WALKABILITY STUDY

Charter Township of Waterford
May 2001

WATCH FOR
PEDESTRIANS

WALKABILITY STUDY

Charter Township of Waterford
May 2001

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INTRODUCTION

The Charter Township of Waterford is located in the heart of Oakland County, Michigan. The Township is home to 34 lakes, which occupy nearly one-third of its 35.3 square miles. With a population of more than 75,000 people, the primary land use in the Township is residential. Commercial and industrial uses comprise 6.4% and 2.4% of the land, respectively.

As development occurred within Waterford, the Township government had little control over the placement of roadways. The effect was a series of isolated land uses that were rarely connected by means other than roads. Today, as the Township nears build-out, it is committed to redeveloping the community, to the end that automobiles as well as users of non-motorized transportation are able to travel safely and efficiently to their destinations.

Purpose

The Economic Development Corporation (EDC) funded the study for the primary purpose of improving the development potential in Waterford Township. The EDC realizes the important role pedestrian and bike access contributes to the quality of life. The Walkability Study reviewed the existing conditions of Waterford Township's non-motorized pathways and, based on that review and citizen input, identified opportunities for and constraints to improving the walkability of the Township. Objectives included that future improvements were to be based on Walkable Community principles, and that the process include an extensive community participation component.

There are two outcomes of the study. The process allowed for a prioritization by the community of possible improvements with regard to walkability (Section 6.0). Another outcome of the study is a project area, which incorporates several walkable pilot projects. Sidewalks, bike lanes, sign-shared roadways and crosswalk enhancements are the pilot projects that work together to connect schools, parks and the newly constructed Civic Center.

Methodology

This study employed a three-part methodology. Background data was collected to assess the current situation in Waterford Township. This involved mapping sidewalks, bike routes and walking radii around schools, parks and other pedestrian destinations. Photographs were also taken of non-motorized pathway conditions.

The next step was to evaluate and recommend improvements based on the data collection. An all-day visioning workshop, whereby residents and community business owners came together to brainstorm ideas, was held to accomplish this task. A second workshop was conducted with fifth grade students from Cooley Elementary to gather input from a population group whose primary mode of independent transportation occurs on sidewalks.

Using predetermined criteria as a guide, a subgroup of the visioning workshop participants selected one project area, in which several walkable pilot projects were designed. Other walkable or traffic calming recommendations were prioritized according to the Township's future development plans.

Note: Some photographs used in this report are from Walkable Communities, Inc. Walkable Communties Slide Presentation: 320 South Main Street, High Springs, Florida 32643; 904.454.3304. Such photographs are noted with a "Walkable Communities" designation. Walkable Communties photographs shown on the cover page are the top center, middle left and right, and lower left and middle.

Waterford Township's Boardwalk

VISIONING WORKSHOP

A visioning workshop was the mechanism for determining the areas most in need of improvements by providing a forum for sharing concerns and priorities related to the walkability of Waterford Township. The participation process clearly articulated fundamental goals, objectives and guiding principals upon which future decisions will be based. The resulting strategies will help to improve walkability in Waterford Township, and will help to educate all participants to the trade-offs inherent in decision-making. The ideas and recommendations resulting from this workshop will also be integrated into the Township's Master Plan, which is to be prepared in the upcoming year.

Two visioning workshops were conducted as part of this study. The January 15, 2001, workshop was an all-day session. Participants included residents, business owners and community leaders. The January 16, 2001, afternoon workshop involved a fifth grade class at Cooley Elementary School. Walkability concerns Waterford residents of all ages, therefore obtaining the input of children, Waterford's most dependent group of walkway users, was an important part of the process. The results of both workshops are provided in this report.

Selection of Participants

Community residents and business owners were invited to participate in the workshop. Prior to the workshop, participants were divided into nine groups. Participants were placed in groups based on the location of their residence or business. The rationale being that those who live or work in a particular area will be best able to identify problems and recommend solutions. The groups, group leaders (underlined) and scribes (italicized) were organized in the following manner:

Group 1 Dr. John Richardson
Michael Franz
Jill Cogley
Jan Eathorne
Scott Krakauer

Group 2 Robert Vallina, Director of Community Planning and Development, Waterford Township
Joy Smith, Historical Society
Andy Andre
Don Carn
Shawn David
Dorothy White, Historical Society

Group 3 Lisa Poisson, GIS Manager, Waterford Township
Ralph Woznick
Sandra DeRemer
Yvette Heitzeg

Group 4 Larry Lockwood, Planning Division Head, Waterford Township
Louise Braun
Perry Bowman
Owen Davis

Group 5 Scott Hudson, Planning Commissioner, Waterford Township
John Jacob, President, Drayton Plains Nature Center
Ingrid Bowman
William Harris
Joyce LeMonde

Group 6 Sue Camilleri, Building and Engineering Department, Waterford Township
Chris Shoemaker
Dean Fisher, Planning Commissioner
State Representative Mike Kowall (partial day attendee)
Theresa Lewis

Group 7 Tom Sovel, Spalding DeDecker
Tom Wiseman, Waterford School District
Bill Doub
Dick Cartmill, Director of Parks and Recreation, Waterford Township

Group 8 Mark Kellenberger, Planner II, Waterford Township
Debra Harris
Vangie Chase
Dennis Griffin

Group 9 Amy (Williams) Noel, Planner I, Waterford Township
Allan Motzny
Bob Chase
Colleen Murphy

Process and Preparation

The Waterford Township Visioning Workshop was closely modeled after the methods for *Preferred Futuring*, developed in the 1970's by Ronald Lippit and his colleagues at the University of Michigan's Institute for Social Research. Through their knowledge of group dynamics and strategic planning, they constructed a four-step process to address future development in communities of varying sizes. The Visioning Workshop was administered in a modified format as a series of brainstorming exercises in a one-day, eight-hour workshop. Given the importance of walkability to the Township's most pedestrian-oriented group, children, a second one-hour workshop with a fifth grade class from Cooley Elementary was also conducted.

Preparation and organization for both workshops was a joint venture shared by the Waterford Township Department of Community Planning and Development and Beckett and Raeder, Inc. (BRI), planners, landscape architects and civil engineers from Ann Arbor, Michigan. Waterford Township invited and organized the participants, scheduled the venue, lunch and snacks, as well as arranged for the classroom workshop. BRI facilitated the workshops to ensure that all points of view were aired freely in a relaxed setting. For the all-day workshop, BRI familiarized participants to walkable community concepts through video and slide presentations.

Prior to the workshop, the facilitators met with the group leaders to fully describe their roles and review the process. The following rules for "brainstorming" were clearly explained and followed throughout the workshop:

- No idea is criticized
- Seek to improve and elaborate on ideas
- Focus on topics
- Do not dwell on a single topic for too long
- Maintain a positive attitude, and
- Do not allow any participant to dominate.

Each of the nine group leaders was responsible for moderating the interaction between group members. They helped motivate and direct participants towards proactive discussion, and encouraged brainstorming, with little discussion, so participants felt free to experiment without first analyzing each idea.

Schedule of Events

Small group brainstorming during visioning session

The Visioning Workshop was held on January 15, 2001, at the Hess-Hathway Park's Community Room in Waterford Township. The session began at 10:00 am and finished at 5:30 pm. Lunch and snacks were provided throughout the day.

The morning was dedicated to introducing, educating and sensitizing participants on the concept of walkability and the influences of design and land use. Afternoon activities focused on large-group brainstorming and small-group visioning exercises. The following sections detail the day's schedule.

Seating, Sign-in, and Getting Acquainted (15 minutes)
The Director of Community Planning and Development for Waterford Township welcomed participants and explained the relation of this study to the Comprehensive Master Plan, which the Township began in Spring, 2001. The Facilitator then explained the purpose of the workshop: to provide a forum for sharing concerns and priorities related to the walkability of Waterford Township; to clearly articulate fundamental goals, objectives and guiding principles upon which future decisions will be based; to identify strategies that will improve walkability in Waterford Township; and to educate all participants regarding the trade-offs inherent in decision-making. Following the opening, participants introduced themselves.

Walkable Communities Video (20 minutes)
The video presented the principles of walkability by demonstrating the perils of walking and biking in roads in communities that have not given attention to the pedestrian and cyclist. This humorous yet effective film sensitized participants to the topic of discussion. (Video: Back to the Future: Designs for Walkable Neighborhoods by the Citizens for a Better Environment. Milwaukee, WI. Telephone: (414) 271-7280).

Visual Preference Survey (40 minutes)
The purpose of the survey was to illustrate that land use and design impact the quality of the pedestrian experience. The survey consisted of fifty-six slides of road, walkway, bike path, street crossing and land use designs. Two images were shown simultaneously; a poorer-quality design was shown on the left side of the screen and a better-quality design on the right. After viewing each pair for 10 to 15 seconds, participants ranked their reaction to each image on a scale of negative

ten to positive ten. The majority of images were of Waterford Township; however, examples of good and bad design from other communities around the country were also included in the survey.

The survey results were averaged during the lunch break and presented to the participants before the afternoon brainstorming exercises began. Reviewing the images with the average rankings allowed the group to achieve a common understanding of what does and does not work in Waterford Township and other communities.

Slide Show (30 minutes)
Participants were presented with issues surrounding pedestrian/auto conditions. Images of street cross sections that encourage speeding were shown to demonstrate designs that allow for high speeds: too many lanes, lanes too wide, stark streets, lack of trees, and endless vistas. Images of designs that cause drivers to slow down were then shown as a point of contrast: narrower lanes, on-street parking, planter strips, tree canopies, terminated vistas, walkways, medians, raised intersections, roundabouts and bulb-outs.

Lunch Break (1 hour)
Lunch was provided at the Hess-Hathway Park's Community Room. Participants were encouraged to mingle and review various Township maps posted in the room. During the break, the facilitators calculated the results of the visual preference survey and adjusted the ranking bars on the slides accordingly.

Large Group Discussion of Visual Preference Survey and Brainstorming (45 minutes)
Images were shown a second time with the averaged ranking. Participants were asked to comment why certain slides scored high or low. Comments were recorded on a flip chart.

After reviewing the slide show, the group was asked to describe street and pedestrian related problems in Waterford Township. Comments were recorded on a flip chart.

All comments generated during the large group discussion were posted on the wall and later voted on by the entire group as major issues in Waterford Township.

Small Group Discussion—Visioning Session/ Neighborhood Profile (1 hour)
Each small group focused on a different geographic area of Waterford Township. Each group had a map of their area and was asked to identify problems and solutions on the map while being as specific as possible. The group leader kept participants focused. The scribe took notes, either on paper or on the map itself.

Small group discussion

Each person in the group was given three stickers and asked to use the stickers as votes for the three most problematic areas in their geographic area. The stickers allowed for prioritization of areas that are in need of walkable improvements.

Scoring (15 minutes)
Participants were given seven large stickers and asked to place one dot by the comments generated during the large group discussion that they agreed with the most. The stickers demonstrate the issues the community feels most strongly about and those that should be addressed in the Master Plan. Participants were asked not to "double dot" comments; only one dot per comment was allowed.

Small Group Presentations
(45 minutes - 5 minutes for each leader)
Each group summarized problems and solutions for their group's geographic area. The leaders summarized the small group's general discussion, then focused on the three most problematic areas.

Small group presentation

River Walk Status Update (30 minutes)
The project received several comments during the workshop brainstorming session. Community leaders took advantage of the extra time at the end of the workshop to correct remaining misunderstandings, with regard to the project's scope and status.

Closing and Thank You (5 minutes)
The Director of Community Planning and Development discussed the next steps and the importance of the walkability study to the Master Plan process.

Workshop Results

Visual Preference Survey Scoring

The visual preference survey, with the averaged rankings provided, is presented as Attachment A.

Large Group Priorities

The comments generated during the large group session and later voted on by participants are listed on page 10. The number of votes cast for each comment reflects the priority the community places on that comment.

Small Group Visioning Session/Neighborhood Profile Priorities

Results of the small group visioning sessions are listed on pages 13 through 29. Participants were not limited to the number of recommendations; however, each participant could vote for only three recommendations. Entries in bold indicate recommendations that initiated discussion during the pilot project selection process. A map of each geographic area is provided on the page corresponding to the group's recommendations. A map of Waterford Township is provided on page 11.

Following the tables is a list of recommendations ranked in order of priority according to Township goals and future development plans (page 31).

Waterford Walkable Communities

All Parts
Waterford Township

Data Source: Waterford Township GIS Department

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary

- 1/2 Mile (10-minute Walking Distance) Boundary

- Building Footprint
- Floodplain
- Historic District

- Park
- Township Section Boundary
- Water
- Wetland

- Apartment
- Condominium
- Group Housing
- Mobile Home Park
- Senior Citizen Housing
- Site Condominium
- Subdivision
- College Campus
- High School
- Middle/Elem. School
- Cemetery
- Church
- Fire Station
- Police Station
- Sports Field

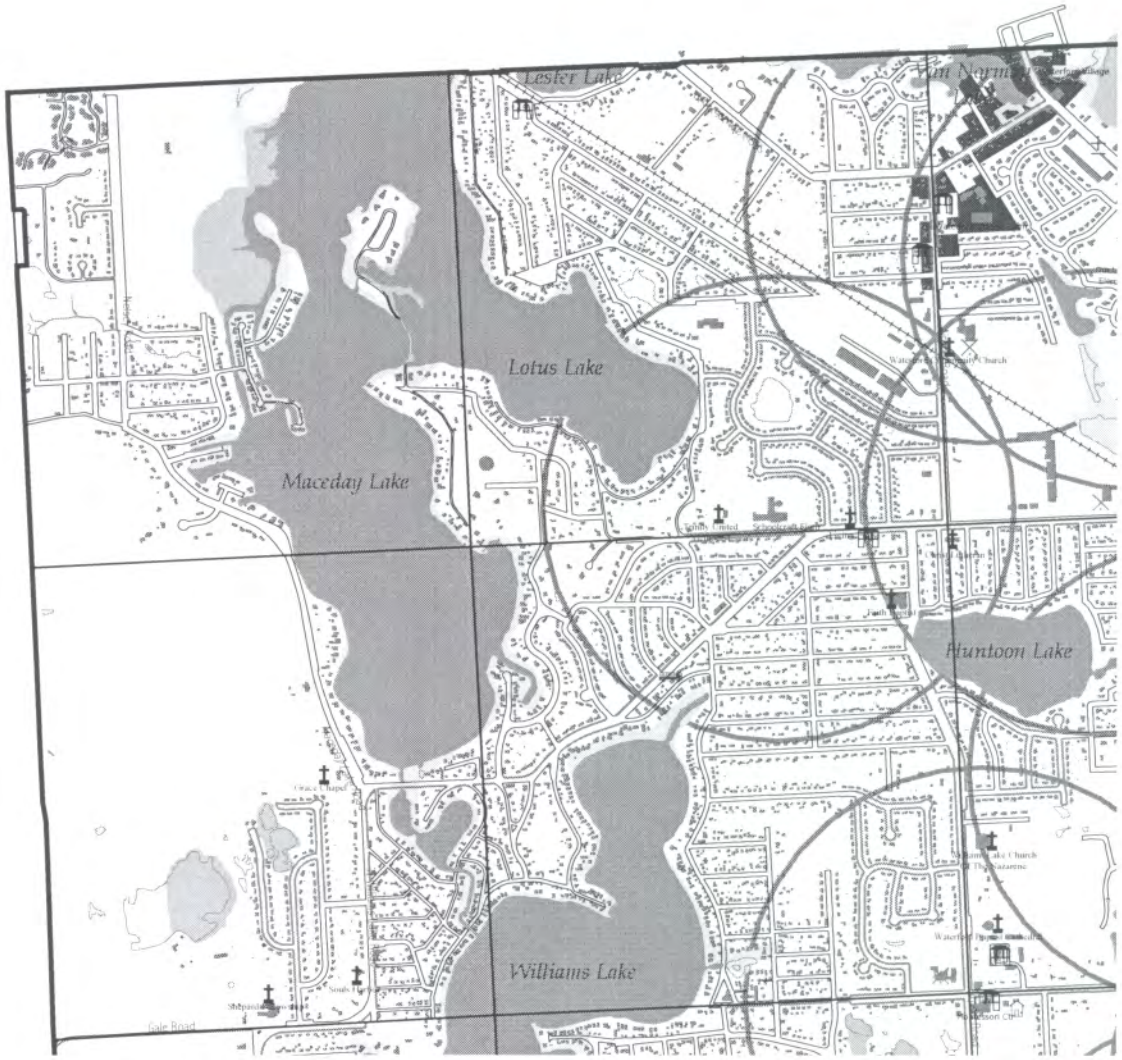
N

0.5 0 0.5 1 Miles

Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Large Group Voting Results

No.	Comment	Number of Votes Received
1.	Waterford's walkability efforts should be focused around its natural areas (e.g. lakes).	21
2.	Improvements to crosswalks should include striping and paint, not necessarily bricks or surface-altering materials.	20
3.	Waterford should focus on children's safety with regard to providing/maintaining walkways near schools.	19
4.	Waterford should focus on linking walkable areas within the Township and ensuring that major intersections are easily crossable.	19
5.	In general, there is a lack of connections and linkages between walkways in Waterford.	17
6.	Waterford should adopt some type of design guidelines.	17
7.	In general, Waterford walkways and landscapes should be better maintained.	15
8.	Walkable linkages are needed between subdivisions.	15
9.	Waterford should focus on being accessible, not walkable.	14
10.	Walkways are necessary in all areas. Commercial land uses are not exempt from providing walkways.	12
11.	Walkways in subdivisions are not always necessary. Some subdivisions do not have walkways, yet provide a safe playing environment for children.	11
12.	Drivers should be educated regarding pedestrian rights.	9
13.	Waterford should protect and preserve its natural features for public use.	9
14.	Waterford needs to address the issue of walkway plowing, including responsibility and funding sources.	7
15.	Waterford's goal should not be to link every walkway, but to have walkable areas within the Township. One should expect to drive to a destination and then walk to places within that destination.	7
16.	Walkways do not need to be continuous nor do all pathways need to be connected.	7
17.	With regard to streetscapes, a combination of landscaping techniques should be used (e.g. berming, buffering and screening).	6
18.	Township should perform a formal evaluation of community assets and plan accordingly.	6
19.	Walkways and crosswalks need to be smooth surfaces, not cobble stone or brick which are difficult for wheelchairs, walkers and strollers)	5
20.	Medians are needed to reduce speeds and make pedestrain street crossing safer.	5
21.	There is a general lack of crossing points in Waterford.	5
22.	The intersection cut-throughs, such as the intersection at Kroger and M-59, should be addressed.	5
23.	Bike paths should be separated from the road (not simply a lane added to the road).	1
24.	There is a general lack of walkways in Waterford.	1
25.	Waterford should not adopt design guidelines.	1



Waterford Walkable Communities

Northwest Part
Waterford Township

Data Source: Waterford Township GIS Department

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary
- 1/2 Mile (10-minute Walking Distance) Boundary
- Building Footprint
- Floodplain
- Historic District
- Park
- Township Section Boundary
- Water
- Wetland

- Apartment
- Condominium
- Group Housing
- Mobile Home Park
- Senior Citizen Housing
- Site Condominium
- Subdivision
- College Campus
- High School
- Middle/Elem. School
- Cemetery
- Church
- Fire Station
- Police Station
- Sports Field

N

0.2 0 0.2 0.4 Miles

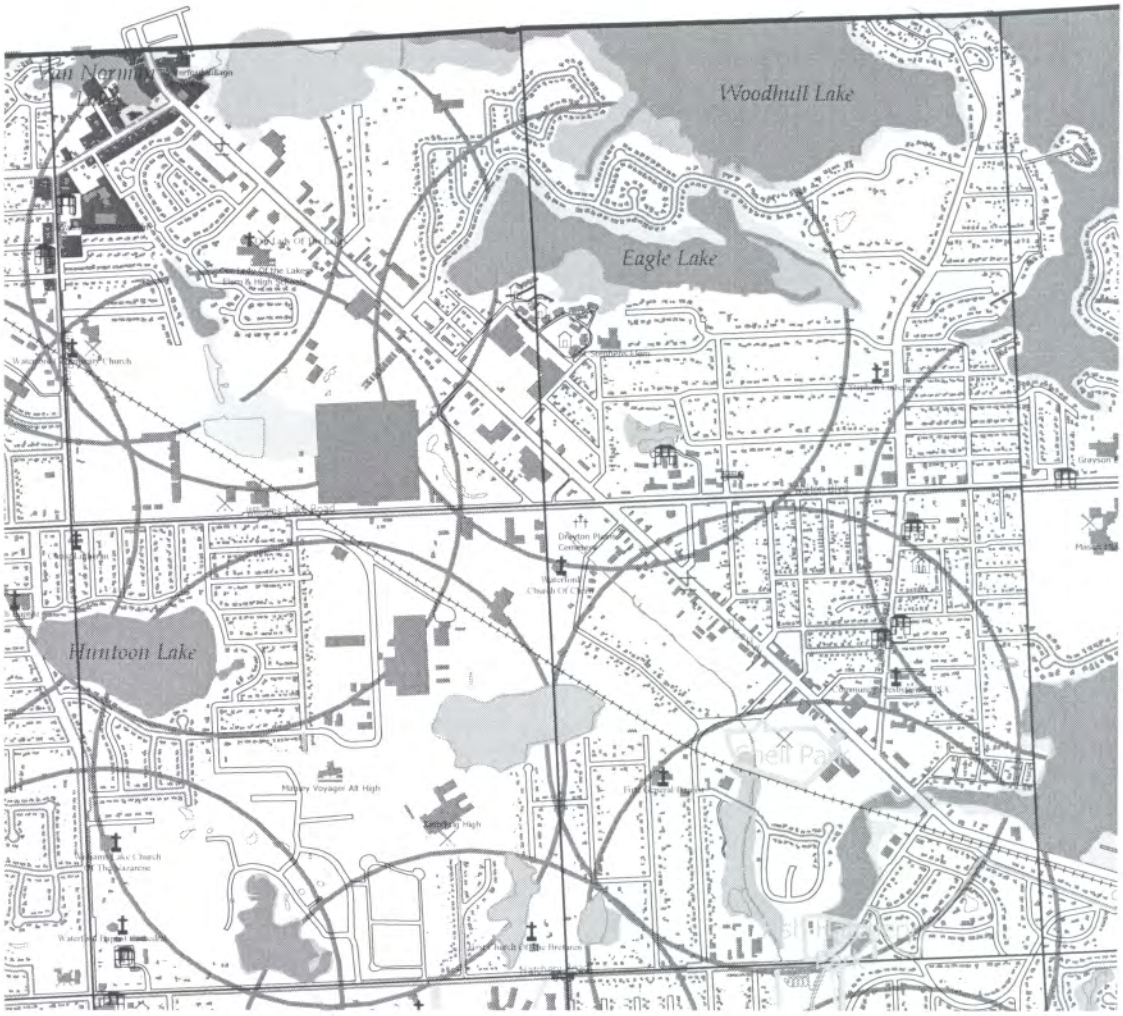
Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Small Group Voting Results

Group 1 (Township Sections 5, 6, 7 & 8)

No.	Recommendation	Number of Votes Received
General Recommendations		
1.	Better bike access is needed throughout the community.	0
2.	Better connections are needed between subdivisions.	0
3.	Better connections are needed to the Andersonville/Dixie shopping district.	0
4.	Speed control measures on major streets are needed.	0
Specific Recommendations		
5.	**Make improvements to the currently unusable bike path along Williams Lake Road between Maceday Lake Road and Maceday Drive.**	**4**
6.	Make the segment of Maceday Lake Road between North Williams Lake Road and Nelsey Road a pedestrian/biker friendly connector to the Rich Street Park (recreation destination).	3
7.	Develop a park near the Senior Center at Lotus Drive, Harper Road and Percy King.	3
8.	Develop a mini-park and the cul-de-sac by Lotus Lake (intersection of Lotus and Lablanc Streets).	2
9.	Extend Foley Street so that it connects Andersonville Road with Saline Road	1
10.	Offer a mixed zone district which includes shopping at the intersection of Airport Road and Hatchery Road.	1
11.	Install a pedestrian throughway between Wilson and Barker.	1
12.	Extend Garfield such that it connects Wilson and Barker.	0
13.	Create a small park for kids in the Lotus Circle area and provide a landscape area to prevent drive-throughs.	0

Note:
Recommendations that were used to initiate pilot project selection discussions appear in bold.



Waterford Walkable Communities

North Central Part
Waterford Township

Data Source: Waterford Township GIS Department

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary
- 1/2 Mile (10-minute Walking Distance) Boundary
- Building Footprint
- Floodplain
- Historic District
- Park
- Township Section Boundary
- Water
- Wetland
- Apartment
- Condominium
- Group Housing
- Mobile Home Park
- Senior Citizen Housing
- Site Condominium
- Subdivision
- College Campus
- High School
- Middle/Elem. School
- Cemetery
- Church
- Fire Station
- Police Station
- Sports Field

N

0.2 0 0.2 0.4 Miles

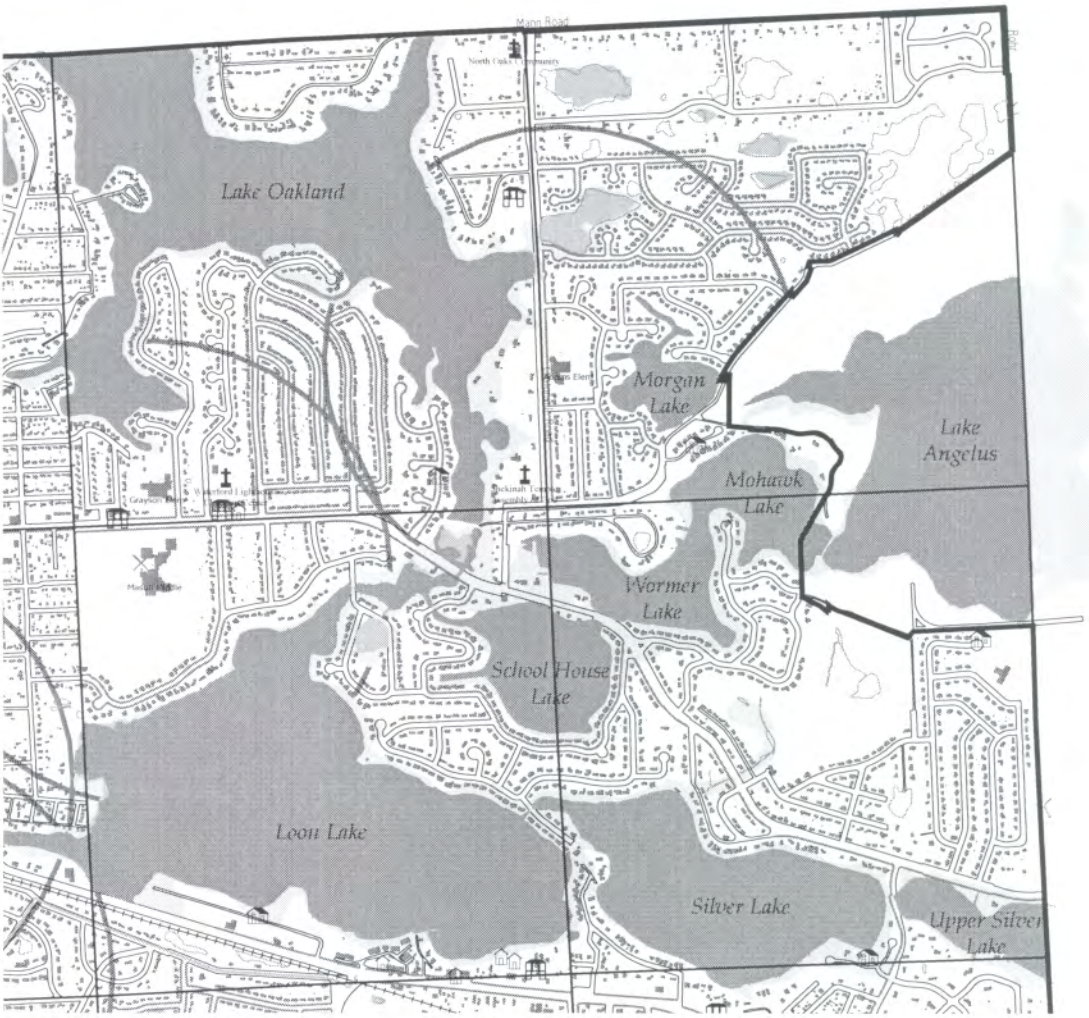
Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Small Group Voting Results

Group 2 (Township Sections 3, 4, 9 and 10)

No.	Recommendation	Number of Votes Received
General Recommendations		
1.	Landscape major roads.	0
Specific Recommendations		
2.	**Boulevard Dixie Highway, eliminating curb cuts and inserting crossings/breaks for pedestrians (votes clustered along Dixie Highway south of Walton Boulevard). Also create a corridor district along parts of Dixie Highway.**	**5**
3.	Provide walkways and bike paths from the Civic Center to the Fish Hatchery Park.	2
4.	Improve school street crossings at the intersection of Hatchery Road and Pierce Middle School. Walkways in good condition are already inplace at this location.	2
5.	Reroute truck traffic through the Historic District from Andersonville Road to White Lake Road, Williams Lake Road and Nelsey Road.	2
6.	Improve the walkability of the Historic District by adding new walkways and antique street lights.	1
7.	Improve the pedestrian crossing where the Grand Trunk Railroad crosses Hatchery Road.	1
8.	Provide a pedestrian crossing to Shell Park.	1
9.	The buildings located north of the intersection of Williams Lake Road and Coventry should be a CAI destination.	1
10.	Re-open the road at VanZandt (by Manley Voyager Alt High and Kettering High) during certain hours to relieve traffic congestion on Hatchery. The road should be bicycle/pedestrian friendly and accessible at all hours for non-motorized transportation.	0
11.	Improve the Drayton Plains Cemetery grounds.	0
12.	Redesign the parking layout for the buildings on the northeast side of Dixie Highway, by the intersection of Harbor Oak and Lake Pointe Roads. This area should become a destination for teens.	0

Note:
Recommendations that were used to initiate pilot project selection discussions appear in bold.



Waterford Walkable Communities

Northeast Part
Waterford Township

Data Source: Waterford Township GIS Department

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary
- 1/2 Mile (10-minute Walking Distance) Boundary
- Building Footprint
- Floodplain
- Historic District
- Park
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- High School
- Middle/Elem. School
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- Church
- Fire Station
- Police Station
- Sports Field

N

0.2 0 0.2 0.4 Miles

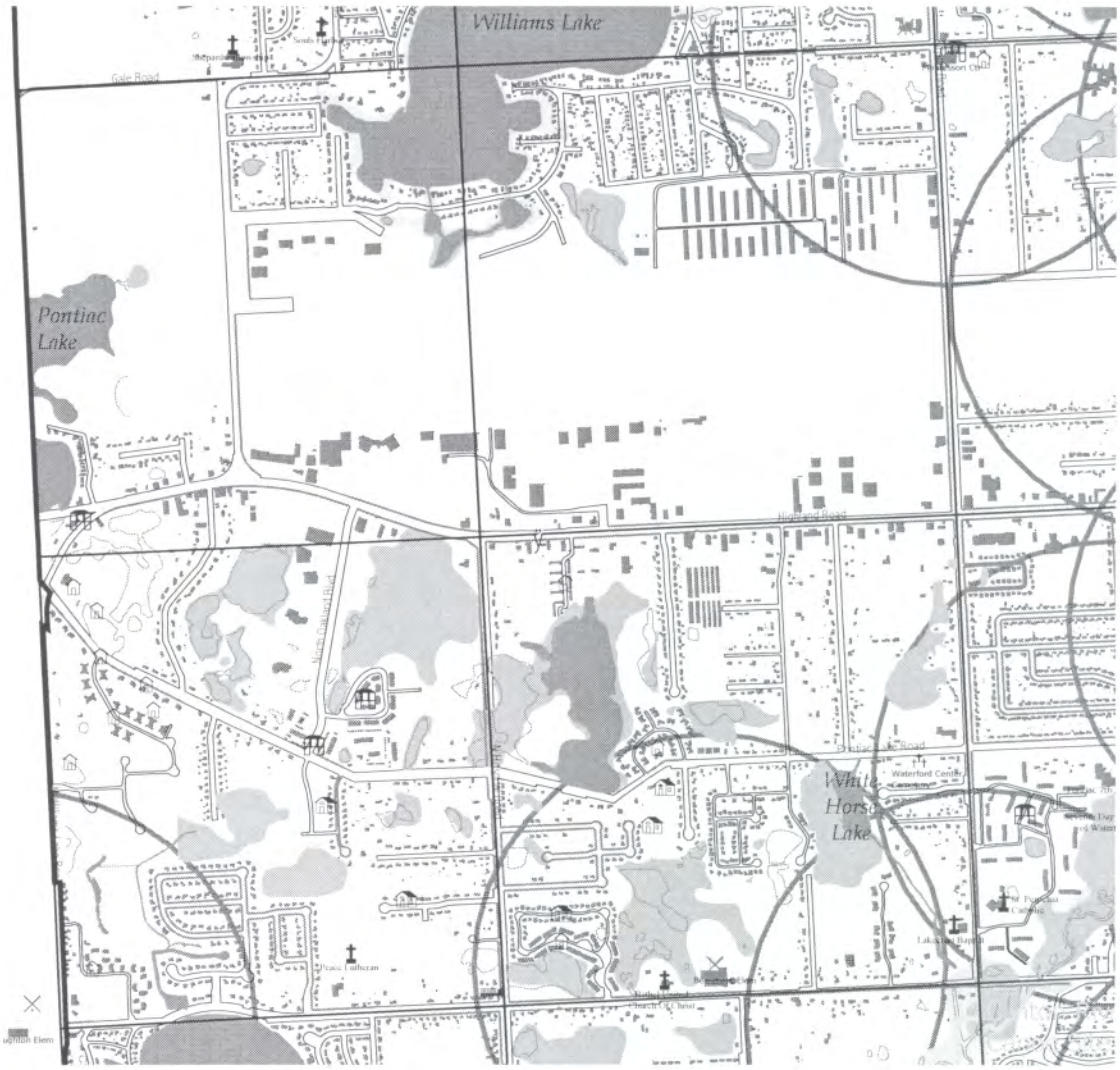
Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Small Group Voting Results

Group 3 (Township Sections 1, 2, 11 and 12)

No.	Recommendation	Number of Votes Received
Specific Recommendations		
1.	Build a boardwalk-type walkway on both sides of the street on Walton Boulevard between Wormer Lake and School House Lake and along Clintonville Road where it meets Lake Oakland.	4
2.	**Improve street-crossing on Clintonville Road so that pedestrians on the west side of the street can more safely walk to the Jayno Adams Grade School on the east side of the street. Street-crossing improvement suggestions: mark with crosswalk paint; build refuge islands across from each beach lot (islands should be built in the current left turn lane); and add emergency-type traffic lights that are activated by pedestrians.**	**4**
3.	Replace the current "cow paths" along Dixie Highway from Sashabaw to Watkins Lake Road with a bike path.	2
4.	Add a four-way stop at the intersection of Mann Road and Clintonville Road to allow for easier entry for subdivisions south of Mann Road.	1
5.	Improve street-crossings along Walton Boulevard such that residents in subdivisions on the north side may cross more easily to the south side subdivision beaches, which are located east and west of Silver Lake. Street-crossing improvement suggestions: mark with crosswalk paint; build refuge islands across from each beach lot (islands should be built in the current left turn lane); and add emergency-type traffic lights that are activated by pedestrians.	1

Note:
Recommendations that were used to initiate pilot project selection discussions appear in bold.



Waterford Walkable Communities

Central West Part
Waterford Township

Data Source: Waterford Township GIS Department

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary
- 1/2 Mile (10-minute Walking Distance) Boundary
- Building Footprint
- Floodplain
- Historic District
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- High School
- Middle/Elem. School
- Cemetery
- Church
- Fire Station
- Police Station
- Sports Field

N

0.2 0 0.2 0.4 Miles

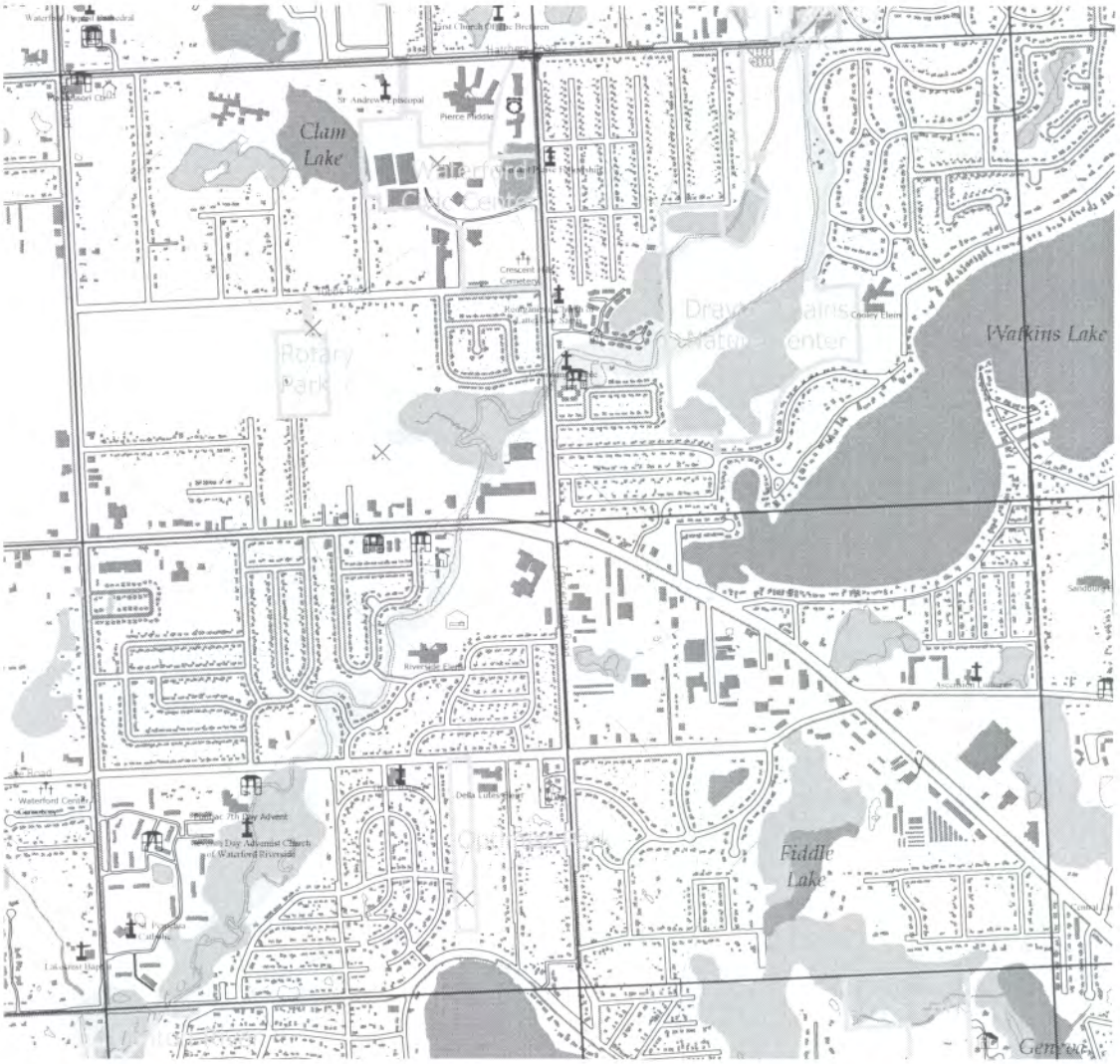
Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Small Group Voting Results

Group 4 (Township Sections 17, 18, 19 and 20)

No.	Recommendation	Number of Votes Received
General Recommendations		
1.	Improve the condition of pick-up stops or bus stops throughout the Township.	0
2.	Institute traffic calming techniques at major intersections along M-59.	0
Specific Recommendations		
3.	Install a pedestrian-friendly bike path along "new" Williams Lake Road from M-59 to Hatchery and around Williams Lake (along Hatchery Road and Williams Lake Road).	2
4.	Install a walkway link along North Oakland Boulevard between Highland Road and Pontiac Lake Road.	1
5.	Revamp the intersection at M-59 and the "old" Williams Lake Road.	1
6.	Create "Neighborhood Nodes." Places with nearby schools and retail which would make good "Neighborhood Nodes:"	
	- The intersection of Hatchery Road and Airport Road, and	1
	- The intersection of Williams Lake Road and Elizabeth Lake Road.	1
7.	Replace the "cow path" along M-59 between the Clark Gas Station and the Concorde Inn with a walkway.	1
8.	Replace the cow path along Elizabeth Lake Road by Beaumont Elementary School with a walkway. It will link the new subdivision (south of Elizabeth Lake Road) to the Beaumont Elementary School.	1
9.	Improve the safety of the pedestrian crossing at the intersection of Airport Road and M-59.	1
10.	Improve North Hospital Road which is gravel without any walkways or bike paths.	1
11.	Install a bike path to link the OCC Campus with Elizabeth Lake Road (beginning at the intersection of North Hospital Road and extending south).	1
12.	Install a walkway/bike path along Tubbs Road to provide a link with Optimist Park.	0
13.	Create walkway links between Elizabeth Lake Road at Lochaven Road, the new residential development, and the Beaumont Elementary School.	0
14.	Install walkways on Pontiac Lake Road, west of Hospital Road.	0

Note:
Recommendations that were used to initiate pilot project selection discussions appear in bold.



Waterford Walkable Communities

Central Part
Waterford Township

Data Source: Waterford Township GIS Department

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary
- 1/2 Mile (10-minute Walking Distance) Boundary
- Building Footprint
- Floodplain
- Historic District
- Park
- Township Section Boundary
- Water
- Wetland
- Apartment
- Condominium
- Group Housing
- Mobile Home Park
- Senior Citizen Housing
- Site Condominium
- Subdivision
- College Campus
- High School
- Middle/Elem. School
- Cemetery
- Church
- Fire Station
- Police Station
- Sports Field

N

0.2 0 0.2 0.4 Miles

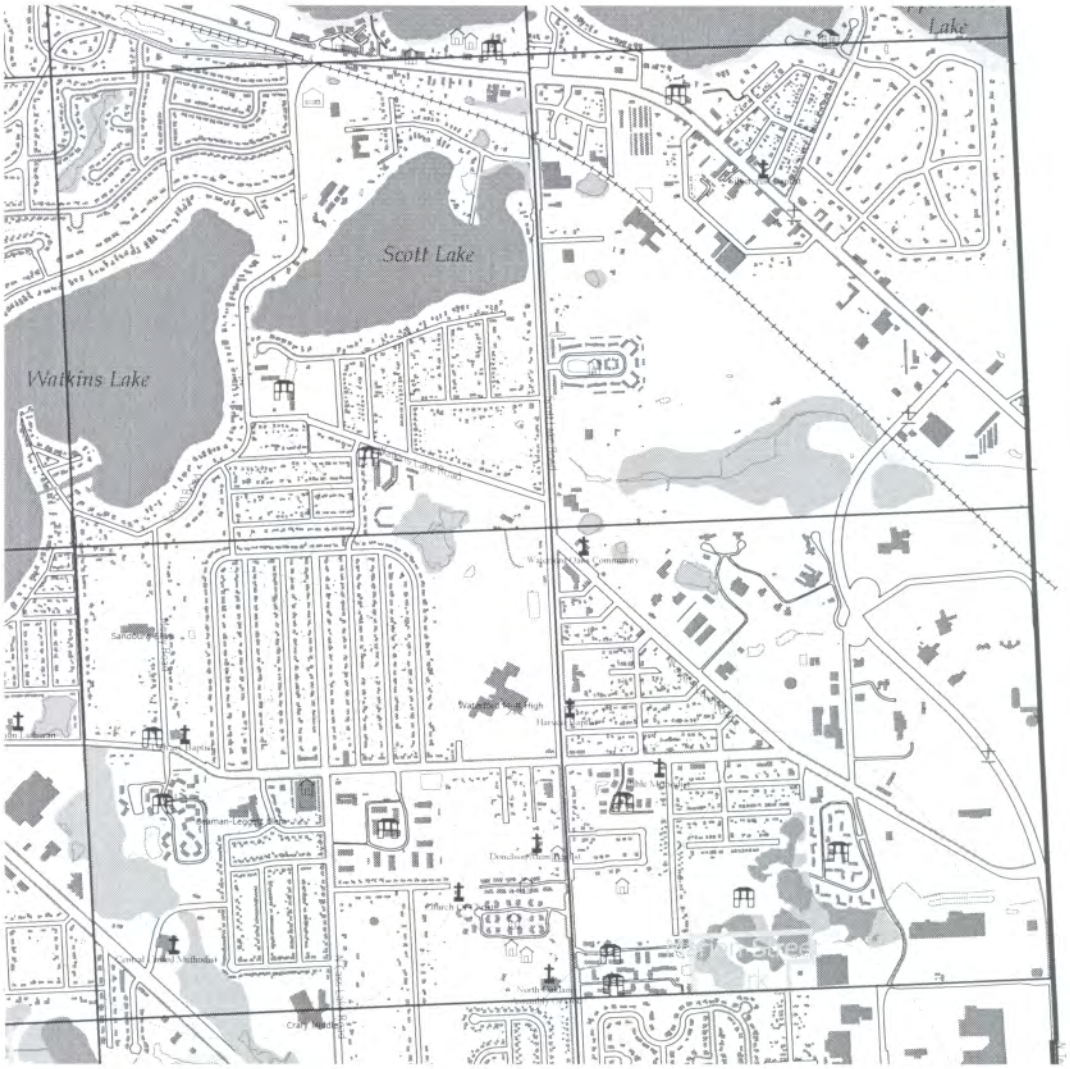
Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Small Group Voting Results

Group 5 (Township Sections 15, 16, 21 and 22)

No.	Recommendation	Number of Votes Received
General Recommendations		
1.	Do not extend the Riverwalk southward, past Riverside Elementary.	3
2.	Ensure that walkability projects meet the needs of the senior, student, blind and handicap populations.	1
3.	Research funding mechanisms for Riverwalk maintenance and improvements.	0
4.	Provide access to the Riverwalk from main streets.	0
5.	Research security issues regarding the Riverwalk with nearby homeowner backyards and at the M-59 underpass.	0
6.	Note that accessibility and walkability are related.	0
7.	Consider transit in conjunction with walkability.	0
Specific Recommendations		
8.	Develop the "Old Firehouse Land" as a transportation hub	0
9.	**Pedestrian improvements are needed at M-59 intersections. Major intersections include:**	
	- M-59 and Pontiac Lake Road	
	- M-59 and Crescent Lake Road	**3**
	- M-59 and Airport Road	**2**
	Influencing MDOT and RCOC should also be considered	**1**
10.	Link the underutilized Drayton Plains Nature Center with Fish Hatchery Park and Rotary Park from Dixie Highway to M-59.	2

Note:
Recommendations that were used to initiate pilot project selection discussions appear in bold.



Waterford Walkable Communities

Data Source: Waterford Township GIS Department

Central East Part
Waterford Township

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary

- 1/2 Mile (10-minute Walking Distance) Boundary

- Building Footprint
- Floodplain
- Historic District

- Park
- Township Section Boundary
- Water
- Wetland

- Apartment
- Condominium
- Group Housing
- Mobile Home Park
- Senior Citizen Housing
- Site Condominium
- Subdivision
- College Campus
- High School
- Middle/Elem. School
- Cemetery
- Church
- Fire Station
- Police Station
- Sports Field

N

0.2 0 0.2 0.4 Miles

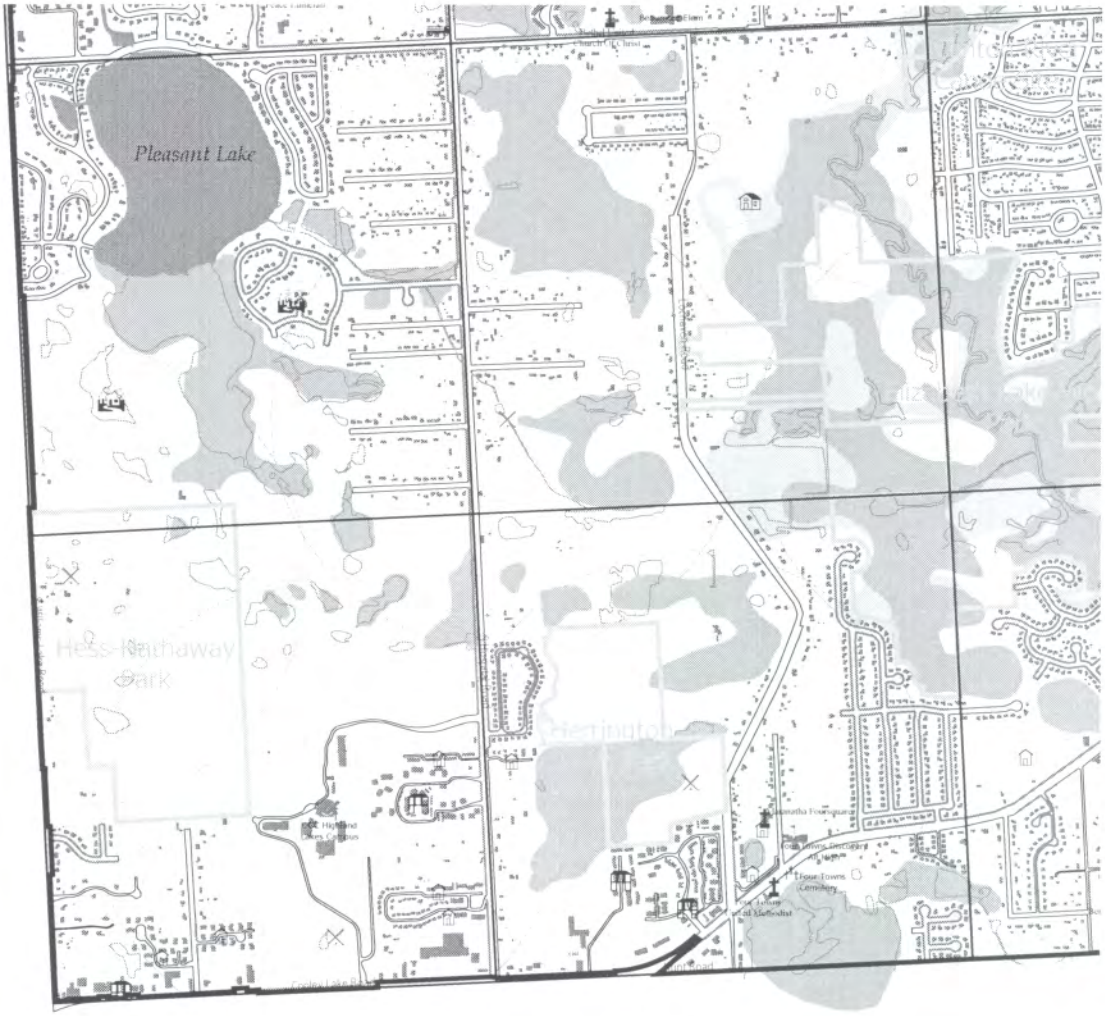
Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Small Group Voting Results

Group 6 (Township Sections 13, 14, 23 and 24)

No.	Recommendation	Number of Votes Received
Specific Recommendations		
1.	Install a walkway/bike path along Watkins Lake Road between Covert Road and Dixie Highway.	3
2.	**Install a bike path along M-59 (this action is critical).**	**3**
3.	Install a walkway/bike path along Watkins Lake Road (east of Scott Lake Road) and link with bike path and walkway along Scott Lake Road.	2
4.	Mark the entrance to the hiking trails at Waterford Oaks. Signage should make people better aware of facilities.	1
5.	Install a walkway along Scott Lake Road between Pontiac Lake Road and Watkins Lake Road.	1
6.	Construct a refuge island where Watkins Lake Road and Pontiac Lake Road merge.	1
7.	Install a bike path along Dixie Highway from the Township's western edge to Watkins Lake Road.	1
8.	Provide signage on Tyrone Road to make people aware of the Marion Park trails.	0
9.	Install a walkway along Watkins Lake Road between Scott Lake Road and Covert Road.	0
10.	Install a walkway and bike path along the north side of Pontiac Lake Road, west to M-59.	0
11.	Eliminate the green-arrow option for the light at the intersection of Watkins Lake Road and County Center so that bikers and walkers can cross safely.	0
12.	Install a walkway and bike path along Silver Lake Road between Dixie Highway and Walton Boulevard.	0
13.	Install a walkway and bike path along Summit Drive, Service Drive and the Summit Place Mall (southeast corner of Section 24).	0
14.	Create walkway links along Telegraph Road from Dixie Highway to the County Complex.	0
15.	Hold the county responsible for developing walkable/accessible linkages in the complex area.	0
16.	Interconnect subdivisions with walkways.	0

Note:
Recommendations that were used to initiate pilot project selection discussions appear in bold.



Waterford Walkable Communities

Southwest Part
Waterford Township

Data Source: Waterford Township GIS Department

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary
- 1/2 Mile (10-minute Walking Distance) Boundary
- Building Footprint
- Floodplain
- Historic District
- Park
- Township Section Boundary
- Water
- Wetland
- Apartment
- Condominium
- Group Housing
- Mobile Home Park
- Senior Citizen Housing
- Site Condominium
- Subdivision
- College Campus
- High School
- Middle/Elem. School
- Cemetery
- Church
- Fire Station
- Police Station
- Sports Field

N

0.2 0 0.2 0.4 Miles

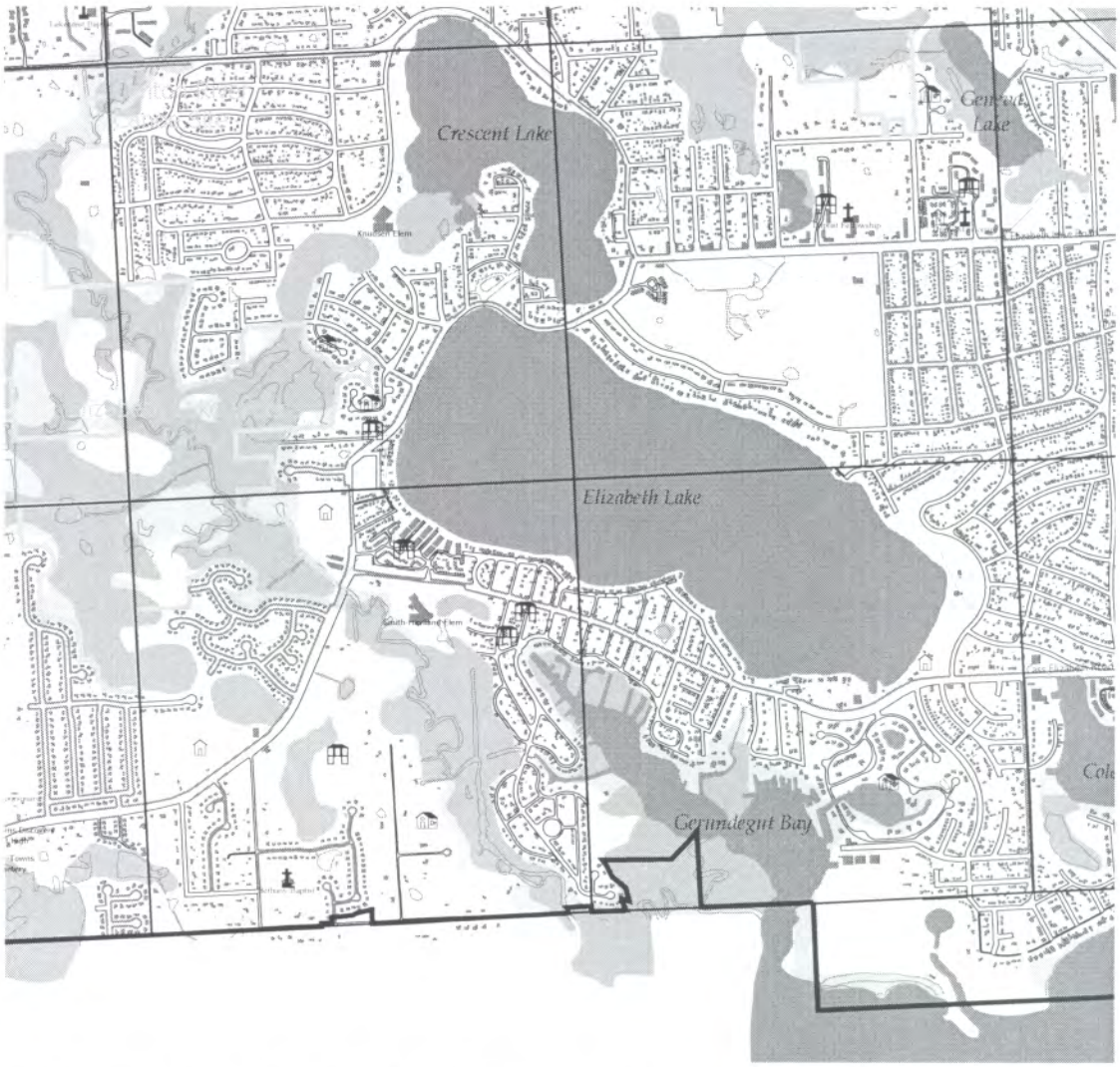
Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Small Group Voting Results

Group 7 (Township Sections 29, 30, 31 and 32)

No.	Recommendation	Number of Votes Received
General Recommendations		
1.	The area is very scenic and has many environmental assets.	0
2.	Coordinate with neighboring communities for overall linkage of pedestrian paths.	0
3.	Access to schools is difficult in general.	0
4.	Overall there are no linkages between key features.	0
5.	Expand Williams Lake Road into a boulevard.	0
6.	Coordinate with other communities that are part of the Waterford School District.	0
7.	The area is largely developed and there are very few walkways.	0
Specific Recommendations		
8.	**Install a walkway and bike path along Williams Lake Road by Hess-Hathaway Park to provide access to the park.**	**4**
9.	Add a riverwalk through the north side of Elizabeth Lake Park.	3
10.	Install a walkway on Elizabeth Lake Road between the Township's west border and Airport Road. Beaumont and Houghton Elementary Schools are along the route.	3
11.	Provide access to South Hospital Road. The road has no access, yet has many environmental assets.	1
12.	Provide access to Elizabeth Lake Park from Lochaven Road.	1

Note:
Recommendations that were used to initiate pilot project selection discussions appear in bold.



Waterford Walkable Communities

South Central Part
Waterford Township

Data Source: Waterford Township GIS Department

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary
- 1/2 Mile (10-minute Walking Distance) Boundary
- Building Footprint
- Floodplain
- Historic District
- Park
- Township Section Boundary
- Water
- Wetland
- Apartment
- Condominium
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- Mobile Home Park
- Senior Citizen Housing
- Site Condominium
- Subdivision
- College Campus
- High School
- Middle/Elem. School
- Cemetery
- Church
- Fire Station
- Police Station
- Sports Field

N

0.2 0 0.2 0.4 Miles

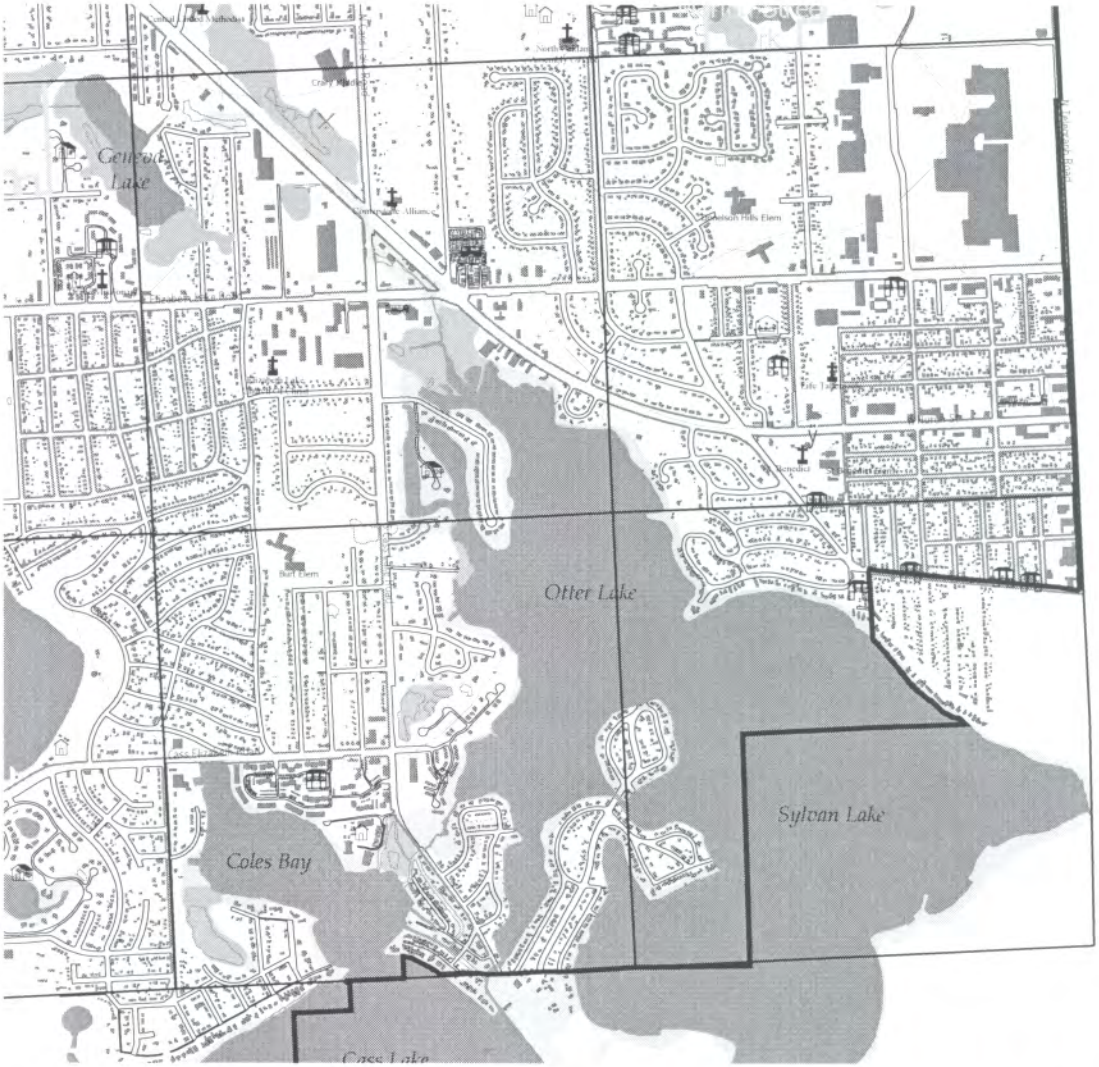
Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Small Group Voting Results

Group 8 (Township Sections 27, 28, 33 and 34)

No.	Recommendation	Number of Votes Received
General Recommendations		
1.	Allow accessibility to and through natural areas without creating a disturbance.	1
2.	Incorporate signage to direct people to and through the walkways.	1
3.	Create better connections between or link developments (subdivision to subdivision and infill walkways).	0
4.	Locate walkways and bike paths off of major thoroughfares (through neighborhoods and sub-collector streets).	0
5.	Provide breaks and/or rest areas with garbage cans along the walkways.	0
6.	There should be a series of walkways – one continuous walkway is not necessary.	0
Specific Recommendations		
7.	**Install continuous walkways on the eastern side of Crescent Lake, at the intersection of Elizabeth Lake Road and Lyford Street.**	**4**
8.	Link the break in the walkway along Cooley Lake Road, which occurs at the northwest corner of Elizabeth Lake (near the intersection of Cooley Lake Road and Hickory Nut Street). This walkway system should also connect to the system on the south side of Crescent Lake.	3
9.	Along Cooley Lake Road, just south of the Cass Elizabeth/Cooley Lake intersection and west of Smith-Haviland Elementary, are wetlands and natural features. This area should be traversed without disturbance.	3
10.	The subdivision southwest of the Parkway/Cass-Elizabeth intersection is not connected to other walkways, other than via a major thoroughfare. Access should be provided, but not along a major thoroughfare.	2

Note:
Recommendations that were used to initiate pilot project selection discussions appear in bold.



Waterford Walkable Communities

Southeast Part
Waterford Township

Data Source: Waterford Township GIS Department

- Sidewalk
- Bike Path
- Proposed Bike Path
- Signed Roadside Bike Route
- Railroad
- Road Right-of-Way Boundary
- 1/2 Mile (10-minute Walking Distance) Boundary
- Building Footprint
- Floodplain
- Historic District
- Park
- Township Section Boundary
- Water
- Wetland
- Apartment
- Condominium
- Group Housing
- Mobile Home Park
- Senior Citizen Housing
- Site Condominium
- Subdivision
- College Campus
- High School
- Middle/Elem. School
- Cemetery
- Church
- Fire Station
- Police Station
- Sports Field

N

0.2 0 0.2 0.4 Miles

Beckett and Raeder, Inc.
Landscape Architects Planners Engineers

Small Group Voting Results

Group 9 (Township Sections 25, 26, 35 and 36)

No.	Recommendation	Number of Votes Received
Specific Recommendations		
1.	Improve the following intersections:	
	- North Cass Lake Road and West Huron	1
	- South Cass Lake Road and Cass Elizabeth Road	1
	- West Huron and Elizabeth Lake Road, and	1
	- West Huron and Voorheis Road.	1
2.	**Slow traffic on M-59: the road should be turned into a boulevard or gateway into the community. The pavement color should be changed at Cass-Elizabeth and M-59 and Cass Lake and M-59 to achieve a pedestrian environment.**	**1**
3.	Improve the walkability by Donelson Hills Elementary School.	1
4.	Provide safer access to St. Benedict Elementary School: the neighborhood should be closed from drive-through traffic; the left turn lane on West Huron at Voorheis Road should be should be eliminated to remove traffic from the area.	1

Note:
Recommendations that were used to initiate pilot project selection discussions appear in bold.

The following is a list of recommendations ranked according to feasibility and consistency with other planning projects. Bold recommendations signify that it is included in this study as a pilot project.

1. **Provide walkways and bike paths from the Civic Center to Fish Hatchery Park.**

2. **Improve the street crossings at the intersection of Hatchery Road and Pierce Middle School. Existing walkways near this location are in good condition.**

3. Link the underutilized Drayton Plains Nature Center with Fish Hatchery Park and Rotary Park from Dixie Highway to M-59.

4. Pedestrian improvements are needed at M-59 intersections. Major intersections include: M-59 and Pontiac Lake Road; M-59 and Crescent Lake Road M-59 and Airport Road; M-59 (West Huron) and North Cass Lake Road; M-59 (West Huron); Elizabeth Lake Road; M-59 (West Huron) and Voorheis Road.

5. Install a continuous bike path along M-59.

6. Replace the "cow path" along M-59 between the Clark Gas Station and the Concourde Inn with a walkway.

7. Improve street crossing on Clintonville Road so that pedestrians on the west side of the street can more safely walk to Jayno Adams Elementary School on the east side of the street.

8. Replace the "cow path" along Elizabeth Lake Road by Beaumont Elementary with a walkway. It will link the new subdivision (south of Elizabeth Lake Road) to the school. Create walkway links between Elizabeth Lake Road at Lochaven Road, the "new" residential development, and Beaumont Elementary School.

9. Install a walkway link along North Oakland Boulevard between Highland Road (M-59) and Pontiac Lake Road.

10. Improve the walkability of the Historic District by adding new walkways and antique street lighting.

11. Make improvements to the currently unusable bike path along Williams Lake Road between Maceday Lake Road and Maceday Drive.

12. Replace the current "cow paths" along Dixie Highway from Sashabaw Road to Watkins Lake Road with a Bike Path.

13. Install a walkway/bikepath along Williams Lake Road by Hess-Hathaway Park to provide access to the park.

14. Install continuous walkways on the eastern side of Crescent Lake, at the intersection of Elizabeth Lake Road and Lyford Street.

15. Link the break in the walkway along Cooley Lake Road, which occurs at the northwest corner of Elizabeth Lake (near the intersection of Cooley Lake Road and Hickory Nut Street). This walkway system should also connect to the system on the south side of Crescent Lake.

16. Install a continuous walkway along Scott Lake Road between Pontiac Lake Road and Watkins Lake Road.

17. Develop the segment along Maceday Lake Road between North Williams Lake Road and Nelsey Road into a "pedestrian/biker friendly" connector to Rich St. Park (recreation destination).

18. Create "neighborhood nodes." Places with nearby schools and local business/retail, promoting improved pedestrian access and walkability: the intersection of Hatchery Road and Airport Road, and the intersection of Williams Lake Road and Elizabeth Lake Road.

19. Install a walkway/bike path along Watkins Lake Road (east of Scott Lake Road) and link with bike path and walkway along Scott Lake Road. Coordinate this effort with Oakland County's plan for a bike path system along Watkins Lake Road near County Center Drive.

20. Construct a refuge island where Watkins Lake Road and Pontiac Lake Road merge.

21. Improve the walkability by Donelson Hills Elementary School.

22. Improve the pedestrian crossing where the CNN railroad (formerly the Grand Trunk railroad) crosses Hatchery Road.

23. Improve the pedestrian crossing to Shell Park.

24. Install a bike path to link the OCC Campus with Elizabeth Lake Road (beginning at the intersection of North Hospital Road and extending south).

25. Install a walkway/bike path along Watkins Lake Road between Covert Road and Dixie Highway.

26. Install a walkway on Elizabeth lake Road between the Township's west border and Airport Road. Beaumont and Houghton Elementary Schools are along this route.

27. Improve street-crossings along Walton Boulevard such that residents in subdivisions on the north side may cross more easily to the south side subdivision beaches, which are located east and west of Silver Lake. Street crossing improvements are to mark crosswalks with paint, build refuge islands across from each beach lot, build refuge islands in the existing left turn lane, and add emergency-type traffic lights that are activated by pedestrians.

28. Install a walkway/bike path along Tubbs Road to provide a link with Optimist Park.

29. Improve the intersection at South Cass lake Road and Cass-Elizabeth Road so it is safer and more pedestrian friendly.

30. Complete bike path links along Dixie Highway from the Township's western edge to Watkins Lake Road.

31. Develop a riverwalk through the north side of Elizabeth Lake Woods Park.

32. Develop a walkable connection for the subdivision southwest of the Parkway Rd./Cass-Elizabeth intersection other than via a major thoroughfare.

33. Provide access to Elizabeth Lake Woods Park from Lochaven Road.

34. Develop/construct a boardwalk-type walkway on both sides of the street on Walton Boulevard between Wormer lake and School House Lake and along Clintonville Road where it meets Lake Oakland.

35. As the "new" Williams Lake Road design is finalized, provide a pedestrian-friendly bike path from M-59 north and connect to Hatchery Road and to the existing portion of Williams Lake Road.

36. Revamp the intersection at M-59 and the "old" Williams Lake Road.

37. Improve North Hospital Road which is currently gravel without any walkways or bike paths.

38. Install walkways on Pontiac Lake Road west of Hospital Road.

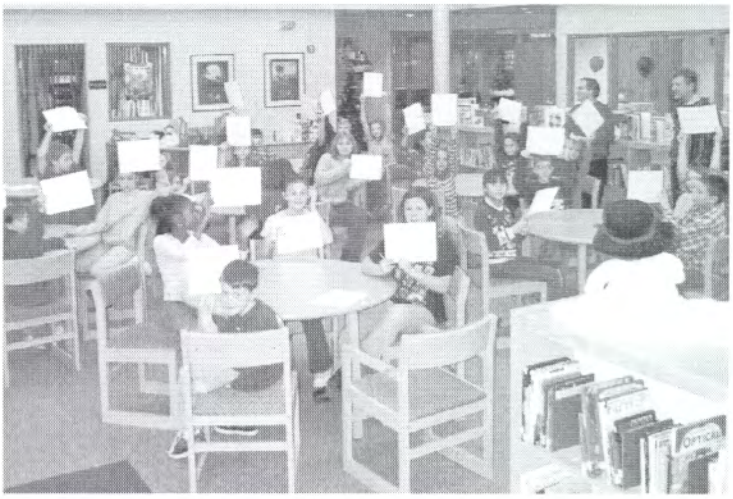
39. Reroute truck traffic that currently goes through the Historic District on Andersonville Road to White Lake Road, Williams Lake Road and Nelsey Road.

40. Coordinate with the Road Commission for Oakland County the feasibility of incorporating a four-way stop at the intersection of Mann Road and Clintonville Road to allow easier entry for the subdivisions south of Mann Road.

41. Slow traffic on M-59: the road should be turned into a boulevard or gateway into the community. The pavement color should be changed at Elizabeth Lake Road and M-59 and Cass Lake Road and M-59 to achieve a pedestrian environment.

42. Boulevard Dixie Highway, eliminating curb cuts where appropriate, and inserting crossings/breaks for pedestrians, particularly the area south of Walton Boulevard.

Students record responses during brainstorming session



Students hold up their drawings

STUDENT WALKABILITY WORKSHOP

Schedule of Events

Brainstorming Session (20 minutes)
Students brainstormed responses to questions regarding their non-motorized transportation experiences (i.e., walking, biking, scooter or skate boarding experiences). Students were asked to consider good and bad encounters, as well as elements that would improve their experiences.

Review of Surveys (20 minutes)
The *Safe Walks to School* survey was distributed to students prior to the workshop. Students discussed their results during the workshop.

Drawing of Experiences (20 minutes)
Students drew pictures of a route they walk or bike. The route was selected by each child, be it from their house to school, a store, a park or a friend's house. Students were asked to note specific locations where negative or positive experiences occur on their walk. For example, students could note where a crosswalk would be helpful, or where there are interruptions in walkways.

Results

The results of the brainstorming session are summarized below. The responses are listed after each question.

Question: What are good aspects of walking/biking to school, friends' houses, parks, stores, etc?

- Walkways are present in most places
- There is not too much traffic
- There are many stop signs
- Drivers watch where they are going
- Walkways do not have a lot of cracks
- Walkways to not have sharp curves

Question: What are bad aspects of walking/biking to school, friends' houses, parks, stores, etc?

- Walkways are not plowed – students must walk in the streets and jump into the snow when cars drive by
- There are cracks in the walkways
- There are bumps in the walkways
- Walkways end, forcing the student to walk in the street
- There are no walkways
- Cars drive too fast
- There are visual obstructions, like trees blocking street signs
- Curb cuts are lacking; students must walk their bikes over curbs when crossing streets.

Question: What would improve the walking/biking experience?

- Place stop signs at intersections
- Remove traffic (not all, but some)
- More grass to eliminate walking through mud
- Patrol for speeders
- Increase walkways and make them level
- Enforce drivers' use of turn signals
- Shovel walkways
- Fill-in pot holes in roads
- Maintain roads
- Remove trash from roadside (bottles, tapes, glass, potato chip bags, gum)

Question: What are your reactions to questions prompted by the survey?

- Negative student experiences include dogs, scary people and teenagers who speed and chase students.
- Drivers parking too close to school is a problem for students; students must walk between cars, which is dangerous as cars may not see students and students cannot see oncoming traffic unless they step into the street.
- Some cars are courteous.
- People do not always look for pedestrians when backing out of driveways.
- More 'yield to biker/pedestrian' signs are needed.
- More 'children walking' signs are needed.

The survey, with responses totaled, is presented as Attachment B. The average rating the students gave to their neighborhood was 19.6, which corresponds to the survey's rating of "Okay, but it needs work."

Drawings

The drawings reflected the comments received during the brainstorming session. Students were also able to identify locations of speeding teenagers, nice people, scary people, scary dogs, cracks in walkways, missing walkways as well as locations where stop signs, yield signs and crosswalks are needed. Student drawings are provided as Attachment C.

Wide lanes, straight roads and barren streetscapes contribute to high speeds

Tall trees and winding streets visually cue the drive to slow down. Painted bikes lanes send the message to look out for bikers and pedestrians (Walkable Communities)

GENERAL RECOMMENDATIONS

The Visioning Workshop results indicated that many areas in Waterford require the same remedy. While the study provides detailed designs for one project area that may be applied to similar types of areas in the Township, other techniques may be more appropriate. This section therefore reviews various walkable treatments and provides general guidelines that should be followed where and when future projects are implemented. The sources for the recommendations are:

- Guide for the Development of Bicycle Facilities, 1999 by the American Association of State Highway and Transportation Officials (AASHTO 1999).
- Design and Safety of Pedestrian Facilities, 1998 by the Traffic Engineering Council Committee: TENC-5A-5 (TECC 1998).
- Streets and Sidewalks, People and Cars, 2000 by Dan Burden, Local Government Commission Center for Livable Communities (Burden, 2000).

It is important to note that not every street needs to be walkable; pedestrian and bike routes should be planned and their use encouraged through proper signage of the locations. Additionally, techniques discussed in this section should be designed in accordance with American Disabilities Act (ADA) regulations. Also, remember that although specific issues are targeted, combinations of techniques should be applied for maximum benefit.

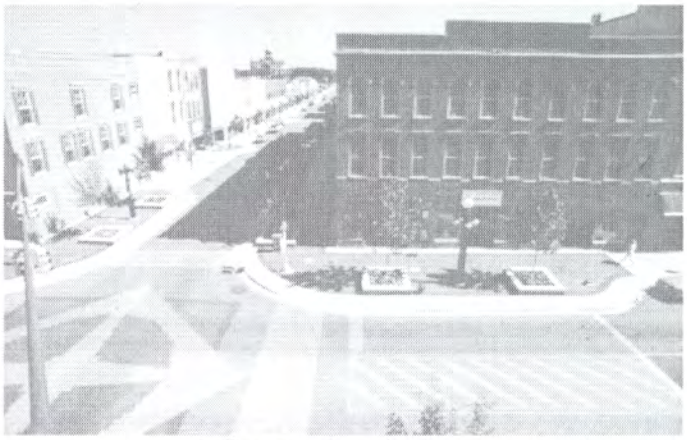
Speed Reduction

Reducing vehicular speed does not always refer to adjusting the speed limit. Visual cues are also an effective means to slow cars. Straight roadways that have wide lanes and barren streetscapes (photo left, above) increase a driver's field of vision, thereby allowing the driver to feel comfortable at higher speeds.

To reduce speeds along roads that exhibit the above-listed characteristics, narrowing the field of vision through physical elements is recommended, as this can cause drivers to slow down (photo left, below). Reducing lane widths, creating medians or shifts in the road, adding on-street parking or trees, or bringing buildings closer to the road's edge are examples of traffic-calming treatments (Burden, page 7).

Striping indicates the presence of bikers and pedestrians to drivers as well as lends predicatibility to their movements (Walkable Communities)

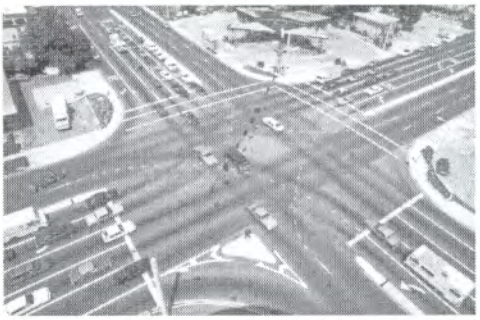
Striping, signage and a refuge island allow a pedestrian to cross safely (Walkable Communities)



Bulb-outs reduce the distance pedestrians must travel across and intersection

Intersections and Crosswalks

Waterford Township has many lakes, parks and schools interspersed among its residential neighborhoods. Crossing a five- or seven-lane street while walking or biking to these popular destinations is not uncommon. The following lists a few of the techniques discussed in Dan Burden's manual, referenced on page 39.



Intersections without crosswalks, medians or other treatments can be daunting to pedestrians and bikers (Walkable Communities)

Striping

Striping delineates the pedestrian's territory from the drivers' and tells the driver to expect pedestrians. Striping usually indicates to drivers that they should yield to the pedestrian, so it should only be used at signalized intersections, or where cars travel at slow speeds. Ten-foot wide crosswalks are standard, with lines of 10 to 12 inches, or 18 to 24 inches when greater emphasis is required. A 12-inch line with a 24-inch gap is considered the most cost-effective method. Lines should be inset two feet from the edge of the roadway; striping should be used in conjunction with signs (Burden, page 44 and TECC, pages 56-57).

Medians and Refuge Islands

Medians or refuge islands are raised barriers in the center of the street. They provide a safe stopping point for pedestrians at road crossings by reducing the number of threats (cars travelling in each direction) a pedestrian must face at one time. The recommended minimum width for a refuge island is four feet, with eight feet being the preferred width (Burden, pages 33 and 36). The length should be a minimum of 12 feet, or the length of the crosswalk itself, whichever distance is greater. Refuge islands should be considered when the distance to cross is 75 feet or more (TECC, page 14).

Bulb-outs or Curb Extensions

Bulb-outs or curb extensions reduce the street crossing and slow traffic. Although most appropriate where on-street parking exists, the curb extension occurs only where parking is not allowed. This technique usually decreases the turning radius, requiring consultation with the local Fire Department.

A general recommendation: intersections near schools should be marked with pedestrian-crossing signs and/or flashing yellow lights. Crossing guards should also be employed, particularly where clearly designated crosswalks are lacking.

An example of undefined curb cuts, wide setbacks and unattractive streetscape (Walkable Communities)

"Cow paths" indicate demand for sidewalks

Sidewalks with a strip of grass (left) or hedging (right) provide a buffer between the pedestrian and car. Note the attractive fencing, trees, benches and brick pavers, which add to the pedestrian experience (right photo: Walkable Communities)

Pedestrian and Bicycle Facilities

A repeated recommendation resulting from the Visioning Workshop was to link already existing pathways. There are several types of linkages that could be implemented: pedestrian only, bike only, or both. Below are general recommendations to consider for various facilities.

Pedestrian Facilities

There are many issues surrounding existing pedestrian facilities in Waterford: undefined curb cuts, disappearing sidewalks or lack of sidewalks, "cow paths" where sidewalks are needed, and physical obstructions in the sidewalk path. Where there are sidewalks, the aesthetics, landscaping and fencing, could be improved.

When planning a sidewalk, certain factors should be considered. The location of the sidewalk is important. In commercial areas, sidewalks should be provided on both sides of the street, whereas in residential areas with one to four dwelling units per acre, sidewalks should be placed on at least one side of the street (TECC, pages 30-31).

Setbacks and widths of sidewalks are another consideration. The setbacks should be *as far from the road as possible*. While this standard is subjective, a minimum setback of six feet is recommended for preventing driveway slopes from interfering with the sidewalk (TECC, page 33). Sidewalk widths are a function of use and feasibility. Minimum recommended widths are:

- Central Business Districts: eight feet
- Commercial/Industrial areas: five feet with two feet of planting or seven feet with no planting strip
- Residential areas and local streets with high residential densities: five feet with two feet of planting or seven feet with no planting strip
- Residential areas with densities less than four dwelling units per acre: four feet with two feet of planting strip (TECC, pages 33-34).

The aesthetic environment surrounding the sidewalk should also be considered. If the sidewalk is adjacent to a street, pavement, plantings, benches, attractive fences, trees and street lights may be incorporated into the design. Accessories may not be necessary if the sidewalk is traversing a naturally scenic area.

Bicycle Facilities

With regard to biking facilities, continuity of route type is critical to encouraging the use of the route. Other factors that should be considered include: the skill of users; the turnover and density of on-street parking; physical barriers (rivers, railroads, highways); opportunities to reduce collisions with cars and other bikes reduction; route directness; accessibility to residential or destination places: aesthetics/scenery: personal safety/security; number of stops; ease of maintenance; pavement surface quality; the amount of truck and bus traffic; bridges; intersection conditions; costs and funding; and state and local ordinances (AASHTO, pages 11-12).

In the early 1980s, Waterford Township initiated a bike system, and established designations for that system. Currently, the Township refers to inplace routes as bike paths and signed roadside bike routes. These titles differ from those give by AASHTO, which are explained below. For consistency, a general recommendation is that Waterford Township consider changing their current terms to AASHTO designations.

There are four basic types of bike facilities:

Shared Roadways are characterized by paved shoulders, with no striping to designate a bike lane. They are used to enhance continuity with other bike routes and should not be used to promote bike use on streets and highways which are unsuitable for bikers. Where possible, a paved shoulder width of four feet is recommended at a minimum and extended to five feet if curb and gutter or a guardrail is present. The shoulder width should be increased if the cars are travelling at higher speeds (greater than 50 miles per hour), if there is heavy bus and/or truck traffic on the road, or if there are ever-present obstacles in the road.

Signed-shared roadways are a bike route on the road, which is designated with signs. The purpose is to provide continuity with other bike lanes, or encourage bikers to use one corridor over another. The recommended frequency of signs in urban areas is every quarter mile, with additional signs at every turn and signalized intersection.

Bike lanes are paved shoulders designated for bikers by pavement marking and signs. Lanes improve conditions in heavily-biked areas by making cars and bikes more aware of each others' presence and movements. A standard bike lane width is four feet, five feet if there is a curb or guardrail. Where there is on-street parking, the lane width should be five feet. Striping should be six inches wide; a four-inch width could be added to differentiate between on-street parking and the bike lane (AASHTO, pages 22-23). Waterford Township's "Signed Roadside Bike Route on Paved Shoulder" is the equivalent of AASHTO's bike lanes.

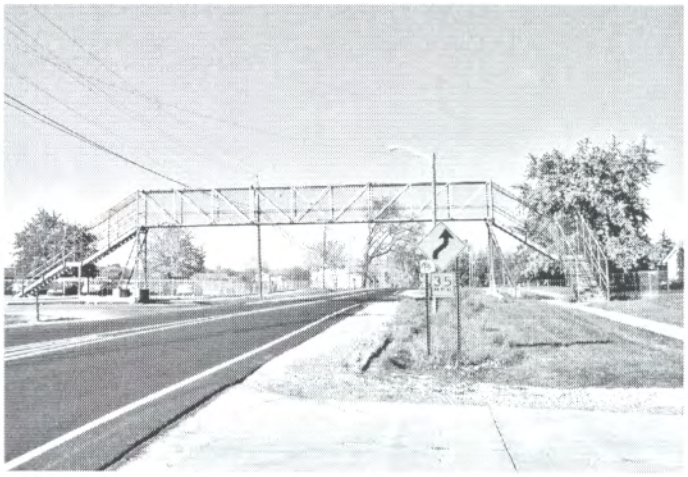
Bike lanes separated from traffic lanes with a solid white line clearly delineate the bikers' territory from the drivers' (Walkable Communities)

Shared-use paths are sidewalks that allow for pedestrian and bike traffic. Shared use paths are usually found where bikers demand a route because a street is not present: along rivers, canals, ocean fronts, within parks, or to close gaps between cul-de-sacs, rivers or other barriers.

This eight-foot wide sidewalk along Airport Road works as a shared-use path

Shared-use paths can be between eight to fourteen feet wide, with ten to twelve feet being the most common width. Eight-foot wide paths should only be used where biker and pedestrian usage is expected be low, where the slopes are mild to facilitate ease of passing, and where the pavement will not be damaged due to normal maintenance operations (AASHTO, page 36).

Other factors to consider when planning a biking facility, such as design speed, slopes, horizontal alignment, and grade, may be found in the AASHTO guide. The first consideration should be the expected current and anticipated future volume of use. Also remember that wider routes do not necessarily mean that the path is more accomodating; as with roads, wide, straight shared-use paths can promote high biking speeds that are dangerous to pedestrians.



Pedestrian bridge between two schools

Pedestrians on this sidewalk on the north side of Telegraph Road may feel trapped between traffic and the fence

PILOT PROJECT DETERMINATION

On February 26, a subgroup of the Visioning Session participants met for the purpose of selecting three pilot projects to implement. Importance was placed on selecting three distinct projects, each serving as a demonstration project to be applied at other locations that need similar remedies. Those present at the February 26 meeting were Robert Vallina, Community Planning and Development Director, Larry Lockwood, Planning Division Head, Mark Kellenberger, Planner II, Amy (Williams) Noel, Planner I, Lisa Poisson, GIS Manager, Kathy Lindsey, Community Planning and Develoment Department Aide, Sue Camilleri, Building and Engineering Department, and Scott Hudson, Planning Commissioner.

Identification of Potential Projects

The process for selecting potential projects began as a brainstorming session. The recommendations from the January 16, 2001, Visioning Session initiated discussion. Potential projects were then grouped according to walkable categories, and reevaluated according to the selection criteria (page 48). Specific projects listed by category were:

Pedestrian Improvements at Major Intersections

- Crescent Lake Road and M-59
- Crescent Lake Road and Hatchery Road
- Pontiac Lake Road and M-59
- Williams Lake Road and M-59
- Kettering Drive and Hatchery Road
- South Williams Lake Road at Hess-Hathaway Park

Sidewalk Extensions / Linkages

- Crescent Lake Road and Hatchery Road
- Cass-Elizabeth Road and Cooley Lake Road
- Cooley Lake Road, in the southwest portion of the Township, along the border of Waterford and West Bloomfield
- South Williams Lake Road, along Hess-Hathaway Park
- Watkins Lake Road, between Covert Road and Dixie Highway

General Improvements (visibility, maneuverability and/or safety)

- Telegraph Road and Dixie Highway
- Frembes Road and Dixie Highway
- Williams Lake Road (narrow with sharp curves)

Selection Process

Before the pilot projects were selected, criteria by which potential projects would be evaluated for their suitability was established:

Visibility
A project should be in a heavily-trafficked area to ensure that the number of people benefiting by the improvement is maximized. Residents that are positively impacted by the improvement will be more likely to support similar projects in the future. Also, if the area is a popular pedestrian/cyclist route, resources will address a situation that is an existing priority for the community. Conversely, improving an intersection or extending a sidewalk at a low-volume pedestrian area would be an inefficient use of resources.

Implementability
A project should be feasible in terms of implementation by the Township. Certain roads within the Township are under the jurisdiction of the State, meaning that implementation may entail enough additional regulations and collaboration to render a project infeasible in the short term. Township roads are under Oakland County's jurisdiction, so a certain level of outside involvement should be expected for any project.

Geography
The projects should be in close proximity to each other to illustrate the benefits of combining walkable improvement techniques. For example, a multiuse pathway that links a sidewalk at an elementary school with an improved street crossing at a major intersection would have a greater impact than would a sidewalk extension on the north side of the Township and a street crossing improvement on the south side of the Township.

Safety
The projects should address the need for providing safe walking environments in areas that are frequented by children and/or the elderly. The concern for children walking in streets, due to lack of sidewalks, or crossing at 'unsafe' intersections was repeated during the January 16 Visioning Session and remains a high priority for the Township.

Pilot Project

The result of the selection process was a project area in which several walkable projects could be implemented. The project area is located in the North Central part of the Township, and includes the portion of Hatchery Road between Civic Center Drive to just east of Frembes Road and all of Frembes Road between Hatchery Road and Dixie Highway. The concept creates a pedestrian friendly pocket, linking the destinations to the west (the Civic Center, Pierce Middle School and Kettering High School), with destinations to the east (Fish Hatchery Park, Shell Park) and to the north (Dixie Highway). The project also satisfies the established criteria.

The concept, as shown on Figure 1, consists of:

1. Installing eight to ten foot wide shared-use paths between Hatchery Road and Kettering High School and from Hatchery Road through the Civic Center complex.

2. Installing five foot wide sidewalks on the north side of Hatchery Road from Kettering Drive to Frembes Road.

3. Installing five foot wide paved bike lanes on existing paved shoulders along the east and west sides of Frembes Road.

4. Installing an eight foot sidewalk on the south side of Hatchery Road from Crescent Lake Road to Georgeland Road.

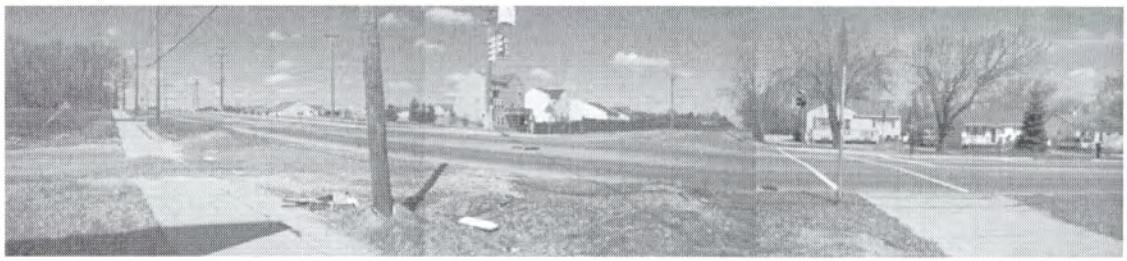
5. Installing an eight foot sidewalk on the north side of Hatchery Road from Frembes to Fish Hatchery Park.

6. Installing an eight foot sidewalk on the north side of Hatchery Road from Frembes to Fish Hatchery Park.

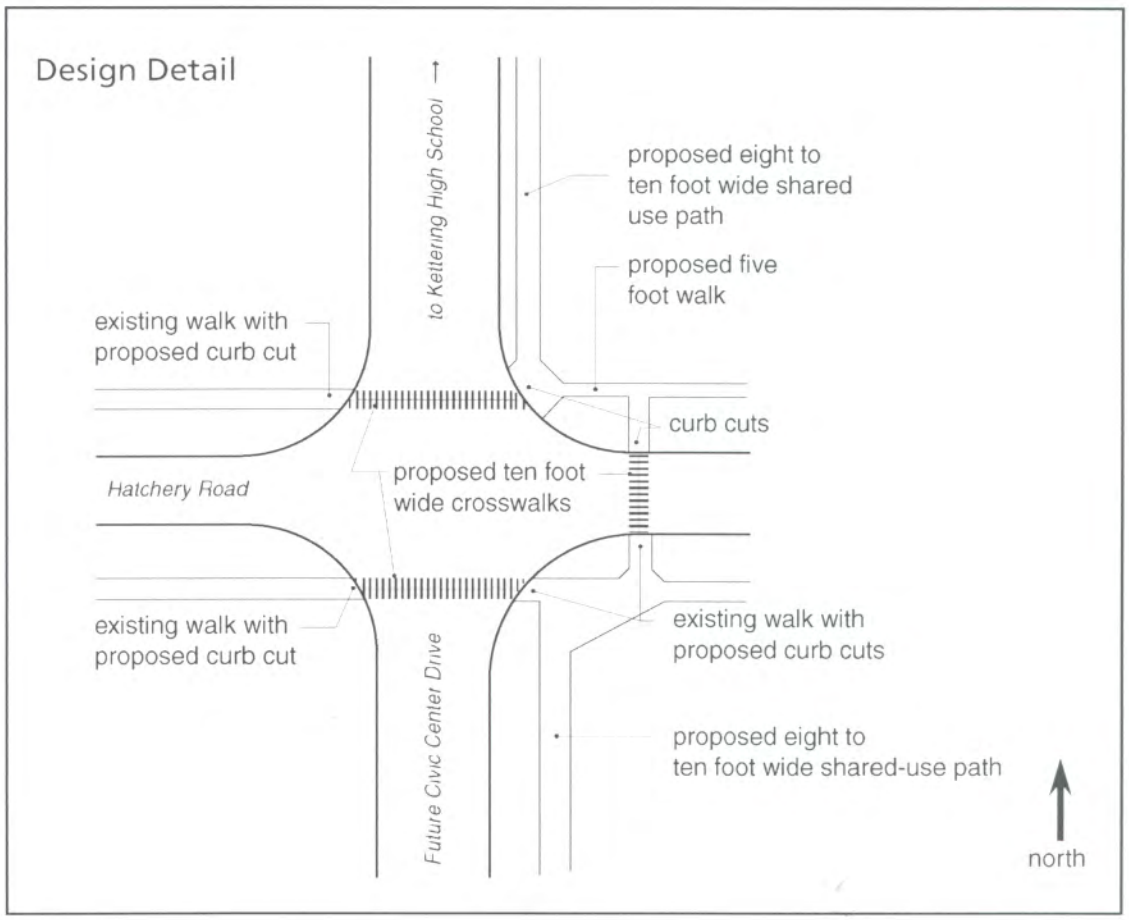
7. Providing treatments, such as crosswalks, stop signs and/or speed bumps to the intersection on the side south of Civic Center Drive and to the entry of Shell Park from Frembes Road.

8. Improving the crosswalks at the Hatchery Road/Kettering Drive/Civic Center Drive intersection, the Hatchery Road/Crescent Lake Road intersection, and the Hatchery Road/Frembes Road intersection. Descriptions, photos and detailed drawings of the three intersection improvements are provided on pages 50 through 52.

Intersection 1. Hatchery Road and Civic Center Drive



Intersection 1. View: Northwest.



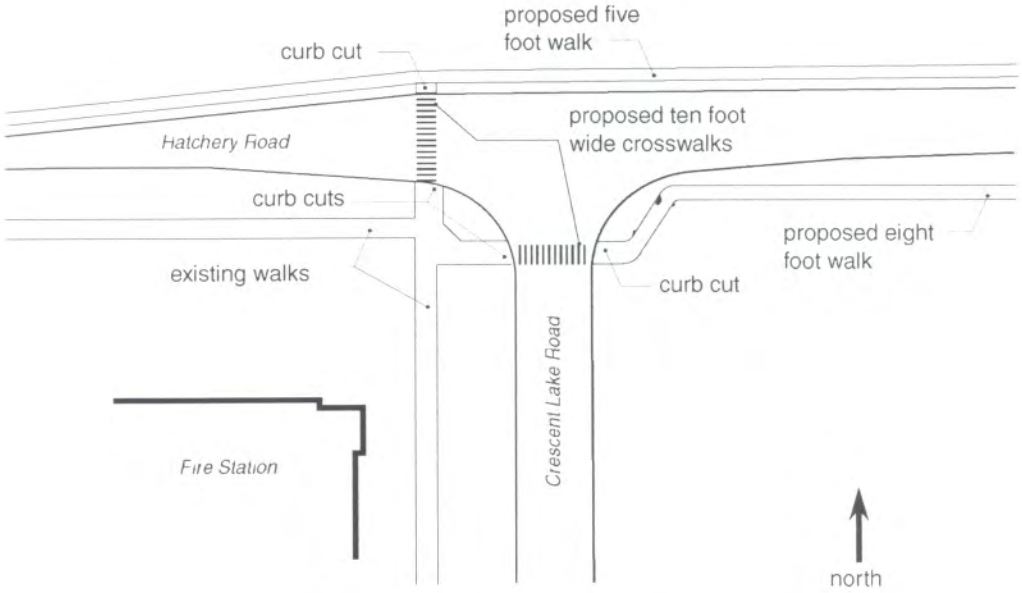
Other possible improvements:

- Provide "school crossing" signs and/or flashing signals at intersections
- Implement "no right-turn on red" designations
- Provide "no right-turn" arrow designations
- Align the future Civic Center Drive with Kettering Road
- Provide pedestrian-activated street crossing signals, and
- Ensure that all curb cuts are in accordance with ADA regulations.

Intersection 2. Hatchery Road and Crescent Lake Road

Intersection 2. Southeast View.

Design Detail



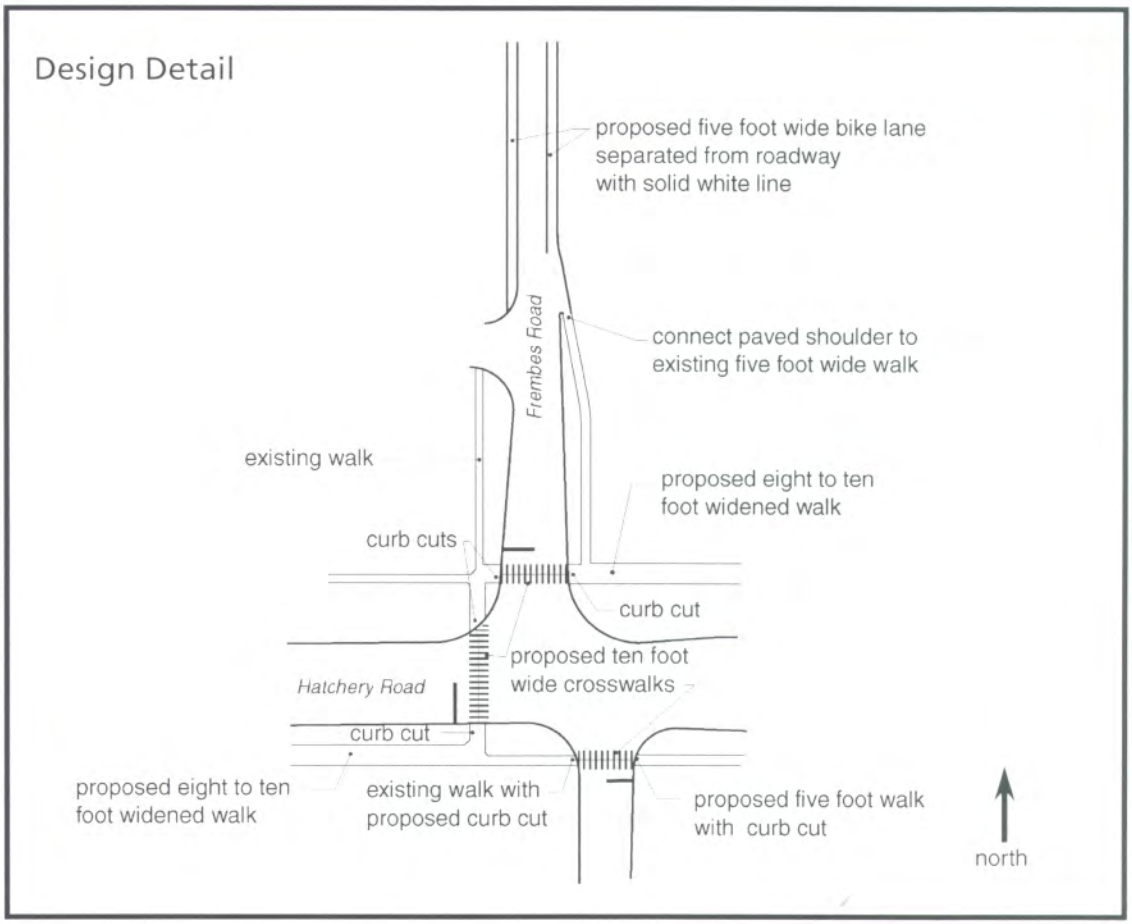
Other possible improvements:

- Provide "school crossing" signs and/or flashing signals at intersections
- Implement "no right-turn on red" designations
- Provide "no right-turn" arrow designations
- Provide pedestrian-activated street crossing signals, and
- Ensure that all curb cuts are in accordance with ADA regulations.

Intersection 3: Hatchery Road and Frembes Road

Intersection 3. East View.

Intersection 3. Northeast View.



Other possible improvements:

- Provide "school crossing" signs and/or flashing signals at intersections
- Implement "no right-turn on red" designations
- Provide "no right-turn" arrow designations
- Provide pedestrian-activated street crossing signals, and
- Ensure that all curb cuts are in accordance with ADA regulations.

Future Projects

In addition to selecting the project area and pilot projects within that area, recommendations made during the Visioning Workshop were prioritized by the Township Community Planning and Development Department. Priority was based on the need for and feasibility of the project, as well as the projects' consistency with other Township programs and goals.

The project were ranked by category and overall score. The table below provides the results, which are listed according to overall ranking. Bold items signify that the improvement is included among the pilot projects of this study.

	Category Ranking	Overall Ranking
Category: Sidewalk Extensions and Linkages / Project: Crescent Lake Road and Hatchery Road	**1**	**1**
Category: Pedestrian Improvements at Intersections / Project: Kettering Drive and Hatchery Road	**1**	**2**
Category: Pedestrian Improvements at Intersections Project: Crescent Lake Road and Hatchery Road	**2**	**3**
Category: General Improvements (Visibility, Maneuverability and/or Safety) / Project: Frembes Road and Dixie Highway	1	4
Category: Pedestrian Improvements at Intersections / Project: Pontiac Lake Road and M-59	3	5
Category: Pedestrian Improvements at Intersections / Project: Crescent Lake Road and M-59	4	6
Category: Sidewalk Extensions and Linkages / Project: Cooley Lake Road, in the southwest portion of the Township, along the border of Waterford and West Bloomfield	2	7
Category: General Improvements (Visibility, Maneuverability and/or Safety) / Project: Williams Lake Road (which is narrow with sharp curves)	2	8
Category: Sidewalk Extensions and Linkages / Project: South Williams Lake Road, along Hess-Hathaway Park	4	9
Category: Sidewalk Extensions and Linkages / Project: Watkins Lake Road, between Covert Road and Dixie Highway	5	10
Category: General Improvements (Visibility, Maneuverability and/or Safety) / Project: Telegraph Road and Dixie Highway	3	11
Category: Sidewalk Extensions and Linkages / Project: Cass-Elizabeth Road and Cooley Lake Road	3	12
Category: Pedestrian Improvements at Intersections / Project: South Williams Lake Road and Hess-Hathaway Park	6	13
Category: Pedestrian Improvements at Intersections / Project: Williams Lake Road and M-59	5	14

FIGURES

Waterford Walkable Communities - Pilot Project
Proposed Sidewalks & Shared Use Paths

N

- Improved Intersection
- Shared Use Path
- Sidewalk - 5 Feet Wide
- Sidewalk - 8 Feet Wide
- Bike Lane
- Civic Center Master Plan

*All designations per AASHTO

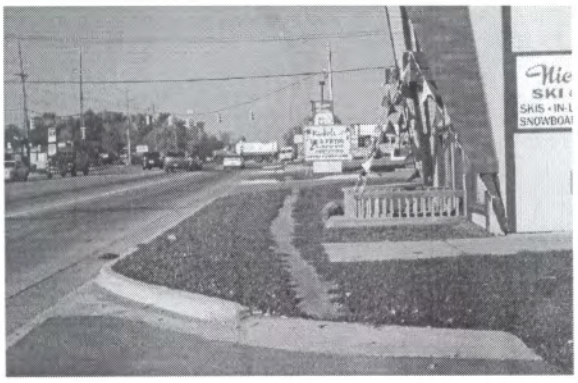
Figure 1
Pilot Projects

ATTACHMENTS

ATTACHMENT A

Visual Preference Survey Results

The Visual Preference Surveys were shown to workshop participants as a slide show. After the participants ranked each slide, the averages were taken and recorded on the bar scale underneath each picture. The following presents the slide show, with the average scores provided on the bar scale.



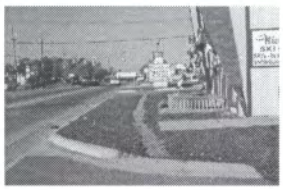
1

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

2

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

Ranking



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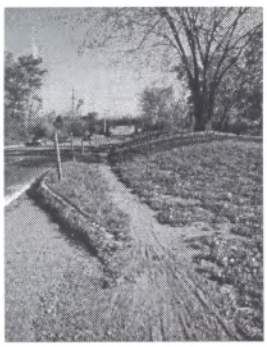
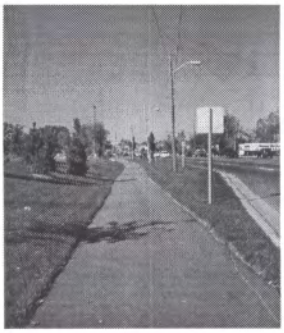


13



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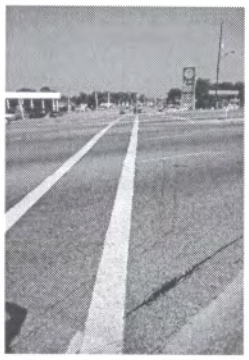

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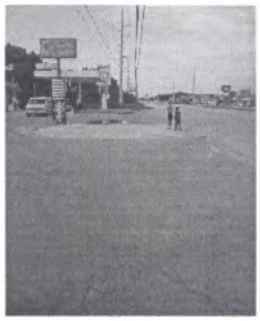

41

42

43

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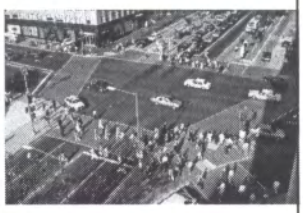


54

55

56

ATTACHMENT B

Student Survey Responses

How Walkable is Your Community?

1. Did you have room to walk?

(4) ☐ Yes (19) ☐ Some problems:

(6) ☐ Sidewalks or paths started and stopped
(2) ☐ Sidewalks were broken or cracked
☐ Sidewalks were broken blocked with poles, signs, shrubbery, dumpsters, etc.
(10) ☐ No sidewalks, paths or shoulders
☐ Too much traffic?
(1) ☐ Something else? Sidewalks end quickly.

1 2 3 4 5 6
Ave Rating: 3.2 Locations of problems:

2. Was it easy to cross streets?

(10) ☐ Yes (11) ☐ Some problems:

☐ Road was too wide
(2) ☐ Traffic signals made us wait too long or did not give us enough time to cross
(4) ☐ Needed striped crosswalks or traffic signals
(4) ☐ Parked cars blocked our view of traffic
☐ Trees, or plants blocked our view of traffic
☐ Needed curb ramps or ramps needed repair
(1) ☐ Something else? messed up sidewalk and too much traffic.

1 2 3 4 5 6
Ave Rating: 4.0 Locations of problems:

3. Did drivers behave well?

(6) ☐ Yes (15) ☐ Some problems: Drivers...

☐ Backed out of driveways without looking
(2) ☐ Did not yield to people crossing the street
☐ Turned into people crossing the street
(13) ☐ Drove too fast
☐ Sped up to make it through traffic lights or drove through red lights
☐ Something else? _____

1 2 3 4 5 6
Ave Rating: 3.7 Locations of problems:

**Note: students' responses are in parentheses. Average ratings of students' responses are listed as "Ave Rating: ___"*

Location of your walk (use street address)

From: To:

4. Was it easy to follow safety rules? Could you and your child...

(15) ☐ Yes	(6) ☐ No	Cross at crosswalks or where you could see and be seen by drivers?
(20) ☐ Yes	(1) ☐ No	Stop and look left, right and then left again before crossing streets?
(8) ☐ Yes	(13) ☐ No	Walk on sidewalks or shoulders facing traffic where there were no sidewalks?
(14) ☐ Yes	(7) ☐ No	Cross with the light?

1 2 3 4 5 6
Ave Rating: 5.1 Locations of problems:

5. Was your walk pleasant?

(5) ☐ Yes (16) ☐ Some unpleasant things:

(1) ☐ Needed more grass, flowers or trees
(3) ☐ Scary dogs
(3) ☐ Scary people
(4) ☐ Not well lighted
(4) ☐ Dirty, lots of litter or trash
(1) ☐ Something else? sidewalks not shoveled.

1 2 3 4 5 6
Ave. Rating: 3.2 Locations of problems:

How does your neighborhood stack up? Add up your ratings and decide.

1. 3.2
2. 4.0
3. 3.7
4. 5.1
5. 3.2

AVERAGE TOTAL: 19.2

How did your neighborhood rate?

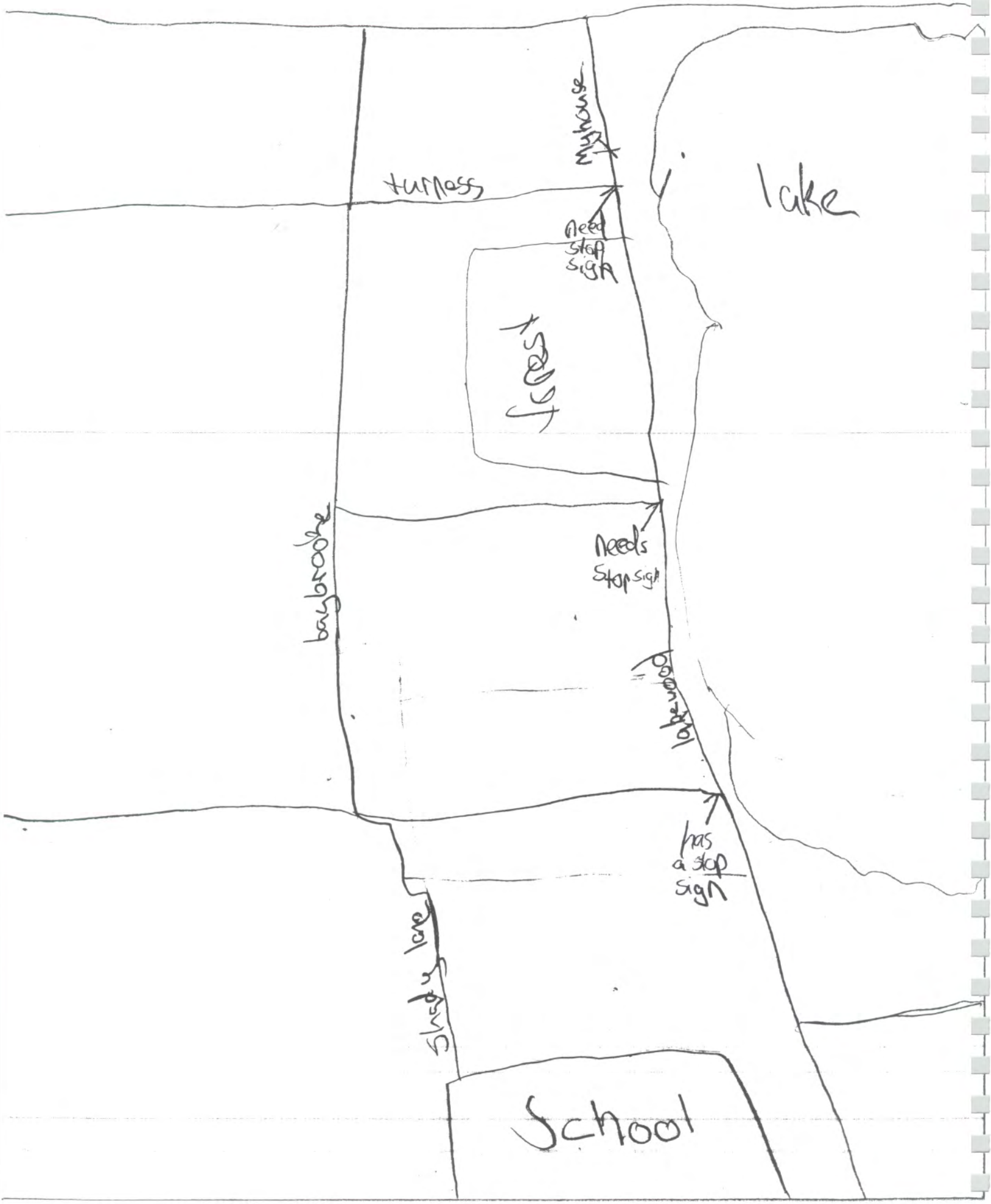
26-30	Celebrate! You have a great neighborhood for walking.
21-25	Celebrate a little. Your neighborhood is pretty good.
16-20	Okay, but needs work.
11-15	It needs lots of work. You deserve better than that.
05-10	Call out the National Guard before you walk. It's a disaster area.

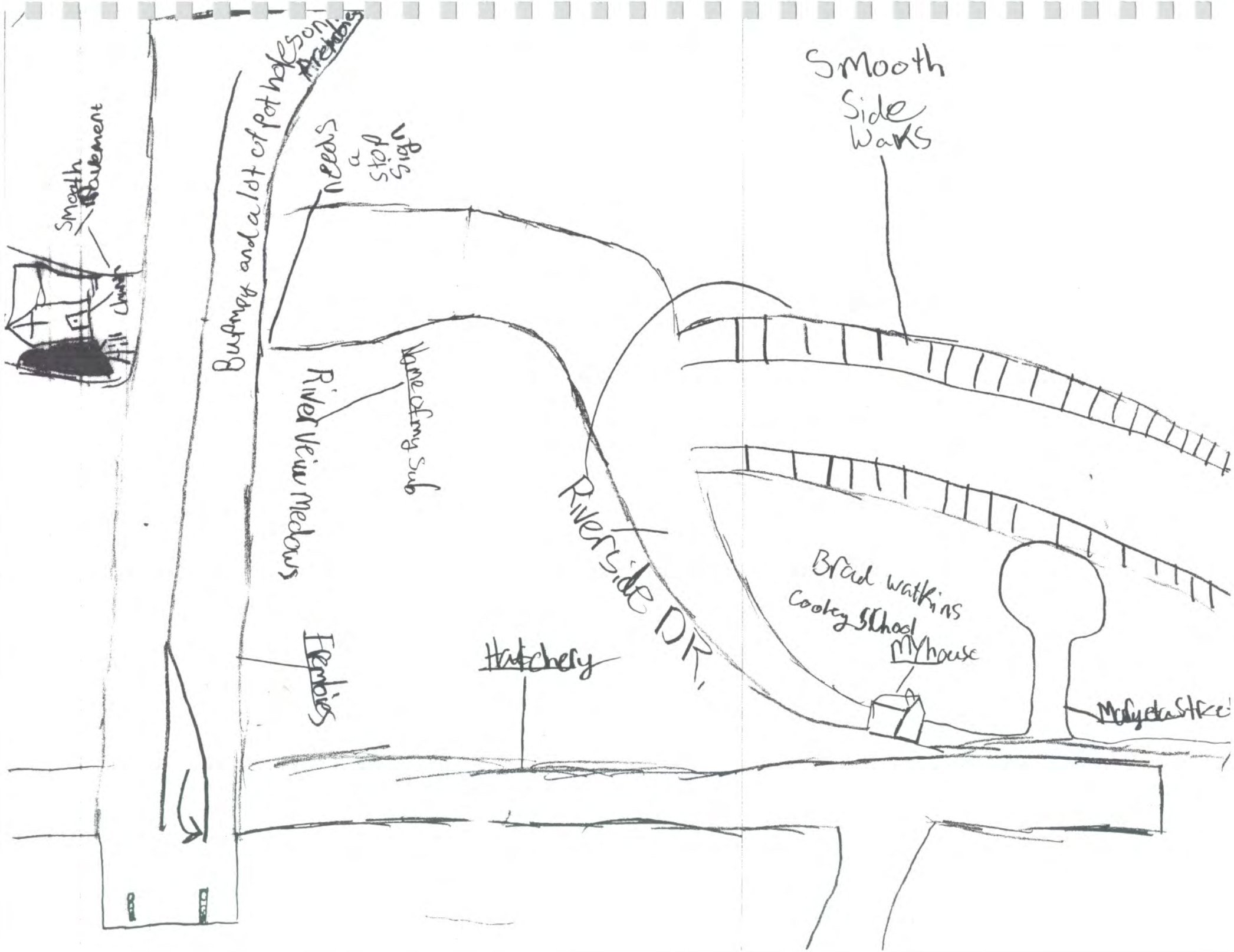
Found something that needs changing? On the next two panels are suggestions for making your neighborhood a better place for walking that matches up with the problems you identified.

During you walk how did you feel physically? Could you go as far or as fast as you wanted? Were you short of breath or tired? Did you have sore feet or sore muscles? There are suggestions about walking for exercise on the back too.

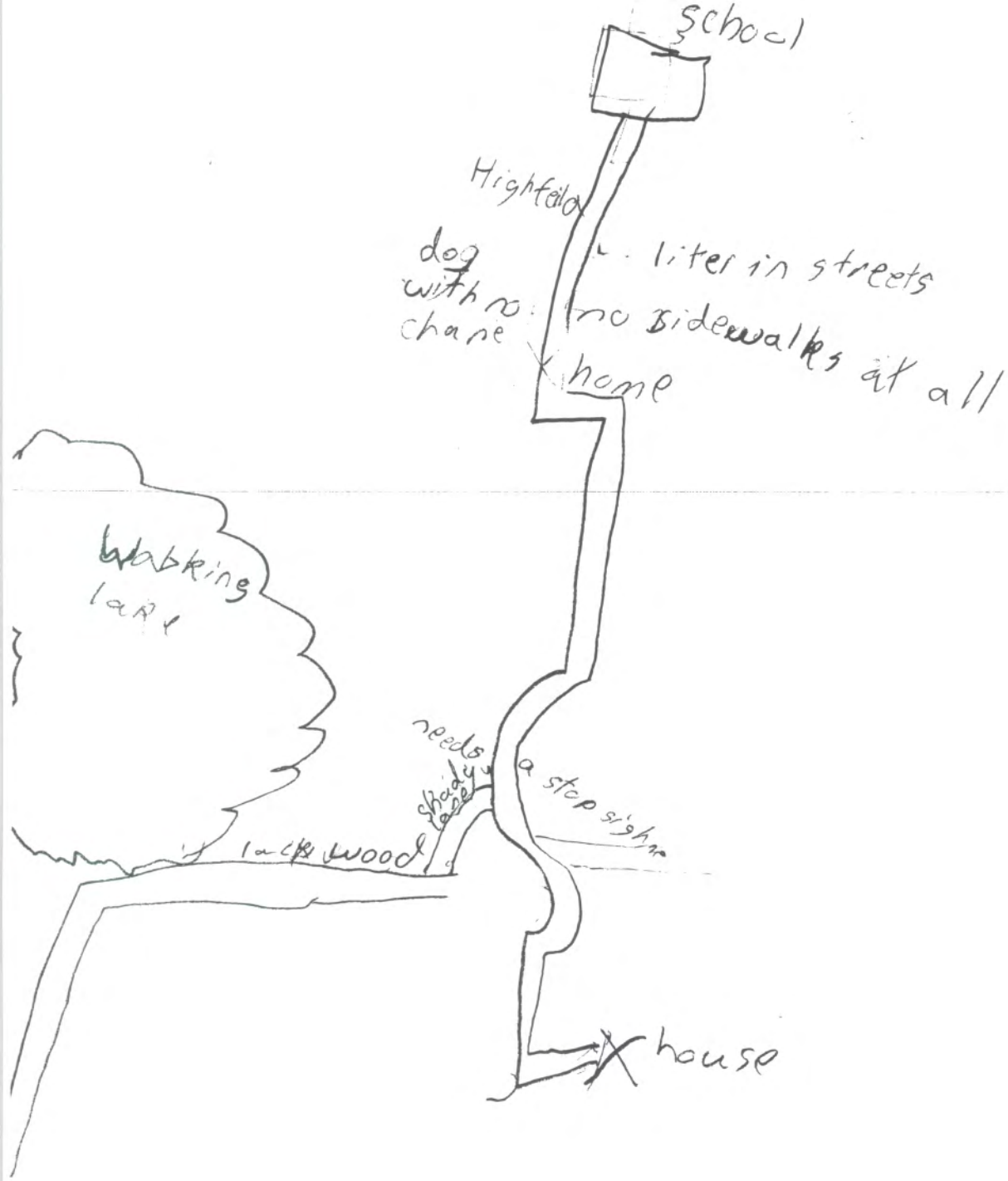
ATTACHMENT C

Student Drawings


Moninie
turness
Myhouse
lake
need stop sign
forest
baybrooke
needs stop sign
lakewood
has a stop sign
shady lane
School

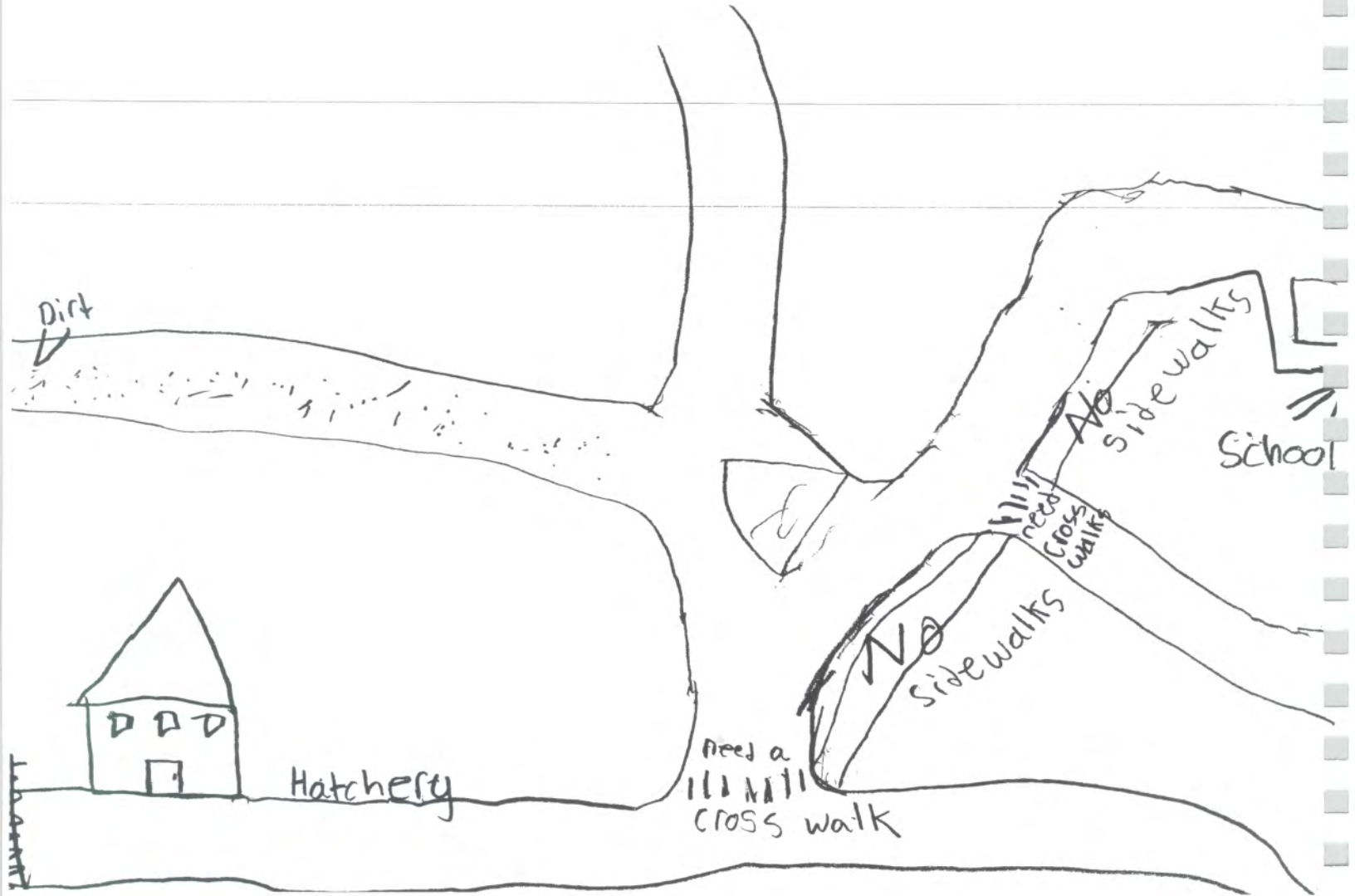

Smooth Side Walks
Smooth Pavement
Bufmay and a lot of pot holes on Frembies
needs a stop sign
River Veiw Medows
Name of my sub
Riverside DR.
Brad watkins Cooley School
My house
Hatchery
Frembies

Dan
Spin
Cooley
elementa



No sidewalaks
on Hatchery

Hugh Thom
Cooley Em

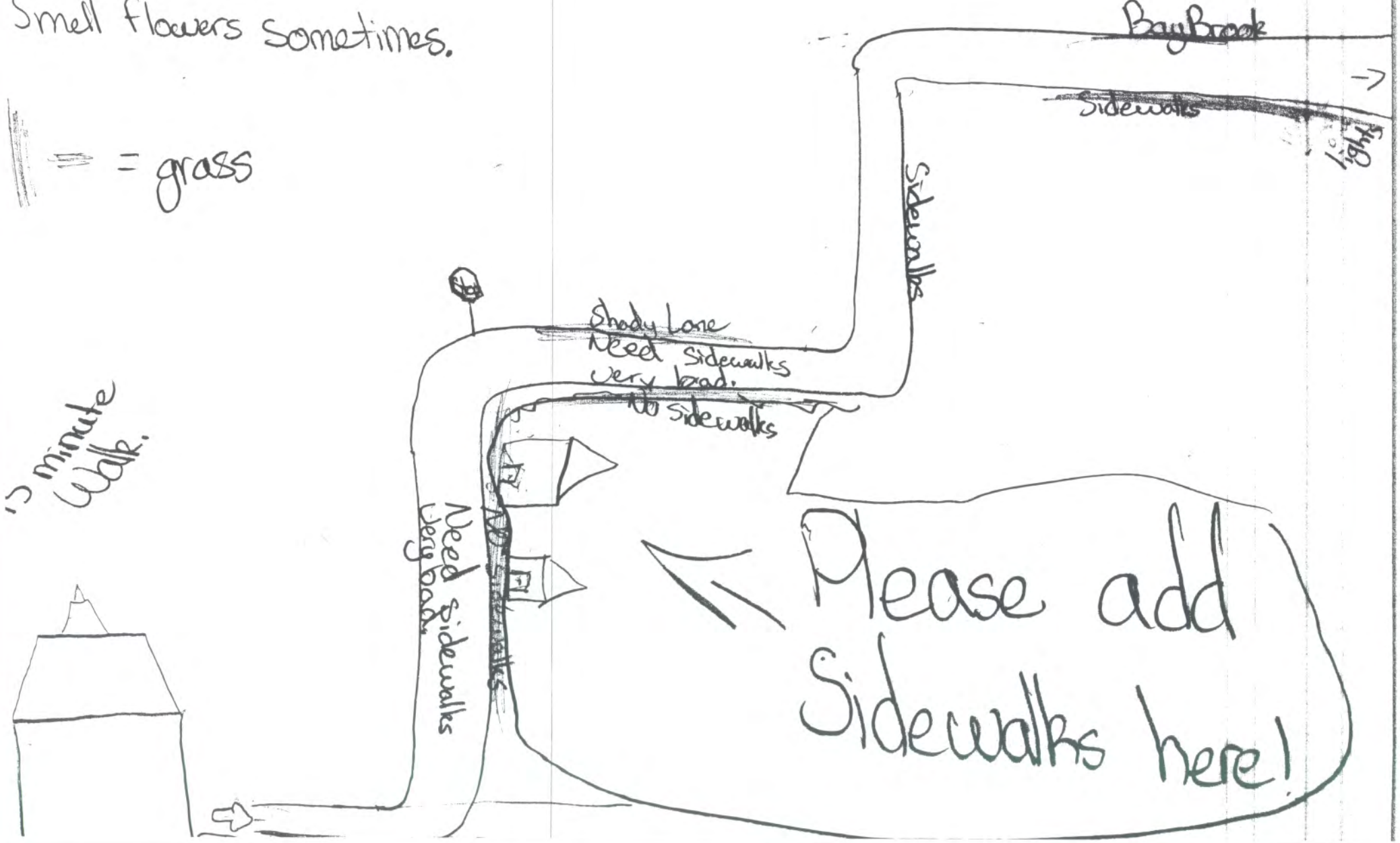


Erika Johnson
Cooley/Elm.

Adults go the speed limit but teenagers go fast.

Smell flowers sometimes.

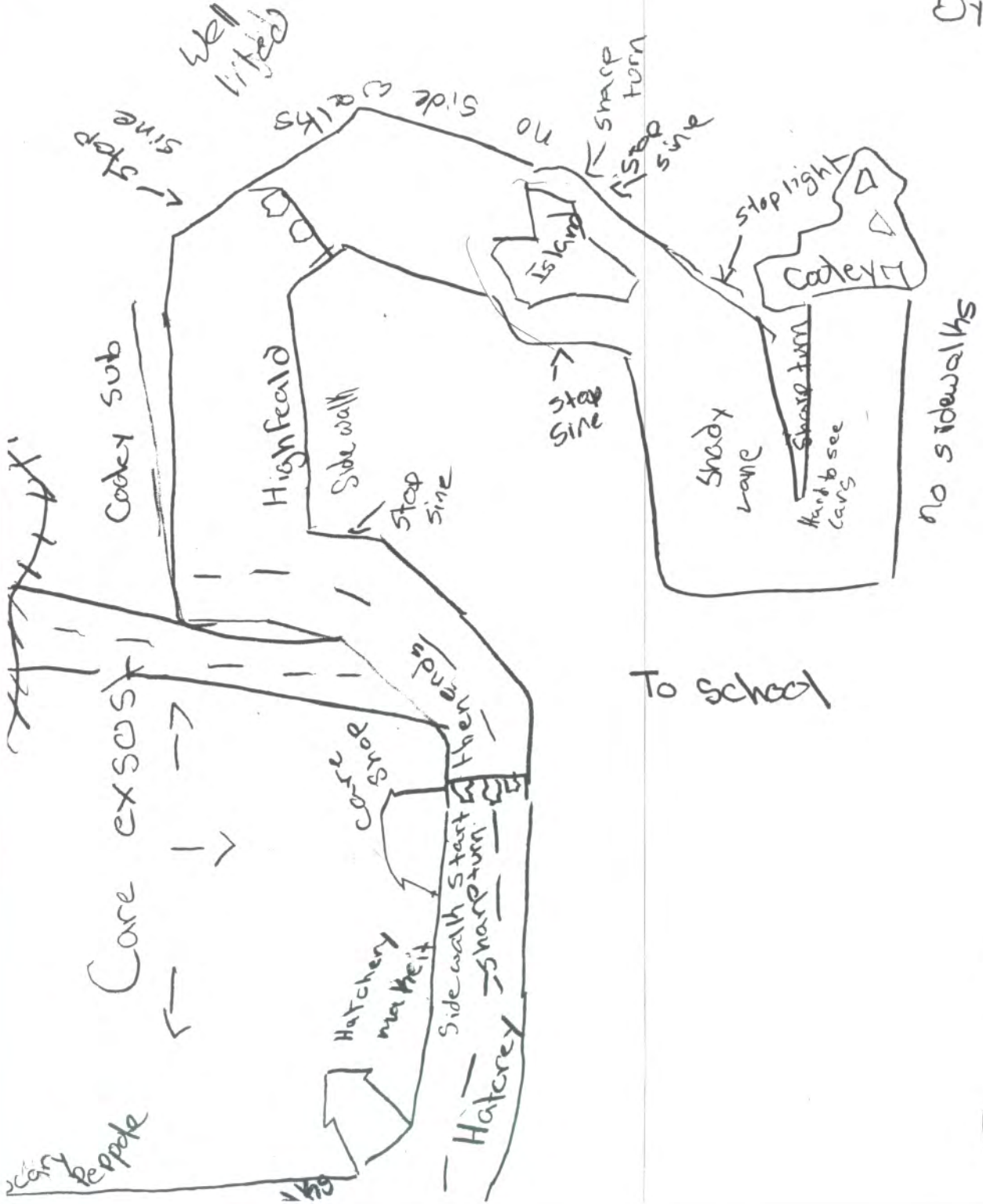
= grass



Christin A. Payton
Cooley Elmen

By: Shannon Marie Protiva

Codey school



Pleas add more side walks!

Pleas add More Stop Sings!

And mahe it easer to walk!

Thank You!

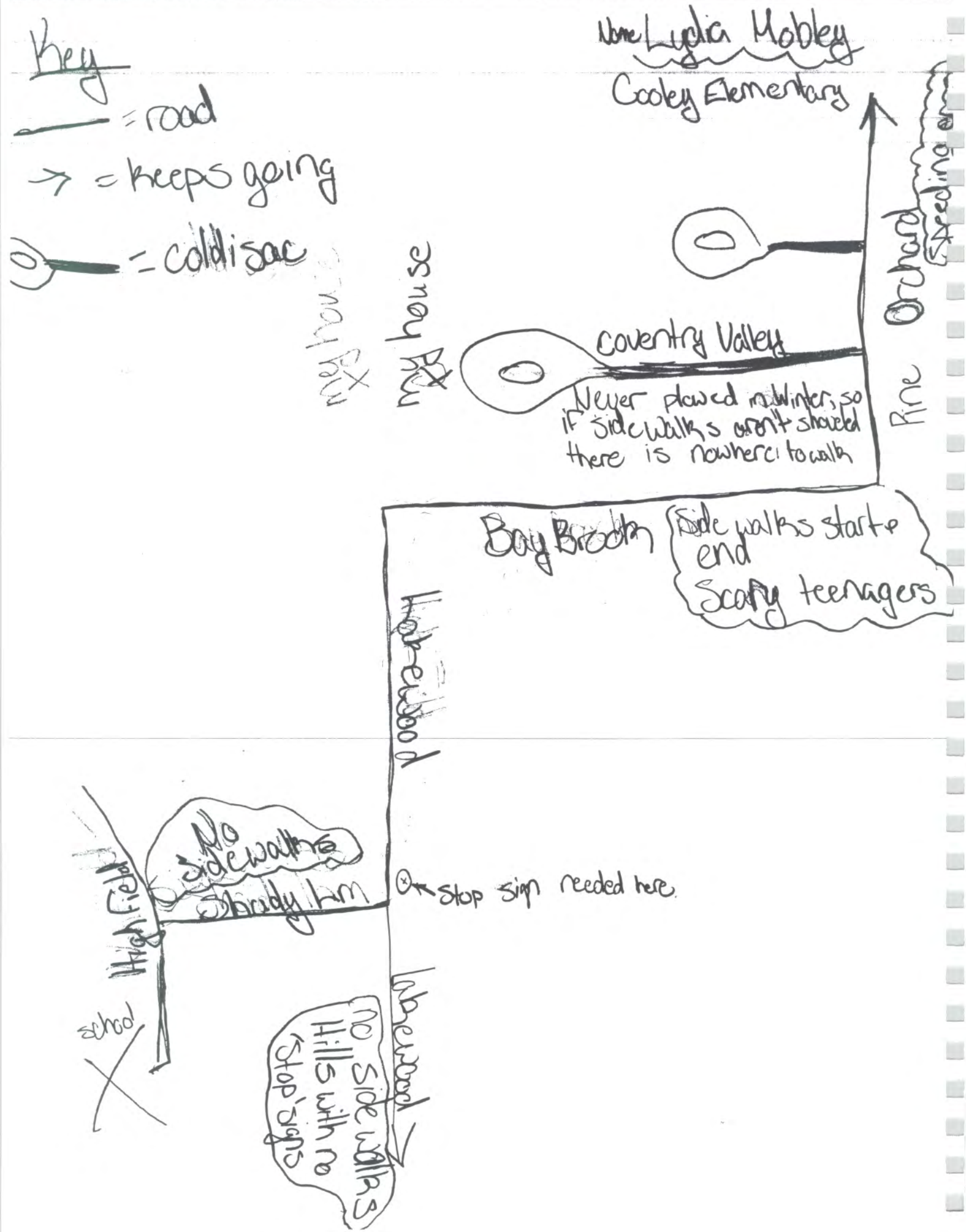
Name Lydia Mobley

Key

= road

→ = keeps going

= coldisac



me bike
spres teen
spres teen
me house
lock wood
Dads work
Kristopher lloyd Jones

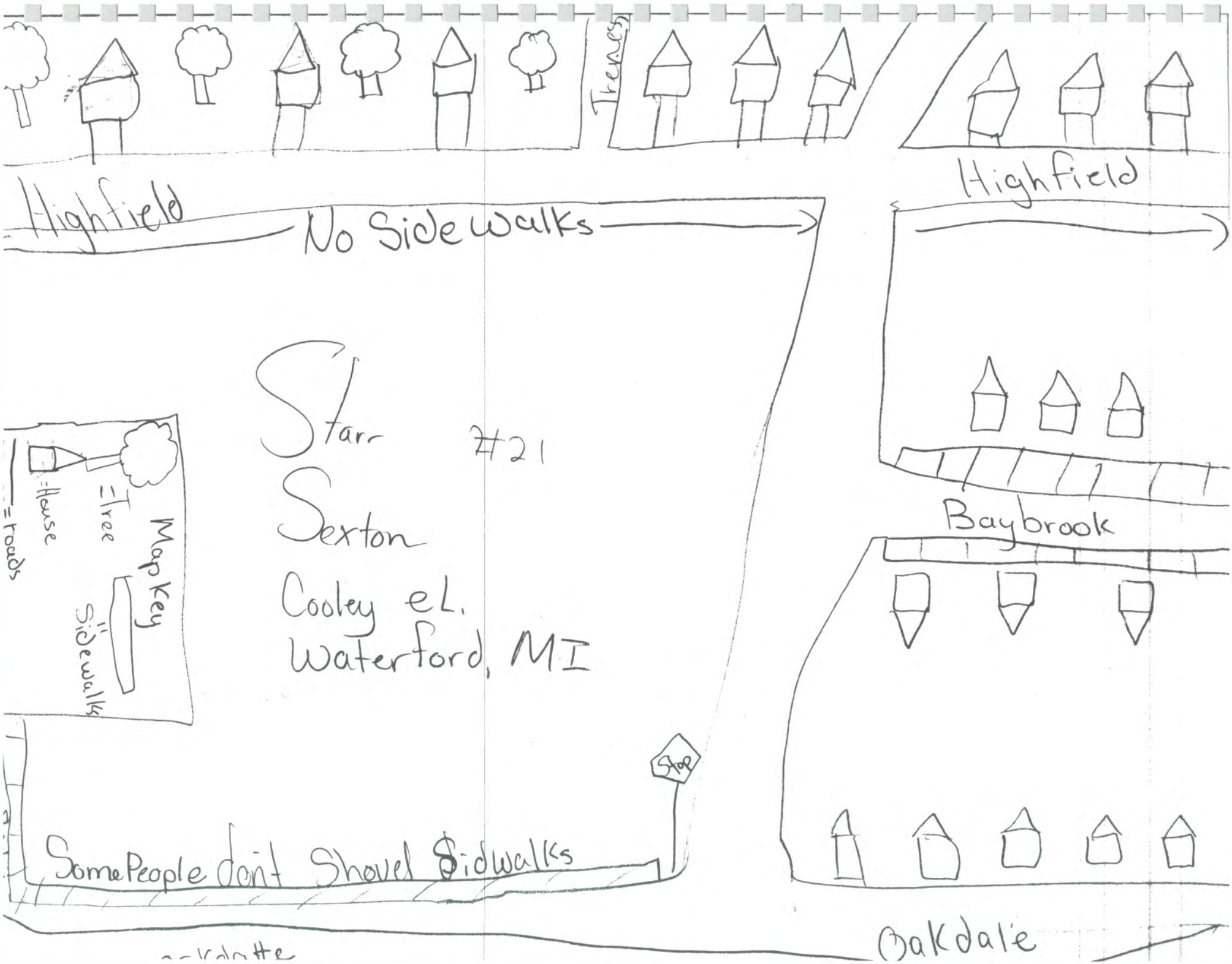
Cooley Elementry
Rm. 104

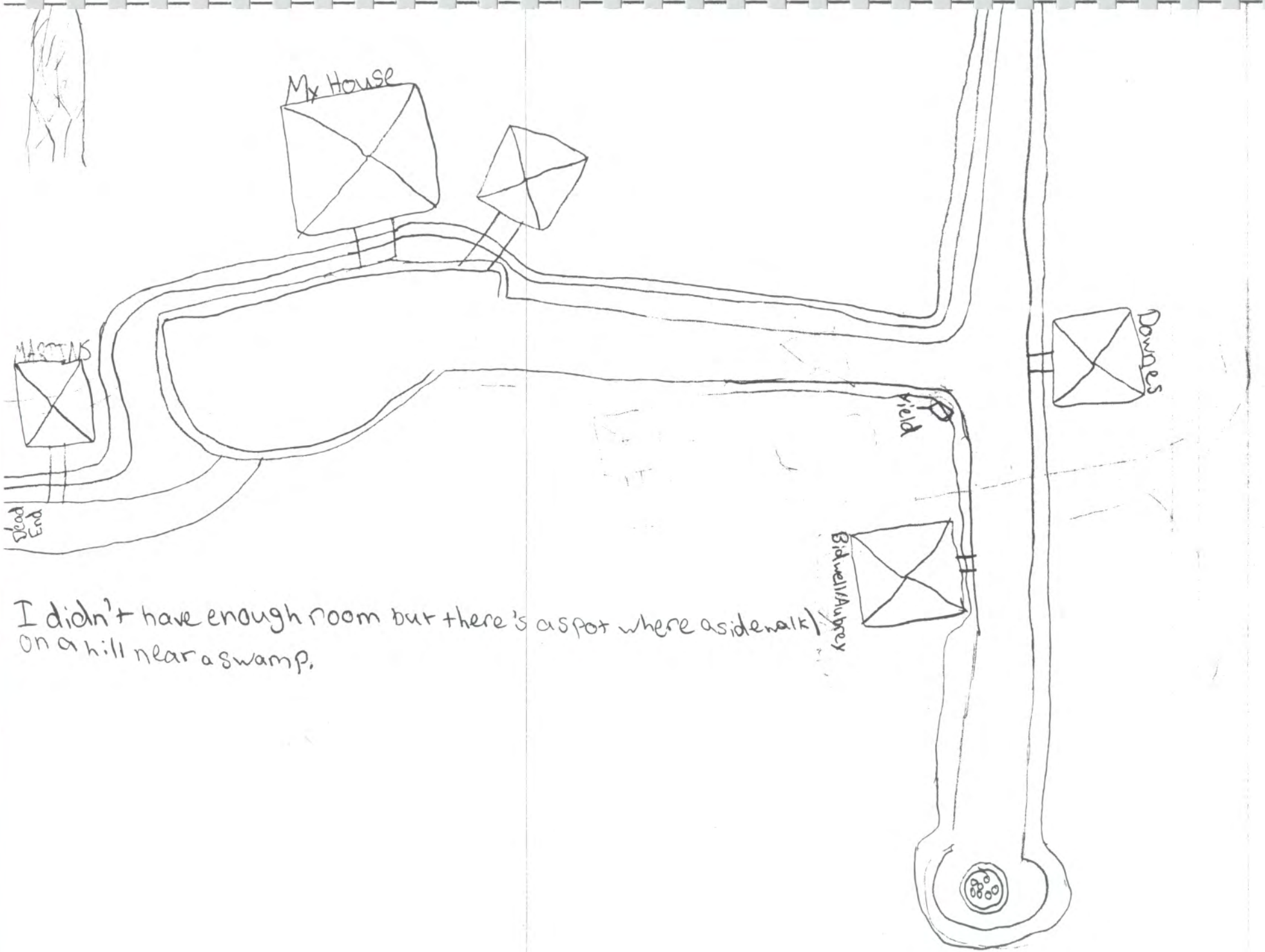
= Sidewalks → = road
= road = Friends House
= My house

Tammy Flowers Cooley Elementry

Notes

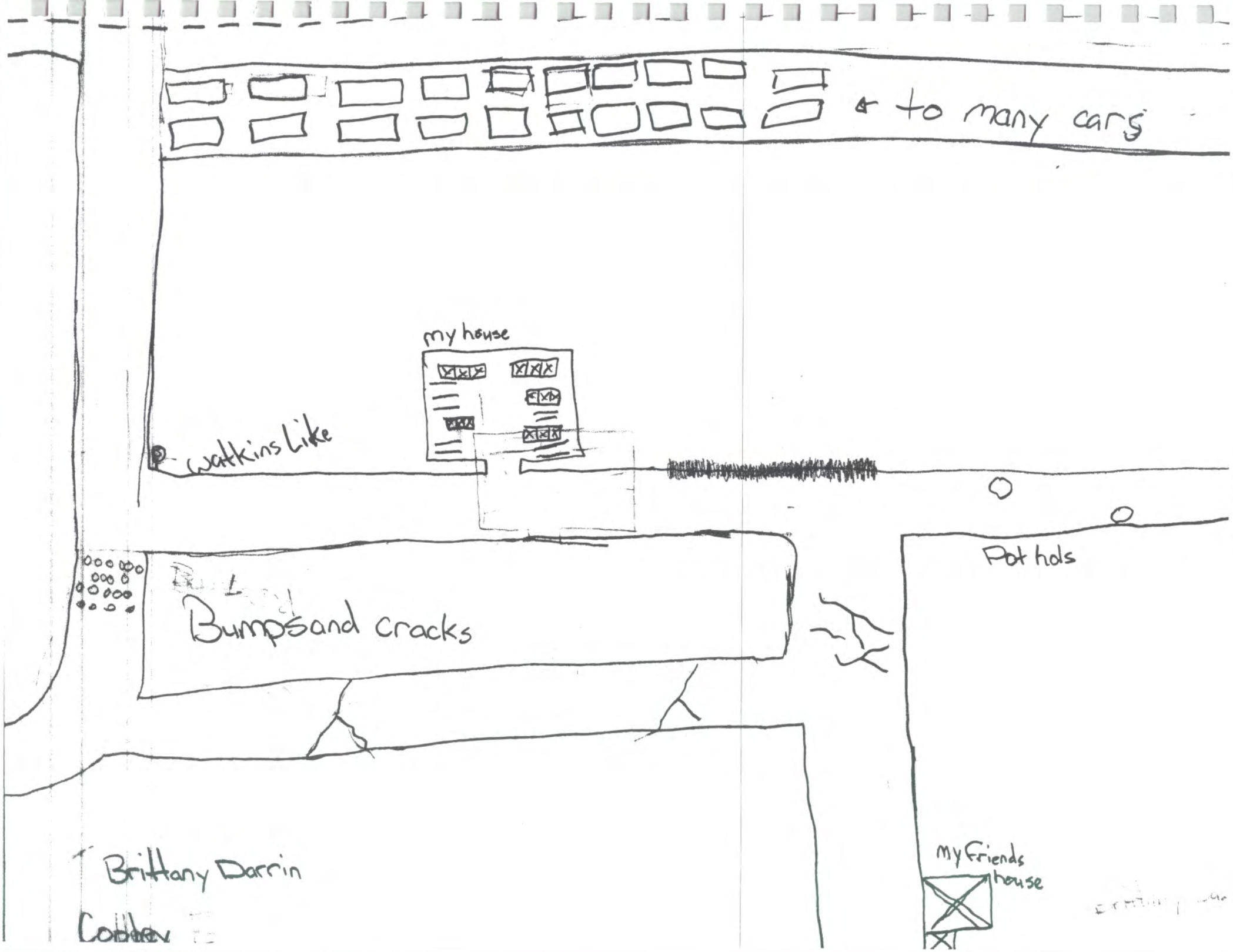
There should be a stop singh at Deland because there is a stop singh on Annette but people wont let you go.
There should be sidewalks.
Watch for predatros singns.

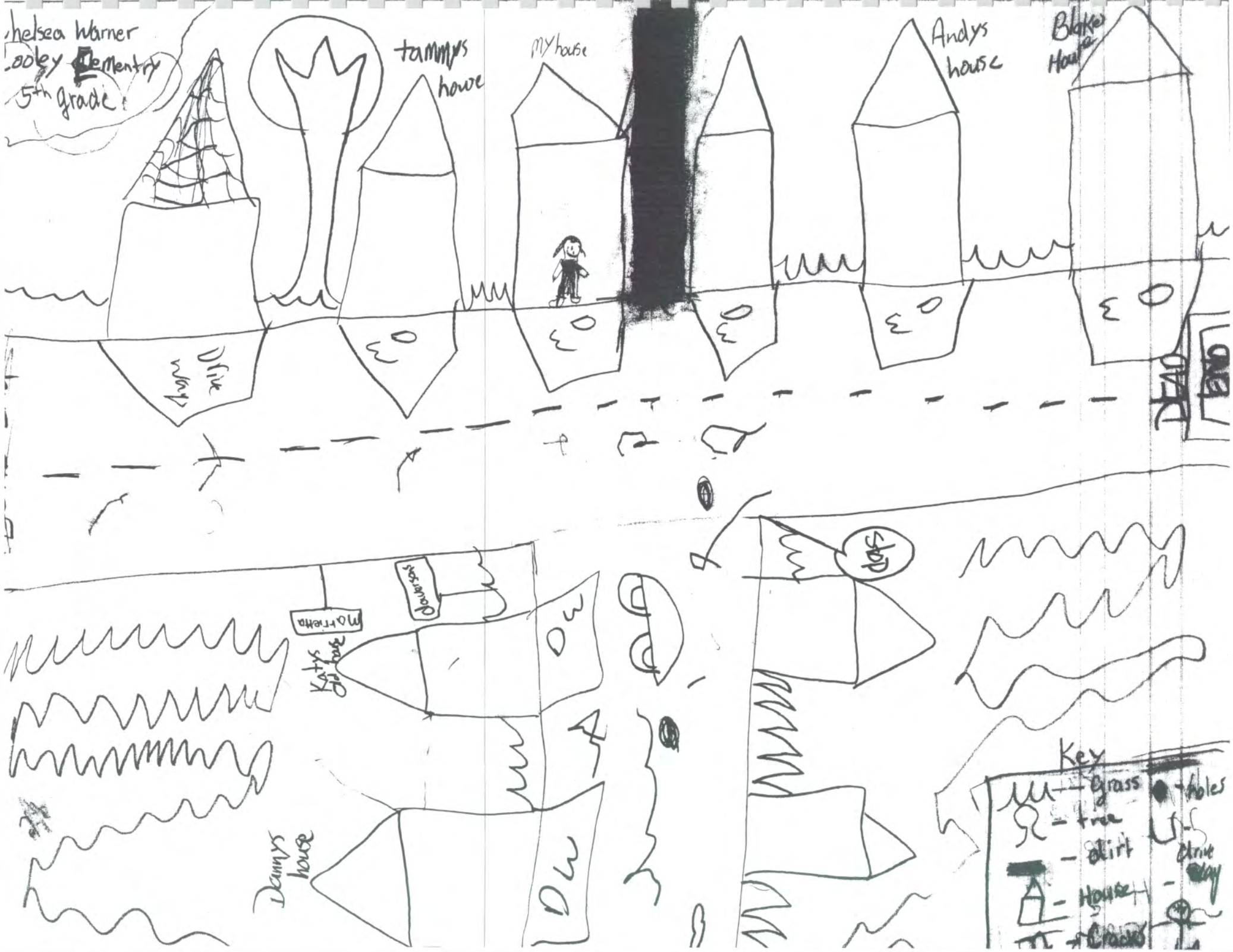

Trenes
Highfield
Highfield
No Sidewalks
Starr #21
Sexton
Cooley eL.
Waterford, MI
Baybrook
Map Key
=Tree
=House
=roads
Sidewalks
Stop
Some People dont Shovel Sidwalks
Oakdale



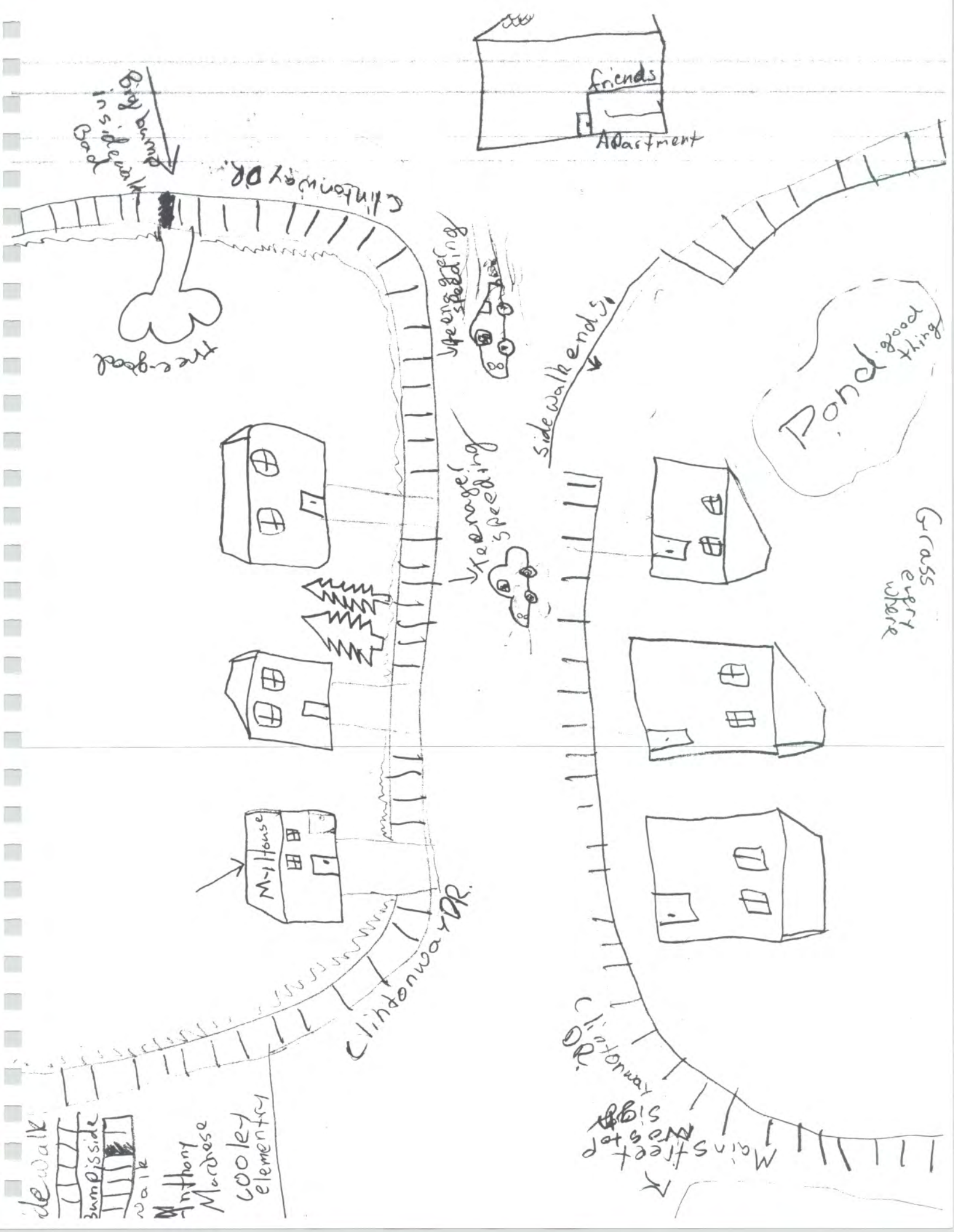
I didn't have enough room but there's a spot where a sidewalk
on a hill near a swamp.

Neighborhood-Hills of Water ford.

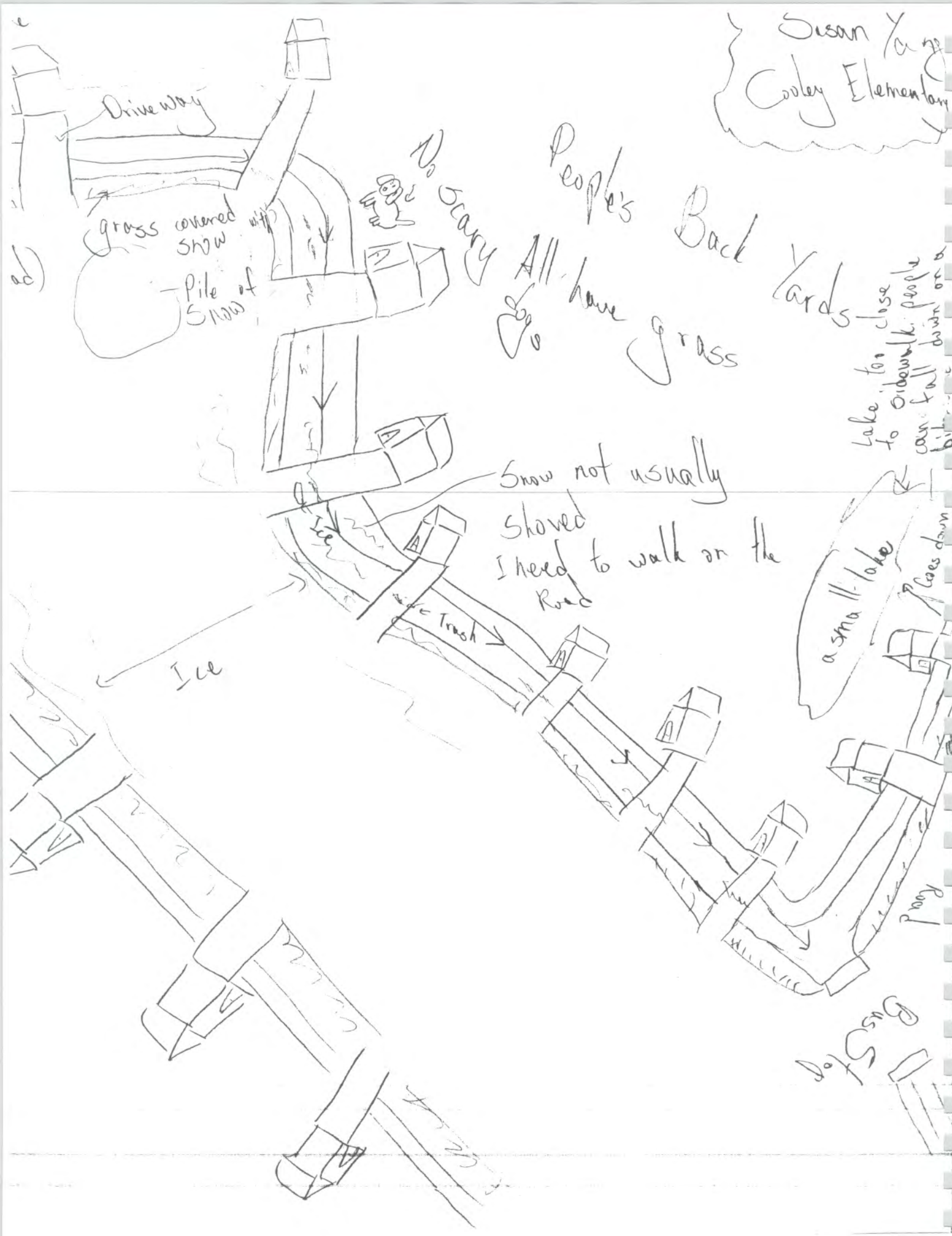

to many cars
my house
watkins Like
Bumpsand cracks
Pot hols
my friends house
Brittany Darrin
Cobley

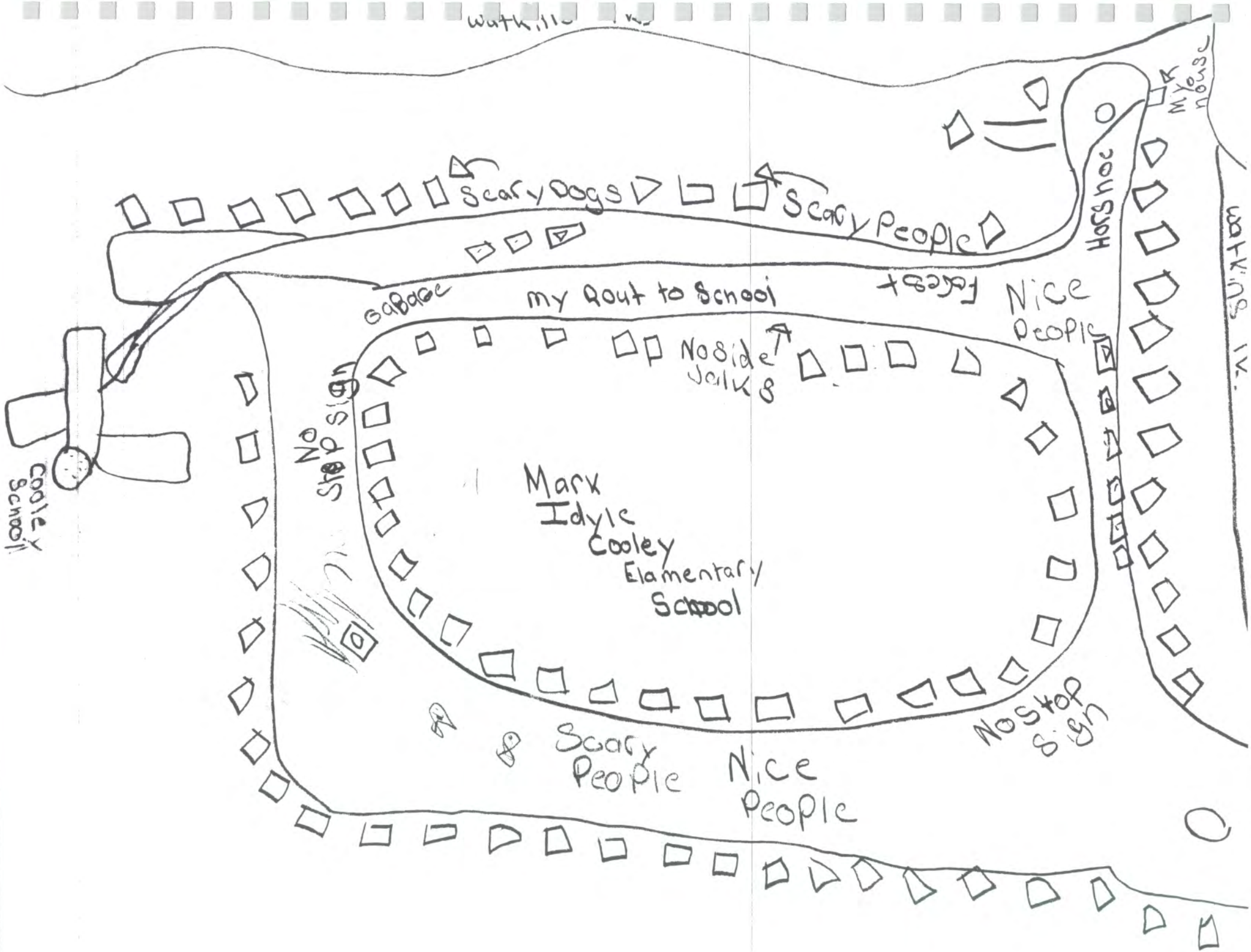


helsea Warner
ooley Elementry
5th grade
tammys house
my house
Andys house
Blakes House
Drive way
DEAD
Marietta
Katys house
Dannys house
DW
Key
grass
holes
tree
dirt
House
Cracks
drive way

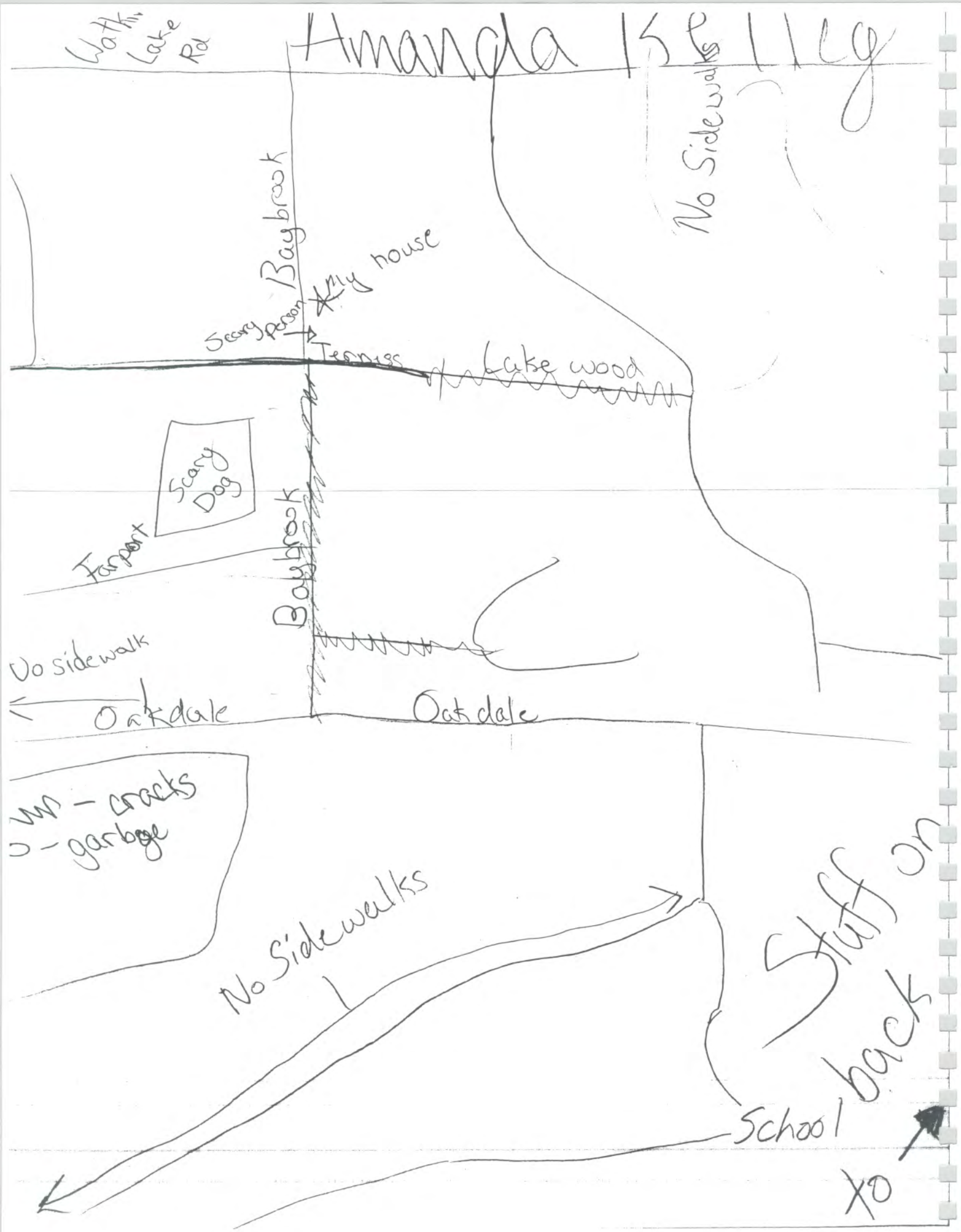

friends
Apartment
Big bump
insidewalk
Bad
Clintonway DR.
tree-good
teenager speeding
teenager speeding
sidewalk ends
Pond
good thing
Grass
every
where
My House
Clintonway DR.
Clintonway DR.
Main street
Nestor
sign
Bumpisside
walk
Anthony
Marchese
cooley
elementry

Susan Yang
Cooley Elementary

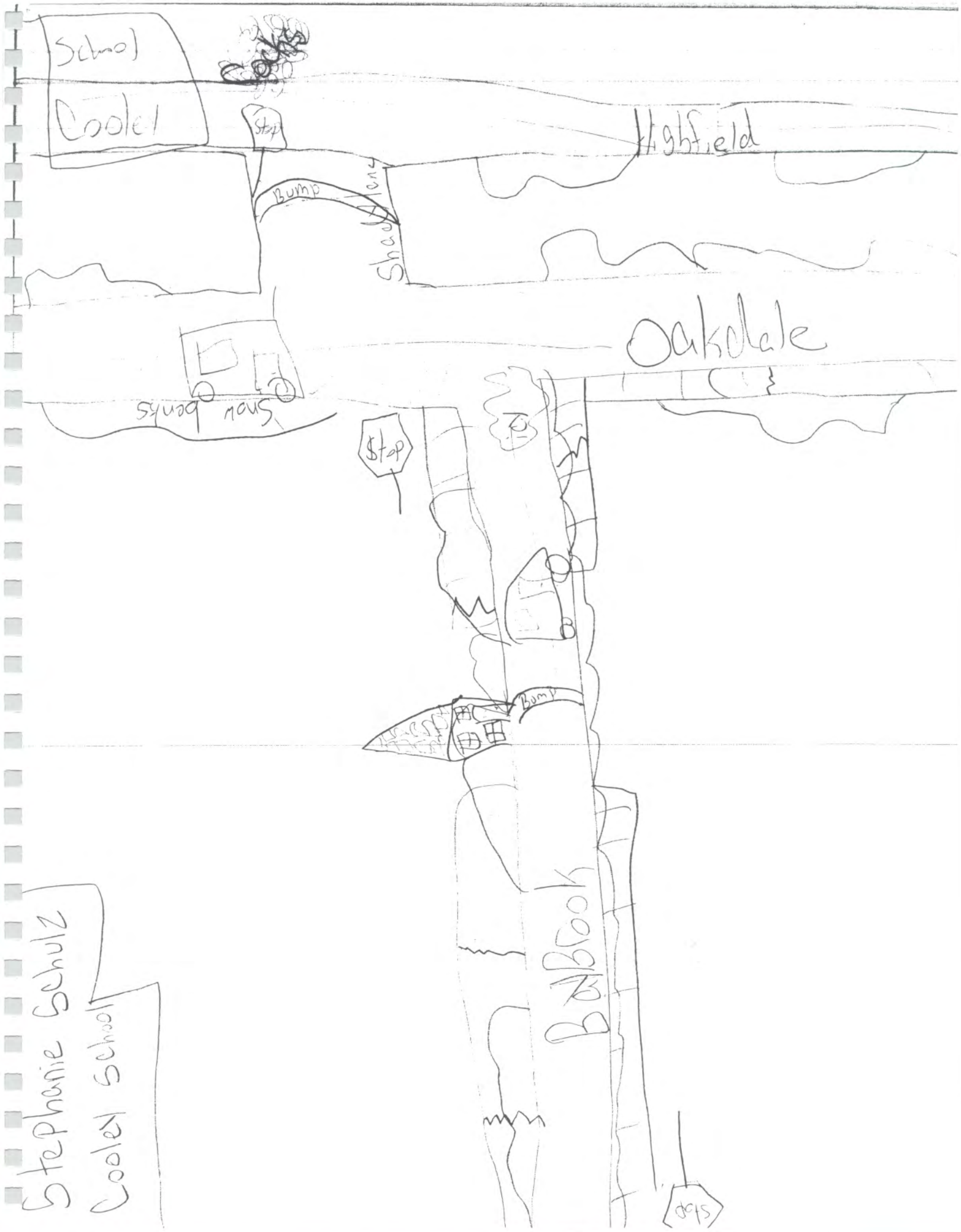




Scary Dogs
Scary People
Horshoe
My house
Watkins Dr.
Forest
Nice People
Garage
my Rout to School
No side Walks
No Stop Sign
Mark Idyle Cooley Elamentary School
Cooley School
Scary People
Nice People
No Stop Sign

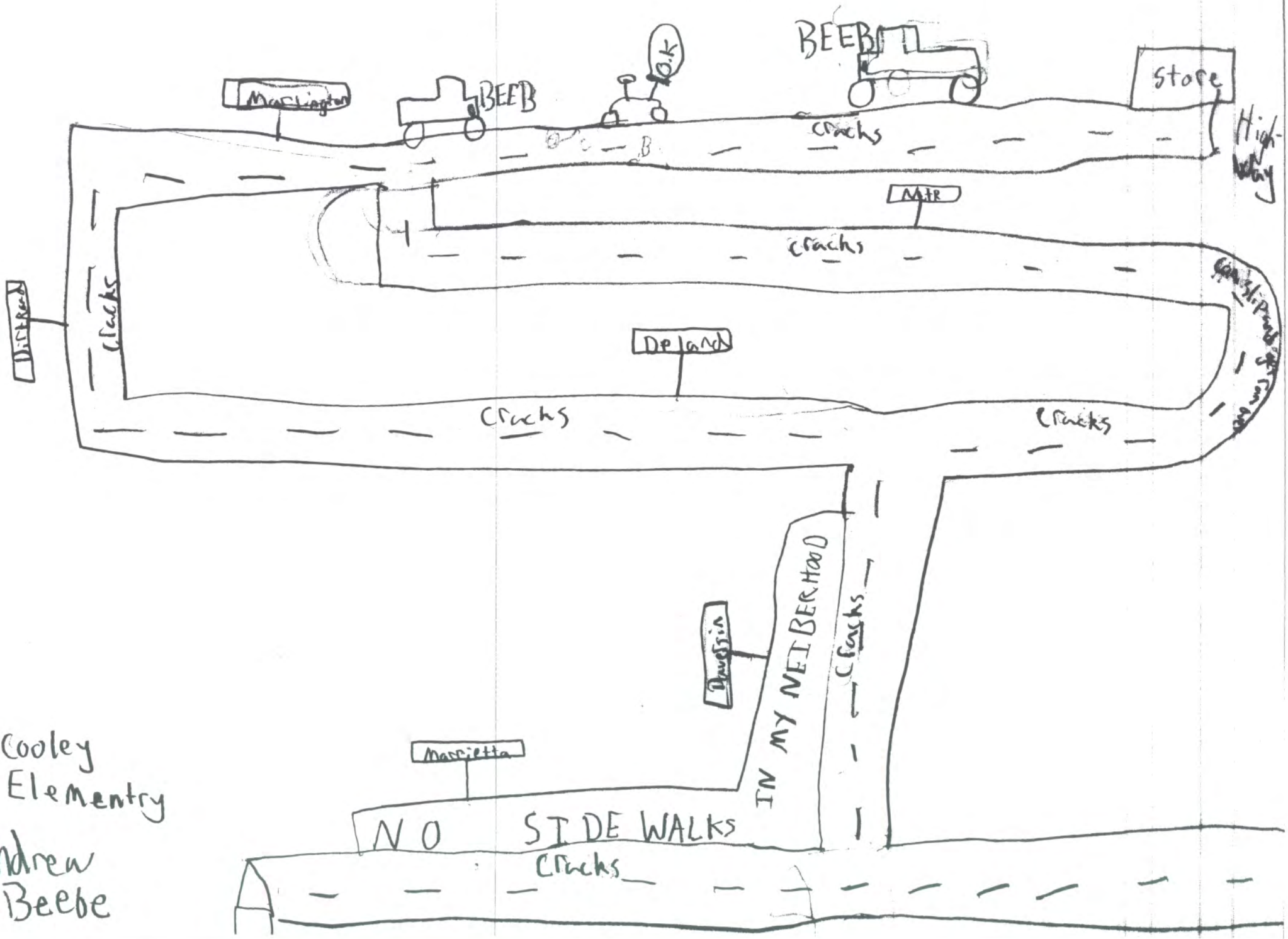

Amanda Kelley
Watkins Lake Rd
No Sidewalks
Baybrook
My house
Scary person
Terrass
Lake wood
Scary Dog
Farport
Baybrook
No sidewalk
Oakdale
Oakdale
- cracks
- garbage
No Sidewalks
Stuff on back
School
XO

My House



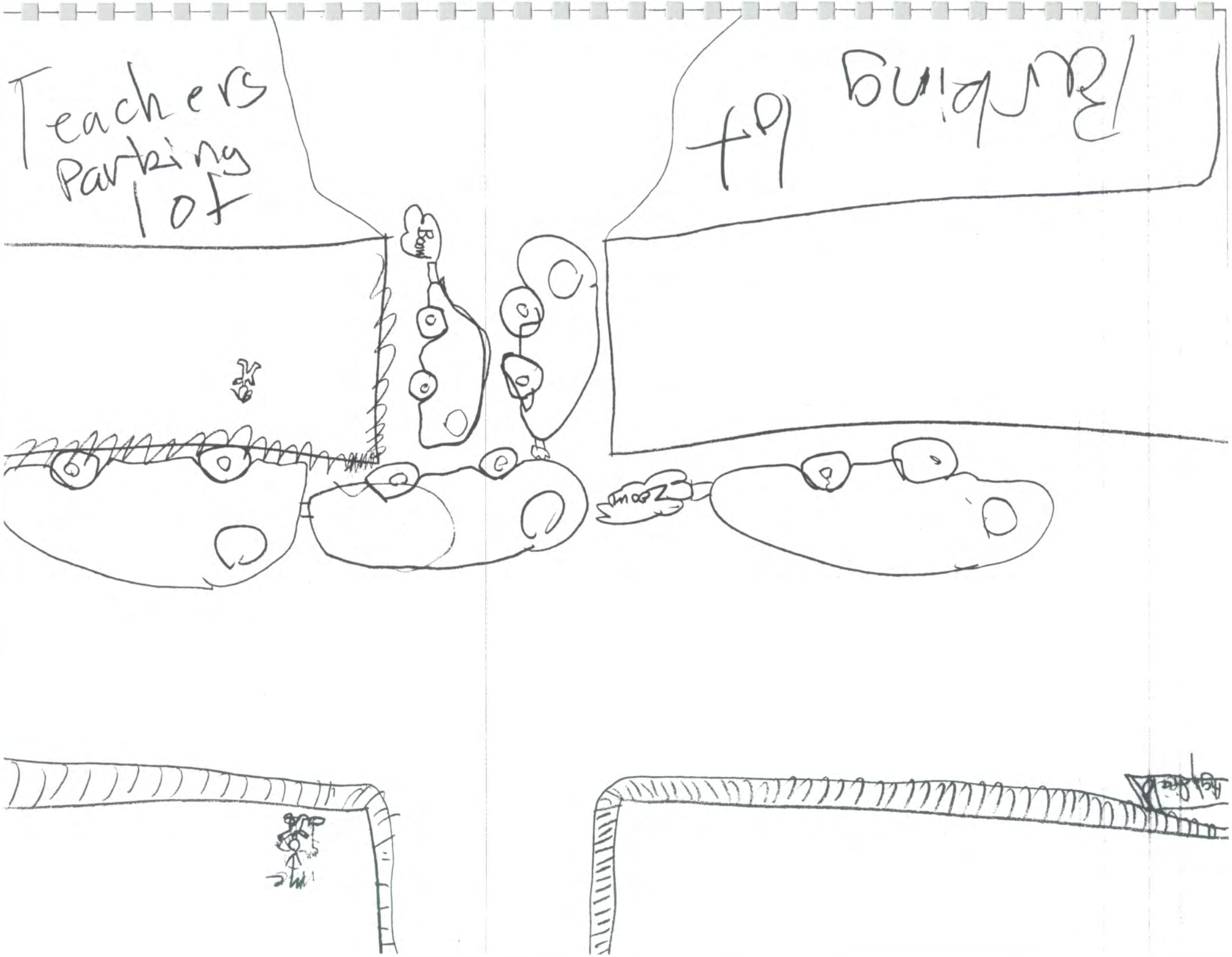
Stephanie Schulz
Cooley School

Watkins lake
= Route I take Naiborhood
= Route people Speed with
Kristie McFort #8
Cooley Elementry
farther down the road
Ross
Woods
No place to Park cars
Private Beach
Sedum Glenn
Maycrest
forest
like is teenanger Who has friends that Pick him up and speed around corner
Speed limit is
Payton Drive
No Sidewalks at all
Watkins lake

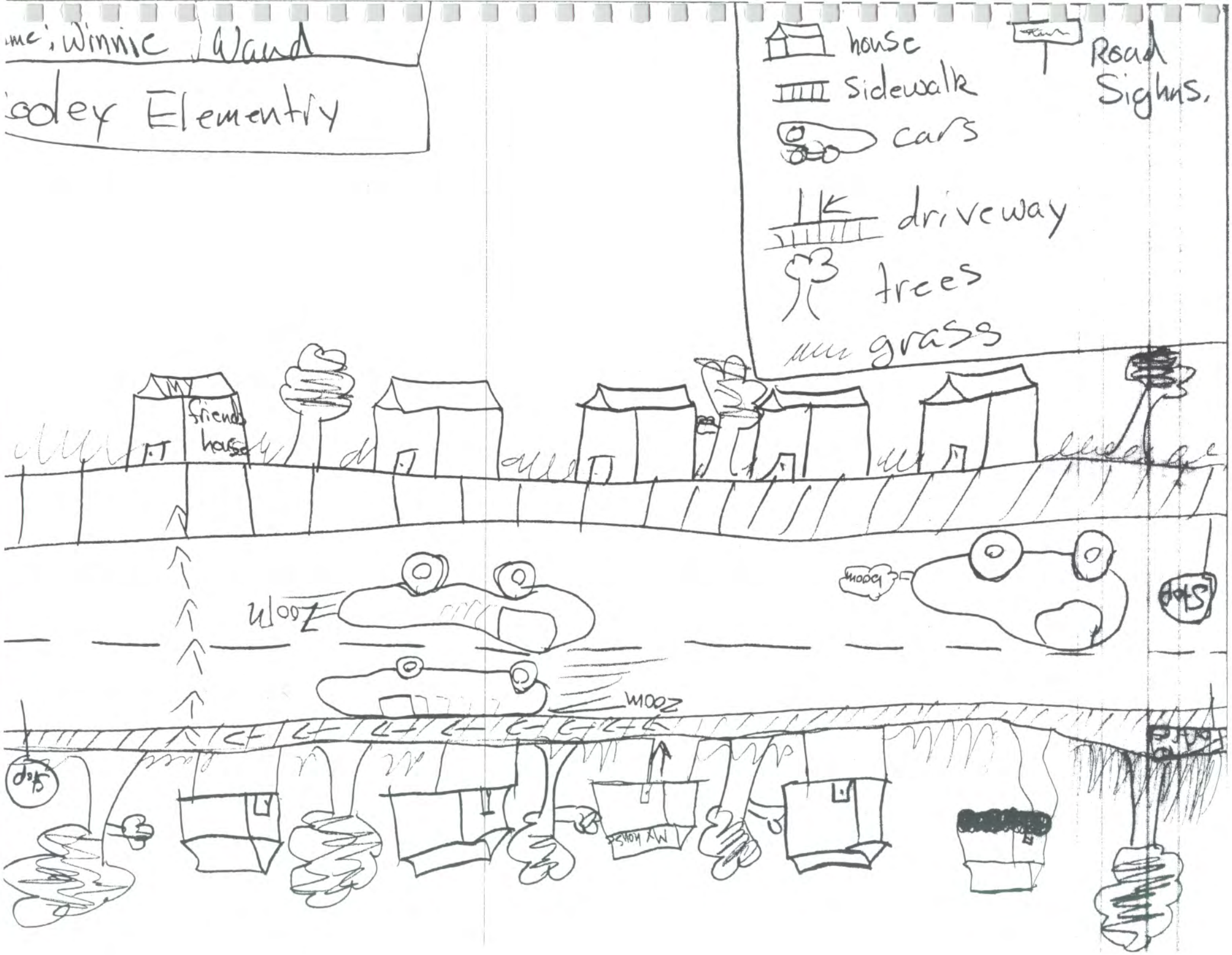


Cooley Elementry

Andrew Beebe


Teachers Parking lot
Parking lot
Boom
Boom

-House
Tree
Mail Box
-Grass
Kdale
No side walks all the way down
Paved road
Lake wood
Watkins Lake
paved ends
Gate
Dirt Road
road not plowed Not Much.
my secret trail
Lake wood Woods
Swamp
Paved road
Back of School

me: Winnie Wand

odey Elementry