

Borough of Ringwood

Bicycle & Pedestrian Plan

NJDOT Local Technical Assistance Program



prepared by

The **RBA** ENGINEERS • ARCHITECTS • PLANNERS
Group, Inc.

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TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

INTRODUCTION 3

 BACKGROUND 3

 PURPOSE..... 3

 AREA DESCRIPTION 4

METHODOLOGY 5

 PLANNING PROCESS 5

 PROCESS FLOW CHART 7

VISION & GOALS..... 8

 VISION STATEMENT 8

 GOALS AND OBJECTIVES 8

EVALUATION 10

 EXISTING CONDITIONS 10

 OPPORTUNITIES & CONSTRAINTS 15

 MAP 17

RECOMMENDED OPTIONS..... 18

 DISCUSSION CATEGORIES..... 19

 HOTSPOT CONCEPTS 32

 ACTION IMPLEMENTATION TABLE 37

 MAP 48

Borough of RINGWOOD

Bicycle & Pedestrian Plan

APPENDICES

- A. Design Guidelines
- B. Photo Log
- C. Sketch Maps
- D. Potentially Impacted Properties
- E. Funding Sources
- F. Local Ordinance Review
- G. Bicycle and Pedestrian Demand and Suitability Technical Memorandum
- H. Crash And Speed Survey Summary
- I. Highlands Legislation
- J. NJDOT Straight Line Diagrams
- K. MUTCD Section 1A.10 Interpretations, Experimentations, Changes, and Interim Approvals
- L. Data Bibliography
- M. Meeting Summary
 - ❖ Project Approach Meeting
 - ❖ Steering Committee Kick-off Meeting
 - ❖ Vision Workshop
 - ❖ Steering Committee Coordination Meeting
 - ❖ Public Information Center

LIST OF FIGURES

- Figure 1 – Existing Conditions, Opportunities and Constraints Map
- Figure 2 – Hot Spot Concept: Lake Community Circulation
- Figure 3 – Hot Spot Concept: Shared Use Path Crossing
- Figure 4 – Hot Spot Concept: Shopping Center Crossing
- Figure 5 – Existing Conditions and Recommendations Map

Borough of RINGWOOD

Bicycle & Pedestrian Plan

EXECUTIVE SUMMARY

Background

The Borough of Ringwood Bicycle and Pedestrian Plan was prepared through the New Jersey Department of Transportation's (NJDOT) Local Technical Assistance Program for FY2007. The impetus for Ringwood's application to NJDOT was their vision to provide safe accommodations for bicyclists and pedestrians throughout the community and their need to update their Master Plan's Circulation Element. The Ringwood Bicycle and Pedestrian Plan is intended to serve as the bicycling and walking portion of the circulation element in the Borough's Master Plan. In addition, the recommendations and actions outlined in the Plan can be incorporated into a basic School Travel Plan for the New Jersey Safe Routes to School (SRTS) Program if desired. The Plan also offers options that can supplement Ringwood's long-term tourism strategies. The RBA Group of Parsippany, New Jersey, under a Task Order Agreement with the NJDOT, was selected to provide this assistance by developing a comprehensive Bicycle and Pedestrian Plan for the Borough.

A Public Planning Process

It was through collaborative public input that the Ringwood Bicycle and Pedestrian Plan was developed. Beginning with a Steering Committee comprised of representatives from Ringwood Borough (Manager, Engineering and Police), Ringwood Environmental Commission, Passaic County (Planning and Engineering), North Jersey District Water Supply Commission, NJ Highlands Council, and the New York – New Jersey Trail Conference, the project team, including NJDOT and The RBA Group, could identify issues and potential solutions to be addressed in the Plan. The Steering Committee's role was to guide the planning process and direct the project team towards a specific vision and options to improve bicycling and walking in Ringwood.

Through qualitative systems evaluation, a public visioning workshop and a broad public information center, the project team and Steering Committee were able to develop a plan that strives toward their vision whereby *“Ringwood Borough is a community whose residents respect its natural resources, value its recreational opportunities, are proud of the friendly spirit of its neighborhoods, and are committed to promoting safe bicycling and walking opportunities for residents and visitors of all ages and abilities.”*

Key Areas of Concern

The Borough of Ringwood is located in the northwestern portion of Passaic County, New Jersey; it is approximately 28 square miles and is entirely within the New Jersey Highlands' "preservation area". Ringwood is home to Ringwood State Park and the Wanaque and Monksville Reservoirs and is a major eco-tourism destination for activities like hiking, boating and mountain biking. According to a community survey conducted by the Borough, residents of Ringwood have identified bicycling paths as their top recreational priority.

Although the impetus of the Plan was to identify a network walking and bicycling options connecting all of Ringwood's key destinations, some specific issues stood out as the primary areas of concern for the community. In particular were utilizing easements and rights-of-way for off-road shared pathways, crossing regional roadways (especially Skyline Drive), and making the lake communities more bicycle and pedestrian-friendly without building sidewalks. Other key issues included traffic speed, environmental sensitive lands and watersheds, and ecotourism.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Menu of Options

A series of recommendations were provided as options for the Borough of Ringwood to consider while implementing the Plan. They were categorized into eight groups, each addressing key walking and bicycling circulation issues. Three concept-level “hot spot” schematics were prepared to expand on some options, and finally, an action implementation table was developed which identified the entity responsible for the action, time line and an estimated cost. The eight discussion categories and menu of options include:

Connections Between the Lakes

- Bike Routes/Wayfinding
- Shared Lane Markings
- Paved Easements/Gated Roads
- Traffic Calming

Crossings

- Skyline Drive Shopping Centers
- Shared Use Path Roadway Crossings

New Facilities (Shared Use Paths/Sidewalks)

- Skyline Drive ROW Shared Use Path
- Rail Right-of-Way
- Gas Right-of-Way Path
- Duffy Road Easement Path
- Northgate Easement Path
- Skyline Drive Sidewalk
- Fountain Drive Sidewalk
- Erskine Road Sidewalk
- Valley Road Sidewalk
- Margaret King Avenue Sidewalk

Regional Roadways

- Bike Routes/Wayfinding
- Shoulder striping and/or widening

One-way Lake Circulation

- One-way Auto with Two-way Walk and Bike
- One-way Auto with Two Bike Lanes
- One-way Circulation
- Shared Lane Markings

Amenities

- Bicycle Parking
- Benches
- Pedestrian Scale Lighting
- Kiosks
- Trailheads
- Public Restrooms

Awareness/Enforcement

- Public Awareness Campaign
- Increased Traffic Enforcement

Policy/Implementation

- Bicycle and Pedestrian Plan Task Force
- Adopt the Ringwood Bicycle and Pedestrian Plan
- Policies and Ordinances
- Adopt Design Guidelines
- Sidewalk Inventory
- Feasibility and Design
- Capital Improvement Program

The Bicycle and Pedestrian Plan

The development of the Ringwood Bicycle and Pedestrian Plan followed a public planning process and outlined goals, objectives, and recommendations to fulfill the Borough’s vision. Through collaborative input by NJDOT, the Steering Committee, RBA and the public, the Plan addresses key community concerns and presents typical design treatments to enhance bicycle and pedestrian accessibility. It is intended that the Plan be adopted as part of the Circulation Element in the Borough’s Master Plan and that it can be incorporated into a basic SRTS Travel Plan if desired.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

INTRODUCTION

Background

One of the major areas of concern cited in the 1990 Borough of Ringwood Master Plan is the need to “encourage the best possible design for new developments, and to protect established neighborhoods and utilities.” It also addresses the need for walking and bicycling facilities within the Borough and recommends that “all major and collector roadways be provided with such facilities whenever possible.” Although the Master Plan’s Circulation Element does not include provisions for bicycling and walking, residents completing the Master Plan’s community survey voted more bicycling paths as their top recreational priority.



In keeping with the vision expressed in the Master Plan, and the desire to provide safe accommodations for bicyclists and pedestrians throughout the community, the Borough applied for and was granted technical assistance from the New Jersey Department of Transportation (NJDOT) under the Department’s Local Technical Assistance Program for FY2007. The Borough’s objective is to provide linkages to existing or proposed facilities for bicycling and walking throughout Ringwood as well as broader connections to neighboring municipalities and throughout the region. The RBA Group of Parsippany, New Jersey, under a Task Order Agreement with the NJDOT, was selected to provide this assistance by developing a comprehensive Bicycle and Pedestrian Plan for the Borough.

Purpose

Bicycling and walking, as a means of both personal transportation and recreation, have been growing in popularity throughout the nation. There is increasing support from government agencies to promote these means of transportation as a way to enhance public health, air quality and overall quality of life. In 2005, the federal government’s Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU), monetarily recognized bicycling and walking as a viable means of transportation by allocating 4.5 billion dollars to programs specific to bicycling and walking.

In Ringwood Borough, the priority for enhancing bicycle and pedestrian accommodation is to improve or provide neighborhood connections for residents to schools and businesses as well as opportunities to experience Ringwood’s local attractions, to not only increase circulation throughout the Borough but to also stimulate the local economy through foot traffic by residents and visitors alike. Historically Ringwood’s development has centered on the lake communities. This plan takes a broader, Borough-wide approach to incorporate all residents of Ringwood to enjoy the benefits of walking and bicycling throughout the entire community as well as inviting visitors to experience the same.

The Ringwood Bicycle and Pedestrian Plan is intended to be adopted as part of the circulation element in the Borough’s Master Plan. The Plan will serve as the Borough’s “blueprint” for actions and activities, for transforming the Borough into a bicycle and pedestrian-friendly community, consistent with its vision. The elements contained in the Plan can also be incorporated into a basic

Borough of RINGWOOD

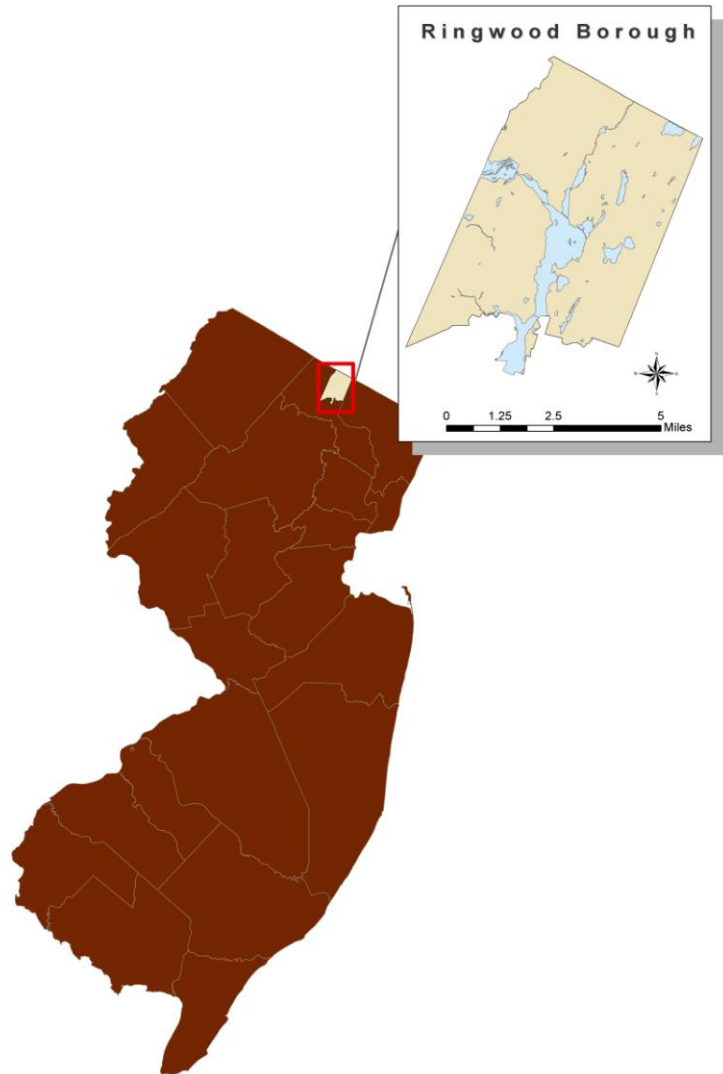
Bicycle & Pedestrian Plan

School Travel Plan, for the New Jersey Safe Routes to School Program, if desired. The Plan also offers recommendations that can supplement Ringwood’s long-term tourism strategies noted in the *Sustainable Tourism Opportunities and Strategies in Ringwood Borough and The Highlands* (see Data Bibliography).

Area Description

The Borough of Ringwood is a residential suburb (population 12,704) located in the northwestern portion of Passaic County that is bordered by New York State and the New Jersey municipality of West Milford, Mahwah, Bloomingdale, Wanaque and Oakland. The Borough is located in the region known as the New Jersey Highlands, a network of naturally developed rock formations, woodland, and wildlife that provides the majority of the region’s drinking water. The Borough is ecologically and naturally bountiful as it is nestled between the Wyanokie and Ramapo Mountains. It is often characterized as hilly as elevation levels within the Borough generally range between 300 feet to 900 feet above sea level.

The town boundary (approximately 28.0 square miles) defines the project limits.



Borough of RINGWOOD

Bicycle & Pedestrian Plan

METHODOLOGY

Planning Process

The development of the Ringwood Bicycle and Pedestrian Plan was a collaborative process facilitated by consultant team professionals from The RBA Group working closely with the client (NJDOT) and key representatives from the Ringwood community.

The first step in the process was to develop a scope of work and to establish a team of local representatives to steer the project through its development and assist the project consultant team by serving as a clearinghouse for all information relevant to the plan while also providing the local perspective. The Steering Committee was comprised of representatives from the New Jersey Department of Transportation, the Ringwood Borough Engineering and Police Departments, the Ringwood Environmental Commission, the North Jersey District Water Supply Commission, the NY-NJ Trail Conference, the Passaic County Planning and Engineering Departments, and the Bicycle Touring Club of New Jersey.



A Kick-Off meeting was held on July 3, 2008 with the Steering Committee, review the project scope and identify local issues and goals. Through a mapping exercise, the Steering Committee identified key destinations, opportunities, challenges and amenities for bicycling and walking within the Borough. A synthesis of this information set the direction of the project.

The next step was to complete a system evaluation, utilizing all existing data to establish a baseline of current bicycle and pedestrian accommodations and activity and identify opportunities and constraints for future

improvements in Ringwood. The process involved a series of steps and included data collection, a needs assessment, and a state plan analysis. Collectively, these steps allowed the project consultant team to develop a comprehensive menu of recommendations aimed at increasing walking and bicycling within the Borough.

The project consultant team's data collection efforts included a review and analysis of all existing relevant reports, resources, mapping, new developments, municipal code and related projects provided by the Borough, County and the State. Key sources of information used in the development of the plan included traffic accident and speed survey reports from the Borough's Police Department, turning movements and traffic counts at spot locations from the County's Engineering Department, the Borough's Master Plan and Land Use Element and a report on sustainable tourism opportunities within the Borough. The Data Bibliography found in Appendix L: Data Bibliography summarizes each of the reports and studies reviewed as part of this effort.

The project consultant team conducted a needs assessment of the Borough's transportation system by reviewing the existing conditions and classifying opportunities for improvements. This evaluation and analysis identified barriers, gaps in connectivity, substandard conditions, and assessed the overall suitability of the existing infrastructure for bicycling and walking. In addition to the existing on-road infrastructure, potential off-road links were assessed in terms of their capability to safely accommodate

Borough of RINGWOOD

Bicycle & Pedestrian Plan

bicycle and pedestrian travel throughout the Borough. Figure 1: Existing Conditions, Opportunities and Constraints Map displays the results of the assessment.

The evaluation process also included analyses to identify where demand currently exists for bicycling and walking. These analyses were completed utilizing the models, methods and data from the Statewide Bicycle and Pedestrian Plan, Phase 2. In addition, segments of regional (county) roadways were evaluated in terms of suitability of those segments for safe bicycle travel. The technical memorandum of the analyses can be found in the Appendix G: Bicycle and Pedestrian Demand and Suitability Technical Memorandum.

The third step in this project was to conduct public outreach. A public visioning workshop was held on August 6, 2008 to inform the public about the plan and elicit their input for the development of the plan. Participants engaged in a dialogue through mapping, visual preference surveys and a written visioning exercise to develop a vision and a set of goals for the plan that depicted a desired future for bicycling and walking in the Borough.



Utilizing the information garnered from the workshop, the project consultant team prepared a draft vision statement complete with goals and objectives. These were intended to serve as guiding principles for Ringwood with respect to addressing the needs of bicycle and pedestrian travel in the community.

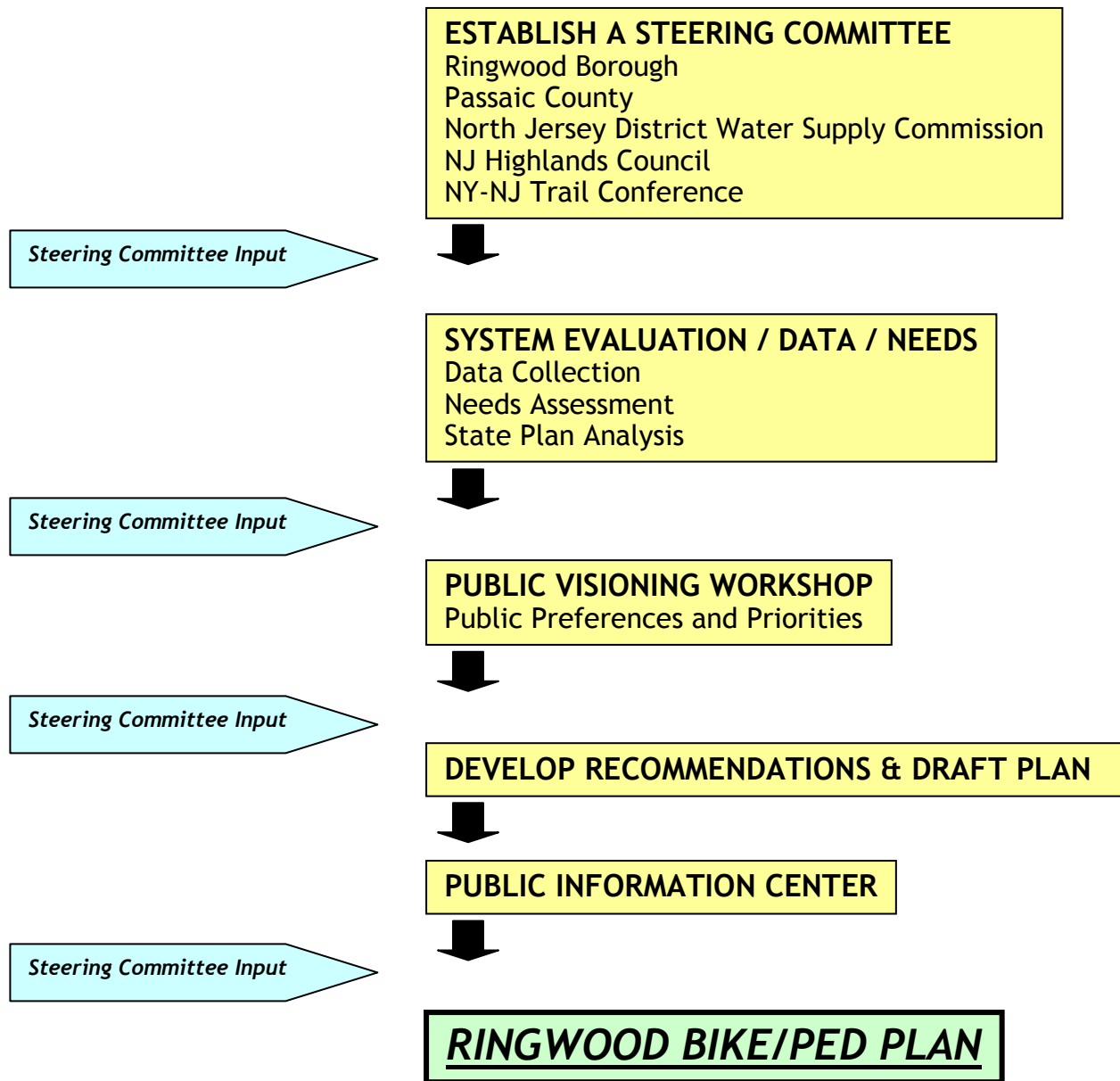
Based upon the findings of the prior steps, a list of preliminary recommendations for improved bicycle and pedestrian facilities was prepared. It included safe walking and bicycling access to the public schools, the transit station, the downtown area, the post office and recreational facilities. Recommended improvements include pedestrian accommodations and streetscape enhancements, bicycle accommodations, and traffic calming. Conceptual plans that address “hotspots” i.e. Skyline Drive and off-road neighborhood connections were also prepared.

After the completion of the analysis phase and the development of the preliminary draft plan, the project consultant team hosted a Public Information Center. The purpose of the Information Center was to present the findings and conceptual improvements in the draft plan to the public and solicit their input and comments. The information center was conducted in an “open house” format allowing the public to view a series of “stations” illustrating the key elements of the plan as well as the ability to have questions answered by the project consultant team or steering committee members.

The last step in developing a comprehensive Bicycle and Pedestrian Plan for the Borough of Ringwood was to incorporate the findings from each preceding task, including the public comment. The Ringwood Bicycle and Pedestrian Plan outlines goals, objectives, and recommendations to fulfill the Borough’s vision. It also presents typical design treatments that could be implemented to address identified needs and opportunities. It is intended that the Plan will be adopted as part of the Circulation Element of the Borough’s Master Plan and that it can be utilized to create a basic Safe Routes to School Travel Plan if desired. A photo log illustrating all the elements of this project was assembled (See Appendix B: Photo Log).

A process flow chart illustrating the project methodology is included on the following page.

PROCESS FLOW CHART



Borough of RINGWOOD

Bicycle & Pedestrian Plan

VISION & GOALS

A Ringwood Borough Bicycle and Pedestrian Plan Public Visioning Workshop was held on Wednesday, August 6, 2008 from 7:00PM to 9:00PM, at the Martin J. Ryerson Middle School. The project consultant team conducted the Public Visioning Workshop to inform the general public about the plan and to elicit their input regarding the needs of bicycling and walking throughout Ringwood Borough.

After receiving the overview of the plan and discussing their preference and priorities, participants were asked to partake in a visioning exercise. The intent of the exercise was to help craft a vision of how they foresaw bicycling and walking throughout Ringwood. A vision statement worksheet was provided to each participant, which they were asked to complete and return before leaving the meeting.

Vision Statement

Utilizing input from the steering committee and the visioning exercise, the following vision statement was assembled:


Ringwood Borough is a community whose residents respect its natural resources, value its recreational opportunities, are proud of the friendly spirit of its neighborhoods, and are committed to promoting safe bicycling and walking opportunities for residents and visitors of all ages and abilities.

Goals and Objectives

- 1) **Establish and maintain traffic speeds that promote and are consistent with safe bicycling and walking throughout the Borough.**
 - Identify locations where traffic calming devices and techniques can be used to slow traffic.
 - Enforce speed limit compliance in lake communities and throughout the Borough.
- 2) **Establish safe and consistent access to recreation, schools, shops, library, transit, etc.**
 - Provide safe bicycle and pedestrian opportunities to connect to major destinations utilizing rights-of-way, easements and local roadways thus establishing a “pathway” that circulates through the Borough.
 - Encourage walking and bicycling to local destinations to reduce traffic congestion, reduce auto emissions, improve health and build community relationships.
 - Encourage visitors to utilize ecotourism opportunities by providing amenities like restrooms, parking and refreshments.
- 3) **Establish a process to identify and remove existing barriers to walking and bicycling in the Borough.**
 - Improve bicycle and pedestrian safety and access across Skyline Drive at the shopping center and library and other areas where people cross major roadways on bike or by foot.
 - Improve safety at intersections of local roads within the lake communities and near the schools.

Ringwood Borough Bicycle & Pedestrian Plan

Create your VISION for Ringwood Borough by answering the following questions and statements to complete the vision statement below. Remember your answers should reflect the future direction of what biking and walking will look like in the Borough of Ringwood. Consider this your wish list.



1. If you could change just one thing about Ringwood Borough in the next 10 years, what would it be?
Make it safer for pedestrians.
2. If you could be assured that one thing about Ringwood Borough did not change in the next 10 years, what would it be?
The rural character.
3. What types of changes would you like to see Ringwood Borough make in its accommodations for bicycling and walking?
Safe ways to cross Skyline Dr.
4. Ringwood Borough is a place where bicyclists and pedestrians *have to* fight fast-moving traffic.
5. Ringwood Borough is recognized as a community that *is environmentally* conscious.

YOUR Vision Statement:
Ringwood values and protects its environment, and prides itself on its rural character. It should do as much as possible to promote safe biking & walking.

Bicycle & Pedestrian Plan

- Improve sight distance in lake communities by keeping overhanging greenery trimmed behind the right-of-way.
- Utilize media like the Borough website or Public Access TV to raise awareness for and encourage safe bicycling, walking and driving behavior.

4) Develop and strengthen partnerships with key stakeholders to foster bicycle and pedestrian facility improvements along public rights of way, easements, and preserved areas.

- Engage community, biking, hiking and other volunteer groups to promote implementation of the Plan.
- Collaborate with property owners to find acceptable solutions to safe bicycle and pedestrian access to primary connection points.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

EVALUATION

As part of a qualitative system evaluation, the project consultant team collected data and conducted a Borough-wide needs assessment resulting in the following observations of existing conditions, opportunities and constraints.

Existing Conditions

Ringwood Borough is a mature residential community that has committed itself to maintaining its rural qualities by prioritizing open space and limiting development. A testament to this abiding principle is the limited number of sidewalks throughout the Borough. Ringwood's character is often defined by its lake communities which house the Borough's most concentrated development. This typical development pattern around the Cupsaw, Erskine and Skyline Lakes coupled with the construction of the Wanaque Reservoir, has inadvertently divided the Borough into distinctive neighborhoods leaving the outer lying areas such as Stonetown and Upper Ringwood isolated and less developed in comparison. Due to the hilly topography, some of the neighborhood streets in the lake communities are narrow and curvy with steep slopes. These residential streets typically do not have a centerline stripe and allow parking on both sides. Homes align both sides of the street and, due to the constraints imposed by the landscape, driveways have limited depth forcing many homeowners to park on the street.



The Borough has few commercial uses, which are restricted to practical services such as the supermarket, cleaners, and the pharmacy. The core of these commercial uses can be found in the three main shopping centers located along and adjacent to Skyline Drive: Ringwood Plaza, Fieldstone Park and Ringwood Commons.

There is limited regional roadway access to Ringwood as there are no interstate, state or U.S. highways within the Borough. The Borough's roadway network is formed by a series of local and county roads with no traffic signals within the Borough. The main thoroughfares are Ringwood Avenue/Greenwood Lake Turnpike (County Route 511), Skyline Drive (County Route 692), Sloatsburg Road (County Route 697), and Margaret King Avenue (County Route 698). Skyline Drive provides the only linkage between Ringwood and Interstate 287, connecting in neighboring Bergen County.

Motorized travel around Ringwood is heavily dependent on personal automobile use as the only public transportation option is bus service from the New Jersey Transit Park and Ride Bus Station located along Cannici Drive. This station provides local service to neighboring towns and attractors e.g., the Willowbrook Mall, and regional service to New York City's Port Authority Bus Terminal. Using information gathered from the Journey to Work questionnaires in the U.S. 2000 Census, it should be noted that the majority of Ringwood residents' journeys to work are within the Borough; however, a large number of residents do travel to Manhattan and Wayne Township.¹

¹ U.S. Census Bureau's MCD/County-To-MCD/County Worker Flow Files, <http://www.census.gov/population/www/cen2000/commuting/mcdworkerflow.html>

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Ringwood's 20th century development is related to the enjoyment of the recreational opportunities within the Borough. The natural beaches formed around the lakes are privately managed by each of the associations in the lake communities and are accessible to the public by membership only. The most significant recreational opportunities can be found in the 4,044 acre Ringwood State Park. Visitors to the park are afforded amenities such as picnicking, trails for hiking, horse riding and mountain biking, swimming, and boating.² The Park is also home to the State Botanical Gardens and Shepherd Lake Recreation Area as well as the historic landmarks of Ringwood Manor and Skylands Manor.

Bicycle and Pedestrian Trip Attractors/Key Destinations

A key factor in evaluating and establishing an improved bicycle and pedestrian circulation system is to identify the places and land uses that typically attract bicyclists or pedestrians. This helps to define the focus areas for bicycling and walking improvements. It should be noted that even if these accommodations are not provided, there are certain segments of the population that choose to, out of necessity, walk and bike to these destinations. By creating a safe circulation system that provides improved bicycle and pedestrian access to these destinations you can not only address current circulation, but you may also be able to shift the travel choices from single occupancy automobiles to human powered modes.



During the completion of the State Plan Analysis, the project consultant team examined demand and suitability for bicyclist and pedestrian access to key destinations. The demand for bicycle and pedestrian travel is based on factors such as population, demographics and employment. Given the number and proximity of attractors such as schools, historical, scenic and recreational features within the Borough, the analysis suggests that bicycle and pedestrian travel are reasonable and appropriate modes of travel to a variety of destinations throughout the Borough. Although many of the major road segments in their current state appear less suitable for bicycle and pedestrian travel due to the current traffic and geographic conditions, improvements to the infrastructure can increase their suitability for bicyclist and pedestrian travel.

In Ringwood, a number of destinations were identified thorough the State Plan analysis and public outreach as typical attractors. The public identified places they access now as well as places they would like to access by bicycling and/or walking if motorist behavior and infrastructure were improved. These attractors include schools, municipal buildings, parks, recreational facilities, shopping centers, a transportation facility, neighboring municipalities such as those listed below:

² New Jersey Department of Environmental Protection, Ringwood State Park, <http://www.state.nj.us/dep/parksandforests/parks/ringwood.html>

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Schools

- Robert Erskine Elementary School (K– 3)
- Peter Cooper Elementary School (K – 3)
- Eleanor G. Hewitt Elementary School (Grades 4-5)
- Martin J. Ryerson Middle School (Grades 6-8)

Municipal Facilities

- Ringwood Borough Hall
- Ringwood Post Office
- Ringwood Police Department
- Ringwood Boro Fire Company #1
- Skyline Lakes Fire Department
- Erskine Lakes Volunteer Fire Company#1
- Ringwood Library

Municipal Parks/Open Space

- Norvin Green State Park
- Ringwood State Park
- New Jersey State Botanical Gardens
- Ringwood Manor (National Historic Landmark)
- Skylands Manor House (National Historic Landmark)
- Shepard Lake Recreation Area
- Long Pond Ironworks State Park
- Stonetown Athletic Field
- Tranquility Ridge County Park

Key Attractors

- Monksville Reservoir
- Wanaque Reservoir
- NJ Audubon Society Weis Ecology Center/Campground
- Farmer’s Market – located at the NJ Transit Park and Ride Bus Station
- Highlands Natural Pool
- Cupsaw Plaza
- Ringwood Plaza Shopping Center
- Fieldstone Park Shopping Center
- Ringwood Commons
- New Jersey Trails
- Cupsaw Lake
- Erskine Lake
- Skyline Lake

Transportation Facilities

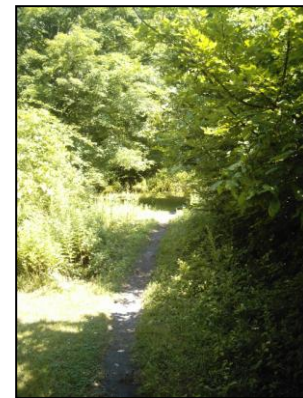
- New Jersey Transit Park and Ride Bus Station



Peter Cooper Elementary School



Ringwood Library



Ringwood State Park



Monksville Reservoir

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Neighboring Municipalities/Counties

- Wanaque
- Oakland
- West Milford
- Bloomingdale
- Bergen County
- Rockland County, New York
- Orange County, New York

Bicycle and Pedestrian Facilities

Ringwood currently does not have any “designated” on-road bicycle facilities but there are currently set asides in the Borough’s Ordinance Code for bicycle routes and lanes when locations are identified by the Borough. The Borough, with the assistance of Passaic County, is currently proposing an on-road bicycle facility from the Ringwood Library to Ringwood Manor. Borough officials are working to integrate bicycle facilities into the infrastructure by reducing travel lanes along various roadways to increase the width of the shoulder to accommodate bicyclist travel.

According to Ringwood Board of Education officials, all students in the Borough are bused. According to N.J.A.C. 6A:27, the State of New Jersey provides busing for those elementary students, public or nonpublic, that live beyond two miles from their school of attendance. All of the schools are located in the eastern portion of the Borough thereby leaving students in areas such as Stonetown beyond the two mile radius. All high school students are bused to Lakeland Regional High School which is in the neighboring Borough of Wanaque. For those that are within the 2 mile radius of their school, the Borough provides hazard busing based on a combination of factors such as the lack of sidewalks, topography and average roadway speeds which can make conditions hazardous for children to walk and bicycle to school. The Borough has a number of enhanced crosswalks to increase pedestrian visibility when crossing the roadway and has crossing guards posted at various intersections.



Ringwood has many off-road facilities for bicyclists and pedestrians. The most valuable of these is its extensive trail system. The Highlands Trail, a cooperative network of trails under the stewardship of the New York-New Jersey Trail Conference is located in Ringwood. As it continues to be built, its trail network will include alternate route and multi-use paths that span over 150 miles between New York and New Jersey. Currently, there are approximately 24-26 miles of hiking trails located within the Borough. Many of these trails are already marked with existing trailheads. Over 20 miles of the Borough’s hiking trails are located in Ringwood State Park which also has a 7.5 mile loop for mountain biking.³

In addition, there are a number of informal trails and/or paths within the Borough used by bicyclists and pedestrians to make neighborhood connections. For example, a network of trails exists behind the Martin J. Ryerson School that allows a connection to the school from the surrounding

³ <http://www.state.nj.us/dep/parksandforests/parks/ringwood.html#trails>

Borough of RINGWOOD

Bicycle & Pedestrian Plan

neighborhood but they are not marked. Many of these informal connections are along roads that were exclusively for emergency access and are cordoned off by a gate thereby limiting access to motor vehicles.

State Plan Analysis

As noted above, utilizing the methods and data for modeling bicycle and pedestrian demand and suitability from the NJ Statewide Bicycle and Pedestrian Master Plan, Phase 2, an analysis of bicycle and pedestrian demand in Ringwood and the suitability for biking on Ringwood's regional roadways was conducted. The results indicated that bicycle demand is relatively high and regional roadways as they currently exist are relatively "suitable." According to the findings, pedestrian demand is low throughout the Borough, while "suitability" (as measured by the ability to cross crossing regional roads) is high. However, these results were in conflict with public opinion.

It should be noted that the bicycle demand model used provides a conservative estimate of demand as it does not predict recreational trips. The pedestrian demand model does not use data generated since the original release of the model. Both the bicycle and pedestrian suitability models evaluate links (segments) of a corridor, not full corridors and the pedestrian suitability model predicts one's ability to *cross* a road rather than *travel along* it. The analysis should be used as a guide to illustrate areas where demand generally exists and suitability could potentially be enhanced with the implementation of new or improved facilities for bicycling and walking. See Appendix G: Bicycle and Pedestrian Demand and Suitability Technical Memorandum for the full analysis.

Bicycle and Pedestrian Crash Statistics

The project consultant team received reports from the Borough's police department regarding speed surveys that were done in the three lake communities of Skyline, Erskine and Cupsaw. These speed surveys reflect the public's perception of the speeding that occurs within these communities and were a factor in the lowering of speed limits there.

In addition to reviewing the results of the Ringwood Lake Community Speed Survey, the project consultant team also reviewed crash data for motor vehicle crashes provided by the Borough's Police Department. From January 2002 through July 2008, a total of twenty-one (21) pedestrian and five (5) bicycle crashes occurred within the Borough, none of which were fatal.

See Appendix H: Crash and Speed Survey Summary for the complete reports.

Impact of New Jersey Highlands Legislation

Ringwood Borough is located in the New Jersey Highlands, which is a 1,250 square mile area of a natural geological formation that spans from Phillipsburg in the southwest to Ringwood in the northeast. The Borough, like much of the Highlands, provides the state's water resources and is home to the Wanaque Reservoir - notably New Jersey's largest reservoir. Because Ringwood is located entirely within the Highlands Preservation Area, it is required to implement and be in conformance with the Highlands Regional Master Plan



Borough of RINGWOOD

Bicycle & Pedestrian Plan

adopted by the Highlands Council, effective September 2008. Being entirely within the preservation area does not preclude the Borough from any new development, but it must be consistent with the guidelines in the Highlands Plan. This requires the Borough to identify areas that will be permanently preserved from development as well as developing standards and regulations for future land development where it is permitted. The Highlands Plan includes several exemptions for preservation areas which include the construction of trails and “transportation work that does not increase through-capacity travel lanes.” The summary of exemptions and waivers under the Highlands Act are noted in Appendix I: Highlands Legislation.

In anticipation of the adoption of the Highlands Plan, the Borough initiated the conformity process by adopting its revised Land Use Plan Element in June 2007. The revised land use element identifies goals for future land development that ensure the prioritization of Ringwood’s natural resources and strategic options for redevelopment throughout the Borough as they relate to the draft Highlands Plan. The Borough has nine to 15 months after the Plan’s September 2008 effective date to be in full conformance.

Opportunities and Constraints

Ringwood has many opportunities to enhance bicycling and walking throughout the Borough – and just as many barriers. Based on data, field investigations, and community outreach, an analysis of opportunities and constraints was conducted which resulted in the following lists. These lists were developed through a consensus process driven by the Steering Committee whereby the appropriateness and *general* feasibility was agreed. The lists are not exhaustive, but provide a base from which a prioritized bicycle and pedestrian improvement strategy could be developed. The map on page 16 illustrates property ownership, formal and informal walking routes, pathways and trails, key destinations, difficult crossings and more.

Opportunities

There are many bicycle and pedestrian opportunities that can be realized within Ringwood that meet the Borough’s goal to have non-motorized access to key destinations while retaining its natural and bucolic character and boosting eco-tourism. Based on the vision and goals, input by the Steering Committee, information collected through the field investigations, and input from community outreach, some opportunities for implementing walking and bicycling improvements are:

- Many natural, historic, cultural and recreational destinations are within a reasonable walking or bicycling distance.
- Attraction to bicyclists (both on- and off-road) indicate potential need for bicycle shop, particularly within/or near shopping centers along Skyline Drive.
- Park and Ride lot can be used as a bicyclist meeting location.
- A network of trails currently exists within Ringwood State Park.
- Utility corridor easement is an opportunity for an off-road path connecting to Borough Hall, Ringwood State Park and neighboring municipalities.
- The 120 foot right-of-way for Skyline Drive offers the potential for an off-road side path.
- Existing trails within reservoir that can be marked and included as part of the Borough’s eco-tourism.
- The abandoned rail corridor within the reservoir property could be converted to a rail trail.

Borough of RINGWOOD

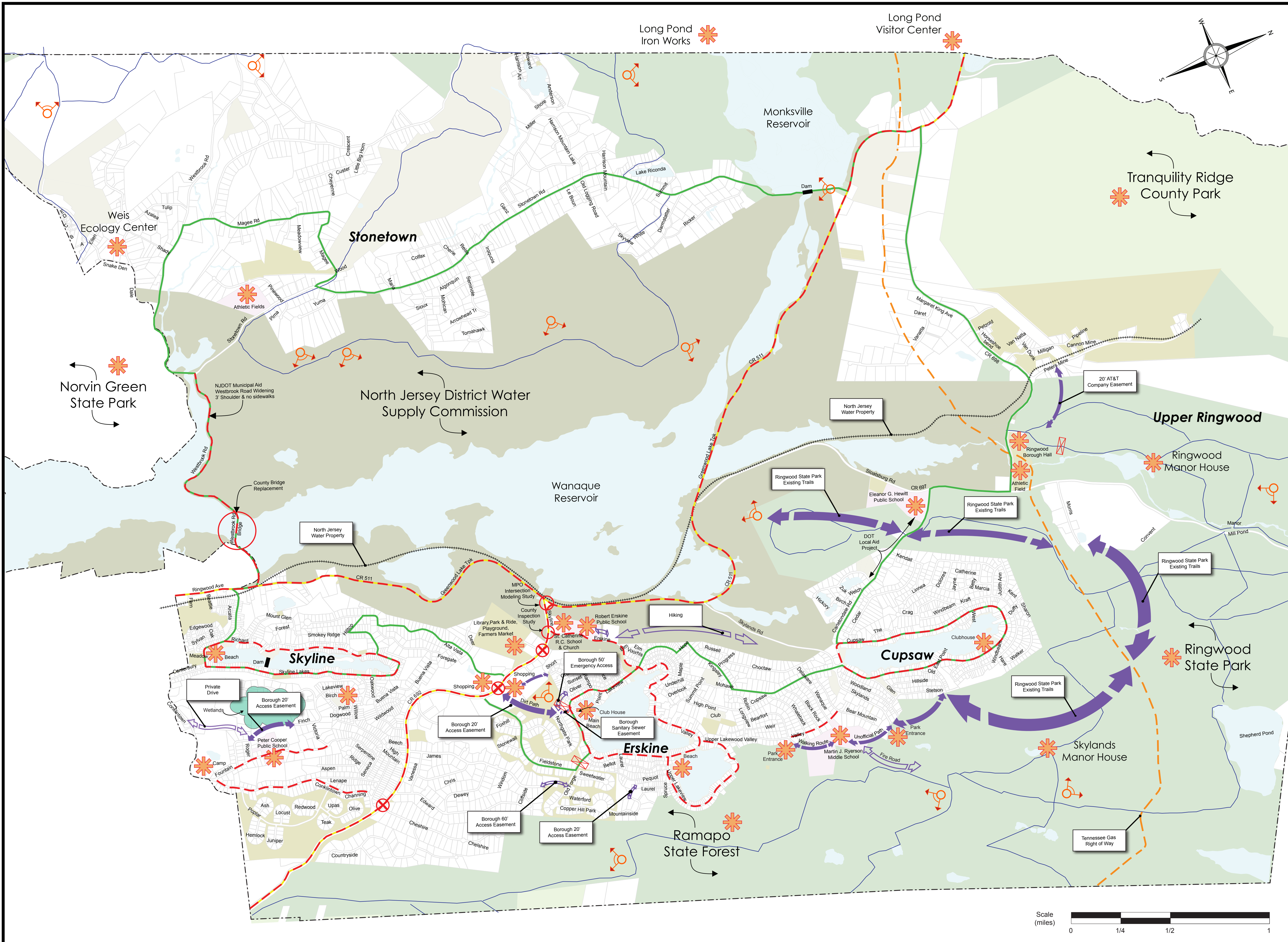
Bicycle & Pedestrian Plan

- Unofficial connections (i.e. footpaths) throughout the Borough can be marked and included in the official bicycle and pedestrian network.
- Cannici Drive offers opportunity to relocate town hall and create a new town center.
- Driveway realignment and signal at shopping centers can offer better crossing opportunity for people on foot or bike.

Constraints

There are a number of constraints to bicycling and walking that are evident throughout the Borough or unique to specific target areas. There are intersection crossing conditions, land development constraints, steep slopes, and bicycle/pedestrian disconnects. Constraints are usually conditions that pose a hurdle to attaining a desired goal – but often they provide opportunities for overall improvement. Some of the constraints to bicycling and pedestrian circulation within Ringwood are:

- Lack of adequate bicycle facilities and amenities.
- Lake community streets are narrow, do not have sidewalks or street lighting, and are prone to speeding.
- Crossing regional roadways is difficult due to the headways and speed of traffic, particularly at Skyline Drive shopping centers.
- Informal connections are unsigned, often blocked by gates and have varied surface conditions.
- Abandoned railroad right-of-way is privately owned by North Jersey District Water Supply Commission, used for general maintenance.
- No on-road bicycle facilities and limited width along the shoulders.
- Narrow, curvy roadways and steep slopes, limit walking and bicycling.
- Park and Ride lot is by permit-only and has limited bicycle parking.
- Hazard busing is provided to most students that live within a reasonable walking distance to their school.



Ringwood Borough
Bicycle & Pedestrian Plan
**Existing Conditions,
Opportunities
and Constraints**



LEGEND

- View
- Project in progress
- Difficult Crossing
- Major Destination
- Gated Road
- Borough Boundary
- Foot Trails
- County Roads
- Club Bike Route
- Utility Corridors
- RR Right-of-Way
- Paved Connection
- Dirt / Earthen Connections
- Difficult to Walk or Bike (per Steering Committee)
- Water
- State Lands
- North Jersey District Water Supply Commission
- County Lands
- Borough Property
- Board of Education
- Privately-Owned Open Space

Date: Jul 2008, Oct 2008, Dec 2008, Jan 2009, April 2009
Job Number: J4000.03

Figure 1



RECOMMENDED OPTIONS

The infrastructure and environs available to the public set the stage for the quality of their travel experience. Quality of life in Ringwood can be either enhanced or diminished by the choices for getting around and through the Borough. Based largely on a qualitative evaluation of Ringwood's current bicycling and walking conditions, the project consultant team has identified where opportunities for improvement exist. This section of the Ringwood Bicycle and Pedestrian Plan describes both physical and programmatic options that can tie together the major destinations around the Borough, enhance walking and bicycling trips for people of all ages and abilities, and likely improve travel conditions for motorists as well.

A series of recommendations are provided as options for the Borough of Ringwood to consider while implementing this Bicycle and Pedestrian Plan. They are organized into eight **Discussion Categories** that address key walking and bicycling circulation issues. Within each category, the reasoning behind the recommendation is discussed, and specific infrastructure improvement recommendations are made. The categories are Connections Between the Lakes, Crossings, New Facilities, One-Way Lake Circulation, Regional Roadways, Amenities, Awareness/Enforcement and Policy/Implementation. All suggested recommendations fall within an overall approach consisting of three phases.

In addition, concept level "**Hot Spot**" schematics were prepared to explore three of Ringwood's most significant concerns: potential for one-way circulation around the lakes, crossing CR 511 to access rail right-of-way, and crossing Skyline Drive between the shopping centers. These concepts are illustrated in Figures 2, 3, and 4, Hot Spot Concepts.

An **Action Implementation Table** is provided on page 36 which pinpoints each recommended option, the responsible party for implementation, whether it is a low- or high-cost action, and suggested phasing.

Finally, the **Recommendations Map** titled, Figure 5: Existing Conditions and Recommendations, illustrates how the implementation of these recommendations will result in a Borough-wide network of bicycle and pedestrian-friendly facilities that meet the vision and goals of this plan. This map indicates location and phasing of these improvements.

Because this section includes both infrastructure improvements and non-infrastructure activities, it can easily be utilized as part of a Safe Routes to School Travel Plan where improvements are within 2 miles of an elementary or middle school and where activities directly address students' school commute. For more information on implementing a Safe Routes to School program in Ringwood, go to <http://www.state.nj.us/transportation/community/srts/>.

Design treatments suggested in this section are in accordance with MUTCD, AASHTO, and New Jersey Department of Transportation, Bicycle Compatible Roadways and Bikeways and Pedestrian Compatible Planning and Design Guidelines. For a more in-depth, detailed description of the design treatments included in this section, see Appendix A: Design Guidelines.

Note: The conceptual recommendations in this plan are based on limited qualitative assessments. Further right-of-way, utility, environmental, traffic and engineering analyses are necessary to determine final design recommendations.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Discussion Categories

1. Connections Between the Lakes

The eastern portion of Ringwood Borough is primarily made up of the three residential lake communities surrounding Skyline, Erskine and Cupsaw lakes. Traveling along the narrow, hilly, winding roadways within the communities is difficult without a car. Yet, the desire of Ringwood’s residents to do so is one of the primary reasons this plan was developed. The recommended options for improving connections between the lakes include signs, striping and pavement markings within the existing paved width of the roadways, maintaining and formalizing current paved easements, modifying gated roads, and providing traffic calming treatments where appropriate. Shoulder widening of some roadways are also suggested.

See Figure 5: Existing Conditions and Recommendations map legend for “Signs, Stripes & Pavement Markings”, and “Paved Connections via Easements/ROWs”.

Bike Routes/Wayfinding – By providing informational bicycle route guide signs (MUTCD D11-1 and D1-1b) along designated roadways, motorists will be alerted to the likely presence of bicyclists and their legal use of the roadway will be reinforced. By including directional and distance information (wayfinding), bicyclists are given a clear message about how far it actually is between specific destinations. This can be the passive encouragement for residents to bicycle to and between the lakes, and for visitors to park at a central location (like the library/park-and-ride) and bicycle between or to major recreational areas (such as Ringwood State Park). However, these signs primarily address access as opposed to safety concerns. By themselves they do not address the needs of novice or inexperienced bicyclists.



D11-1



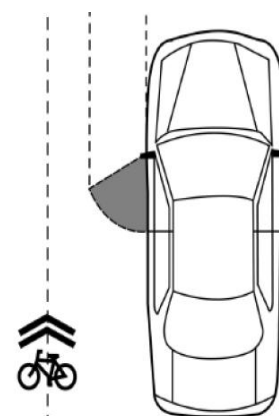
D1-1b (R)



D1-1b (L)

Note: Bike Route/Wayfinding signs are recommended for all roadways within the Ringwood bicycle and pedestrian circulation system.

Shared Lane Markings – In addition to bike route and wayfinding signs, shared lane markings provide a measure of safety for bicyclists on a roadway that is not wide enough for a designated bike lane. The striping treatment indicates intended travel direction and lateral lane position for bicycle riding thus encouraging predictable bicycle travel along shared roads. A Shared Lane Marking does not provide dedicated space for exclusive bicycle use. Also, this treatment has not yet been adopted into the MUTCD and requires an application to experiment.



Borough of RINGWOOD

Bicycle & Pedestrian Plan

Paved Easements and Gated Roads – Throughout the lake communities, there are paved easements and gated roadways that restrict automobiles but allow walking and bicycling. If these existing connections were as well known to visitors as they are to residents, many motor vehicle trips could be avoided. In addition, the gates on the gated roads do not allow bicycle and pedestrian travelers to pass without moving off-pavement to get around them. As part of an overall bicycle and pedestrian circulation system, paved Borough-owned easements and gated roads should be enhanced by providing more accessible gates and wayfinding signs.



Traffic Calming – Providing traffic calming design treatments between the lake communities can be an effective way to slow motor vehicle traffic and provide a safer, more appealing environment for walking and bicycling. In areas where motor vehicle travel speeds are perceived to be excessive, speed studies should be conducted. Where speeds are shown to be above posted limits, design treatments should be implemented that target the problem, and are sensitive to the context of the area. Treatments that would likely be most appropriate for these neighborhoods are speed humps, raised crosswalks and intersections, rumble strips, and curb extensions. Keep in mind that vertical traffic calming elements are extremely effective at eliminating excessive speeding and must conform to “N.J.S.A. 39:4-8.10 and 8.11”. Volume control measures such as forced turns, closures and one-way street conversions can target cut-through traffic issues and provide space on the road for other treatments, but are often also the most controversial. Local residents and emergency services should be included in the detailed planning required to select appropriate traffic calming treatments.

Recommendations:

Phase 1: Carletondale Road, Cupsaw Avenue, Mohawk Trail, Erskine Road, Fieldstone Drive, Alta Vista Drive, Hilltop Road, Smokey Ridge Road and Skyline Lakes Drive. (Recommendations are the same for Phase 1 and 2. See bullets below.)

Phase 2: Skylands Road, Bear Mountain Road, Valley Road, Upper Lakeview Avenue, Old Forge Road, James Road, High Mountain Road, Fountain Drive, Serpentine Road, Seneca Drive, Conklintown Road, and Skyline Lakes Drive.

- Provide informational bicycle route guide signs (MUTCD D11-1) along designated roadways.
- Affix wayfinding signs (MUTCD D1-1) to appropriate bike route signs to connect key destinations.
- Apply to FHWA for permission to experiment with Shared Lane Markings. (See Appendix K: MUTCD Section 1A.10 Interpretations, Experimentations, Changes, and Interim Approvals.)
- Install Shared Lane Markings on existing roadways designated as bicycle routes, along priority bicycle routes at intersections and at intervals along longer block lengths.
- Maintain and sign (Bike Route and Wayfinding) existing paved easements and gated roadways (at both ends of paved connections between James Drive and Old Forge Road and between Short Place and Northgate Park).
- Provide accessible gates that allow pedestrians and bicyclists to conveniently travel along paved easements and gated roadways (Old Forge Road between Bellot Road and Sweetwater Lane, and access between Short Road and Northgate Park).

Borough of RINGWOOD

Bicycle & Pedestrian Plan

- Conduct a speed study and/or traffic calming analysis to determine appropriate locations for traffic calming treatments like speed humps, raised crossings and intersections, rumble strips, and curb extensions.
- Establish a traffic calming public endorsement policy. This should help to ensure that projects have public support and consensus prior to construction.
- Plan, design and construct traffic calming elements to target specific motor vehicle travel issues.

2. Crossings

A key impetus to the development of the Ringwood Bicycle and Pedestrian Plan was to provide safe access to schools, shops, recreation and other major destinations for people traveling on foot or bike. The most frequent conflict location between human powered and motor vehicle traffic is at the crossings. Of particular concern are crossings of the regional roadways like Skyline Drive and Greenwood Lake Turnpike.



Providing high visibility crosswalks is often a good method of alerting motorists to expect people crossing the roadway, and for channelizing people to a common crossing location. Additional treatments such as flashing warning beacons or in-roadway illuminated crosswalks should be considered for high-volume, non-signalized crossing locations.

As part of this plan, some new facilities such as sidewalks and shared use paths are being considered in order to complete a Borough-wide circulation system for walking and bicycling (see discussion Category 3 - New Facilities). The recommended crossing options for Ringwood to consider include enhanced crosswalks on existing roadways and colorized, high-visibility crosswalks to accommodate travel along the potential new facilities.

See Figure 3: Hot Spot Concept At-Grade, Shared Use Path Crossing, Figure 4: Hot Spot Concept Shopping Center Crossing, and Figure 5: Existing Conditions and Recommendations map legend for “New or Enhanced Crosswalk”.

Recommendations:

Phase 1: First phase will provide new or enhanced crosswalks on existing roadways (no new construction).

- Install enhanced crosswalks and warning signs (MUTCD S1-1/W16-9P “ahead” and S1-1/W16-7P “arrow”) on Valley Road at the intersections of Wanaque Terrace, Black Rock Terrace, Whaleback Terrace, and Bearfort Terrace to accommodate the students of Ryerson Middle School.
- Provide enhanced crosswalks and warning signs (MUTCD W11-2 or S1-1) throughout the Borough near schools, shops, recreation and other bicycling and walking destinations.

Phase 2: Second phase crossings rely on whether new sidewalks, shared use paths and other formalized connections through existing easements are constructed. The Shopping Center Crossing, which is independent of any new facility construction, is also second phase.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

- Provide a high-visibility, in-roadway illuminated (or flashing warning beacons) crosswalk and warning signs (MUTCD W11-2/W16-7P) on Greenwood Lake Turnpike (CR 511) where the shared use path is suggested to cross just north of Skyline Drive (CR 692), (see Figure 3: Hot Spot Concept, Shared Use Path Crossing).
- Provide high-visibility crosswalks (possibly in-roadway illuminated or with flashing warning beacons) and warning signs (MUTCD W11-2/W16-7P) at the following potential new facility crossings:
 - Skyline Drive Shared Use Path across Skyline Drive at High Mountain Road and James Drive.
 - Skyline Drive Shared Use Path across Skyline Drive at Cannici Drive, and Erskine Road (connecting to library, transit and potential new sidewalk on west side).
 - Skyline Drive Shared Use Path across Fieldstone Drive and Erskine Road.
 - Rail right-of-way path across Skyline Lakes Drive, Ringwood Avenue, Westbrook Road, Greenwood Lake Turnpike, and Margaret King Avenue.
 - Gas transmission easement path across Greenwood Lake Turnpike, Margaret King Avenue, and Sloatsburg Road.
- Construct a new four-legged, semi-actuated signalized intersection between the Fieldstone Park and Ringwood Plaza shopping centers crossing Skyline Drive (see Figure 4: Hot Spot Concept Shopping Center Crossing). Intersection will require the following modifications:
 - Alter Ringwood Plaza driveway access to align with Fieldstone Park driveway.
 - Include high visibility crosswalks, pedestrian countdown signal heads, pedestrian push button signal activation, lead pedestrian interval signal timing and bicycle loop detectors.
 - Address internal circulation with walkways, crosswalks, bicycle shared lanes, and bicycle parking.
- Incorporate walking and bicycling safety programs into the elementary school curriculum.⁴

3. New Facilities (Shared Use Paths/Sidewalks)

A top priority of this plan is to explore the opportunity for off-road bicycling and walking facilities throughout the Borough. In addition to the numerous biking, walking and boating opportunities that exist within Ringwood’s surrounding parklands, there are several easements and rights-of-way that have the potential for inclusion in the bicycle and pedestrian circulation system that provide links between major destinations and along major corridors. The recommended options to consider for new facilities in Ringwood include securing permission to utilize existing rights-of-way, design of the facility in accordance with regulatory guidelines, consideration of sustainable and environmentally-friendly materials, and timely implementation. Properties included in this discussion are the Skyline Drive 120 foot wide right-of-way, the rail road right-of-way within the Wanaque Reservoir property, the Tennessee Gas right-of-way, various Borough easements that can provide small but critical connections, and sidewalks in high-pedestrian traffic areas like shops and schools.



See Figure 5: Existing Conditions and Recommendations map legend for “Utility Corridors”, “RR Right-of-Way”, “Off-Road Shared Use Path”, and “Sidewalks”.

⁴ http://safety.FHWA.DOT.gov/ped_bike/#education

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Skyline Drive ROW Shared Use Path – The 120 foot wide Passaic County right-of-way along Skyline Drive provides a great opportunity to construct a shared use path along one of the most frequently traveled corridors in Ringwood. Providing an off-road, shared use path parallel to Skyline Drive will provide a connection between the shopping centers, Ringwood Avenue/Greenwood Lake Turnpike and the Skyline Lake and Erskine Lake communities. Consideration must be given to areas with steep slopes and crossing points along Skyline Drive.

Rail Right-of-Way Path – Providing a shared use path along the rail right-of-way within North Jersey District Water Supply Commission (NJDWSC) property can tie together Ringwood's neighborhoods and major destinations. The rail right-of-way offers a separate, parallel, level alternative to CR 511 for bicyclists and pedestrians. However, the NJDWSC considers use of the ROW a potential security risk and currently utilizes the rail bed for reservoir patrol and maintenance. The possibility of pipeline construction through the easement exists as well.

Gas Right-of-Way Path – The Tennessee Gas transmission line right-of-way traverses northern Ringwood, passing nearby the Monksville Reservoir, Ringwood Borough Hall, Cupsaw Lake, Ringwood State Park and the Skyland's Manor House. It offers an off-road alternative for travel between the Cupsaw Lake community and Borough Hall and the adjacent athletic fields. The remote alignment may raise personal security issues if use is infrequent.

Northgate Easement Path – The Borough-owned access easement connecting the Fieldstone Park Shopping center with the Northgate Park cul-de-sac combined with the Borough-owned sanitary sewer easement⁵ which connects to Lakeview Avenue (around Erskine Lake) make up the "Northgate Easement". The existing earthen path connection is frequently used by local residents. The surface has areas of erosion and has a variable width. Access to this corridor is not apparent to travelers who are unfamiliar with the area. Providing more clear access points and an all weather surface along the path will accommodate a wide range of users and help to encourage more local trips to be made on foot or bicycle. Due to the separate isolation from public travel ways, the path has the potential for personal security issues if frequent use is not expected.

Skyline Drive Sidewalk – Skyline Drive is a major through corridor with numerous destinations along its alignment. Connecting the library to the shopping centers with a sidewalk along the western (southbound) side of the road would allow pedestrians a more convenient and direct access between these locations. Consideration must be given to areas with steep slopes and crossing points along Skyline Drive.

Fountain Drive Sidewalk – Providing a sidewalk along Fountain Drive will link the adjacent residential neighborhoods to the Peter Cooper Elementary School. This will enhance walking conditions for many families who reside in the Finch Road neighborhood behind the school who are not bused due to inadequate bus turn-around ability within the development. The sidewalk will help to accommodate others walking to school as well as those who utilize the bus stop by the Cooper School. Connecting the sidewalk to Conklingtown Road will enhance walking to the high school.

Erskine Road Sidewalk – Constructing a sidewalk past the Robert Erskine and St. Catherine Schools will provide a dedicated pedestrian connection to both the Skyline Drive corridor and the neighboring residential community around Erskine Lake.

⁵ Ringwood Tax Map

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Valley Road Sidewalk – Students attending the Ryerson Middle School who come from Whaleback Terrace, Black Rock Terrace, Wanaque Terrace and Bear Mountain Road are considered “walkers” and all channel onto Valley Road for part of their school commute. There is currently no bus route along Valley Road, and many of the students coming from areas further south utilize an off-road path across school property to access the school. A sidewalk along the school frontage of Valley Road will provide an off-road pedestrian facility for Ryerson Middle School students.

Margaret King Avenue Sidewalk – Providing a sidewalk along Margaret King Avenue between Boro Parkway/Chicken House Road and Sloatsburg Road will tie the Ringwood Borough Hall and Borough athletic fields together. Construction may encounter potential environmental constraints at the Ringwood Brook Crossing.

Note: Surface types for shared use paths can range in cost, durability, aesthetics, and eco-friendliness. Depending on factors such as context and use, the types of surfaces to consider can include asphalt, concrete, rubberized, crushed stone, wood chips, recycled materials, boardwalks and more, each with varying advantages and disadvantages. See Appendix A: Design Guidelines for Path Surface Options.

Recommendations:

Phase 1: First phase options refer to sidewalks that require immediate attention such as in the vicinity of primary pedestrian destinations such as schools, shops and transit.

- Design and construct sidewalk along the southbound (western) side of Skyline Drive from Cannici Drive to the Ringwood Plaza Shopping Center.
- Design and construct sidewalk along Fountain Drive in front of Cooper School from Conklintown Road to Victoria Lane.
- Design and construct sidewalk along Erskine Road in front of Erskine School from Skyline Drive to Lakeview Avenue.
- Design and construct sidewalk along Valley Road in front of Ryerson School from Bearfort Terrace to Bear Mountain Road.
- Design and construct sidewalk along Margaret King Avenue from Boro Parkway/Chicken House Road to Sloatsburg Road.

Phase 2: Second phase options refer to new facilities central to the heart of Ringwood’s bicycle and pedestrian circulation system but not requiring immediate attention.

- Design and construct a shared use path along Skyline Drive within the existing 120’ wide ROW on the Northbound (eastern) side of the road from High Mountain Road to CR 511/Ringwood Avenue/Greenwood Lake Turnpike.
- Design and construct a shared use path along the railroad ROW parallel to CR 511 within the NJDWSC property from Skyline Drive to Margaret King Avenue.
- Design and construct a shared use path along the vacated Duffy Road easement from Kent Road/Sharon Court to Morris Road.
- Design and construct a shared use path along Borough easements connecting Northgate Park to Fieldstone Park Shopping Center and Lakeview Drive.
- Design and construct sidewalk along Conklintown Road from Fountain Drive to Skyline Drive.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

- Provide informational bicycle route guide signs (MUTCD D11-1) and wayfinding signs (MUTCD D1-1b) along all shared use paths as part of Ringwood’s bicycle and pedestrian circulation system.

Phase 3: Third phase options generally refer to the extension of shared use paths to neighboring communities and/or areas identified as difficult to walk or bike.

- Design and construct a shared use path along the railroad ROW parallel to CR 511 within the NJDWSC property from Skyline Drive south to Wanaque Borough and from Margaret King Avenue north to West Milford Township.
- Design and construct a shared use path along the Tennessee Gas transmission line right-of-way from Duffy Road east to Mahwah Township and from its intersection with the NJDWSC rail right-of-way west to West Milford Township.
- Conduct quantitative right-of-way, utility, environmental, traffic and engineering assessments to determine final design recommendations for new bicycle and pedestrian facilities.
- Secure agreement with Passaic County for development of a shared use path within the Skyline Drive right-of-way.
- Secure agreement with NJDWSC for development of a shared use path within the railroad right-of-way.
- Secure agreement with the Tennessee Gas Utility for development of a shared use path within the gas line right-of-way.
- Coordinate with local community groups to volunteer for trail policing and maintenance.

4. *One-Way Lake Circulation*

In terms of motor vehicle traffic, the lake communities in the eastern portion of Ringwood (Cupsaw, Erskine and Skyline), are generally quiet. However, narrow, twisty, steep roadways and fast-moving motor vehicles pose a danger to bicycling and walking. Although, sidewalks would commonly be recommended to accommodate pedestrians on roadways with high volume/speeds, and bike lanes would generally be signed and striped to dedicate space for bicyclists where space allows, the physical and cultural nature of the lake community demands a more flexible approach.



To preserve the natural feel of the landscape, the considerations for improving walking and bicycling around the lakes all are required to maintain the existing roadway width (18 – 20 feet), i.e., no roadway widening or sidewalks are considered⁶. One-way circulation for autos was considered, but only surrounding Cupsaw and Erskine Lakes, where parallel or alternative roadways exist. Although a one-way pattern for autos provides additional space for walking and bicycling, motorists might require alternate routes to conveniently reach their destination. This is a tradeoff that must be balanced with the desire to enhance accommodation where bicycle and pedestrian trips are most likely, especially by children and seniors accessing the lakes.

⁶ The Borough is in the process of exploring the availability of funding to widen lake roads 3 feet on each side. If the roadways are widened, the same options apply, utilizing the added space for a painted buffer between bicycle and auto lanes.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Sidewalks are not proposed, and should not be required unless bicycle and pedestrian use becomes so frequent that conflicts cannot be managed through posting yield hierarchy signs and education efforts.

Specifically, the possible options to consider for Lakeview Avenue and Cupsaw Drive are one-way auto with two-way walk and bike, one-way auto with two bike lanes, one-way circulation (no dedicated walk or bike area), and shared lane markings within the current two-way configuration. However, further study is required to determine the exact details and limits of the recommended option. Also note that traffic calming techniques can significantly improve the conditions for bicycling and walking within the existing circulation pattern or in conjunction with new, one-way options.

Any one of these options would best be realized in conjunction with programmatic initiatives like a traffic safety campaign and enforcement. Public awareness campaigns can include safety tips and reminders about driving, walking, bicycling, landscaping and many other elements that influence travel safety. Messages can be broadcast on cable TV, radio and in print media.

See Figure 2: Hot Spot Concept Lake Community Circulation and Figure 5: Existing Conditions and Recommendations map legend for “One-way/ Shared Lane Configuration”.

One-way Auto with Two-way Walk and Bike – In order to provide additional space for bicycling and walking within the existing roadway width (currently 18 - 20 feet), reducing lanes dedicated to motor vehicles from two to one in a one-way, counter-clockwise direction is recommended. By utilizing the outside 10' of pavement for auto only, the inside (closest to the lake) 8' – 10' can accommodate two-way bicycle and pedestrian traffic. This option is likely the most feasible in terms of safely accommodating pedestrians and bicyclists alike within the existing roadway width. It might be worthwhile to temporarily “test” its operation for a specified time period using flexible curbing, removable paint and temporary sign placement.



Note: If the Borough secures funding for widening these roadways, the same configuration will apply, but with additional paint/ striping separating the lanes. Raised road separators are not recommended due to potential impacts to emergency service vehicles, tripping or bicycle crash impediments.

One-way Auto with Two Bike Lanes – This option would have a 10' one-way auto lane in the center and two standard (4 – 5') bike lanes on either edge. Although this configuration utilizes the same amount of space as the one described above, bicycles traveling in the opposite direction as autos will be unprotected in the contra-flow configuration. There is no designated space for pedestrians, who would most likely utilize the bike lane.

One-way Circulation – By simply reconfiguring auto traffic to a one-way circulation pattern without dedicated walk or bike areas, added space would be available due to the removal of one direction-lane. However, without dedicated space or markings for bikes and pedestrians, motorists are not alerted to the presence of non-motorized users and therefore may not alter their behavior as desired.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Shared Lane Markings – A final option to consider is basically the “do nothing” option with the exception of adding shared lane markings to the current two-way circulation system. This option would provide bicyclists with validation to their right to travel within the space and would help to alert motorists to their presence. Shared Lane Markings do not provide a dedicated space for bicycling or walking.

Recommendations:

- Reconfigure Cupsaw Drive and Lakeview Avenue circulation patterns to have counter-clockwise, one-way circulation for autos with a two-way walk and bicycle lane closest to the lake. Provide traffic diverters at intersections and restrict on-street parking. This can be a temporary treatment to “test” effectiveness through a one year demonstration project.
- Consider traffic calming treatments like gateways, speed humps, colorized pavement and innovative signing either in conjunction with a one-way circulation pattern or within the existing two-way circulation pattern.
- Conduct a public awareness/traffic safety campaign together with increased traffic enforcement.

5. Regional Roadways

The major regional roadways leading to and through Ringwood serve as the spine of the local transportation network. Accommodating non-motorized travel along these roadways will serve both through and local trips. Longer trips within Ringwood will most directly and effectively use the County regional roadways.

Local bicycle clubs have developed a bicycle touring loop that circumnavigates Ringwood using a combination of County and major local roadways. Accommodation enhancements should be prioritized along these roads.

Design options to consider for Ringwood’s regional roadways include signed bike routes (with wayfinding), Shared Lane Markings, signed and striped bicycle lanes, Share the Road warning signs at spot constrictions, yield to pedestrians and school zone improvements, paved shoulders (widened and/or colorized), and complete street accommodation for all travel modes.

See Figure 5: Existing Conditions and Recommendations map legend for “Signs, Stripes & Pavement Markings” and “Shoulder Widening”.

Recommendations:

Phase 1: CR 511/Ringwood Avenue/Greenwood Lake Turnpike, CR 692/Skyline Drive, CR 697/Sloatsburg Road, Conklintown Road, Westbrook Road, Magee Road, and Stonetown Road. (Recommendations are the same for Phase 1 and 2. See bullets below.)

Phase 2: Stonetown Road from Westbrook Road to Magee Road, Greenwood Lake Turnpike from Margaret King Avenue to West Milford Township, Sloatsburg Road from Margaret King Avenue to New York State, Skyline Drive from High Mountain Road to Wanaque Borough, and Ringwood Avenue from Westbrook Road to Wanaque Borough.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

- Install bicycle route signs (MUTCD D11-1), wayfinding signs (MUTCD D1-1b), Shared Lane Markings (MUTCD 2009), and Share the Road warning signs (MUTCD W11-1/W16-1) at spot constrictions.
- Widen shoulders to a minimum of four feet on each side of Ringwood Avenue/Greenwood Lake Turnpike (CR 511) and Sloatsburg Road (CR 697). Stripe and colorize shoulders for added visibility.

6. Amenities

To facilitate and encourage bicycle and pedestrian travel in Ringwood there are numerous design elements that make biking and walking easier or more convenient. These range from having a ready place to park your bicycle securely near the entrance to the library or local store, to having sufficient lighting for pedestrians to feel safe walking along a shared use path behind the Fieldstone Park Shopping Center.

Keeping in line with Ringwood’s environmentally conscious and sustainable perspectives, some of the amenities that will support bicycle and pedestrian travel include:

Bicycle Parking – Bicycle parking facilities at major destinations throughout Ringwood to provide cyclists with a convenient and secure place to leave a bicycle while shopping, visiting the library, using transit, etc. Types of bicycle parking include standard racks, custom (artistic) racks, covered parking, bike cages and lockers. The type and quantity can vary depending on the destination served.

Benches – Benches should be located at all major public gathering locations. Style and materials can vary, including designs as part of public art projects and/or made with recycled and repurposed materials.

Pedestrian Scale Lighting – Lighting for pedestrian areas at a scale that illuminates the walkway and should be positioned at about 12-15 feet above should be provided along existing and future sidewalks, crosswalks and shared use paths. For energy efficiency, many communities are converting to LED bulbs or solar powered lighting. Fixtures that minimize light pollution and promote dark sky with glare shields should be considered. Some European communities are currently experimenting with as-needed lighting where the lights are turned off at night but activation codes are provided for a prescribed route and limited time span.

Kiosks – Kiosks serve as informational resources (maps, interpretive materials, emergency contact information) as well as shelter for bicyclists and pedestrians. Ringwood has many opportunities to strategically locate informational kiosks similar to those at the Borough Library and at Cupsaw Lake House.

Trailheads – Trailheads should be constructed to identify major access points to trail and other recreation facilities at access points to new and existing trails and pathways throughout Ringwood. These could include parking, information signs, benches, bicycle racks, trash receptacles, etc. Simple or elaborate, trailheads provide an integral connection to off-road bicycle and pedestrian circulation.

Public Restrooms – Public places require public restrooms and many communities often build traditional facilities or rent portable, temporary toilets. However, many eco-friendly choices are

Borough of RINGWOOD

Bicycle & Pedestrian Plan

available including self-composting toilets, shelters made with sustainable materials, built to maximize natural light and heat, and powered by energy efficient sources like solar panels. Ringwood's primary opportunity to design such a facility is at the Cannici Drive park-and-ride.

Recommendations:

Phase I: First phase actions refer to those requiring minimal design and construction efforts.

- Provide bicycle parking facilities at key bicycling and walking destinations (or starting points) including schools, shopping centers, recreation facilities and parks and the NJ Transit park-and-ride.
- Provide benches at all major public gathering locations throughout the Borough.

Phases II & III: Second and third phase actions require further study and design.

- Provide pedestrian scale lighting along existing and future sidewalks and shared use paths.
- Provide informational kiosks at strategic points throughout the Borough.
- Construct trailheads at major access points to trail and other recreational facilities such as the Ringwood State Park entrance from Skylands Road, Northgate Park, Fieldstone Park Shopping Center, the potential future intersection of the Skyline Drive Shared Use Path and NJDWSC Rail ROW Path, and at the potential future intersection of the Tennessee Gas ROW Path at Margaret King Avenue.
- Provide an eco-friendly public restroom facility at the Cannici Drive park-and-ride.

7. Awareness/Enforcement

To get the maximum benefit from physical enhancement to a bicycle and pedestrian network, the community must be made aware of the benefits of walking and biking locally, be educated in bicycle and pedestrian safety, and be encouraged to use the facilities. Launching an awareness and enforcement campaign can be a great way to introduce energy and enthusiasm into supporting healthy and sustainable habits such as biking and walking for local trips as well as improving safety through strengthened enforcement of current regulations. Some ideas for initiating an awareness and enforcement program for Ringwood include:

- ✚ Public Awareness Announcements (website, local cable TV) - bicycle travel is legal on every road, even if others have dedicated facilities, yield to pedestrians in crosswalks, parking policies (shared community parking programs).
- ✚ Bicycle/pedestrian/driver safety information and community pace cars.
- ✚ Eco-tourism - Encourage mountain bicycling visitors from outside the area to park at the local shopping areas and use the ride to the trails as a healthy warm up before entering the world class singletrack of Ringwood State Park.
- ✚ Reinforce parking, speed and other local laws, especially in school areas.
- ✚ Park-and-ride - Ticket/parking permit procedures and shared/varied day of week parking policies at the park-and-ride lot.
- ✚ Safe Routes to School Program - further encourage healthy habits, reduce traffic congestion, and save money spent on busing students for short trips.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Recommendations:

- Conduct a Borough-wide Awareness and Enforcement Campaign.

8. Policy/Implementation

In order to fully achieve the vision and goals of the Ringwood Borough Bicycle and Pedestrian Plan, policy revision and a phased implementation strategy will be key components in realizing the objectives set forth in this plan. A phased approach, incorporating the adoption of plans and policy amendments as the first element and facility design as the second, is suggested below:

Plan Task Force – Create a Ringwood Bicycle and Pedestrian Plan Task Force. Implementation of the majority of organizational/programmatic/physical recommendations will require commitment and partnerships between many agencies, organizations and individuals. The first step in implementing the plan should be the coordination of all stakeholders and the assignment of responsibilities. Subcommittees can be created to address larger issues of scope such as the rail-trail along the North Jersey District Water Supply Commission (NJDWSC) and the overall marketing of the plan.

Adopt The Plan – Adoption of the Ringwood Bicycle and Pedestrian Plan. Incorporate the Ringwood Bicycle and Pedestrian Plan into the Borough’s overall Comprehensive Master Plan.

Policies and Ordinances – Amend existing policies and ordinances. In the Local Ordinance Review contained in Appendix F: Local Ordinance Review, Borough ordinances and regulations were analyzed according to their effect on bicyclists and pedestrians. Although local ordinances promote the development of bicyclist and pedestrian facilities, they could be revised to further cultivate a culture of bicycling and walking in Ringwood. The additions of regulations addressing bicycle parking, bikeway development, trail development, street connectivity and other issues can demonstrate the local government’s commitment to increasing bicycling and walking in Ringwood.

Adopt Design Guidelines – Adopt bicycle/pedestrian friendly design. Standards and guidelines have been developed to ensure that bicyclists and pedestrians are safe and comfortable under optimum conditions. Bicycle and Pedestrian Facility Design Guidelines applicable to Ringwood are provided in Appendix A: Design Guidelines. These include design treatments for shared roadways, bicycle lanes, trails, sidewalks and intersections which are consistent with AASHTO and Americans with Disabilities (ADA) guidelines. The Borough should adopt these guidelines as part of their official engineering specifications and standards document.

Inventory and Maintenance – Conduct a sidewalk inventory and develop a spot improvement and maintenance program for pedestrian facilities throughout the Borough. Standards and guidelines for appropriate ADA facilities, crosswalks, sidewalks and spot improvements are provided in Appendix A: Design Guidelines. The next step would be to conduct a detailed borough-wide inventory, incorporating the NJDOT’s statewide county roads inventory and initiate a program for improvements to eliminate gaps and/or upgrade existing conditions where appropriate. The immediate area around the schools may be a good starting point since students are currently walking and bicycling here. Though it is beyond the scope of this plan to conduct a comprehensive inventory of all facilities, the Pedestrian Demand and Suitability map in Appendix G: Bicycle and

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Pedestrian Demand and Suitability Technical Memorandum can be a starting point to begin to look at places for spot improvements.

Feasibility and Design – Conduct feasibility analyses and develop design alternatives for:

- ✚ Shared use path connections along existing easements and rights-of-way (roadway, utility, rail and Borough easements).
- ✚ Signalized intersection and driveway realignment at Fieldstone Park and Ringwood Plaza shopping centers.
- ✚ One-way circulation around Cupsaw and Erskine Lakes.

Capital Improvement Program – Review the Capital Improvement Maintenance program to identify opportunities to incorporate improvements for bicyclists and pedestrians as part of the regular facility maintenance program.

Recommendations:

Phase I: First phase actions refer to those needed to begin immediate implementation of the plan.

- Create a Ringwood Bicycle and Pedestrian Plan Task Force.
- Officially adopt the Ringwood Bicycle and Pedestrian Plan by resolution.
- Amend existing policies and ordinances.
- Officially adopt bicycle/pedestrian friendly design guidelines.

Phase II: Second phase actions are those that require analysis prior to implementing many of the recommended options in this plan.

- Conduct a sidewalk inventory and develop a spot improvement and maintenance program for pedestrian facilities throughout the Borough.
- Conduct feasibility analyses and develop design alternatives for shared use path connections along existing easements and rights-of-way.
- Review the Borough Capital improvement maintenance program to identify opportunities to incorporate improvements for bicycling and walking as part of the regular facility maintenance program.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Hot Spot Concepts

Concept level plans for three “hot spot” locations have been developed to assist Ringwood in moving some of the highest priority recommendations forward. These are illustrated in Figures 2, 3, and 4 and described below.

Figure 2: Lake Community Circulation

Many lake community members indicated their desire to bicycle and walk within their neighborhoods and suggested possible one-way configuration for motor vehicles (restricting motor vehicle travel in one direction) to provide more space within the roadway to better accommodate bicycle and walking trips.

Although there are several options to consider for bicycling and walking improvements in these neighborhoods, a one-way motor vehicle traffic circulation and a two-way bicycle/pedestrian shared use area is recommended for a trial period along Cupsaw Drive (Cupsaw Lake) and Lakeview Avenue (Erskine Lake) where parallel or alternative roadways exist.



This configuration would provide a striped two-way bicycle and pedestrian travel area on one side of the road and a one-way motor vehicle lane along the other side of the road.

The one-way restriction for auto traffic can be reinforced with striped pavement legends, regulatory turn signs and forced turn islands at each side street approach. On-street parking would need to be restricted or enact a flexible alternative like “Cinderella” parking whereby parking is permitted overnight, but lane converts to bike lane during the day. The bicycle and pedestrian area should be located on the lake side of the road, the ‘inside’ of the circulating roadway, to prioritize the access and view to the lake. Striping bicycle pavement legends and arrows along the shared bicycle and pedestrian area will further reinforce that motor vehicle traffic to one side and one direction along Cupsaw Drive. This will also help minimize conflicts by keeping adjacent bicycle and motor vehicle traffic moving in the same direction. Pedestrian traffic will share the roadway area with bicycle traffic, similar to use along a shared use path. Sidewalks are not proposed, and should not be required unless bicycle and pedestrian use becomes so frequent that conflicts cannot be managed through posting yield hierarchy signs and education efforts.

Figure 3: Shared Use Path Crossing

Although Shared Use Paths are recommended for consideration utilizing existing right-of-way and easements throughout Ringwood Borough, path/roadway crossings are of particular concern – especially for regional, highly traveled roadways like Greenwood Lake Turnpike. Where a Shared Use Path from the Skyline Drive right-of-way would cross Greenwood Lake Turnpike to connect with another path along the rail corridor provides a typical scenario of this type of intersection. This “hot spot” concept illustrates how a shared use path/regional roadway crossing might be designed.

There are several options for accommodating bicycle and pedestrian travel along a shared use path across a regional roadway, including:

-  High visibility crosswalks.
-  In-roadway flashing lights.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

- ✚ Advance warning bicycle and pedestrian crossing signs, with passive or manual actuated flashing beacons.
- ✚ Raised crosswalk with advance speed humps and warning signs (these treatments are typically only used on lower volume and speed roadways).
- ✚ Raised (grade separated) crossing options could be considered, however, due to the extreme expense, these concepts should only be considered if a use and crash history proves it to be justified.

The crossing location of this “hot spot” concept would be adjacent to the Greenwood Lake Turnpike (CR 511) intersection with Skyline Drive (CR 692). Greenwood Lake Turnpike traffic flows uninterrupted through this intersection. While this is the largest intersection along Greenwood Lake Turnpike in the area, there are not any other major trail crossings where motorists anticipate trail users crossing the roadway. This will be the first major trail crossing motorists encounter in the area. The recommended treatments include actuated warning lights (in the roadway and/or flashing beacons on warning signs) informing motorists that trail users are attempting to cross the roadway.

Figure 4: Shopping Center Crossing

Two of the largest destinations for bicycle and pedestrian travel in Ringwood are within a few feet of each other, but are effectively inaccessible for bicycle and pedestrian travel. The Ringwood Plaza and Fieldstone Park shopping centers are separated by Skyline Drive. The driveways do not align and there are few opportunities to cross Skyline Drive on foot or bicycle.

One option to enhance safety for all travelers is to reconfigure the entrances to each shopping center to one central location, and signalize the intersection. This would be coupled with fully accessible crosswalks, pedestrian signals, and sidewalks between the shopping centers.

The recommended traffic signal should include countdown pedestrian signal heads, high visibility crosswalks, active push button actuation, and detectable curb ramps. The sidewalks should connect the intersection crossing, cross the parking lot areas, and connect to the existing sidewalks surrounding the shopping centers.

There are many options for configuring the two shopping center access driveways to one common four legged intersection. The recommended location that appears to have the least impact to current configurations and best pedestrian access between the shopping centers is to utilize the existing central Fieldstone Park access. This provides opportunity for relatively direct pedestrian access across Skyline Drive. It also aligns with one of the parking stalls on the Ringwood Plaza parking lot, minimizing impact to the existing parking lot configuration. The recommended traffic signal should be able to be actuated from either driveway by motor vehicles, bicycles or pedestrians. This will provide pedestrian access across Skyline Drive for travel between the Skyline Lake and Erskine Lake communities via the recommended sidewalk along Skyline Drive and the enhanced path through to Northgate Park.

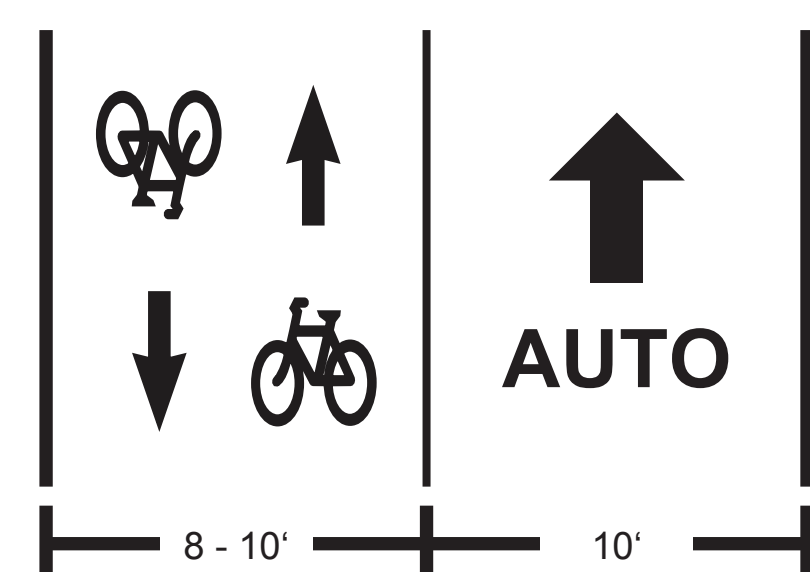
Background:

One of the largest concerns of Ringwood's residents was bicycle and pedestrian accommodation to and around the three eastern lake communities – Skyline, Erskine and Cupsaw. In order to avoid widening the roadway and/or building sidewalks, one concept is to dedicate space within the existing roadways around the lakes for exclusive use by bicycle and pedestrian traffic. This can be accomplished by reconfiguring the roadway to have one side to be used for one-way motor vehicle traffic and the other side for the dedicated use of bicycle and pedestrian traffic. Bicycle and pedestrian traffic would be able to travel in either direction, further reinforcing that they are the preferred travel mode for local trips. The circulation pattern alternatives illustrated here are recommended for Cupsaw and Erskine Lakes, where parallel or alternative roadways exist.

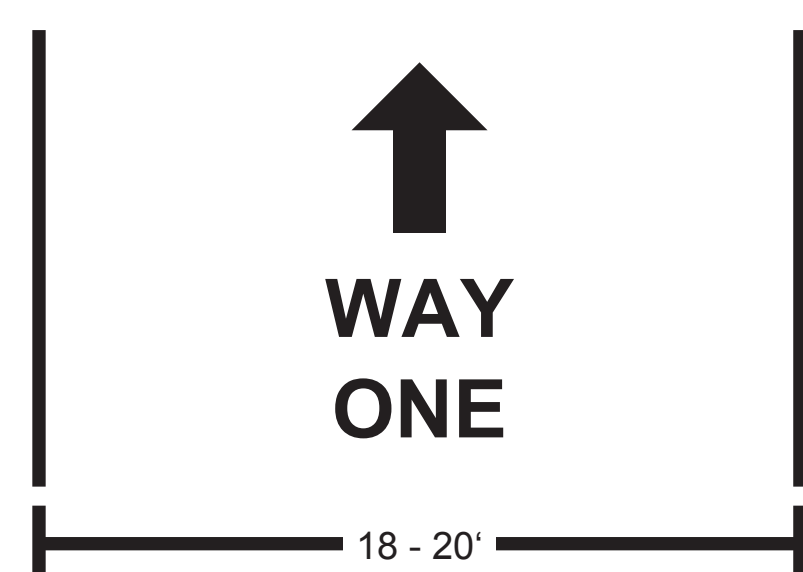
Notes:

- To preserve the natural feel of the landscape, the considerations for improving walking and bicycling around the lakes will maintain the existing roadway width (18-20 feet), i.e., no roadway widening or sidewalks are considered.
- This "hot spot" concept could be tested with a temporary installation of the signs, stripes, and pavement legends as part of a one-year demonstration project. The traffic islands can also be installed temporarily with flexible curbing. This can allow the design to be modified in the field to ensure that emergency services, garbage collection, snow plows and delivery trucks are accommodated.
- Traffic volume on some of the neighborhood roadways may increase as residents find new routes to and from their homes when using motor vehicles. This is a tradeoff that must be balanced with the desire to greatly enhance bicycle and pedestrian accommodation around the lake.
- More detailed traffic analysis can quantify the order of magnitude of traffic volume changes to the surrounding roadways.
- The Borough is in the process of exploring the availability of funding to widen lake roads 3 feet on each side. If the roadways are widened, the same options apply, utilizing the added space for a painted buffer between bicycle and auto lanes. Raised road separators are not recommended due to potential impacts to emergency service vehicles, tripping or bicycle crash impediments.
- Traffic calming techniques like gateways, speed humps, colorized pavement and innovative signs can significantly improve the conditions for bicycling and walking within the existing circulation pattern or in conjunction with new, one-way options.
- Any option would best be realized in conjunction with programmatic initiatives like a public awareness/safety campaign and increased traffic enforcement.

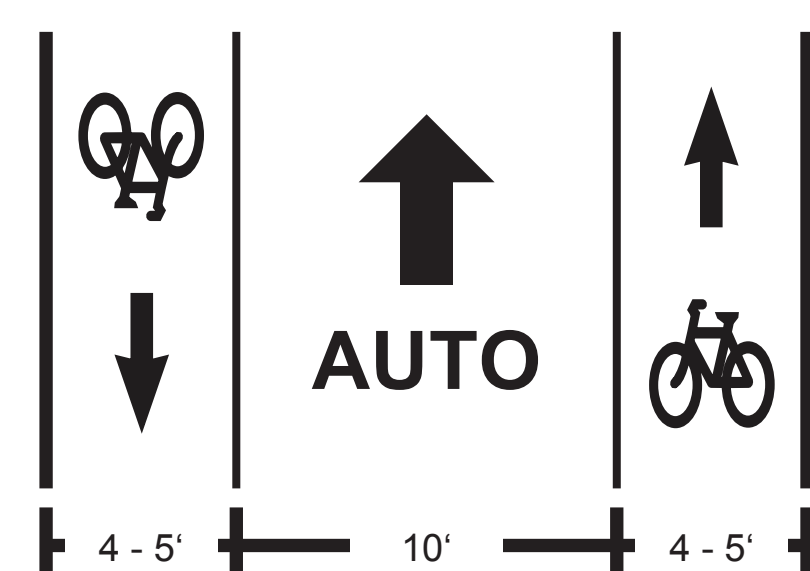
Circulation Pattern Alternatives Within the Existing Roadway Width



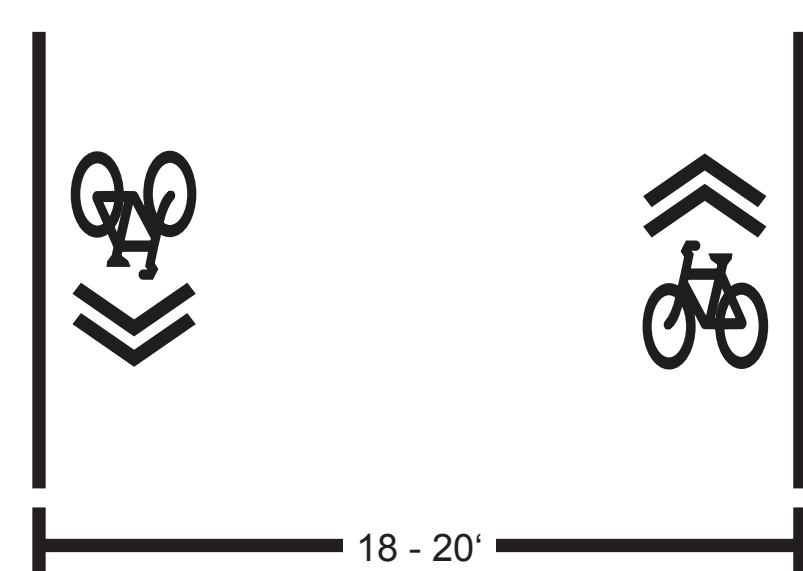
- A. One-way Auto with Two-way Walk and Bike**
- One-way motor vehicle traffic circulation around the lake
 - Two-way on-road bicycle and pedestrian travel
 - On-street parking restrictions required



- C. One-way Circulation**
- Shared use in a one way traffic circulation pattern around the lake
 - No dedicated bicycle or pedestrian facilities

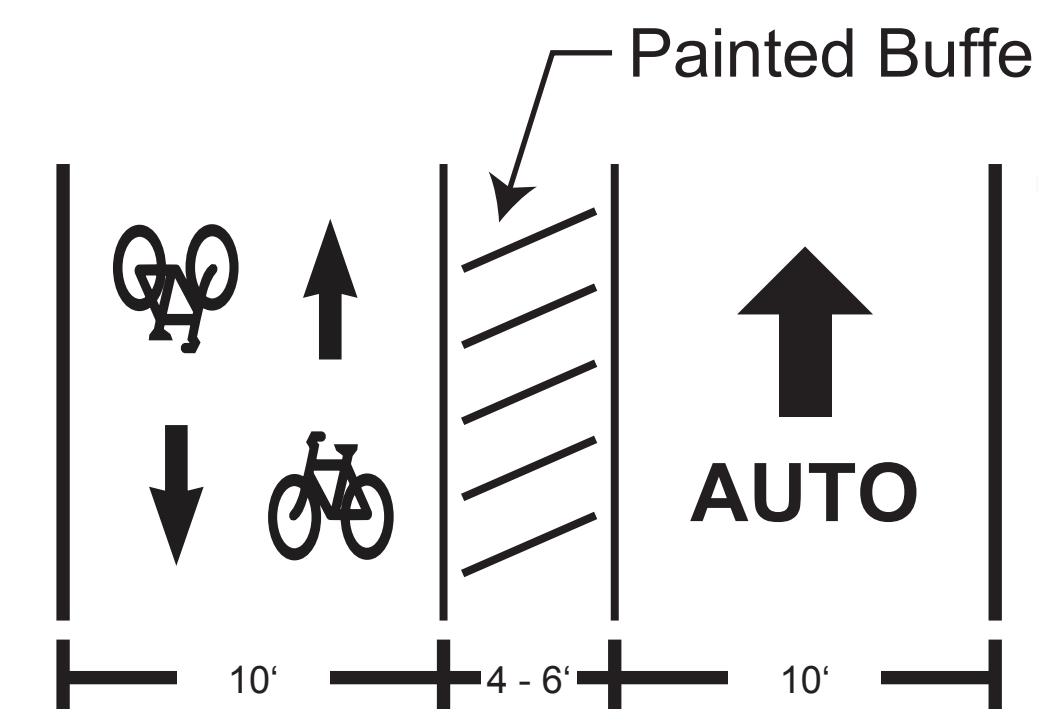


- B. One-way Auto with Two Bike Lanes**
- One-way motor vehicle traffic circulation around the lake
 - Dedicated bicycle lanes
 - On-street parking restrictions required
 - Assumed pedestrian use of bike lanes

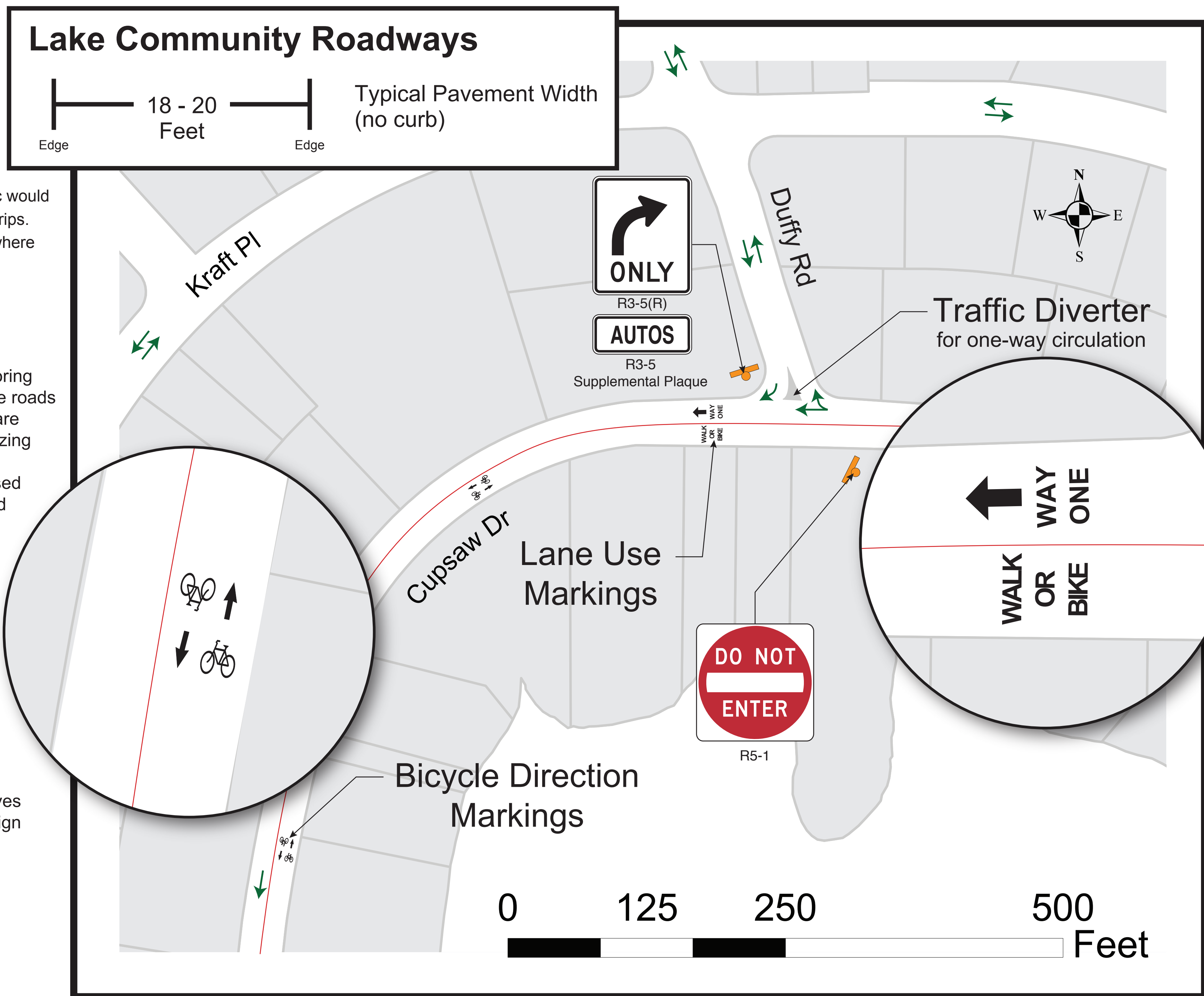


- D. Shared Lane Markings**
- Two-way traffic circulation for motor vehicles and bicycles
 - Maintain existing two-way travel patterns
 - Reinforces legal use of bicycles in the roadway

Circulation Pattern Alternatives Within Widened Roadway Width



- E. Separation Buffer**
- If lake community roadways are widened, the same options apply
 - Use painted buffers to separate lanes



LEGEND

- Signage
- Motor Vehicle Traffic Direction
- WALK OR BIKE Text Pavement Marking
- Bike Lane Marking
- Shared Lane Marking

This conceptual design solution is based on limited qualitative assessments. Further right-of-way, utility, environmental, traffic and engineering analyses are necessary to determine final design recommendations.

Date: December 2008, January 2009, April 2009
Job Number: J4000.03

Figure 2



Looking West- Skyline Drive at intersection with CR 511



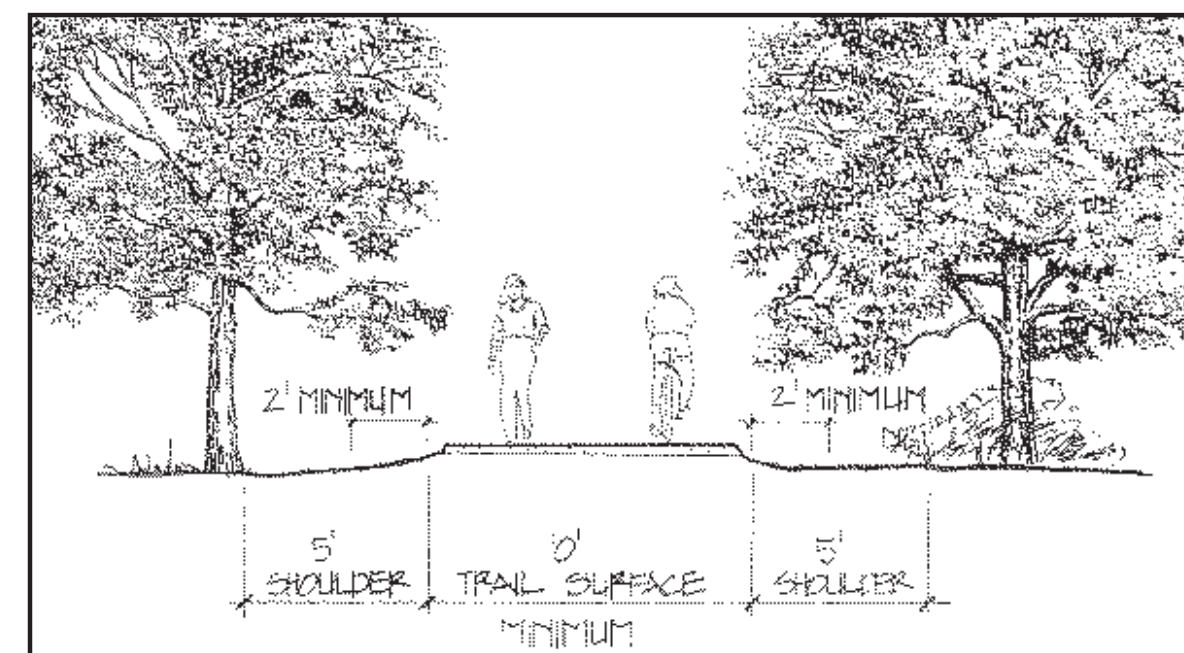
Looking North- CR 511 at intersection with Skyline Drive

Background:

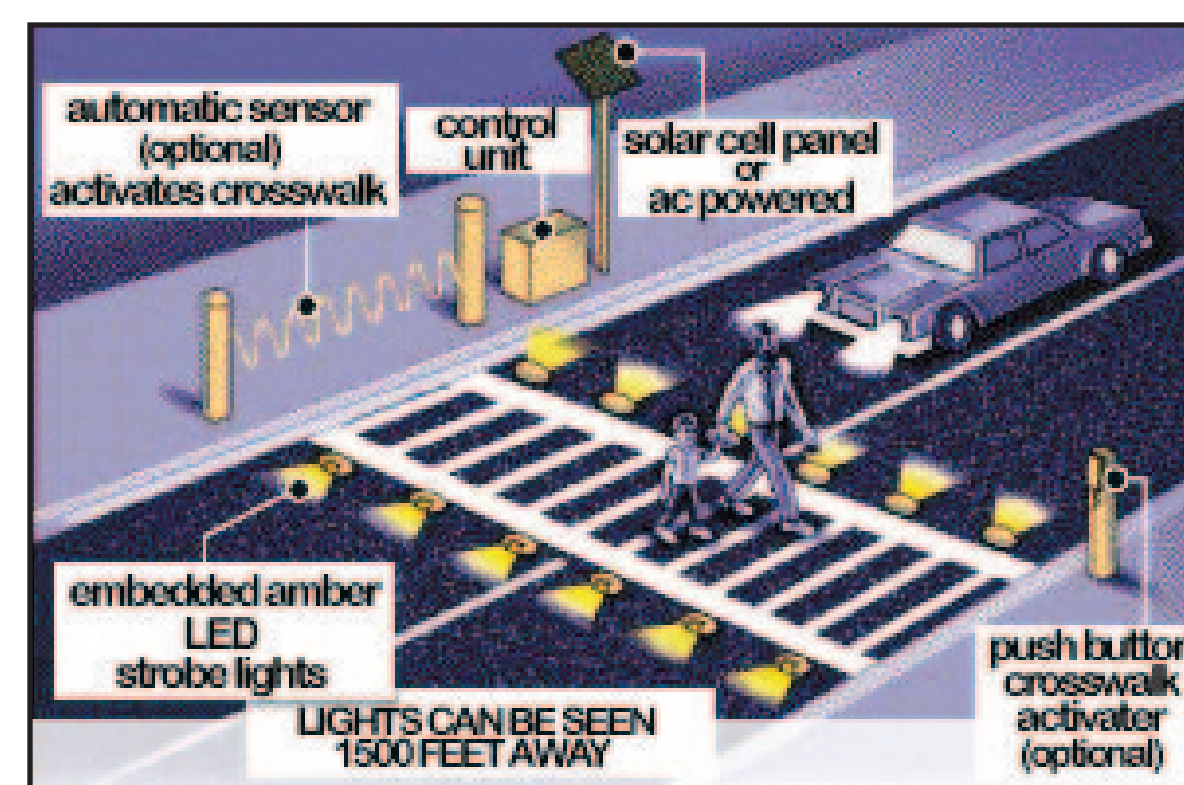
The Ringwood Bicycle and Pedestrian Plan considers, among others, the inclusion of shared use paths as a potential (if not preferred) element to the circulation system. By utilizing existing easements and rights-of-way, opportunities for integrating shared use paths into the system exist, particularly along the abandoned railroad within the North Jersey District Water Supply Commission property and within the Passaic County Skyline Drive 120' right of way. It is the path/roadway crossing which this concept addresses.

Notes:

- This "hot spot" concept represents a shared use path running along the north side of Skyline Drive (between High Mtn. Rd. and CR 511), then crossing CR 511 to connect to the abandoned railroad bed adjacent to the Wanaque Reservoir.
- The width of a shared use path is typically between 10 and 12 feet, with 2 to 5 foot grass buffer areas on each side.
- Where the shared use path crosses a high-volume public street (CR 511), the street users will have the right-of-way. Path users will stop and yield to traffic on the public street.
- The path should cross the public street as close as possible to the intersection - in the same place a crosswalk would normally be.
- Regulatory and warning signs should be placed at both the path and the public street approaches.
- Methods to control motor vehicle access to the path (such as bollards) should be considered.
- The crossing should be marked, at a minimum, with longitudinal lines for added visibility.
- In-roadway warning lights can be used at mid-block or stop-controlled intersections.



Typical Shared Use Path Cross Section (source: Trails for the 21st Century)



In-road Warning Lights at Crosswalk (source: Light Guard Systems, Inc.)

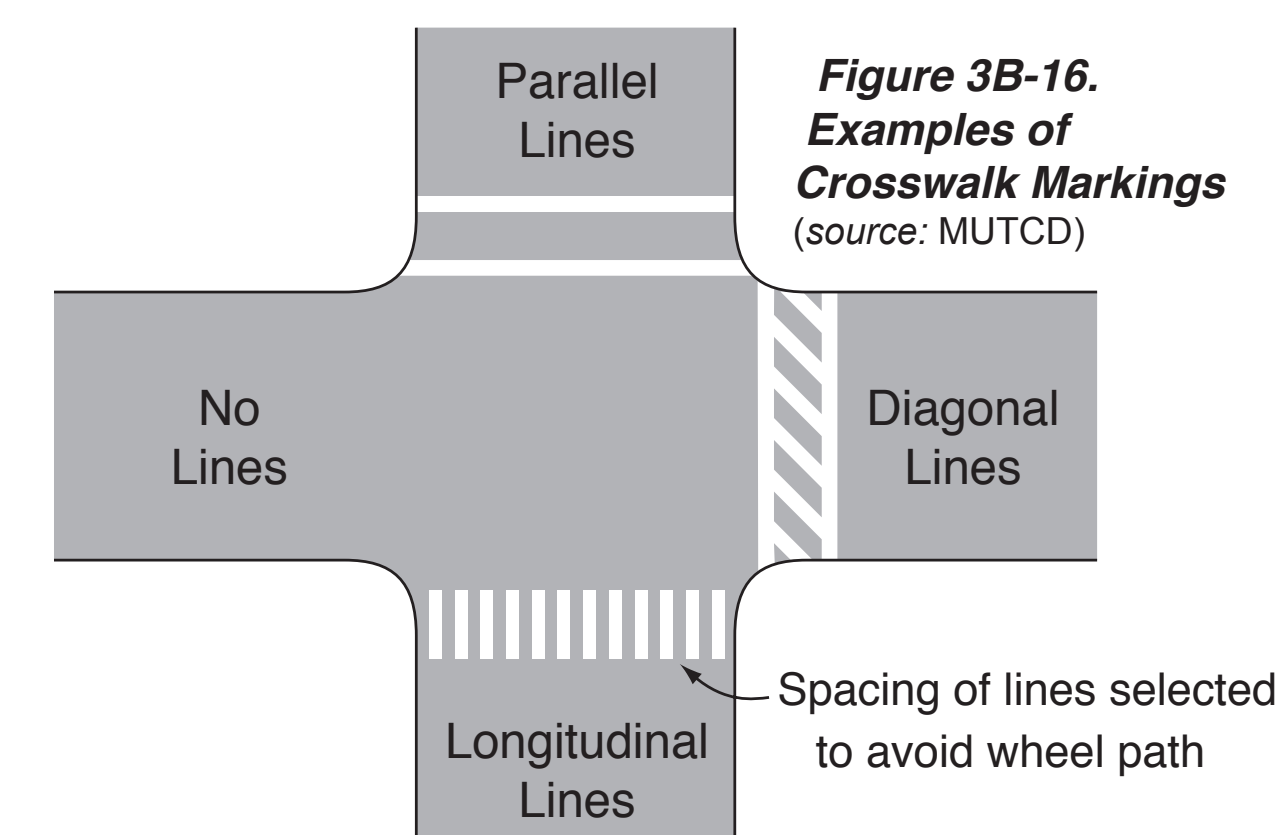


Figure 3B-16. Examples of Crosswalk Markings (source: MUTCD)

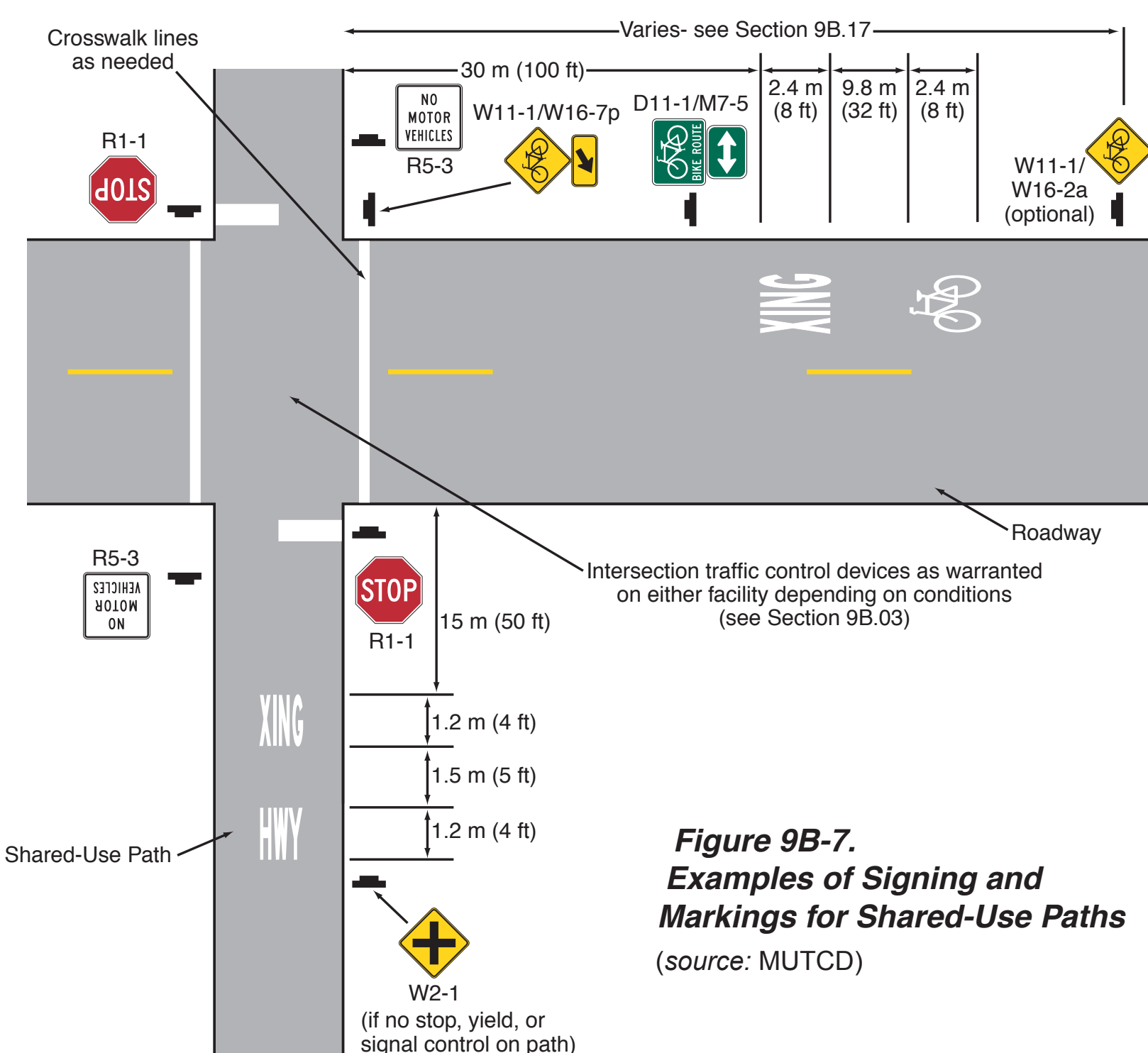
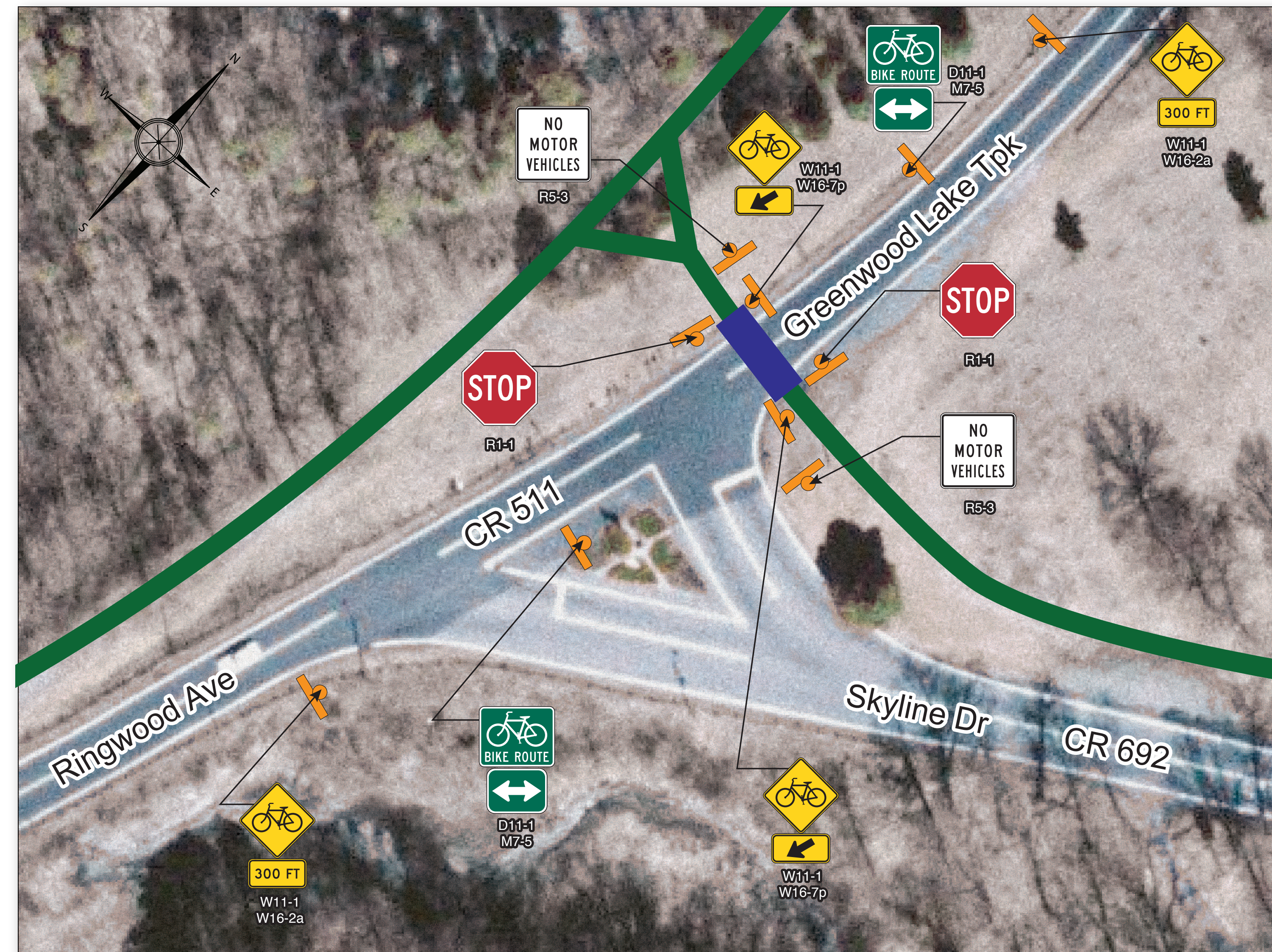


Figure 9B-7. Examples of Signing and Markings for Shared-Use Paths (source: MUTCD)

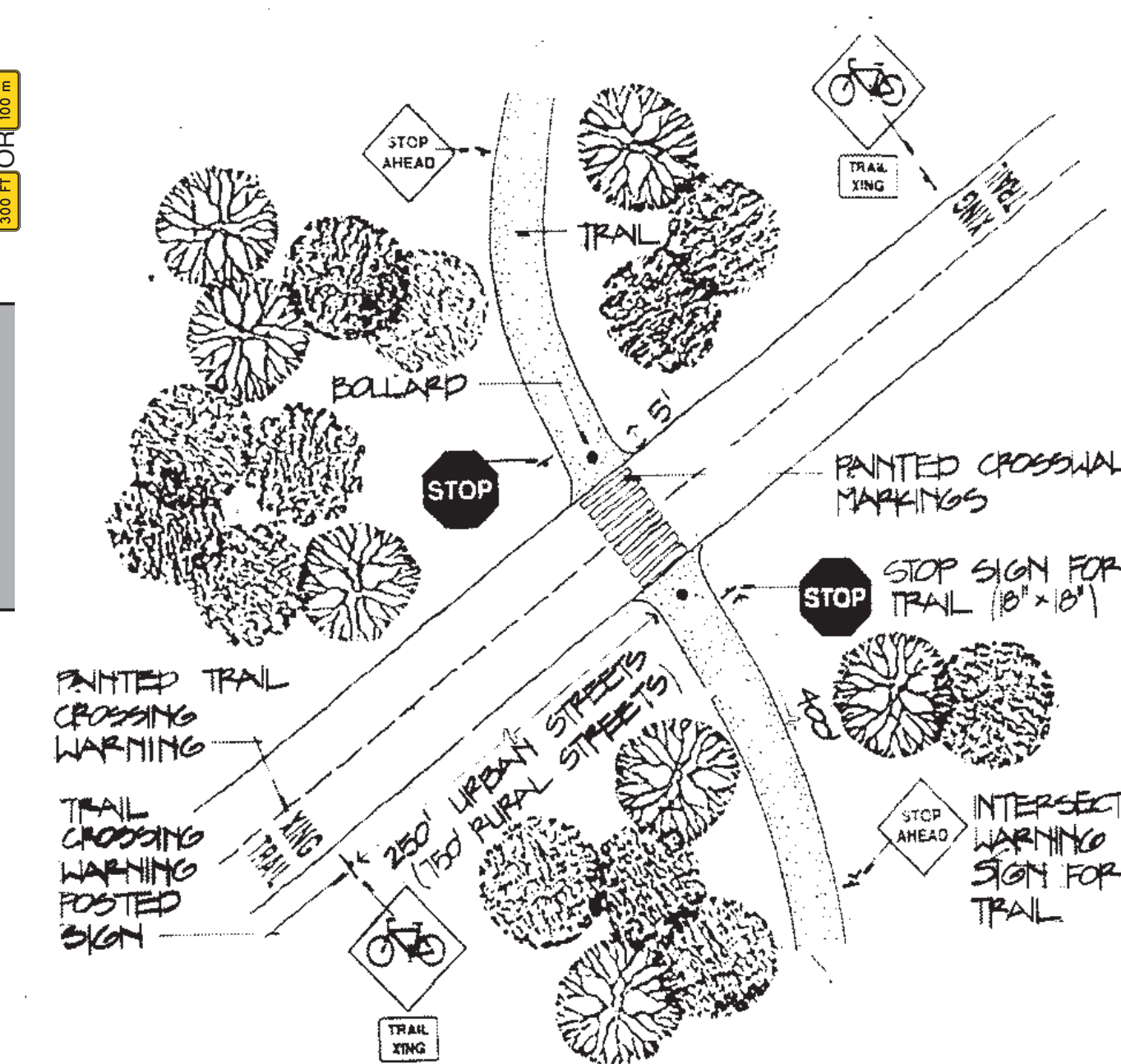


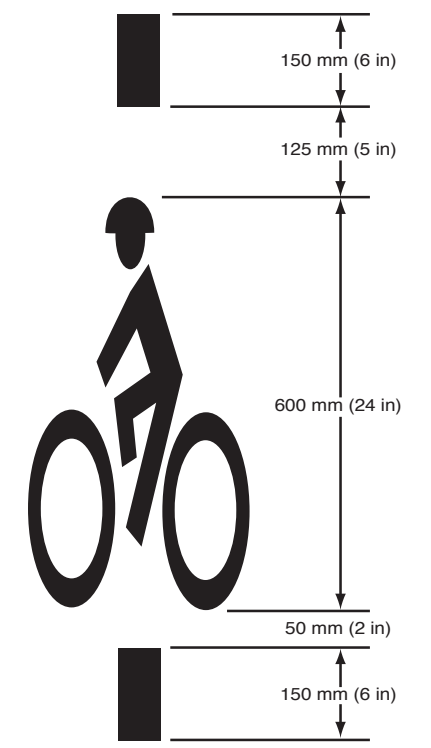
Figure 3.51. Typical At-grade Trail/Road Intersection (source: Trails for the 21st Century)



LEGEND

- Off-Road Shared Use Path
- Sign
- New or Enhanced Crosswalk

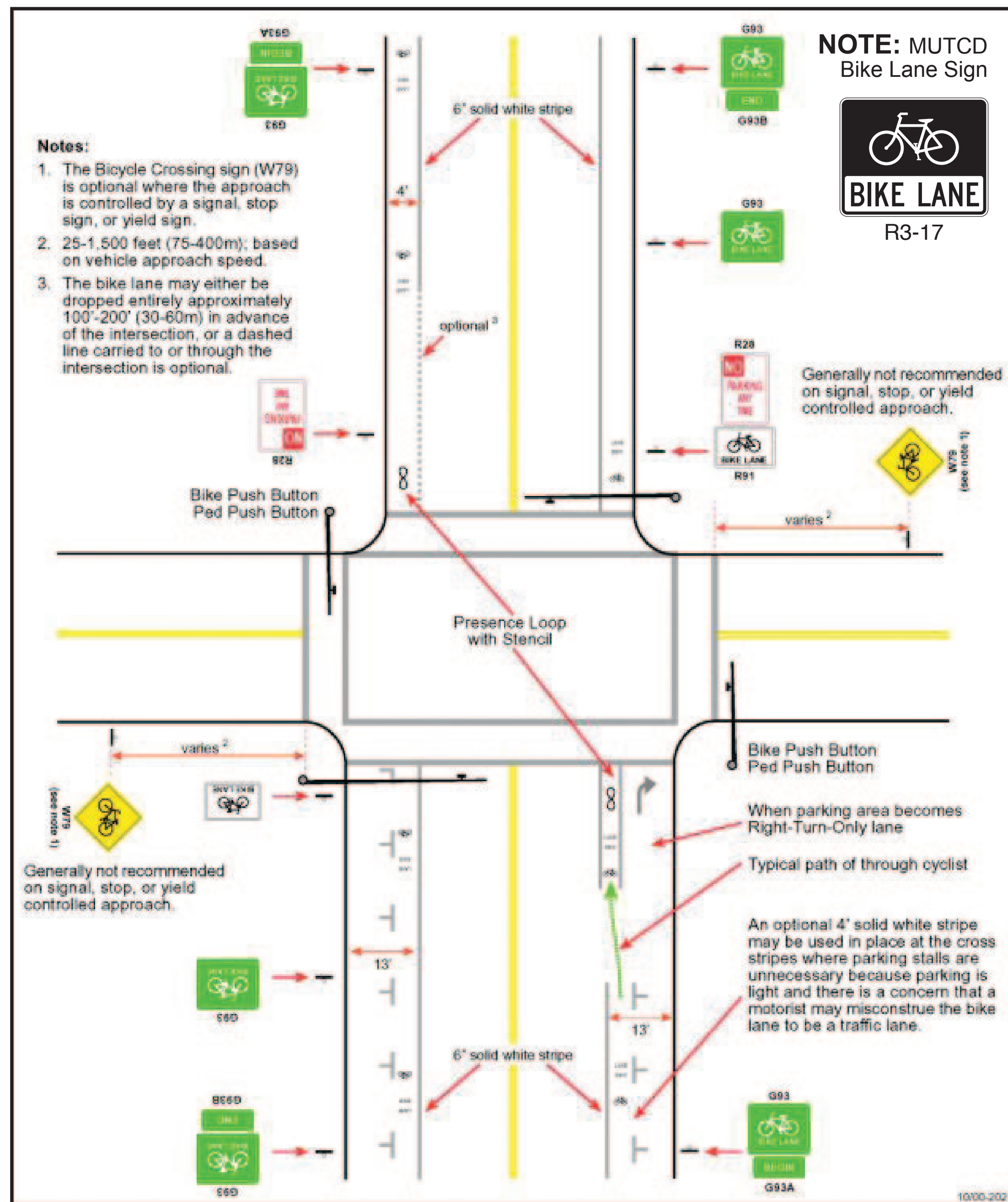
This conceptual design solution is based on limited qualitative assessments. Further right-of-way, utility, environmental, traffic and engineering analyses are necessary to determine final design recommendations.



Bicycle Detector Pavement Marking



Pedestrian Activated Pushbutton



Actuated Signalized Intersection **EXAMPLE**
(source: Humboldt County Association of Governments Regional Transportation Plan)

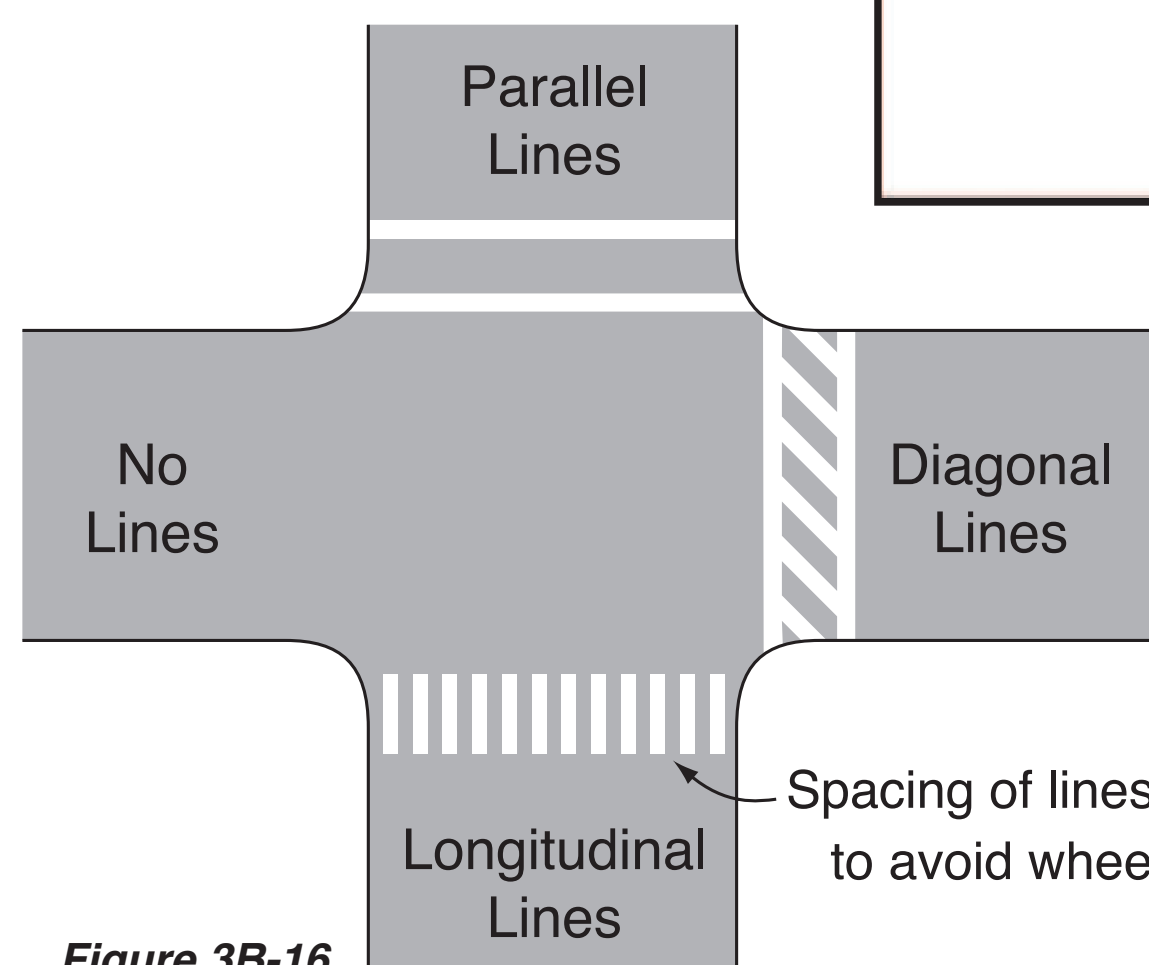


Figure 3B-16. Examples of Crosswalk Markings
(source: MUTCD)



Pedestrian Countdown Signal Head



Bicyclist crossing Skyline Drive



Background:

One of the primary concerns for bicycling or walking in Ringwood is crossing regional roadways, especially where potential connections to key destinations exist. The Ringwood Bicycle and Pedestrian Plan addresses such crossings, paying particular attention to the Fieldstone Park and Ringwood Plaza shopping centers. Bicyclists and pedestrians have no designated facility allowing them to safely cross Skyline Drive to get from one set of stores to the other. A community survey revealed the desire not only to cross, but to have a designated facility such as a pedestrian tunnel or overpass. This concept explores how an at-grade, semi-actuated signalized intersection can accommodate bicycle and pedestrian traffic crossing Skyline Drive.

Notes:

- In order to minimize construction and work primarily within the existing site layout, a four-legged, semi-actuated signalized driveway intersection is recommended.
- By altering Ringwood Plaza driveway access to Skyline Drive to align with the Fieldstone Park driveway, the semi-actuated intersection will function by maintaining the green on Skyline Drive unless a stop signal is activated by cars, bicyclists, or pedestrians wishing to cross.
- Include high visibility crosswalks, pedestrian countdown signal heads, pedestrian push button signal activation, lead pedestrian interval signal timing and bicycle loop detector.
- The internal circulation and parking layout must be addressed to best accommodate bicycling and walking within the shopping center property, paying particular attention to walkways, crosswalks, bicycle shared lanes, and bicycle parking.
- Special consideration should be made to the potential facilities/connections as described in this plan including sidewalk along the south side of Skyline Drive to the library, a side path along the north side of Skyline Drive and an off-road shared use path from Ringwood Plaza to Northgate Park.
- A possible alternative would be to signalize both driveways as they currently exist, allowing for a joint signal system that operate concurrently.



LEGEND

- Traffic Light
- Off-Road Shared Use Path
- Sidewalks
- New or Enhanced Crosswalk

This conceptual design solution is based on limited qualitative assessments. Further right-of-way, utility, environmental, traffic and engineering analyses are necessary to determine final design recommendations.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Action Implementation Table

The following table is intended as a first step in developing a prioritized implementation strategy. The table is organized by the eight (8) categories described in the Recommended Options section. Within each category, every “action” is accompanied by 3 factors; jurisdiction, time frame, and cost. Timeframe suggests phasing (I, II or III) of actions within each category. Finally, costs (low, medium or high) are order of magnitude estimates.

Note: Any proposed improvements are subject to the approval of the agency/owner with jurisdiction over the property to be used.

Borough of RINGWOOD

Bicycle & Pedestrian Plan

1. Connection Between the Lakes:

Borough Action	Jurisdiction	Timeframe	Cost
<ul style="list-style-type: none"> Provide informational bicycle route guide signs (MUTCD D11-1) along designated roadways. (Carletondale Road, Cupsaw Avenue, Mohawk Trail, Erskine Road, Fieldstone Drive, Alta Vista Drive, Hilltop Road, Smokey Ridge Road and Skyline Lakes Drive) 	Borough	Phase I	Low
<ul style="list-style-type: none"> Affix wayfinding signs (MUTCD D1-1) to appropriate bike route signs to connect key destinations. (Carletondale Road, Cupsaw Avenue, Mohawk Trail, Erskine Road, Fieldstone Drive, Alta Vista Drive, Hilltop Road, Smokey Ridge Road and Skyline Lakes Drive) 	Borough	Phase I	Low
<ul style="list-style-type: none"> Apply to FHWA for permission to experiment with Shared Lane Markings. (See Appendix K: MUTCD Section 1A.10 Interpretations, Experimentations, Changes, and Interim Approvals.) (Carletondale Road, Cupsaw Avenue, Mohawk Trail, Erskine Road, Fieldstone Drive, Alta Vista Drive, Hilltop Road, Smokey Ridge Road and Skyline Lakes Drive) 	Borough	Phase I	Low
<ul style="list-style-type: none"> Install Shared Lane Markings on existing roadways designated as bicycle routes along priority bicycle routes at intersections and at intervals along longer block lengths. (Carletondale Road, Cupsaw Avenue, Mohawk Trail, Erskine Road, Fieldstone Drive, Alta Vista Drive, Hilltop Road, Smokey Ridge Road and Skyline Lakes Drive) 	Borough	Phase I	Low
<ul style="list-style-type: none"> Provide informational bicycle route guide signs (MUTCD D11-1) along designated roadways. (Skylands Road, Bear Mountain Road, Valley Road, Upper lake View Avenue, Old Forge Road, James Road, High Mountain Road, Fountain Drive, Serpentine Road, Seneca Drive, Conklintown Road, and Skyline Lakes Drive) 	Borough	Phase II	Low
<ul style="list-style-type: none"> Affix wayfinding signs (MUTCD D1-1) to appropriate bike route signs to connect key destinations. (Skylands Road, Bear Mountain Road, Valley Road, Upper Lakeview Avenue, Old Forge Road, James Road, High Mountain Road, Fountain Drive, Serpentine Road, Seneca Drive, Conklintown Road, and Skyline Lakes Drive) 	Borough	Phase II	Low
<ul style="list-style-type: none"> Install Shared Lane Markings on existing roadways designated as bicycle routes along priority bicycle routes at intersections and at intervals along longer block lengths. (Skylands Road, Bear Mountain Road, Valley Road, Upper Lakeview Avenue, Old Forge Road, James Road, High Mountain Road, Fountain Drive, Serpentine Road, 	Borough	Phase II	Low

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Borough Action	Jurisdiction	Timeframe	Cost
Seneca Drive, Conklintown Road, and Skyline Lakes Drive)			
<ul style="list-style-type: none"> Maintain and sign (Bike Route and Wayfinding) existing paved easements and gated roadways (at both ends of paved connections between James Drive and Old Forge Road and between Short Place and Northgate Park). 	Borough	Phase I	Low
<ul style="list-style-type: none"> Provide accessible gates that allow pedestrians and bicyclists to conveniently travel along paved easements and gated roadways (Old Forge Road between Bellot Road and Sweetwater Lane, and access between Short Road and Northgate Park). 	Borough	Phase I	Low
<ul style="list-style-type: none"> Conduct a speed study and/or traffic calming analysis to determine appropriate locations for traffic calming treatments like speed humps, raised crossings and intersections, rumble strips, and curb extensions. 	Borough	Phase I	Low
<ul style="list-style-type: none"> Establish a traffic calming public endorsement policy. This should help to ensure that projects have public support and consensus prior to construction. 	Borough	Phase I	Low
<ul style="list-style-type: none"> Plan, design and construct traffic calming elements to target specific motor vehicle travel issues. 	Borough	Phase II	Medium

Borough of RINGWOOD

Bicycle & Pedestrian Plan

2. Crossings:

Borough Action	Jurisdiction	Timeframe	Cost
<ul style="list-style-type: none"> Install enhanced crosswalks and warning signs (MUTCD S1-1/W16-9P “ahead” and S1-1/W16-7P “arrow”) on Valley Road at the intersections of Wanaque Terrace, Black Rock Terrace, Whaleback Terrace, and Bearfort Terrace to accommodate the students of Ryerson Middle School. 	Borough	Phase I	Low
<ul style="list-style-type: none"> Provide enhanced crosswalks and warning signs (MUTCD W11-2 or S1-1) throughout the Borough near schools, shops, recreation and other bicycling and walking destinations. 	Borough	Phase I	Low
<ul style="list-style-type: none"> Provide a high-visibility, in-roadway illuminated (or flashing warning beacons) crosswalk and warning signs (MUTCD W11-2/W16-7P) on Greenwood Lake Turnpike (CR 511) where the shared use path is suggested to cross just north of Skyline Drive (CR 692). 	Passaic County	Phase II	Medium
<ul style="list-style-type: none"> Provide high-visibility crosswalks (possibly in-roadway illuminated or with flashing warning beacons) and warning signs (MUTCD W11-2/W16-7P) at the following potential new facility crossings: <ul style="list-style-type: none"> o Skyline Drive Shared Use Path across Skyline Drive at High Mountain Road and James Drive. o Skyline Drive Shared Use Path across Skyline Drive at Cannici Drive, and Erskine Road (connecting to library, transit and potential new sidewalk on west side). o Skyline Drive Shared Use Path across Fieldstone Drive and Erskine Road. o Rail ROW Path across Skyline Lakes Drive, Ringwood Avenue, Westbrook Road, Greenwood Lake Turnpike, and Margaret King Avenue. o Gas Transmission Easement Path across Greenwood Lake Turnpike, Margaret King Avenue, and Sloatsburg Road. 	Passaic County	Phase II	Medium
	Passaic County	Phase II	Medium
	Passaic County	Phase II	Medium
	Passaic County	Phase II	Medium
	Passaic County	Phase II	Medium
<ul style="list-style-type: none"> Construct a new four-legged, semi-actuated signalized intersection between the Fieldstone Park and Ringwood Plaza shopping centers crossing Skyline. Intersection will require the following modifications: <ul style="list-style-type: none"> o Alter Ringwood Plaza driveway access to align with Fieldstone Park driveway. o Include high visibility crosswalks, pedestrian countdown signal heads, pedestrian push button signal activation, lead pedestrian interval signal timing and bicycle loop detectors. o Address internal circulation with walkways, crosswalks, bicycle shared lanes, and bicycle parking. 	Private/Borough	Phase II	High
	Private/Borough	Phase II	High
	Private/Borough	Phase II	Medium
<ul style="list-style-type: none"> Incorporate walking and bicycling safety programs into the elementary school curriculum. 	Borough	Phase I	Low

Borough of RINGWOOD

Bicycle & Pedestrian Plan

3. New Facilities (Shared Use Paths/Sidewalks):

Borough Action	Jurisdiction	Timeframe	Cost
<ul style="list-style-type: none"> Design and construct sidewalk along the southbound (western) side of Skyline Drive from Cannici Drive to the Ringwood Plaza Shopping Center. 	Passaic County	Phase I	Medium
<ul style="list-style-type: none"> Design and construct sidewalk along Fountain Drive in front of Cooper School from Conklintown Road to Victoria Lane. 	Borough	Phase I	Medium
<ul style="list-style-type: none"> Design and construct sidewalk along Erskine Road in front of Erskine School from Skyline Drive to Lakeview Avenue. 	Borough	Phase I	Medium
<ul style="list-style-type: none"> Design and construct sidewalk along Valley Road in front of Ryerson School from Bearfort Terrace to Bear Mountain Road. 	Borough	Phase I	Medium
<ul style="list-style-type: none"> Design and construct sidewalk along Margaret King Avenue from Boro Parkway/Chicken House Road to Sloatsburg Road. 	Borough	Phase I	Medium
<ul style="list-style-type: none"> Design and construct a shared use path along Skyline Drive within the existing 120' wide ROW on the Northbound (eastern) side of the road from High Mountain Road to CR 511/ Ringwood Avenue/Greenwood Lake Turnpike. 	Passaic County	Phase II	High
<ul style="list-style-type: none"> Design and construct a shared use path along the railroad ROW parallel to CR 511 within the NJDWSC property from Skyline Drive to Margaret King Avenue. 	NJDWSC/ Passaic County	Phase II	High
<ul style="list-style-type: none"> Design and construct a shared use path along the railroad ROW parallel to CR 511 within the NJDWSC property from Skyline Drive south to Wanaque Borough and from Margaret King Avenue north to West Milford Township. 	NJDWSC/ Passaic County	Phase III	High
<ul style="list-style-type: none"> Design and construct a shared use path along the Tennessee Gas transmission line right-of-way from Duffy Road to its intersection with the NJDWSC rail right-of-way. 	Tennessee Gas/ Passaic County	Phase II	High
<ul style="list-style-type: none"> Design and construct a shared use path along the Tennessee Gas transmission line right-of-way from Duffy Road east to Mahwah Township and from its intersection with the NJDWSC rail right-of-way west to West Milford Township. 	Tennessee Gas/ Passaic County	Phase III	High
<ul style="list-style-type: none"> Design and construct a shared use path along Borough easements connecting Northgate Park to Fieldstone Park Shopping Center and Lakeview Drive. 	Borough	Phase II	Medium

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Borough Action	Jurisdiction	Timeframe	Cost
<ul style="list-style-type: none"> Design and construct sidewalk along Conklintown Road from Fountain Drive to Skyline Drive. 	Borough	Phase II	Medium
<ul style="list-style-type: none"> Provide informational bicycle route guide signs (MUTCD D11-1) and wayfinding signs (MUTCD D1-1b) along all shared use paths as part of Ringwood’s bicycle and pedestrian circulation system. 	Borough/ Passaic County/ NJDWSC/ Tennessee Gas	Phases I, II, III	Low
<ul style="list-style-type: none"> Conduct quantitative right-of-way, utility, environmental, traffic and engineering assessments to determine final design recommendations for new bicycle and pedestrian facilities. 	Borough	Phase III	Medium
<ul style="list-style-type: none"> Secure agreement with Passaic County for development of a side path within the Skyline Drive right-of-way. 	Borough	Phase III	Low
<ul style="list-style-type: none"> Secure agreement with NJDWSC for development of a shared use path within the railroad right-of-way. 	Borough	Phase III	Low
<ul style="list-style-type: none"> Secure agreement with the Tennessee Gas Utility for development of a shared use path within the gas line right-of-way. 	Borough	Phase III	Low
<ul style="list-style-type: none"> Coordinate with local community groups to volunteer for trail policing and maintenance. 	Borough	Phase III	Low

Borough of RINGWOOD

Bicycle & Pedestrian Plan

4. One-way Lake Circulation:

Borough Action	Jurisdiction	Timeframe	Cost
<ul style="list-style-type: none">Reconfigure Cupsaw Drive and Lakeview Avenue circulation patterns to have counter-clockwise, one-way circulation for autos with a two-way walk and bicycle lane closest to the lake. Provide traffic diverters at intersections and restrict on-street parking. This can be a temporary treatment to “test” effectiveness through a one year demonstration project.	Borough	Phase I	Low
<ul style="list-style-type: none">Consider traffic calming treatments like gateways, speed humps, colorized pavement and innovative signing either in conjunction with a one-way circulation pattern or within the existing two-way circulation pattern.	Borough	Phase I	Medium
<ul style="list-style-type: none">Conduct a public awareness/traffic safety campaign together with increased traffic enforcement.	Borough	Phase I	Low

Borough of RINGWOOD

Bicycle & Pedestrian Plan

5. Regional Roadways:

Borough Action	Jurisdiction	Timeframe	Cost
<ul style="list-style-type: none"> Install bicycle route signs (MUTCD D11-1), wayfinding signs (MUTCD D1-1b), Shared Lane Markings (MUTCD 2009), and Share the Road warning signs (MUTCD W11-1/W16-1) at spot constrictions. (CR 511/Ringwood Avenue/Greenwood Lake Turnpike, CR 692/Skyline Drive, CR 697/Sloatsburg Road, Conklintown Road, Westbrook Road, Magee Road, Stonetown Road.) 	Borough/ Passaic County	Phase I	Low
<ul style="list-style-type: none"> Install bicycle route signs (MUTCD D11-1), wayfinding signs (MUTCD D1-1b), Shared Lane Markings (MUTCD 2009), and Share the Road warning signs (MUTCD W11-1/W16-1) at spot constrictions. (Stonetown Road from Westbrook Road to Magee Road, Greenwood Lake Turnpike from Margaret King Avenue to West Milford Township, Sloatsburg Road from Margaret King Avenue to New York State, Skyline Drive from High Mountain Road to Wanaque Borough, and Ringwood Avenue from Westbrook Road to Wanaque Borough.) 	Borough/ Passaic County	Phase II	Low
<ul style="list-style-type: none"> Widen shoulders to a minimum of four feet on each side of Ringwood Avenue/Greenwood Lake Turnpike (CR 511) and Sloatsburg Road (CR 697). Stripe and colorize shoulders for added visibility. 	Passaic County	Phase II	High

Borough of RINGWOOD

Bicycle & Pedestrian Plan

6. Amenities:

Borough Action	Jurisdiction	Timeframe	Cost
<ul style="list-style-type: none"> Provide bicycle parking facilities at key bicycling and walking destinations (or starting points) including schools, shopping centers, recreation facilities and parks and the NJ Transit Park and Ride. 	Borough/ Passaic County/ State/ NJ Transit	Phase I	Medium
<ul style="list-style-type: none"> Provide benches at all major public gathering locations throughout the Borough. 	Borough	Phase I	Medium
<ul style="list-style-type: none"> Provide pedestrian scale lighting along existing and future sidewalks and shared use paths. 	Borough/ Passaic County	Phases II, III	Medium
<ul style="list-style-type: none"> Provide informational kiosks at strategic points throughout the Borough. 	Borough	Phase II	Medium
<ul style="list-style-type: none"> Construct trailheads at major access points to trail and other recreational facilities such as the Ringwood State Park entrance from Skylands Road, Northgate Park, Fieldstone Park Shopping Center, the potential future intersection of the Skyline Drive Sidepath and NJDWSC Rail ROW Path, and at the potential future intersection of the Tennessee Gas ROW Path at Margaret King Ave. 	Borough/ Passaic County/ NJDWSC/ Tennessee Gas	Phases II, III	Medium
<ul style="list-style-type: none"> Provide an eco-friendly public restroom facility at the Cannici Drive park-and-ride. 	Borough	Phase II	Medium

Borough of RINGWOOD

Bicycle & Pedestrian Plan

7. Awareness/Enforcement:

Borough Action	Jurisdiction	Timeframe	Cost
<ul style="list-style-type: none">Conduct a Borough-wide Awareness and Enforcement Campaign.	Borough	Phase I	Low

Borough of RINGWOOD

Bicycle & Pedestrian Plan

8. Policy/Implementation:

Borough Action	Jurisdiction	Timeframe	Cost
<ul style="list-style-type: none"> Create a Ringwood Bicycle and Pedestrian Plan Task Force. 	Borough	Phase I	Low
<ul style="list-style-type: none"> Officially adopt the Ringwood Bicycle and Pedestrian Plan by resolution. 	Borough	Phase I	Low
<ul style="list-style-type: none"> Amend existing policies and ordinances. 	Borough	Phase I	Low
<ul style="list-style-type: none"> Officially adopt bicycle/pedestrian friendly design guidelines. 	Borough	Phase I	Low
<ul style="list-style-type: none"> Conduct a sidewalk inventory and develop a spot improvement and maintenance program for pedestrian facilities throughout the Borough. 	Borough	Phase II	Medium
<ul style="list-style-type: none"> Conduct feasibility analyses and develop design alternatives for shared use path connections along existing easements and rights-of-way. 	Borough	Phase II	High
<ul style="list-style-type: none"> Review the Borough Capital improvement maintenance program to identify opportunities to incorporate improvements for bicycling and walking as part of the regular facility maintenance program. 	Borough	Phase II	Low

Borough of RINGWOOD

Bicycle & Pedestrian Plan

Recommendation Map

The recommendations map on the follow page illustrates conceptual design solutions for the implementation of a Borough-wide network of bicycle and pedestrian-friendly facilities. Options to consider are new construction (shoulders, shared use pathways, sidewalks), retrofitting existing roadways (signs, stripes, pavement markings, directional reconfiguration), and enhanced crossings. A 3-phase implementation strategy is illustrated by solid lines (Phase I), dotted lines (Phase II), and dashed lines (Phase III).

Ringwood Borough
Bicycle & Pedestrian Plan
**Existing Conditions
and
Recommendations**



LEGEND

- View
- Major Destination
- Gated Road
- Borough Boundary
- Foot Trails
- County Roads
- Utility Corridors
- RR Right-of-Way
- Water
- State Lands
- North Jersey District Water Supply Commission
- County Lands
- Borough Property
- Board of Education
- Privately-Owned Open Space

Recommended New Construction

- Shoulder Widening
- Off-Road Shared Use Path
- Sidewalks

Recommendations Using Existing Roadways

- Signs, Stripes & Pavement Markings
- One-way/Shared Lane Configuration
- Paved Connections via Easements/ROWs

Crossings

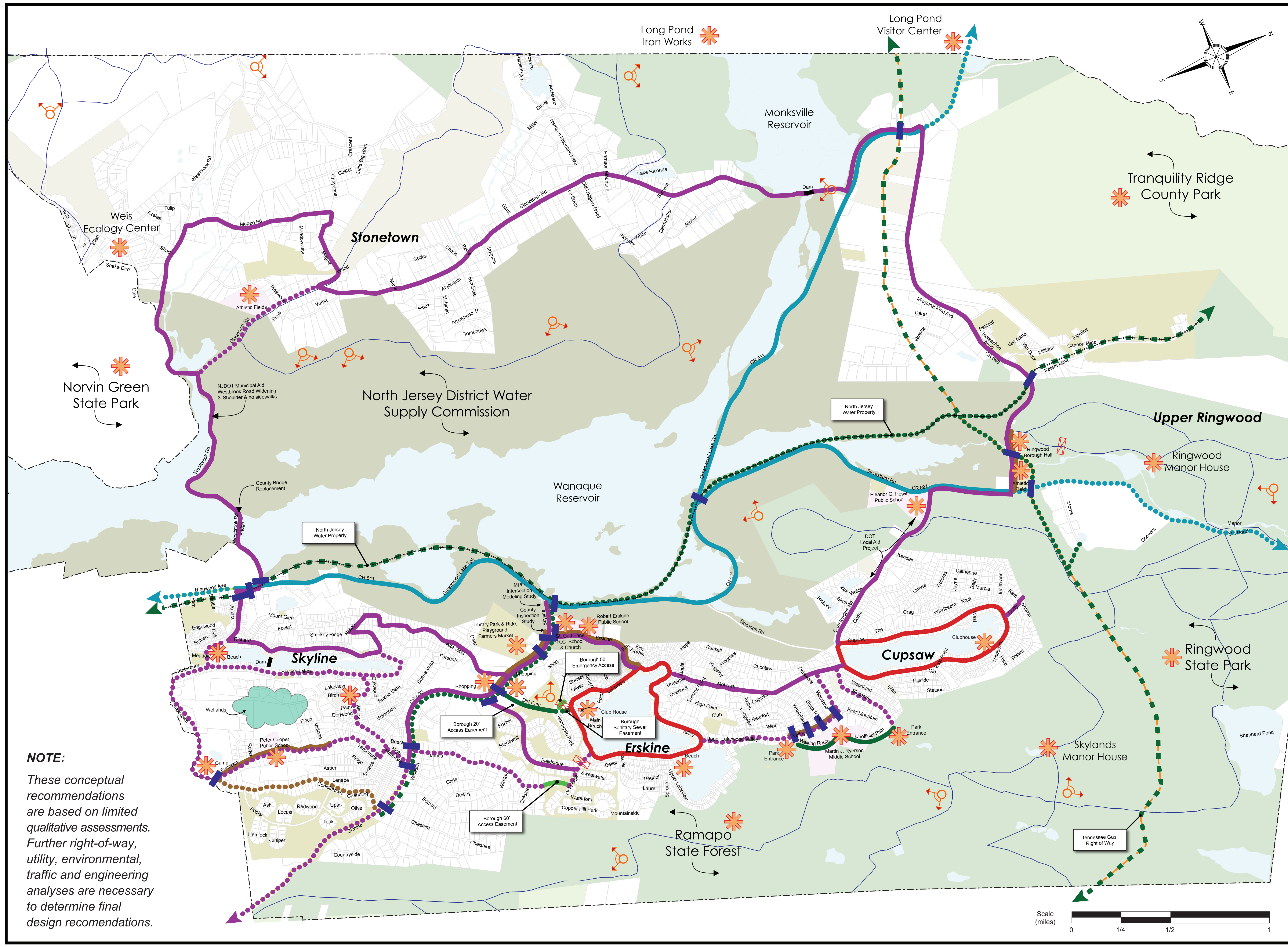
- New or Enhanced Crosswalk

Phasing

- Phase 1
- Phase 2
- Phase 3

Date: Oct 2008, Dec 2008, Jan 2009, April 2009
Job Number: J4000.03

Figure 5



NOTE:
These conceptual recommendations are based on limited qualitative assessments. Further right-of-way, utility, environmental, traffic and engineering analyses are necessary to determine final design recommendations.

