consideration.

Material selection is also critical. Hard surface such as concrete or asphalt are preferable. Limestone screenings which can be compacted to a smooth hard which is accessible in dry conditions. In wet conditions it is more difficult to manoeuvre a wheel chair on softer surfaces. Boardwalks should have appropriate edge/curb delineation. Transitions at each end of the boardwalk should be level, without gaps, or potential trip hazards. Consideration should be given to transitioning the boardwalk with a solid surface pad for limestone trails. Signage should be provided on all trails to indicate trail length, with shade seating-rest stops indicated.

E.8 Trail and Corridor Management and Maintenance

Successful trails are well-supported by on-going maintenance. Maintaining the Township trails means managing risk and liability for both the user and the Township.

Inspection/reporting are one aspect of trail maintenance. The second is the actual physical maintenance. The objectives for inspections are to ensure user safety, to reduce/limit liability and to maintain a high quality trail. Trails maintenance reports provide a record of any potential hazards, and prioritize repairs and are categorized under the four types of maintenance:

- Trail surfacing-free from bumps, cracks;
- Trail subsurface-pot holes, erosion;
- Winter-ice/snow removal for Off-Road Primary Trails that have an asphalt surface;
- General-debris clean up, site amenity inspections; tree management, clearing/grubbing; maintaining minimum trail clearances from obstructions.

Trails maintenance standards should outline procedures for monitoring, reporting and rectifying issues. Trails maintenance priorities should outline the level of maintenance that a particular trail and corridor receives on a regular basis. Primary Trails and Connectors, receive the highest priority and frequency of maintenance in the shortest response, while Secondary Trails should receive moderate priority and response time for maintenance.

F. TRAIL AND CORRIDOR FUNDING

Currently, the Township does not have budget for either capital or operating costs related to the development and maintenance of trails. In addition to providing an annual budget for the development and maintenance of trails in Smithville, the Township should explore funding and partnership opportunities. The Township should strive to develop partnerships with local businesses, organizations, and individuals, as well as applying for funding from private and public organizations.

The purpose of this section is to provide a summary of potential partnerships and funding sources that would be appropriate for the Township of West Lincoln in implementing the Trails and Corridors Master Plan.

F.1 Partnerships

There are a wide range of Public-Private Partnerships (P3s) and Public Partnerships that are formed to assist developing the Smithville trails and corridors system. Generally, a P3 is an agreement between a public authority and a private organization to share skills, knowledge, and assets in the delivery of a particular service or facility. P3s also involve the sharing of risks and rewards. It is imperative that when entering into a P3 that both parties assume a fair and balanced sharing of the risks and rewards to ensure that one party does not benefit at the expense of the other.

In implementing the recommendations of the Trail Master Plan, the Township should explore partnerships with the local school boards, adjacent municipalities, the Niagara Peninsula Conservation Authority, Region of Niagara and user groups (e.g. cycling club) and private land owners (i.e. land developers).

In particular, the Township could explore potential partnerships with the following organizations:

School Boards

Smithville is the hub of education facilities in the Township, with a total of six schools. The Township should consider opportunities to partner with the local schools on the design of the proposed trails and corridors as well as the maintenance. Events such as cleaning up the trails on Earth Day (April 22), would be an interactive opportunity to involve youth in the community. These types of events would also foster a sense of community ownership of the trails.

Trails Open Ontario

In 2007, the Ontario Heritage Trust launched Trails Open Ontario, which promotes trail use and education, conservation and stewardship, and physical activity. Trails Open Ontario organizes free events that provide an opportunity for the public to experience local trails. Most events include a guided hiking tour and either an educational workshop, exhibit, and or an interactive activity. Partnering with the

Trails Open Ontario to host an event in Smithville would provide the Township an opportunity to market local trails and augment local interest in trails.

Niagara Peninsula Conservation Authority

The Niagara Peninsula Conservation Authority regulates land within the regulated area. In Smithville, the regulated area encompasses Twenty Mile Creek and the associated floodplain. The Township should dialogue with the Conservation Authority to develop a coordinated approach to promoting the conservation of land and the benefits of trails with regulated areas.

F.2 Funding

In addition to soliciting partnerships for the construction, maintenance, and promotion of trails in Smithville, the Township should apply for grants/funding to assist in the implementation of the Trails and Corridors Master Plan. In addition to the funding programs administered by the Ontario Ministry of Health Promotion, in recent years, a number of private businesses have directed their charitable funds towards services and facilities that promote environment sustainability. Examples of potential funding sources are noted below.

Healthy Communities Fund

The Healthy Communities Fund (HCF), provided through the Ontario Ministry of Health and Long-Term Care, *“supports communities to plan and deliver integrated programs that improve the health of Ontarians”*. The goals of the Healthy Communities Fund include:

- *Create a culture of health and well-being;*
- *Build healthy communities through coordinated action;*
- *Create policies and programs that make it easier for Ontarians to be healthy; and*
- *Enhance the capacity of community leaders to work together on healthy living.*

The HCF has three separate streams: Grants Project Stream, Partnership Stream and Resource Stream. The Grants Project Stream provides funding to local/regional and provincial organizations to assist in delivering *“health promotion initiatives that address two or more of the Ministry’s priority areas - physical activity, injury prevention, healthy eating, mental health promotion, reducing tobacco use and exposure, and preventing alcohol and substance misuse”*. The Partnership Stream supports planning and action from community groups to *“create policies that make it easier for Ontarians to be healthy”*. Lastly, the Resource Stream provides funding to support training and capacity building for those working to advance health promotion.

Mountain Equipment Co-op

Mountain Equipment Co-op ('MEC') donates funds to organizations focused on the conservation of ecologically and/or recreationally significant resources in Canada. Depending on a variety of criteria, including the urgency of the proposal, the opportunity for education and the level of support from the community, MEC will provide from \$10,000 to \$100,000.

TD Canada Trust Environmental Fund

As part of TD Canada Trusts' charitable donations, they donate up to \$1 million per year to community groups that are implementing programs or services that promote environmental sustainability and conservation. This includes 'Public Park & Trail Initiatives' such as stream clean up and rehabilitation, tree-planting (native plant species) and establishing walking trails.

Evergreen 2008 Common Grounds Funding

Evergreen is a national not-for-profit environmental organization that focuses on naturalizing land in urban areas. In partnership with Wal-Mart Canada and Unilever Canada, Evergreen has developed the Common Grounds program which provides 'grants to community groups doing environmental stewardship in Canada'. To be eligible for the funding, applicants must be partnered with a local municipality or public agency and the proposed project must be on land that is accessible to the public.

The Provincial and Federal government also provide funding for a wide range of services and projects, including:

Ontario Rural Economic Development Program

The Ontario Rural Economic Development Program, which is implemented through the Ministry of Agriculture Food and Rural Affairs, provides funding to rural communities for community development and economic growth. Funding from the Ontario Rural Economic Development Program is up to a maximum of 50% of 'actual cash outlays to third parties', including marketing, professional fees, studies, consultants/sub-contractor fees, equipment (R&D), and minor capital including engineering, architectural and renovations. To be eligible for funds, the municipality must be in partnership with an individual, a business, or community organization and have an equal share of the project risks.

Ontario Trillium Foundation

The Ontario Trillium Foundation provides grants to small municipalities (20,000 residents or less) to support of arts, culture, sports and recreation sectors.

Private/Corporate Donations

The Township should seek opportunities for private and/or corporate donations to assist with the development and maintenance of trails. As an example, the Township could raise corporate donations and in return provide recognition of the corporations on trail signage.

G. MASTER PLAN IMPLEMENTATION

In order to implement the TCMP, roles and responsibilities need to be defined for the Township, the Region of Niagara and the Niagara Peninsula Conservation Authority and volunteer groups and organizations.

The central component to the implementation of the TCMP is the recommendation for the development of a Trails and Corridors Committee (TCC). The purpose of the TCC will be to monitor and assist with the implementation of the TCMP.

Accordingly, the following section provides guidance for each body.

G.1 Township of West Lincoln

- Implementation and review of the TCMP will be the responsibility of the Public Works Department. The Planning and Building Department is to assist with the implementation of the TCMP.
- Implementation of the TCMP policies, mapping or other relevant recommendations in the Official Plan, Secondary Plans and/or subdivision process to protect and enhance the local trail system.
- The Coordinator of Recreation will prepare an annual report to Council on the implementation of the TCMP and the planned development and activities for the upcoming year. Budget implications will be noted and projections will be undertaken for the coming three years on an annual basis. Opportunities for funding new trails or trail improvements should be part of this annual reporting process. At this time, the staffing levels should be reviewed and if necessary, additional staff hired to assist with the implementation of the TCMP.
- Comprehensive review the TCMP on a five-year basis, either internally or with the assistance of an outside consultant.
- Coordinate the planning for future trails and links in urban areas in the Township during the Secondary Plan Process and/or the subdivision process. The Public Works Department and the Planning and Building Department should continue to work together in this regard. Encourage cooperation and agreements between various levels of government and/or agencies to encourage the retention and further development of trails.
- Develop consistent trail and corridor signage for Smithville, which identifies the trail name, length and difficulty. Pictograms are used on trail signage to communicate permitted and non/permitted uses. The Township could work with the local students to develop the design of the signage, through a design competition.
- Develop appropriate promotional materials and encourage events and activities to support the use and development of the trail system. Plan regular “trail celebrations” to recognize additions and/or expansions to the trail and corridor system.
- Develop a Trails and Corridors map to raise awareness of local opportunities.

- Coordinate the formation of the Trails and Corridors Development Committee (TCC). This Committee would report to the Coordinator of Recreation and ultimately to Council through the Director of Public Works.
- Develop a mailing/e-mail list of trail partners to communicate regularly regarding trail planning, development and implementation.

G.2 Trails and Corridors Committee

- TCC will be an adhoc committee.
- TCC membership will consist of approximately 12 members:
 - Township of West Lincoln
 - Coordinator of Engineering Services
 - Supervisor of Arena and Parks
 - Recreation Program Manager
 - Planner
 - Council representative
 - Accessibility Coordinator
 - Regional representative
 - NPCA representative
 - Two School board representative (from local schools)
 - Two local residents
- Members will be appointed for the term of Council.
- Committee will meet at least twice per year or at the call of the Chair.
- Monitor and assist with the implementation of the TCMP.
- Assist with the preparation of the annual trail report to Council.
- Assist in coordinating and submitting funding applications for trail improvements and development.
- Consult with the Region, Conservation Authority, local agencies and volunteer groups/organizations to coordinate trail plans.
- Coordinate the development of promotional materials and mapping for the overall trail system.
- Coordinate the development of a trail logo, signage standards and signage hierarchy.
- Investigate and evaluate issues and concerns raised by public and adjacent landowners as they arise.
- Organize ongoing trail education programs and events.
- A member of the TCC could also have a seat on the Regional Niagara Bicycling Committee.

G.3 Region of Niagara

- Coordinate with Township and other local municipalities regarding potential future trails, linkages and looping of trail systems and use of various public land holdings for trail uses and related staging/parking areas.

- Coordinate on the re-construction of any Region roads to explore potential for sidewalks and on-road bike lanes.

G.4 Niagara Peninsula Conservation Authority

- Coordinate with the Township regarding trail planning and development.
- Review and promote opportunities for trails along Twenty Mile Creek.
- Communicate regularly with the Township to ensure trail use and activities are not having a negative impact on natural areas or other resources.

H. CONCLUSIONS AND RECOMMENDATIONS

The Smithville Trails and Corridors Master Plan (TCMP) is intended to be a working document for the implementation of a comprehensive trails and corridors master plan. The recommended trail system is intended to be flexible and adjusted where appropriate at the detail designed stage and layout stage.

The TCMP provides for a trail and corridor system that promotes physical activity, sports and recreation by establishing a system of trails and corridors that promote and encourage physical activity. The TCMP contemplates both the recreational needs of the community as well as the active transportation needs, thereby contributing to a complete and healthy community. The TCMP also addresses injury prevention by providing detailed design standards on trail and corridor width, surface material, signage that will assist in minimizing the risk of injury.

In summary, the TCMP provides the following key recommendations:

1. That Township Council adopt the TCMP in its entirety to guide trail development in Smithville.
2. That the Township forms a Trails and Corridors Committee (TCC) to advise Township Council on trail matters. Changes and improvements to the trail system will be considered by the TCC, including new partnerships and funding.
3. That the trail priorities schedule (Table D-2 and D-3) be implemented according to the proposed schedule or as funding is available.
4. That the Township and the Trails and Corridors Development Committee review, evaluate and update the trails priorities annually in association with the Township budgetary process, with a comprehensive review of the TCMP every five years.
5. That the Planning and Building Department prepare an Official Plan Amendment to include the recommended Official Plan policies and schedules identified in Section B of the TCMP.
6. That the Township protects existing trails and plan proactively for new trail linkages through the development process as outlines in Figure 3 of the TCMP. Construction and maintenance of trails and sidewalks are the responsibility of the Township.
7. The Township should coordinate the planning for future trails and links during the Secondary Plan Process and/or the subdivision process.
8. That the Township utilize the design standards and specifications for trails and corridors, as provided in Section D, to provide consistency for the user and identity of the overall trail system.

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9. That the Township utilize the criteria recommended in the TCMP to evaluate new trails and corridors.
 10. That the Township preserve existing municipally-owned unopened road allowances within the existing urban boundary and proposed future urban boundary expansion for potential future trail connections.
 11. Continue to restrict ATV/snowmobile use on trails in the urban area of Smithville.
 12. The Township should consider the Region’s Model Municipal Bicycle Transportation Policies for incorporation in the Township of West Lincoln Official Plan as a basis on which to plan for creating and fostering a bicycle-friendly community.
 13. The Township should work with the Region and NPCA to explore opportunities for trail development along Twenty Mile Creek, where feasible.
 14. The Township to explore the potential in Smithville to attract significant tourism to the area, and specifically trail tourism, through an expanded and enhanced network of trails and cycling routes, particularly with connections to the broader Regional trail network focusing on enhanced trails and cycling tourism opportunities benefitting the local and regional economy.

APPENDIX A

Sydney Vermeer's Summary

Student Survey

Trails and Corridors Survey Analysis

In the fall of 2010, the grade 10 Civics class of Smithville District Christian High School discovered an issue with the trails and corridors in the area of Smithville. This issue eventually reached the attention of the GSP group, and they started to observe this issue. The GSP group created surveys for six of the major schools in the area of Smithville. During the month of December, 2011, the Grade 9 Geography class of Smithville District Christian High School handed out these surveys to the different schools and recorded the results.

In total, 598 students filled out these surveys. 38.4% of these people were high school students and the other 61.4% of these people were attending a grade school. This is important to remember because the age of the students can change the results of the surveys. Only 8.7% of the surveys were filled out by students in grade twelve, while the majority of these surveys were filled out by students between grade 6 and 8. From these 598, 46.8% of them live in Smithville, and 53.5% do not. Only 60% of the residents who live in Smithville actually know where trails are and the rest are unaware and have no idea.

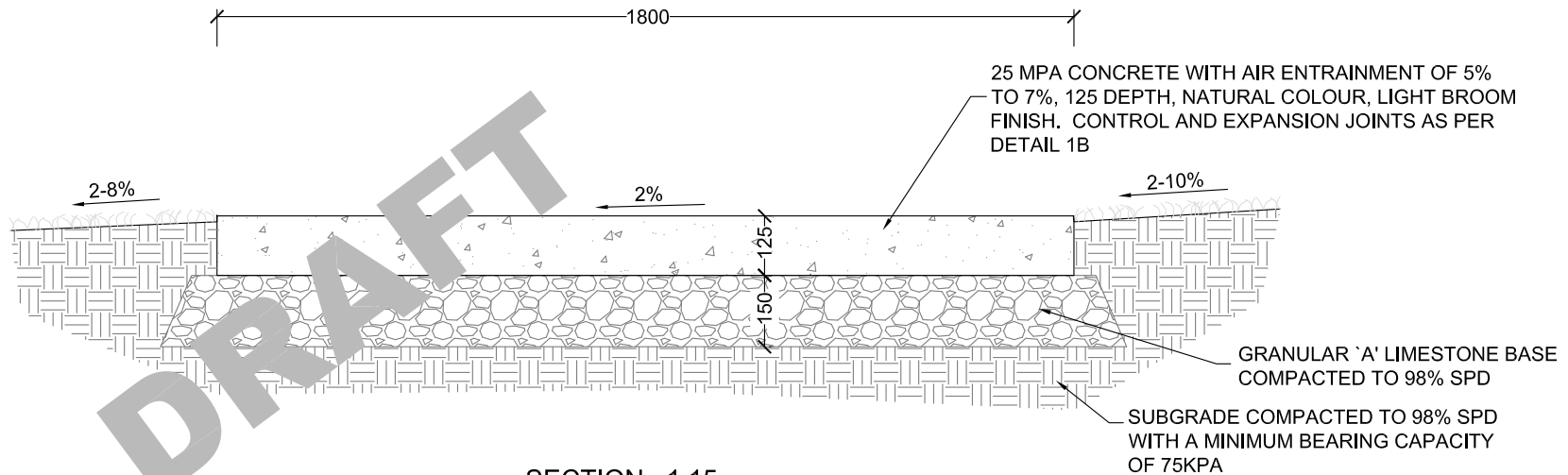
Because most of these surveys were filled out by students in grades 6-8, the bus was their primary mode of transportation. It is important to note that since the majority of the students who filled out these surveys do not live in the area of Smithville, so it is possible that walking/biking to school is not necessarily an option for them. It is also possible that some of the students are not permitted to walk to school because of unsafe routes to school. The majority of these students who filled out these surveys take a bus for most of their travelling.

There were a number of different issues that arose while people were filling out these surveys. Mostly, people were confused by the question that asked the students how they travelled to school, and how many times a week. They had difficulty trying to comprehend what the question was asking and they had difficulty filling it out. They did not understand what was classified as a car, and what was classified as an automobile. Some students did not know what the difference was between a trail and a sidewalk. For some of the last few reflection questions, people were unsure what the question was asking, or they didn't know how they felt about the trails in Smithville.

Based on the results of these surveys that were filled out, it is safe to say that a change needs to be made regarding the trails and linkages in Smithville. If only 60% of the people who actually live in Smithville actually know where the trails are, then most likely there are not enough of them. Only 35.8% of the students said that they were satisfied with the current trails in Smithville which means we need some improvements. Some suggestions to improve the current trails and linkages would be to add more lighting, and upgrading the type of terrain people travel on. It might even be beneficial for Smithville to create signage and awareness of the different trails in Smithville. Primarily, the GSP group should consider adding a path on the main road to the Leisureplex, so more students can travel there with ease. Building a sidewalk to the Leisureplex would increase property value. The increase of property value would help the town to recoup their investment over a period of time. In conclusion, the survey results suggest that the Smithville Trails and Corridors Master Plan Survey Analysis was a success.

APPENDIX B

Detail Sheets



SECTION 1:15

NOTE:

1. ALL SIDEWALKS SHALL BE CONSTRUCTED USING 25MPa CONCRETE WITH AN AIR ENTRAINMENT OF 5% TO 7%.
2. MINIMUM SIDEWALK WIDTH TO BE 1.5M.
3. ALL CONCRETE SIDEWALKS TO BE CONSTRUCTED IN ACCORDANCE WITH OPSD 310.010.
4. SIDEWALK RAMPS TO BE PROVIDED AT ALL INTERSECTIONS. ALL SIDEWALK RAMPS TO BE CONSTRUCTED IN ACCORDANCE WITH OPSD 310.030.
5. CONSTRUCTION OF CONCRETE SIDEWALKS ADJACENT TO CURB ARE NOT PERMITTED, EXCEPT IN CERTAIN CIRCUMSTANCES AND NOT WITHOUT PRIOR APPROVAL BY THE DIRECTOR. CONCRETE SIDEWALK ADJACENT TO CURB SHALL BE CONSTRUCTED IN ACCORDANCE WITH OPSD 310.020.
6. MINIMUM BEDDING TO BE 125mm OF GRANULAR 'A' LIMESTONE BASE. SUBSTRATE NATIVE BASE TO BE COMPACTED TO A MINIMUM OF 98% SPD STANDARD PROCTOR DENSITY WITH A MINIMUM BEARING CAPACITY OF AT LEAST 75 kPa. SIDEWALKS NOT TO BE CONSTRUCTED ON ORGANIC SOILS.
7. WHERE FILL IS REQUIRED TO BRING THE SIDEWALK TO THE APPROVED GRADE, THE FILL SHALL BE EQUIVALENT TO GRANULAR 'C' MATERIAL COMPACTED TO A MINMUM OF 95% SPD.

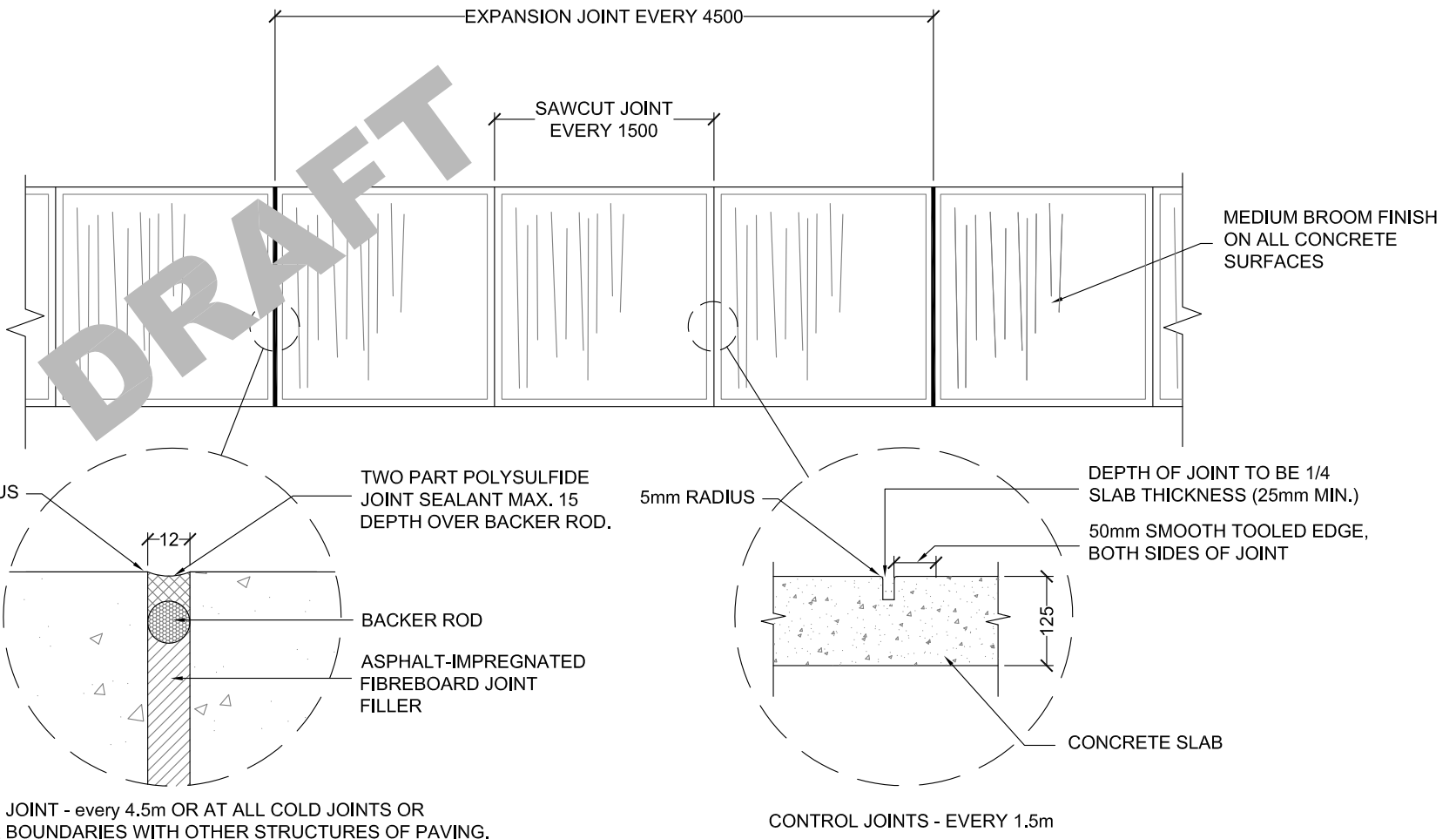


1.8 wide Concrete Sidewalk

1:15

Township of West Lincoln
Trails and Corridors Master Plan

1A

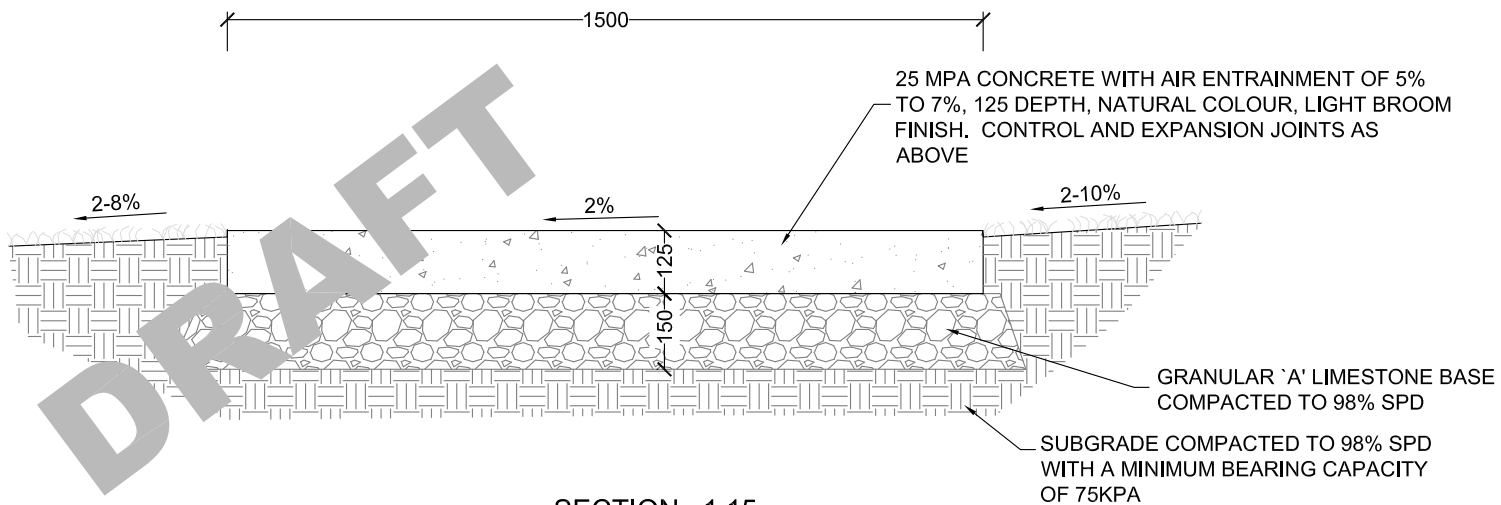


Concrete Sidewalk Control and Expansion Joints

N.T.S.

Township of West Lincoln
Trails and Corridors Master Plan

1B



SECTION 1:15

NOTE:

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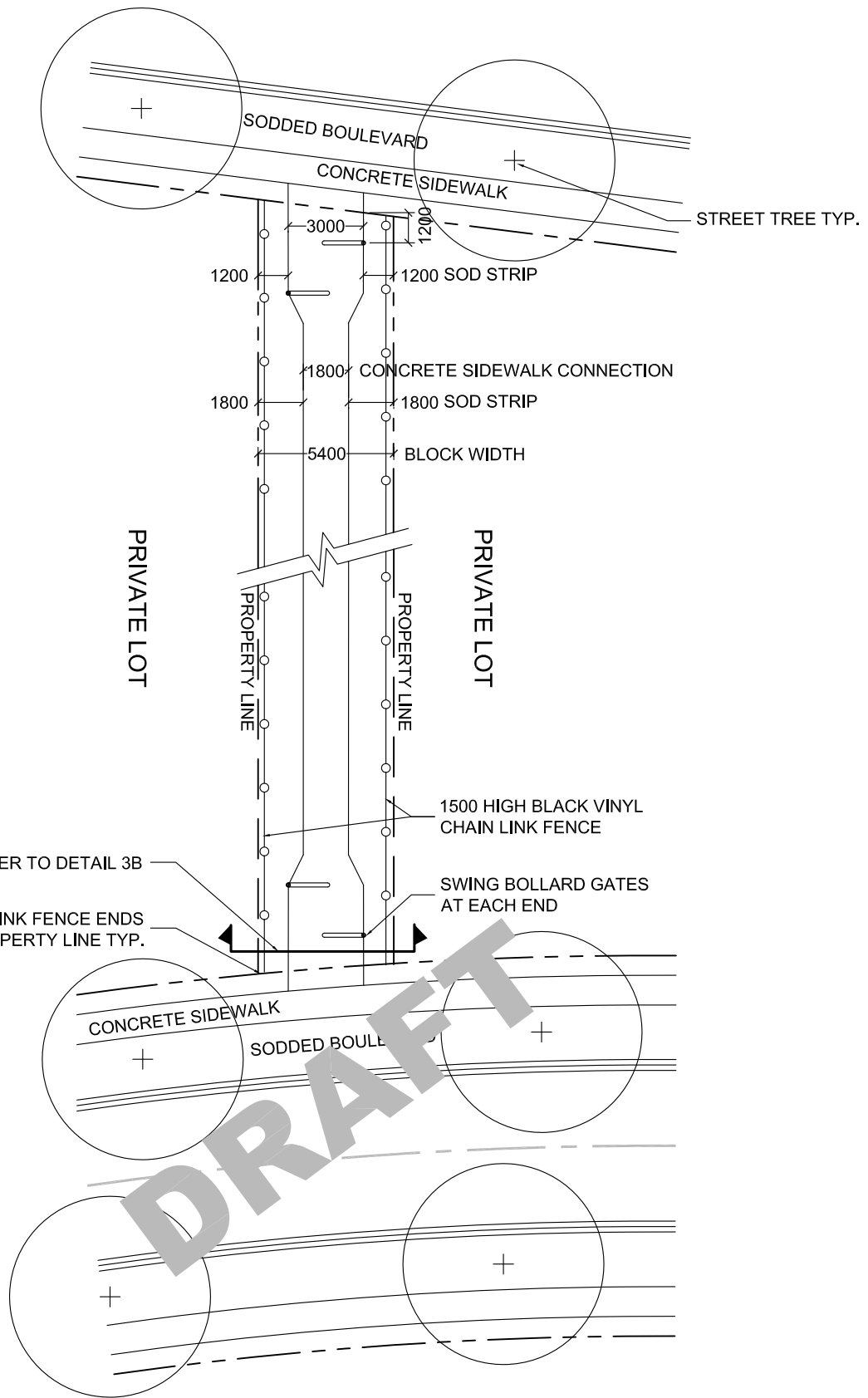


1.5 wide Concrete Sidewalk

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Township of West Lincoln
Trails and Corridors Master Plan

2

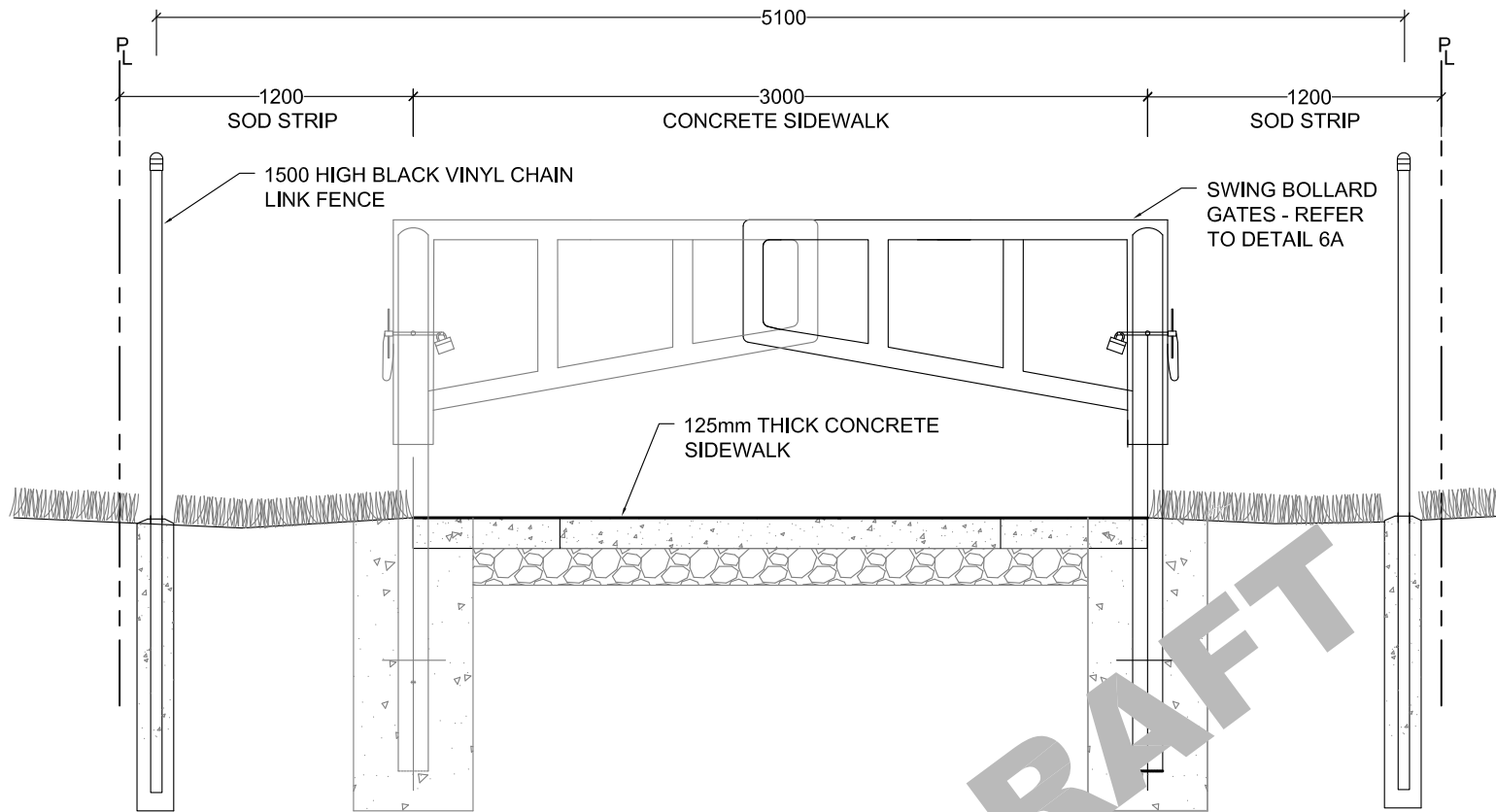


Neighbourhood Trail Connection Plan View

1:250

Township of West Lincoln
Trails and Corridors Master Plan

3A



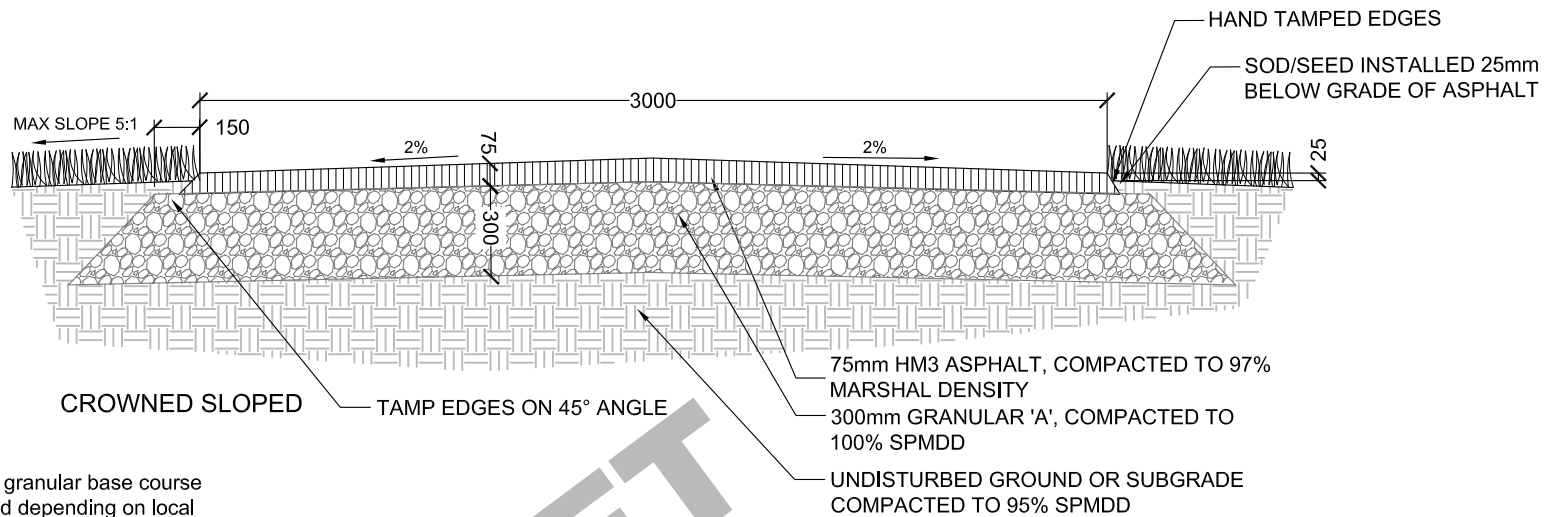
Neighbourhood Trail Connection - Section

1:30

Township of West Lincoln
Trails and Corridors Master Plan

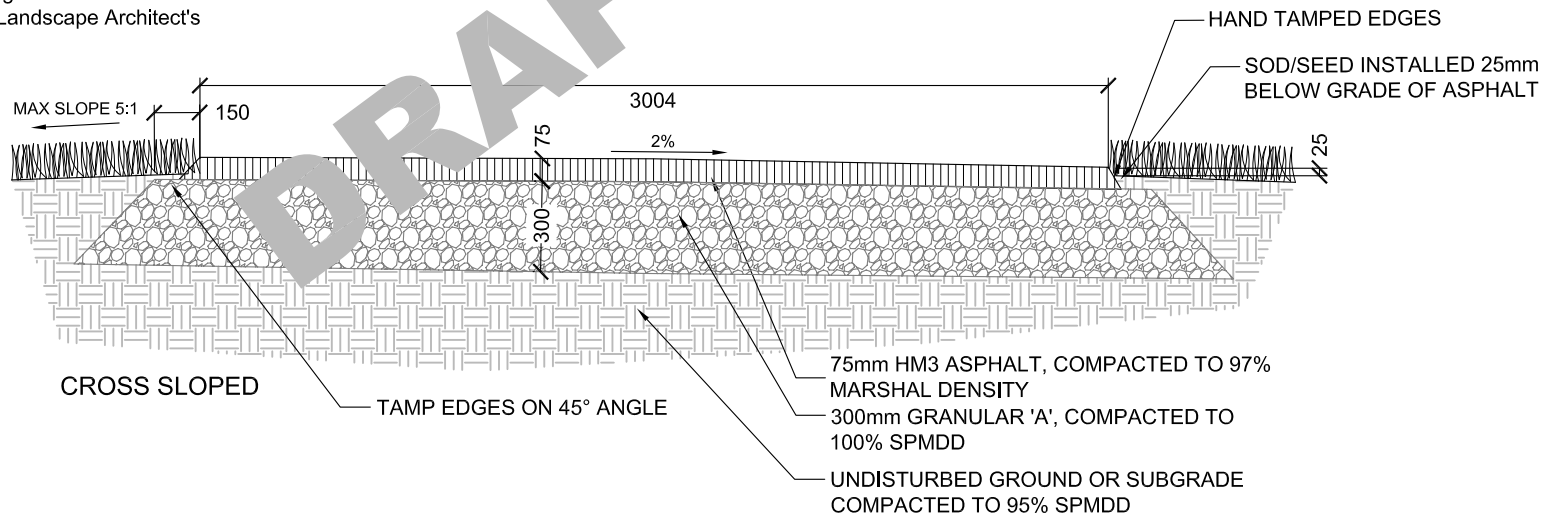
3B





Notes:

1. Depth of excavation and granular base course shall increase as required depending on local soil conditions. Refer to geo-technical.
2. Cross slopes subject to Landscape Architect's approval prior to paving.

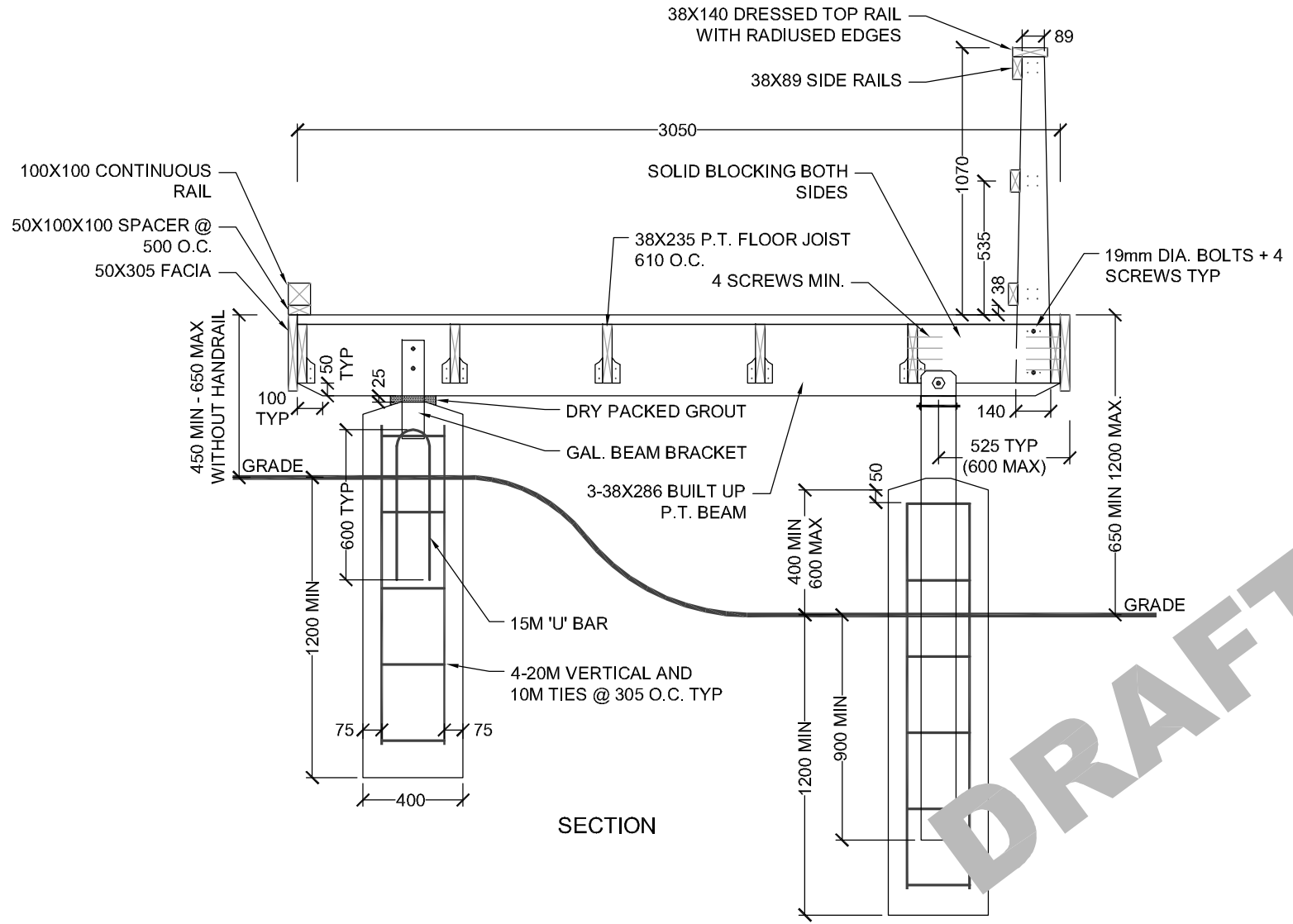


3m Wide Asphalt Multi-Use Trail

1:25

Township of West Lincoln
Trails and Corridors Master Plan





DRAFT

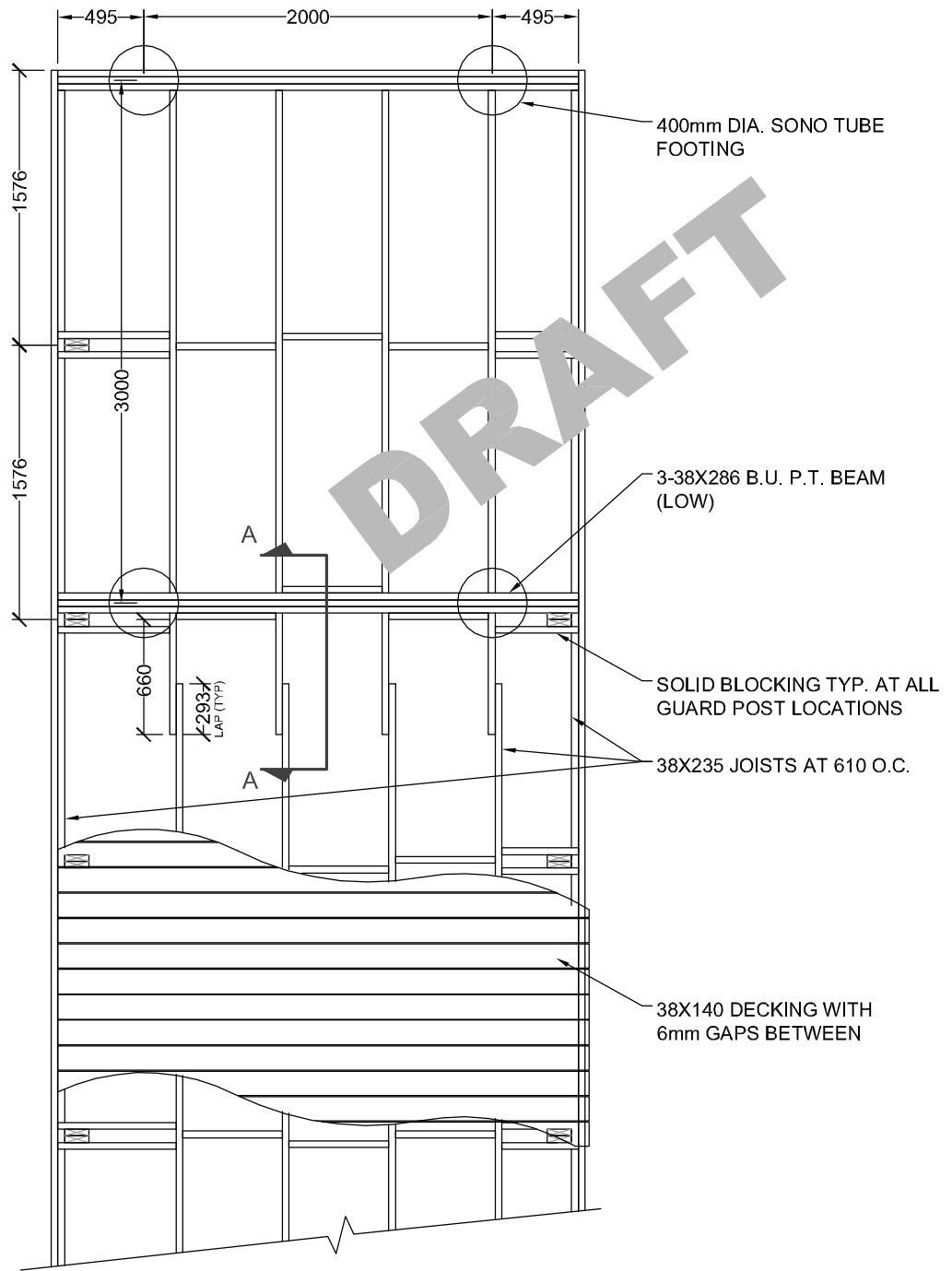


3m Wide Boardwalk

1:25

Township of West Lincoln
Trails and Corridors Master Plan

5A



PLAN VIEW



3m Wide Boardwalk Plan View

1:40

Township of West Lincoln
Trails and Corridors Master Plan

5B

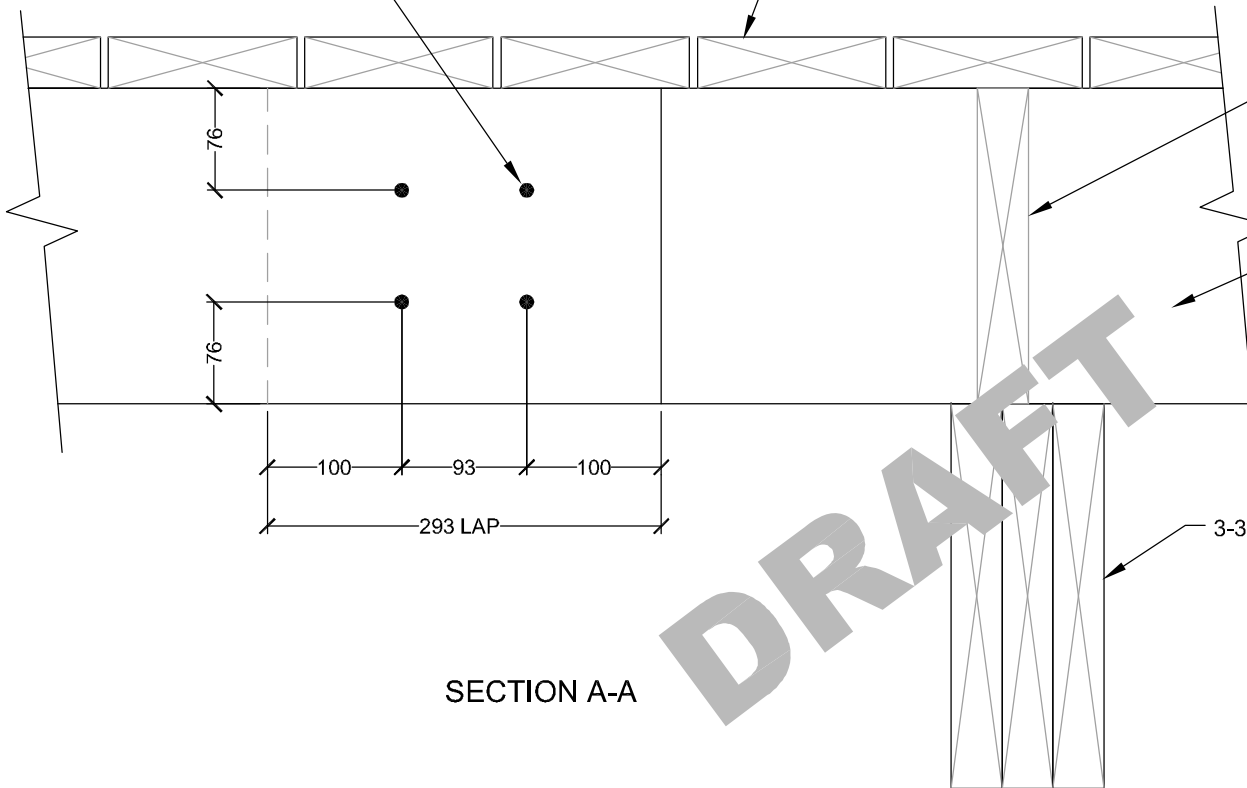
4-12mm DIA. BOLTS (GALV.) TYP.

38X140 DECKING WITH 6mm GAPS BETWEEN

SOLID 38X235 P.T. BLOCKING TYP.

38X235 P.T. JOISTS

3-38X286 B.U. P.T. BEAM (LOW)



SECTION A-A

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3m Wide Boardwalk

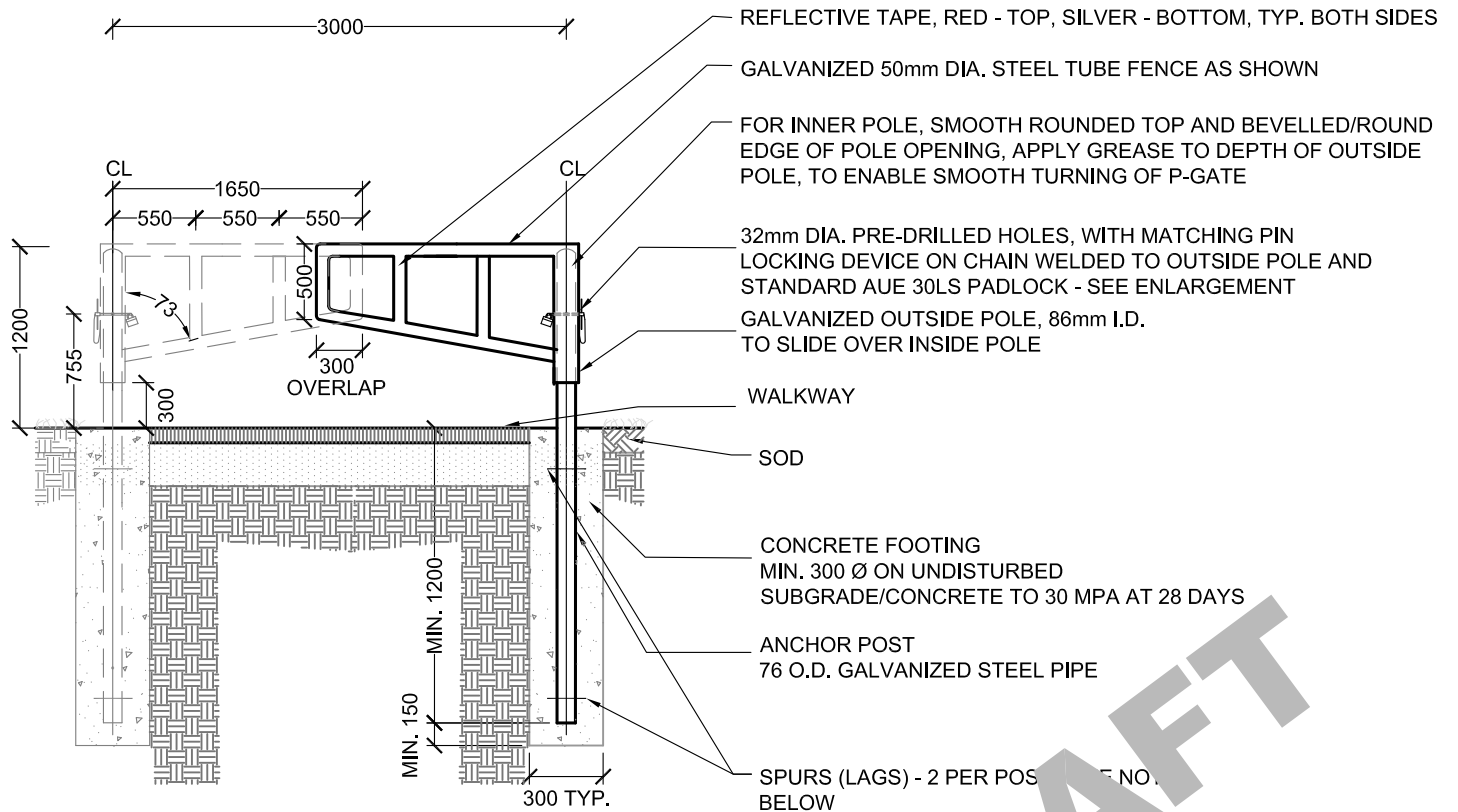
1:15

Township of West Lincoln
Trails and Corridors Master Plan

5C

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. ALL POSTS, RAILINGS AND GATES TO BE INSTALLED PLUMB.
3. PLACE BOLLARD GATE ANCHOR POST AT EDGE OF PROPOSED ASPHALT WALK
4. GATE RESTS ON 76 O.D. GALVANIZED POST. BOTH POSTS REQUIRE CONCRETE FOOTINGS. DO NOT USE SONOTUBE FOR CONCRETE FOOTINGS.
5. REQUEST MANUFACTURER TO ADD 2 SPURS (LAGS) TO EACH GALVANIZED POST TO PREVENT THE TUBING FROM TURNING IN THE CONCRETE FOOTING.
6. DO NOT INSTALL GATE ONTO ANCHOR POST UNTIL THE CONCRETE HAS PROPERLY CURED.
7. CLEAN AND REINSTATE AREAS AFFECTED BY WORKS.
8. SUBMIT SHOP DRAWINGS FOR PROJECT MANAGER'S APPROVAL.
9. ALL STEEL IS TO BE GALVANIZED.
10. ALL JOINTS TO BE WELDED AND GROUND FLUSH.



DRAFT

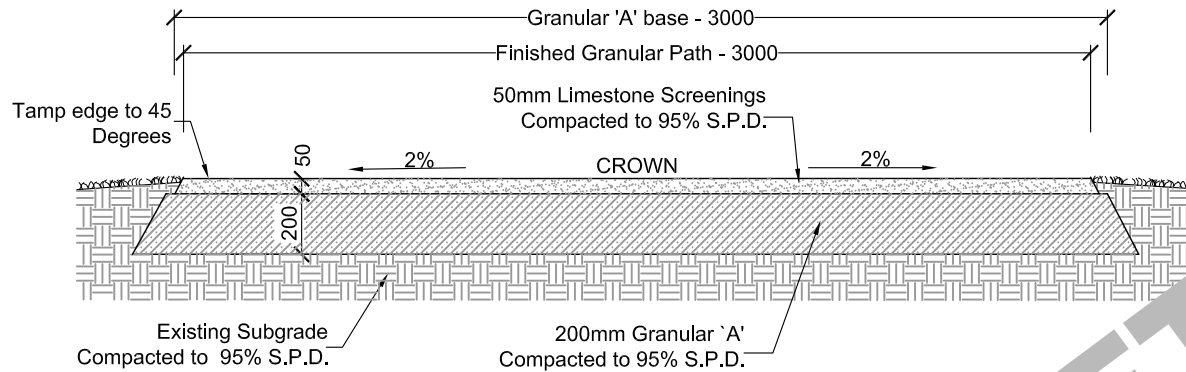


Access Control Swing Bollard Gates - Section

1:50

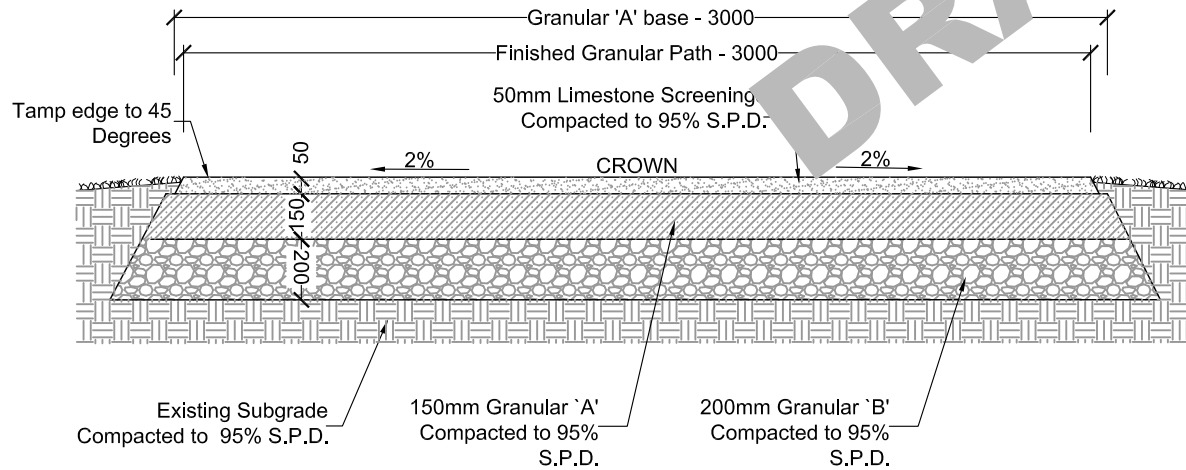
Township of West Lincoln
Trails and Corridors Master Plan

6A



Notes:

1. Depth of excavation and granular base course shall increase as required depending on local soil conditions. Refer to geo-technical.
2. Cross slopes subject to Landscape Architect's approval prior to paving.



Granular 'B' Base - Seasonally Wet Conditions

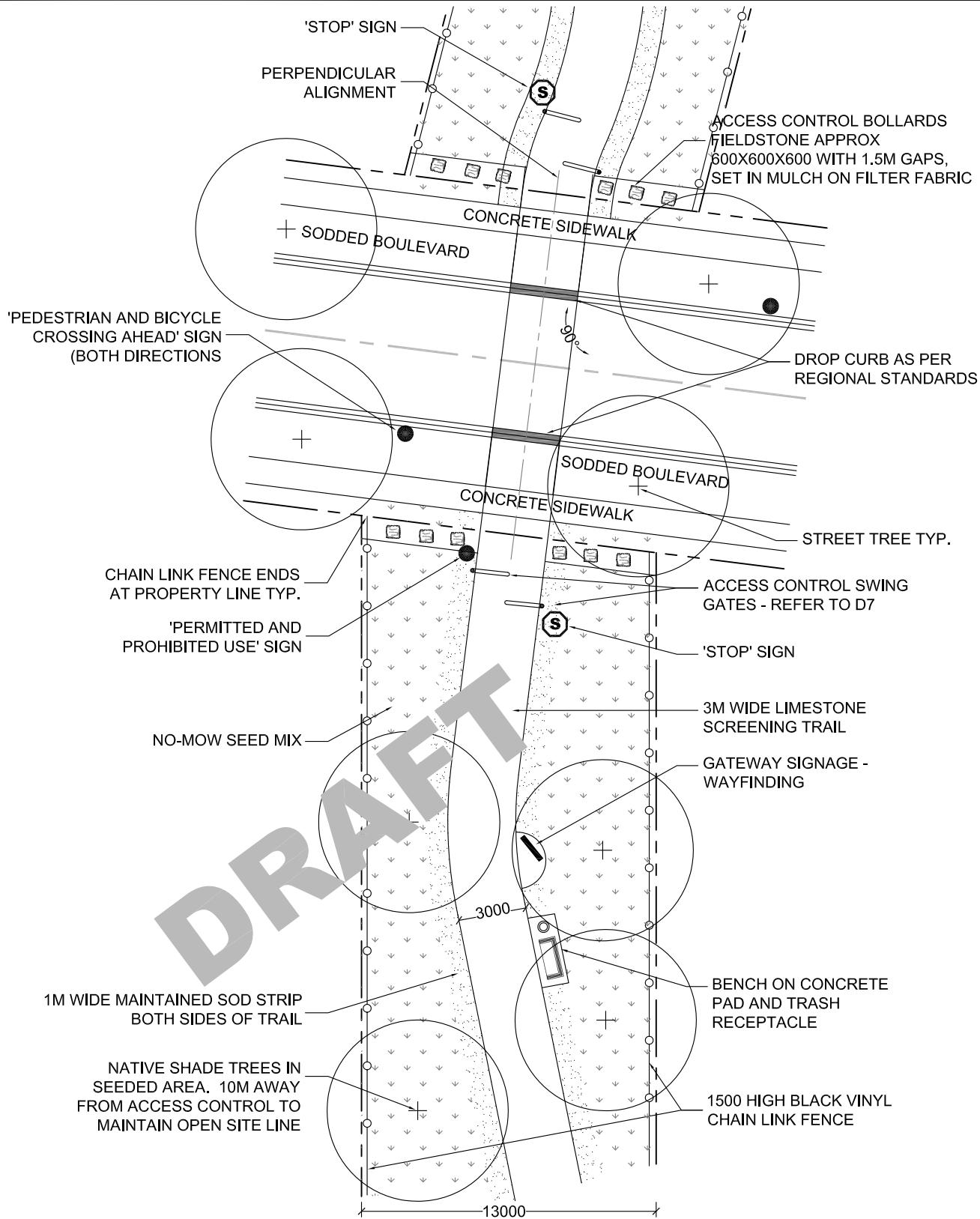


3m wide Green Corridor Limestone Screening Trail

1:25

Township of West Lincoln
Trails and Corridors Master Plan

7A



Green Corridor Trail Plan View

1:250

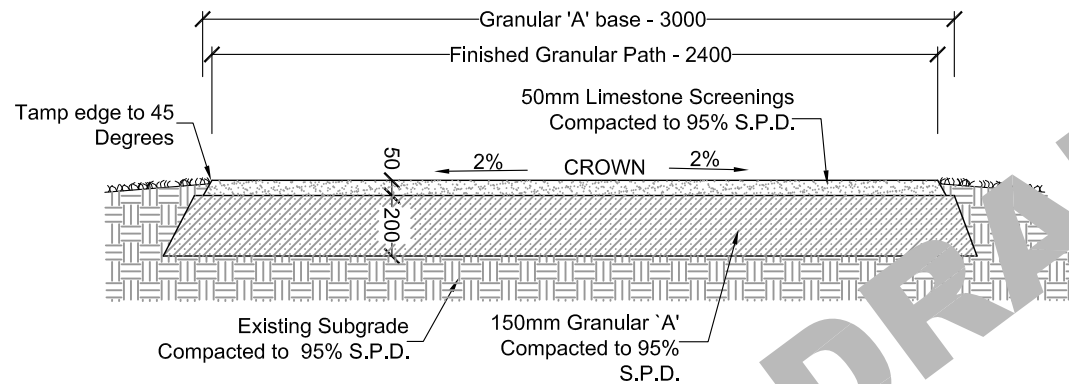
Township of West Lincoln
Trails and Corridors Master Plan

7B

Notes:

1. For layout, see approved Layout Plan.
2. Filter fabric only required as directed, as part of Erosion Control.

NOTE: Min. 2% crown or cross fall, as determined by site conditions, to ensure positive drainage



2.4m wide Limestone Screening Trail

1:25

Township of West Lincoln
Trails and Corridors Master Plan

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NOTE: ALL WOOD MATERIAL MUST BE SOUTHERN YELLOW PINE, PRESSURE TREATED, No. 2 CONSTRUCTION GRADE OR BETTER, OR SUSTAINABLE ALTERNATE

TREAT ALL END CUTS OF PRESSURE TREATED TIMBER WITH AN APPROVED PRESERVATIVE TO PREVENT DECAY.

DECK FIXED TO BRIDGE BEAM WITH 15mm GALVANIZED LAG SCREWS

DECK SECTION TO MEET GRADE

GALVANISED JOIST HANGER

BEAM RESTS ON MORTAR BED

CONCRETE FOOTING TYP 300 mm SONOTUBE

CONCRETE SLAB FOUNDATION

± 600 OPENING

MIN 120 DEPTH

CRUSHED AGGREGATE BASE MINIMUM DEPTH 150mm

BOARDWALK SECTION
FOUNDATION DETAIL

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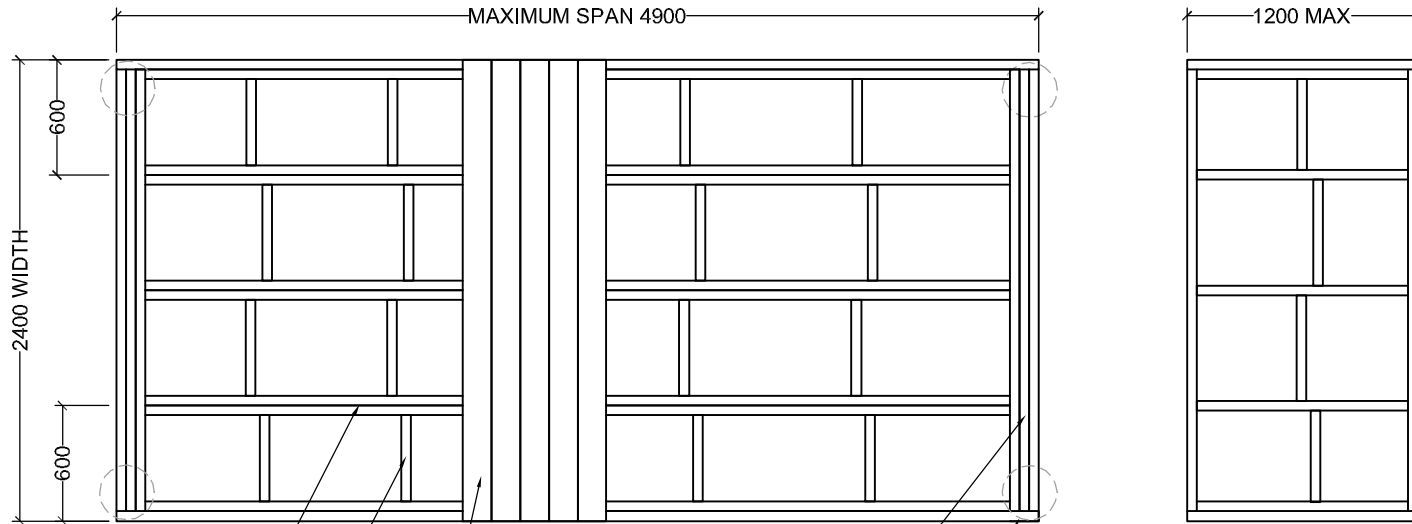
2.4m wide Boardwalk - Section



Township of West Lincoln
Trails and Corridors Master Plan

1:40

9A



100 X 250 BUILT UP JOIST
(2X50X250) @ 600 mm ON CENTER

50 X 250 SPACERS
1000 O.C.

50 X 150 DECKING
LOOSELY BUTTED
ATTACH USING COATED DECK SCREWS

150 X 300 BUILT UP BEAM
(3x50x300)

300 DIA SONOTUBE

PLAN VIEW

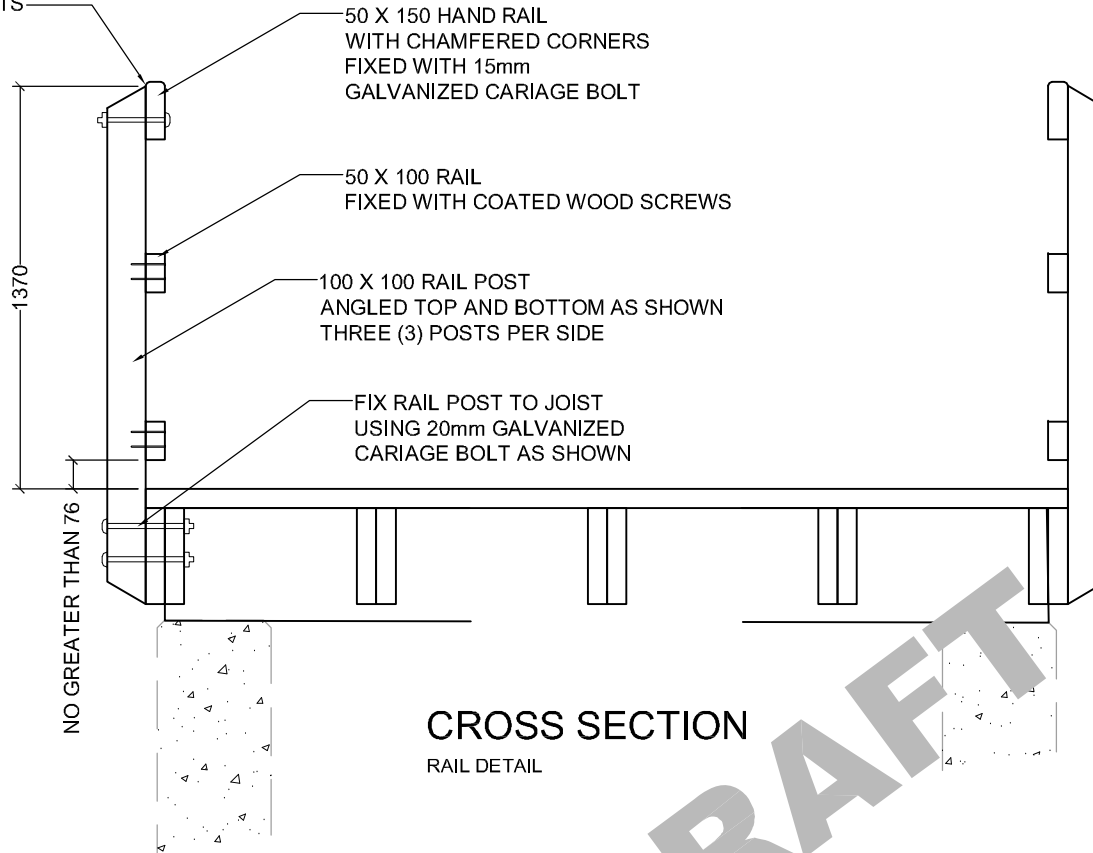
PLAN VIEW
DECK TYP.

DRAFT

2.4m wide Boardwalk - Plan View



SUITABLE HIEGHT
FOR PEDESTRIANS
AND CYCLISTS



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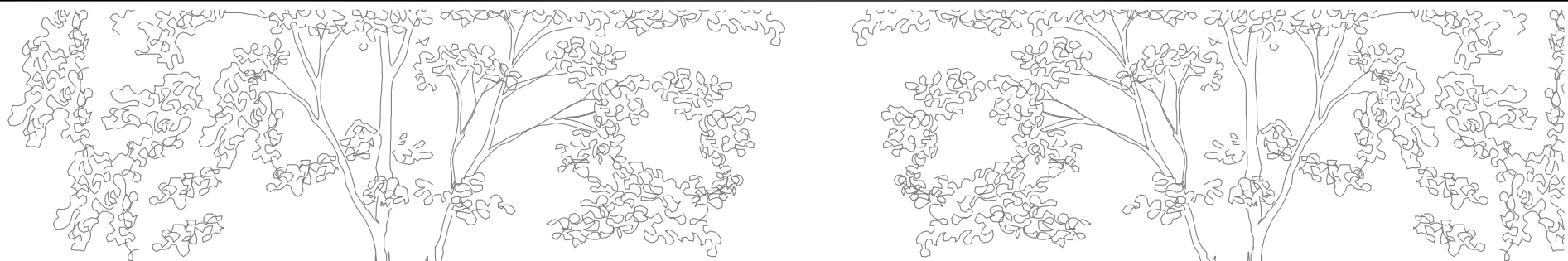
2.4m wide Boardwalk - Section

1:40

Township of West Lincoln
Trails and Corridors Master Plan

9C



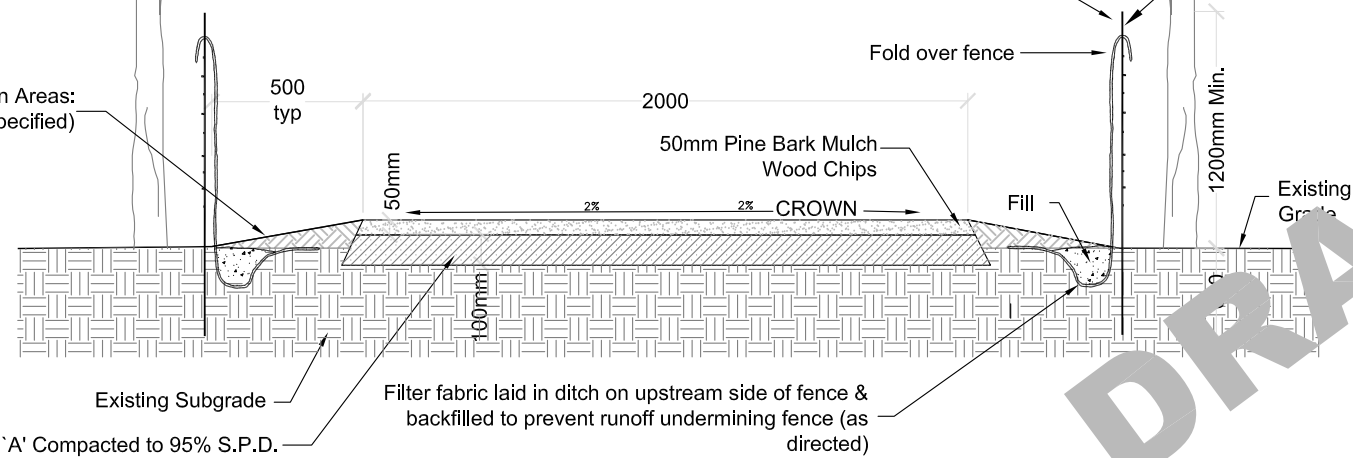


To be confirmed on site prior to Construction

NOTE:
1. Storage of Materials within the dripline is prohibited.

Silt Fencing - Steel "Tee" bar posts 50mm x 100mm x 1.8m long spaced 3.0m O.C. with top 0.2m spray painted florescent orange. Livestock fencing attached to posts with filter fabric attached and stapled as directed. Remove silt fencing following construction of trail

Open Areas:
Native Topsoil and Seeding (as specified)



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2.0m wide Wood Chip Trail Wooded Areas/Wetlands

1:25

Township of West Lincoln
Trails and Corridors Master Plan

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