Pedestrian & Road Safety Audit

McCutcheon HS & Mayflower Mill ES Area

Area Plan Commission of Tippecanoe County

December 2016

Table of Contents

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Pedestrian and Road Safety Audit Background

Location: At McCutcheon High School and Mayflower Mill Elementary School

Geographic Area: Old US 231 Corridor from the Wea Creek to CR 500S, and CR 500S Corridor from Sage Street to Old US 231

Date: November 22, 2016

Owner: Tippecanoe County

Purpose:
- Develop a safer place for students to walk and bike along and cross Old US 231 and CR 500S.
- Develop a safer means for buses, faculty, staff and parents to enter and exit the school properties.
- Develop a safer place for residents to walk and ride bicycles from the existing residential subdivisions to the schools.
- Improve vehicular safety of both corridors.

Team Members:

John Beeker, Principal, McCutcheon High School
Clint Wilson, Assistant Principal, Mayflower Mill Elementary School
Gregory Haltom, Transportation Director for the Tippecanoe School Corporation
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Jon Fricker, PE, Professor at Purdue in the Civil Engineering Department
Jim Knapp, PE, Senior Civil Engineer in Facilities Planning at Purdue
Tim Stroshine, EIT, Transportation Planner at the Area Plan Commission of Tippecanoe Co.

Resource Personnel:

Opal Kuhl, PE, Executive Director of the Tippecanoe County Highway Department
Mike Spencer, Assistant Director of the Tippecanoe County Highway Department
John Thomas, Assistant Director for Transportation Planning, APC
Doug Poad, Senior Transportation Planner, APC

The PRSA Team and Resource Personnel

Existing Conditions: (See Map (*page 3*) and Summaries that follow)

Old US 231 is a two lane rural road functionally classified as an urban major collector. Beginning at the Wea Creek and heading south, the road gradually increases in elevation. The road then changes both vertically and horizontally just south of the Prairie Oaks and Trees Subdivisions. Horizontally it curves to the left while vertically climbing approximately 40 feet all within a span of 800 feet. From that point the grade levels out and remains nearly flat to CR 500S. There is another small horizontal curve located just south of the existing southern driveway at McCutcheon High School.

The pavement is rated in good condition with an average of two 11' travel lanes. There are some auxiliary/passing lanes and right turn lanes. The shoulders are a combination of pavement (average two foot on either side) and grass. The width of the grass shoulders varies throughout the corridor.

The posted speed limit is 40 mph with the school zone posted as 25 mph with a time plaque of 7 to 9 and 2 to 4.

From the Wea Creek to the Prairie Oaks/Trees Subdivisions, the land use is fairly wooded with some residents and a mobile home park. From the two subdivisions, it changes to residential subdivisions on both sides of the road. There is a small office building located just south and across the street from McCutcheon and it is located in a large undeveloped area.

The only sidewalk is located just north of the school on the east side of the road. It extends from the school property to Old Romney Road. Only three subdivision streets

have sidewalks connecting to Old US 231 (Buckingham Way, McCutcheon Drive, and Berwick Drive).

At McCutcheon High School

There are currently two driveways accessing Old US 231. One is located across from Doncaster Driver at the north side of the building. It is one lane entering and one lane exiting. Within the last six months, three street lights were installed with two on either side of the school driveway and the third located across the street. On Old US 231, there is a long northbound right turn deceleration lane. While there is no explicit southbound left turn lane, there is a long auxiliary lane which functions as a bypass and right turn lane.

The second driveway is located across from Berwick Drive and located at the south part of the building. There is one lane entering and two exiting (one through/left and the one right turn, page18). On Old US 231, a northbound right turn deceleration lane currently exists. Similar to the other driveway, there is no explicit left turn lane but there is an auxiliary lane which functions as a bypass and right turn lane.

Map of the McCutcheon and Mayflower Mill area

At McCutcheon's south driveway and looking north

At McCutcheon's south driveway and looking south

CR 500S is a two lane rural road functionally classified as an urban major collector. The corridor between Sage Street and Old US 231 is fairly level with very little elevation change. For the most part, the road is straight except at the east end of the corridor where the road starts a horizontal curve to the right.

The pavement is rated in good condition with an average of two 12' travel lanes. The shoulders are a combination of earth and gravel (widths vary) and grass.

The posted speed limit is 45 mph with the school zone posted as 30 mph between the times of 7:00 to 9:00 and 2:00 to 4:00.

Land use along the corridor is predominately residential with subdivisions on the south side of the road and one on the north side of the road. There is one business located at the southeast corner of CR 500S and Old US 231 intersection.

No sidewalks currently exist along CR 500S. There is one sidewalk along Snowberry Lane that extends almost up to the road right-of-way and one on Autumn Lane North that extends to the road right-of-way.

<u>At Mayflower Mill Elementary School</u>
There are currently two driveways accessing CR 500S. One is located at the east side of the building across from Snowberry Lane. There is a very short and narrow taper for west bound traffic east of the entrance. There is no left turn lane.

The western entrance is a combined entrance to the school and to an access road that connects to the southern student parking lot at McCutcheon. The driveway has one lane entering and two exiting. There are no left or right turn lanes on CR 500S to the school entrance/access drive.

At Mayflower Mill's west driveway and looking east

At Mayflower Mill's east driveway and looking west

Traffic Characteristics: (See Map and Summaries that follow)

Old US 231 carries 7,460 vehicles per day (2016) at the Wea Creek. Closer to McCutcheon (south of Berwick Drive), the most recent traffic count (2016) recorded 3,991 vehicles per day.

CR 500S carries different levels of traffic volume in the corridor. At the far eastern side near South 9th Street, the most recent count (2016) recorded 4,102 vehicles per day. Just east of the Old US 231 intersection, the 2016 count was 3,448 vehicles per day. In 2013, the County counted 5,113 vehicles per day between Relocated US 231and Old US 231.

Crash History: (See Map and Summaries that follow)

Thirty-nine crashes occurred in the two corridors between January 2011 and December 2015. Five of those crashes were serious enough that eight people were injured. Two crashes involved pedestrians and both of them were injured. There were no fatalities.

One of the most notable similarities of those reported crashes is when they occurred in relation to the lighting condition. Thirteen crashes occurred when it was dark and another eight occurred when it was either dawn or dusk. Combined, that is 21 crashes which accounts for over half (53.8%) of all the crashes.

As for weather conditions, the majority of crashes occurred when it was clear (59.0%) and when the pavement was dry (66.7%). Eight of the crashes occurred when it was raining, snowing, sleeting or freezing rain. Eight of the crashes occurred when the pavement was wet and five occurred when there was water, snow, slush, or ice present on the road surface.

Looking at the manner of collision, there were nine different types reported. Over a third of them (15 or 38.5%) were rear end collisions; deer collisions followed in second (7 or 17.9%). There were four right angle collisions reported. The crash reports showed that there were an equal number of head on, ran off road and same direction sideswipe crashes (three apiece).

Looking at the primary factor, nearly a quarter (23.1%) of the crashes was attributed to following too closely. There were seven crashes in which an animal was in the roadway and another seven in which one of the vehicles failed to yield the right-of-way.

The other notable statistic was the age of the persons involved. Over forty percent were between the ages of 15 and 19. Looking more closely at the crash reports, there were 18 crashes when the driver was in that age group. Of those 18 crashes, 14 of them were caused by a driver who was in that age group.

Five of the 39 crashes occurred at McCutcheon High School and two of them involved injuries. Those injured were pedestrians (students). One of the injury crashes was a hit and run; the student was struck while crossing the road. The other crash was caused by the action of the pedestrian. Both of these crashes occurred when it was dark and when the pavement was wet. One of the crashes occurred when it was raining.

The other three crashes where attributed to either failing to yield or following too closely. All three occurred when it was either dark or at dawn or dusk. Two occurred on either a clear or cloudy day and with dry pavement and wet for the third.

There was only one crash reported at the two Mayflower Mill entrances. It was a right angle crash in which the vehicle exiting failed to yield. The crash occurred at dawn; it was cloudy and the pavement was wet.

Team & Resource Discussion

Pedestrian and Road Safety Audit Observations and Analysis

The PRSA team provided the following information, observations and thoughts during the initial background briefing, during the on-site visits and follow-up group discussion.

Current Student Population:
McCutcheon: 1,820 students
Mayflower Mill: 635 students

Arrival & Dismissal Times:
McCutcheon:
Morning: 7:10 to 7:30
Afternoon: 2:25 to 2:45

Mayflower Mill:
Morning: 8:30 to 9:05
Afternoon: 2:45 to 3:45 (3:20 dismiss car riders)

Buses:
McCutcheon: 32
Mayflower: 6*
Note: Buses are very full. Would like to add a seventh but cannot due to driver shortage.*

Students Walking and Riding a Bicycle to School

- Students are currently crossing at the two driveways (McCutcheon High School).
- At the northern driveway, students also cross an access drive where they have to interact with buses and parents dropping students off.
- There is a sidewalk along Old US 231 (east side of road) that connects McCutcheon Drive to the school.
- Students are walking from the subdivisions and as far away as the mobile home park located at the northern end of the study area.
- The only door open to students to enter on the west side of the school are the main doors.
- The schools currently do not allow students to ride bikes during the school year because of safety concerns.
- There are a lot of students who ride their bikes to school during summer school.
- Can a safe crossing facility be constructed to accommodate students as well as keep the impact minimal for traffic heading to school?
- Should there be only one or two crossings at McCutcheon?
- If a single midblock crossing is constructed, would students use it or continue to cross at the two driveways?

- Should vehicles be required to yield or stop at the pedestrian crossing?
- Would stopping traffic at the crossing(s) increase traffic congestion?
- Should a crossing warning system be installed at the crossing(s)?
- The crossing warning system could be a HAWK system or a yellow rapid flashing beacon system at McCutcheon High School.
- If there is a crossing system installed, would students use it?
- Would students activate the crossing system excessively?
- Should students cross in platoons or cross individually?
- Should a walk be constructed from the pedestrian crossing to the school's front doors?
- A crossing system would not impact traffic during the off peak period.
- One crossing should be constructed in front of Mayflower Mill.
- The crossing should be located near Snowberry and the east driveway to the school.
- The crossing warning system could be a HAWK system or a yellow rapid flashing beacon system at Mayflower Mill Elementary School.

Bus Movements

- At McCutcheon, buses currently enter at the northern entrance and exit at the southern entrance.
- Buses are held in the morning until 7:30 to help traffic flow.
- There may be enough space in front of the school to construct an area to allow buses to turn around to help control how buses interact with other vehicles and traffic flow.
- Is it possible to change how buses enter and exit the lot to help reduce congestion?
- At Mayflower Mill, students riding in cars are dismissed before the buses leave.
- There is very little interference from the buses between the two schools.

Traffic Generated by Parents

- Not too long ago, the location where parents drop students off was changed (McCutcheon). They are to be dropped off at the doors behind the school. This has greatly reduced the number of cars using the front drive and interacting with the buses.
- Parents are to enter and exit at the north drive (McCutcheon).
- Some parents continue to drop students off at the front door and mix with school buses (McCutcheon).
- Some students continue to enter the northern entrance and use the front drive to access the student parking lot. (McCutcheon)
- Car riders to Mayflower Mill often wait on CR 500S.

- There has been an increase, especially recently, of parents dropping their children off at school. (Both schools)
- Additional turn lanes are needed to accommodate traffic at Mayflower Mill.
- Staff at Mayflower Mill help keep students safe outside at the start and end of the school day.

Existing School Driveways

McCutcheon High School Driveways

- At the northern McCutcheon driveway, there is a very long shoulder for south bound traffic north of the driveway. This is used as either a by-pass lane when vehicles are turning into McCutcheon or turning right onto Doncaster Drive.
- At the northern McCutcheon driveway, there is a very long shoulder for north bound traffic south of the driveway. It is used as a right turn lane into McCutcheon.
- The northern driveway is two lanes and extremely wide. The one exit lane is marked as right turn only.
- The turning radius for north bound buses turning into the parking lot and to the front drive to drop off students is extremely tight and is a challenge for bus drivers.
- At the southern McCutcheon driveway, there is a shoulder for south bound traffic north of the driveway. This is used as either a by-pass lane when vehicles are turning into McCutcheon or turning right onto Berwick Drive.
- At the southern McCutcheon driveway, there is a right turn deceleration lane for north bound traffic south of the driveway. It is used as a right turn lane into McCutcheon.
- The southern driveway is three lanes wide. There are two exit lanes where one is marked as right turn only and the other is for through and left turning vehicles.

Mayflower Mill Elementary School Driveways

- There is a taper for right turning traffic at the eastern driveway at Mayflower. It is only a partial lane and not wide enough to accommodate vehicles.
- The taper is not long enough to accommodate vehicles wanting to turn into the school parking lot. Car riders to Mayflower Mill often wait on CR 500S.
- Buses enter the school via the eastern driveway and depart via the western driveway.
- There is no left turn lane located at the eastern driveway.
- The western driveway is a combined driveway to the school and access road to McCutcheon.
- There are no right or left turn lanes on CR 500S at this driveway.
- There is one lane for entering vehicles and two lanes for exiting vehicles.
- The jog in the access road was constructed intentionally to reduce speed for through traffic.

Both Schools

- Improve the turning lanes and tapers.

Additional Driveway Access

- Over the years, a third driveway has been discussed for McCutcheon. The proposed location was at the very far south end of the parking lot.
- An engineering firm looked at access and transportation issues a few years ago.
- The proposed third driveway was to align with the driveway located on the opposite side of Old US 231.
- There is a drainage structure located at the southwest corner of the student parking lot.
- The proposed third driveway was turned down years ago.
- If a new driveway was built, it would be a student only entrance. The northern driveway would be designated for parents only and the existing southern driveway would be designated as buses only. This would help reduce mixing traffic and reduce potential conflicts.
- The third driveway may increase through traffic on the service road.

Street Lighting

- The lighting at the two McCutcheon and Old US 231 driveways has been recently improved. At each driveway there are street lights located on both the north and south side of the driveways; a street lights have also been installed on the opposite side of the road at each driveway.
- Old US 231 is dark throughout the corridor.
- Street lighting is needed along the road and along future sidewalks/trails.

Service Road between the Two Schools

- The width of the service road is adequate.
- Any additional width would encourage higher speeds.
- The speed humps that currently exist on the access road are designed properly.
- Can the service road be used more to alleviate traffic congestion?
- It appears that fences along the service road encroach on school property.

Additional Pedestrian/Bicycle Facilities

- There are a lot of residents in nearby subdivisions that walk to the schools.
- Residents walk in the area throughout the year.

- A wide sidewalk or trail should be constructed along the east side of Old US 231 up to Creekview Drive.
- A sidewalk/trail needs to continue northward and connect to the mobile home park.
- A sidewalk/trail needs to continue southward along the east side and connect to CR 500S.
- A sidewalk/trail needs to extend westward from Mayflower Mill along CR 500S and connect to Old US 231.
- A sidewalk/trail needs to be constructed along CR 500S west of Old US 231 and connect to the residential subdivisions that are located west of Relocated US 231.
- Sidewalks need to be constructed on the entrance roads to the subdivisions.
- The sidewalks/trails need to be wide enough to accommodate pedestrians and bicyclists.
- A trail needs to be constructed between both schools along the service road.
- Should additional crossings be constructed north of McCutcheon? (Buckingham Drive, Old Romney Road or Creekview Drive)

Road Speed

- Road speed was discussed, especially during the school times.
- The signage is slightly different on Old US 231and CR 500S. The signage on both roads show a reduced speed for certain times in the morning and afternoon. Posted speed limits are also different.

Large Truck Traffic

- Large truck traffic is present on Old US 231.
- After Relocated US 231 opened, the number of cars decreased by about a half but the number of large trucks did not decrease proportionally.
- There was a time limit when the trucks from the Purdy gravel pit can use CR 500S.
- Could there be any design changes to the road to reduce or discourage large truck traffic?
- Can something be done to deter large trucks using old US 231?

Transit Service

- There has been discussion by both faculty and students for transit service to McCutcheon.
- A student survey was conducted and it showed interest in bus service.
- Could CityBus provide express service to the school between 4:30 pm and 7:00 pm?
- There is a need for transit service. Students who do not have access to transportation after school are unable to participate in extracurricular activities.
- The information and interest will be presented to a CityBus subcommittee meeting.

Road Crashes

- Nearly all of the deer crashes occur near the Wea Creek area.
- There are a significant number of crashes that occur at dark and at dawn and dusk.
- There are a significant number of crashes involving those between 15 and 19 years of age.

Road Aesthetics/Urbanization

- The design of the roads in front of the schools is of a rural road cross section. Maybe the design needs to change to more of an urban design in order to slow traffic.
- Maybe a median island should be constructed on Old US 231 in front of the school. The island could be of similar design to that on Veterans Memorial.

Funding

- Federal transportation funds can be used for safety improvements.
- TSC has a capital improvement program and can tap those funds for some improvements.

Other Comments

- The large aerial maps are very helpful in the PRSA process.
- The existing signage located on the school grounds is busy and could be simplified.
- There was discussion about McCutcheon's dynamic message sign.
- Instead of the checklist, an aerial photo for each person to write on would be more helpful.
- The timeline for proposed improvements that would be funded with federal funds was explained.
- There was discussion of where future development would occur.
- There is a limit to how much additional development can occur due to needed sewer improvements.
- There is not much land available for the expansion of either school.
- When the schools were constructed, all of the adjoining land was rural and vacant. Now residential subdivisions have been built around the schools and it is now more suburban than rural.
- The report needs to include short, medium and long range solutions.

Pedestrian and Road Safety Audit Recommendations

During the discussion, comments and recommendations from the audit team were recorded on large sheets of paper and drawn on two maps (Figure 1 & 2). The following recommendations were made:

Short-Term Recommendations

- Reverse the flow of buses entering and exiting McCutcheon. Buses would enter at the south drive and then exit at the north drive.
- Continue to encourage parents to drop off and pick up students on the back side of McCutcheon and use only the north driveway.
- Examine existing signage on school property and determine if the signage is appropriate and could be simplified.
- School officials should meet with CityBus officials and discuss possible transit service.
- Review the property boundary and determine which fences are encroaching on school property. Work with property owners to correctly reinstall fences.
- Monitor large truck traffic and develop a plan to reduce large trucks using Old US 231.
- The existing sidewalk from the overflow parking lot located adjacent to the access road to McCutcheon should be widened to a trail width.
- A new trail should be constructed along the access road to connect the schools and CR 500S.
- Road signage on Old US 231 and CR 500S should be reviewed for appropriateness and consistency.

Medium-Term Recommendations

Crossing Improvements at McCutcheon High School

- One pedestrian crossing should be constructed between the two driveways.
- The crossing should be located close to the main front doors in between both driveways.
- Install a pedestrian crossing warning system with supporting signage and pavement markings.
- Construct a sufficiently sized waiting area on either side of the road to accommodate students wanting to cross.
- Construct a multi-use trail (10') along the west side of the road connecting Doncaster Drive to Berwick Drive.
- A wide multi-use trail (10') should be constructed from the waiting area on the east side of the road to the main entrance doors of the school.
- Install lighting along the newly constructed crosswalk, trails and road.
- All improvements are to be constructed as ADA compliant.

Crossing Improvements at Mayflower Mill Elementary School

- A crossing should be constructed at the intersection with Snowberry Lane.
- Install a pedestrian crossing warning system with supporting signage and pavement markings.
- Construct a sufficiently sized waiting area on either side of the road to accommodate students.
- Construct a multi-use (10') on the north side of the road between the crossing and a future sidewalk along the access road.
- Construct a multi-use trail (10') between the new sidewalk and the school's front doors.
- A multi-use trail (10') should be constructed on the south side of the road between Sage Street and Snowberry Lane.
- Lighting should be installed along the newly constructed crossing, trails and road.
- All improvements are to be constructed as ADA compliant.

Road and Driveway Improvements

- Old US 231 should be urbanized to reflect current land uses.
- Install a raised median with left turn lanes in front of McCutcheon from north of Doncaster Drive to possibly as far south to the new third driveway.
- Both driveways on Old US 231 should be engineered and reconstructed to properly accommodate right and left turning vehicles.
- Install a new driveway on Old US 231 at the very southern end of the student parking lot. It would be designated for students. It should be engineered and constructed to properly accommodate right and left turning vehicles.
- Install larger speed limit signage.
- Both driveways on CR 500S should be engineered and reconstructed to properly accommodate right and left turning vehicles.
- Design safe accommodations for cars waiting to pull into the Mayflower Mill parking lot.

Pedestrian and Bicycle Facilities

- *Construct a sidewalk/trail along the east side of Old US 231*
  - *Widen the existing sidewalk from McCutcheon to Old Romney Road. (east side of road)*
  - *New facility from Old Romney Road to Creekview Drive. (east side of road)*
  - *New facility from Creekview Drive to Mobile Home Park (east side of road)*
- Install lighting along the trails and roads (Old US 231 & CR 500S).
- Investigate and possibly install additional pedestrian crossings north of McCutcheon.
- Install bike racks at both schools.

Long-Term Recommendations

- *Construct sidewalks/trails*
  - *New facility from Berwick Drive to CR 500S.*
  - *New facility from Snowberry Lane to CR 500S.*
  - *New facility from CR 500S to Admirals Point Drive.*
  - *Construct sidewalks along the entrance roads of subdivisions on Old US 231 and CR 500S.*

Figure 1


- Center island
infront of
School
- S. driveway
possible Skill Ramp
impact.
- truck traffic
(how to reduce)
(how to discourage)
- internal signage
(simplify)
Report:
include
Short, med
& Long

Figure 2


VT Parking
Cardiff
Bus Loop
Student Drop Off
Faculty Lane
Student Lane

Additional Pictures

McCutcheon's south driveway looking west

Looking north at the lot in front of McCutcheon

Looking north at Old US 231 and the southwest corner of the student parking lot

Looking east at the access road

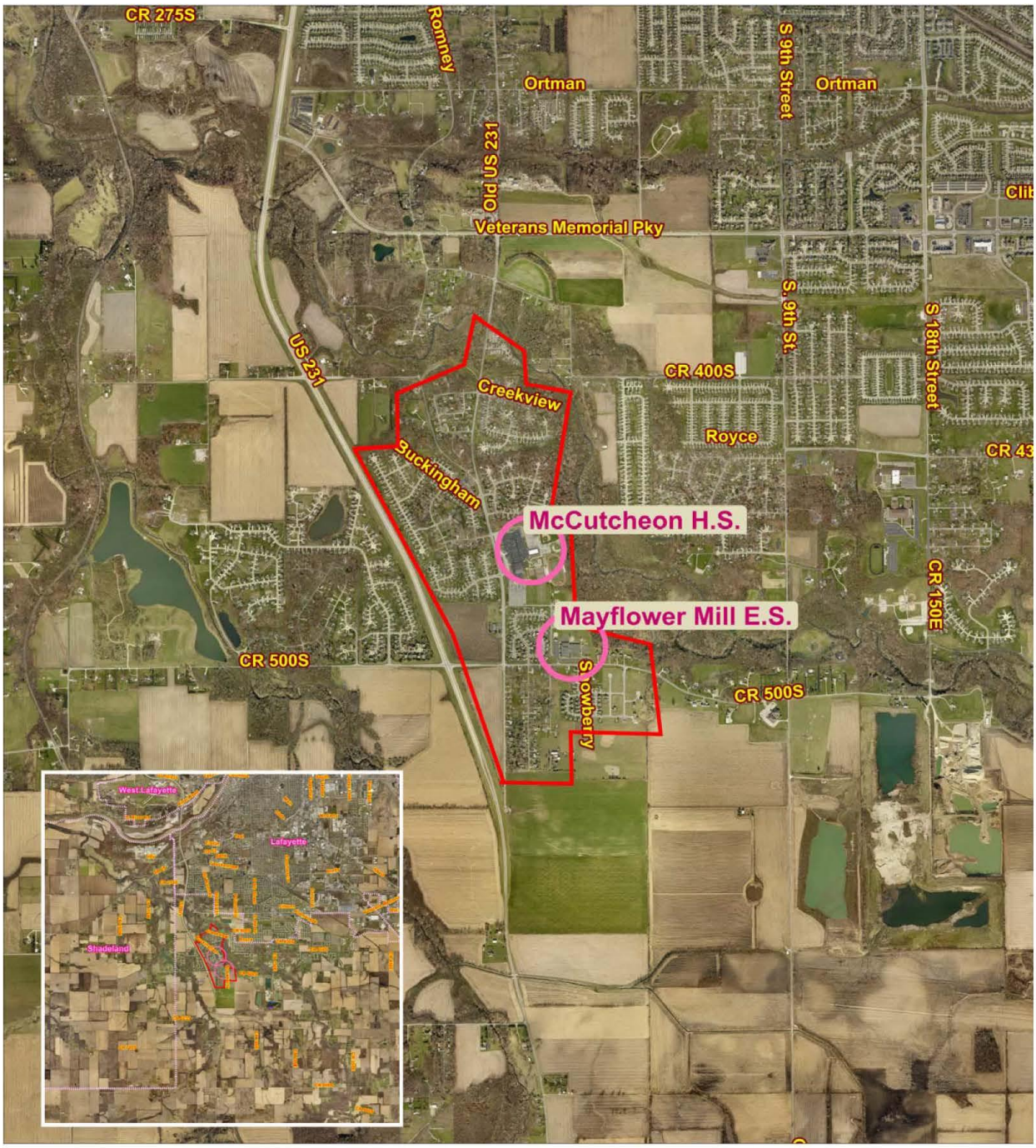
Looking south along the access road

Looking north along the access road

Looking south and west at the number of cars waiting to pick up students

Looking south and east at the number of cars waiting to pick up students

Aerial Photography of McCutcheon, Mayflower Mill and Surrounding Neighborhoods



2014/2015 Aerial Photography

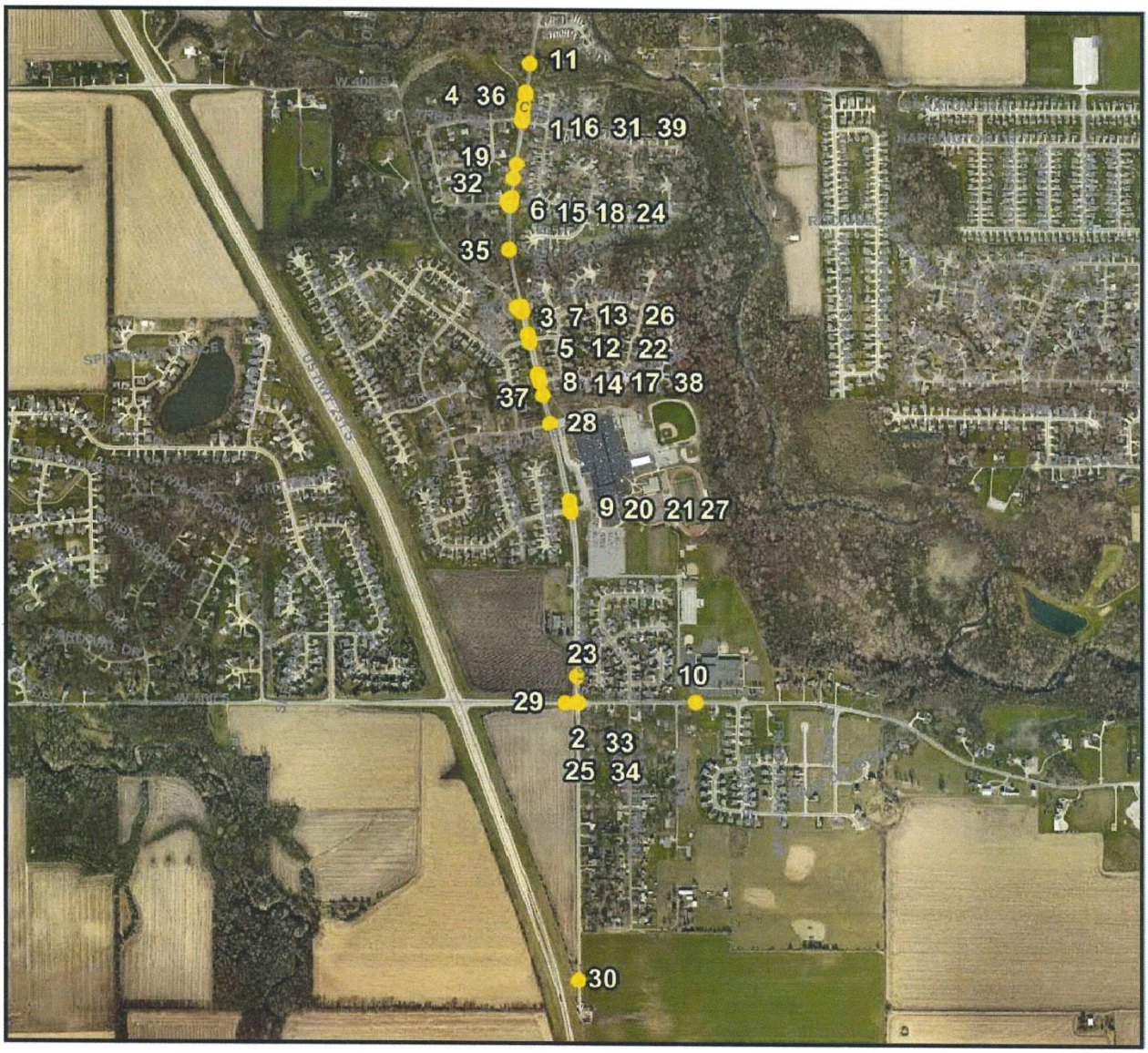
McCutcheon Road Safety Audit
Roadway Inventory

Old US 231 (north of CR 500S)
- Functional Classification: ***Urban Major Collector***
- Road width average: ***22 Feet***
- Shoulder Type: ***Asphalt***
- Shoulder Width: ***2 Feet***
- Pavement Condition: ***Good***
- Posted Speed Limit: ***40 mph***
- Posted Speed Limit School Zone: ***25 mph (When Children are Present)***

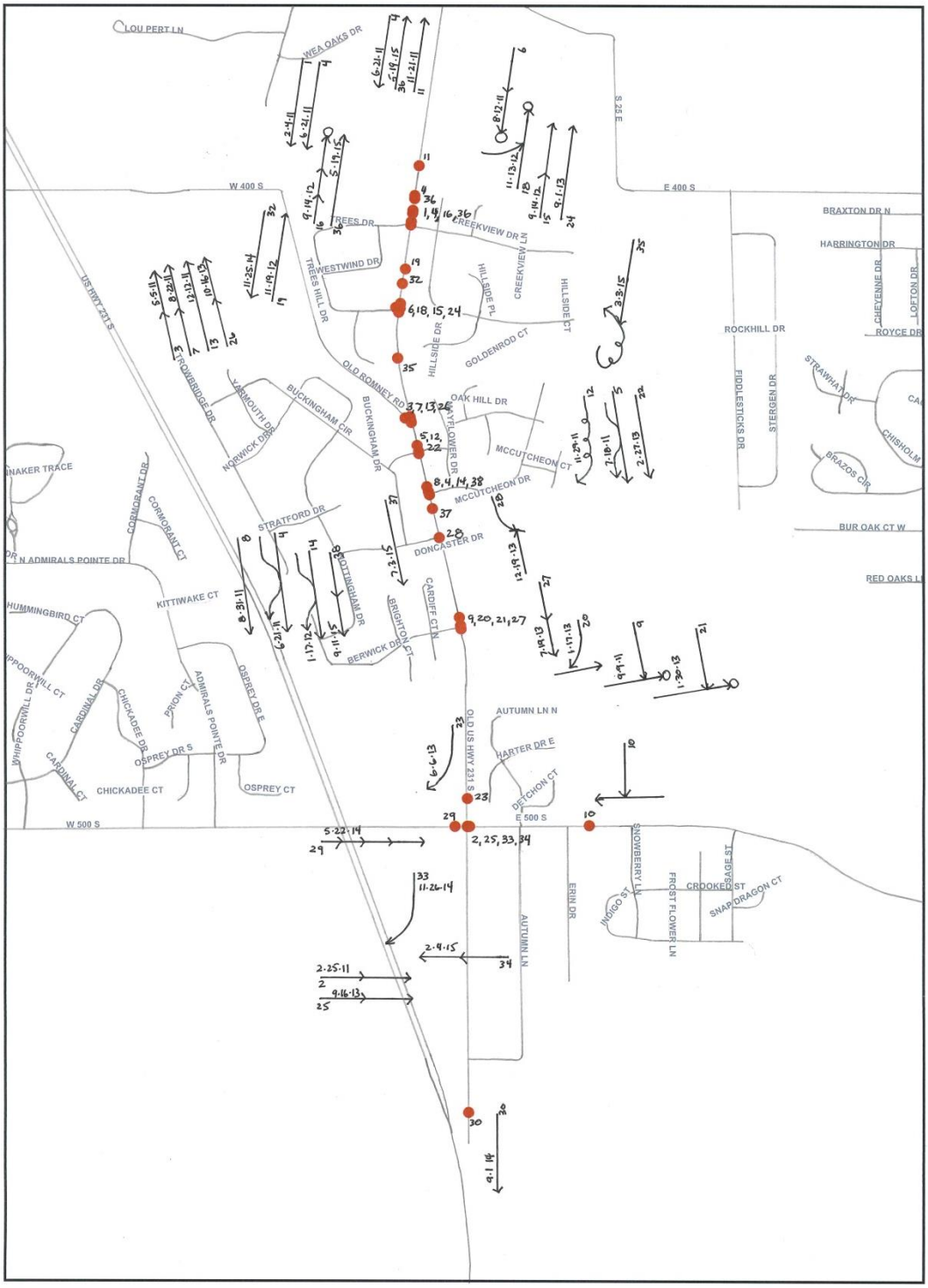
CR 500S (west of Old US 231)
- Functional Classification: ***Urban Major Collector***
- Road width average: ***21 Feet***
- Shoulder Type: ***Earth/Gravel/Asphalt***
- Shoulder Width: ***Varies***
- Pavement Condition: ***Good***
- Posted Speed Limit: ***35 mph***
- Posted Speed Limit School Zone: ***30 mph (7to 9 & 2 to 4)***

CR 500S (east of Old US 231)
- Functional Classification: ***Urban Major Collector***
- Road width average: ***24 Feet***
- Shoulder Type: ***Earth/Gravel***
- Shoulder Width: ***Varies***
- Pavement Condition: ***Good***
- Posted Speed Limit: ***45 mph***
- Posted Speed Limit School Zone: ***30 mph (7to 9 & 2 to 4)***

Location of Crashes around McCutcheon HS & Mayflower Mill ES



Crash Diagram
McCutcheon HS & Mayflower Mill ES Area



Crash Data: January 2011 through December 2015

McCutcheon H.S. Area

Crash Report Information, January 2011 trhough December 2015

#	Date	Time	Vehicles Involved	Number Injured	Number Dead	Manner of Collision	Primary Factor	Light Condition	Weather Conditions	Surface Condition	Damage Estimate
1	2/4/2011	2330	1	0	0	RIGHT ANGLE	ANIMAL/OBJECT IN ROADWAY	DARK (NOT LIGHTED)	CLEAR	DRY	$1001 TO $2500
2	2/25/2011	1029	2	0	0	REAR END	FOLLOWING TOO CLOSELY	DAYLIGHT	CLOUDY	SNOW/SLUSH	$1001 TO $2500
3	5/5/2011	1445	2	0	0	REAR END	FAILURE TO YIELD RIGHT OF WAY	DAYLIGHT	CLEAR	DRY	$2501 TO $5000
4	6/21/2011	2142	1	0	0	RIGHT ANGLE	OTHER (ENVIRONMENTAL) - EXPLAIN IN NARR	DAWN/DUSK	RAIN	WET	$2501 TO $5000
5	7/18/2011	0731	2	0	0	SAME DIRECTION SIDESWIPE	IMPROPER PASSING	DAYLIGHT	CLEAR	DRY	$1001 TO $2500
6	8/12/2011	1856	2	2	0	REAR END	FOLLOWING TOO CLOSELY	DAYLIGHT	CLOUDY	DRY	$5001 TO $10000
7	8/22/2011	1453	2	0	0	REAR END	BRAKE FAILURE OR DEFECTIVE	DAYLIGHT	CLEAR	DRY	$5001 TO $10000
8	8/31/2011	0730	2	0	0	REAR END	FOLLOWING TOO CLOSELY	DAWN/DUSK	CLOUDY	DRY	UNDER $1001
9	9/9/2011	2141	1	1	0	RIGHT ANGLE	PEDESTRIAN ACTION	DARK (LIGHTED)	RAIN	WET	$5001 TO $10000
10	9/29/2011	0725	2	0	0	RIGHT ANGLE	FAILURE TO YIELD RIGHT OF WAY	DAWN/DUSK	CLOUDY	WET	$5001 TO $10000
11	11/21/2011	0521	1	0	0	RIGHT ANGLE	ANIMAL/OBJECT IN ROADWAY	DARK (NOT LIGHTED)	CLEAR	DRY	$2501 TO $5000
12	11/29/2011	1618	1	0	0	RAN OFF ROAD	SPEED TOO FAST FOR WEATHER CONDITIONS	DAYLIGHT	SNOW	SNOW/SLUSH	$5001 TO $10000
13	12/12/2011	1447	2	0	0	REAR END	FOLLOWING TOO CLOSELY	DAYLIGHT	CLEAR	DRY	$1001 TO $2500
14	1/17/2012	0716	2	0	0	SAME DIRECTION SIDESWIPE	FAILURE TO YIELD RIGHT OF WAY	DARK (NOT LIGHTED)	RAIN	WET	$2501 TO $5000
15	9/14/2012	1446	2	0	0	REAR END	FOLLOWING TOO CLOSELY	DAYLIGHT	CLEAR	DRY	$2501 TO $5000
16	9/14/2012	1455	3	2	0	REAR END	FOLLOWING TOO CLOSELY	DAYLIGHT	CLEAR	DRY	$1001 TO $2500
17	11/2/2012	1453	2	0	0	SAME DIRECTION SIDESWIPE	FAILURE TO YIELD RIGHT OF WAY	DAYLIGHT	CLEAR	DRY	$1001 TO $2500
18	11/13/2012	0913	2	2	0	LEFT TURN	FAILURE TO YIELD RIGHT OF WAY	DAYLIGHT	CLEAR	DRY	$5001 TO $10000
19	11/19/2012	0731	1	0	0	RIGHT ANGLE	ANIMAL/OBJECT IN ROADWAY	DAWN/DUSK	CLOUDY	DRY	$1001 TO $2500
20	1/17/13	0749	2	0	0	RAN OFF ROAD	FAILURE TO YIELD RIGHT OF WAY	DAWN/DUSK	CLOUDY	DRY	UNDER $1001
21	1/30/13	0724	1	1	0	RIGHT ANGLE	OTHER (DRIVER) - EXPLAIN IN NARRATIVE	DARK (LIGHTED)	CLOUDY	WET	UNDER $1001
22	2/27/13	0718	1	0	0	RIGHT ANGLE	ANIMAL/OBJECT IN ROADWAY	DAWN/DUSK	RAIN	WET	$2501 TO $5000
23	6/6/13	1540	1	0	0	HEAD ON	RAN OFF ROAD RIGHT	DAYLIGHT	CLEAR	DRY	$2501 TO $5000
24	9/1/13	0210	1	0	0	HEAD ON	OTHER (ENVIRONMENTAL) - EXPLAIN IN NARR	DARK (NOT LIGHTED)	CLEAR	DRY	UNDER $1001
25	9/16/13	1700	2	0	0	REAR END	FOLLOWING TOO CLOSELY	DAYLIGHT	CLEAR	DRY	$1001 TO $2500
26	10/16/13	2014	2	0	0	REAR END	OTHER TELEMATICS IN USE	DARK (NOT LIGHTED)	CLEAR	DRY	$1001 TO $2500
27	11/19/13	0724	2	0	0	REAR END	FOLLOWING TOO CLOSELY	DARK (NOT LIGHTED)	CLEAR	DRY	UNDER $1001
28	12/19/13	0804	2	0	0	HEAD ON	FAILURE TO YIELD RIGHT OF WAY	DAWN/DUSK	CLEAR	WET	$1001 TO $2500
29	5/22/14	0722	4	0	0	REAR END	OTHER (ENVIRONMENTAL) - EXPLAIN IN NARR	DAYLIGHT	CLEAR	WATER (standing/moving)	$50001 TO $100000
30	9/1/14	2121	1	0	0	HEAD ON BETWEEN TWO MOTOR VEHICLES	DISREGARD SIGNAL/REG SIGN	DARK (NOT LIGHTED)	CLEAR	DRY	UNDER $1001
31	10/13/14	1330	2	0	0	REAR END	CELL PHONE USAGE	DAYLIGHT	CLOUDY	DRY	$2501 TO $5000
32	11/25/14	1923	1	0	0	RIGHT ANGLE	ANIMAL/OBJECT IN ROADWAY	DARK (NOT LIGHTED)	CLEAR	DRY	$1001 TO $2500
33	11/26/14	1813	1	0	0	RAN OFF ROAD	IMPROPER TURNING	DARK (NOT LIGHTED)	CLEAR	DRY	$1001 TO $2500
34	2/4/15	1703	2	0	0	REAR TO REAR	SPEED TOO FAST FOR WEATHER CONDITIONS	DAYLIGHT	SNOW	SNOW/SLUSH	$1001 TO $2500
35	3/3/15	0543	2	0	0	HEAD ON BETWEEN TWO MOTOR VEHICLES	ROADWAY SURFACE CONDITION	DARK (NOT LIGHTED)	SLEET/HAIL/FREEZING RAIN	ICE	$2501 TO $5000
36	5/19/15	2137	1	0	0	COLLISION WITH DEER	ANIMAL/OBJECT IN ROADWAY	DARK (NOT LIGHTED)	CLEAR	DRY	UNDER $1001
37	7/3/15	1742	1	0	0	COLLISION WITH DEER	ANIMAL/OBJECT IN ROADWAY	DAYLIGHT	CLEAR	DRY	UNDER $1001
38	9/11/15	0719	2	0	0	REAR END	SPEED TOO FAST FOR WEATHER CONDITIONS	DAWN/DUSK	RAIN	WET	$1001 TO $2500
39	10/2/15	0725	2	0	0	REAR END	FOLLOWING TOO CLOSELY	DAYLIGHT	CLEAR	DRY	$5001 TO $10000

Crashes occurring at McCutcheon and May Flower

Crash involving a pedestrian

Crash Summary, 2011 - 2015

General		
Number of Crashes	39	
Property Damage Only	34	87.2%
Injury Crashes	5	12.8%
Fatalities	0	0.0%

Crashed Involved		
Auto	37	94.9%
Pedestrian	2	5.1%
Bicycle	0	0.0%

Manner of Collision		
Rear End	15	38.5%
Collision with Deer	7	17.9%
Right Angle	4	10.3%
Head On	3	7.7%
Ran Off Road	3	7.7%
Same Direction Sideswipe	3	7.7%
Head On Between Two Motor Vehicles	2	5.1%
Left Turn	1	2.6%
Rear to Rear	1	2.6%

Primary Factor		
Following Too Close	9	23.1%
Animal/Object in Roadway	7	17.9%
Failure to Yield Right-of-way	7	17.9%
Other (Environmental)	3	7.7%
Speed Too Fast for Weather Conditions	3	7.7%
Brake Failure/Defective	1	2.6%
Cell Phone Usage	1	2.6%
Disregard Signal/Red Sign	1	2.6%
Improper Passing	1	2.6%
Improper Turning	1	2.6%
Other (Driver)	1	2.6%
Other Telematics in Use	1	2.6%
Pedestrian Action	1	2.6%
Ran Off Road, Right	1	2.6%
Roadway Surface Condition	1	2.6%

Light Condition		
Daylight	18	46.2%
Dark (not lighted)	11	28.2%
Dawn/Dusk	8	20.5%
Dark	2	5.1%

Weather Condition		
Clear	23	59.0%
Cloudy	8	20.5%
Rain	5	12.8%
Snow	2	5.1%
Sleet/Hail/Freezing Rain	1	2.6%

Surface Condition		
Dry	26	66.7%
Wet	8	20.5%
Snow/Slush	3	7.7%
Ice	1	2.6%
Water (standing or moving)	1	2.6%

Damage Estimate		
Under $1,001	8	20.5%
$1,001 to $2,500	14	35.9%
$2,501 to $5,000	9	23.1%
$5,001 to $10,000	7	17.9%
$50,001 to $100,000	1	2.6%

Age		
14 and Younger	1	1.5%
15 – 19	28	42.4%
20 – 29	7	10.6%
30 – 39	5	7.6%
40 – 49	8	12.1%
50 – 59	10	15.2%
60 – 69	2	3.0%
70 – 79	1	1.5%
80 and Older	1	1.5%
Not Reported	3	4.5%

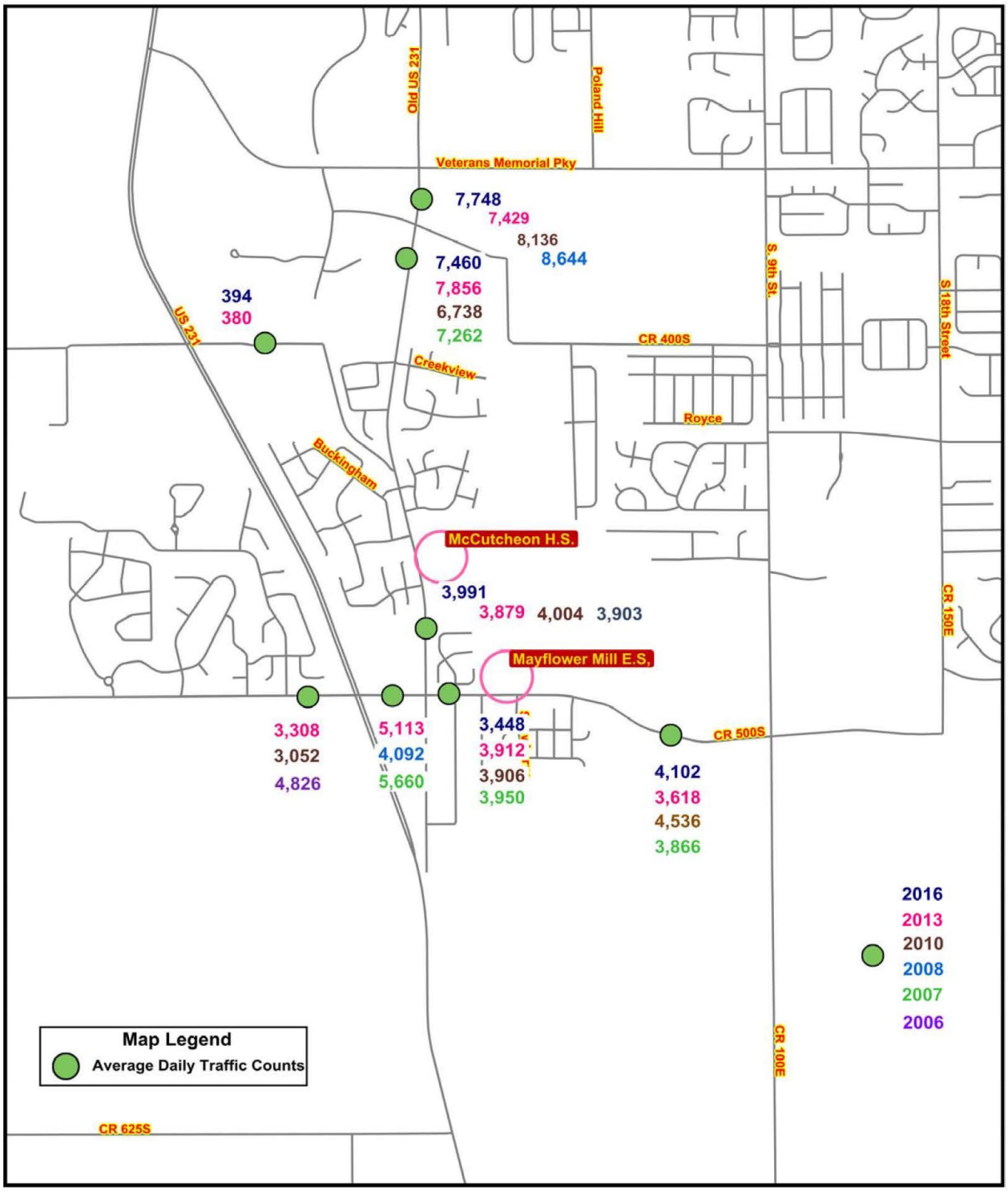
Crash Report Narrative Summary

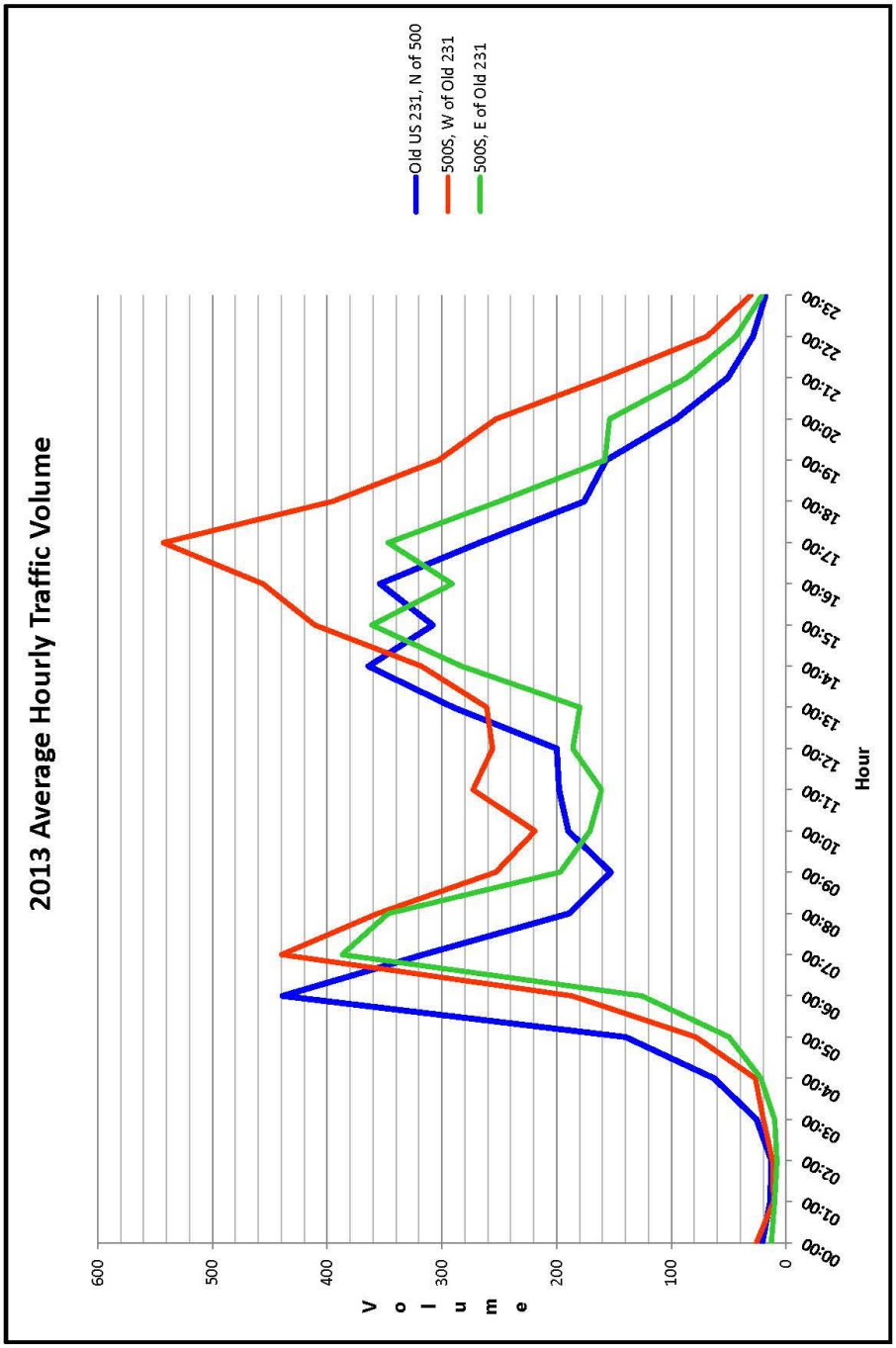
Crash Number	Summary
1	Deer ran into the roadway. Driver was unable to stop or swerve to avoid the deer.
2	Vehicle turning left. Another vehicle misjudged the distance to that vehicle, and did not stop in time. This caused a rear end crash.
3	Vehicle stopped at intersection, getting ready to turn. Driver of another vehicle looked down to grab an item, and did not stop in time. This caused a rear end crash.
4	Tree had fallen on roadway, blocking one lane. Police vehicle was in the other lane due to downed power line. Other vehicle tried to get around police vehicle, and struck fallen tree.
5	Vehicle waiting to turn. Another vehicle attempted to pass turning vehicle on the right. The passing vehicle sideswiped the turning vehicle.
6	Vehicle waiting to turn. Another vehicle did not see the turning vehicle in time, and did not stop in time. This caused a rear end crash.
7	Vehicle waiting to turn. Another vehicle attempted to stop, but the brakes of that vehicle failed. This caused a rear end crash.
8	Vehicle stopped in traffic. Another vehicle did not stop in time. This caused a rear end crash.
9	Vehicle approaching an intersection. A group of pedestrians approached the intersection. Most of the group stopped, but one pedestrian ran out to attempt to cross ahead of the vehicle. This caused a crash between the vehicle and pedestrian.
10	Vehicle was approaching an intersection. Another vehicle pulled out into the path of the first vehicle, causing a right angle collision.
11	Vehicle was approaching an intersection. A deer ran into the roadway. Driver was unable to stop or swerve to avoid the deer.
12	Vehicle lost traction and ran off the road and rolled over.
13	Vehicle stopped in traffic at an intersection. Driver of another vehicle was distracted, and did not stop in time. This caused a rear end crash.
14	Vehicle attempted to move around a line of traffic waiting to turn at an intersection. Another vehicle pulled out of the line of traffic and struck the vehicle that was attempting to move around the stopped traffic.
15	A vehicle came to a sudden stop to avoid hitting a turning vehicle. Another vehicle did not stop in time, and rear ended the vehicle that had stopped suddenly.
16	A vehicle came to a sudden stop to avoid hitting stopped traffic. Another vehicle did not stop in time, and rear ended a third vehicle. This third vehicle was pushed into the first vehicle, causing a three vehicle crash.
17	Vehicle stopped waiting to turn. Another vehicle attempted to pass the stopped vehicle, and caused a sideswipe crash in the process of trying to pass.
18	Vehicle attempted to turn at an intersection. Driver of this vehicle thought the intersection was clear. When the vehicle began to turn, it hit another vehicle traveling through the intersection.
19	Deer ran into the roadway. Driver was unable to stop or swerve to avoid the deer.
20	Vehicle attempted to turn at an intersection. While turning, this vehicle pulled out in front of another vehicle. The second vehicle swerved to avoid a crash with the turning vehicle, but hit a utility pole.
21	Pedestrian crossing the street near McCutcheon High School. A vehicle hit the pedestrian during the attempted crossing.
22	Deer ran into the roadway. Driver was unable to stop or swerve to avoid the deer.
23	Driver of vehicle looked away from the road to check on a passenger in the back seat. This caused the vehicle to run off the road and hit a sign.
24	Driver of vehicle did not see some rocks in the roadway. The vehicle struck those rocks.

Crash Report Narrative Summary

Crash Number	Summary
25	Vehicle stopped at intersection. Another vehicle did not stop in time, causing a rear end crash.
26	Vehicle stopped at intersection, preparing to turn. Another vehicle did not stop in time, causing a rear end crash.
27	Vehicle stopped in traffic. Another vehicle did not stop in time. This caused a rear end crash.
28	Vehicle attempted to turn left. Another vehicle was traveling straight through the intersection. The turning vehicle struck the vehicle traveling through the intersection.
29	Three vehicles stopped at intersection. Due to sun, the driver of another vehicle was unable to see the stopped vehicles in time to brake. This caused a rear end collision, with each car striking the car in front of it. Four cars were involved.
30	Vehicle approaching a dead end. Vehicle was unable to stop in time to avoid striking a security gate.
31	Vehicle stopped at intersection, preparing to turn. Driver of another vehicle was distracted by a cell phone and did not stop in time, causing a rear end crash.
32	Deer ran into the roadway. Driver was unable to stop or swerve to avoid the deer.
33	Vehicle attempted to turn at an intersection. Driver misjudged the turn, causing the vehicle to hit a stop sign with the trailer attached to the cab of the vehicle.
34	Vehicle slowing down to stop at an intersection. Another vehicle attempted to stop, but due to slick road conditions, was unable to stop in time. This caused a rear end crash
35	Vehicle trying to travel up a hill. Due to slick road conditions, the vehicle could not make it up the hill, and slid off the road into a ditch.
36	Deer ran into the roadway. Driver was unable to stop or swerve to avoid the deer.
37	Deer ran into the roadway. Driver was unable to stop or swerve to avoid the deer.
38	Vehicle stopped at an intersection. Another vehicle attempted to stop, but due to slick road conditions, was unable to stop in time. This caused a rear end crash
39	Vehicle stopped in traffic. Driver of another vehicle was distracted, and did not stop in time. This caused a rear end crash.

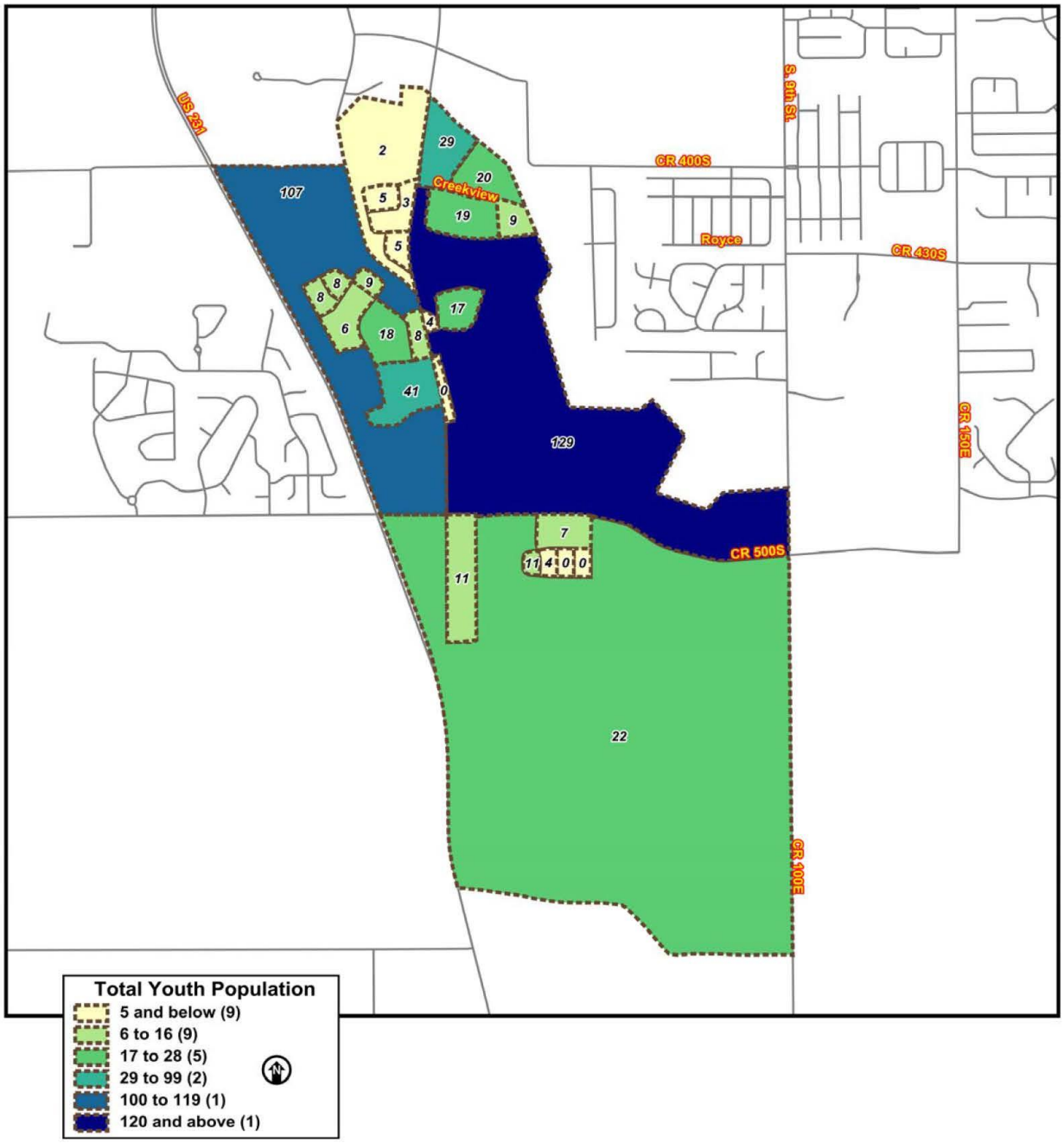
Traffic Counts




2013 Average Hourly Traffic Volume
Old US 231, N of 500
500S, W of Old 231
500S, E of Old 231
Volume
0
100
200
300
400
500
600
Hour
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00

Youth Population, 5 through 19

2010 Decennial Census

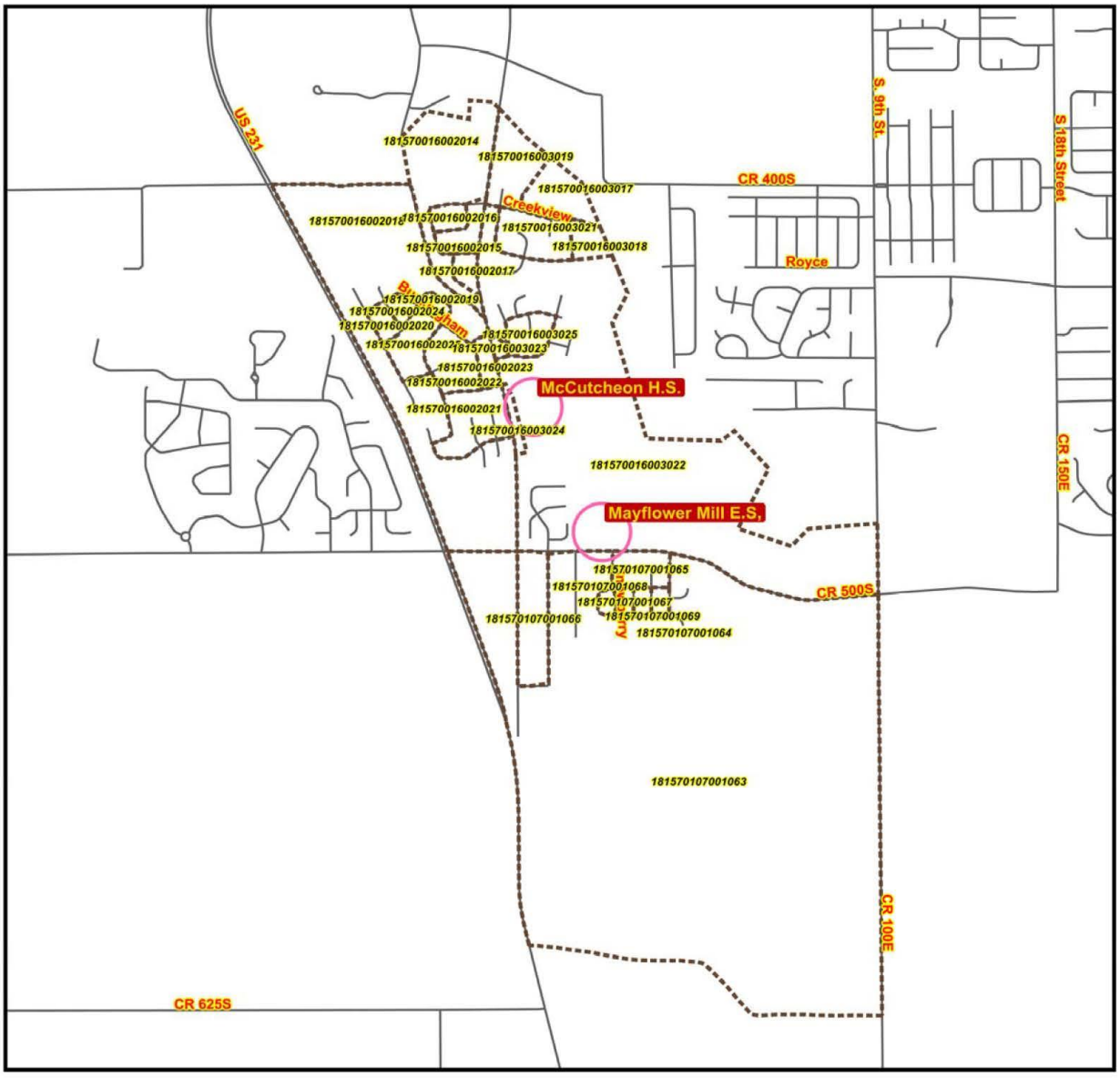


McCutcheon Road Safety Audit

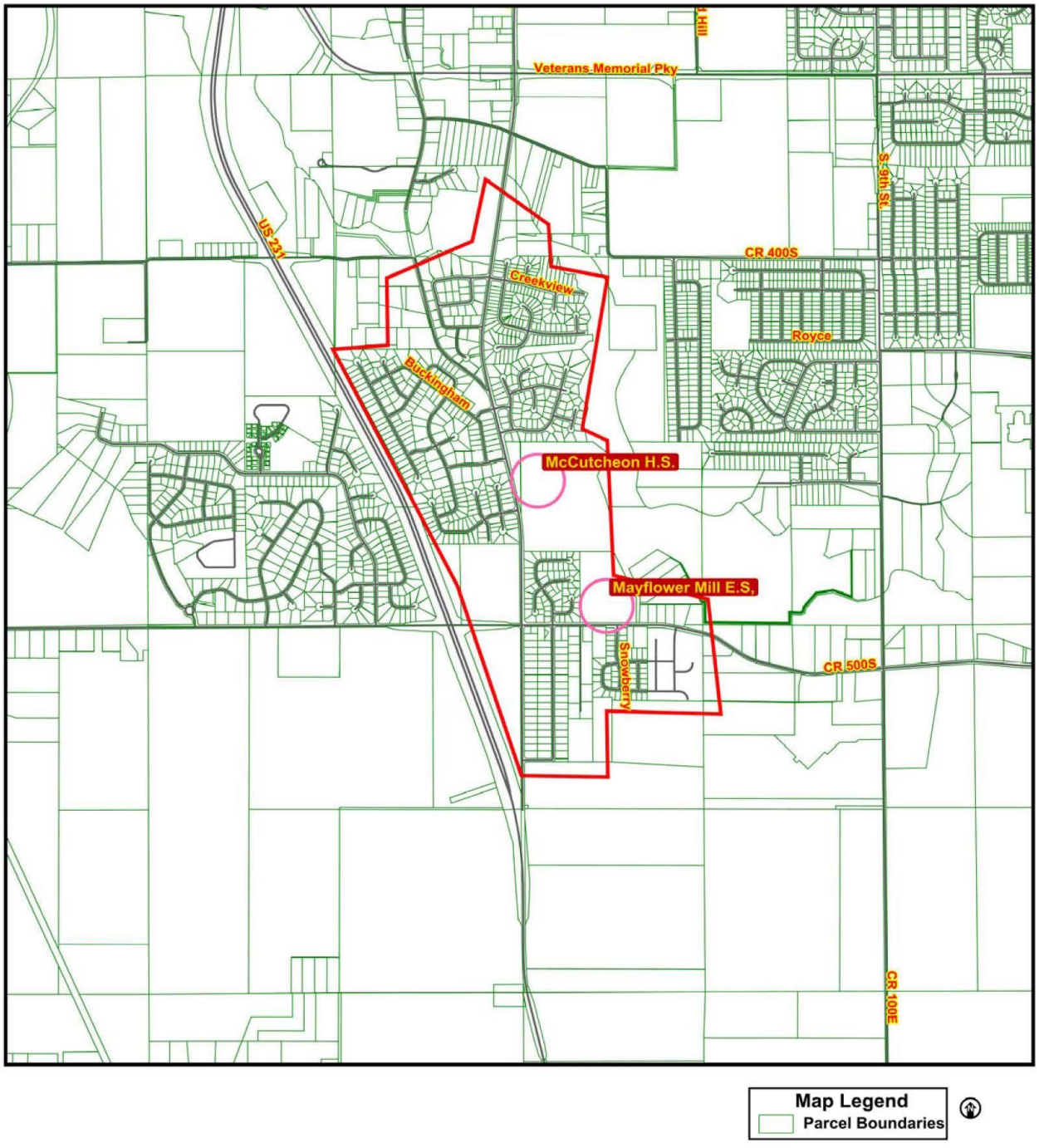
2010 Decennial Census Data

Census Block	Total Population	Male, 5-9	Male, 10-14	Male, 15-17	Male, 18 & 19	Female, 5-9	Female, 10-14	Female, 15-17	Female, 18 & 19	Total Youth Population	*Percent*	Households	Total Occupied	Total Vacant	Total Population	Persons per Household
181570016002014	21	0	1	0	0	0	0	0	1	2	9.5%	0	0	0	0	0
181570016002015	27	1			1	1				3	11.1%	21	20	1	43	2.0
181570016002016	23		1			1		1	2	5	21.7%	2	2	0	7	3.5
181570016002017	25	1		2			2			5	20.0%	11	11	0	30	2.7
181570016002018	360	24	14	8	7	15	15	13	11	107	29.7%	1	1	0	2	2.0
181570016002019	26	1	1	3		2	2			9	34.6%	8	8	0	23	2.9
181570016002020	27	2	1	1		2		1	1	8	29.6%	5	5	0	14	2.8
181570016002021	140	4	8	5	2	7	9	5	1	41	29.3%	67	59	8	142	2.1
181570016002022	74	4		3	1	3	2	2	3	18	24.3%	3	3	0	9	3.0
181570016002023	25		2	1		1	2	2		8	32.0%	3	2	1	3	1.0
181570016002024	25	2	1	1	1	1	1	1		8	32.0%	0	0	0	0	0.0
181570016002025	53	1	1			2	1	1		6	11.3%	2	2	0	8	4.0
181570016003017	61	2	3	5	3	2	3	1	1	20	32.8%	2	2	0	4	2.0
181570016003018	21	1	2	0	1	1	1	2	1	9	42.9%	44	42	2	130	3.0
181570016003019	154	1	6	4	1	7	7	2	1	29	18.8%	0	0	0	0	0.0
181570016003021	154	4	3	2	1	1	4	3	1	19	12.3%	0	0	0	0	0.0
181570016003022	491	22	22	19	9	15	21	16	5	129	26.3%	13	13	0	43	3.3
181570016003023	13	1	2						1	4	30.8%	0	0	0	0	0.0
181570016003024	0	0	0	0	0	0	0	0	0	0	0.0%	19	16	3	40	2.1
181570016003025	78	1	3	3		2	5	3		17	21.8%	21	19	2	55	2.6
181570107001063	98	2	8	3	1	4	1	3		22	22.4%	41	40	1	98	2.4
181570107001064	0	0	0	0	0	0	0	0	0	0	0.0%	0	0	0	0	0.0
181570107001065	27	1		1		4		1		7	25.9%	8	8	0	27	3.4
181570107001066	78	2	1	1	1	3	1		2	11	14.1%	34	31	3	78	2.3
181570107001067	12		1	1	1		1			4	33.3%	4	4	0	12	3.0
181570107001068	28	2	3	3	1		1	1		11	39.3%	7	7	0	28	4.0
181570107001069	0	0	0	0	0	0	0	0	0	0	0.0%	0	0	0	0	0.0

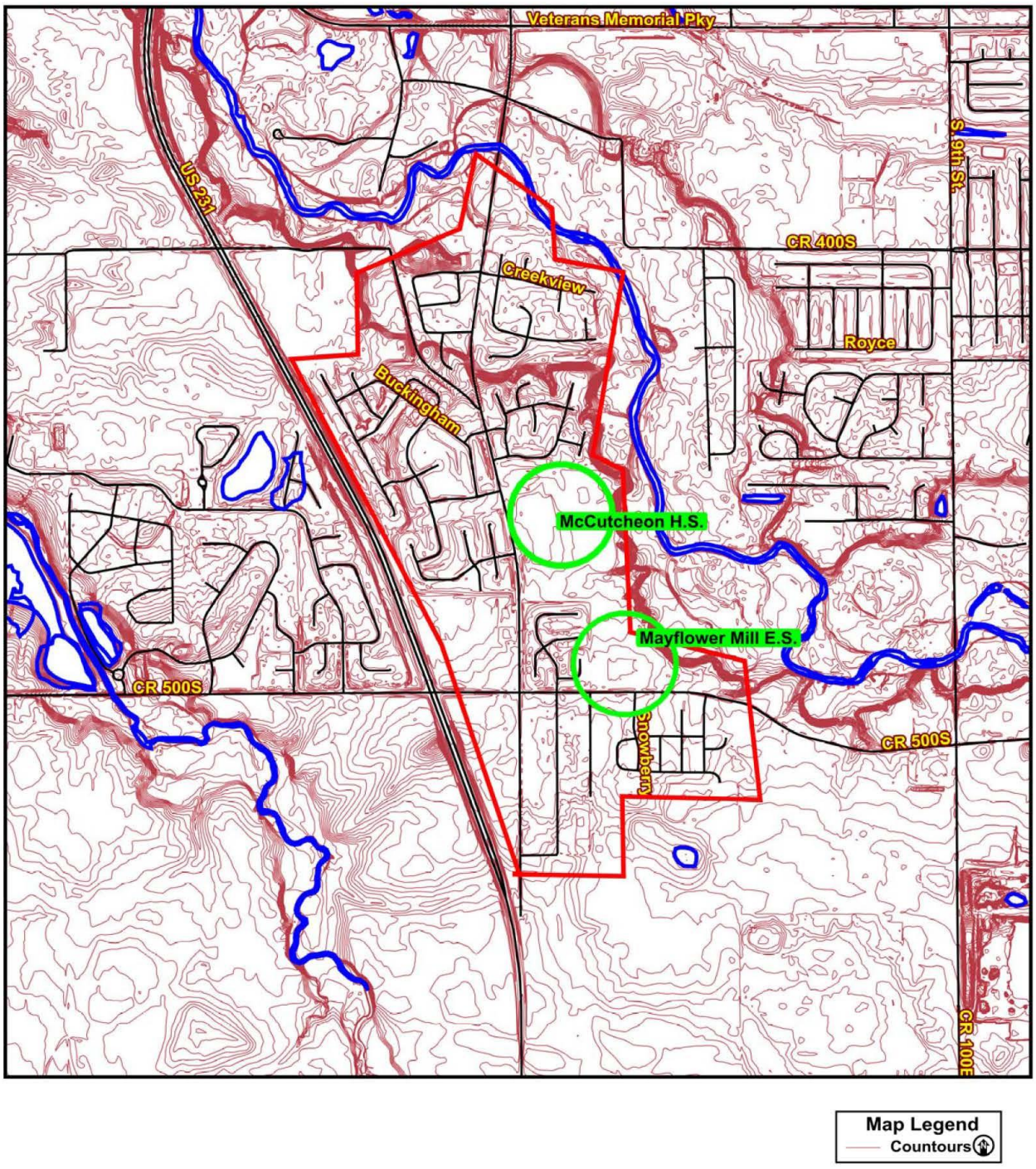
2010 Decennial Census Block Map



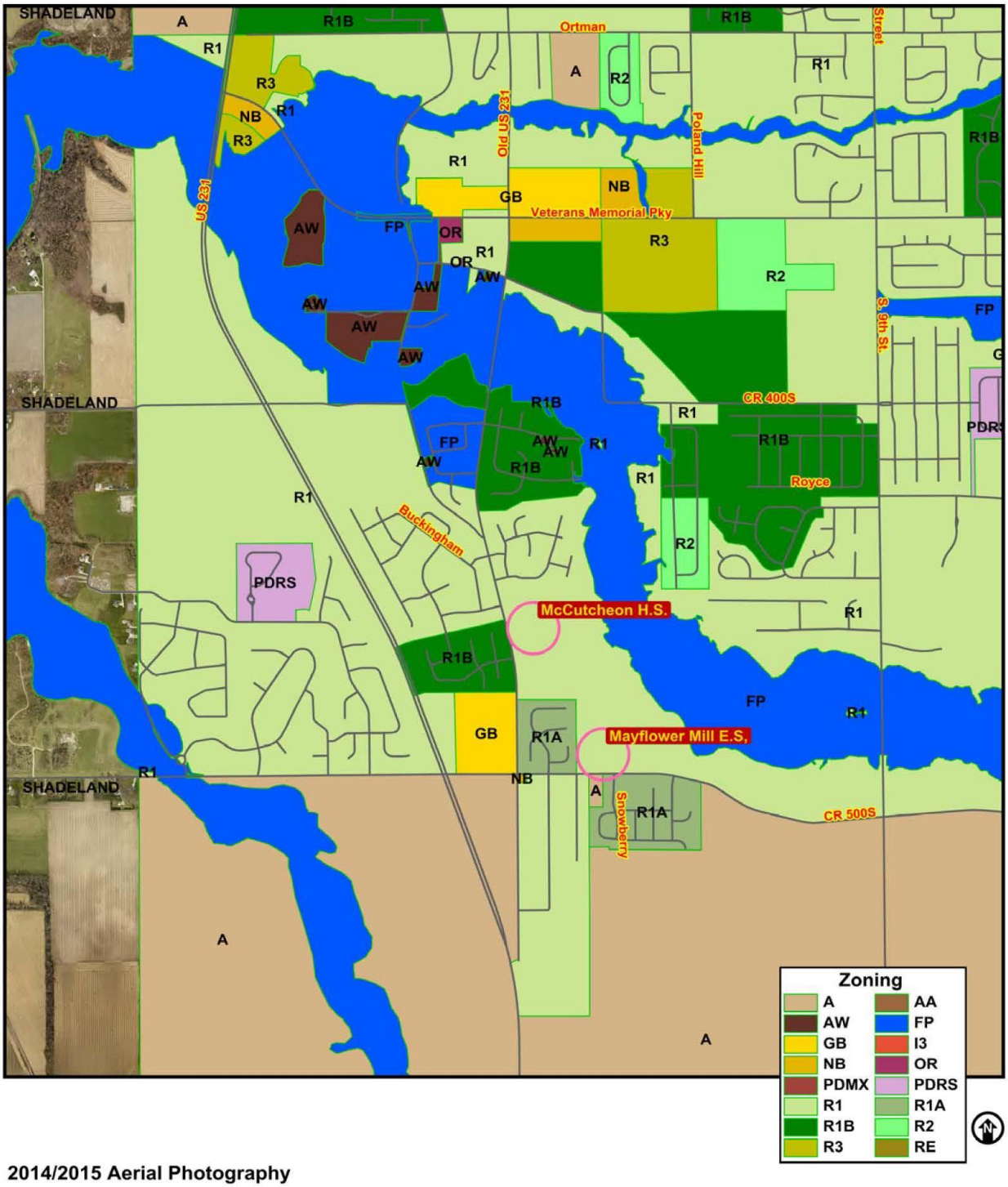
Parcel Boundaries



Elevation Contours



Zoning



2014/2015 Aerial Photography

McCutcheon/Mayflower Mill Area

Walking/Road Safety Audit Check List (Prompt List)

Date: _____ Time: _____ Weather: _____

General Questions

	Yes	Maybe	No or N/A
Should a crossing(s) be constructed?			
Should there be only one crossing?	*Number:*		

Existing Road Conditions

How many through lanes are students crossing?	*Number:*		
How many turn lanes are students crossing?	*Number:*		
Do paved shoulders exist at the crossing(s)?			
Approximately how wide are the paved shoulders?	*Width:*		
Are the street boundaries discernable at the crossing(s)?			
Are there adequate areas on either side of the road for students to wait safely?			
If they are, approximately how wide are the safe areas?	*Width:*		
Do wide curb radii lengthen pedestrian crossing distance and encourage high-speed turns?			

Traffic Operations

Are there sufficient gaps in traffic to allow student to cross the road?			
Is the current speed limit appropriate for a crossing?			
Do traffic operations create a safety concern for pedestrians?			
Do vehicles queue in on the roadway?			
Do vehicles queue in the driveways?			

Visibility

Can vehicles see students at the crossing?			
Can students see approaching vehicles at the crossing?			
Do vehicles turning into or from the school/subdivision have a clear vision of the students crossing?			
Do conditions exist where stopped vehicles may obstruct visibility of students?			
Do conditions exist where stopped vehicles may obstruct visibility of other vehicles?			

Lighting

Is lighting present along the road?			
Is lighting present at the driveway entrance?			
Is lighting present at each crossing?			
Is the existing lighting enough?			

McCutcheon/Mayflower Mill Area

On Old US 231 and CR 500S

Walking/Road Safety Audit Check List (Prompt List)

Signs and Pavement Markings

	Yes	Maybe	No or N/A
Are measures needed to direct pedestrians to safe crossing points?			
Are measures needed to alert vehicles in advance of the crossings?			
Are measures needed to alert vehicles of the crossing?			
Are measure needed to stop traffic in both directions and allow students to cross?			
What measures would be appropriate to alert/stop traffic?			
#1:			
#2:			
#3:			

Connectivity from Building to Roadway

How many locations do students enter and exit the building?			
Which Locations do students enter and exit the building?			
Is there a safe path from the school building to the crossing?			

Connectivity to Subdivisions

Is there a need for pedestrian and bicycle facilities between residential subdivisions and the schools?			
Is there a need for facilities to be on one or both sides of the road?			
Are there paved walkable shoulders on both sides of the road?			
Are the grass shoulders on both sides of the road wide enough to accommodate facilities?			
Are there any impediments in the grass shoulders that would restrict future facilities?			
Is there a need for a safe crossing(s) other than at the schools?			
Is there a need for street lighting if facilities are constructed along the road?			
Is there a need for pedestrian and bicycle facilities within the subdivisions?			
If facilities were constructed, where would the limits be?			
#1:			
#2:			
#3:			
#4:			

McCutcheon/Mayflower Mill Area

Walking/Road Safety Audit Check List (Prompt List)

	Yes	Maybe	No or N/A
Auxiliary / Turning Lanes			
Auxiliary or turning lane too short			
Auxiliary or turning lane needed			
Horizontal and Vertical Alignment			
Horizontal or vertical alignment reduces visibility			
Abrupt change in elevation			
Inadequate visibility at sag or crest curves			
Inadequate or excessive superelevation			
Curves may cause sliding in adverse weather			
Light Conditions			
Inadequate visibility at night			
Lighting interferes with traffic signs			
Inadequate lighting for signs			
Signs			
Inadequate visibility of signs			
Incorrect location, offset or height of signs			
Sign locations obstruct visibility			
Signs are missing, redundant, or don't meet specification			
Signs are not properly maintained			
Signs are contradictory			
Existing signs are not applicable			
Signs cannot be read from adequate safe distance			
Required warning or regulatory signs are not present			
Sight Distance			
Inadequate sight distance, or stopping sight distance			
Sight lines are obstructed by signs, building, vegetation, etc.			
Sight lines are obstructed temporarily (cars, snow, etc.)			
Pavement Markings/Delineation			
Pavement markings not clearly visible			
Necessary pavement markings not present			
Presence of too many pavement markings			
Pavement markings inappropriate for location			
Inadequate retroflectivity of existing markings			
Road markings don't have sufficient contrast with pavement surface			

McCutcheon/Mayflower Mill Area

Walking/Road Safety Audit Check List (Prompt List)

Initial Recommendations / Additional Comments:

Initial